Inertia and Public Bureaucracy: the Imprint of the Bureaucrat

Abstract: We analyze how policy preferences of bureaucrats result in inertia and policy rigidity. In particular, we develop a theoretical framework that synthesizes insights from the theory of organizational imprinting with budget-maximization in the tradition of Niskanen. It becomes apparent that budget-maximization strategies are nested in early imprints of bureaucracy. Imprints of the past define the arena in which budget-maximization takes place, and they have a decisive effect on the individual behavior of bureaucrats. As a result policy reforms towards better bureaucratic control must distinguish clearly between measures targeted at the individual behavior of bureaucrats and the imprinted institutional environment.

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1. Introduction

A growing body of literature in the realms of political science and economics has focused on the decisive role of bureaucrats for public policy\(^1\). Starting with influential works of William Niskanen on legislative-bureaucratic interaction in the budgetary process\(^2\), subsequent literature has focused on more general questions of policy delegation\(^3\) and political control of the bureaucracy.\(^4\) The core insight of these studies is that a bureaucrat can influence public policy choices and to a large degree live out his own policy preferences, with possibly detrimental consequences for society.\(^5\) While these studies have recognized the decisive role of policy preferences of bureaucrats,\(^6\) these models are silent about the impact of the historical, institutional and organizational context on the emergence of public policy preferences of bureaucrats. However, the role of history, institutions and organization is important for a comprehensive understanding of bureaucracy, as individual preferences and choices cannot be understood without taking these context variables into account.\(^7\)

In this paper, we argue that it is worthwhile to consider two originally different streams of literature to get a richer and more nuanced picture of bureaucratic behavior.

\(^1\) See Bendor 1988, Gill 1995 and Gailmard and Patty 2012 for excellent surveys of this literature.

\(^2\) Niskanen 1968; 1975.

\(^3\) Epstein and O’Halloran 1999; Huber and Shipan 2002.


\(^5\) Aberbach and Rockman 2000.

\(^6\) Gailmard and Patty 2012.

\(^7\) Friedland and Alford 1991; Powell 1991; Kelman and Hong 2014.
First, the theory of organizational imprinting postulates that history matters in shaping organizational strategies and policies and that initial conditions can trigger organizational rigidity and inertia. In particular, the theory can explain how policy rigidity may arise due to bureaucrats’ own policy predilections driven by their initial choices and economic or psychological switching costs. Second, public choice theory in the tradition of Niskanen posits that self-interested and powerful bureaucrats have a preference for higher budgets and use their power to maximize their budget, resulting in outcomes that are suboptimal from a social point of view. However, public choice models typically take a very narrow view on the formation of bureaucratic preferences over public policies and ignore the possibility of inertia.

The paper synthesizes insights from these two strands of literature in a unified framework and examines the question of how bureaucratic inertia plays out in choices on public policies focusing in particular on the economic efficiency of public policy outcomes. In particular, we elaborate on a framework that integrates the rational choice approach of a budget maximizing bureaucrat with organizational imprinting. It is important to emphasize here that budget maximizing model is a useful starting point for investigating the economic implications of inertia as it allows focusing squarely on the public budget which is the single most economic policy instrument in which all the actors

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8 Inertia is defined as the persistent resistance to change of individuals and organizations, if the environmental conditions change (Hannan and Freeman 1984).

9 Staw 1976; Powell 1991; Perkmann and Spicer 2014.

10 Niskanen 1968.

including citizens and bureaucrats have a significant stake. The proposed framework shows how initial conditions of bureaucratic organization have a lasting impact on the self-interested decision making of bureaucrats. Taking the decisive role of organizational imprinting into account for bureaucratic decision making is an important step to better evaluate reform proposals for bureaucracies. This paper sorts out the categories, which have to be put on the agenda, if organizational imprinting of bureaucracies is taken as seriously as the figure of the selfish budget-maximizing bureaucrat.

Our work differs from earlier works on bureaucratic choice of public policies which have emphasized the agency structure, the agency’s organizational mission, and the functional activities of an agency based on its production processes and outcomes. These studies do not provide historically and institutionally embedded explanations for bureaucratic preferences towards public policies, thus ignoring the underlying processes that give rise to inertia. The theory of organizational imprinting addresses this gap and provides an understanding of the context factors of bureaucratic decision making. More precisely, we formally model the notion of imprinting by building on Masatlioglu's and Ok's (2014) model of decision making with a status quo bias in individual preferences.

The rest of the paper is structured as follows. Section 2 provides a brief review of the literature on the role of bureaucracy in public policy formulation in the tradition of budget maximization. Section 3 lays out the key elements of organizational imprinting

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and how the historical and institutional context can shape bureaucratic preferences over public policies. Section 4 then develops a theoretical framework to explore the impact of bureaucratic inertia on the efficiency of public policies. Section 5 summarizes the key findings and concludes the discussion.

2. Bureaucracy and Public Policy: A Brief Review of the Literature

The literature on public bureaucracy embraces today a wide spectrum of disciplines as public administration, organization theory, political science, sociology and economics. Whereas public management and organization theory emphasize institutional design, staff relationships, hierarchical structures, and procedures of public administration, political science concentrates on questions of political control of bureaucracies and the conjunctions between legislation and bureaucracy. Most of the studies from public administration, organization theory or political science lack rigorous conceptual frameworks and focus mainly on the categorization and delineation of problems rather than providing a coherent theoretical frame for understanding bureaucracies’ role in public policy. The literature on public bureaucracy in the field of economics adopts a more rigorous approach to studying bureaucratic behavior by emphasizing the rational actor model. But as a result those models are quite often very narrow, dismissing large parts of the situational context and organizational dynamics. Nevertheless, for our purposes it is reasonable to start our literature review with the basic models of


bureaucracy that cut across political and economic disciplines and then to mark step-by-step the attempts to fill pivotal research gaps.

