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The Effects of Departmental and Positional Power on Job Evaluation Outcomes: A Dual-Level Analysis of Power and Resource Allocation

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THE EFFECTS OF DEPARTMENTAL AND POSITIONAL POWER ON JOB EVALUATION OUTCOMES: A DUAL-LEVEL ANALYSIS OF POWER AND RESOURCE ALLOCATION

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ABSTRACT

We replicate research from two separate power and resource allocation research streams to test whether job evaluation outcomes at a university are simultaneously susceptible to effects of power held at both the group (i.e., academic department) and individual (i.e., a job's hierarchical position) levels. In doing so, we illustrate limitations of the dominant rational model of research in job evaluation and, more generally, how dual levels of analysis can illuminate the relationship between power and resource allocation. We then investigate whether departmental and positional power interact in the allocation of resources at both levels. Results from six years of job evaluation data indicate that job evaluation outcomes are highly susceptible to both departmental and positional power. Moreover, our results suggest that positional power moderated the effect of departmental power on group level job evaluation successes. Drawing on our dual-level analysis, we propose a new model of power, resource allocation, and the perpetuation of power.

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The study of power is integral to research in organizational behavior (Pfeffer, 1981). Power is usually conceived of as the ability of one social actor to overcome resistance in attaining a desired outcome, with politics described as the exercise of power (Pfeffer, 1981). As Salancik and Pfeffer (1977: 4) wrote, "power is used by subunits, indeed, by all who have it, to enhance their own survival through control of scarce critical resources." Although one of the most scarce and critical resources within an organization is its people, the study of human resource management (HRM) has been dominated by a rational model of behavior that has excluded political considerations (Ferris & Judge, 1991). At the same time, empirical research in the field of organizational power has been somewhat restricted by each study's adherence to a single level of analysis. Individual outcomes have been predicted by individual power, and group-based outcomes have been linked to measures of group power. To date, research has not examined effects of group and individual power in a single context. We hope to expand the research in both organizational power and HRM by testing an alternative model of power that explains the effects of individual and group power on the attainment of both individual and group job evaluation outcomes.

The research described in this paper focuses on resources allocated on the basis of an organization's job evaluation process. Not only are new jobs approved through this process; the salary levels and titles of new and existing positions are also determined. Job evaluation results in valuable resources, such as salary dollars and the prestige associated with a job title, being provided to the individual holding a job. The presence in a department of individuals who command the resources of salary and prestige enhance the department's ability to meet its objectives (Pfeffer, 1981). Because job evaluation outcomes are important to both individuals and departments, they may be influenced by both individual and departmental power. Consequently, job evaluation provides a suitable context for testing a dual-level (individual and group) model of power's effects on resource allocation.

Hackman (1985: 62) defines a resource allocation as "the relative share of internal institutional resources acquired by a unit." Resource allocation models are based on two competing theories of the organization. The rational view, proposed by Weber (1947), describes a bureaucratic organization as one in which individuals base decisions on objective firm goals such as profit maximization (Cyert, Simon, & Trow, 1956; March & Simon, 1958). In this rational

framework, individual and subunit objectives are assumed to be congruent with those of the organization, and resource allocation decisions are based on strict decision rules that assure the firm's goals will be attained. The competing theory, referred to as the coalitional or political view of the organization, suggests that firms can be characterized as groups of subunits, each with their own agendas, which might or might not be consistent with organizational goals (Cyert & March, 1963; March & Simon, 1958). The needs and goals of subunits and the individual decision makers within them inevitably conflict (Cyert, Dill & March, 1958). Advocates of the coalitional framework suggest that such conflicts are resolved through negotiation, bargaining, and use of power, all of which become important determinants of decisions, particularly resource allocation decisions (Cyert & March, 1963; March & Simon, 1958; Pfeffer & Salancik, 1974; Simon, 1959).

Two separate research streams describe power's influence on attaining organizational resources. Substantial support exists for the notion that a group or department's power has a positive effect on the resources allocated to it, even when controlling for the effects of more rational criteria (e.g., Hills & Mahoney, 1978; Moore & Pfeffer, 1980; Pfeffer & Moore, 1980b; Pfeffer & Salancik, 1974; Salancik & Pfeffer, 1974; Sheridan, Slocum, Buda, & Thompson, 1990). A second, smaller body of research shows that an individual's power or influence level is an important predictor of resources allocated in the form of the individual's salary (Abrahamson, 1979; Pfeffer & Davis-Blake, 1987; Pfeffer & Konrad, 1991). Thus, although research indicates that group power results in group level resource allocations, and individual power results in individual level resource allocations, neither stream simultaneously accounts for both individual and group sources of power. Moreover, power research has paid little attention to potential interactions between sources of power (Astley & Sachdeva, 1984).

In the next sections of this paper, we review prior research on resource allocation at the group and individual levels of analysis, discuss potential applications of a dual-level approach to power and resource allocation, and briefly summarize the job evaluation literature, Subsequently, we apply the resource allocation and job evaluation literatures to develop hypotheses on the effects of individual and group power on job evaluation outcomes. The hypotheses are tested within a university setting. After describing the study and the results, we propose a dual-level model of power in organizations.

GROUP POWER AND RESOURCE ALLOCATION

By extending rational and coalitional theories of the organization, researchers have developed rational and political models of resource allocation. The work in this area has most

commonly studied the topic in the context of university departmental budget allocation decisions. Hills and Mahoney (1978: 454) define rational models as suggesting that "budgeting is a mechanistic activity involving purely 'rational' behavior." The rational model suggests that quantifiable and seemingly rational criteria (such as workload, sales, profitability, etc.) should predict budget allocation outcomes. Indeed, several budget allocation studies have found that rational factors do contribute to the prediction of resource allocation (Hills & Mahoney, 1978; Pfeffer & Moore, 1980b; Pfeffer & Salancik, 1974).

In contrast, the political or coalitional model predicts that group power, particularly horizontal subunit power (Perrow, 1970), will also affect budget allocation outcomes. According to Pfeffer and Salancik (1974: 137) "organizations operate as coalitions in many decisions, with subunits contending for resources, and with resource allocations being shaped by considerations of relative political strength as well as by more bureaucratic, universalistic criteria." Thus, in the coalitional model, departments' goals conflict, and department members turn to tactics involving power and politics to facilitate group survival and success. Several studies have supported the political model by finding evidence that departmental power influences resource allocation decisions.

In one such study, Pfeffer and Salancik (1974) examined budget allocation in a large university. Controlling for rational predictors, the authors found that departmental power, measured from the results of a survey of department heads and from departmental representation on important university committees, predicted budget allocation. Similarly, Hills and Mahoney (1978) investigated the incremental budgetary allocations at a large university and found an effect for a department's power. In this study, the authors also demonstrated that the effects of departmental power intensified during years in which resources were relatively scarce (i.e., when legislative appropriations to the university increased at a relatively low rate). Hills and Mahoney also refined the measurement of power by including the presence of an outside advisory board associated with a department and matching funds granted by an external source, both of which significantly predicted budget allocation in years of scarcity. Committee representation, which was a key power measure in the Pfeffer and Salancik study, did not predict budgetary allocations. Finally, in a replication and extension of Pfeffer and Salancik's work. Pfeffer and Moore (1980b) found that power, operationalized as committee representation, was a significant predictor of budget allocations on two campuses of a large state university system. Additionally, for the campus facing greater scarcity in budgetary resources, the authors found that allocations were more strongly related to power and less strongly related to student enrollment, the rational predictor.

