

Cornell University  
ILR School

Cornell University ILR School  
**DigitalCommons@ILR**

---

CAHRS Working Paper Series

Center for Advanced Human Resource Studies  
(CAHRS)

---

2-1-1991

## Perceived Equity, Motivation and Final Offer Arbitration in Major League Baseball

Robert D. Bretz Jr.  
*Cornell University*

Steven L. Thomas  
*Southwest Missouri State University*

Follow this and additional works at: <https://digitalcommons.ilr.cornell.edu/cahrswp>



Part of the [Labor Relations Commons](#)

Thank you for downloading an article from DigitalCommons@ILR.

**Support this valuable resource today!**

---

This Article is brought to you for free and open access by the Center for Advanced Human Resource Studies (CAHRS) at DigitalCommons@ILR. It has been accepted for inclusion in CAHRS Working Paper Series by an authorized administrator of DigitalCommons@ILR. For more information, please contact [catherwood-dig@cornell.edu](mailto:catherwood-dig@cornell.edu).

If you have a disability and are having trouble accessing information on this website or need materials in an alternate format, contact [web-accessibility@cornell.edu](mailto:web-accessibility@cornell.edu) for assistance.

---

# Perceived Equity, Motivation and Final Offer Arbitration in Major League Baseball

## Abstract

Final offer salary arbitration in major league baseball offers a unique institutional arrangement that creates a naturally occurring non-equivalent groups repeated measure research design. The structural arrangements allow for examination of anticipatory expectancy effects and for assessment of behavioral responses consistent with equity theory predictions. Additionally, equity theory can be tested without the methodological problems inherent in defining the referent other. Performance and mobility were examined for major league baseball position players who won and lost their arbitration hearings. Pre-arbitration performance was found to significantly predict arbitration outcome. Despite similar patterns of post-arbitration performance between winners and losers, a significant relationship was noted between losing arbitration and postarbitration performance declines. Analyses also suggested that losers were also significantly more likely to change teams and leave major league baseball. The causality of the relationship between performance and arbitration outcome is discussed along with expectancy and equity effects as they relate to performance and mobility following the arbitration intervention.

## Keywords

CAHRS, ILR, center, human resource, job, worker, advanced, labor market, equity, motivation, arbitration, performance, major league, baseball, salary, hearings, winner, loser, offer

## Disciplines

Business | Labor Relations

## Comments

### Suggested Citation

Bretz, R. D., Jr., & Thomas, S. L. (1991). *Perceived equity, motivation and final offer arbitration in major league baseball* (CAHRS Working Paper #91-05). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies.  
<http://digitalcommons.ilr.cornell.edu/cahrswp/337>

**Perceived Equity, Motivation and Final Offer Arbitration in  
Major League Baseball**

**Robert D. Bretz, Jr.**

Center for Advanced Human Resource Studies  
School of Industrial and Labor Relations  
Cornell University

**Steven L. Thomas**

Department of Management  
Southwest Missouri State University

Working Paper # 91-05

Manuscript under review. Do not cite without authors' permission.

This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

**Abstract**

Final offer salary arbitration in major league baseball offers a unique institutional arrangement that creates a naturally occurring non-equivalent groups repeated measure research design. The structural arrangements allow for examination of anticipatory expectancy effects and for assessment of behavioral responses consistent with equity theory predictions. Additionally, equity theory can be tested without the methodological problems inherent in defining the referent other. Performance and mobility were examined for major league baseball position players who won and lost their arbitration hearings. Pre-arbitration performance was found to significantly predict arbitration outcome. Despite similar patterns of post-arbitration performance between winners and losers, a significant relationship was noted between losing arbitration and post-arbitration performance declines. Analyses also suggested that losers were also significantly more likely to change teams and leave major league baseball. The causality of the relationship between performance and arbitration outcome is discussed along with expectancy and equity effects as they relate to performance and mobility following the arbitration intervention.

**Perceived Equity, Motivation and Final Offer Arbitration in**

**Major League Baseball**

Social exchange models suggest that individuals engage in a process of comparing contributions to outcomes in any particular interaction. The extent to which outcomes meet individual expectations determines whether or not the exchange is perceived as satisfactory (Mowday, 1987). When the individual deems the exchange to be unsatisfactory, low performance and withdrawal behaviors such as absenteeism and turnover are expected (Cosier & Dalton, 1983). Adams' (1965) theory of equity is generally regarded as the best known and most widely researched of the social exchange models. His model posits an exchange relationship (such as the employment relationship) in which individuals contribute inputs (such as work effort) in return for outcomes (pay and other rewards). The individual's input/outcome ratio may be compared to that of referent others or historical self. If the ratios are perceived to be unequal, a state of inequity motivates the individual to restore equity.

The theory is based on the assumption that the greater the perceived inequity the greater the individual's tension and concomitant drive to restore equity. Adams hypothesized a set of responses that individuals engage in to restore equity. These include (1) changing one's own inputs or outcomes; (2) changing the inputs or outcomes of the referent; (3) cognitively distorting inputs or outcomes; (4) changing the referent; and (5) leaving the situation. However, not all modes of tension reduction are equally available. Individuals initially attempt to maximize positive outcomes and minimize costly or effortful inputs (Adams, 1965). Additionally, individuals tend to resist behavioral or cognitive changes in inputs or outcomes that are central to self-concept and self-esteem (Pritchard, 1969). Past research has suggested that perceived inequity is associated with reduced job satisfaction and increased intent to leave the organization (Carrell & Dittrich, 1978; Dittrich & Carrell, 1979). However, leaving the situation is a last resort measure that will occur only when inequity is high and other means to reduce inequity are ineffective or unavailable

(Adams, 1965).

Adams' (1965) formulation of equity theory inspired a plethora of studies attempting to test hypotheses derived from the theory. Reviews by Adams and Freedman (1976), Berkowicz and Walster (1976), Campbell and Pritchard (1976), Carrell and Dittrich (1978), Goodman and Friedman (1971), Lawler (1968), Mowday (1987), Pritchard (1969), and Walster, Walster, and Berscheid (1978) provide exhaustive summaries of this research. Collectively, these reviews suggest that despite nearly a quarter century of equity theory research, many questions still remain regarding its conceptual adequacy, its utility in predicting behavior, and the methodological problems encountered in its investigation.

Mowday (1987) suggests that although the research shows general support for the predictions of equity theory, both theoretical and empirical grounds exist for questioning the generalizability of the findings. The model's conceptual underpinnings, the manner in which inequity perceptions are typically manipulated, and specification of the referent are considered particularly problematic. Similarly, even though equity theory has received considerable support in laboratory studies, field support is generally lacking (Dittrich & Carrell, 1979; Lord & Hohenfeld, 1979; Prasad, 1985). Moreover, field studies that exist typically measure attitudes rather than behaviors (e.g., Scholl, Cooper & McKenna, 1987). Since equity theory also postulates behavioral responses to perceived inequity, reliance on attitudinal measures may be both conceptually and operationally inadequate for testing the veracity of the theory.

The vast majority of the studies testing the implications of equity theory were conducted in laboratory settings where perceptions of inequity were limited or contrived. These studies typically induced perceptions of inequity by challenging subjects' qualifications. However, this process may threaten self-esteem and result in performance measures that are subject to compensatory equalization biases (Mowday, 1987). Furthermore, few studies have considered the cumulative effects of repeated incidents of inequity over time (a problem detailed by Cosier &

Dalton, 1983), or the lasting effects of perceived inequity on sustained iterative performance. Most laboratory studies have relied on relatively simple tasks, a single incident of induced inequity, and its immediate impact on performance. Since these factors tend not to be representative of either the contextual or cognitive environment in which work occurs, generalizability to organizational settings is suspect.

