Dynamically Engineering Bureaucracy

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1. INTRODUCTION

Bureaucracy has rarely been studied in the early stages of a firm's development. Focusing on the initial years of a firm's existence is critical to the study of bureaucracy, because if organizational change is costly and path dependencies are strong then much of the action is found in a firm's initial choices. While Baron et al.'s (1999) paper (hereafter referred to as BBH) presents original findings, the document primarily summarizes and discusses a stream of research that builds on a very intriguing data set. Their research program allows scholars for the first time to identify empirical regularities concerning the adoption, intensity, and trajectory of bureaucracy in young firms.

We find that two of the empirical regularities identified by BBH are particularly intriguing. First, the set of feasible organizational forms (or founders' "blueprints" as the authors' refer to them) is small. Among the firms interviewed, five different organizational structures are identified. These unique structures appear to have enduring effects on the growth of bureaucracy. Second, regardless of the founding form that is chosen, organizations become increasingly formalized and bureaucratic with organizational size and age. Hence, bureaucracy appears to be a dynamic and continuing process irrespective of organizational blueprint.

Empirical issues notwithstanding, the goal of our comment is to present some plausible theoretical underpinnings for these regularities, use these theories to draw implications about the dynamics of organizational change, and recommend avenues for future research. In particular, we note that founders' blueprints represent discrete structural alternatives, which is consistent with literature on discrete choice found in both

economics and organization theory. The creeping formalization of bureaucracy equates to a bureaucratic momentum, which also has been identified in the literature. From these findings we draw the implications that (1) organizational change is both inevitable and very often endogenously determined and (2) successful organizational change involves discrete choices among bundles of complementary organizational elements. Our arguments suggest a need to rethink theories of static alignment, which are pervasive in organizational theory and organizational economics.

2. COMPLEMENTARITIES AND DISCRETE ORGANIZATIONAL CHOICES

Finding 1: *Founders generally choose from among a few specific "organizational blueprints" or combinations rather than a continuum of organizational choices.*

Based on the authors' empirical measures, founders could choose from among 36 possible organizational configurations. Yet, their choices are predominately confined to five unique combinations. This finding suggests that organizational forms are discrete. Either founders avoid the remaining 31 combinations or most firms whose founder's choose one of the remaining combinations do not survive. While the authors have shown in previous work that founders' blueprints are related to various facets of organizational development, they provide little discussion of the reasons for this limited set of organizational choices or blueprints. However, the finding is generally consistent with literatures in organization theory and economics, which argue that organizational forms are configured around sets of complementary elements.

The notion of complementary organizational elements is found in Weber's original discussion of bureaucracy as an organizational type. This ideal type is composed of elements which in Scott's (1992:41) interpretation of Weber operate "not in isolation,

but as part of a system of elements that, in combination,… provide more effective and efficient administration." Expanding Weber's insight, organization theorists (Gersick, 1991; Tushman and Romanelli, 1985; Miller and Friesen, 1980) view stable or surviving organizational forms as bundles of circularly interdependent choices. Attempts to structure organizational forms that deviate from these commonly found clusters are lower performing (Doty et al., 1993; Mintzberg, 1979) and hence face diminished survival chances.

The finding that organizational choices are discrete also is consistent with recent economic theories on organization. For instance, Williamson (1991: 271) maintains that, "…each viable form of governance …is defined by a syndrome of attributes that bear a supporting relation to one another." Similarly, formal economic models (e.g., Milgrom and Roberts 1990, Milgrom et al. 1991) argue that organizational forms are composed of elements or decision variables that "are mutually complementary and so tend to be adopted together with each making the others more attractive" (Milgrom et al. 1991:84).[1]

By the reasoning provided by organizational theorists and economists, managers cannot modify singular elements of a cluster of complements and expect improvements in functionality. Attempts to dramatically change individual elements of organizational forms unwind the pattern of complementarity that supports the form. Deviance from a pattern of complementarity causes performance to diminish. BBH's findings provide empirical support for the discrete nature of organizational forms and informs which sets of organizational features indeed may be complements.