Outside the realm of budget allocation, similar support exists for the relationship between departmental or group level power and resource allocation. Salancik and Pfeffer (1974) demonstrated the use of departmental power to obtain university graduate fellowships, which were rated as the scarcest and most critical resource that departments require. Moore and Pfeffer (1980) reported that the proportion of a department's faculty members progressing to a high professorial rank (and thus high pay level) was positively correlated with departmental power. Both of these studies employed the committee representation measure of subunit power. In a study involving a public utility company over a ten-year period, Sheridan, Slocum, Buda, and Thompson (1990) found positive effects of departmental power, measured by ratings from senior executives, on rates of managerial promotion and salary progression. The latter two studies are of particular interest here because they begin to reveal the role of human resource management practices in resource allocation. Moreover, these studies identify individuals as beneficiaries of departmental power and, in doing so, illustrate the practice of characterizing aggregated individual level outcomes as group level outcomes. This practice has implications for the empirical and theoretical modeling that we discuss in our study.

In summary, there is substantial support in the resource allocation literature for the coalitional theory of organizations. Controlling for the effects of more rational predictors of resource allocation, researchers have found that group power, typically measured as a university department's committee representation, plays a role in the acquisition of important resources. We next examine the role of individual level power in the attainment of scarce resources.

INDIVIDUAL LEVEL POWER AND RESOURCE ALLOCATION

The studies reviewed to this point have analyzed power and resource allocation at the group level. Even when the resource in question was inherently individual in nature, such studies as Moore and Pfeffer (1980) and Sheridan, et al. (1990) have investigated pay and promotions aggregated to the group level.

However, a few studies have examined the effects of the level of an individual resource recipient's power or influence on individual level resource allocations. Abrahamson (1979) investigated the functional importance of a position with regard to organizational stratification by assessing the effect of baseball players' positional importance and uniqueness on salary. Using major league baseball teams from 1965 to 1976, he found that a position's functional importance and the interaction between functional importance and the position's uniqueness were positively related to salary allocations. Such positional importance was defined as position

criticality in a study by Pfeffer and Davis-Blake (1987) that utilized a resource dependence framework. In their study, position criticality was derived from "the ability a position gives its incumbent to provide resources to an organization or to solve its resource acquisition problems" (p. 440). This definition implies that organizations are more dependent upon some positions than others. Pfeffer and Davis-Blake found that, with various individual and organizational factors controlled, administrative positions that were deemed to be more critical in public colleges and universities than in private ones commanded more pay in the public institutions. Conversely, the positions deemed more critical in the private institutions commanded more pay there.

Although the Abrahamson (1979) and Pfeffer and Davis-Blake (1987) studies are cast in terms *of positional* criticality, importance, or power, Pfeffer and Konrad (1991) explored the effect *of* the power of *individuals* to acquire financial resources. They argued that wage determination research largely neglects the role of individual employee power in favor of explicit (e.g., human capital) and implicit (e.g., transaction costs) efficiency explanations. By attempting to control for these explanations through multiple individual, departmental, academic, field, and organizational level determinants of salaries, they tested the proposition that the individual power of college and university faculty members affects salaries. Those with outside research funding, outside job offers, extensive communication with faculty at other schools, and involvement in departmental and institutional government were defined as powerful. As predicted, individual power positively predicted both salaries and returns on experience, productivity, and credentials. In sum, the consensus among the small number of applicable studies is that individual level power positively affects individual level resource allocation.

DUAL LEVELS OF POWER AND RESOURCE ALLOCATION

According to the research, the two levels of power seem to facilitate the allocation of resources operationalized at the corresponding levels. Additionally, it is important to note that the resources studied in much of this research are pay related and can be meaningfully operationalized at either the group or individual level. Consequently, for our first step toward a more encompassing resource allocation model, we examine whether, for the same resource, individual power's effect on individual resource allocation exists simultaneously with group power's effect on group outcomes. This approach recognizes the dual levels of both power and the resource of interest, job evaluation.

The second step in the dual-level analysis involves cross-level effects. Individuals are inevitably involved in group allocation processes. For example, individuals (e.g., departments'

chairs) are responsible for communicating the departments' budgetary needs, but the characteristics and strategies of such individuals have not been considered in studies of power and budget allocation (Pfeffer, 1981). Because group level allocations eventually trickle down to department members (via research support, graduate assistant assignments, computer resources, etc.), individuals and department members have an incentive to affect the allocation of these resources at the group level. Similarly, departments and groups have a stake in the attainment of individual level resources, a disproportionate share of which appear to go to more powerful individuals and those in more critical positions. The department is interested in these outcomes because, through effects on attraction and attrition, individual rewards lead to increased talent in a department (particularly in important positions) and a subsequently enhanced ability to solve crucial problems facing the department and organization (Kanter, 1977; Pfeffer, 1981).

If departments and individuals both have a stake in, and consequently may use power to acquire, both levels of resources, it seems reasonable for a model of power and resource allocation to allow for cross-level effects. The question then becomes one of the nature of such effects. Some authors speculate that the relationship between power and an outcome at one level is moderated by power at the other level. In outlining the logic behind extending resource allocation research from departmental power to individual power, Pfeffer and Konrad (1991 mention that powerful individuals in powerful departments likely have the greatest advantage in obtaining individual resources. Additionally, Pfeffer (1981) identified the power of an individual's subunit as important for understanding the effects of individual power because a subunit's power confers a certain amount of power on its members.

On an empirical level, three studies appear to lend indirect support to the moderator scenario. Two of these studies found evidence that the return to a group member's quality or performance was greater for more powerful groups, thereby suggesting that individual level effects can depend upon group power. Konrad and Pfeffer (1990) found a stronger relationship between research productivity and pay in fields with high "paradigm strength," which Pfeffer (1993) notes as indicating a high level of power. Similarly, Lodahl and Gordon (1973) found that in more paradigmatically developed academic disciplines, departmental funding was more closely tied to department quality (note that in this case department represented the group "member"). Finally, Salancik and Pfeffer (1974) demonstrated that the effect of departmental power on group level resource allocation is greater when the resource is more critical to the department. Because those at higher levels in the hierarchy tend to be more critical to their department's success (Kanter, 1977; Pfeffer, 1981), Salancik and Pfeffer's resource criticality

would seem to correspond with positional power, further suggesting the potential for interactions between two power levels.

In summary, our examination of dual levels of power and resource allocation will involve testing (1) two separate level-specific effects for the same resource and, in a somewhat exploratory fashion, (2) cross-level power interaction effects. Table 1 summarizes these potential effects and their status in the existing body of research. We address the relationships in the context of job evaluation, an organizational process that is potentially subject to both group and individual levels of power and whose outcomes are meaningful and measurable at both levels.

TABLE 1: Relationships between Power and Resource Allocations at the Group and Individual Levels

Relationship of Interest	Model	Research to Date	Present Study
Main effect at group level	Group Power → Group level resource allocations	Supported	To be tested
Main effect at individual level	Individual Power → Individual level resource allocations	Supported	To be tested
Main effects at both levels for the same resource	Group Power → Group level resource allocations Individual Power → Individual level resource allocations	Untested	To be tested
Moderated effect across levels for group allocations	Individual power ↓ Group Power → Group level resource allocations	Untested	To be tested
Moderated effect across levels for individual allocations	Group power ↓ Individual power → Individual level resource allocations	Untested	To be tested

JOB EVALUATION AS A RESOURCE ALLOCATION PROCESS

Before applying the models of group and individual power to the topic of job evaluation, we briefly review the research that has been conducted on this topic. As will be shown, researchers have assumed a rational model of job evaluation, but a review of years of study suggests that it is not a rational process. Thus, we feel that application of a coalitional model to the job evaluation process not only extends the research in organizational power, but also contributes to work being done on the topic of job evaluation.