Most of the literature in political science focuses on the questions of policy delegation and political control of the bureaucracy. Studies on policy delegation have typically used spatial models in which principals choose agents for delegation of policies. When agents are fully informed and face no uncertainty in policy implementation, the politicians tend to delegate policy to an agent whose policy preferences are closest to those of the politicians – the so called ‘ally principle’. Other studies, however, argue that the ally principle does not hold in a variety of situations. For instance, if policy implementation by the bureaucrats is influenced by the interest groups, politicians may be inclined to delegate policy to bureaucrats whose preferences diverge from politicians but who work actively to negate the influence of the interest groups. In a recent contribution, Warren shows that the ally principle may be violated in a situation where internal dynamic of the legislature may lead to delegation of policy to non-allied bureaucrats to preclude any particular branch of the legislature from directly controlling the bureaucracy.

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18 Bendor et. al. 2001; Gailmard 2002; Bendor and Meirowitz 2004; Huber and McCarty 2004.


20 Warren 2012.

21 Other studies on policy delegation explore how delegation of policymaking power creates incentives for the bureaucrats to enhance their professional expertise. See, for example, Aghion and Tirole 1997; Bawn 1995; and Bendor and Meirowitz 2004.
Policy delegation to the bureaucrats may encourage acquisition of information and professional expertise which can impact public policy outcomes. This has been elaborated by Stephenson who explores the implications of policy delegation in a setting with decision costs and endogenous bureaucratic expertise.\(^{22}\) The study analyzes the impact of changes in costs associated with adopting a new regulatory policy on bureaucratic incentives to acquire information on the potential consequences of the new policy. By explicitly focusing on decision costs, the study departs from earlier works which focus on bureaucratic discretion as an important instrument to influence policymaking by the bureaucrats. It is argued that the control of bureaucratic discretion is not necessarily the most effective strategy in public policy oversight. As a matter of fact, politicians can more effectively influence policymaking by the bureaucrats by making policy choices more or less costly through enactment costs. It is shown that the presence of enactment costs presents an incentive for the bureaucrats to acquire expertise but the ultimate impact depends on whether or not the decision maker is uninformed. In case an uninformed decision maker prefers to retain the status quo, an increase in enactment costs will decrease agency expertise. However, an increase in enactment costs would contribute to an enhancement in agency expertise when new policy is adopted by the uninformed decision maker. The analysis highlights the need to take into account the interplay between oversight mechanisms and bureaucratic expertise in issues of public policy delegation.

More recent research in the realm of bureaucratic politics has emphasized the notion of transactional authority that encompasses both formal and informal arrangements for

\(^{22}\) Stephenson 2007.
the delegation of policymaking powers as well as ensuring agency compliance.\textsuperscript{23} It is argued that the traditional concept of authority in bureaucratic politics that is rooted in formal authority of the principal is incomplete in view of its exclusive focus on formal institutional mechanisms. Such mechanisms ignore the agency’s power to shape the terms of the contract with the principal through lobbying or direct involvement in drafting legislation. The concept of transactional authority which is based on bargaining and mutual exchange between the agency and the principal can be helpful in better understanding bureaucratic politics in the area of public policy delegation.

Economic models of the bureaucracy trace their origins to Niskanen’s seminal work which provides a formal model of bureaucracy to explore the interaction of legislation and bureaucracy in determining budgetary allocations.\textsuperscript{24} In this framework the bureaucracy knows the legislators’ demand function for public services and exploits its monopoly power to extract the maximum budget from the legislator. In particular, the bureaucracy is assumed to offer take-it-or-leave-it proposals to the legislator, which binds the latter to a choice between accepting the bureaucracy’s preferred level of output or to get no output at all. Since the legislators are willing to pay as long as the marginal benefit of a bureau’s output is positive, the monopolistic bureau produces past the point where marginal costs are equal to marginal benefits. As a result, the bureau’s output and budget exceed the socially optimal level leading to economic inefficiency.

\textsuperscript{23} Carpenter and Krause 2015.

\textsuperscript{24} Niskanen 1968.
Several studies have extended Niskanen’s budget maximization framework to incorporate more nuanced approaches for modeling budgetary allocations,\(^{25}\) emphasizing in particular the discretionary powers of bureaucracy. Most notably, in a major departure from most of the earlier studies that consider budget maximizing bureaus producing a single output, Mackay and Weaver\(^{26}\) develop a model of a multi activity agenda setting bureau.\(^{27}\) The citizen-voter sets the budget to maximize its utility while the bureau controls the budgetary mix. The control over the budgetary mix gives a bureau the effective control over the desired budget of the citizen-voter, and hence the bureau gets power to manipulate the budgetary outlays.\(^{28}\) As a result, while there may be efficiency gains (economies of scale) from having a single bureau that produces a variety of outputs, these gains need to be weighed against potential losses resulting from the monopoly power of the bureau.

The role of interest groups in public spending has been highlighted by Bendor and Moe who develop a framework in which interest groups interact with the legislator and bureaucracy to determine budgetary outlays in a setting that incorporates adaptive rather

\(^{25}\) See, for example, Breton and Wintrobe 1975; Romer and Rosenthal 1978; Mackay and Weaver 1981; Miller and Moe 1983; Conybeare 1984; Bendor, Taylor, and Van Gaalen 1985; and Bendor and Moe 1985; 1986.

\(^{26}\) Mackay and Weaver 1983.

\(^{27}\) For example, a municipal corporation provides multiple services including police, fire, and sanitation services.

\(^{28}\) For instance, a school board may strategically alter the budgetary allocation between “academics” and “athletics” so as to induce voters to support increase in the school budget.
than optimizing behavior.\textsuperscript{29} The bureaucratic agency is concerned with its budget, the legislator is interested in reelection, and different interest groups may either benefit or lose from the output of bureaucracy. Interest groups play a critical role in driving agency relationships by influencing the legislator through their votes with the latter affecting the bureaucracy through budgetary allocations and oversight mechanisms. The equilibrium configuration in this set up is generally not socially optimal and is characterized by a too low level of public services that benefits corporations over consumers because of the relative strength of the former in influencing public policy. A key insight is that bureaucratic inertia has a beneficial impact because it counteracts the bureaucratic tendency to seek higher budgets from which certain interest groups profit on the expense of the public.

