

Antecedents and consequences of organizational change: 'institutionalizing' the behavioral theory of the firm*

Filippo Carlo Wezel**

Department of Organization and Strategy – Tilburg University

P.O. Box 90153, 5000 LE Tilburg, The Netherlands

Phone +31 13 4663260 - Fax +31 13 4668354

e-mail: f.c.wezel@uvt.nl

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Ayşe Saka

Department of Management—Mugla University

Kotekli 48000, Mugla, Turkey.

Phone: +90 533 662 10 05 - Fax: +90 252 223 80 04

E-mail: asaka@mu.edu.tr

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** Corresponding Author

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ABSTRACT

In this paper, we highlight the conditions under which organizations initiate changes in two distinct institutional contexts. While the focus within behavioral research has been on aspiration-driven organizational change, the effect of institutional dynamics on the probability of change has been given limited attention. Pooled cross-sectional data covering the period 1920-2001 in the baseball industry are regressed to examine a set of hypotheses that predict the drivers of organizational change in periods of institutional stability and instability, as well as the impact of these changes on performance. Our findings show that the role of aspiration-driven organizational change diminishes in environments characterized by institutional instability. Rather, mimetic and cognitive pressures pave the ground for responses to institutional dynamics. We also shed light on how the relative stability/instability of the institutional environment heterogeneously influences the implications of behavioral changes for organizational performance.

Keywords: Organizational change, institutional change

INTRODUCTION

Organizational theorists have, for a long time, posited a close relationship between environmental and organizational change (Lawrence and Lorsch 1967; Thompson 1967). Among many of the mechanisms that affect the search for an organizational fit with the environment, routines assume a prominent role (March 1981). The effectiveness of routines is called into question upon an environmental change. Performance may decrease as old routines are no longer aligned with the external environment. As performance provides a signal of success or failure to decision makers, any decline in performance necessitates the modification of old routines. This is expressed in the behavioral theory of the firm as the initiation of organizational change when aspirations are not met (March and Simon 1958; Cyert and March 1963; for empirical evidence see Greve 1998).

The behavioral theory emphasizes change as a predictable consequence of low performance (Cyert and March 1963). However, environmental changes create uncertainty that may render the interpretation of past performance difficult (March and Olsen 1975; Cyert and March 1992: 232-233). In this respect, a change in institutional rules is likely to trigger organizational change through imitation (Meyer and Rowan 1977; see also Greve 2003). The objective of this paper is to conceptually and empirically clarify the extent to which the driving forces of organizational change are contingent on institutional dynamics. Furthermore, even though a behavioral approach would suggest that change is a beneficial consequence of low performance, its effectiveness is likely to decrease in the context of institutional uncertainty that poses concerns over legitimacy gains (DiMaggio and Powell 1983). In this paper, we contribute to this literature by investigating the impact of the uncertainty created by institutional change on the effectiveness of organizational change by measuring its implications for performance.

To reach these goals, we use the information collected on the history of the American professional league of baseball (Major League Baseball), during the period between 1920 and 2001, to provide evidence on how both the drivers of organizational change and their consequences for performance are influenced by the dynamics of institutional environment. In the following section, we introduce the theoretical background. This is followed by the presentation of data, model and methods used for the analyses. In the last two sections, the results and their theoretical implications are discussed.

THEORY AND HYPOTHESES

History dependence: aspiration-driven change

Organizations attempt to develop an understanding of the connections between their actions and their outcomes, as well as the role their environments play in influencing the action-outcome link. To simplify and smoothen their functioning, organizations rely on routines as templates for their action. As they evolve, organizations encode inferences from history into routines that guide their behavior (Cyert and March 1963; March and Simon 1958). According to the behavioral approach, (i) behavior in an organization is based on routines (i.e., action involves matching procedures to situations more than it does calculating choices); (ii) organizational actions are history-dependent (i.e., routines adapt to experience incrementally in response to feedback about outcomes); and (iii) organizations are oriented toward targets (i.e., their behavior depends on the relations between the outcomes they observe and the aspirations they have for those outcomes).

A central assumption in this theory is that “organizations learn from their experience by making the probability of changes conditional on their history” (Greve 1998: 58). As information acquisition and processing about alternatives is costly (Cyert and March 1963;

March 1978), organizational decision-making is assumed to follow a logic of consequence, by which the outcomes of decisions are evaluated in relation to predefined aspirations (March 1994). That has led several authors to investigate how performance feedbacks influence organizational change (e.g., Greve 1998; Ocasio 1994).¹ Upon meeting goals, decision makers search for solutions to problems in the neighborhood of their knowledge domain (March and Simon 1958; Cyert and March 1963). Where performance is satisfactory, the organizational functioning is not altered (*ibid.*). Conversely, an increasing gap between an observed level of performance and aspirations encourages organizations to search for solutions beyond their immediate knowledge domain to restore performance to an acceptable level. As long as the environment is relatively stable, decision-makers can accurately interpret the relationship between actions and outcomes (Lant and Mezias 1990; Lant *et al.* 1992). However, as uncertainty increases, it becomes increasingly complex to represent events and activities in chains of means and ends, causes and effects (Cyert and March 1992: 232-233; Harrison and March 1984; Lant and Mezias 1992).

A relevant source of environmental uncertainty is the destabilization of established institutional rules. Organizational behavior, which is governed by cultural-cognitive, normative and regulative elements that provide stability and meaning (for a review see Scott, 2001), can be influenced by environmental ‘jolts’ (Meyer *et al.* 1990). These ‘jolts’ can take the form of regulatory change, or shifts in cultural beliefs and practices. The effect of ‘jolts’ is to disturb consensus by introducing new ideas and, thus, the possibility of change (Powell, 1991). As the relationship between organizational action and outcomes is clear where there is “enough time, enough stability in the system and unambiguous information” (Lant 1992:

¹ Following this body of research, the present article defines organizational changes as those related to a modification in the core functioning of the organization that carry a high potential for changing the organization’s performance – for details, see methods section.

642), we contend that *only* under institutional stability, organizations would initiate changes by relying on performance feedbacks. Hence, we hypothesize:

Hypothesis 1: Under conditions of institutional stability, organizations are more likely to initiate changes when their performance falls below their aspirations.

Institutional dependence: mimicry- and cognitive legitimacy-driven change

As institutional theory matured, researchers became more active in attempting to better understand institutional processes in their interaction with organizational change (Scott 2001). It has been argued that social upheaval, technological disruptions, competitive discontinuities, and regulatory change (Meyer *et al.* 1990; Powell 1991) destabilize established practices, redefining the values, assumptions, and rules to which organizational behavior is anchored. With the emergence of new structures of meaning and schemes of interpretation, stability declines.