Job evaluation is a systematic procedure designed to help an employer establish pay differentials among jobs (Milkovich & Newman, 1995). Its goal is to determine a hierarchy of positions, which is then used to assign pay rates based on relative contribution to the firm. The premise that job evaluation is based on the worth of a position, and not of its incumbent, is fundamental (Risher, 1978; Trieman, 1979). Thus, job evaluation is often viewed as a rational way to allocate wages to a new hire or to reallocate pay to a current employee (through re-

evaluating the employee's job). Formal job evaluation procedures have been in use for more than a century, and studies of job evaluation have been conducted and published in research journals since the 1940s. However, because researchers have generally assumed the rational model, their work has emphasized the psychometric issues of reliability and validity.

Reliability has been examined by comparing job grades, factor scores, total points, and wages assigned by several raters to positions. Early researchers concluded that trained individuals, who were familiar with an organization's jobs and used simple forms, could approach similar conclusions on overall job worth when provided with detailed instructions on how to analyze positions (e.g., Ash, 1947; Jones, 1948; Lawshe & Farbro, 1949; Lawshe & Wilson, 1947; Satter, 1949). Reliability research on job evaluation resumed in the 1980s, when issues of comparable worth and potential bias resulting from the job evaluation process threatened assumptions of its purely rational nature. Researchers tried to understand whether certain jobs (those characterized as being occupied predominantly by either women or men) produced differential reliabilities. After reviewing the 1980s work, Arvey (1986) concluded that studies examining effects of sex bias on job evaluation procedures were mixed. Madigan (1985), who questioned the usefulness of reliability statistics, discovered that even though the reliabilities of several job evaluation methods ranged between .70 and .90, hit rates (the accuracy with which predicted grade matched actual job grade) were much lower. This validity problem called into question the predominant focus on reliability in job evaluation studies.

Validity research in job evaluation, intended to help measure how accurately job evaluation procedures assess job worth, has been approached in several ways. Investigating convergent validity by examining the results of several types of job evaluation methods, some researchers have concluded that job evaluation outcomes (i.e., the resultant wages or job evaluation points) are independent of method (Chesler, 1948; Robinson et al., 1974; Slatter, 1949; Snelgar, 1983), but others have said that job evaluation techniques significantly affects results (Madigan, 1985; Madigan & Hoover, 1986). Alternately, predictive validity researchers have found that job evaluation outcomes can predict the "going rate" in the external market (Dertien, 1981; Satter, 1949; Schwab & Grams, 1985). However, because the determination of the going rate reflects a series of subjective decisions (Rynes & Milkovich, 1986, Viswesvaran & Barrick, 1993) and might reflect past discrimination against "women's" jobs (Grams & Schwab, 1985), job evaluation's prediction of the going rate did not necessarily indicate that it was a valid predictor of job worth. In terms of construct validity, several studies have suggested that factors unrelated to job worth can affect job evaluation outcomes (Benson & Hornsby, 1988; Miner, 1987; Smith, Hornsby, Benson, & Wezlowski, 1989). Finally, using factor analysis, several

investigators have found that one factor tends to account for most job evaluation outcome variance (Grant, 1951; Lawshe & Slatter, 1944; Madigan, 1985; Rogers, 1946), further casting doubt on the method's validity.

Overall, after more than 50 years of research, the numerous validity and reliability studies have failed to support the rational nature of job evaluation. We cannot conclude that job evaluation consistently and accurately measures job worth within an organization. Not surprisingly, in a review of this literature Gerhart and Milkovich (1992: 504) suggested that "research models need to be expanded beyond focusing on the psychometric properties of job evaluation." Accordingly, we hope that by applying the group and individual power literature to job evaluation, we can expand this work beyond the rational models that have been dominant over the last 50 years.

HYPOTHESES

GROUP POWER AND JOB EVALUATION

One reason for examining job evaluation from the power and resource allocation perspective is that it has the potential to enhance our understanding of this formalized managerial practice. Although Gupta and Jenkins (1992) note that most discussions of influence and power in job evaluation focus on ways in which an individual employee might affect results for personal gain (e.g., Arvey, 1986; Benson & Hornsby, 1988; Miner, 1987; Smith, et al., 1989), there has been a scattered but clearly audible call for a more macro approach to job evaluation. Gerhart and Milkovich (1992), for instance, in citing the need to move beyond psychometric job evaluation research, noted that organizational theory models can also be used to explain how pay systems function within firms. Similarly, Wright and McMahan (1992), in a review of the human resource management literature, refer to this budget allocation research and suggest that political models of organizations might also be applicable to the study of compensation. They note that "one could hypothesize that much of pay allocations are based on power, rather than just performance criteria" (1992: 311). Simply put, given that job evaluation decisions involve the distribution of organizational resources, the political model should also be applicable to job evaluation (Ferris & Judge, 1991; Gupta & Jenkins, 1992; Lawler, 1984).

A second reason for examining job evaluation in terms of power and resource allocation is that job evaluation appears to readily meet the critical requirements set out for inclusion in such research. Salancik and Pfeffer (1974) state that "discretion" is a necessary condition for the exercise of subunit power and that the first criterion for the existence of discretion is the presence of an important resource to allocate. When positions are created through job

evaluation, the process largely determines the wage levels and, perhaps as a result, the quality of new employees. Similarly, departments can use job evaluation to retain current workers and enhance their status by increasing wages and changing job titles. Thus, job evaluation results are valuable organizational resources with implications for a department's securing of high-quality employees. Salancik and Pfeffer's second criterion for discretion involves the extent to which resource allocations are deterministic. Specifically, if law, norms, rules, or some external agency completely constrains a decision, there is no discretion and no opportunity to exercise power. Although job evaluation is a highly structured managerial practice, with rules and guidelines set out to limit its subjectivity, the lack of consensus in the psychometric research and the field's advocacy of a political approach lend credence to the existence of discretion. The belief that job evaluation is far from deterministic was perhaps best summarized by Viteles (1941), who wrote that "beneath the superficial orderliness of job evaluation techniques and findings, there is much that smacks of chaos" (p. 165).

Because job evaluation outcomes, like budget allocations, are valued organizational resources, we would expect them to follow conventional patterns of department level relationships. Functional departments are organizationally sanctioned groups with distinct needs and goals, including expansion and increased group membership status (Downs, 1967; Katz & Kahn, 1966). Because such goals inevitably conflict across groups, members seek to achieve them through a variety of mechanisms (Cyert, Dill, & March, 1958; Cyert & March, 1963). In turn, the coalitional model suggests that negotiation, bargaining, and power will likely influence decisions such as resource allocations (Cyert & March, 1963; March & Simon, 1958; Pfeffer & Salancik, 1974; Simon, 1959). Therefore, we predict that, with rational criteria held constant, units identified as having high power will attain more favorable results from the job evaluation process than will those with less power.

> Hypothesis 1:   Departmental power will have a positive effect on job evaluation
> outcomes assessed at the group level.

POSITIONAL POWER EFFECT ON JOB EVALUATION

Just as the group level research suggests that group power increases group resource allocations, the individual level power research suggests a parallel dynamic. Whereas salary was the resource studied in prior individual level power studies (Abrahamson, 1979; Pfeffer & Davis-Blake, 1987; Pfeffer & Konrad, 1991), job evaluation outcomes, which are inextricably tied to pay, should incorporate similar opportunities for individual level influence. These salary studies, as well as some individual level job evaluation research that is not power-based (e.g.,

Miner, 1987), suggest that both positional (i.e., hierarchy-based) power and individual characteristics that could be related to power (e.g., abilities), respectively, should be related to job evaluation outcomes. However, our interest is in the power associated with formal departments (versus informal work groups) and, as the individual level parallel, the formal position in the hierarchy (versus individual characteristics). Thus, at the individual level we focus on positional power only.