One of the most exciting avenues for extending BBH's research is trying to determine how or why founders select their initial blueprints. BBH appeal to social

network considerations for an understanding of the origin of founding models. In particular, they suspect three sets of factors provide explanatory power. First, they believe that the founders' stock of social capital and connectedness among founders and with employees influence the choice of blueprint—the more connected the founders the less the mode of control needs to be formalized. Second, they perceive that positions of founders in social networks, particularly ties to gatekeepers who may dictate organizational structure, may influence blueprint choice. Third, competitive labor markets may influence mode choice by forcing late entrants to choose blueprints that differ from incumbents so as to access and retain workers.

However, an alternative model, which incorporates the notion of discrete organizational alternatives, might provide a more parsimonious explanation for the source of blueprints. Discrete organizational alternatives are not viewed as perfect substitutes. Instead, each form has a particular set of costs and competencies. A key insight from organization theory, economics, and strategy is that the choice of organizational form should fit with the underlying set of activities. This notion of fit is fundamentally an efficiency explanation—founders simultaneously choose activities, which yield particular exchange conditions, and adopt an organizational form so as to enact a discriminating match. Good fit yields good performance; hence, founders maximize performance by choosing governance forms that match chosen activities. Following this line of reasoning, understanding the choice of organizational blueprint requires the identification of exchange conditions and logic by which a discriminating match with one of the organizational modes is achieved.

Some of the evidence presented by BBH suggests that organizational form may indeed match exchange attributes, though considerably more precision would be needed to test this proposition. For instance, consider the finding that firms with an innovation strategy employ comparatively lower levels of bureaucracy (fewer titles; fewer HR practices). Innovation is likely to require team production and either require or lead to co-specialization among personnel. Williamson (1985) asserts a match between these attributes of co-specialization and team-production and the use of a relational team, which is a comparably less bureaucratic structure than the alternative modes Williamson identifies.[2] An efficiency explanation could also explain the finding that firms alter specific HR policies and formal job titles with changes in ownership structure (e.g., adopting either venture or public financing). While the authors maintain that this finding is consistent with the neo-institutional story that firms pursue legitimacy through the adoption of these organizational elements, they draw this conclusion with the undertone that these practices have little functional value. Alternatively, the results simply confirm that changes in ownership necessitate changes in organizational structure. Thus, as a firm goes from being entirely owner managed to being more diffusely owned, a corresponding increase in the formalization of internal control occurs to safeguard the interests of those owners who are unable to be on premise to monitor performance.

Unfortunately, the authors do not address such issues of fit. Rather, they recommend sociological logic to explain their findings. Issues of fit deserve attention and exploration. We encourage the authors to explore an efficiency story along with sociological explanations, particularly because there seems to be evidence in the data that appear to be consistent with an efficiency argument. Exploring efficiency rationales

requires both a deeper understanding of the tradeoffs among different organizational modes and an identification of exchange conditions that is more microanalytic than the strategy variables currently employed.

Efficiency explanations notwithstanding, an important implication of the discrete choice logic is a high probability of misalignment. While organizational modes may be discrete, the exchange conditions and environments to which they are aligned and the corresponding desired functionality are not necessarily discrete. Thus, the optimal functionality for an organization given its employees, environment, and strategy may fall intermediate to that delivered by blueprints such as the "engineering model" or the "commitment model." This result creates a potentially intriguing outcome to which we return to in the next section.

3. BUREAUCRATIC MOMENTUM

Finding 2: *Organizations become more formalized and bureaucratic with size and age regardless of which organizational blueprint they adopt.*

One of the most consistent findings of BBH's research is that bureaucracy, in all its measured forms, increases with organizational size and age. For instance, in the current paper their analyses show that both formalization of employment relations and proliferation of senior management titles increase with organization age and employment growth, irrespective of founder's blueprint. In a companion paper to which the authors refer, Baron et al. (1998) report that managerial intensity measured as the number of managers and administrators increases with size and age, albeit at different rates depending on the blueprint adopted. While these findings are subject to criticism because of data constraints and specification problems, they are consistent with more general

findings by organizational theorists—bureaucracy increases with an organization's size and age.[3]