To sum up, the literature about the role of bureaucracy in public policy covers a wide spectrum of issues ranging from agenda control powers to the design of oversight mechanisms and from budgetary allocations to efficiency of the bureaucracy. The literature has greatly enhanced the understanding of the bureaucracy’s peculiar role for public policy and budget spending. However, despite the richness and breadth of these studies, some important gaps remain. For example, while the studies highlight the legislative-bureaucratic interaction for the determination of public policies, questions such as the distribution of power within the bureaucracy and its implications for the choice and implementation of public policies have received less attention. Also, most of the literature ignores the institutional environment, which shapes the incentives and constraints faced by bureaucrats. Specifically, little attention has been paid in the

\textsuperscript{29} Bendor and Moe 1985.
literature to explore how bureaucratic preferences over public policies are determined by the historical and institutional context and how such policies may persist through forces of institutionalization and inertia.

3. Understanding Bureaucratic Policy Preferences and Inertia: Insights from the Theory of Organizational Imprinting

The theory of organizational imprinting has received a great deal of attention in organizational research.\textsuperscript{30} The theory provides a conceptual framework for understanding not only the genesis of organizational forms and strategies but it also gives an explanation why organizations exhibit inertial tendencies in their policies and strategies. There are two features, which mark this theory.\textsuperscript{31} First, it refers to the process through which economic, social and institutional factors shape or imprint organizational forms. The second feature embodied in the idea of imprinting is the tendency of various organizational structures and processes to persist over time.\textsuperscript{32}

The insights from the theory of organizational imprinting shed light on how the external environment (including economic, social and political institutions) shapes a bureaucracy’s organizational form, policies and routines at both macro and micro levels. At the macro level it is argued that organizations exhibit a tendency to become ‘isomorphic’ with the external environment to avoid uncertainty and to gain legitimacy. Reflecting further on this theme, Carroll and Hannan argue that the viability of particular

\textsuperscript{30} For an overview see Marquis and Tilcsik 2013; Simsek, Fox and Heavey 2015.

\textsuperscript{31} Johnson 2007.

\textsuperscript{32} Hannan and Freeman 1984; DiMaggio and Powell 1991; Baron, Hannan and Burton 1999.
organizational forms is dictated by the broader social and institutional context, which is ‘mapped’ onto the organization leaving a lasting imprint on key organizational features.\(^{33}\) Besides influencing the type of organization and its form at the macro level, the external environment can also have deep influence on various micro level characteristics of an organization including management practices, policy orientation, intra-organizational distribution of power, and other social attributes such as work ethics, and organizational norms and values. Similarly, while the individual organizational actors can themselves be imprinted in terms of their work habits, beliefs, and preferences, they can also be a source of imprints on organizational building blocks as well as on other individuals. For example, individuals, particularly the first incumbents of an organization, may imprint a particular position within an organization through their social and educational background, experience and skills, leaving a defining stamp that will continue to shape the behavior of future entrants.\(^{34}\)

Hannan and Freeman argue that once organizations adopt specific forms, strategies and practices, it is difficult and costly to dismantle these due to irreversibility of investments.\(^{35}\) More specifically, the persistence of various organizational features can be attributed to three powerful and complementary forces. First, forces of inertia play a major role for the persistence of organizational features and strategies. Second, institutionalization of norms, beliefs and practices contributes to the persistence and reproduction of organizational attributes. Third, other traditionalizing forces including

\[^{33}\text{Carroll and Hannan 2004.}\]
\[^{34}\text{Burton and Beckman 2007.}\]
\[^{35}\text{Hannan and Freeman 1984.}\]
vested interests may perpetuate the existing organizational structures and policies. It needs to be emphasized that these forces are not mutually exclusive and may either work alone or in tandem to induce persistence of various characteristics and policies of an organization.

While the factors that contribute to inertia may be internal and/or external to the organization\(^36\), in this paper we use the notion of inertia as internal to the organization arising from imprinting. There are several internal factors that can lead to inertia. For example, an organization may have incurred sunk costs in its systems, work methods, and personnel training which may compel the organization to adhere to its original structures and processes. Similarly, the dynamics of political coalitions within an organization may prevent change in policies and modes of operations. Another important force that is internal to organization is the tendency for established practices and policies to become generally accepted normative standards and hence difficult to change.

A multi-disciplinary literature under the rubric of ‘new institutionalism in organizational analysis’ draws on economic, social and cultural explanations for institutionalization and hence persistence of various organizational strategies and policies. Meyer and Rowan delineate the institutionalization processes through which organizational traits and behaviors get a rule-like status and become embedded in social thought and action.\(^37\) Organizations tend to incorporate these institutionalized rules in their structures, in order to acquire resources and secure legitimacy, which raise the survival chances of the organization. Consequently, Jepperson conceives the process of

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\(^{36}\) *Ibid*; see also Sarah and Henderson 2005.

institutionalization as a social pattern that aims at reproduction and retention.\textsuperscript{38} Seen in this light, institutions reproduce themselves not primarily by success in the market but by ‘self-activating social processes’ that contribute to the persistence of organizational characteristics. Powell takes a broader view of institutional reproduction and highlights four avenues of institutional reproduction including the exercise of power, complex interdependencies, taken-for-granted assumptions, and path-dependent development processes.\textsuperscript{39} Organizational characteristics may persist through active efforts of individuals who have the power to control organizational processes and who have an interest in maintaining the system. Organizational routines and processes may also persist due to organizational interdependencies that create complex linkages making it difficult to change one aspect without disturbing the whole “reaction chain”. Similarly, organizational routines can persist as taken-for-granted rules which become accepted practice. Finally institutional arrangements may become sticky due to path-dependence that makes such arrangements increasingly viable due to increasing returns and positive feedback mechanisms.

The foregoing insights suggest that the policy preferences of bureaucracy can be shaped by economic, social and institutional context factors that define the operational scope, policies and capabilities of bureaucratic organization.\textsuperscript{40} As a result, if a bureaucratic organization strives to achieve a fit with its external environment, it acquires specific attributes that range from organizational hardware such as technological

\textsuperscript{38} Jepperson 1991.