The conceptual basis for the susceptibility of job evaluation to an effect of positional power can be drawn from the functional theory of stratification (Huaco, 1970; cited in Pfeffer & Davis-Blake, 1987). According to Davis and Moore (1945) organizations attach "greater rewards to the functionally more important positions in order to insure that the individuals with the greatest talent and training occupy these positions" (1970: 215). Similar logic applies from the resource dependence perspective. A position's "nonsubstitutability" (i.e., the difficulty associated with replacing the functions of an individual or a position) and the ability to cope with uncertainty increase as hierarchical level increases (Kanter, 1977; Pfeffer, 1981). Consequently, because organizations are more dependent on high level positions, the positions are more powerful and should be assessed as valuable in the job evaluation system. In sum, the strategic value of high level employees and the expense and difficulty associated with replacing them make their attraction and retention very important to firm and unit survival and success. Thus, use of job evaluation to increase the salary level of a position (and its incumbent) is particularly important at high position levels.

In addition to this conceptual basis and the individual level power and resource allocation studies already discussed, the job evaluation literature suggests the potential for an effect of power at this level. Smith et al. (1989) examined the effect of job titles on job evaluation ratings with a sample of students and found that title status was significantly associated with ratings. Benson and Hornsby (1988) obtained results from self-report surveys indicating that job evaluators use a variety of influence tactics in committee meetings. In a study of job creation and reclassification in a university, Miner (1987) reported that between 7 and 12 percent of new positions were idiosyncratic jobs, which were defined as positions that were created around the interests and abilities of current or future individual employees, rather than based on criteria independent of any one individual. Arvey (1986: 331), in an extensive review of the job evaluation literature, commented that "my own observations have been that there is an increasing realization among employees that job evaluation procedures have a bearing on their real wages, and they are quite interested in preserving or increasing real wages through job evaluation. Whether or not these political realizations substantially distort job evaluation

judgments remains to be seen." Thus, this evidence of the apparent susceptibility of job evaluation to "non-rational" factors at the individual level, coupled with the conceptual and empirical evidence of positional power's effect on resource allocation, suggests that positional power will have an effect on job evaluation outcomes.

> Hypothesis 2:   The positional power associated with existing positions will positively affect individual level job evaluation outcomes.

DUAL-LEVEL POWER EFFECTS ON JOB EVALUATION OUTCOMES

The first two hypotheses replicate, in a job evaluation setting, predictions from the resource allocation and power research conducted at the group and individual levels. Moreover, they represent the first attempt to demonstrate that level-specific main effects of power co-exist for the same outcome at the group and individual levels. Having addressed power through each of the two levels, we also attempt to establish a relationship between what previous research has treated as separate levels of analysis in the study of power and resource allocation. In doing so, we investigate potential cross-level power interaction effects.

The earlier section on dual-level power and resource allocation discusses an intuitive and conceptual basis for expecting cross-level power interaction effects on resource allocation (e.g., Cole, 1983; Pfeffer, 1981; Pfeffer, 1993; Pfeffer & Konrad, 1991). The Lodahl and Gordon (1973) and Konrad and Pfeffer (1990) studies suggest that group power results in greater returns for certain group members, thus suggesting the potential for cross-level power effects. Additionally, Salancik and Pfeffer (1974) demonstrated that the effect of departmental power on group level resource allocation is greater when a resource is more critical to a department. In the context of our study, resource criticality could be viewed as corresponding to positional power, since those at higher levels in a hierarchy tend to be more critical to a department's success (Kanter, 1977; Pfeffer, 1981). Consequently, we suggest that the departmental power effect on *group level* job evaluation results (i.e., job evaluation outcomes in the aggregate) will be larger when the jobs under evaluation have relatively high pay grades.

> Hypothesis 3a: Individual positional power will moderate the relationship between departmental power and departmental job evaluation outcomes: the positive effect of departmental power will be greater when positional power is high.

Unfortunately, the studies just summarized could also be interpreted as supporting an interaction between group and individual levels of power in the prediction of *individual* resource allocations. In this vein, Pfeffer and Konrad (1991) explicitly suggested that the effect of

individual power on individual outcomes may be greater for members of more powerful departments. Therefore, we suggest that the positional power effect on individual job evaluation outcomes that we describe in hypothesis 2 may depend upon the department affiliation for the job in question.

> Hypothesis 3b: Departmental power will moderate the relationship between individual power and individual job evaluation outcomes: the positive effect of positional power will be greater when departmental power is high.

METHODS

SAMPLE

The sample for this study consists of academic departments from a large university in the western United States. Data were collected from the university archives, department chairs, the university's personnel department, and various administrative offices. The study encompasses six academic years beginning with 1985-86 and ending with 1990-91. We sought yearly information on all 55 departments listed in the university's official publications. However, data losses resulting from departments' consolidation, discontinuation, and emergence, as well as missing archival data, reduced the number of usable departments to 41. Each of the 41 observations in the department level sample consists of data aggregated across all six years. At the individual decision level, the 372 separate job evaluation submissions from the six year period were evaluated. For these analyses, we utilized department-by-year representations of the variables.

THE JOB EVALUATION CONTEXT

The period of the study saw growth in new jobs and job upgrades for the university, although this growth was tapering off toward the end of the study. The job evaluation system itself remained constant throughout the data collection window. Official proposals for job creation and reassessment were evaluated under a point classification system (see Milkovich and Newman, 1995, for a description of this method). The four compensable factors utilized by the HRM department in conducting job evaluations were decision-making responsibility, job complexity, purpose of interdepartmental contact, and line/staff authority. The university's human resource department kept records on all official job evaluation submissions and the subsequent approval or disapproval of the requests.

The university's job evaluation system was designed to work in the following manner. The process began when an academic department representative, typically the supervisor of the position in question, obtained internal approval to seek authorization either for a new position at a certain pay grade or for a specified increase in grade for an existing position. The supervisor then wrote and submitted a complete job description to the university's human resources (HR) department. A compensation analyst responded with written comments, resulting in the supervisor's rewriting the job description and officially submitting it for evaluation.

It is important to note, however, that this description does not fully capture the many 46 unwritten" components of the process. Our interviews with HR personnel indicated that significant informal interactions between the HR department and the person submitting a request frequently occurred prior to official submission. Multiple rewrites of the job description tended to be made amidst negotiations centering on the proposed pay job grade for a job and the appropriateness of the description for the actual job. The extent and nature of such interactions were reported to vary considerably by department and the person making the submission. If some sort of an agreement about a suitable job description and proposed pay grade could not be reached and HR was seen as "making trouble," it was not uncommon for an upper level department representative or the school's dean to intervene on the department's behalf prior to official submission. If such pressure did not result in HR yielding, or if no intervention were made, departments sometimes chose not to officially submit disputed evaluation requests. Departmental representatives would make this choice either because they felt a request was doomed to failure at the desired grade or because they were unwilling to submit a request to create or reclassify a job at the suboptimal grade recommended by HR.

Thus, it is at the informal interaction stage prior to official submission of an evaluation request that department power is likely to have its effects. We expect that more powerful departments are more likely to approach HR with marginally acceptable requests. Additionally, powerful departments should be more likely to use, and should be more adept at using, intervention by a high-ranking representative to resolve conflicts over job grade. Conversely, less powerful departments should be more likely to withdraw disputed requests. Hence, department power should correspond with number of official requests, and we expect the department level power effects to manifest in the actual numbers of successful evaluations obtained.

All departments, however, were reported to lobby more intensely for informal agreement with HR on requests for higher grade positions. For lower grade jobs, departments were more

likely to officially submit requests without negotiating agreements beforehand. Thus, it is at the level of individual decisions that we would expect to see effects of positional power.