Additionally, the results observed in many laboratory studies may be method bound to the extent that the time frames are typically too short to allow investigation of alternative explanations. Specifically, subjects generally experience insufficient time to develop performance-outcome instrumentalities. Study designs have typically not encouraged subjects to realize that decreasing performance in response to perceived inequity may have subsequent effects. When environments are characterized by performance-contingent reward systems, since pay decisions typically lag performance (Milkovich & Newman, 1990), inequity-induced performance reductions may actually result in subsequent reductions in future rewards (Harder, 1991).

#### **Baseball and Equity Perceptions**

Major League Baseball provides a unique and rich source of data from which to examine equity theory. In particular, the individual performance data base is well developed, comparable across players, and highly accessible. In addition, salary levels are generally reported publicly, and other outcomes such as awards and prestige are determinable. Therefore, measurement of both input and outcome variables may be less problematic than in other organizational settings. Additionally, two institutional characteristics make baseball particularly interesting from an equity theory perspective. These are free agency and final offer arbitration.

#### **Free Agency and Equity Theory**

Other researchers have recognized that facets of major league baseball represent naturally occurring settings for examining the effects of motivation on performance (Lord & Hohenfeld, 1979; Duchon & Jago, 1981; Hauenstein & Lord, 1989; Harder, 1991). These studies (with the

exception of Hauenstein & Lord, 1989) focused on the performance of free agents when inequity was induced through temporary pay reductions in their option year.

Lord and Hohenfeld (1979) observed player performance in the aftermath of arbitrator Peter Seitz's ruling that created free agency in 1976. The ruling allowed players to "play out their option" in the 1976 season at a reduced salary in hopes that they could sign with the highest bidder for 1977. The authors' hypothesized that the lower 1976 salaries would induce inequity related tension that could only be remedied through reduced inputs (i.e., lower performance). The sample (N=23) included a subgroup of free agents (N=10) that re-signed with their teams during the 1976 season, thereby resolving the inequity issue. Non-signers generally had reduced levels of performance in the option year followed by performance increases occurring during 1977. Those who signed new contracts during 1976 had significantly higher performance levels after signing a new contract than they had before signing.

Duchon and Jago (1981) extended this analysis by examining the performance of free agents in 1977 and 1978. They found that Lord and Hohenfeld's (1979) results did not extend to the 1977 and 1978 seasons. In fact, Duchon and Jago discovered an opposite pattern, where free agents' performance increased in the option year and declined after signing with the new team. The reason for different results between the two groups may be that the salary outcomes associated with free agency in 1976 were unknown while players who declared free agency in following seasons were more certain, based on data from 1976, that they would obtain better salary offers. Duchon and Jago suggested that the clear instrumentality perceptions between free agency and future salary produced motivational effects consistent with an expectancy theory interpretation. However, this does not necessarily conflict with an equity interpretation since many players were able to eventually restore equity through higher salaries (increased outcomes) and/or changing teams (leaving the situation). Note, however, that these mechanisms were not available to players until one full year after the onset of inequity. In the absence of longitudinal research, this suggests



that under certain circumstances looking for short term reactions to inequity may obscure a delayed behavioral response.

Harder (1991) expanded the previous analyses by including player free agents through the 1980 season. Harder hypothesized that strong performance-outcome expectancies would result in increased performance while weak performance-outcome expectancies would result in decreased performance (i.e. an inequity effect). Therefore, with evidence that power hitting was more closely tied to salary and was associated with greater market value than was batting average, Harder hypothesized that expectancy theory would predict increased performance for the former but equity theory would predict decreased performance for the latter.

The results generally support these hypotheses and Harder (1991) concludes that when desired outcomes are perceived as being contingent upon performance, a person's performance will not decrease in response to perceived underreward. Harder demonstrated a stronger instrumentality link between power hitting and salary than between batting average and salary. However, power hitting is also likely to be more central to self esteem. Therefore, while Harder suggests that these results support an integration of equity and expectancy theories, they also appear to be theoretically consistent with an equity interpretation. Specifically, behavioral or cognitive responses that threaten self-concept or self-esteem tend to be resisted (Pritchard, 1969).

From an equity theory perspective, finding expectancy effects that contradict equity predictions is not particularly damaging in a free-agency context. A convincing argument has not been proffered to suggest that free agents should experience perceived input/outcome inequity vis-a-vis some referent other. While failure to reach a contract suggests that players value their inputs differently than do owners, the structural arrangement of free agency does not permit delineation of either the inputs that are considered valuable or of the referent to be compared against. Therefore, while Harder (1991) suggests that the decline in batting average may be a behavioral response to perceived inequity, he also concedes that the results may be due in part to the stability

of power hitting versus the relative instability of batting average. This instability is logical and predictable if, as Harder argues, players hold strong performance-outcome expectancies for power hitting and weak performance-outcome expectancies for batting average. In other words, since players know the reward system in place, they do their best to perform well on the measures that promise the greatest payback. Therefore, the decline in batting average may not be a response to perceived inequity at all, but may simply reflect adjustments to batting style as players attempt to hit more for power with less concern for batting average.

#### Arbitration and Equity Theory

We take advantage of the unusual institutional arrangement of final offer arbitration to examine the performance of major league baseball players following salary arbitration hearings. Salary arbitration has been available in the major leagues since 1974. Through 1988 approximately 3,000 baseball players became eligible for arbitration. Of this number only about 1,000 actually filed for salary arbitration, and all but 269 cases were settled before the actual arbitration hearing (Scully, 1989). Historically, favorable arbitrators' decisions have been relatively evenly ( $t = 1.30$ , n.s.) split between players (44%) and owners (56%).

The arbitration process allows players with a minimum level of tenure to submit their salary dispute to binding arbitration. The final offer structure of this process makes it particularly attractive for studying equity perceptions. This structure requires both the player and the team to submit a salary figure to the arbitrator. The arbitrator must (using a set of prescribed criteria including but not limited to the player's performance, the player's current salary, the performance of other players in the league, and the amount others are paid) select either the player's or the team's offer. He may not split the difference or choose any settlement other than those submitted by the two parties.

The limitations on the arbitrator's options are important since they tend to evoke norms of equity rather than equality. While arbitrators typically do not like the final offer format, they do

believe that their decision should be based on equity considerations (Elkouri & Elkouri, 1960; Mulcahy, 1976; Seitz, 1974). Some have suggested that since compromise is not allowable within a particular decision, arbitrators may be tempted to "even the score" by alternately ruling in favor of the disputing parties (e.g. Donn, 1977). However, Feuille and Dworkin (1979) and Notz and Starke (1987) present evidence to the contrary. Even though arbitrators confined to the final offer format generally dislike it, they tend to play by the rules. That is "the distribution of awards clearly reflected the influence of an equity criterion when subjects were constrained to a choice of one or the other of the offers. Furthermore, there was no evidence of any attempt by the FOAs [final offer arbitrators] to achieve equality over time (flip-flopping)" (Notz & Starke, 1987, p.364).<sup>1</sup>

Final offer arbitration is uniquely suited to examining equity from the participant's perspective because it offers a direct estimation of perceived equity without the problematic specification of the under-conceptualized and often undefinable comparison other. Methods of creating or identifying the referent in equity theory research have generally been considered deficient, and laboratory studies are criticized for unrealistically circumscribing referents (Scholl, Cooper & McKenna, 1987). As conceptualized, equity theory allows for the use of multiple referents, both internal and external, and for a behavioral response to inequity that is at least partially determined by the nature of the referent (Ronen, 1986). Therefore, improperly specified referents may seriously distort interpretation of the behavioral response. Under final offer arbitration these problems are eliminated, since the implicit input/outcome comparison is embodied in the player's final demand. Players losing at arbitration should experience perceived inequity since the salary figure awarded is lower than the demand perceived to be fair. If the postulates of equity theory hold, players who lose at arbitration will attempt to restore equity through reduced performance or increased mobility.