\textsuperscript{39} Powell 1991.

\textsuperscript{40} Marquis and Tilcsik 2013.
apparatus and human resources to the software of organizations such as attitudes, habits and beliefs. With passage of time, such organizational characteristics become embedded in the organizational culture and tend to persist because of forces of institutionalization and inertia. For example, once a particular policy or strategy becomes a shared norm in a bureaucracy, it has the tendency to become an institutionalized act or what Zucker\textsuperscript{41} refers to as “socially constructed reality” which is resistant to change because it is viewed as an objective and external fact\textsuperscript{42} assuming a taken-for-granted character. Furthermore, the bureaucracy may exhibit inertial tendencies in its policies and programs because of familiarity with the mode of operations, habituation through accumulated experience, design of organizational building blocks and technical and professional orientation of the organizational actors, all of which imply economic and psychological switching costs.

In the following we will link the theory of imprinting with the choice model of Masatlioglu and Ok (2014). Thereby it is important to emphasize that we employ Masatlioglu's and Ok’s model not as a direct entry point into analyzing bureaucratic inertia but rather as a vehicle to rigorously explicate the sociological concept of organizational imprinting. The model is particularly suited in our context because it

\textsuperscript{41}Zucker 1991.

\textsuperscript{42}According to Zucker 1991 “acts are objective when they are potentially repeatable by other actors without changing the common understanding of the act, while acts are exterior when subjective understanding of the acts is reconstructed as inter-subjective understanding so that the acts are seen as part of the external world.” In simple words, objective and external acts mean that they are not person specific and are transferable to other individuals.

\textsuperscript{43}See also Berger and Luckmann 1967.
allows formalization of inertia in terms of costs faced by individual actors. This makes it possible to connect the concept of organizational imprinting with a welfare analysis.

4. A Formal Analysis of Imprinting and Budget Maximization

To formalize how the notion of organizational imprinting can lead to inertia and impact on the behavior of bureaucrats we build on a choice framework proposed by Masatlioglu and Ok. This framework allows us to study bureaucratic inertia in more detail.

To begin with, let $H$ be a set of finite states of the world. For simplicity, we assume that there are only two states of the world, the initial state $h_0$ and the current state $h_1$.

$$H = \{h_0, h_1\}$$ (1)

A given state of the world captures the economic, social and institutional environment which determines the set of policies or strategies feasible in that state of the world. With reference to the theory of organizational imprinting, this is consistent with the notion that organizational strategies depend on context factors of the institutional environment. The dependence of the feasible set on the state of the world is captured by the following correspondence:

$$\varphi: H \rightarrow T$$ (2)

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44 Masatlioglu and Ok 2014.
Where $T$ is a compact metric space. Let $K \in T$ be the feasible set in the initial state of the world, i.e. $K = \varphi(h_0)$. Also let $X \in T$ be the feasible set in the current state of the world, i.e. $X = \varphi(h_1)$. It is assumed that both $K$ and $X$ are compact sets.

Consider first the individual choice problem of a bureaucrat in the initial state of the world. It is assumed that in the initial state, the individual choice is constrained only by the feasible set corresponding to the initial state of the world. This set-up is in line with the theory of organizational imprinting, which postulates that organizational actors are particularly malleable and open to adopting strategies that are in consonance with the institutional environment in the initial state. Thus, in the initial state the bureaucrat chooses a strategy $k_0 \in K$ which is maximal in the feasible set, i.e.

$$U(k_0) \geq U(k) \text{ for all } k \in K \quad (3)$$

According to organizational imprinting, $k_0 \in K$ can be thought of as a viable strategy dictated by the institutional environment in the initial state of the world. Once the initial environment has imprinted a strategy it tends to persist due to the forces of institutionalization and inertia. In other words, even when the institutional environment changes (the current state of the world), the initial choice of strategy may still be a preferred option. Also, the initial choice may alter the feasible choices in the current state of the world, consistent with the notion of path dependence, which underscores the fact that initial choices may restrict future options.\(^{(45)}\)

These ideas can be formalized in terms of the Masatlioglu-Ok framework as follows. Consider the set of feasible choices in the current state of the world $X$. Since maintaining the status quo or keeping the default position is always an option, it is assumed that $k_0 \in X$. A bureaucrat whose initial choice is $k_0$ maximizes his utility subject to a constraint imposed by his initial selection. One may think of the constraint as an individual psychological barrier, a cognitive routine shared in a group or as an institutional logic that governs the behavior of whole populations in a field. Thus, if the individual chooses $x \in X$ when his feasible set in the current state of the world is conditioned by his initial choice implies that “$x$ is appealing from the perspective of $k_0$”, i.e.

$$U(x) \geq U(y) \text{ for every } y \in X \text{ that is appealing from the perspective of } k_0.$$ 

The basic idea here is that the initial choice $k_0$ limits the individual choices in the current state of the world. For example, once an initial choice is made, it can define an institutional logic or a ‘mission’ that shapes future choices. In the extreme case that the individual choice in the current state is limited to only $k_0$ the initial policies and strategies will persist unchanged. More importantly, it may also be possible that the presence of the default option imposes a constraint that eliminates some choices that may be strictly better than the default option. This is consistent with insights from organizational imprinting and path dependent processes which highlight the fact that

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46 Masatlioglu and Ok 2014.


48 Thornton and Ocasio 2008.
organizational actors may choose sub-optimal policies or strategies because of inertia resulting from economic and psychological switching costs.\(^{49}\)

These ideas can be made more precise in terms of the choice framework developed by Masatlioglu and Ok.\(^{50}\) In particular, they derive a utility function and a choice set that is constrained by the initial choice of the individual. Let \(\Delta\) denote an object that does not belong to \(X\). The symbol \(\sigma\) denotes a member of the set \(X \cup \{\Delta\}\). Let \(\Omega_X\) be the set of all non-empty closed subsets of \(X\). The choice problem is a list \((S, \sigma)\) where \(S \in \Omega_X\) and either \(\sigma \in S\) or \(\sigma = \Delta\). The set of all choice problems is denoted by \(C(X)\).