DEPENDENT VARIABLES

A job evaluation outcome in this study was the decision to approve, at the pay grade requested, the academic department's request for either a position upgrade or a new position. In the department level analyses, the dependent variable was measured as the total number of job evaluation requests that were approved at the requested grades for a department. In the individual decision analyses, the dependent variable was measured as a dichotomous outcome, the success or failure of each submission. Given qualitative differences between job allocations and job reallocations, we analyzed the two types of job evaluation outcomes separately.

Allocations result when a department requests the establishment of a new position. Successful allocations were defined as those in which the HR department approved the new position at the requested pay grade after formal evaluation of the job.

Reallocations result when a department contends that an existing job description and pay grade no longer represent a job's responsibilities. Thus, reallocation constitutes an incremental change in job evaluation points. Successful reallocations were defined as approvals of the higher grade requested by the department. Alternatively, HR can assign a smaller pay grade increase or no increase at all.

INDEPENDENT VARIABLES

Departmental Power

Although various discussions of power have endorsed multiple measures to indicate a department's determinants, consequences, or representations of power, studies on university budgeting have emphasized a department's reputation and representation on important university committees (e.g., Hills & Mahoney, 1978; Pfeffer & Moore, 1980b; Pfeffer & Salancik, 1974). However, because single indicators of power often can be manifestations of numerous other factors, each measure is somewhat inadequate in and of itself (see Pfeffer [1981] for further discussion of the difficulty of inferring power from single indicators). Pfeffer maintains that the ideal approach would be use of a power index that demonstrates convergence among indicators of reputation, representation and the determinants and consequences of power. Convergence should not only indicate a relatively well defined and stable power distribution, but should also provide a much better approximation of power in the organization than any single measure can (Pfeffer, 1981).

We were able to create such an index by drawing upon six power indicators from several data sources. The departmental power index was created by standardizing each of the six variables and adding the scores together, thus treating each indicator as an item on a scale. To support the construct validity of the index, we conducted a principal components factor analysis to determine whether the elements appeared to load together on a power factor. One factor emerged that explained 54 percent of the variance in the six variables. As expected, all six variables loaded on the factor (all loadings were greater than .51). Additionally, the measure exhibited acceptable reliability (alpha = .82). Hence, the power index appears to demonstrate convergence among the following six power indicators.

1. <u>Reputational power</u>. The measure of reputational power was constructed from a survey of academic department chairpersons administered during the final year of the data collection. Consistent with earlier research on departmental power that built upon the work of Perrow (1970), respondents were asked to rate the level of power possessed by each department (Pfeffer & Salancik, 1974). Departmental power was defined as "the ability of the department to affect decisions so that they conformed more closely to what the department wanted" (Pfeffer & Moore, 1980; Pfeffer & Salancik, 1974). Responses were made on a Likert-type scale anchored by 1 (very little power) and 5 (a great deal of power).

2. <u>Committee representation</u>. Certain university committees control resource allocations. making their memberships desirable for departments seeking power and providing additional power to represented departments (Hills & Mahoney, 1978, Pfeffer & Salancik, 1974). The total number of committee membership positions a department held was the second indicator of departmental power. To determine which university committees should be included, we asked several university vice presidents to identify committees that were -instrumental in establishing educational policy and overall policies for resource allocation" (Hills & Mahoney, 1978: 460). Following their recommendations, which were consistent with earlier studies on university departmental power, we included: (1) these university senate committees - Academic Planning, Budget, Faculty Compensation and Benefits, Executive Committee, Libraries, and Minority Affairs; and (2) the following other committees: Classified Research, Educational Policy and University Standards, Government Function and Structure, and Graduate School.

3. <u>Paradigm Strength</u>. Paradigm strength refers to consensus regarding appropriate theory and research methodologies in an academic field (Lodahl & Gordon, 1972; Pfeffer, 1981, 1993). Through contributing to elements such as coalition building (Beyer & Lodahl, 1976), this consensus can function as a power determinant by resulting in a clear and consistent advocacy of departmental interests (Pfeffer, 1993). Indeed, a department's funding has been found to be

related to the strength of its field's paradigm (Lodahl & Gordon, 1972; Pfeffer & Moore, 1980b). Because consensus implies efficient communication through shared vocabulary and easy definition of terms and concepts (Salancik, Staw, & Pondy, 1980), researchers have used communication-based operationalizations of paradigm strength. We used one of these measures, the mean length in words of dissertation abstracts within a field (Pfeffer & Moore, 1980a; Salancik, et al., 1980), randomly choosing 25 dissertation abstracts submitted in 1987 or 1988 by doctoral candidates in each department. Because shorter abstracts denote more efficient communication and greater paradigm strength, the mean number of words in the abstracts, multiplied by negative one, was the paradigm strength indicator.

4. Graduate-student-to-faculty ratio. In a survey of department chairs, Salancik and Pfeffer (1974) found graduate students were rated as the most important resource departments bring into the university and as the most highly preferred basis for budget allocation. By taking the ratio of graduate students to faculty members, we indexed the acquisition of this valued resource by the level of investment in faculty members, one of the most important factors in obtaining graduate students (either directly or via departmental reputation). Hence, a high ratio indicates a department's ability to successfully acquire resources per cost, which represents both a determinant and consequence of departmental power.

5. Staff-to-instructional unit ratio. The non-faculty staff in an academic department is in some way involved in all aspects of the department's work. The ratio thus indicates a department's power to acquire an important resource relative to departmental workload. The ratio may also be a determinant of power to the extent that it indicates additional time for faculty and high level employees to focus on tasks that might perpetuate departmental power (e.g., research and publishing for faculty members).

6. Maximum staff grade. Just as committee representation indicates a department's opportunity to participate in decisions that could affect it, staff members who hold positions at high pay grades indicate increased departmental ability to cope with uncertainty and solve problems. Hence, maximum staff grade is a power determinant and a representational power indicator.

It should be noted that we compiled the four time-variant components of the departmental power index (all the variables except for representational power and paradigm strength) across the six years.

Positional Power

Positional power was defined as the pay grade of a position undergoing job evaluation. Hence, it represents power by indicating position in the university hierarchy.

Workload

Prior research has operationalized rational grounds for budget allocation as departmental workload (Hills & Mahoney, 1978; Pfeffer & Salancik, 1974). Similarly, departmental workload should be a rational predictor of resources allocated from job evaluation. Our four indicators measure workload directly and tap into departmental size as a rational representation of workload. These measures were very highly interrelated. A principal components factor analysis of the four measures produced one factor that accounted for 85 percent of the variance in the four indicators. Because these indicators seemed to describe a single workload construct, we standardized and summed the variables to create an additive index of workload. The index demonstrated high internal consistency (alpha = .94) and was composed of the following four indicators.

1. Instructional units. According to Pfeffer and Salancik (1974: 142), "the single universalistic, rational, and bureaucratic criterion that might guide resource allocation ... is the instructional work load of the department." These authors, as well as Hills and Mahoney (1978), utilized instructional units to represent departments' workloads. Instructional units are the multiplicative product of a course's semester hours and the number of students enrolled, summed across a department's courses. At the department level, this variable was averaged across the six years.

2. Budget. Each department's average yearly budget allocation was measured as an indicator of size and workload.

3. Faculty. The average yearly number of full-time equivalent faculty members in a department was compiled as an indication of departmental size and workload.

4. Staff. Another size and workload indicator, this is an average of a department's full-time equivalent non-faculty staff members.