Under such conditions, organizations cannot rely on performance feedbacks to make sense of their behavior. That is because, in uncertain environments, “the application of old routines can produce experiences that are not easy to explain within the current interpretative schema of the organization” (Lant *et al.* 1992: 588). If the new conditions differ from those experienced when a set of rules was created, then the old set of routines will become obsolete (March *et al.* 2000). Consequently, organizational rules that act as templates for action no longer serve as an effective guide for future action. Institutional changes imply that routines that were guided by performance feedback under certainty are redefined to cope with new institutional requirements. This is because a routine’s chances of

being replicated depend not only upon its success *per se*, but on perceptions of organizational decision makers about its success, that is its ease of replication and legitimacy of a practice.

Under conditions of institutional instability, organizations tend to model themselves after similar others (DiMaggio and Powell 1983; Tolbert and Zucker 1983).² Misalignments with the institutional context create pressure in terms of social expectations to imitate popular routines for success. In a recent review of interorganizational learning, Ingram (2002: 658) remarked that under uncertainty, it may be appropriate to mimic others' behavior, for "as long as there is some chance that others have better information than the focal decision maker, it may be rational to do what those others do". The advantage of such mimetic behavior is that, in the face of uncertainty, an organization can carry out the search for a viable solution more conveniently based upon the experience of similar others (DiMaggio and Powell 1983; see, for instance, Mezas and Lant 1994 for an empirical investigation). According to this reasoning, we hypothesize the following:

Hypothesis 2: Under conditions of institutional instability, mimicry, rather than unmet aspirations, will drive changes in organizations.

Over time, the uncertainty brought about by an institutional change diminishes and institutional fields become more stable (Meyer and Scott 1983; Zucker 1987). Meaning systems that are frequently contested in times of social disorganization and change become consistent over time (DiMaggio 1997). Furthermore, as a new rule spreads, its cognitive

² It should be noted that such a social comparison differs from social aspirations. Social comparison within the behavioral theory of the firm suggests that aspirations are determined by the performance of similar others (Cyert and March, 1992; for an empirical investigation see Greve, 1998). Our argument, on the contrary, suggests that mimicking transcends performance comparisons and concerns decision-making under uncertainty.

legitimacy increases (for a review see Strang and Soule 1998). Rules tend to accord with cultural understandings of appropriate and effective action. As they become familiar and well known, they come to be viewed as 'natural' and 'taken for granted' (Tolbert and Zucker 1996). As rules gain a taken-for-granted status and uncertainty reduces, 'logic of social appropriateness' (Campbell 1994: 7) in rule adoption gains importance and augments the pressure to change. Following this line of reasoning we argue that, as institutional time increases, the relative importance of mimicry as a driver of organizational change diminishes, whereas the relative importance of cognitive legitimacy increases. Therefore, we hypothesize:

Hypothesis 2a: Under conditions of institutional instability, institutional age reduces the positive effect of mimicry and increases the impact of cognitive legitimacy on change.

Performance implications of change

In spite of the common belief in the behavioral theory of the firm that organizational change is predictable and often a beneficial consequence of low performance, March and his colleagues recognized that the predictions on the effectiveness of organizational changes should change under conditions of ambiguity (March and Olsen 1975; Lant and Mezias 1990). According to Lounamaa and March (1987: 108), "in the absence of calibrating heuristics, experience becomes a poor teacher", and organizational change becomes fraught with ambiguity (see also March 1981). Simulation studies within the behavioral tradition demonstrate that under ambiguous environmental conditions, change is costly (Lant and Mezias 1990 and 1992) and marked by unexpected consequences (Harrison and March 1984). Building on these insights, we expect performance implications of organizational

changes that are promoted by environmental uncertainty to differ from those of changes that are initiated by performance feedbacks. Hereafter, we investigate how the relative stability/instability of the institutional environment heterogeneously influences the implications of organizational change for performance.

Learning is easiest when the system is stable and signals are unambiguous (Lant and Mezias 1990; 1992). Such stability allows decision-makers to evaluate the quality of alternative choices before committing to them. The environment is stable enough to allow decision makers to discern valid signals from it and to *individually* assess alternative choices. Under similar conditions, organizations rely on detecting problems through performance feedbacks and calibrate actions to correct them (Lounamaa and March 1987). Therefore, change can be correctly crafted to improve performance, as the behavioral perspective would suggest (Cyert and March 1963; for an empirical investigation see Lant and Mezias 1990).

As institutional rules change, organizational decision-making comes under the influence of isomorphic pressures. Institutional theory suggests that under uncertainty organizations imitate the practices of others (DiMaggio and Powell 1983). Their behavior is influenced by common definitions of the situation and strategies of action. Overall, imitative strategies build up bandwagon pressures (e.g. Abrahamson and Rosenkopf 1990) and several participants come under the influence of adopting even when they may not benefit from it (Abrahamson and Rosenkopf 1993). Under such conditions, individual assessments of the efficiency or returns of a particular practice are suppressed in favor of some form of 'pluralistic ignorance' (Strang and Macy 2001). Since social acceptance becomes the underlying principle of imitation, the adoption of new rules is credited to legitimacy than to any concrete evidence that the adapted models enhance efficiency (DiMaggio and Powell 1983). This is supported by studies that de-couple performance benefits from legitimacy

gains upon change (e.g. Westphal *et al.* 1997; Zbaracki 1998). Such studies suggest that even though the adoption of a new practice may boost legitimacy, it is “negatively associated with organizational efficiency benefits” (Westphal *et al.* 1997: 388).

This leads us to suggest that initiating changes under conditions of institutional instability leads to lower performance. Conversely, changes taking place during periods of institutional stability would be expected to yield an increase in performance. Accordingly, we hypothesize:

Hypothesis 3: Under conditions of institutional in(stability), change will be negatively (positively) related to performance improvements.

However, the above average association is likely to be heterogeneous over time. During the early years of institutionalization or initial disruption to institutional stability, organizations are relatively freer from isomorphic pressures and are more motivated by the opportunity for efficiency gains (DiMaggio and Powell 1983: 147; Zucker 1983). They realize positive performance gains by adopting new practices and customizing them to the organization’s unique needs and capabilities (Westphal *et al.* 1997). However, institutional bandwagon animates a self-reinforcing cycle in which the number of change initiators increases the bandwagon pressure that, in turn, increases the number of adopters (Abrahamson and Rosenkopf 1990). As over time, “a threshold is reached beyond which adoption provides legitimacy rather than improves technical performances” (DiMaggio and Powell 1983: 141), it is particularly the late adopters who are exposed to this bandwagon pressure and the loss of legitimacy upon non-adoption. Accordingly, we hypothesize:

Hypothesis 3a: Under conditions of institutional instability, organizational change positively affects performance during the early years. As institutional age increases, the opposite relationship holds true.