Additionally, since the arbitration occurs in the off-season, just prior to the beginning of

a new season, the arbitration event itself should not directly interfere with performance. Since players typically do not file for arbitration until after the preceding season, implicit input/outcome comparisons and performance-outcome expectancies can be formulated on complete information. Similarly, since the arbitration event is completed prior to the onset of the subsequent season, the event itself should not interfere with performance while the psychological effects resulting from the process may be allowed to operate. Therefore, salary arbitration may be viewed as the intervention in a quasi-experimental non-equivalent groups design (Cook, Campbell & Peracchio, 1990).

Hauenstein and Lord (1989) recognized the potential of using final offer arbitration to examine the effects of perceived inequity on subsequent performance. They argued that changes in performance are the most likely response to perceived inequity and that other means of restoring inequity are unlikely since the referents are clearly relevant, cognitive distortion of inputs would threaten self esteem, and opportunity to influence the inputs/outcomes of others is limited. Hauenstein and Lord hypothesized performance changes based on arbitration outcome and that the change would be proportional to the discrepancy between player demand and team offer.

Consistent with theoretical underpinnings, Hauenstein and Lord predicted performance decrements following arbitration for losers and performance increments for winners. While it may be theoretically appealing to believe that winners might perceive some overreward condition, it is unlikely due to the structural characteristics of final offer arbitration and the cognitive processes it engenders. Specifically, the structure is designed to reward the party that comes the closest to a fair valuation of the player's inputs. Rather than creating perceived overreward inequity, winning should create a state of perceived equity since the outcomes should now be aligned with the player's perception of his inputs.

Hauenstein and Lord (1989) examined the performance of 40 pitchers and 48 position players who experienced final offer arbitration between 1978 and 1984. Results suggested that

pitchers who lost arbitration tended to perform worse by allowing more batters to get on base, striking out fewer batters and allowing more earned runs than did arbitration winners. Nonequivalence problems in their sample precluded examination of the effects of winning versus losing for position players. The magnitude of the discrepancy between player demand and team offer tended to be related to subsequent performance changes but this relationship appears to be moderated by player experience.

### Hypotheses

Pre-arbitration Performance. Performance-outcome expectancies (i.e. the belief that current performance will influence subsequent reward distribution) should result in sustained or increased performance prior to arbitration. Harder's (1991) results suggested that among free agents, strong performance-outcome expectancies lead to increased performance. Since player performance is a specified criteria in the arbitration process, it is likely that pre-arbitration performance is viewed as instrumental in winning the arbitration dispute. Since arbitration occurs in the off-season, recent performance is likely to be viewed as particularly instrumental. Therefore, because of the performance-outcome expectancies operating:

H1: Player performance will increase in the season preceding arbitration.

Post-arbitration Performance. Equity theory posits performance differences depending on the arbitration outcome. Players who win receive what they determined to be equitable via the implicit input/outcome comparison process that resulted in their final salary demand. Players who lose at arbitration receive less than their final demand and should therefore perceive underreward inequity. If, as hypothesis one suggests, performance increases in the season preceding arbitration, post-arbitration performance should regress toward the player's average lifetime performance. Assuming that alternative mechanisms for restoring equity are generally unavailable in this context (Hauenstein & Lord, 1989), performance decrements for arbitration losers should be greater than decrements for winners. Therefore:

- H2: Post-arbitration performance should regress toward the player's average lifetime performance level. However, following arbitration, losers will exhibit more marked post-arbitration performance declines than will winners.

Hauenstein and Lord (1989) argued that the differential between the player's demand and the team's offer represents the amount of inequity that the player is likely to perceive. As such, the concomitant drive to restore equity should be proportional to the demand-offer differential. Among those that lose arbitration, those with the greatest demand-offer differential should exhibit the greatest post-arbitration performance decline. However, since winners are hypothesized to perceive a state of equity, post-arbitration performance should be unrelated to their demand-offer differential. Therefore:

- H3: The performance decrement following arbitration should be proportional to the player demand-team offer differential. Losers with large demand-offer differentials should experience greater post-arbitration performance declines.

Player Movement. Another way to restore equity is to leave the situation. Losing at arbitration may result in player movement in two ways. Players may change teams or players may leave major league baseball altogether. Therefore:

- H4: Players who lose at arbitration will be more likely to change teams than players who win at arbitration.
- H5: Players who lose at arbitration will be more likely to leave major league baseball than players who win at arbitration.

#### Method

##### Sample

The sample consisted of 116 arbitration cases settled between 1974 and 1987 and included all position players who went through salary arbitration in major league baseball during that period except for the 16 cases arbitrated in 1975 and the 9 cases arbitrated in 1978. These cases were

omitted because of our inability to obtain reliable offer, demand, and salary information for those years. Pitchers were excluded because their performance (inputs) is measured in significantly different ways and their salaries (outcomes) are often not comparable to those of position players. Additionally, Hauenstein and Lord (1989) have previously discussed the post-arbitration performance of pitchers. Arbitration cases occurring after 1987 were excluded since two years of performance data after the arbitration hearing were not yet available. Fifty-one (44%) players won their arbitration cases. The sample included 18 players who went to arbitration in more than one season. In 3 cases, the player won after initially losing, in 4 cases a loss followed a previous loss, 7 times the player lost after initially winning, and 4 times a win followed a win.

### Measures

Data about players using salary arbitration, player demands, club offers, and arbitration outcomes were obtained primarily from the Major League Baseball Players' Association, Scully (1989), The Sporting News, and USA Today. Performance statistics were taken from Reichler (1988), and Thorn and Palmer (1989). Several different measures of baseball performance are regularly reported in these sources and indicate competence on specific dimensions of overall baseball performance. The performance dimensions, as measured by the statistics generally reported, tend to require complementary skills and abilities. Therefore, to avoid multicollinearity problems, previous studies of the relationships between performance and pay in major league baseball have specified one or two performance dimensions that were felt to be most important. However, we are not aware of any research that has attempted to analyze the relationship between outcomes and the underlying performance construct.

Performance. In the absence of an a-priori reason to believe that a particular performance dimension is superior to the others, and to avoid relying on simple performance dimensions that may not capture the complex multi-dimensional aspects of overall performance, we estimated a measurement model using confirmatory factor analysis in LISREL VI (Joreskog & Sorbom, 1986).

The measurement model is characterized in Figure 1. The rectangles represent observed performance on specific dimensions that are indicators of overall baseball performance. The circle represents the underlying construct, baseball performance, inferred to exist from the covariance among the specific indicators. The indicators include (1) the number of times a player gets to bat during the season, (2) slugging average defined as total bases divided by at-bats, (3) production defined as on-base percentage plus slugging average, (4) production adjusted to account for home park parameters and normalized for league, (5) a clutch hitting index representing the player's ability to get hits with base runners in scoring position, and (6) fielding average defined as put-outs or assists as a percent of total chances.

-----  
Insert Figure 1 Here  
-----

The Chi-square ( $X^2$ ) statistic is the most widely used measure in examining the overall fit of the measurement model. Marsh and Hocevar (1985), Carmines and McIver (1981), and Hertig (1985) have suggested that when examining the ratio of the  $X^2$  relative to the degrees of freedom (df), a result of 2 or less represents good fit. In this case  $X^2/df$  was 4.81/9 and equaled 0.534. This suggested that the model fits the data very well. The  $X^2$  analysis is also consistent with the goodness-of-fit index (.987), the adjusted goodness-of-fit index (.967) and the root mean square residual (.022) generated for this model.

