

**Bringing organizational demography back in: Time, change and structure in
top management team research**

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Organizational scholars have achieved broad consensus on two facts: the era of the loyal “organization man” is over, and traditional large bureaucracies are being replaced by new organizational forms. Commentators in both the popular press and the scholarly literature have documented the myriad ways that jobs at all levels are less secure and how both organizations and employees are less loyal (cf., Cappelli, 1999; Osterman, 1999). These changes in the nature of the employment relationship are particularly visible in the executive ranks. The promotions and ousters of corporate leaders that are core to academic theories of governance and motivation are chronicled in the press in colorful detail. Executive tenure has declined and executive mobility is facilitated by professional executive search firms (Khurana, 2002). At the same time, we see widespread change in how organizations are designed and managed (Barley, 1992; Guillen, 1994); and in different eras, different organizational forms dominate (e.g., functional, divisional, and matrix forms; see Chandler, 1962; Davis, Diekmann & Tinsley, 1994; Shenhav, 2000; Zuckerman, 2000). We have seen the rise (Fligstein, 1987) and fall (Davis, 2009) of financial capitalism, and the emergence of new executive roles such as the “chief operating officer” (Hambrick & Cannella, 2004) and the “chief financial officer” (Zorn, 2004; Zorn, Dobbin, Dierkes & Kwok, 2004). Given the known game of musical chairs in the executive suite as people come and go, and the extensive changes in organizational structures that change the chairs drawn up to the table, it is surprising that most scholarship on top management team (TMT) demography is cross-sectional in nature and implicitly treats the TMT as a stable entity.

In the 25 years following the publication of Hambrick and Mason’s (1984) “Upper Echelon Theory” and Pfeffer’s (1983) “Organizational Demography,” TMT

research has been one of the most vibrant research areas in organizational studies.

Researchers have conducted an impressive array of studies linking TMT characteristics to such factors as organizational performance, strategic change, and turnover. Despite these vigorous efforts, attempts to synthesize the cumulative wisdom have been unproductive. The findings are often contradictory, the methods and measures inconsistent, and the theoretical underpinnings poorly specified (Cannella, Park & Lee, 2008; Carpenter, Geletkanycz & Sanders, 2004; Finkelstein & Hambrick, 1996; Jackson, Joshi & Erhardt, 2003; Nielson, 2009).

There have been many excellent reviews of the broader TMT literature: Williams and O'Reilly (1998) reviewed over 80 articles published between 1959 and 1997 on organizational demography and diversity (not TMT demography in particular); Jackson, Joshi and Erhardt (2003) reviewed 63 articles on workplace diversity published between 1997 and 2002; Carpenter et al. (2004) identified 31 TMT articles that build on upper echelons theory between 1996 and 2003; Nielsen (2009) reviewed 60 articles on TMT heterogeneity published between 1984 and 2005. All of these reviews document the vibrancy of the research area as well as the conflicting findings. We do not attempt a comprehensive review. Instead, we highlight features of the TMT literature that are barriers to accumulation and synthesis: it combines two perspectives on TMTs that are in many ways incommensurate and in doing so conflate roles and individuals; and it relies on cross-sectional methods and static analyses in a setting that is necessarily dynamic and sensitive to historical context.

In brief, TMT research embodies two distinct traditions: one focused on top managers as a team of strategic leaders and the other focused on top management

demographics as a reflection of an organization. Important, but largely unstated, differences in the units of analysis and the mechanisms of interest exist across these two traditions. The strategic leadership perspective is rooted in psychology and managerial behavior and emphasizes the individual and group levels of analysis. The demographic perspective is rooted in sociology and organization studies and emphasizes the organizational level of analysis. These different traditions draw on different underlying theories (e.g., social cohesion v. human capital) and are often focused at a different level of analysis (e.g., team v. firm). For example, the strategic leadership perspective centers on group processes while the demographic perspective concentrates on the structural conditions that shape team interactions. From at least the mid-1990s the strategic leadership perspective has dominated, and as a result the field has lost sight of two important considerations: structure and temporal dynamics.

Advancing our understanding of top management teams and organizations requires that we give renewed attention to the sociological perspective. Doing so forces us to consider both the antecedents of TMT composition as well as the consequences. It demands that we recognize that as the world changes, firms change and teams change. It also reminds us that strong causal inferences are impossible from cross-sectional research. It suggests that role structures are distinct from individual executives. Refocusing away from individual interactions towards structure and context allows us to better incorporate the lessons of change from the broader field of organization studies. The path to developing a deep understanding of TMTs and organizations is a research agenda that (1) considers structural roles beyond individual incumbents, (2) attends to historical time and context, and (3) acknowledges and examines when roles and the

individuals occupying those roles change. In this chapter we outline such a research agenda and articulate the need for historically contextualized analyses and longitudinal research designs. Our agenda points to new questions to ask about TMT structure (e.g., how does the duration of a job shape the tenure of an individual in that job?; do team structures predict role interdependence?) and calls into question some key areas of TMT research (i.e., methodological problems and exogenous antecedents to tenure and functional heterogeneity). We conclude by illustrating important areas for future research.

Two traditions of TMT research

Current understandings of top management teams and organizations embody two very different conceptualizations of the phenomena. In the strategic leadership tradition, top management teams represent collective leadership responsible for determining and executing organizational strategy and driving organizational performance (i.e., Finkelstein, Hambrick & Cannella, 2009). In the organizational demography tradition, top management teams are a visible representation of the organizational workforce and a convenient proxy for otherwise unobservable characteristics of human resources and culture (i.e., Sorensen, 2000). These alternative conceptualizations tend to focus attention on different features of top management teams and organizations. Where strategic leadership has emphasized individual discretion and personality, organizational demography has attended to industry and labor market characteristics. These alternative conceptualizations also yield different interpretations of the same top management team features. Where the strategic leadership perspective sees cognition and interpersonal processes, the organizational demography perspective sees mobility and structure. More generally, where the strategic leadership perspective sees opportunity and transformation,

the organizational demography perspective sees inertia and constraint. These differences aren't surprising as the strategic leadership perspective evolved from an interest in managerial characteristics to focus on CEOs and multi-person teams; in contrast, organizational demography emerged from interest in organizational populations. But theoretical and empirical progress within both traditions has brought them into overlapping territory. We must now explicitly examine the intersection and integrate across the traditions. We begin by reexamining the common roots for both traditions.