METHODS

Data

The paper examines the baseball industry to highlight the drivers of change and their performance implications for two main reasons. First of all, the existence of a clear-cut discontinuity in the institutional rules of Major League Baseball (MLB) provides us with an almost ideal quasi-experimental research setting to test our hypotheses on the heterogeneous drivers of a change during periods of institutional stability and instability. Second, there is the contention that personnel turnover disrupts the smooth functioning of existent organizational routines (see Nelson and Winter 1982 pp. 115-116), and eventually conditions change processes (Cattani *et al.* 2002). The longitudinal character of this study allows tracking of such effects as they unfold over time. Thus, we are able to examine the full process of institutionalization. Third, there is the argument that performance measures become unreliable over long periods of time (e.g. Meyer and Gupta 1994). Our data provide an accurate and consistent record of performance, i.e. percentage wins/losses that discourage the arbitrary choice of this measure.

The data used in the analyses include the whole population of professional baseball teams active in MLB during the period included between 1920 and 2001. This unique dataset allows us to track the movement of each professional baseball player across every MLB team during the whole period of observation. The main source of information is *The Baseball Archive Database* (Lahman 2002) that contains comprehensive information on each player,

manager and team over the concerned period of observation. In order to test the reliability of the data, we also consulted *Total Baseball* (Thorn 2001) and several years of the *Official Baseball Register*.

Institutional change in the baseball industry

There was restricted movement among baseball players in the MLB until 1976. “Beginning in 1879, the reserve clause gave monopsony power to team owners; a player could negotiate salary only with the team that owned his contract and the team could trade or sell the player as management saw fit” (Hylan *et al.* 1996). The reserve clause meant that each team agreed, without informing the players, that it would reserve five players on its roster. Within a few years, the reserve list expanded to include each team’s full roster of 11 players. “The National League introduced innovations that came to be taken-for-granted components of professional sports leagues, including territorial rights for teams, fixed schedules arranged by the league, and competition limited to contests between league members” (Chacar and Hesterly 2000: 3). The renewable feature of a player’s contract was an option granted exclusively to the owner. Players made a few concerted, but largely unsuccessful, attempts to respond to the pay and mobility restrictions imposed by owners. They lacked the ‘business sophistication and ability to act in unison’ that gave owners the upper hand in rule setting (Chacar and Hesterly 2000). The institutional rules of this period reinforced non-market status quo. The reserve clause made it very difficult for players to identify their market value and removed the threat of exit. The unquestioned acceptance of the status quo lasted until 1976.

In 1976, there was a shift to market-based social relationships. The comparison with athletes in other sports and the arrival of a transformational leader, Marvin Miller, was

crucial in changing formal institutional rules. With the help of this leader, players were able to redefine their relationship with the owners and identify appropriation opportunities (Chacar and Hesterly 2000). The shift in social relations over time from authority ranking to market-based resulted in collective action and greater availability of information to players. The reserve clause was replaced by the institution of free agency. In the free-agency era, a player with at least six years of Major League experience acquired the right to sell his services to prospective buyers. As Chacar and Hesterly (2000: 4) argue, “this dramatic shift [has] resulted in a period of institutional instability”. It represented a disequilibrium situation with a new equilibrium gradually evolving after the change in the formal rules with a rise in the accumulation of adoption of the new practice.

One implication of such disequilibrium was that players’ mobility differed from that in the pre-free agency period. In particular, the mobility of players increased especially for minor players. Therefore, to be consistent with the understanding within the behavioral theory of the firm (Cyert and March 1963) of organizational changes as modifications in routines carrying a high potential for changing the organization’s performance, and to improve the comparability of our results across the two periods, we focused on just a subpart of the adoption of new institutional rules: the mobility of core players. As Figure 1 shows, in our sample the average number of core changes, constituting the mobility of ‘highly performing’ players, remained relatively stable over time.³ Considering the sharp increase in the total number of players who declared free agency from 1977 (22) to 2000 (136), this finding seems surprising. However, support for this descriptive evidence may be found in the decision not to move three major players belonging to the top 15 contracts (Pedro Martinez, Todd Helton and Randy Johnson). In the last two off seasons only three

contracts of this list were signed with none involving players who switched teams. In the year 2002, for instance, Roy Halladay (Cy Young trophy winner) could have become a free agent after this season. Instead he chose to remain with the Blue Jays, signing a four-year contract. The low mobility of high-profile individuals, although surprising, is confirmed by many other empirical works which argue that low performers are more likely to move than high performers (e.g. Hollenbeck and Williams 1986, Groysberg and Nanda 2002). These evidences on core players are in alignment, in part, with the assertion within Coase theorem that transferring property rights from one group to another does not change the allocation of resources from its most efficient distribution (for a discussion see Coase 1988). In other words, the efficient allocation of resources is independent of their ownership. Therefore, although, considering the entire league, it is clear that decision-makers changed over time, the same cannot be said by focusing solely on best players. Differently stated, the increasing bargaining power of best players became primarily expressed in their ability to obtain higher salaries, without significantly affecting their propensity to move.⁴

Variables

The models estimated in the empirical part of the paper include as independent variables, (i) team level aspirations, (ii) environmental estimates measuring competitors' behavior, and (iii) a set of controls accounting for significant changes in the institutional setting of the baseball industry. The dependent variables in our two sets of models are the yearly number of core players changed, and team performance improvement (growth) that is

³ Although a sharp increase is visible after 1995, this period does not show any statically significant departure from the mean value owing to relatively a high standard deviation.

⁴ We are grateful to one of the reviewers for suggesting this line of reasoning. In addition, MLB teams became increasingly reluctant to sell their best players due to opposition from fans (see Hylan *et al.* 1996).

considered in conjunction with the initiated change during the period included between 1920 and 2001.

We want to measure the propensity of baseball teams to engage in change, i.e. those that require the revision of existing routines. To do so, we interpret organizational changes as those related to a modification in the core functioning of the organization or changes that orient the organization towards the environment and carry a high potential for changing the organization's performance. Simply stated, baseball is a game "between two teams of nine players each, under direction of a manager. The objective of each team is to win by scoring more runs than the opponent" (Lahman 2002). The match is composed of nine innings during which the teams alternate between offense and defense roles and in which there are three putouts for each team. Although baseball is a team sport, in which success does not depend solely on the virtues of individual players, there are two key players—the batter and the pitcher—whose performance is highly influential on overall team performance. In our analysis, we define the core defensive players of a team each year as the four pitchers playing the highest number of innings, for "even though each team has ten to twelve pitchers, the starting four are those most relevant for the performance of the team" (the famous pitcher Cy Young)⁵. In a similar vein, in line with Harder (1992), we measure the contribution of each batter to the performance of the team as:

$$\frac{(Hits + BB - CS) * (TB + .55 * SB)}{AB + BB},$$

[1]

where Hits=number of bases hits, BB=number of bases on balls or walks, CS=number of times caught stealing a base, TB=total bases earned on hits, SB=number of stolen bases, and

⁵ <http://www.brainyquote.com/quotes/quotes/c/q139750.html>

AB=number of official times at bat. After building this measure, we observed a manifest difference in performance between the four best batters and the rest of the team. Thus, the four best batters were defined as core offensive players. We then measured, for every year of observation, as *Core Change* the yearly count of pitchers and batters leaving the focal team after being part of its core the year before.⁶