The LISREL maximum likelihood estimates were used as weights to create an overall composite index of baseball performance. The composite index Baseball Performance equals [(At-Bats x .50) + (Slugging Average x .96) + (Production x 1.0) + (Adjusted Production x .98) + (Clutch Hitting x .08) + (Fielding Ability x .01)]. This weighted composite index is used as the dependent variable in the analyses to determine the effect of perceived inequity (arbitration outcome) on baseball performance.<sup>2</sup>



Player performance in the season after arbitration was predicted to be a function of (1) the player's general ability represented by prior performance, (2) the player's experience in major league baseball, (3) the arbitration outcome, (4) the deviation between the player's and the club's final salary position, (5) the physical environment in which the player performs, (6) historical arbitration experiences that the player has faced, and (7) the player's free agent status.

Under assumptions of behavioral consistency, past performance is the best predictor of future performance (Wernimont & Campbell, 1968). Many researchers (e.g. Cohen & Cohen, 1983) recommend using performance in the preceding period to control for individual differences in performance. However, in this case, performance in the preceding period is likely to be artificially high relative to true ability (see hypothesis 1). Harder (1991) suggests that while performance in the previous season is a better indicator of recent performance, average career performance provides a better indication of general ability. Thus, the change in performance over time and the player's general ability level were controlled for by defining variables to capture average lifetime performance and recent performance. Lifetime Performance was operationalized as the weighted average of Baseball Performance for each major league season played weighted by the number of times the player batted during each season. The season immediately preceding arbitration was not included in Lifetime Performance in order to allow testing of hypotheses one and two. To capture recent performance, Career Deviation was operationalized as the difference between Baseball Performance in the year preceding arbitration and Lifetime Performance.

Players in our sample were eligible for binding salary arbitration from their second through their sixth major league season. The typical player's performance increases at a decreasing rate until he reaches career year six or seven at which time performance systematically begins to decline as skills atrophy (Scully, 1989). To reflect the influence of career progression on performance we incorporated the variable Years-In-Majors to represent the player's tenure in the major leagues, and the squared term to reflect the nonlinearity of the relationship.

To identify the effect arbitration outcome has on overall Baseball Performance, the dummy variable Lost Arbitration was set equal to 1 for those who lost their arbitration hearing and equal to 0 for those who won. Equity theory predicts the coefficient on this variable to be negative and significant. The variable Salary Deviation represents the deviation between the player's final demand and the club's final offer. Hauenstein and Lord (1989) argued that the size of this differential would be proportional to the perceived inequity and the subsequent change in performance associated with it. They suggested that perceived underreward inequity should cause losers' performance to decrease proportionally with the amount of the discrepancy and that perceived overreward inequity should cause winners' performance to increase proportionally. Therefore, two dummy variable were created. Salary Deviation was multiplied by Lost Arbitration (SDXLA) to detect whether larger deviations were associated with larger performance decrements among arbitration losers. Similarly, Salary Deviation was multiplied by Win Arbitration (reverse coded so that it equaled 1 for winners and 0 for losers) to ascertain whether relatively large proportional increases in salary act as performance incentives (SDXWA).

Studies that ignore the history and time dimension of inequity tend to be less accurate in assessing its effects (Cosier and Dalton, 1983). Previous equity research in major league baseball has not addressed this issue. Therefore, two dummy variables were created to capture these effects. Previous Loss was set equal to 1 when the player had previously lost at arbitration, and Previous Win was set equal to 1 when a player had previously won at arbitration. Previous Loss was multiplied by Lost Arbitration to create an interaction variable designed to capture the compounding effects of multiple instances of perceived inequity on performance. Similarly, Previous Win was multiplied by Lost Arbitration to create an interaction variable to control for the mitigating effects of a previous win.<sup>3</sup>

Duchon and Jago (1981) and Lord and Hohenfeld (1979) reported equivocal results regarding the effects of free agency on subsequent performance, and Harder's (1991) results

suggested that performance implications are moderated by the strength of the performance-outcome expectancy. Therefore, a dummy variable describing the player's free agency status was included. The variable Free Agency equaled 1 if a player was eligible for free agency in the season following arbitration.<sup>4</sup> This is advisable since, as Hauenstein and Lord (1989) suggested and Harder (1991) demonstrated, player expectations of increased compensation via the free agent market should tend to motivate players to perform well, and subsequently offset any negative performance effects created by the inequity perceptions resulting from losing arbitration.

Player Movement. Two dummy variables were created to indicate player movement via trades to other teams or via leaving baseball. The variable Change Team was set equal to 1 if the player changed teams in the two year period following the arbitration hearing and equal to 0 otherwise. Similarly, the variable Leave Baseball was set equal to 1 if the player left baseball during the two year period and equal to 0 otherwise. Logit models were specified for each of these categorical dependent variables. Player movement (via trades and quits) was predicted to be a function of (1) the player's performance, (2) the player's experience in major league baseball, (3) the arbitration outcome, (4) the deviation between the player's and the club's perception of equity, (5) historical arbitration experiences that the player has faced, (6) the player's free agency status, and (7) the player's salary defined as actual salary adjusted by the 1967 Consumer Price Index.

### Results

Losers were slightly, though significantly ( $F = 3.2$ ,  $p < .05$ ) older (27.5) than winners (26.5). No significant differences were found between eventual winners and losers by experience, free agency eligibility, or demand-offer differential. Winners had an average tenure in the major leagues of 4.82 years compared to an average of 5.3 years for losers. A greater (though not significant) percentage of arbitration losers (65%) were eligible for free agency than were winners (53%). This is expected since losers had slightly longer tenure and free agent status is awarded

only after minimum tenure requirement are met. However, neither the difference in tenure nor the difference in free agent status was significant. Winners tended to be paid higher salaries (\$282,586) than losers (\$247,071) but again the difference was not statistically significant.<sup>5</sup> There was no difference between groups regarding the demand-offer differential. Both winners and losers tended to request 26% more than the club offered.

Descriptive statistics and the correlation matrix for the variables used in the analyses are presented in Table 1. The correlations between variables suggest some interesting patterns. Performance in any given year tends to be significantly correlated with performance in other years. Performance also tends to be significantly related to player salary, and recent performance is negatively related to changing teams and leaving baseball. The positive, significant relationships between performance and salary suggest a performance contingent reward system in major league baseball and supports claims of strong performance-outcome expectancies. The negative, significant relationships between recent performance and player movement indicate that good performers are more likely to be retained while turnover is more likely among poorer performers. The negative relationships between performance in the years following arbitration and player movement out of baseball suggest that poorer performers are significantly more likely to leave baseball after their arbitration hearing than are the better performers. In spite of the high correlation between free agent status and tenure in the major leagues, both variables are used in the analyses since they are expected to have somewhat different mitigating effects on arbitration outcome. The correlation between age and tenure was .61 ( $p < .01$ ). Since age and tenure had similar effects, only tenure was used in the analyses.

-----

Insert Table 1 Here

-----

**Pre-Arbitration Performance**

Hypothesis one predicted that pre-arbitration performance would increase for all players, regardless of the eventual arbitration outcome. Figure 2 graphically displays the quasi-experimental research design and the pattern of performance exhibited by arbitration winners, losers, and those that filed but settled prior to the arbitration hearing. A repeated measure analysis of variance (ANOVA) was performed using average career performance and prior season performance as the repeated measure, and arbitration outcome as the between subjects factor. Furthermore, since experience created a nonequivalence problem for Hauenstein and Lord (1989), experience was used as a blocking variable. Results suggested no significant pre-arbitration performance differences between the groups ( $F(2,158) = 1.53$ , n.s.). However, a significant within subject effect was noted on the repeated performance measure ( $F(1,159) = 52$ ,  $p < .01$ ). Thus, hypothesis one is supported. Furthermore, after controlling for the main effects, the interaction between group and trial ( $F(1,159) = 3.7$ ,  $p < .05$ ) suggested that performance tended to increase more for winners than it did for losers. Specifically, winners' performance increased an average of 12.8% while losers' performance increased an average of only 5.7%. In contrast with Hauenstein and Lord (1989), player experience had no effect.