Both Pfeffer (1983) and Hambrick and Mason (1984), in their early formulations of organizational demography and upper echelons theory, argued that background characteristics can be used to predict behavior. Hambrick and Mason (1984) argued that organizational outcomes (such as innovation and growth), as well as strategic actions, are shaped by background characteristics of managers and top management teams in particular. These background characteristics were seen as indicators of the cognitions and values of boundedly rational executives. Pfeffer (1983) went further and argued that demographic composition may predict outcomes better than intervening constructs. This approach of emphasizing the background characteristics was methodologically appealing, even if somewhat noisy (Hambrick & Mason, 1984), and resulted in a flurry of research. The resulting large body of empirical research linked aggregate measures of team composition (e.g., functional heterogeneity, age diversity, tenure diversity) to firm-level outcomes.

More than a decade later, Lawrence (1997) argued it was important to open the "black box" and understand the processes by which demographic composition matters. She and other scholars suggested that the direct effects of composition on strategic

choices are not likely to be robust and instead advocated the need to examine the intermediate processes (Finkelstein et al., 2009). As a result, the upper echelons perspective has increasingly moved towards examining social psychological processes and individual perceptions and beliefs and links demographic variables with team level variables such as cohesion, consensus, social integration, and cognitive heterogeneity (Finkelstein et al., 2009; Jackson et al., 2003; Nielsen, 2009). This move required going inside organizations and directly asking executive teams about their attitudes, information sharing, communication frequency, conflict, and commitment. The top management team has, in large part, been treated as just another kind of small group. Although valuable insights come from these micro-theories, it is time to close the “black box.” The primary focus on internal processes effectively eliminated from examination the historical and structural factors that are antecedents of TMT composition, ignored major shifts and trends in the organizational world, and clouded our ability to see what is distinctive about TMTs.

Although the bulk of TMT research relies on micro-level social psychological theories for explanation, some scholars persist with a more macro-level demographic perspective, a perspective that comes from a broad tradition in sociology that studies populations and population change. This macro-level perspective relies on patterns of data, rather than focusing on individuals, and focuses attention on events such as entrances and exits. More importantly, this perspective examines both the causes and consequences of demographic distributions. As one example, Carroll and Harrison (1998) argue for focusing on a global macro concept (in their case, culture) that can explain demographic patterns. Using a computer simulation, they demonstrate that using the

global concept of culture can explain differences in tenure heterogeneity. This example documents one way to draw inferences from demographic data without resorting to social psychological theories.

Why do we focus on “simplistic” demographic variables when scholars decry that we do not need “yet another study that examines the main effect of TMT demographic effects on another organizational outcome” (Carpenter et al., 2004, p. 770)? Beyond parsimony and easy measurement, there are important empirical and theoretical insights that come from the demographic tradition.

First, TMT demography offers a window into organizations. The structure of the TMT can be a stand-in for the structure of the organization. Is it hierarchical? Is it diverse? We see by the titles and backgrounds of TMT members what functions are valued (Fligstein, 1987); by the promotion and tenure patterns whether time in the organization is an asset or a detriment (Dencker, 2009); and we receive some insight into organizational stratification by race and gender by looking at the composition of the TMT (Broschak, Cohen & Haveman, 1998). As titles change and new roles emerge, we see shifting managerial ideologies. By treating the TMT as representing the organization, we begin to address how and why the characteristics of organizations are changing over time. By emphasizing the top management team as a “team,” and focusing on the group processes and individual attributes of team members, we lose sight of inequality and discrimination in organizations. The level of hierarchy and heterogeneity in a TMT is not only relevant because of how it affects decision making processes in teams but also because it reflects inequality and diversity in the organization. The fact that the vast majority of TMT demography studies predict organizational-level outcomes may suggest

that leaders influence strategic actions (Jackson et al., 2003). But it also suggests that TMTs are a microcosm of the organization and provide insights about both the organization as a whole and about organizational processes.

Second, as the link to population studies suggests, and key scholars have acknowledged, organizational demography allows us to connect the organization with the larger context in which it is embedded. Williams and O'Reilly (1998) begin their review with an example and acknowledgement of the changing nature of teams over the last 50 years. Changes in demographic diversity, they argue, are critical to understanding workplaces today; indeed, one explanation for the mixed findings is that the firms themselves look demographically different than when Hambrick and Mason (1984) first wrote. In the field of demography writ large, researchers collect annual surveys to track this constant flux. Surprisingly, we do not see the TMT literature examining what happens within the larger population and labor market constraints and how these influence organizational dynamics. Yet labor market changes, as well as changes in organizational forms, shape mobility within and thus the demography of organizations (Haveman & Cohen, 1994).

Third, the broader demographic tradition explores the factors that influence demographic distributions and their consequences. Despite numerous calls, our understanding of the antecedents of TMT demography remain limited (Pettigrew, 1992; Lawrence, 1997; Williams & O'Reilly, 1998; Hambrick, 2007). While TMT scholars have made some progress in considering context -- for example, there is considerable evidence that heterogeneous TMTs are more successful in turbulent environments (e.g., Eisenhardt & Schoonhoven, 1990; Keck, 1997; Certo, Lester, Dalton & Dalton, 2006) --

this research generally considers context as an important moderator of demographic effects and has involved largely static considerations of the effects of industry and environmental context (Jackson et al., 2003). However, both industries and environments change over time and this raises important questions for TMT scholars. For example, how does a team change from that which is successful in the dynamic, fast-paced environment of a start-up to one that can effectively lead in a period of more industry and firm-level stability? To say that a firm requires a heterogeneous team in a dynamic environment does not help us understand how firms come to have heterogeneous teams. Our own research on 170 high technology companies suggests that the answers to these questions are both considerable and complex. For example, despite a need to do so, some firms find it difficult to broaden the experience on the TMT. The personnel decisions and structural choices made early in a firm's life have long lasting influences on the recruitment and retention of new TMT members (Burton & Beckman, 2007; Beckman & Burton, 2008; see also Boone, van Olfen, van Witteloostuijn & De Brabander, 2004). As another recent example, Cho and Hambrick (2006) study U.S. airlines in the period before and after deregulation. They find that shifts in the structural composition of the TMT towards "output-oriented" functions after deregulation have performance consequences. They look at changes in structural composition; however, they do not focus on what leads to compositional change. Thus, we need to better understand the sources and consequences of demographic shifts within organizations; without such an understanding, our ability to make causal predictions and practical suggestions to managers about how to hire the most appropriate TMT is somewhat limited given path dependent and structural factors that restrict demographic diversity and change.