The behavioral theory of the firm posits that the updating of aspiration levels is an important source of breaking existing routines (e.g. Cyert and March 1963). Aspirations are cognitive heuristics that transform continuous performance measures into a *dichotomous* measure of success or failure (March and Simon, 1958). Such a dichotomous classification simplifies the decision-making process (see Cyert and March 1992: 172-174). The gap between the observed level of performance and current aspirations significantly affects the likelihood that organizations will initiate change (for an empirical evidence see Greve 1998). An elaborate means of operationalizing this concept is to estimate an exponentially weighted average of past values of performance (e.g. Lant and Mezias 1992). Following Greve (2003), we first assigned different weights to previous aspirations (between 0.1 and 0.9). Consistent with the nature of this industry, we found a fairly rapid update of aspirations (weight=0.8) to offer a reasonably good fit. However, the best fit to the data was achieved by a dummy variable coding.⁷ Thus, we chose to dichotomize firm behavior in meeting aspirations by comparing performance against its lagged value (for a similar approach see Kraatz 1998). More precisely, we defined a dummy variable named *Aspirations Unmet*, taking the value of 1 each time the previous level of performance is not met, and 0 otherwise. As suggested by

⁶ We found that using a dummy variable, which was determined by a threshold of 50%, did not affect the results presented in this paper.

⁷ The results obtained from a 0.8 weighted average measure were qualitatively similar to those presented here. Our fixed-effect model specification is meant to control for heterogeneous historically dependent aspirations (see below).

hypothesis 1, we expected this variable to be positively related to a change during periods of institutional stability.

Since institutional changes tend to destabilize the environment, our theoretical expectation (H2) was to observe a shift in the driver of a change during the second era of the baseball industry – *Post 1976*. *Mimetic* isomorphism, more than aspirations, should drive changes in contexts of institutional instability. To account for the importance of mimetic processes in triggering change among teams, we labeled as *Mimicry* the number of departures of core players taking place during the same year in rival teams. For every year of observation, we ranked teams within each league according to their final performance (i.e. wins/losses). Consequently, we considered as rivals of the focal team both the one falling above and the one below its level of performance. This choice was motivated by the fact that social comparison takes place among individuals considered similar (e.g. Festinger 1954). Empirical research often considers size, industry and performance as important organizational characteristics that define reference group composition. We took this into account by enlarging the number of rivals to three and four, and found that our findings were not affected.

We earlier hypothesized that the more an institutional change becomes legitimated, the higher is the likelihood that the urgency to conform is driven by cognitive rather than mimetic pressures. A count of total number of previous adopters is a standard measure in the institutional tradition that is used to indicate the general legitimacy of a new institutional rule (see Strang and Soule 1998). Since the increasing number of adopters serves as an indicator of the taken-for-granted nature of a new practice, we expect cumulative change – *Cumulative Change* — to become more relevant than mimetic behavior in driving change over time. We logged *Cumulative Change* to account for the increasing impact of this variable at a

decreasing rate and to reduce its correlation with the institutional age variable (0.45) – see below. Thus, we tested hypothesis 2a by interacting both the yearly number of rival changes and cumulative changes that have occurred since the beginning of the new institutional period with a variable counting the time passed since 1976 – *Institutional Age*.

Several controls were included in our analyses to account for both team and environmental influences. The debate on managerial change and performance has a long history in the baseball industry (e.g. Grusky 1963). We measured the impact of managerial succession on both change and performance by creating a dummy variable indicating the replacement of the manager – *Manager Change*. To rule out the impact of other changes in the baseball industry, six dummy variables, corresponding to the eras of major changes in this sport, were defined.⁸ During the period 1920-1938, a cork-and-rubber-center ball replaced the rubber-core ball. Pitchers were no longer permitted to alter baseballs or use trick pitches. These changes occurred in our omitted category for the analysis of the period 1920-1976. The Second World War (1939-1945) interrupted the careers of many of baseball's brightest stars such as Joe DiMaggio and Ted Williams. Similarly the years included between 1946 and 1960 significantly changed baseball. In 1947, the first African-American — Jackie Robinson— was admitted to play in a major-league game (Tygiel 1997). This created a new market niche for players. Thus, we created two dummies – *WWII* and *1946-1960* – to control for these dynamics. To control for two major changes – i.e., enlarged strike zone and expansion –, a dummy variable was added for the period 1961-1975. The period 1976-1992 (our omitted category for the period 1976-2001) was marked by the early experimentation of “free agency” resulting in fourteen different franchises to win the World

⁸ See, for instance, “The Baseball Chronology: The Complete History of the Most Important Events in the Game of Baseball”, by James Charlton (1991), or <http://www.baseballlibrary.com/baseballlibrary/chronology>.

Championships. Moreover, 1993-2001 marked a period of increased competition. Homeruns and strikeouts increased immensely during this era. A dummy variable was added to account for these changes. In addition, to account for the heterogeneous patterns of change across different levels of experience, we defined as *Tenure* the number of years of experience a team had in the MLB. Finally, since we lacked detailed information on the financial statements of each team, we assumed the level of yearly *Attendance* to represent a rough proxy for ‘moral’ support. All of the covariates were lagged one year to avoid problems of simultaneity.

Model and analysis

To test all our hypotheses, we employed a subgroup analysis estimating a model for teams changing their core during the years of institutional stability (1920-1975) and another during the years of instability (1976-2001). The hypotheses could be tested by simply comparing the direction of the coefficients across the two models. Although we could have used interaction terms in one main model, given the inherent variance of our data across the two institutional periods, we decided to relax the assumption of error structure invariance between the two institutional periods (e.g. Maddala 1983).⁹ In particular, the dependent variable in our first analysis (to test H1, H2 and H2a) is represented by the number of core changes that each team experienced every year. We opted for a similar variable to emphasize the continuous nature of organizational change (e.g., Greve 1998). In other words, we interpreted the intensity of trading major players as indicating the extent to which core routines are modified within a team. The basic model that is used to deal with counts of events is to assume that their realization follows a Poisson distribution:

Adding dummy variables for individual years of significant changes – e.g., designed hitter – does not affect the results presented here.

$$\Pr(Y_i = y) = \frac{\exp(-\lambda_i)\lambda_i^y}{y!}$$

[1]

As a standard practice, to ensure that the estimated rate is positive, a log linear function is used to relate covariates, X_{it} , to the expected value of Y_i . That is,

$$\lambda_{it} = \exp[\beta'X_{it}]$$

[2]

However, under the assumption that the pattern of changes follows a Poisson distribution, the data presented the problem of overdispersion – i.e., the tendency of the variance of the founding rate to increase faster than its mean. Since we found significant evidence of overdispersion in our data, we employed a negative binomial formulation in our analysis. Furthermore, to correct for the bias resulting from the fact that changes systematically varied among teams, we employed the fixed effect version of the negative binomial model proposed by Hausman *et al.* (1984) that conditions the estimation on the total count of events in each team. To control for historically-dependent aspirations (e.g. New York Yankees won the Championship 26 times and have different ambitions than for instance Houston that never won), the fixed effects were defined at the team level.