-----  
Insert Figure 2 Here  
-----

**Arbitration Outcome and Post-Arbitration Performance**

Losers had average higher lifetime performance levels than did winners. However, winners had higher levels of recent performance and, as Figure 2 displays, tended to remain at higher performance levels than losers for at least two subsequent seasons. While the pattern of decrement from the season preceding to the season following arbitration appears to be similar for winners and losers, note that the losers' 5.8% average decline completely equalizes their pre-

arbitration performance increase while the winners' 5.6% average decline represents only 44% of their pre-arbitration increase.

Multiple OLS regression results indicate that arbitration outcome significantly predicts subsequent performance. Table 2 reports regression results for Baseball Performance in the year immediately following arbitration. As expected, the pre-arbitration performance variables were the most significant predictors of subsequent performance. As hypothesized, the coefficient on Lost Arbitration was negative and significant, suggesting that losing arbitration has a detrimental effect on performance in the season following arbitration. The raw regression coefficient for Lost Arbitration was -280.87, representing, for the average loser, a significant 19% decline in Baseball Performance from the season preceding to the season following arbitration. Thus, while the pattern of performance decline does not appear to be different for winners than for losers, regression analysis indicates that arbitration outcome explains significant variation in subsequent performance.

-----

Insert Table 2 Here

-----

However, issues of causality remain unanswered. While the negative significant coefficient on Lost Arbitration suggests that arbitration outcome explains variation in subsequent performance, the repeated measures ANOVA analysis of pre-arbitration performance and inspection of the performance patterns depicted in Figure 2 suggest that rather than arbitration outcome influencing performance, performance may in fact be driving the arbitration outcome. To further examine this, several logit models were specified for the categorical dependent variable Lost Arbitration using lifetime performance, recent performance, pre-arbitration performance change, demand-offer differential, and experience as independent variables. In all specifications of the model, the only significant predictor of arbitration outcome was the pre-arbitration change in performance. The

resulting log-odds ratio revealed that a player with an average level of pre-arbitration performance change has a 13% lower chance of winning than does a player whose pre-arbitration performance change is one standard deviation above average. These results are consistent with the repeated measure ANOVA that found significantly larger pre-arbitration performance increases for eventual winners.

It is also possible that performance influences arbitration outcome through the offer and demand formulation process. As one might expect given the specified arbitration criteria, player performance is a significant determinant of both final player demand and final club offer. Regression results presented in Table 3 show that both average and recent performance significantly explain variation in both offer and demand. In contrast, player experience contributes virtually no explanatory power in either demand or offer considerations but is negatively related to the demand-offer differential. Apparently, players and teams are more likely to agree on the value of experienced players. This is reasonable since both parties have more information about experienced players than is available for inexperienced ones.

-----

Insert Table 3 Here

-----

When salary level (adjusted for inflation) is regressed on career performance, recent performance, arbitration outcome, and free agent status, the coefficients indicate that lifetime performance (.173,  $p < .01$ ) and recent performance (.098,  $p < .05$ ) are the only significant predictors of salary. Neither arbitration outcome nor free agent status contribute to explaining the variance.

In examining free agency, Harder (1991) presented evidence of strong performance-outcome expectancies for performance related to power hitting. The same effects may be operating regarding salary arbitration. The correlation between salary and Baseball Performance

is higher for losers ( $r = .60, p < .01$ ) than it is for winners ( $r = .43, p < .01$ ). However, when the performance index is decomposed to examine the relationship between salary and the performance facets, consistent with Harder (1991), we find that among winners, salary is significantly related to power hitting as expressed by Production ( $r = .40, p < .01$ ), but is not significantly related to At Bats ( $r = .19, ns$ ). Alternatively, among losers, the correlation between salary and Production ( $r = .50, p < .01$ ) is comparable to that of the correlation between salary and At Bats ( $r = .54, p < .01$ ). Therefore, the absence of performance-outcome expectancy linkages between At Bats and Salary that Harder (1991) found for free agents appears to hold for arbitration winners but not for arbitration losers.

#### Demand-Offer Differential and Post-Arbitration Performance

Hypothesis three stated that for arbitration losers, post-arbitration performance decrements should be proportional to the demand-offer differential. The salary deviation interaction terms in the regression analysis presented in Table 2 allow us to test this hypothesis. If, among losers, larger demand-offer differentials were associated with greater post-arbitration performance decrements, the coefficient on SDXLA should be negative and significant. Additionally, if (as Hauenstein and Lord (1989) suggested) winners experience overreward inequity proportional to the amount of the demand-offer differential, the coefficient on SDXWA should be positive and significant. As the positive, nonsignificant coefficient on SDXLA indicates, hypothesis three does not appear to be supported. Further, the significant negative coefficient on SDXWA apparently contradicts Hauenstein and Lord (1989).

In order to more completely assess the demand-offer differential effect, we replicated Hauenstein and Lord's (1989) correlational analysis by examining the partial correlations (controlling for pre-arbitration performance changes) between demand-offer differential and post-arbitration performance changes. These results suggest that demand-offer differential is largely unassociated with performance changes for all experienced players (winners,  $r = .07$ ; losers,  $r =$



.01) and inexperienced losers ( $r = -.06$ ) but negatively associated with performance for inexperienced winners ( $r = -.49$ ,  $p < .01$ ).<sup>6</sup>

### Player Movement

Hypotheses four and five predicted greater player movement both within major league baseball and out of major league baseball for players who lose at salary arbitration. During the two year period following arbitration, 17 players (33.3%) who won changed teams compared to 31 losers (47.7%) who did so. Similarly, one winning player (2.0%) left baseball while six losing players (9.2%) did so. T-test results suggest that there is a significant difference ( $p = .04$ ) between the number of arbitration winners and losers that leave baseball and a marginally significant difference ( $p = .06$ ) between the number of arbitration winners and losers that change teams. However, these results must be conditioned on the knowledge that other factors were not controlled for in this analysis.

There was insufficient sample size to specify a logit model for the dependent variable Leave Baseball (Aldrich & Nelson, 1989). A logit model was specified for the dependent variable Change Team. Logit maximum likelihood estimates for Change Team are presented in Table 4. Positive and significant coefficients on Lost Arbitration and Salary Deviation would provide support for hypothesis four. However, while the coefficients are in the anticipated direction, they are not significant. One might also expect players who have experienced previous arbitration losses to be more likely to change teams, but no significant effect was noted. Player movement is explained essentially by player performance and age. Older players and those who perform less well are more likely to change teams.-----

Insert Table 4 Here

### Discussion

This study examined the motivational environment surrounding final offer salary arbitration.

From an expectancy theory perspective, it was hypothesized that expectations of future performance-contingent rewards would affect performance. From an equity theory perspective, the problems associated with referent identification and specification were avoided via an institutional arrangement that allows for a direct estimate of equity based on an implicit input/outcome comparison. The dynamics of final offer arbitration allow examination of anticipatory expectancy effects and encourage both parties to critically assess the equity of their final position since hedging is likely to result in the arbitrator choosing the other party's position. Notz and Starke (1987) presented evidence that under the constraints of final offer arbitration, arbitrators adopt an equity decision rule rather than an equality decision rule. That is, not only do arbitrators "say that they weigh the inputs of each side in the dispute (e.g., in a labor-management dispute these might be productivity, ability, comparable salaries, etc.) against the outcomes each side is seeking (e.g., labor's demand or management's offer)", they also make decisions that have that effect (Notz & Starke, 1987, p. 359).