The choice problem without an initial reference point or status quo option is a list \((S, \Delta)\) for any \(S \in \Omega_X\). On the other hand, given any \(k_0 \in X\) and \(S \in \Omega_X\) with \(k_0 \in S\), the choice problem \((S, k_0)\) is called a choice problem with a status quo or initial endowment or default option. The set of all such problems is denoted as \(C_{sq}(X)\), which summarizes the choices faced by a decision maker who is currently endowed with or has a default option \(k_0\). Masatlioglu and Ok show that if the choice correspondence \(C(X)\) satisfies the specified axioms, then there exists a continuous utility function \(U: X \rightarrow \mathbb{R}\) and a closed-valued self-correspondence \(Q\) on \(X\) such that\(^{51}\):

\[
c(S, \Delta) = \arg \max U(S) \quad (4)
\]

\[
c(S, k_0) = \arg \max U(S \cap Q(k_0)) \text{ for every } (S, k_0) \in C_{sq}(X) \quad (5)
\]

\(^{49}\) See, for example, Arthur 1989; Staw 1976.

\(^{50}\) Masatlioglu and Ok 2014; 2005.

\(^{51}\) Ibid 2014.
Equations (4) and (5) summarize the choice model which can now be used for understanding the choices of bureaucrats with or without an initial reference point or status quo option. Suppose that (4) and (5) hold for any choice problem \((S, \sigma) \in C(X)\). A bureaucrat without an initial reference point simply maximizes his utility in the feasible set as indicated in equation (4). More specifically, his choice solves the following maximization problem:

\[
\text{Max } U(\omega) \text{ subject to } \omega \in S \tag{6}
\]

In the presence of an initial reference point or status quo option \((S, k_0)\), the individual uses a psychological constraint set \(Q(k_0)\) to eliminate all feasible alternatives that do not belong to this constraint set, i.e. the agent identifies the set \(S \cap Q(k_0)\). This set consists of all feasible options that are superior to the initial reference point of the decision maker, i.e. if \(k \in Q(k_0)\), then his initial reference point would not preclude a switch from \(k_0\) to \(k\). Clearly, if \(k \in S \cap Q(k_0)\), then \(k\) satisfies both the feasibility constraint \((S)\) as well as the psychological constraint induced by the initial choice of the agent \((Q(k_0))\).

Once the set \(S \cap Q(k_0)\) is determined, the agent simply maximizes his utility among alternatives that satisfy both the feasibility and psychological constraints. In the extreme case, if \(k_0\) is the only element in both \(Q(k_0)\) and \(S\), the bureaucrat stays with his initial choice. On the other hand, if there are other alternatives in \(S \cap Q(k_0)\) then his choice is determined by solving the following problem:

\[
\text{Max } U(\omega) \text{ subject to } \omega \in S \cap Q(k_0) \tag{7}
\]
It is important to emphasize that there may be feasible alternatives outside the set $Q(k_0)$ that may provide strictly higher utility than $k_0$. This is because these elements are omitted by the psychological constraint induced by the initial choice $k_0$ (the imprint). Consequently, there may be alternatives that are superior to $k_0$ but are not chosen when $k_0$ was selected in the initial state. This accords with organizational research, which posits that initial choices may preclude future options including those that are superior to the initial choice.\textsuperscript{52} But notice that we are not trying to model the process of imprinting as such; we focus on how historically conditioned psychological constraints arising from imprinting influence the utility of bureaucrats with implications for social welfare.

In a next step the framework can be employed to explore how bureaucratic policy choices that are driven by the historical and institutional context can impact economic efficiency and social welfare. To that end we focus on the role of bureaucrats in the budgetary process along the lines of Niskanen, and Mackay and Weaver\textsuperscript{53} and combine it with our framework. In particular, we consider a setting in which a representative bureaucrat controls the budgetary allocation policy while the overall budget is set by a representative citizen-voter.\textsuperscript{54} Assume that there are two publicly provided goods and services $B_1$ and $B_2$. With their prices normalized at unity, $B_1$ and $B_2$ represent the expenditure (budget). Let $B$ denote the total budget and let $k \in [0,1]$ be the share of the total budget for $B_1$, and $(1 - k)$ be the share of the total expenditure for $B_2$.

Then:

\textsuperscript{52} Powell 1991; Sarah and Henderson 2005.
\textsuperscript{53} Niskanen 1968; Mackay and Weaver 1983.
\textsuperscript{54} Epstein and O’Halloran 1994; Volden 2002.
\[ B_1 = kB; \text{ and } B_2 = (1 - k)B \]  \hspace{1cm} (8)

The representative bureaucrat controls the budgetary allocation policy \( k \) and hence his feasible set is \( K = [0, 1] \). It is assumed that in both states of the world, the bureaucrat chooses a budgetary allocation from this feasible set, i.e.

\[ \varphi: H \rightarrow [0, 1] \]  \hspace{1cm} (9)

In the initial state the bureaucrat’s choice is free from any reference dependence or imprinting. Hence in the initial state the bureaucrat’s choice is maximizing his utility according to (3) and he chooses a budgetary allocation policy \( k_0 \in K \) that is maximal in the feasible set.