The final reason to resurrect the demographic tradition recognizes that demographers have pioneered longitudinal methods and dynamic analyses. It is only through longitudinal research that the types of insights described above are possible, but the bulk of the TMT literature is cross-sectional (25% of the 60 articles reviewed by Nielsen were longitudinal; only 2 -- Boeker and Wiltbank (2005) and Boone et al. (2004) -- examined antecedents). We are not the first to call for temporal based or dynamic models in TMT research (Jackson et al., 2003; Carpenter et al., 2004); however, these calls have been embedded in a longer list of critiques and largely gone unheeded. We demonstrate why this focus is essential to TMT research by offering examples of misspecification and confusion that result from this lack of attention to change and time. By explaining the problems of existing research and the potential rewards of incorporating change and structure, we encourage more scholars to take up the call. Zhang, for instance, has done so by proposing a model of CEO tenure that encompasses 5 distinct stages.

Using demographic measures, and conducting longitudinal data analyses, not only allows for different types of analyses than are possible with data from inside the teams themselves but also opens new types of research questions. In recognizing the analytical distinction between structure (roles) and incumbents (individuals) and acknowledging when roles and individuals are likely to shift and change, we can begin to disentangle person and situation effects on outcomes. By attending to historical context we can draw boundary conditions on empirical findings and begin to accumulate knowledge over time about the elusive relationship between top managers and organizational performance.

Rediscovering structure and roles

Structure deserves a more prominent role in the TMT literature. Just as organizational designs vary within any given context, the roles that comprise the top management team also vary. According to Hambrick (1994, p. 178), “The *structure* of a top group refers to the roles of members and the relationships among those roles.” Roles reflect organizational design choices made by top managers and in many cases by founders. They signal how the organization is structured. The roles that report directly to the CEO are an indication of the functions or business units believed to be most important to organizational performance. These roles give clues as to where power resides and how decisions are made. Individuals may have more influence in one role than another in that same role, but it is important to consider the positional or structural sources of influence.

We must conceptualize the TMT as a set of individuals and roles. Consider the relationship between individuals and roles with a more general example: two hypothetical firms that are the same age and size, have the same number of executives reporting to the chief executive officer, and have TMTs of middle-aged white men with the same age and tenure distribution. Firm A is organized in a functional structure and Firm B is organized in a divisional structure by region.



FIRM A

FIRM B

The top managers of Firm A occupy different functional roles and will likely have different functional backgrounds from each other. The top managers of Firm B, with the possible exception of the EVP of finance and administration, will all be general managers and may or may not have different functional backgrounds. The top managers of Firm A will be collaborating as functional experts for the benefit of the firm overall; the regionally-focused top managers of Firm B will be competing for corporate resources that are managed by the CEO and the EVP of Finance and Administration to benefit their region. This simple illustration highlights how structure matters to both TMT composition and group process. It is clear that in some structures TMT roles are set up to operate largely independently and the interactions that occur are likely to be competitive rather than collaborative (e.g., business units); whereas in others the TMT roles explicitly demand coordination and cooperation (e.g., functional structure). Relatedly, the organizational structure influences the likelihood that the top management team is comprised of general managers or functional specialists. In other words, this structure has implications for the interdependence across the roles as well as the profiles of executives likely to hold those positions. Task or role interdependence has been considered an important structural consideration (Finkelstein et al., 2009), but most researchers fail to see how task interdependence is a consequence rather a measure of structure and how comparing top management team functioning across these structural archetypes is an apples-to-oranges comparison.

In our longitudinal study of TMTs in high technology start-ups, we demonstrate how roles (structure) and incumbents (people) are analytically distinct and evolve differently. We find that firms benefit when the top management team is comprised of both broadly experienced individuals and a well-differentiated role structure. But individuals and structures do not have parallel influence. We find that although broadly experienced individuals can build team structures around them, firms whose functional roles are held by individuals without the relevant experience are less likely to ever attract the experienced individuals needed or to develop well-differentiated role structures. We document individual and organizational consequences when there is a mismatch between the experiences of individuals and the particular roles they hold (Burton & Beckman, 2007; Beckman & Burton, 2008). Our work highlights how individuals and roles have distinct effects, yet they need to be considered in conjunction rather than isolation because the relationship between them is complex. Unfortunately, the existing TMT literature largely confounds the roles and experiences of individuals (Bunderson & Sutcliffe, 2002).

This simple highlighting of firm roles in contrast to individual incumbents illuminates one of the puzzles in the TMT literature: mixed findings in the relationship between TMT heterogeneity and firm performance. Does TMT heterogeneity have a positive or negative effect on firm performance? While a number of scholars have attempted to account for differences in the external context (Carpenter, 2002; Joshi & Roh, 2009; Keck, 1997) and the interpersonal context (Cannella, Park & Lee, 2008), little attention has been devoted to organizational structure. But for top management teams, organizational structure in large part determines task interdependence and the

concomitant likelihood of and the need for interaction among senior executives. As we describe above, structure influences the likelihood that these interactions are cooperative or competitive in nature. Most importantly, for TMTs, structure is antecedent to both process and task interdependence. Thus, an important first step in synthesizing the TMT-performance literature is to acknowledge these differences in organizational structure and account for them in research design, analysis and interpretation.