Change in instructional units

Increases in a department's instructional workload from one year to the next should directly lead to increases in job content, which in turn should result in job allocations and upward reallocations. At the individual decision level, change in workload was measured as the change in instructional units between years t-2 and t-1 (with job evaluations measured in year t)[1]. For the department level sample, we defined change as the standard deviation of instructional units over the six years. We used change in instructional units rather than a change in our workload

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[1] Because response to change in organizations frequently is not immediate, we lagged this measure so that change in instructional units from, for example, 1986 to 1987 would predict job evaluations in 1988. We thank an anonymous reviewer for making this suggestion.

index because incremental change in staff and budget would be, in part, functions of job allocations and reallocations.

Years

Dummy variables for years were included in the individual decision analyses to control for any effect of year on job evaluation success probability. The 1986-87 school year was the omitted category.

ANALYSES

The data were analyzed at the department and individual -decision levels. For the department level analyses, job allocations and reallocations are event count data, are not normally distributed, have multiple zero values, and have means and maximums too low to allow the characterization of the variables as continuous. Hence, ordinary least squares regression was inappropriate and Poisson regression was used. For the individual-decision-level analyses, the dependent variables were dichotomous (i.e., job evaluations were deemed as successful or unsuccessful). Consequently, we employed logistic regression in these analyses. Table 2 summarizes the university's job evaluation outcomes.

TABLE 2: Allocation and Reallocation Incidence and Success Probability by Departmental Power, Positional Power, and Year

	Job Allocations		Job Reallocations	
	Frequency	Success Probability	Frequency	Success Probability
Departmental power				
High	139	.93	112	.70
Low	24	.92	26	.70
Positional power				
High	84	.97	77	.79
Low	79	.89	61	.62
Year				
1985-1986	36	.84	26	.76
1986-1987	37	.95	21	.58
1987-1988	28	.93	43	.84
1988-1989	29	.97	29	.66
1989-1990	32	.97	8	.62
1990-1991	1	1.00	11	.61
TOTAL	163	.93	138	.70

TABLE 3: Means, Standard Deviations, and Intercorrelations[a]

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Departmental Power	0.00	4.33	---															
2. Reputational Power	2.94	0.92	.87	---														
3. Committee Representation	6.51	6.06	.59	.38	---													
4. Paradigm Strength	-255.37	67.78	.72	.61	.26	---												
5. Graduate-student-to-faculty ratio	3.56	2.61	.60	.35	.50	.26	---											
6. Staff-to-instructional unit ratio	4.40	3.39	.78	.68	.22	.43	.32	---										
7. Maximum staff grade	75.99	9.29	.78	.75	.18	.54	.16	.74	---									
8. Propositional power[b]	58.83	9.49	.14	.21	-.02	.13	-.15	.11	.27	---								
9. Workload	0.00	3.67	.59	.58	.60	.34	.35	.25	.45	.05	---							
10. Instructional units (thousands)	13.44	10.36	.24	.29	.38	.21	.12	-.16	.18	.01	.86	---						
11. FTE faculty	23.54	16.57	.52	.50	.62	.24	.37	.19	.34	.01	.96	.81	---					
12. FTE staff	5.36	4.74	.75	.71	.54	.42	.34	.56	.69	.13	.87	.58	.76	---				
13. Budget (millions)	1.23	0.93	.67	.64	.64	.36	.46	.32	.46	.03	.98	.77	.96	.86	---			
14. Change in instructional units	0.10	0.06	-.17	-.23	-.25	-.08	-.11	-.09	.03	-.03	-.30	-.26	-.26	-.28	-.31	---		
15. Job allocations	4.29	5.30	.60	.46	.51	.37	.49	.39	.36	.11	.55	.30	.55	.57	.59	-.21	---	
16. Job reallocations	3.37	3.37	.71	.66	.52	.43	.47	.45	.56	.22	.65	.39	.62	.66	.71	-.26	.70	---

[a] N = 41; correlations > .30 are significant at $p < .05$, correlations > .39 are significant at $p < .01$, correlations > .49 are significant at $p < .001$
[b] Correlations with positional power are at individual decision level (N=372) positional power correlates, except for time invariant predictors and allocations and reallocations, have values generated from department by year level data; when relating to positional power, allocations (N=176) and reallocations (N=196) are success/failure indicators.

RESULTS

MEASUREMENT ISSUES

Table 3 presents means, standard deviations, and intercorrelations for the study's variables. The extent of significant correlation among the variables is notable. This suggests that an underlying factor, such as department workload or size, may be an aspect of most key variables in the study. In order to demonstrate that any significant effects on job evaluation that we might attribute to power are not merely a result of measuring a common construct such as workload/size, we compared the discriminant validity of the power and workload indexes.

Using the Hotelling-Williams test of dependent correlations (Williams, 1959), we compared several sets of correlations involving power, size, and a third element in a nomological net approach to establishing discriminant validity. This test was cited by Neil and Dunn (1975) as the optimal choice for comparing correlations from the same sample when samples are of small to moderate size. First, we compared the correlation between a power indicator and the power index against the correlation between the indicator and the size index. We repeated this approach with the other five power indicators and all four size indicators. As Table 4 shows, five of the six power components were significantly more highly correlated with the power index than with the size index. Similarly, all four size indicators were significantly more highly related to the size index.

TABLE 4: Hotelling-Williams Comparison Tests of Dependent Correlations

	Significantly Higher Correlation with Power than with Size	Significantly Higher Correlation with Size than with Power
Power index components		
Perceived power	Yes	
Committee representatives	No	
Paradigm strength	Yes	
Graduate student/faculty ratio	Yes	
Staff/instructional unit ratio	Yes	
Maximum staff grade	Yes	
Size index components		
Instructional units		Yes
FTE faculty		Yes
IFTE staff		Yes
Budget		Yes
Conceptual links to department power		
Dissertation abstract length standard deviation	Yes	
Staff grade standard deviation	Yes	

Note: The Hotelling-Williams statistic is a t statistic with N-3 degrees of freedom.

However, the significant differences, which support the case for discriminant validity may be driven to some extent by the fact that a measure will tend to correlate with a variable used in its construction. Consequently, we also tested two variables that were not used in the creation of either summary index but that conceptually favor one index over the other. First, low variance in the length of a field's dissertation abstracts indicates accepted practices, consensus in vocabulary, and even agreement in how to write the abstracts, all of which indicate the clarity of voice that contributes to power in advocating the field's position. Conversely, there is little reason to expect that abstract length variance should be related to the size of a field's departments. Indeed, the standard deviation of abstract length was correlated at -.51 with power and at only -.09 with size, resulting in a finding of a significantly higher relationship with power. Similarly, we compared how the power and size indexes were related to the standard deviation of the department's staff pay grades. Because we predicted that the effect of group power on job evaluation outcomes should be greater for jobs in higher pay grades, we expected, over time, greater dispersion in staff grades for the more powerful fields. The test of the correlations supported this contention as the .76 correlation between power and staff grade standard deviation was significantly greater than the correlation of .51 between size and the dispersion of staff grades. In sum, the pattern of correlational differences in Table 4 supports the existence of a power factor that, though related to department size, is a separate construct.

In addition to power versus size, a second measurement issue, the matter of power and time, warrants examination. Because we measured reputational power and paradigm strength at only one point in time, their incorporation in the departmental power index depends on the assumption that the power distribution across departments is relatively stable over time. Also, Pfeffer and Salancik (1974) maintained that committee representation is expected to vary from year to year because of unreliability inherent in the relatively small number of yearly positions. Hence, committee representation is probably much more valid as a power indicator when assessed across years, assuming the actual power distribution is relatively stable. We examined the stability assumption by assessing how well the 1985-86 values for each of the four time-variant power indicators predicted the 1990-91 levels. The two years' values for the staff-to-instructional-unit ratio, graduate-student-to-faculty ratio, and maximum staff grade correlated at .92, .85, and .85 (all at $p < .001$), respectively. The committee representation measure, was, as expected, less stable, but still correlated over the six years at .24 ($p < .05$). Finally, an index computed from the four time-variant measures correlated at .89 from 1985-86 to 1990-91. Hence, it does appear that the power distribution remained stable over the study's time frame. This supports our incorporation of reputational power, paradigm strength, and

committee representation into the departmental power index and our use of department power across years.