In the current state of the world, the bureaucrat’s choice of budgetary allocation policy and the total budget is determined as follows. Consider a representative citizen-voter whose utility \( \phi(.) \) is defined by private consumption \( (C) \) and two publicly provided services \( (B_1 \text{ and } B_2) \). The citizen-voter receives an income \( (Y) \) and pays a lump sum tax \( (T) \) which finances the provision of public goods and services by the bureaucrat. The citizen-voter’s optimization problem is thus:

\[ \max \phi = \phi(C, B_1, B_2) \]  \hspace{1cm} (10)

Subject to:

\[ Y = C + T \]  \hspace{1cm} (11)

\[ T = B_1 + B_2 = B \]  \hspace{1cm} (12)
Plugging (11) and (12) in (10) and using (8), the derived utility function of the citizen-voter can be specified as a function of the budgetary allocation policy \( (k) \) and the size of the budget \( (B) \):

\[
U(k, B) = \phi(Y - B, kB, (1 - k)B)
\]

(13)

The optimization problem of the representative citizen-voter is thus to choose the size of the budget \( B \) to maximize his utility given income \( (Y) \) and the budgetary allocation \( (k) \):

\[
\max_B U(k, B) = \phi(Y - B, kB, (1 - k)B)
\]

(14)

The optimal budget level for the citizen-voter, given the budgetary allocation \( (k) \), can be defined as:

\[
B(k) = \arg \max_B U(k, B)
\]

(15)

To work out the closed form solutions while keeping the analysis tractable, it is assumed that the utility function of the citizen-voter is quasi-linear in private consumption and additively separable in the two types of public goods and services. Specifically:

\[
U(k, B) = Y - B + (kB)^{\frac{1}{2}} + ((1 - k)B)^{\frac{1}{2}}
\]

(16)

The bureaucrat’s choice in the current state is conditioned by his initial choice of the budgetary mix according to \( k_0 \). As argued in the previous section, once a particular strategy is chosen, it tends to become entrenched and resists change due to the phenomenon of imprinting. It is thus assumed that a bureaucrat faces economic and psychological costs of switching his strategy resulting in disutility for the case of
deviation from his default option. On the other hand, a bureaucrat may benefit from a change of his budgetary allocation mix, if larger budgetary resources accompany it. Thus the utility function of the representative bureaucrat can be defined as:

\[ V(k) = \alpha(B(k)) - \gamma(k - k_0)^2 \]  

(17)

The first term on the right hand side captures the utility derived from the budget while the second term is the disutility that results from changing the initial strategy. The parameters \( \alpha > 0 \) and \( \gamma > 0 \) capture the relative importance of the budget and the initial budgetary mix policy with regard to the optimization problem of the bureaucrat,\(^{55} \) where \( \gamma \) is a measure for the level of bureaucratic inertia indicating the degree of bureaucratic resistance to change the initial strategy.

Given his initial strategy the bureaucrat’s feasible set in the current state of the world can be defined as follows:

\[ Q(k_0) = \{k \in K : V(k) \geq V(k_0) = \alpha(B(k_0))\} \]  

(18)

This set identifies all the budgetary mix policies in the feasible set that are better than the initial strategy \( k_0 \). Therefore the bureaucrat’s optimal choice of the budgetary mix in the current state is simply:

\[ k = \arg \max_k V(k) \text{ for every } k \in Q(k_0) \subset K \]  

(19)

\(^{55} \alpha > 0 \) is consistent with the assumption that \( V(k) \) is increasing in the level of budget. If \( \alpha = 1 \) and \( \gamma = 0 \), then the problem reduces to simple budget maximization by the bureaucrat. In this case, the model features the budget maximizing paradigm followed by Niskanen 1968, 1975; Romer and Rosenthal 1978; Denzau and Mackay 1976, 1980; and Mackay and Weaver 1983.
It can be seen from equations (17) and (18) that the feasible set depends on the optimal budget levels chosen by the citizen-voter as well as the parameters $\alpha$ and $\gamma$. To identify this set, the model is solved to derive the optimum values of the size of budget and the budgetary mix policy $(B^*, k^*)$ based on first order conditions pertaining to (15) and (19) (see the appendix for a detailed solution). The solution can be depicted in Figure 1\textsuperscript{56} for the case when $k_0 > k^*$.\textsuperscript{57}

\textbf{Figure: 1}

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\textsuperscript{56} The curves in the diagram are drawn for $\alpha = 1$ and $\gamma = 1$.

\textsuperscript{57} An analogous reasoning can be developed for the case when $k_0 < k^*$ in a straightforward manner.

Furthermore, if $k_0$ happens to equal $k^*$ then the set $Q(k_0)$ is singleton and the bureaucrat’s only choice is $k_0$. 
The curve \( \{\alpha(B(k)): U_B(k, B) = 0\} \) plots the first order condition of utility maximization by the citizen-voter (see equation A3). The socially optimal budget level and budgetary mix policy \((B^*, k^*)\) solves the optimization problem of the citizen-voter (see the appendix for details). Notice that \(k^*\) is also the budget maximizing level of the bureaucrat in the absence of bureaucratic inertia (see equation A6). However, when the bureaucrat’s behavior is constrained by his initial choice, the choice of the budgetary allocation policy will be \(\hat{k}\), which maximizes his utility (the distance between the two curves) and at which point the slopes of the two curves are equalized indicating that the marginal benefit of a policy change is equal to marginal cost. The feasible set induced by the psychological constraint of bureaucrats can be identified as:

\[
Q(k_0) = \{k \in K : \hat{k} \leq k \leq k_0\} \quad (20)
\]

This set demonstrates how institutional and psychological constraints compel bureaucrats to eliminate alternative policies that may be superior to their initial choice in the absence of inertia. It can be seen from the diagram that there are feasible alternatives to the left of \(\hat{k}\) that will provide higher budgetary resources to the bureaucrat. However, these options are excluded from the feasible set that has imprinted the initial policy choice as a reference point or initial endowment. In the extreme case, if \(\gamma\) is very large\(^{58}\) then \(Q(k_0) = \{k_0\}\) implies that the initial policy choice is the only feasible option. This situation can happen if the marginal cost of switching the policy exceeds the marginal benefit and the initial policy choice becomes locked-in. The term \(\alpha(B(k))\) acts what

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\(^{58}\) The curve plotting \(\gamma(k - k_0)^2\) becomes steeper and the feasible set gets narrower with an increase in \(\gamma\).
Masatlioglu and Ok (2005) refer to as a “utility pump” which can induce the bureaucrat to deviate from his initial policy option. However, if $\gamma$ is very large then this “utility pump” is not sufficient to trigger a policy shift and the bureaucrat is better off at his initial policy option $k_0$ with a maximum utility $V(k) = \alpha(B(k_0))$. Thus it becomes clear that the presence of inertia alters the optimizing choices of the bureaucrat in a significant way. The following proposition summarizes this finding.