In order to test the influence of change on performance (H3 and H3a) across the two institutional periods, we controlled for the impact of lagged performance values by

⁹ The results obtained using a single model formulation are qualitatively similar to those presented in this paper and are available upon request.

estimating models of performance growth. We defined this measure as a function of the percentage of wins on losses¹⁰ the previous year and of a number of other controls:

$$\frac{Performance_{i,t+1}}{Performance_{i,t}} = Performance_{i,t}^{\gamma-1} e^{\eta x_{it} + \varepsilon_{i,t+1}}, \quad [3]$$

where $Performance_i$ is a time-varying measure of the percentage of wins obtained by the team i , γ indicates how the rates are influenced by the lagged value of performance, and η is a vector of parameters related to team level and environmental controls. Adopting a logarithmic transformation to [4], the model becomes:

$$\ln(Performance_{i,t+1}) = \gamma \ln(Performance_{it}) + \eta x_{it} + \varepsilon_{i,t+1} \quad [4]$$

Our means of coping with repeated observation was to model the difference among teams by assuming either a fixed or random variation. For both the subgroup of observations, the Hausman (1978) test suggested the adoption of a random effect model. We also detected and corrected for the presence of heteroskedasticity across panels and autocorrelation [AR(1)] within them due to the presence of the lagged dependent variable. The estimates presented in the following section were obtained using the software package STATA version 7.

¹⁰ It may be argued that wins on losses is a poor indicator of real performance, which can be better captured by financial indicators. However, to the extent that profitability is considered, there exists a positive feedback between sporting and financial performance. In other words, if a team wins, it will attract fans, sell merchandise and so forth, thus increasing its revenue. For instance, Bruggink and Rose (1990) quantify the implication of each winning percentage point into a \$53,070.50 revenue increase, with a correlation significant at the 99 per cent level.

RESULTS

Table 1 reports the estimates of the fixed effects negative binomial models of the number of core changes for the American Major League baseball teams. The first column presents the estimates of the model concerning the years of institutional stability – i.e. 1920-1975. The second column allows us to compare the estimates obtained in the previous model with those related to the period of institutional instability – i.e. 1976-2001. Finally, the third column reports the final formulation of the model accounting for temporal heterogeneity within the new institutional era. These models are designed to test hypotheses 1, 2 and 2a.

Insert Table 1 about here

The estimates obtained for the controls require some consideration. As far as the period 1920-1975 is concerned, the coefficient of the variable *WWII* suggests that, compared to 1920-1938, the migration of core players between teams decreased during this period. As expected, the years 1993-2001 were marked by a significant increase in the number of team core changes, compared to the period 1976-1992. The number of people attending home matches – *Attendance* – during both periods of stability and instability exhibits a positive relationship with core change. As increases in the resources of an organization may promote experimentation and change (Cyert and March 1963), we interpret this finding to be spuriously related to the team’s availability of financial resources.

In line with our theoretical rationale, we expect heterogeneous estimates for the variables related to the impact of aspirations (*Aspiration Unmet*) and institutional dynamics (*Mimicry* and *Cumulative Change*) on the number of core changes. Allowing the effect of

Aspiration Unmet to change across the two institutional periods, we obtain two different findings. In support of our theoretical claims, our results show the importance of *Unmet Aspirations* in driving change during the years (1920-1975) before institutional change: failing to reach the predefined level of aspirations significantly increases the probability of modifying the ‘core components’ of a team. Yet, a comparison of this finding with that related to the years of institutional instability provides evidence of the limited importance of this variable during the second period. This result confirms hypothesis 1. As expected, *Mimicry* and *Cumulative Change* do not have a significant effect on core change in times of institutional stability.

As Hypothesis 2 predicts, in period of institutional instability, cumulative change is increasingly important in influencing the behavior of MLB teams: the increasing number of adopters of the new free-agency rules positively affects the migration of core players between MLB teams. Unexpectedly, mimicry does not seem to play a significant role. Yet, as hypothesis 2a suggests, the relevance of similar processes is highly heterogeneous within the period of institutional change. Over time, as legitimacy gets established, cumulative changes rather than mimicry should become more relevant in driving organizational change. We test this claim in the last column of Table 1 by adding two interaction terms, accounting for the effects of these two variables over time within the new institutional era. Both the coefficients estimated are in the predicted direction and statistically significant: over time, *Mimicry* becomes less important in driving change, whereas the opposite holds true for *Cumulative Change*. It is worth noting that, when the model is controlled for the temporal dynamics of institutional change, the effect of *Mimicry* becomes statistically significant, supporting the importance of this mechanism during the period of early instability. As the coefficient of the

variable *Aspirations Unmet* is far from being statistically significant, this pattern of findings provides substantial support to hypotheses 2 and 2a.¹¹

Insert Table 2 about here

As explained in the theoretical development of hypothesis 3, we expect the relationship between change and performance to become increasingly ambiguous across our second period of observation. Table 2 reports the estimates of the coefficients related to hypotheses 3 and 3a that were obtained by modeling the performance growth of MLB teams.¹² As expected, the effect of change on performance growth is affected by institutional dynamics. On the one hand, during period of institutional stability, core changes that are driven by aspirations are *positively* related to increases in performance – see *Core Change* in the first column of table 2. On the other hand, during periods of institutional instability that are characterized by isomorphic pressures arising from institutional changes, organizational changes *negatively* affect the growth of team performance. Finally, while hypothesis 3 finds confirmation in our empirical analysis, hypothesis 3a is not supported: the interaction term of core change with institutional age is not statistically significant.¹³

¹¹ One might argue that the uncertainty due to free agency was especially pronounced during the early years 1976-1981, and waned after 1993. We re-ran our analyses for the sub-samples 1976-1981, 1976-1993, and 1994-2001. The findings obtained (available from the authors) suggest that, consistent with Westphal *et al.*'s (1997) argument, unmet aspirations positively and significantly affected the number of changes only during the period 1976-1981. During the same years, mimicry showed a positive and a highly significant effect on core changes. Last, but not least, the significance of cumulative changes was built during the period 1976-1993. In the following years (1994-2001), its coefficient lost statistical significance.

¹² It is worth noting that the log-likelihood of the models presented in Table 2 is positive. That is because our dependent variable (wins/losses) is bounded between 0 and 1. Transforming the dependent variable in percentage points leads to a negative log-likelihood, but with exactly the same values for the coefficients.

¹³ As before, we re-ran our analyses for the sub-samples 1976-1981, 1976-1993, and 1994-2001. The findings obtained (available from the authors) suggest that the negative effects of core changes on performance are not associated with any specific pattern of temporal variation.