But perhaps more radically, the fact that structure is antecedent to both and easy to measure is yet another reason to ignore the lure of opening the black box and return to pure demography. Examining group processes and individual cognitions has provided new insights, but the exclusive focus on looking inside the black box has obscured other useful research approaches. A simple examination of job titles, rather than collecting complicated measurements of group process, reveals the interdependence between roles without measuring interdependence per se. Thus, we advocate a return to simple demographic measures.

One of the dangers of ignoring structure is that scholars mis-specify the relationship between composition and outcome. For example, Bunderson and Sutcliffe (2002) find that intrapersonal diversity is associated with positive organizational outcomes. Because they ignore structure, we do not know if this finding is because diverse experience is performance enhancing (as they conclude). Or is it because the people with diverse experiences are more likely to be in TMT structures with performance benefits (e.g., organizations that have divisional structures rather than functional structures)? Or is it because people with diverse experiences are more likely to be in certain roles (such as strategic planning or business development), and the

existence of these roles on the TMT is associated with higher performances? As these questions imply, structure is a source of unobserved heterogeneity in the extant TMT literature; and it is a source of heterogeneity easy to miss because the exact shape of its influence is changing over time as structures evolve. More attention to structure and time will allow us to better specify the causal mechanisms by which TMTs influence firms and to unpack the mixed findings that currently confound structure and experience.

Separating roles and incumbents also raises the question as to whether there are differences in the aggregate characteristics of incumbents for different positions. For example, are marketing executives more diverse – in age, gender, race, functional and educational background – than finance executives? Again, there is evidence suggesting the answer is likely to be yes. For example, in our study of high technology start-ups, we find people in finance and HR roles disproportionately bring narrow but functionally relevant prior experience to the role; whereas, people in general management, business development, strategic planning, and service and support tend to have broader prior functional experiences (Burton & Beckman, 2007: 250). Although this work aggregates across individuals, it speaks to both the variation in normative expectations for different roles as well as the likelihood that an individual in any given role will have a broad or narrow functional background.

In addition to analytically separating individuals and roles, we must examine how both individuals and roles change over time. This will allow us to understand mixed findings, to explore the impact of time and change in TMT research, and most importantly, it will open new territory for TMT researchers.

Role structures and change

There is growing evidence that TMT role structures change over time. Scholars have documented dramatic shifts in organizational structure (Hayes & Abernathy, 1980; Fligstein, 1987), the emergence of new executive roles (Hambrick & Cannella, 2004; Zorn, 2004), and the rise and fall of particular functions (Fligstein, 1987; Nath & Majahan, 2008). For example, in a study of the 100 largest U.S. firms between 1919 and 1979, Fligstein (1987) demonstrates how the dominant structural form shifted multiple times from a holding company, to a functionally organized firm, to a multidivisional organization of related products, to a multidivisional organization that is global and includes unrelated product divisions. Zorn (2004) illustrates the emergence and diffusion of the Chief Financial Officer (CFO) position between 1964 and 2000. In 1964, none of the largest publicly-traded U.S. firms had a CFO; in 2000, the position had been adopted by more than 80 percent of these firms. Moreover, he documents how change in accounting rules and disclosure obligations in 1979 accelerated the rate at which major corporations added the CFO role to their TMTs to the point where “CFO positions have become firmly entrenched at the top” (p.362). Hambrick and Cannella (2004) similarly investigate the relatively recent phenomena of the Chief Operating Officer (COO) position. Not surprisingly, the propensity to have the COO role on the TMT is strongly correlated with firm size. But more interesting is the fact that the propensity to have the COO role varies dramatically by industry; as Hambrick and Cannella describe, “perhaps industries develop inclinations, conventions, or traditions that take them in the direction of having COOs or not; but the incidence is not rooted in any discernible contextual conditions” (p.971). This suggests further analysis is needed: differences across

industries may be a function of complex structural and historical patterns and has implications for understanding TMT heterogeneity across industries.

There is also evidence that the roles within a firm are shaped by the prestige of certain functions within a firm or industry. For example, Nath and Majahan (2008) find that 97% of the large firms they sampled had a chief financial officer whereas approximately 40% of the firms had a chief marketing officer. The presence of a marketing officer was related to industry, firm size and strategy with small, diversified firms less likely to have a CMO and firms pursuing an innovation or branding strategy more likely.

All of these studies reveal how different functional roles are represented on the top management team in different contexts and how TMT roles have changed throughout historical time. These major compositional shifts are largely unaccounted for in attempts to synthesize the cumulative findings of the TMT literature. Over the many decades of research, the dominant TMT structures have changed. New positions have emerged, others have faded, and this has consequences for the interdependence among team members, the functional background characteristics of TMT members, the group processes that result, and the expected influence of the TMT. It is not surprising, then, that looking simply at TMT functional diversity collapsed across time fails to demonstrate clear patterns. The structure of these teams is likely to be different across time.

Individual team members and change

Just as role structures vary by context and across historical time, we also know that the characteristics of the labor force and the rates at which individuals change jobs

vary by context and over time. For example, we know that increasing numbers of women and minorities in the workplace are changing organizational demography. We also know that promotion rates and turnover rates vary over time.

The growing numbers of women and minorities in the labor force have implications throughout the organizational hierarchy; for example, there is evidence that having women at higher organizational levels increases the promotion of women beneath them in the organization (Broschak, Cohen & Haveman, 1998). Yet we also know that the proportion of women (and minorities) that have become part of the TMT and senior leadership of firms is still a small minority (Daily, Certo & Dalton, 1999). But by recognizing broader trends, we can anticipate that these types of compositional differences are likely future topics of inquiry for TMT research.