The finding that bureaucracy changes with an organization's size is not surprising. Managers may seize on economies of scale and scope made available by a firm's larger size. Growth in bureaucracy may simply efficiently match growth in size. A more problematic interpretation of this relationship would be that bureaucratization has a momentum, which endogenously and potentially dysfunctionally leads to increases in the bureaucratization of the organization. Organizations escalate their bureaucracy in response to inventive employees constantly seeking means to circumvent existing procedures, rules, and restrictions. Even if economies of scale were operative over some range of firm sizes, a bureaucratic momentum explanation suggests that eventually diseconomies of scale obtain. Distinguishing which interpretation of bureaucratic growth has currency—efficient matching of bureaucracy with size v. bureaucratic momentum—is difficult. However, contrary to the economies of scale argument, prior empirical research suggests that bureaucracy, measured as the percentage of personnel functioning as managers and administrators, tends to rise as firms become large (James, 1972; Holdaway and Blowers, 1971; Child, 1973). Note that the direction of this finding runs counter to the direction found by BBH. They found that while the number of managers and administrators increases with age, the percentage or managers and administrators diminishes. However, this prior work was not performed on newly founded firms. The combination of these and prior results suggests a U-shaped relationship between size and the percentage of employees who are managers and administrators.

The more intriguing finding is that organizations become increasingly more bureaucratic with age—the older a firm the more bureaucratic it becomes. This momentum toward greater bureaucracy appears to be evident quite early in an organization's history. While growth in bureaucracy with size may carry some functional (i.e. performance–enhancing) aspects, growth in bureaucracy with increased age is difficult to justify on efficiency grounds. BBH find that organizations begin very early on this path toward expanding bureaucratization. It seems likely that eventually, this trajectory delivers a level of bureaucracy that exceeds the level that is optimal given an organization's size, strategy, and environmental conditions. Thus, eventually firms face the task of reducing the level of bureaucracy by resetting the trajectory of bureaucratization. Regardless of whether founders initially choose high commitment models of organization or standard bureaucratic practices, bureaucracy escalates with size and time.

4. IMPLICATIONS

We contend that there are several significant implications for theory development and empirical research that emerge from the simple pair of conclusions that managers are constrained to choosing among discrete forms and that all forms of internal organization possess momentum toward greater bureaucracy. As discussed previously, much of organization theory views the task of organizing as a process of static alignment in which organizational forms are matched to environmental conditions, strategies, or exchange conditions in some discriminating way. Contingency and configuration theories in the organization theory literature and transaction cost economics in organizational economics all argue for such a process of static alignment. The impetus for any organizational

change in these models must stem from exogenous shifts in the environment or strategy. However, an implication of this pervasive momentum toward bureaucracy is that the incentives to shift organizational forms are often entirely endogenous. Escalating bureaucracy carries an organization well beyond the optimal bureaucratic level for a given strategy or environment. The further the organization drifts from the ideal match to strategy or environment, the greater the incentive to switch organizational forms. Thus, even in very stable environments with stable strategies, bureaucratic momentum necessitates that firms eventually adopt organizational changes that in the short run reduce the level of bureaucracy.

There are a variety of actions that organizations may undertake in an attempt to reduce bureaucracy. Firms may adopt a host of narrowly focused change initiatives that attack and attempt to selectively correct the shortcomings of excessive bureaucracy. Firms may restructure into alternative discrete forms with lower initial levels of bureaucracy. Finally, firms may excise portions of their bureaucracy through outsourcing or layoffs. If governance choices are indeed discrete as argued theoretically and supported empirically, then the same patterns of complementarity that push toward discrete choice among founding blueprints also push organizations to choose bundles of complementary changes when attempting to reverse the negative effects of bureaucracy. Change initiatives focused narrowly on correcting the negative attributes of bureaucracy or change initiatives that violate these complementarities should either fail or give way to changes in a bundle of complementary elements.