DISCUSSION AND CONCLUSIONS

The behavioral theory of the firm (e.g. March and Simon 1958; Cyert and March 1963) suggests that decision makers engage in goal-oriented change when they fail to meet their aspirations, and they avoid change when they exceed it. We complement this insight with institutionalist arguments that explain for change in organizations. Specifically, we examine the effect of institutional change on the propensity of organizations to change and, in turn, to grow. In doing so, we use the information collected on all the teams in the Major League Baseball during the period 1920-2001, to investigate the relevance of the introduction of free agency for the decision making process of teams. Using the same data, we also model the influence of change on their performance.

In line with the existent theory and our expectations, we find aspirations to be critical in driving change during periods of institutional stability. However, we do not find evidence for their significance in periods of institutional instability. The results, in fact, demonstrate that institutional changes modify the established routines in behavior and significantly affect the decision making process of baseball teams. Particularly, in times of high uncertainty, we find baseball teams to model themselves on similar others, using first mimetic, and, then, cognitive legitimation processes. We also find the effect of a change on performance growth to be mediated by institutional pressures. Changes influence performance positively, where aspirations are at the forefront during periods of institutional stability, and negatively in periods of institutional instability, where aspirations no longer play a significant role in organizational change.

The implications of our findings are threefold. First, our results suggest that institutional forces can influence organizational change behavior. The emphasis in behavioral theory of the firm is on organizational change that is driven by aspirations. James G. March

and his collaborators, over the last four decades, have portrayed organizations as target-oriented and rule-based systems that adapt incrementally to past experience. Behavior is modified on the basis of results. Routines and rules are developed as experience with different contingencies accumulates. This view of history-dependent change does not consider the implications of a change in routines as a result of broad regulative, normative and cultural-cognitive structural change. In other words, as noticed by other authors (Greve 2003: 172), the theory tends to ignore the relevance of the diffusion of new institutional practices to driving organizational changes. A change in institutional logics and the associated changes in governance systems affect organizational decision-making. The present study shows that, under conditions of uncertainty created by institutional instability, organizational change is driven by social pressures. Over time, as new institutional rules get legitimated, organizations initiate change that is driven by legitimacy pressures. Where the relationship between organizational performance and achieved targets is ambiguous, an organization's search for satisfactory solutions is based on the behavior of others.

Second, organizations are assumed to increase behavior that results in favorable outcomes and decrease behavior that results in unfavorable outcomes (Cyert and March 1963; March and Simon 1958). The present study shows that a change produces a positive performance outcome in periods of institutional stability. By contrast, where there is a disruption to institutional rules, change affects performance negatively. Organizations mimic the practices of similar others for social acceptance rather than superior performance. Limited assessment of the efficiency or returns of a particular practice can result in negative performance. Therefore, in this study, we attempt to clarify the link between organizational change and performance, and conclude that the immediate performance implications of behavioral change depend on the type of institutional environment in which an organization

operates. However, our findings on the change-performance link do not reflect sensitivity to time variance in times of institutional change. We interpret this as providing support to the claim that, legitimacy gains are decoupled from performance benefits (Westphal *et al.* 1997; Zbaracki 1998).

Third, the tradition in institutional theory has been to explain for similarity and stability of organizational arrangements in a given population or field of organizations (Greenwood and Hinings 1996). “Emphasis has been on institutional construction and on convergent change processes” (Scott 2001: 181). Change has posed a problem for institutional theorists who tend to view institutions as the source of stability and order (e.g. Meyer and Rowan 1977; DiMaggio and Powell 1983). Surprisingly, little attention has been devoted to the empirical investigation of the processes of institutionalization and deinstitutionalization (Tolbert and Zucker 1996). Only recently, studies have sought to address the likely change within institutional arrangements themselves by acknowledging the deinstitutionalization of existing forms and their replacement by new arrangements (e.g. Goodstein 1994; Zilber 2002). For instance, the attention paid to the role of agency in institutional change has increased (see special forum in *Academy of Management Journal*, vol. 45, no. 1). In this paper, we highlight both institutional change and the institutionalization process. After 1976, taken-for-granted practices in the baseball industry were questioned. The existing forms that reinforced the non-market status quo in the baseball industry were replaced by new conceptions that provided a foundation for new cultural-cognitive frameworks (e.g. Strang and Meyer 1993). Institutional processes of mimicry and cognitive influence gave shape to collective experience upon a shift in institutional logics. Thus, our paper points to the importance of an under-explored area of research that investigates the process through

which new institutional rules become legitimated upon a disequilibrium in the institutional context.

The results of our analyses may be interpreted as being idiosyncratic to the chosen empirical setting. Baseball is known to be a sport characterized by low level of interdependency among members in comparison, for instance, with basketball, or a firm. A baseball team's propensity to initiate exploratory search and to seek performance feedback tends to project a simplistic image of change processes within 'real-life' organizations. More sophisticated empirical settings, such as aircraft and automotive sectors, may present dynamics that are different from those of the baseball industry. Our empirical setting constitutes an extreme case of change, namely one in which core modifications have an immediate influence on performance. Thus, our line of reasoning may only apply to other extreme settings such as investment banking, law, venture capital, and accounting consultancy where actor mobility can generate consequences similar to those observed in our empirical setting. Furthermore, our study lacks salary data that could serve as a motivator for the mobility of core players. As players can be encouraged to move owing to attractive financial packages including salaries, not just due to sporting performance. Future research should add salaries to the model presented here.

In spite of the above limitations, we believe that our study can help sharpen our understanding of the interplay between institutional change and organizational change.

REFERENCES

- Abrahamson, Eric and Lori Rosenkopf
1993 'Institutional and competitive bandwagons: using mathematical modeling as a tool to explore innovation diffusion'. *Academy of Management Review* 18: 487-517.
- Abrahamson, Eric and L. Rosenkopf
1990 'When do bandwagon diffusions roll? How far do they go? And when do they roll backwards?'. *Academy of Management: Best Paper Proceedings* 50: 155.
- Bruggink, Thomas H. and David R. Rose Jr.
1990 'Financial restraint in the free agent labor market for major league baseball: Players look at strike three'. *Southern Economic Journal* 55: 1029-1043.
- Campbell, J. L.
1994 'Recent trends in institutional analysis: bringing culture back inot political economy'. *Working paper*. Department of Sociology, Harvard University, Boston.
- Cattani, Gino, Johannes M Pennings, and Filipo C. Wezel
2002 'Organizational turnover as endogenous precursor of industry dynamics and organizational dissolution'. *Working paper* #02G39. University of Groningen, The Netherlands.
- Chacar, Aya S. and William S. Hesterly
2000 'How knowledge-based employees recognize and pursue rent appropriation opportunities: A theory development based on a historical analysis of major league baseball'. *Academy of Management Proceedings* 1-5.
- Charlton, James
1991 *Complete History of the Most Important Events In The Game Of Baseball*. New York: Macmillan.
- Coase, Ronald H.
1988 *The Firm, the Market, and the Law*. Chicago: The University of Chicago Press.
- Cyert, Richard M. and James G. March
1963 *A Behavioral Theory of the Firm*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Cyert, Richard M. and James G. March
1992 *A Behavioral Theory of the Firm*, 2nd Edition. Cambridge, MA: Blackwell.
- DiMaggio, Paul W.
1997 'Culture and cognition: An interdisciplinary review'. *Annual Review of Sociology* 23: 263-287.
- DiMaggio, Paul W. and Walter W. Powell
1983 'The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields'. *American Sociological Review* 48: 147-160.