More relevant immediately is the well-documented finding that both promotion rates and turnover rates vary over time. While industrial relations scholars tie shorter job durations and increasing mobility to the overall demise of the internal labor market (Cappelli, 1999; Osterman, 1999), organizational ecologists emphasize population dynamics such as the number and type of competitor organizations (Sorensen, 1999) as well as organizational growth, decline, founding, failure and merger (Haveman & Cohen, 1994). For example, Haveman (1995), in a study of the savings and loan industry, finds that the rates of individual entry and exit into organizations change as new organizations are formed in the environment, or as existing organizations merge with one another. Boeker and Wiltbank (2005) add that important external stakeholders, such as venture capital owners and board members, increase the rate of top management changes. The broad insight from this burgeoning literature is that exogeneous forces impact individual

mobility. This work offers a more realistic sense of how top management team composition is shaped by the context in which it is embedded. As firms emerge, grow, die, merge, and compete with one another, the composition of the top management team is impacted.

Why are these exogenously determined mobility processes relevant for TMT research? Because at an extreme they imply that the composition of the TMT may be an artifact of other factors, and, at a minimum, they highlight how attempts to generalize the relationship between TMT composition and organizational outcomes across time and context is fraught with complexity. If we are to understand the relationship between top management team characteristics and organizational outcomes, we must also consider both the individual and organizational mechanisms that contribute to composition. There are a multitude of factors that influence individual job duration. Individuals have different tendencies to stay and go: some people are job hoppers whereas others are loyal soldiers. But we also know that the baseline propensities for individuals to change jobs changes over time such that the longer you are in a job, the less likely you are to leave it. To further complicate the picture, we also know that there are firm-level strategic and political factors associated with executive turnover as well as industry and environmental factors shaping the likelihood of team entrances and exits (Thornton & Ocasio, 1999). Moreover, the disruptive or beneficial effects of entrances versus exits likely differ, and these differences are shaped by whether the new team member is an insider or an outsider and whether the addition or replacement was anticipated versus sudden. Clearly, a nuanced understanding of top management team mobility and change demand attention to time and context. But in addition, we must also disaggregate the effects of team

entrances and exits (e.g., the impact of a new addition or a replacement to a team should be considered separately from the loss of a team member) and recognize the causes of entrances and exits (e.g., as the result of individual mobility or structural role shifts).

Roles, individual mobility, and change in the context of TMT demography research

Thus far, we have explained the importance of differentiating roles from individuals, and we have explored how both roles and individuals change over time. In order to more fully illustrate the implications of these shifts for TMT research, we turn to two hallmark compositional attributes of TMTs that are studied in the research literature: tenure heterogeneity and functional heterogeneity. Indeed, it is these two dimensions that have yielded much of the corpus of inconsistent findings. We use these two types of heterogeneity as exemplars of the problems that arise from conflating roles and structures and from ignoring time and change.

To begin, however, we must note that the literature has tended to treat both functional heterogeneity and tenure heterogeneity as instantiations of “task-oriented heterogeneity” (Joshi & Roh, 2009, p. 612; indeed, Finkelstein et al., 2009 discuss heterogeneity as an overall construct rather than distinguish between cognitive, education, function or tenure heterogeneity). Thus, the underlying logic for both tends to be the same – that diversity brings greater knowledge and resources, which is associated with quality decisions, but also brings more conflict and disruption which can interfere with implementation (Finkelstein et al., 2009). Relying on Harrison and Klein’s (2007) insightful typology, we can see that most TMT scholars are simultaneously invoking “variety” and “separation” arguments which have opposite effects on performance. Variety is beneficial and performance-enhancing because it provides unique information

and experience; separation is harmful because it reduces cohesiveness and results in in-group and out-group categorizations. Given that different measures capture separation and variety, but scholars often fail to recognize the implications of these differences, it is not surprising that the research on the relationship between TMT heterogeneity and performance is inconclusive.

In addition to matching measures and constructs, the field would benefit from considering individual executives as distinct from structural roles. Current studies of tenure heterogeneity focus on top management team members, ignoring structural roles. But considering the arrival of new roles, the duration of existing roles, and the variability in the length of time that roles have been considered part of the TMT offers a window into how much the organizational structure has changed over time and offers a different lens on tenure heterogeneity and performance. Similarly, considering the functional role structure, comparing role structures across firms, and linking structural factors to outcomes offers a different lens on functional heterogeneity. As Bunderson and Sutcliffe (2002) pointed out, current studies of functional heterogeneity contain different operational measures that have substantively different meanings. Although they did not explicitly point to the separation of roles from individuals, the distinctions between the concept of “functional assignment diversity”, “functional background diversity”, “dominant function diversity”, and “interpersonal diversity” they point out are a step in this direction. In general, functional assignment diversity refers to the assigned roles on the team (e.g., VP of sales, COO, CFO). Functional background diversity refers to all the functional experiences that individuals bring with them to a particular role (e.g., a COO with an engineering background and a general management background). Dominant

function diversity refers to the function in which individuals have spent the majority of their careers (e.g., a COO with mostly general management experience). Functional assignment diversity is a measure of team structure; dominant function and functional background diversity are both measures of individual experience. We advocate going even further and explicitly treating roles as entities worthy of study independent of the executive who holds the role. This approach extends ideas about “idiosyncratic jobs” to the organizational level (Miner, 1991) and reiterates the need to understand how and when roles are added or eliminated, the duration of roles, the characteristics of vacant or difficult-to-fill roles, and how this relates to outcomes.

Of course, function, tenure, individuals and roles necessarily interact in ways that may be difficult to disentangle. An example will serve to illuminate this complexity. We calculate the Blau index (a frequently used measure for functional heterogeneity) for different individual and role combinations. Consider a 5-person TMT where we are measuring functional heterogeneity across five functions (general management, engineering, sales/marketing, finance, and operations) in a young technology start up. Imagine the role structure for this team includes five “chief” roles: CEO, CTO, CMO, CFO, and COO. The functional assignment diversity score for this role structure using the Blau index is .8. The measures of functional background diversity are only the same across roles and individuals if all of the executives only have experience in their respective functional specialties. Now consider several variations on the backgrounds of the incumbents in this role structure in order to illustrate the differences between role structures and individual experience. If all of the executives have also held general management positions (i.e., had run a small company or a division within a large

company) in addition to their functional experience, the Blau index is zero. If all five team members do not have functional experience but have engineering backgrounds, with no prior senior executive experience, the Blau index is also zero. All team members have engineering backgrounds and nothing else. Thus, the functional diversity of the team with functional experience and shared senior management experience are considered to be the same as the team with only engineering backgrounds.ⁱ Both are considered less diverse than a team with functional experience alone (demonstrating the problem between dominant function and functional background diversity). If all of the executives had prior experience in all five of the functions that are being measured – an unlikely, but not impossible scenario of generalist executives – then the Blau index is again zero. This example makes salient both the analytic problems with the Blau measurement, and the differences you see in functional heterogeneity when you are interested in structure vs. individuals.