The results of this study indicate that pre-arbitration performance increased for all players involved with the process. Thus hypothesis one was supported. A significant, negative relationship was reported between arbitration outcome and subsequent performance. Thus it appeared that hypothesis two was supported. However, examination of pre-arbitration performance revealed that winners experienced greater pre-arbitration performance increases than did losers. While post-arbitration performance tended to decline for all players, the pattern of decrement was essentially identical for winners and losers. Moreover, pre-arbitration performance predicted arbitration outcome as well as arbitration outcome predicted subsequent performance. Therefore, the evidence is equivocal regarding the hypothesis that perceived inequity manifests itself in lower performance. Hypothesis three predicted a relationship between demand-offer differential and post-arbitration performance declines. Rather than support hypothesis three, the results suggest that winners with large demand-offer differentials exhibit greater post-performance declines than do

winners with smaller demand-offer differentials. Combined with the highly significant effect of Career Deviation on post-arbitration performance, this suggests that post-arbitration performance decline is attributable to performance regressing to the player's career average. Insufficient sample size prevented multi-variate analysis of player movement out of major league baseball. However, it appears that losers are more likely to leave baseball than are winners. Finally, only post-arbitration performance and player age were significant predictors of movement to other teams.

Concluding that post-arbitration performance changes can be attributable to equity perceptions requires the belief that final offer arbitration forces (or at least encourages) the player to formulate and compare input/outcome relationships. Given the structure of the process, we argue that this is highly probable. A player filing for arbitration has been unable to secure from the club what he considers to be a fair salary adjustment. He knows that the arbitrator will consider his playing performance, his current salary, and the salary and performance of others in the league who play similar positions. The player knows that an inflated salary demand will likely be rejected in favor of the club's final offer. Therefore, given the known criteria, the player at least implicitly acts in accordance with equity theory by considering his inputs and outcomes relative to those of other players in his determination of a fair settlement.

A decline in performance following a lost arbitration hearing would be consistent with equity predictions. However, there are also alternative explanations for what might be interpreted as an equity effect. For example, winners might consistently exert more effort than losers. This might explain why they win arbitration, and also account for post-arbitration performance. This explanation is not inconsistent with an equity interpretation. Equity theory accommodates this by treating effort as an input that might be adjusted in response to the perceived fairness of the outcomes. That is, if as a result of losing, players exert less effort, they would be reacting in accordance with the predictions of the theory.

It is also possible that players might attach different valence to the arbitration outcome

itself. However, since the process is designed to determine the level of a specific outcome (salary) it is reasonable to assume that high levels of valence for this outcome motivate individuals to instigate the arbitration process. Alternatively, dissatisfaction, negative affectivity, or withdrawal may also result in performance changes. Since it is not possible for us to determine the affective state of the players in our sample, we can not ascertain what, if any, effect these things might have had. However, the effect is likely to manifest itself in decreased effort, therefore the behavioral response would be consistent with an equity interpretation.

While it seems possible to argue that the significant coefficient on Lost Arbitration supports an equity interpretation, the weight of other evidence in this study suggest otherwise. Specifically, instead of reflecting a decrease in performance as a result of arbitration outcome, the coefficient may reflect that failure to increase pre-arbitration performance results in losing arbitration. In fact, visual inspection and statistical analysis of the pattern of group performance presented in Figure 2 seems to confirm this. Additionally, the nonsignificant coefficient on the interaction between demand-offer differential and losing arbitration does not support the contention that performance declines should be proportional to the demand-offer differential (a variable that is intended to be a proxy for the magnitude of the perceived inequity). Moreover, the negative significant coefficient on the interaction between demand-offer differential and winning arbitration apparently contradicts Hauenstein and Lord's (1989) overreward hypothesis. Therefore, interpreted in context, it would appear that (1) players perform better prior to arbitration, (2) this increase in performance contributes to the propensity to file for arbitration, (3) players who increase performance more dramatically than others win arbitration, and (4) performance declines for all players since exceptionally high performance must eventually regress to the player's average level of ability.

Regarding player movement, while t-test results suggested that significantly more arbitration losers than winners changed teams and left major league baseball in the two seasons following the

arbitration hearing, this result does not hold up in multivariate logit analysis. Changing teams may result from either player or team owner discontent. However, absolute performance levels were not significantly different between winners and losers. This suggests that it is unlikely that owner discontent (regarding performance) motivated the trade. If owners are satisfied with this level of performance from arbitration winners (which they now have to pay significantly higher salaries), it is unlikely that they would be dissatisfied with similar performance levels from the others. Therefore, it is reasonable to assume that player discontent was responsible for the majority of movement via trades. However, since arbitration awards generally specify outcomes for only one year, other variables are likely to influence mobility during the second season.

Even though a greater percentage of losers leave baseball, the effect that losing arbitration has on leaving is probably small. Considering the losers' average salary, it is unlikely that many labor market alternatives exist at this pay level. Therefore, even perceptions of extreme inequity are likely to be resolved through other behavioral or cognitive strategies.

While the tendency for losers to leave is consistent with an equity interpretation, the correlations between variables suggests highly significant relationships between performance and turnover. Performance in the year following arbitration is negative, and significantly related to changing teams and leaving baseball. There also tends to be a significant moderate relationship between tenure and leaving baseball. Collectively, these relationships suggest that performance declines, perhaps exasperated by aging, contribute more to player turnover than does perceived inequity. This is clearly the case presented by the logit model for changing teams, and examination of correlations suggests that it might be true for leaving baseball as well. The possibility that perceived inequity manifests itself in poor performance which subsequently leads to turnover is unlikely since absolute differences in performance levels between winners and losers are small and insignificant.

This study differed from previous studies of motivation in Major League Baseball in two

important ways. First, in contrast with small sample studies, this sample represented virtually the entire population of position players that have utilized final offer arbitration. Second, this was the first attempt to assess the relationships between motivation and the underlying performance construct. Recognizing that performance in virtually any working context is multidimensional, performance on various aspects of baseball ability were used to create a composite index of overall performance. By doing so, the arguments over which statistics represent the most appropriate measures of performance were avoided. In the absence of an overall indicator of performance, any effects of perceived inequity on a particular dimension would be subject to possible contradictory findings on other, equally valid, dimensions. The generalizability of the findings would also hinge on the ability to explain the relationship between the favored unidimensional criterion and overall performance. The composite performance index we created captures general offensive performance, general defensive performance, power hitting, participation rates, and ability to perform in more crucial, if not critical, circumstances. This measure expresses the complex nature of overall performance better than any single unidimensional measure would be capable of.

Interestingly, the index was heavily weighted in favor of power hitting. The failure to notice significant differences in the post-arbitration performance declines of winners versus losers is consistent with Harder's (1991) findings that strong performance-outcome expectancies exist for power hitting and motivate players to continue to perform well on this measure. The result is also consistent with equity predictions that players will resist lowering inputs on performance that is central to self-esteem.

Because there are what appear to be strong performance-outcome expectancies operating, the degree to which performance should decrease as a response to perceived underreward inequity is unclear. The performance related effects of perceived inequity appear most probable when outcomes are a function of contributions from many individuals. Reducing inputs is most likely

when the unique contribution of each individual can not be readily ascertained. Therefore, future studies that examine these issues in other types of organizations are needed.

As with other studies of major league baseball, the current study is limited by its focus on monetary outcomes. While motivation theories allow for non-pecuniary rewards in addition to salary, our data does not capture things like praise, admiration of fans, or the security of long-term employment relationships. Future research should consider the motivational effects of other types of outcomes on performance.

Since this study involved the examination of complex performance over a sustained period of time, it is perhaps generalizable to other settings which require multidimensional performance over sustained time periods as well. However, these results may be difficult to replicate in other organizational settings since performance measures may not be so well defined, readily available, and consistent across individuals and organizations. Perhaps the measurement model for overall baseball performance used in this study may suggest how indices of overall performance in other occupations might be created so that future research might further consider the effects of perceived inequity on complex behavior.