- Festinger, Leon
1954 'A theory of social comparison processes'. *Human Relations* 7: 117-140.
- Goodstein, Jerry D.
1994 'Institutional pressures and strategic responsiveness: Employer involvement in work family issues. *Academy of Management Journal* 37: 247-268.
- Greenwood, Royston and C. R. Hinings
1996 'Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of Management Review* 21/4: 1022-1054.
- Groysberg, Boris and Ashish Nanda
2002 'Does stardom affect job mobility? Evidence from analyst turnover in investment banks'. *Working paper* 02-029. Harvard Business School Division of Research, Boston.
- Greve, Henrich R.
1998 'Performance, aspirations and risky organizational change'. *Administrative Science Quarterly* 43: 58-86.
- Greve, Henrich R.
2003 *Organizational Learning from Performance Feedback: A Behavioral Perspective on Innovation and Change*. Cambridge: Cambridge University Press.
- Grusky, Oscar
1963 'Managerial succession and organizational effectiveness'. *American Journal of Sociology* 69: 21-31.
- Harder, Joseph W.
1992 'Play for pay: Effects of inequity in a pay-for-performance context'. *Administrative Science Quarterly* 37: 321-35.
- Harrison, Richard, H. and James G. March
1984 'Decision making and post-decision surprises. *Administrative Science Quarterly* 29: 26-42.
- Hausman, Jerry A.
1978 'Specification Tests in Econometrics' *Econometrica* 46: 1251- 1271.
- Hausman, Jerry A., Hall, Bronwyn H. and Zvi Griliches
1984 'Econometric models for count data with an application to the patents-R&D relationship'. *Econometrica* 52: 909-938.
- Hollenbeck, J. R. and C. R. Williams
1986 'Turnover functionality versus turnover frequency: A note on work attitudes and organizational effectiveness. *Journal of Applied Psychology* 71: 606-611.

- Hylan, Timothy R., Lage, Maureen J. and Michael Treglia
 1996 'The Coase Theorem, free agency, and Major League Baseball: A panel study of pitcher mobility from 1961 to 1992'. *Southern Economic Journal* 62/4: 1029-1042.
- Ingram, Paul
 2002 'Interorganizational Learning', in *Companion to Organizations*. J. A. C. Baum (ed.), 642-663. Malden, Massachusetts: Blackwell Publishers Ltd.
- Kraatz, Matt S.
 1998 'Learning by association? Interorganizational networks and adaptation to environmental change'. *Academy of Management Journal* 41: 621 -643.
- Lahman, Sean
 2002 *The Baseball Archive Database*. Portland: Creative Multimedia.
- Lant, Theresa K.
 1992 'Aspiration level adaptation: An empirical exploration'. *Management Science* 38/5: 623-644.
- Lant, Theresa K., Milliken Frances J., and Bipin Batra
 1992 'The role of managerial learning and interpretation in strategic persistence and reorientation: An empirical exploration'. *Strategic Management Journal* 13/8: 585-608.
- Lant, Theresa K. and Stephen J. Mezas
 1992 'An organizational learning model of convergence and reorientation'. *Organization Science* 3/1: 47-71.
- Lant, Theresa K. and Stephen J. Mezas
 1990 'Managing discontinuous change: A simulation study of organizational learning and entrepreneurship'. *Strategic Management Journal* 11: 147-179.
- Lawrence, Paul. R. and Jay W. Lorsch
 1967 *Organization and Environment: Managing Differentiation and Integration*. Boston: Graduate School of Business Administration, Harvard University.
- Loumanaa, Pertti H. and James G. March
 1987 'Adaptive coordination of a learning team'. *Management Science* 33: 107-123.
- Maddala, G. S.
 1983 *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge: Cambridge University Press.
- March, James G.
 1978 'Bounded rationality, ambiguity and the engineering of choice'. *Bell Journal of Economics* 9: 587-608.
- March, James G.
 1981 'Footnotes to organizational change'. *Administrative Science Quarterly* 26: 563-577.

- March, James G.
1994 *A Primer on Decision Making: How Decisions Happen*. New York NY: Free Press.
- March, James G. and Johan P. Olsen
1975 'The uncertainty of the past: Organizational learning under ambiguity'. *European Journal of Political Research* 3: 147-171.
- March, James G. and Herbert A. Simon
1958 *Organizations*. New York: John Wiley.
- March, James G., Schulz, Martin and Xueguang Zhou
2000 *The Dynamics of Rules: Change in Written Organizational Codes*. Stanford: Stanford University Press.
- Meyer, Alan D. James B. Goes, and Geoffrey R. Brook
1990 'Environmental jolts and industry revolutions: Organizational responses to discontinuous change'. *Strategic Management Journal* Special Issue: 93-110.
- Meyer, John and Brian Rowan
1977 'Institutionalized organizations: Formal structure as myth and ceremony'. *American Journal of Sociology* 83: 340-363.
- Meyer, John and W. Richard Scott
1983 *Organizational Environments: Ritual and Rationality*. Beverly Hills, California: Sage.
- Mezias, Stephen J. and Theresa K., Lant
1994 'Mimetic learning and the evolution of organizational populations', in *Evolutionary Dynamics of Organizations*. J. Baum and J. Singh (eds.), 179-193. Cambridge: Oxford University Press.
- Nelson, Richard R., and Sydney G. Winter
1982 *An Evolutionary Theory of Organizational Change*. Cambridge: Belknap.
- Ocasio, William
1994 'Political Dynamics and the Circulation of Power: CEO Succession in US Industrial Corporations, 1960-1990'. *Administrative Science Quarterly* 39: 285-312.
- Official Baseball Register*, various years. St. Louis: The Sporting News.
- Powell, Walter W.
1991 'Expanding the scope of institutional analysis', in *The New Institutionalism in Organizational Analysis*. W. W. Powell and P. J. DiMaggio (eds.), 183-203. Chicago: The University of Chicago Press.
- Scott, W. Richard
2001 *Institutions and Organizations*, 2nd edition. Thousand Oaks, California: Sage.