Finally, separating roles from individuals' forces scholars to consider how teams change by virtue of roles being added or reconfigured in contrast to how they change by virtue of individuals being replaced. Consider a corporate reorganization, where roles are recreated and individuals moved to different positions: this may result in changes in task interdependence but not changes in interpersonal interaction. Role reconfigurations among the same set of individual incumbents might impact the functional assignment heterogeneity but neither the functional background heterogeneity nor the individual-level tenure distribution. Replacing a person in an existing role is only an interpersonal disruption (it changes the tenure distribution but not the functional assignment distribution and perhaps not the functional background diversity). In contrast, the

addition of a new TMT role (with a new hire) has the potential to affect task interdependence as well as interpersonal interactions (it will change the tenure distribution and the functional diversity measures). Here we begin to see that the relationship between functional and tenure heterogeneity; in particular, we see that they will not necessarily move in parallel.ⁱⁱ By differentiating roles from individuals, it becomes even more apparent that tenure heterogeneity and functional heterogeneity must be disentangled.

The second set of issues to discuss with respect to tenure and functional heterogeneity involve the role of time and change. Both exemplars serve to demonstrate the importance of macro-level changes as well as micro-level inertia. Since Pfeffer's original treatise, tenure heterogeneity has been a staple in TMT demography research. The spirit of the original argument was concerned with the distributional characteristics of team tenure; however many scholars have considered only the average tenure or the coefficient of variation. Both measures mask the differential effects of team entrances and exits. Both also obscure the effects of team growth. The impact of entrances and exits need to be considered in the local and historical context (why are these changes happening?) as well as over time (patterns of entrances and exits).ⁱⁱⁱ

Disentangling entrances and exits as the components of tenure heterogeneity begins to address some of these conceptual problems, and it also leads to a better understanding of some antecedents to TMT composition and change. As we note above, individuals move between organizations with frequency and for a wide variety of reasons. These differing reasons for individual mobility call into question inferences derived from observed tenure heterogeneity effects. For example, the most frequently

cited studies that find positive effects for tenure heterogeneity are studying high uncertainty or entrepreneurial contexts (Eisenhardt & Schoonhoven, 1990; Keck & Tushman, 1993; Virany, Tushman & Romanelli, 1992). These are the contexts where firms are often experiencing rapid firm and team growth, which results in multiple entrances to the TMT. As a consequence, tenure heterogeneity increases. The positive effect on firm performance, then, may stem from the entrances and growth that firms are experiencing rather than tenure heterogeneity per se. This calls into question the causal logic of research on tenure heterogeneity and suggests, at the very least, that longitudinal analyses of entrances and exits are necessary. This also speaks to the larger issue of how the addition of new roles and individual entrances and exits are subject to what Haveman (1995) describes as the “demographic metabolism” of organizational populations.

There are similar macro-level changes happening over time with regard to functional heterogeneity (e.g., new roles emerge, Zorn, 2004) but here we want to highlight the firm-level path dependent processes also at work that keep the functional experience and structure of a firm relatively stable over time. We expect similar firm-level path dependence with regard to the tenure of particular roles (Miner, 1991). There is convincing evidence across a variety of studies that functional heterogeneity is subject to path dependent processes within organizations. At organizational founding, the amount and types of functional experience on the founding team are subject to environmental and external forces. Stinchcombe (1965) first proposed the idea of environmental imprinting in which firms will reflect the concerns and resources of the time of its founding. These external influences can be labor market conditions (Stinchcombe 1965), the availability of air travel (Marquis, 2003), or the existing technology (Tripsas, 2009). These external

forces will shape the functional experiences of individuals chosen to represent the firm. Internally, organizational imprints are shaped by the prior functional experiences and affiliations of the early TMT members (Burton, Sorensen & Beckman, 2002; Phillips, 2005; Beckman, 2006; Burton & Beckman, 2007).

Once the imprint occurs, the expected functional backgrounds of individuals and role structures have staying power. Indeed, the initial founding team experiences and structures predict how the TMT will evolve over time. An individual's functional experience at founding predicts TMT functional experience at later points in time (and, similarly, founding functional structures predict TMT functional structures at later points in time; Beckman and Burton, 2008). Even when conditions such as declining performance suggest that the team needs new skills (Boone et al., 2004), firms tend to bring in new managers demographically similar to those that remain. This persistence of functional and demographic experience is consistent with a larger literature on homosocial reproduction, so it should not be surprising that TMT members tend to be demographically similar to one another. It is interesting, and perhaps counterintuitive, to note that we find more path dependence in the experiences of individuals in a role than in the role structures themselves. We find that when the functional experience of an executive differs from the functional experience of the person who created the role, higher turnover results; further, the initial role structure predicts how additional structures will be added. However, the role structure does not attract an individual with the relevant experience unless the initial role incumbent also had the relevant experience (Beckman & Burton, 2008; Burton & Beckman, 2007). Taken together, this suggests path dependence may operate differently for and across roles and individuals within a firm. That said,

firms that begin with functional heterogeneity (of both individuals and roles) are likely to maintain that heterogeneity over time. History is an important antecedent to TMT composition.

In addition to these initial functional choices being persistent, they have important consequences for firms. Organizational imprints shape the adoption of various formal structures as well as bureaucratization (Baron, Burton & Hannan, 1999). Boeker (1988) first demonstrated that the strategy of semiconductor firms was related to the functional background of the founder. In our work, we find initial functional structures, experiences and affiliations have a lasting effect on individuals, teams and firms. For example, Beckman and Burton (2008) demonstrate that founding team functional structures predict the important firm milestone of going public, even after controlling for subsequent changes to the team from the founding period (see also Beckman, 2006; Beckman, Burton & O'Reilly, 2007). However, despite the persistence of functional heterogeneity and their consequences, this does not mean that the influence of functional heterogeneity will necessarily be the same over time. This is where we again see the relationship between function and tenure.