References

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.) Advances in experimental social psychology, 2, 267-299. New York: Academic Press.
- Adams, J.S., & Freedman, S. (1976) Equity theory revisited: Comments and annotated bibliography. In E. Walster (Ed.) Advances in experimental social psychology, (Vol. 9, pp. 43-90). New York: Academic Press.
- Aldrich, J.H., & Nelson, F.D. (1989). Linear probability, logit, and probit models. Newbury Park, CA: Sage.
- Berkowicz, L., & Walster, E. (1976). Equity theory: Toward a general theory of social interaction. In E. Walster (Ed.) Advances in experimental social psychology, Vol 9, New York: Academic Press.
- Campbell, J., & Pritchard, R.D. (1976). Motivation theory in industrial and organizational psychology. In M. Dunnette (Ed.) Handbook of industrial and organizational psychology, 63-130. Chicago: Rand McNally.
- Carmines, E., & McIver, J. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G. Bohrnstedt & E. Borgotta (Eds.) Social measurement: Current issues, 65-115. Beverly Hills: Sage.
- Carrell, M.R., & Dittrich, J.E. (1978). Equity theory: The recent literature, methodological considerations, and new directions. Academy of Management Review, 3, 202-210.
- Cohen, J., & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences. Hillsdale, NJ: Lawrence Erlbaum.
- Cook, T.D., Campbell, D.T., & Peracchio, L. (1990). Quasi experimentation. In M. Dunnette and L. Hough (Eds.) Handbook of industrial and organizational psychology, Volume 1, Second edition, 491-576. Palo Alto, CA: Consulting Psychologists Press.



- Cosier, R.A., & Dalton, D.R. (1983). Equity theory and time: A reformulation. Academy of Management Review, 8, 311-19.
- Dittrich, J.E., & Carrell, M.R. (1979). Organizational equity perceptions, employee job satisfaction, and departmental turnover rates. Organizational Behavior and Human Performance, 24, 29-40.
- Donn, C.B. (1977). Games final offer arbitrators might play. Industrial Relations, 16, 306-314.
- Duchon, D., & Jago, A.G. (1981). Equity and the performance of major league baseball players: An extension of Lord and Hohenfeld. Journal of Applied Psychology, 66, 728-732.
- Elkouri, F., & Elkouri, E. (1960). How arbitration works. Washington, D.C.: BNA
- Feuille, P., & Dworkin, J. (1979). Does Wisconsin's final offer arbitration offer only intertemporal compromise? Monthly Labor Review, 102, 39-40.
- Goodman, P.S., & Friedman, A. (1971). An examination of Adam's theory of inequity. Administrative Science Quarterly, 16, 271-288.
- Harder, J.W. (1991). Equity theory versus expectancy theory: The case of major league baseball free agents. Journal of Applied Psychology, 76, 458-464.
- Hauenstein, M.A., & Lord, R.G. (1989). The effects of final-offer arbitration on the performance of major league baseball players: A test of equity theory. Human Performance, 2, 147-165.
- Hertig, J.R. (1985). Multiple indicator models using LISREL. In H.M. Blalock (Ed.), Causal approach to measurement and aggregation.
- Joreskog, K.G., & Sorbom, D. (1986). LISREL VI. User's guide. Mooresville, IN: Scientific Software.

- Lawler, E.E. (1968). Equity theory as a predictor of productivity and work quality. Psychological Bulletin, 70, 596-610.
- Lord, R.G., & Hohenfeld, J.A. (1979). Longitudinal field assessment of equity effects on the performance of major league baseball players. Journal of Applied Psychology, 64, 19-26.
- Marsh, J.G., & Hocevar, D. (1985). The application of confirmatory factor analysis to the study of self-concept: First and higher order factor structures and their invariance across age groups. Psychological Bulletin, 97, 562-582.
- Milkovich, G.T., & Newman, J.M. (1990). Compensation. Homewood, IL: Irwin.
- Mowday, R.T. (1987). Equity theory predictions of behavior in organizations. In R. M. Staw and L. W. Porter (Eds.) Motivation and Work Behavior, 89-110. New York: McGraw-Hill.
- Mulcahy, C.C. (1976). Ability to pay: The public employee dilemma. The Arbitration Journal, 31, 90-96.
- Notz, W.N., & Starke, F.A. (1987). Arbitration and distributive justice: Equity or equality? Journal of Applied Psychology, 72, 359-365.
- Prasad, J.N. (1985). Equity theory: Review of literature and some new proposals. Working Paper, Center for Business and Economic Research. Western Illinois University.
- Pritchard, R.D. (1969). Equity theory: A review and critique. Organizational Behavior and Human Performance, 4, 176-211.
- Reichler, J.L. (Ed.) (1988) The baseball encyclopedia, Seventh Edition. New York: McMillan.
- Ronen, S. (1986). Equity perception in multiple comparisons: A field study. Human Relations, 39, 333-346.

- Seitz, P. (1974). Footnotes to baseball salary arbitration. The Arbitration Journal, 29, 98-103.
- Scholl, R.W., Cooper, E.A., & McKenna, J.F. (1987). Referent selection in determining equity perceptions: Differential effects on behavioral and attitudinal outcomes. Personnel Psychology, 40, 470-481.
- Scully, G.W. (1989). The business of major league baseball. Chicago: University of Chicago Press.
- Thorn, J., & Palmer, P. (1989). Total baseball. New York: Warner Books.
- Walster, E., Walster, G.W., & Berscheid, E. (1978). Equity: Theory and research. Boston: Allyn & Bacon.
- Wernimont, P.F., & Campbell, J.P. (1968). Signs, samples, and criteria. Journal of Applied Psychology, 52, 373-376.

**Author Notes**

Authors contributed equally and are listed alphabetically. We thank Timothy A. Judge and Barry Gerhart for their substantive and methodological suggestions. Correspondence concerning this article should be addressed to Bob Bretz, Center for Advanced Human Resource Studies, 393 Ives Hall, Cornell University - ILR, Ithaca, New York 14851-0952.

Footnotes

<sup>1</sup>We specified a logit model with arbitration outcome as the dependent variable and found that previous arbitration outcome did not influence current outcomes. Therefore, it appears that arbitrators for the current sample did not attempt to achieve equality but rather judged each case on its current merits.

<sup>2</sup>The estimates create an index of overall performance that is heavily weighted in favor of power hitting. Therefore, strong performance-outcome expectancies are expected (Harder, 1991). The 1.0 loading of Production on the performance construct suggests it perfectly accounts for the underlying construct. In response, later estimates were also performed using only Production rather than the composite variable, and yielding equivalent results.

<sup>3</sup>These variables were eventually dropped from the analyses since they did not contribute to explaining variations in performance.

<sup>4</sup>This variable reflects only whether the player was eligible for free agency. We do not have data to indicate whether the player had actually declared his intent to become a free agent.

<sup>5</sup>Since the standard deviations for salary were large, it appeared that normality assumptions were violated. Therefore nonparametric tests of significance were used. A median test and a Mann-Whitney test suggested no difference between winners' and losers' salaries. Additionally, a Kolmogorov-Smirnov two-sample test suggested no differences between the two salary distributions.

<sup>6</sup>These results contradict what Hauenstein and Lord (1989) expected and found. However, since our sample size was sufficient, and we did not have the nonequivalence problems they encountered, we followed their suggestion and regressed performance on salary deviation, salary deviation X experience, salary deviation X lost arbitration, and salary deviation X experience X lost arbitration while controlling for average lifetime performance and deviation from average lifetime performance. None of these terms were significant.