**Proposition 1:** The presence of inertia induces bureaucrats to make non-optimal choices despite the availability of superior alternatives in the choice-set. Moreover, the choice of sub-optimal strategies emerges as a rational response to institutional and psychological constraints imposed by imprinting.

This result demonstrates how initial imprints contribute to a lock-in of strategies of bureaucrats. More specifically, the repetitive choice of $\hat{k}$ is optimal from the bureaucrat’s point of view in the presence of inertia. However, this choice is sub-optimal in the sense that a higher level of budget could have been achieved in the absence of inertia. As argued in the previous section, a particular policy stance becomes a shared belief and leads individuals to consider other policy options as improper. In a similar vein, Meyer and Rowan (1991) argue that organizational policies and strategies tend to be highly institutionalized and hence are considered as legitimate regardless of their impact on outcomes. Furthermore, organizational strategies persist due to their taken-for-granted characteristics, which make the former self-sustaining.

**Proposition 2:** In case of inertia a utility maximizing bureaucrat will over (under) provide public services depending on the initially chosen budgetary mix. As a result there will be persistent social welfare losses.
The fact that bureaucrats tend to choose sub-optimal policy mixes has social welfare implications, too. The foregoing analysis shows that psychological constraints induced by initial choices make superior policy choices at later stages infeasible. For example, if the initial choice involves more spending for one type of public service, the presence of inertia induces bureaucrats to allocate more resources to this service also in the future, even when the demand of the citizen-voter dictates less provision. Consequently, the bureaucrat’s choice of the budgetary policy mix will often result in allocative inefficiency.

It can be seen from Figure 1 that $\hat{k}$ is not the optimal budget mix. The intuition of this result is simple. A bureaucrat has an incentive to change his strategy as long as the marginal utility from getting an additional unit of budget exceeds the marginal cost of a policy change. But the presence of inertia constrains the bureaucrat from achieving a budget strategy, which maximizes his utility in the choice-set.

While the result of social welfare loss through overproduction of public services is in line with the budget-maximization hypothesis of Niskanen, the underlying logic here is very different. In Niskanen’s model, the budget-maximizing bureaucrat has an incentive to extract the maximum budget that politicians are willing to provide, resulting in overproduction of public services. In our case the welfare loss does not necessarily result from the bureaucrats’ motive of overproduction, but from inertia that hinder bureaucrats from adapting their individual strategies as well as to adapt to social preferences. Therefore, in our model also underproduction of public services can be a persistent phenomenon leading to social welfare losses.
**Proposition 3:** The choice of a budget and policy mix without inertia can coincide with the socially optimal budget allocation \((k^*)\), if the policy preferences between the bureaucrat and the citizen-voter are aligned. However, in the presence of inertia only a socially sub-optimal allocation of the budget \((\hat{k})\) can be attained.

An interesting implication of our model is that one could assume a situation without inertia, when utility maximizing bureaucrats strive for budget maximization. In those cases it is recommendable to look for governance structures and monitoring devices that bind the bureaucrat to the preferences of citizen-voters. And indeed large parts of the literature in the tradition of Niskanen are concerned with institutional designs that prevent bureaucrats from budget maximization. If we put that a step further we could imagine a world where budget-maximization is effectively prevented and the policy preferences between citizen-voters and bureaucrats are aligned. The social optimum of public services would be attained.

However, in a world of inertia the policy recommendation to look for institutions that prevent budget maximization becomes more facetted. A first issue to be taken into account is the fact that even under perfect incentive alignment between citizen-voters and bureaucrats overproduction of public services may take place. That means institutional designs that are perfect to prevent budget-maximization can be blunt to prevent overproduction caused by inertia. This leads to a second issue: Taking the existence of bureaucratic inertia seriously leads to the insight that the institutional design of bureaucracies has to distinguish between two design types. One that is targeted at overcoming inertia and one that is targeted against the opportunistic behavior of bureaucrats. That brings us to a third issue, the interplay between bureaucratic inertia and
the budget maximization behavior of bureaucrats. The relation between the both can be antagonistic. That means while the budget maximization behavior of bureaucrats pulls the provision of public services towards overproduction, bureaucratic inertia may induce underproduction by restricting the bureaucrat’s choice set. As a result the actually provided amount of public services can be relatively close to the preferences of the citizen-voter, although there is no incentive alignment between the bureaucrat and the citizen-voters. For that background in practical cases it is important to investigate very thoroughly from which trigger bureaucratic inefficiency stems. Only then an appropriate antidote can be chosen. In some (antagonistic) cases the policy recommendation might be even to make no reforms at all.

5. Summary and Conclusions

This paper has provided a fresh perspective on the role of bureaucracy as a key player in budgetary processes. We show that organizational and institutional constraints embedded in initial policy choices fundamentally alter subsequent policy choices of bureaucracies. This finding is in line with research on organizational imprinting, which argues that organizational actors may be stuck with initial policy choices, which may lead to persistent inefficiencies. To be sure, there is a significant body of literature in political science that has analyzed the problem of bureaucratic drift and the challenges it poses for the political control of bureaucracy.59 According to this literature bureaucrats are driven