A third measurement issue involves model selection. As noted, we conducted the department level analyses with the Poisson regression models. The decision to use the Poisson model for count data rested on the assumption that the expected value of the dependent variable was equal to its variance. We tested this assumption through the Cameron and Triveldi (1986) regression-based test for overdispersion. Overdispersion denotes that the variance of the dependent variable is significantly greater than its mean, indicating that the Poisson model should be rejected in favor of the less restrictive negative binomial model. Thus, the null and alternative hypotheses for the overdispersion test were as follows:

$H_0: Var[Y_i] = E[Y_i]$ and $H_1: Var[Y_i] = E[Y_i] + (\alpha) * g(E[Y_i])$

Results indicated that the variances of job allocations and reallocations were not significantly different from their respective means (i.e., that alphas were not significantly different from zero), thus supporting the use of Poisson regression for these data.

GROUP POWER MAIN EFFECTS

The Poisson regression analyses are reported in Table 5. For both allocations and reallocations, the full political model, which contains both political and rational predictors, is compared to the rational model for a relative goodness of fit test. In each case, the political model was a significantly better fit than the rational model nested within it. As expected, the key rational predictor, departmental workload was positively related to the number of successful job evaluation outcomes. And as predicted, the departmental power index was significantly, positively related to the number of job evaluation successes. Thus, H1 was supported for both job allocations and reallocations, thereby replicating, under the setting of a structured managerial practice, previous group level resource allocation research.

TABLE 5: Department Level Poisson Regression Analyses of Job Evaluation Outcomes[a]

	Allocations		Reallocations	
Independent Variable	Rational Model	Political Model	Rational Model	Political Model
Constant	1.415***	1.090***	1.265***	.999***
	(.159)	(.179)	(.172)	(.189)
Change in instructional units	-2.111	-.549	-2.108	-.757
	(1.571)	(1.539)	(1.694)	(1.661)
Workload	.128***	.075***	.121 ***	.069**
	(.017)	(.020)	(.018)	(.022)
Departmental Power		.146***		.134***
		(.023)		(.025)
Log-likelihood	-122.93	-101.92	-94.77	-79.32
Likelihood ratio stat. [b]		42.03***		30.89***

[a]Unstandardized coefficients are reported, with standard errors in parentheses.

[b]Likelihood ratio statistic is chi-square statistic with df = 1 (one restriction between models) for comparisons of rational and political models.

[t]$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$; N = 41

INDIVIDUAL POWER AND RESOURCE ALLOCATION

At the level of individual job evaluation decisions, we conducted logistic regression analyses to examine the effects of a job's grade (i.e., positional power) on the probability of the job evaluation submission's receiving approval at the requested grade level. These analyses were limited to reallocations. On a conceptual level, it is problematic to speak in terms of positional power for positions that do not yet exist (i.e., proposed allocations). Additionally, because official allocation requests were successful 93 percent of the time, the constrained dependent variable variance severely limits our ability to find significant effects. Finally, examining reallocations but not allocations was supported by a Chow test (Chow, 1960) revealing that significantly different patterns of regression weights emerged for the two types of job evaluation outcomes (p <.001).

For reallocations, we found that positional power was significantly positively associated with the probability of obtaining a favorable job evaluation decision (see Table 6). Hence, H2 was supported by the results, replicating earlier individual power and resource allocation research. By supporting both H1 and H2, we demonstrate for the first time that level-specific power effects exist for dual levels of the same resource at the same time.

TABLE 6: Logistic Regression Analyses of Job Reallocation Success[a]			
Independent Variable	Baseline	Positional Power	Power Interaction
Constant	.390	-3.951	-6.283*
	(.370)	(1.585)	(2.753)
1987	1.269*	1.371*	1.380*
	(.519)	(.537)	(.540)
1988	.263	-.007	.006
	(.473)	(.497)	(.499)
1989	.129	.081	.130
	(.672)	(.691)	(.694)
1990	.135	.023	-.056
	(.671)	(.633)	(.638)
Change in instructional units	.335[t]	.407*	.401*
	(.187)	(.194)	(.194)
Workload	-.066	-.063	-.058
	(.050)	(.052)	(.052)
Departmental power	.020	.008	.564
	(.054)	(.056)	(.524)
Positional power		.072**	.110*
		(.026)	(.045)
Positional power X departmental power			-.009
			(.008)
Likelihood ratio stat. [b]		17.78***	2.35

[a]Unstandardized coefficients are reported, with standard errors in parentheses.
[b]Likelihood ratio statistic is chi-square statistic with df = 1 (one restriction between models) for comparison to nested model. $^tp<.10$; *$p<.05$; **$p<.01$; ***$p<.001$ (N=162)

Although we made no predictions regarding direct effects of departmental power on individual level outcomes, we note that departmental power did not approach significance in the individual decision analyses. Hence, the group level power indicator contributes to group level job evaluation outcomes, but it is the positional power that influences individual decisions.

Finally, we tested for group power as a moderator of the positional power effect on individual job evaluation decisions (H3b). The interaction term in Table 6 was not significant, indicating that, at the individual-decision level, we failed to find support for cross-level power effects. However, this failure is not altogether surprising. As described earlier, the interview data suggested that departmental power effects tend to occur prior to the submission of official job evaluation requests (i.e., via negotiation of and agreement on acceptable submissions). Hence, because departmental power was expected to be concentrated on a point in the process prior to official submission and evaluation, we assessed group level power in terms of the number of successful evaluations rather than the probability of a submission's being approved. Thus, group power effects are best observed, and the moderator hypothesis is arguably best pursued (at least for our data set), using the department level operationalization of job evaluation success.

MODERATION OF DEPARTMENT LEVEL OUTCOMES

We attempted to indirectly address the moderator question at the department level. Because our dependent variables are counts of job evaluation successes, there was no obvious way to simply enter a positional power value (and interaction term) for each observation. Thus, for both allocations and reallocations, we split the data into successful evaluations above the mean evaluation grade and successful evaluations below the mean evaluation grade. In this way, we were able to evaluate the effect of departmental power on job evaluation outcomes for high grade jobs (high positional power) and low grade jobs (low positional power). Table 7 presents results of these analyses. For both allocations and reallocations, the effect of departmental power clearly appears to be greater for high grade jobs. Using the procedure set forth in Cohen and Cohen (1983), we tested the coefficients for this difference and found that, in the case of allocations, the departmental power effects were marginally significantly greater for high grade jobs ($p = .06$). For reallocations, the difference was not statistically significant, although it was in the expected direction. Moreover, because, in both Tables 5 and 7, the pattern of allocation regression weights is similar to the pattern of reallocation regression weights, we also combined the job evaluation outcomes to test the moderating effect (recall that the Chow test documenting different regression weight patterns was for the individual-decision-level analysis). Once again, we found marginally significant support ($p = .07$) for individual level power as a moderator of group level power's positive effect on obtaining job evaluation resources. Thus, our results were reasonably supportive of the hypothesis (1-13a) that the positive effect of departmental power on department level outcomes is greater when positional power is high.