Table 1

Descriptive Statistics and Correlation Matrix

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Lifetime Performance	1326.9	210.0	----	.78**	.60**	.52**	.40**	.11	-.15	-.06	-.00	-.31**	-.14	.04	.53**	-.12	-.07
2 Performance <sub>t-2</sub>	1353.2	292.4		----	.46**	.47**	.45**	.05	-.07	-.12	-.15	-.27**	-.06	.04	.46**	-.10	-.16
3 Performance <sub>t-1</sub>	1456.8	229.4			----	.63**	.40**	-.10	-.19*	.06	-.03	.57**	.06	-.12	.45**	-.30**	-.12
4 Performance <sub>t+1</sub>	1380.0	320.9				----	.59**	-.06	-.13	-.10	-.14	.17*	-.01	-.05	.43**	-.41**	-.36**
5 Performance <sub>t+2</sub>	1289.3	427.1					----	-.17	-.03	-.30**	-.36**	.11	.18	-.17	.31**	-.28**	-.76**
6 Lost Arbitration	.56	.50						----	-.01	.10	.11	-.25**	-.91**	.87**	-.08	.15	.15
7 Salary Deviation	.27	.11							----	-.19*	-.16	.03	.26**	.37**	-.12	.19*	-.03
8 Free Agent	.59	.49								----	.72**	.04	-.22*	.06	.04	.14	.21*
9 Years-In-Majors	6.08	1.80									----	-.06	-.19*	.01	-.03	.16	.25**
10 Career Deviation	115.41	203.18										----	.22*	-.20*	.05	-.25**	-.02
11 Salary Deviation x Win Arbitration	.12	.15											----	-.79**	.06	-.08	-.17
12 Salary Deviation x Lost Arbitration	.15	.15												----	-.13	.16	.15
13 Real Salary	108.82	94.25													----	-.15	-.15
14 Player Moves	.42	.50														----	.30**
15 Player Leaves	.06	.24															----

Note: N = 116. Decimal points omitted

\*\* p < .01, two-tailed

\* p < .05, two-tailed

Table 2

Regression Results for Baseball Performance

	Baseball Performance <sub>t+1</sub>
Lifetime Performance	.647** (8.69)
Lost Arbitration	-.433* (-2.05)
Free Agency	-.088 (-0.63)
Salary Deviation X Won Arbitration (SDXWA)	-.369* (-2.07)
Salary Deviation X Lost Arbitration (SDXLA)	.094 (0.65)
Career Deviation	.400** (5.23)
Years-in-Majors	-.120 (-0.44)
Years-in-Majors <sup>2</sup>	.119 (0.31)
R <sup>2</sup>	.49
Adj. R <sup>2</sup>	.44

Note. Entries are standardized regression coefficients.

t statistics in parentheses.

\*\* p < .01

\* p < .05

Table 3

Regression Results of Demand, Offer, and Differential on Performance and Experience


---

	Offer	Demand	Differential
Years-in-Majors	-.022 (-.29)	-.058 (-.77)	-.303** (-3.40)
Average Lifetime Performance	.388** (3.89)	.387** (3.94)	-1.36 (-1.18)
Baseball Performance <sub>T-1</sub>	.245* (2.46)	.263* (2.67)	-.027 (-.23)
R <sup>2</sup>	.334	.354	.113

---

Note. Entries are standardized regression coefficients.

t statistics in parentheses.

\*\* p < .001

\* p < .01



Table 4

Logit Model for Changing Teams

	Maximum Likelihood Estimate	Standard Error
Baseball Performance <sub>t+1</sub>	-0.00018**	.00048
Previous Loss	0.69423	.47834
Lost Arbitration	0.18348	.22796
Salary Deviation	1.44854	1.20184
Age	0.13997**	.05387
Chi Square	112.162	
Degrees of Freedom	110	
p sig	.425	

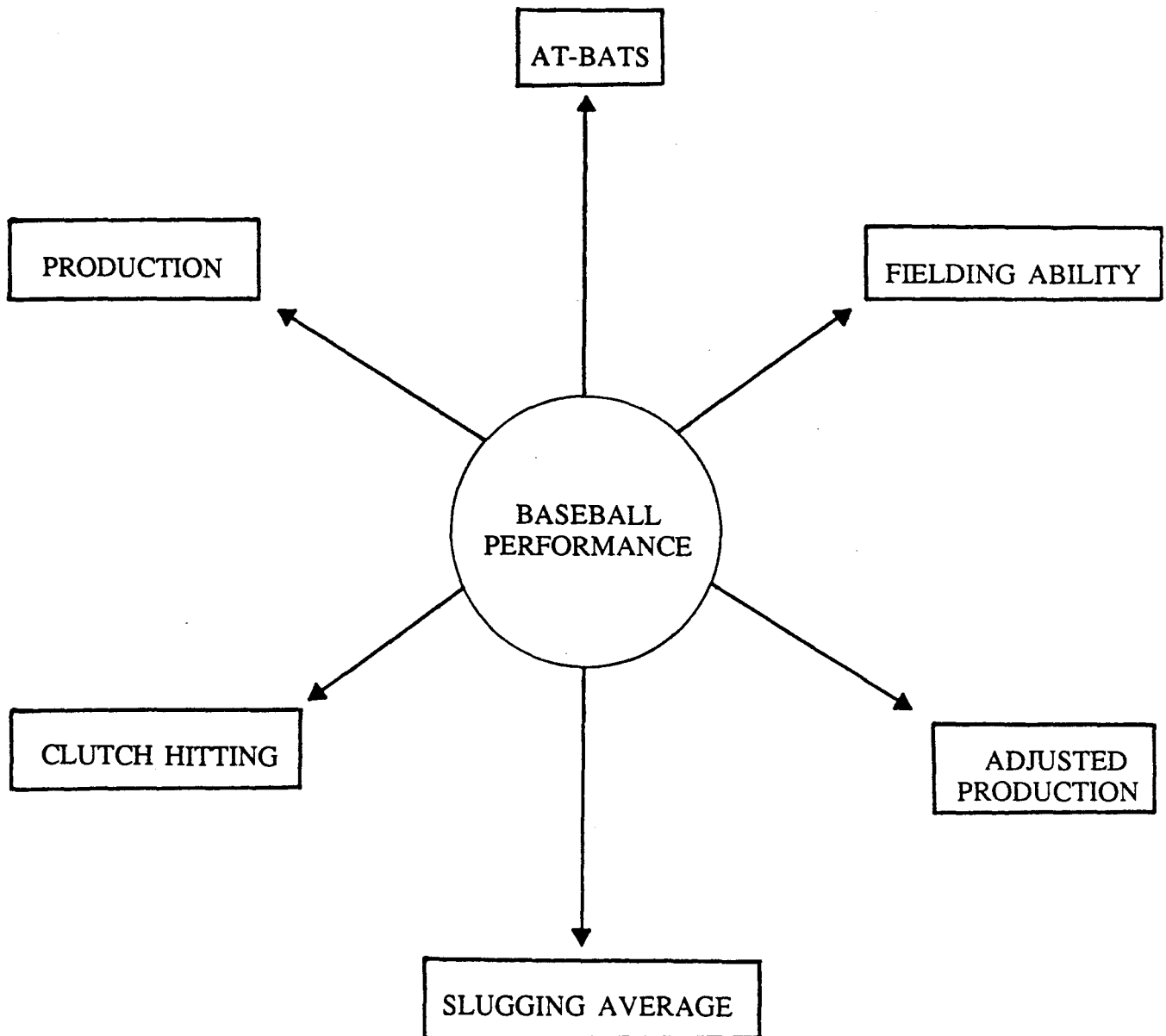
Note. \*\* =  $p < .05$ , two-tailed

\* =  $p < .10$ , two-tailed

**Figure Caption**

Figure 1. Measurement Model

Figure 2. Quasi-Experimental Design and Performance Patterns



BASEBALL PERFORMANCE