59 See, for example, McCubbins, Noll and Weingast 1987; Macey 1992; Calvert, McCubbins and Weingast 1989; and Epstein and Halloran (1994).
by their policy preferences, and in the absence of effective oversight, they tend to adopt policies that deviate from the preferences of citizens and/or politicians. While those studies have focused on the question of how to devise mechanisms to control bureaucratic drift, little attention has been given to the underlying causes of bureaucratic drift. Insofar our analysis complements the political science literature in terms of identifying inertia as a potential cause of bureaucratic drift. More specifically, imprinting of budgetary allocations takes place independently of the efficacy of any control mechanisms against budget maximization. Thus, bureaucratic drift can be triggered even in cases when there is no budget maximization (as described by Niskanen) at all. This is an important result for two reasons: First, any institutional design targeted against the overproduction of public services through bureaucracy must first analyze whether it is indeed budget maximization or bureaucratic inertia which is causing the overproduction. Only if it is indeed budget maximization, then improved monitoring devices against the opportunism of bureaucrats can lead to welfare improvement. Second, bureaucratic inertia can run counter to budget maximization. Early imprints of bureaucracy may actually constrain profligate bureaucrats. But the opposite could also be the case. Imprints may lead to budget allocations which are persistently too low. In those cases policies against budget maximization may even have a detrimental effect on social welfare by further reducing the amount of supplied public services. As a result, one has to be careful and has to look very specifically into each single case of presumably budget misallocations before steps are taken against it. While this is a rather broad policy implication, it is of high policy relevance. The OECD and World Bank regularly publish reports targeting at “good governance” for public bureaucracies or state owned
enterprises. Identifying principles of “good governance” is a valuable goal in itself, but for the background of our study one may wonder about the effectiveness of those principles, if they have to “compete” with the imprinted policy stances of bureaucrats. Or, to put it more general, our research underscores the relevance of path dependent organizational configurations for the assessment of the performance of public administrations.

Our contribution has aimed at a better theoretical understanding of bureaucratic budget allocations and has not provided empirical evidence yet. However, it is possible to sketch out what those empirical studies would have to deal with, in order to identify the magnitude of bureaucratic imprinting. First of all, the legal-institutional status of bureaucracy vis-à-vis government, legislation and judiciary would have to be assessed. The role of bureaucracy is strongest in parliamentary style democracies such as the United Kingdom where the legislation has a limited role in modifying the budgetary proposals of the executive. The situation is somewhat different in other countries such as France, Italy and The Netherlands where the legislator can amend or reject budgetary proposals of the bureaucracy but lack the power to independently formulate the budget. In the U.S. style presidential systems the legislation plays a much stronger role in the budgetary process through budgetary oversight committees. In developing countries the bureaucracy often wields significant power in determining budgetary allocations not least because of lack of legislative capacity to deal effectively with technicalities of the

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60 See, for example, OECD 2005, 2014; World Bank 2012.

61 See also Kelman and Hong 2014; O’Toole and Meier 2015.

budgetary process. More generally, it is commonly observed that the role of the bureaucracy in the budgetary process is often reinforced by delegation of policy making authority to the bureaucrats owing to their professional and technical expertise.\footnote{63 Schick 2002.} Thus, the socio-legal context of bureaucracies may vary a lot between countries and may trigger certain patterns of imprinting. From those patterns of imprinting in conjunction with socio-legal boundary conditions it would then be possible to derive tailored policy recommendations for reforms of bureaucracy.

To conclude with a limitation of our analysis has to be mentioned. In this paper our focus was on Niskanen’s budget-maximizing bureaucrat, who makes decisions in an imprinted organizational environment. Other possible motives of the bureaucrat than budget-maximization has been left out. The literature has pointed out a number of other motivations of bureaucrats including public service ethos, career concern (Gailmard and Patty 2007) and policy preferences (Clinton et al 2012). Future work may attempt to apply the insights developed here to a more general framework that incorporates other motivations of the bureaucrats besides budget maximization.
Appendix: Mathematical Derivations

Optimization Problem of a Citizen-voter with Policy Delegation

\[ \max_B U(k, B) = Y - B + (kB)^{1/2} + ((1 - k)B)^{1/2} \]  \hspace{1cm} (A1)

Let \( B(k) \) be the optimal level of budget given budgetary allocation policy \( k \). Then \( B(k) \) solves the following first order condition:

\[ U_B = -1 + \frac{1}{2} \cdot ((kB)^{1/2} \cdot k + \frac{1}{2} \cdot ((1 - k)B)^{1/2} \cdot (1 - k) = 0 \]  \hspace{1cm} (A2)

Straightforward algebraic manipulation yields:

\[ B(k) = \frac{1}{4} + \frac{1}{2} \cdot (k - k^2)^{1/2} \]  \hspace{1cm} (A3)

Optimization Problem of the Bureaucrat

The bureaucrat maximizes the following utility function:

\[ \max_k V(k) = \alpha(B(k)) - \gamma(k - k_0)^2 \]  \hspace{1cm} (A4)

The first order condition is given by:

\[ V_k = \alpha B_k(k) - 2\gamma(k - k_0) = 0 \]  \hspace{1cm} (A5)

Notice that in the absence of inertia \((\gamma = 0)\), the first order condition reduces to \( B_k = 0 \) which implies from (A3) that:

\[ B_k = \frac{1}{4} \cdot (k - k^2)^{-1/2} \cdot (1 - 2k) = 0 \]  \hspace{1cm} (A6)

Solving (A6) (assuming interior solution) yields the optimal value of \( k^* = 1/2 \) at which the bureaucrat’s utility is maximized without inertia. In other words, the bureaucrat’s budget is also maximized at \( k^* = 1/2 \) in the absence of inertia.
If inertia is present ($\gamma > 0$), then the first order condition (A5) implies that $B_k(k) > (\leq) 0$ if $k - k_0 > (\leq) 0$. If $k_0 > k^*$ then $B_k(k) < 0$, and the optimal budgetary mix with inertia ($\hat{k}$) is greater than the optimal budgetary mix policy without inertia ($k^*$) (see Figure 1). If $k_0 < k^*$ then $B_k(k) > 0$ and the optimal budgetary mix policy in the presence of inertia ($\hat{k}$) is less than the optimal budgetary mix policy without inertia ($k^*$).

Socially Optimal Budget and Allocation Policy

The optimal size of budget and budgetary allocation policy ($B^*, k^*$) simultaneously maximizes the utility of the citizen-voter. That is, ($B^*, k^*$) solves (A2) and the following first order condition:

$$U_k = \frac{1}{2} (kB)^{\frac{1}{2}} - \frac{1}{2} ((1-k)B)^{\frac{1}{2}} = 0$$  \hspace{1cm} (A7)

Solving (A2) and (A7) gives the socially optimal ($B^*, k^*$) = (0.5, 0.5).
References