In fact, there is little evidence that functional diversity at a point in time will not differ based on elapsed time. How long does it take to understand how another person thinks or to learn what another person knows? At what point does individual expertise get absorbed into the collective intelligence of the group? As anyone who has been a member of an organizational group knows, there is an interaction between time/tenure and functional diversity, yet few scholars consider this interaction. It seems obvious that functional diversity among a newly formed team likely operates differently than

functional diversity among a team that has worked together for a number of years. The tension between diversity as informational variety and social separation is vivid as we consider functional composition and tenure over time.

Taken together, this suggests that, because of path dependence and the ability for team members to incorporate the knowledge and expertise of other group members, analysts may be over-attributing the influence of the current top management team on performance. Suggesting that team composition is subject to path dependence processes is not to negate the significance of managerial choice and agency, but it does allow or perhaps requires us to ask different questions about top management teams themselves. Putting aside history to focus on the present, as most TMT research does, creates misspecification and perhaps misdiagnosis of the causal relationship. We do not want to focus on “a ‘snapshot’ explanation for what should be seen as a moving picture” (Pierson, 2000, p. 263) because focusing on temporal patterns allows us to consider the source of social outcomes. By focusing on path dependence, we can identify the sources of stability and change, and understand when and what types of TMTs are more conducive to path dependent processes. If we can understand the processes by which path dependence occurs, we can explicate the sources of heterogeneity and the mechanisms of inertia and ultimately better understand drivers of performance.

In summary, we use function and tenure heterogeneity as examples to demonstrate that: 1) roles and individuals should be separated; 2) roles and individuals are subject to macro-level change over time; 3) roles and individuals are subject to micro-level change and inertia within the firm. The extension of sociological work into TMT research writ large would suggest that the impact of demography on organizational

outcomes may sometimes be driven by larger population level dynamics rarely included in the models and other times be driven by historical exigencies embedded in the firm structure and resistant to change. The tendency in the extant TMT literature has been to aggregate these distinct demographic attributes (e.g., tenure and function, roles and individuals)– which are differentially influenced by history and context – into the same category of “task-oriented diversity.” This inappropriate aggregation is why meta-analyses and syntheses have difficulty reaching convincing conclusions.

New research questions

We end with three suggestions for future research on TMTs – research that would help us address some of the questions we have raised in this chapter and advance TMT research. First, we reiterate that tenure heterogeneity needs to be understood longitudinally as a pattern of entrances and exits. In our work on entrepreneurial teams, we find that team entrance results in positive outcomes for firms (such as obtaining venture capital and going public more quickly). Team exits, to the contrary, have negative consequences (Beckman et al., 2007; but see Tushman & Rosenkopf, 1996). The distinction between entrances and exits allows us to better understand what we think is lost and gained through team change, whether it be variety and information, shared knowledge, or cohesion. Furthermore, a consideration of team entrances and exits raises additional questions. Is it patterned? Do executives arrive randomly, or do they come and go in groups? Does individual versus collective turnover matter? In their simulation, Carroll and Harrison (1998) model turnover events incrementally. As a result, their simulation has “lumpy” changes (where multiple turnover events occur simultaneously) only infrequently. Given contagion effects, this assumption may not be valid.

Longitudinal data allows us to examine these assumptions empirically and then examine the consequences of those patterns. For instance, it may be easier to change multiple team members simultaneously because together they will renegotiate job boundaries. But this will be true only if roles are enforced by contemporaneous team members rather than existing structures, processes and systems. These types of examinations will help us further disentangle the influence of individuals from structure.

Second, differentiating TMT roles and incumbents opens the study of TMT *vacancies* as a potentially fruitful topic of inquiry. For example, are there performance consequences of leaving a position vacant versus naming an “acting” or interim executive? (Zhang also asks this question.) If our research is any indication, the imprinting of a position by a temporary role holder may have negative repercussions for the person who steps in to permanently assume that role (Burton & Beckman, 2007). Of course this choice itself might reveal something about the firm or team. To consider truly exogenously driven vacancies, economists have recently taken advantage of accidental deaths of star scientists as an exogenous shock to working groups and find subsequent performance declines (Azoulay, Zivan, & Wang, forthcoming; Oettl, 2009). Another innovative identification strategy is seen in research on networks and hiring (Fernandez & Fernandez-Mateo, 2006) where new TMT members could be compared to the available choice set of potential TMT members. Who else was considered and how and why was this TMT member chosen over other possibilities? Both approaches allow scholars to draw causal inferences by isolating mechanisms of change.

Finally, we highlight one of our early, and largely unaddressed, conjectures: we can study the TMT as a microcosm of the broader organization. Is this true? There is

evidence that diversity among leaders contributes to diversity throughout (and across) the organization(s) (Beckman & Phillips, 2005; Baron, Hannan, Hsu & Koçak, 2007). To what extent does hierarchy among the leadership ranks reveal hierarchy throughout the organization? If TMT studies took on this question it would change the focus from organizational consequences to organizational dynamics, structures and processes. This could be a fruitful area of research and add to our broader understanding of organizational functioning.

Smmmary and conclusion

Our primary goal in this chapter has been to revitalize the demographic approach to TMTs and to advocate research avenues that do not require “opening the black box.” Most TMT researchers are driven by questions of organizational strategy and performance but have been lulled into viewing these phenomena only through the lens of individual action. This has led us to ignore what makes a top management team different than other teams. The field as a whole has largely ignored structure and proceeded with only minimal concern for broader environmental and contextual factors that operate on TMTs and organizations. By attending to organizational structure and how it changes over historical time and context, we advocate a return to some of the simple demographic measures first proposed in the field -- a stance that puts us in opposition with much of the current literature.