- Strang, David and John W. Meyer
1993 'Institutional conditions for diffusion'. *Theory and Society* 22: 487-511.
- Strang, David and Sarah A. Soule
1998 'Diffusion in organizations and social movements: From hybrid corn to poison pills'. *Annual Review of Sociology* 24: 265-290.
- Strang, David and Michael Macy
2001 'In search of excellence: Fads, success stories, and adaptive Emulation'. *American Journal of Sociology* 107: 147-182.
- Thompson, James D.
1967 *Organizations in Action*. New York: McGraw-Hill.
- Thorn, John
2001 *Total Baseball*. New York: HarperCollins Publishers.
- Tolbert, Pamela S. and Lynne G. Zucker
1983 'Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935'. *Administrative Science Quarterly* 28: 22-39.
- Tolbert, Pamela S. and Lynne G. Zucker
1996 'Institutionalization of institutional theory', in *The Handbook of Organization Studies*. S. Clegg, C. Hardy and W. Nord (eds.), 175-190. Thousand Oaks, California: Sage.
- Tygiel, Jules
1997 *Baseball's Great Experiment: Jackie Robinson and his Legacy*. New York: Oxford University Press.
- Westphal, James D., Gulati, Ranjay and Stephen M., Shortell
1997 'Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption'. *Administrative Science Quarterly* 42: 366-339.
- Zbaracki, Mark J.
1998 'The rhetoric and reality of total quality management'. *Administrative Science Quarterly* 43: 602-636.
- Zilber, Tammar B.
2002 'Institutionalization as an interplay between actions, meanings and actors: The case of a rape crisis center in Israel'. *Academy of Management Journal* 45/1: 234-254.
- Zucker, Lynn G.
1983 'Organizations as institutions', in *Research in the sociology of organizations*. S. Bachrach (ed.), 1-43. Greenwich: JAI Press.
- Zucker, Lynn G.
1987 'Institutional theories of organizations'. *Annual Review of Sociology* 13: 443-464.

Figure 1. Mean number of core changes by year in the Major league Baseball, 1920-2001.

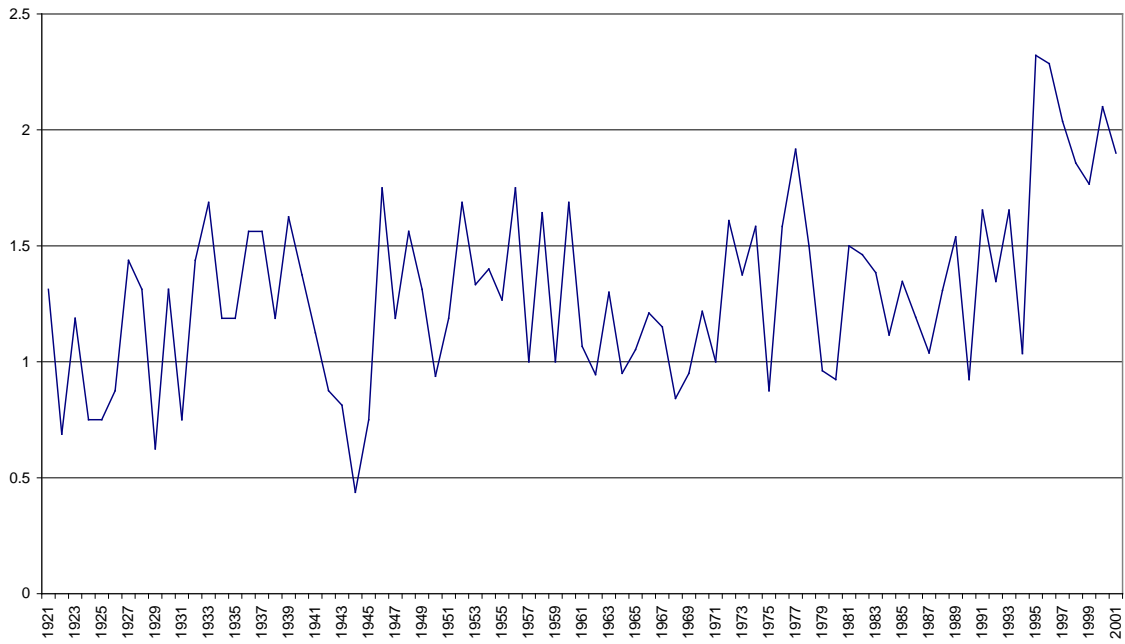


Table 1. Conditional Fixed-effect Negative Binomial Models for Core Changes in the MLB.¹⁴

Variables	Institutional stability	Institutional instability	Institutional instability
	1920-1975	1976-2001	1976-2001
Constant	1.79** (.50)	2.76* (1.81)	3.24* (2.27)
Tenure	.004 (.009)	-.020 (.035)	-.026 (.041)
WWII	-.27** (.14)		
1946-1960	-.08 (.19)		
1961-1975	-.20 (.29)		
1994-2001		.34** (.12)	.26** (.14)
Institutional age		.009 (.036)	-.074 (.077)
Attendance (in millions)	.015* (.11)	.008* (.06)	.009* (.06)
Manager change	-.10 (.10)	.04 (.09)	.029 (.087)
Unmet aspirations	.10* (.06)	-.047 (.064)	-.051 (.064)
Cumulative change (log)	.04 (.016)	.11** (.052)	.062 (.060)
Mimicry	.001 (.002)	-.01 (.02)	.049* (.038)
Cumulative change (log) *Institutional age			.014* (.010)
Mimicry*Institutional age			-.003* (.002)
Number of observations	944	693	693
Log Likelihood	-1242.38	-959.51	-957.89

¹⁴ ** p<.05, * p<.10 (one tail tests). Standard Errors in parentheses.

Table 2. Estimates of Fixed and Random Effects Models for Team Performance Growth in the MLB.¹⁵

Variables	Institutional stability	Institutional instability	Institutional instability
	1920-1975	1976-2001	1976-2001
	Random effects	Random effects	Random effects
Constant	.15** (.011)	.29** (.02)	.29** (.017)
Performance lag (Log)	.68** (.025)	.38** (.036)	.38** (.036)
Tenure	.0001 (.0001)	.0002** (.0001)	.0002** (.0001)
WWII	-.0001 (.007)		
1946-1960	.01** (.006)		
1961-1975	-.01** (.006)		
1994-2001		.010* (.007)	.010* (.007)
Manager change	-.007 (.005)	.006 (.006)	.006 (.006)
Institutional Age		-.001** (.0005)	-.001** (.0005)
Attendance (in Millions)	.016** (.05)	.011** (.03)	.011** (.03)
Core Change	.020* (.13)	-.019* (.12)	.010 (.29)
Core Change*Institutional age			-.02 (.02)
Number of observations	944	693	693
Log Likelihood	1305.32	1001.25	1002.18
Wald chi-square	1282.67(8)**	219.03(7)**	224.75(8)**

¹⁵ ** p<.05, * p<.10 (one tail tests). Standard Errors in parentheses.