A review of the literature on change initiatives that target the failings of bureaucracy appear to confirm that patterns of complementarity govern efforts to de-

bureaucratize. Bureaucratic organizations are often characterized as those which structure work around narrowly-defined tasks, measure performance based on individual performance of these narrow tasks, and reward based on promotion and seniority. Not surprisingly, change initiatives, which target the negative outcomes of bureaucracy, tend to target change in one of these three elements. For instance, many would characterize the total quality movement as a change initiative that attempts to correct bureaucracy by altering bureaucracy's measurement approach—an approach that "[insulates employees] from intimate knowledge of customer needs" and guides employee actions through "specifications, standards, and procedures" (Juran, 1992:338). The remedy of the total quality movement is to aggressively measure attributes of organizational outputs (e.g. quality, timeliness, and service) that are of concern to customers. Surprisingly, total quality gurus have actively campaigned against firms adopting complementary shifts in structure and incentives. They push to leave organizational structure untouched (Hackman and Wageman, 1995) and view financial incentives based on TQM measures to be destructive to organizational performance (Deming, 1993; Juran, 1974; Hackman and Wageman, 1995). Empirical work seems to suggest however that firms violate these recommendations and adopt both structures and incentives that complement the measurement changes of TQM (Hackman and Wageman, 1995; KPMG Peat Marwick, 1991; Conference Board, 1991). Similar complementary pressures appear to follow firms that initiate change through structural initiatives around autonomous work teams or the implementation of aggressive performance incentives (Gross, 1995).

Obviously, dramatic changes in organization form, such as decisions to outsource or decentralize, involve shifts in entire bundles of organizational attributes. Outsourcing

necessitates a discrete shift from hierarchical to market governance. Similarly, moving from a centralized to a decentralized organization involves shifts in entire bundles of organizational attributes. Such changes in organizational form may also excise bureaucracy. Clearly, outsourcing can simply eliminate functions that are overly bureaucratic. Reorganizations such as decentralization may also reset the scope of bureaucracy to a lower initial level. However, bureaucratic momentum would eventually cause the decentralized units within a firm to become overly bureaucratic, which again would lead to resetting, perhaps centralizing, to eliminate the redundant positions that have arisen as decentralized units bureaucratize. In sum, attempts to reset the level of bureaucracy or excise portions of bureaucracy require restructuring into alternative discrete forms.

This combination of discrete organizational choices coupled with dynamically and endogenously changing outcomes of any choice suggests an alternative view of the management task than typically envisioned by economics and organization theory. The manager's task is to use a set of rather blunt instruments (blueprints; bundles of changes; discrete organizational forms) to position dynamically the organization's functionality in a location that matches its environment, strategy, or exchange conditions. Despite complete stability in the desired "location," managers may need to frequently alter the organizational form to respond to the momentum embedded within the organizational forms chosen. In some cases, such dynamic positioning may involve vacillating between two discrete choices (i.e. centralizing until the firm becomes overly bureaucratic and then decentralizing until bureaucracy momentum again degrades performance). There appears to be abundant evidence of companies modulating between two discrete organizational

choices, because in the longer run both generate dysfunctional aspects. Alternatively, such dynamic positioning my involve cycling among a much wider array of discrete organizational choices. For instance, in the long-run firms may enact a change program that cycles through any number of the blueprints identified by BBH.

In summary, BBH's findings provide empirical grist for the theory mill. Although the existence of complementarities has theoretical support, specific empirical regularities remain under-explored. BBH's findings provide a first step in identifying complementarities in the early phase of a firm but the theoretical relationship among organizational dimensions needs further unpacking. Developing an endogenous theory of organizational change poses a greater challenge. Endogenous organizational change thus far has received little attention from economists and sociological foundations need further development. We maintain that developing a more in depth understanding of complementarities, endogenous change, and their interaction will provide new insights to the task of dynamically engineering bureaucracy.

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[1] This literature is in contrast to the implicit theme of earlier agency theory and mechanism design literatures, which argue that contracts or governance mechanisms are continuously arrayed. In these literatures, individual attributes of contracts can be manipulated and fine-tuned to achieve an optimal fit.

[2] We perceive a striking similarity between the four alternative internal organizational modes Williamson (1985, Chapter 10; see also Nickerson, 1997) and the five founder blueprints identified by BBH.

[3] For instance, Miller and Friesen (1980:592) argue that momentum is pervasive and is likely to coexist among a great many variables of strategy and structure at the same time. See also Baker and Cullen (1993), Downs (1967), Grinyer and Yasai-Ardekani, (1981), Kelly and Amburgey, (1991), and Lodahl and Mitchel (1980).