We argue that TMT structures are often antecedent to the processes hypothesized to impact organizational outcomes in the traditional TMT literature. In addition, founding composition and structure has a lasting impact on the firm. More importantly, taking structure into account reveals that compositional characteristics of top managers are not a

random happening. TMT members are the result of a deliberate selection process – both in terms of which roles are represented in the innermost circle and in terms of the particular incumbents who occupy the roles. TMT members are likely to have very different experiences depending on the organizational structure. While organizational structural choices might plausibly be uncorrelated with age, gender, race or tenure (although we doubt it), they are almost certainly correlated with functional background. Thus, even scholars who are only interested in individual factors ignore structure at their peril. Considering an individual’s functional background without attention to her structural role is akin to considering an athlete’s height without attention to whether the sport is basketball or hockey. As a first step, TMT scholars must consider roles and incumbents as distinct and separable.

In addition to bringing structure back to the table, and separating individuals from roles, we highlight the importance of taking into account changing labor market conditions as well as shifting preferences for corporate structures. These macro-level factors clearly influence both the TMT roles and the characteristics of role incumbents. In fact, a challenge for the field is rejecting the claim that the relationship between TMT composition and outcomes is the spurious product of macro-level factors. Doing so requires a research design that eliminates causal ambiguity and also allows for careful controls. In our own work, we’ve studied entrepreneurial firms longitudinally from inception. This is a step in the right direction, but we do not claim to account for all sources of unobserved heterogeneity.

We discussed a range of macro-level forces that shape managerial discretion and executive cognitions, with the intent of tempering the strategic leadership view. These

include both temporal processes and contextual factors that such as the legal environment (Davis, Diekmann & Tinsley, 1994; Davis, 2009; Zorn et al., 2004), external stakeholders (Zuckerman, 2000), and founding conditions (Baron et al., 1999; Baron, Hannan & Burton, 1999). While many TMT scholars are interested in an array of organizational and environmental contingencies, from both the strategic leadership and the demographic perspectives, we are not the first to point out that this research has not gone far enough (Jackson et al., 2003). Most studies in this vein use a pooled cross-sectional design. Scholars have included variables such as environmental uncertainty, industry structure, organizational age and the size of the firm to understand the determinants of TMT characteristics (Finkelstein et al., 2009) without considering that these variables also change. This overall lack of attention to contextual factors may be a key reason why conflicting results are found across studies (Triandis, 1995; Jackson et al., 2003; but see Cho & Hambrick, 2006). That said, a few studies are moving in the right direction. Jensen and Zajac (2004) begin to consider macro-level contextual factors in their study of how corporate governance and TMT characteristics interact. Joshi and Roh (2009) do an admirable job of linking occupational demography to teams (although they explicitly exclude TMTs!). Furthermore, there is evidence that different organizational settings have various constituents who shape the TMT composition (Boeker & Wiltbank, 2005). These approaches, which take context into account as either explanatory variables or as theoretical boundary conditions, offer compelling models for future studies.

In addition to understanding how the external context affects TMTs, we need to consider how historical context shapes the TMT. Although it is true, as strategic leadership scholars argue, that managerial discretion may be limited by contemporaneous

environmental, organizational and individual factors (Finkelstein et al., 2009), we find it more useful to consider managerial action as shaped by historical processes. The industry structure, organizational culture, and personal characteristics of managers certainly influence managerial discretion. But to include them as concurrent variables to be controlled ignores the fact that industry, culture and managerial experience are embedded in the history of the firm and are changing over time.

For those of us who are teachers as well as scholars, the question becomes where is the best place for intervention and diagnosis? Should we measure individual characteristics or organizational history and context? We argue that understanding the history of the field, the organization and the TMT is a more fruitful diagnostic tool than measuring individual characteristics because, outside the experimental setting, selection decisions are driven by macro-level changes in roles, as well as organizational histories and cultures. The strategic leadership tradition overstates the importance of individual factors and does not give enough attention to the historical constraints and structural choices that influence TMT composition. In fact, our research suggests that even when individuals with the needed experience are chosen for a particular organizational position (e.g., a professional HR person hired into a VP of HR position), they are more likely to leave if those experiences do not fit with the history of the organization (Burton & Beckman, 2007). These findings should give us pause and suggest a rationale for appreciating that organizational selection decisions are subject to idiosyncratic firm-level considerations.

By attending to path dependent processes that shape TMT composition, we better specify the points of leverage for affecting change. If we understand sources of inertia

(such as homophily resulting in stable functional representation over time) and mechanisms of heterogeneity (such as external and temporal changes in the environment; or perhaps internal opportunities for learning and reconsideration), we can better understand the role of managerial agency and identify the opportunities for re-directing or interrupting path dependent processes. Considering these path dependent processes also begins to illuminate the pressing questions about antecedents of TMT composition (Pettigrew, 1992; Lawrence, 1997; Hambrick, 2007). Simply put, we know that macro-level changes and environmental pressures shape the emergence and death of executive roles. In addition, TMTs are artifacts of the decisions and individuals of early organizational members. Yet, we need to better understand what factors are endogenous to TMT change and composition as well as what factors are exogenous. Together this would help us better understand the antecedents of TMT composition.

All of this requires that TMT researchers separate individuals from their positions, gather longitudinal data, and use modeling strategies that are designed to account for change and time. This will allow us to understand how roles, and the individuals in those roles, evolve and change over time as a result of macro-level changes and firm-level path dependencies. Such an agenda provides enormous opportunities for another quarter century of vibrant research.

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ⁱ The Teachman's Index, another commonly used measure, gives similar values.

ⁱⁱ To further complicate matters, the amount of "overlap" depends on how broadly or narrowly functions are described, the period of time over which experiences are aggregated, and the number of people on the team.

ⁱⁱⁱ Sorensen (2002) and Harrison and Carroll (2006) carefully describe the problems with the coefficient of variation as a measure of tenure heterogeneity (which are as complex as the problems we note with the Blau index above). Their commentary is similar to the general commentary about all measures of diversity made by Harrison and Klein (2007): there are distinct conceptualizations that invoke different underlying processes but the theories and measures are often unclear as to which are being invoked.