TABLE 7: Department Level Poisson Regression Analyses of Job Evaluation Outcomes by Positional Power[a]

Independent Variable	Allocations		Reallocations	
	High Positional Power	Low Positional Power	High Positional Power	Low Positional Power
Constant	-.434	.890***	.300	.288
	(.334)	(.215)	(.269)	(.266)
Change in instructional units	2.952	-2.626	-.987	-.521
	(2.421)	(2.033)	(2.351)	(2.347)
Workload	.103**	.059*	.057^t	.080*
	(.031)	(.027)	(.032)	(.031)
Departmental Power	.198***	.121 ***	.152***	.117***
	(.041)	(.028)	(.035)	(.035)
Likelihood ratio stat. [b]	25.97***	18.99***	19.91	11.49***

[a]Unstandardized coefficients are reported, with standard errors in parentheses. N = 41.

[b]Likelihood ratio statistic is chi-square statistic with df = 1 (one restriction between models) for comparisons of reported models and respective nested models without the power variable.

$^t p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$; N = 41

DISCUSSION

The results from the department and individual decision level analyses of job evaluation outcomes support the contention that the coalitional model of resource allocation applies to the resource allotments associated with job evaluation. University departmental power predicted the numbers of job allocations and reallocations achieved and positional power predicted the probability of favorable reallocation decisions. Moreover, we found evidence of cross-level power interaction effects as departmental power had a greater effect on job evaluation successes when positional power was high.

The results from our study underscore the importance of examining power's influence on the allocation of resources at more than one level of analysis. Although we found support for power effects on job evaluation at both the individual decision and department levels, both levels of analysis were necessary to explain exactly how each of the two types of power predicted job evaluation outcomes. For example, had our analysis been limited to the individual decision level and its appropriate dependent variable operationalization, we might have erroneously concluded that job evaluation resource allocation was free from any effect of departmental power (that is, that there was a group power effect for number of successes, but not for probability of success). Thus, our findings illustrate that the operationalized level of the dependent variable, as well as of power, is a critical component of power studies.

A second advantage of taking dual levels of power into account was that it provided an unprecedented opportunity to examine cross-level power interaction effects on resource allocation. Previous researchers' adherence to a single level of analysis not only may obscure certain relationships at another level, but may also prevent assessment of whether the effect of the particular power that is a study's focus is in fact moderated by another type of power. Given that organizational decision making appears to be open to power effects at more than one level and that the power of groups and of individuals within those groups would seem to be related (Pfeffer, 1981; Pfeffer & Konrad, 1991), testing for interaction effects potentially allows for a more complete analysis of the power and resource allocation issue. Indeed, our results suggesting that departmental power effects are greater for more powerful positions provide new insight into the relationship between power and resource allocation.

Interpreting such results requires extending the existing paradigm of power and resource allocation to explicitly provide for dual levels of effects. Pfeffer (1981) created models of power in a university and the perpetuation of power in an organization that are evident in much of the group power research. In these models, departmental power positively affects resource allocations such as budgets, which ultimately translate into factors such as information processing capacity and, at the individual level, better pay, more promotions, and the funding of additional positions. These individual outcomes in turn contribute to attraction and retention of superior talent and to personnel increases. Through such advantages in organizational and human capital, a department is more able to cope with the organization's critical problems, making it increasingly valuable to the organization, difficult to substitute for, and, subsequently, even more powerful. This link is based on Hickson, Hinings, Lee, and Schneck's (1971) strategic contingencies theory of power, according to which power depends on a subunit's ability to cope with critical uncertainties and the extent to which such coping is unique or nonsubstitutable. In sum, Pfeffer's basic models portray a department's power as driving resource allocation, which drives the ability to cope with critical contingencies, which, via enhanced critical problem-solving ability and nonsubstitutibility, results in even more power for the department. For example, a university department's power can result in budget allocations that filter down to yield better pay for faculty, which ultimately attract faculty members who can bring in outside funding, a critical resource that directly contributes to department power (Pfeffer & Moore, 1980b).

In this model of group power's effects on resource allocation, individuals are recognized as the eventual recipient of group resources and as critical in a department's efforts to meet its inherent challenges. But, the model ignores the fact that, as individuals, these recipients and

other department members have various levels of power and that those variations have resource allocation implications. The studies supporting individual level power effects on resource allocation (e.g., Abrahamson, 1979; Pfeffer & Davis-Blake, 1987; Pfeffer & Konrad, 1991) testify to the need to account for this level of power in resource allocation models. Moreover, existing models do not address the potential for the two levels of power to interact. Hence, we propose an adaptation of the Pfeffer (1981) models that incorporates both levels of power and, in order to more specifically examine the levels issue, differentiates between individual and group level allocations (see Figure 1).

FIGURE 1: A Dual-Level Model of Power and Resource Allocation
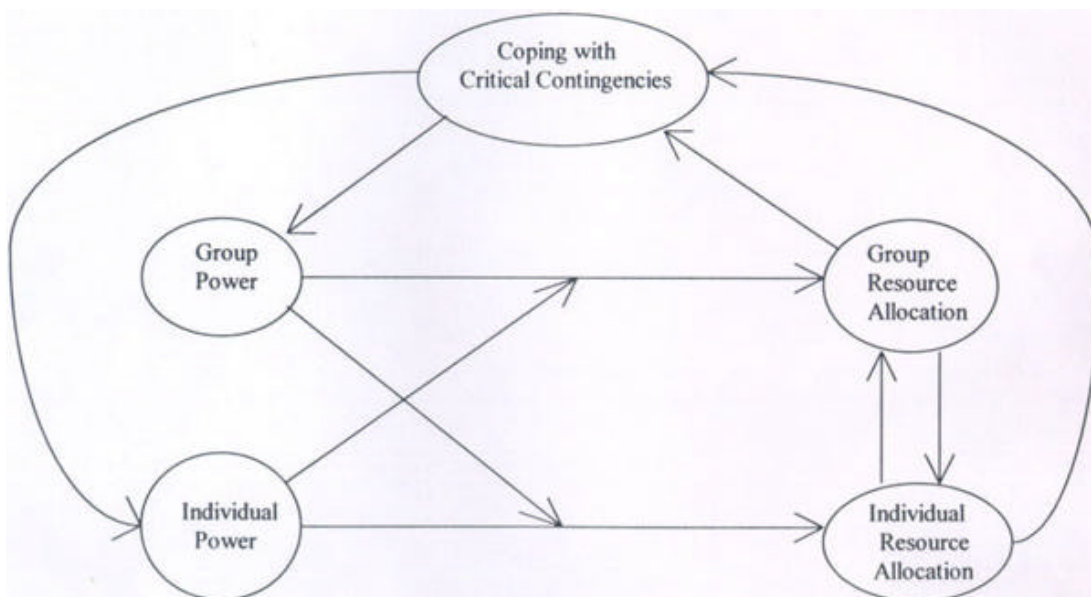
Through the specification of resource level, the model requires a more precise conceptualization of the dependent variable than previous research typically has provided. We thus incorporate the level-specific direct effects that represent the previously separate group and individual level research streams, as group and individual power respectively predict group and individual resource allocations. With our job evaluation analyses, we found strong support for each of these level-specific effects. Additionally, the model's group-by-individual power interaction effects on resource allocation at each level illustrates the cross-level power interaction effects hypothesized in this study. We found support for one of these moderator effects, as the positive effect of departmental power on group resource allocation was stronger for more powerful positions. The implication is that groups, recognizing the enhanced ability of especially powerful individuals to solve critical problems, are particularly concerned with, and

effective at, acquiring group resources that attract, retain, and ultimately bring even more power to these individuals. However, we failed to find support for the parallel moderator effect at the individual level of resource allocations. Although this lack of support could indicate a problem with our proposed model, it may well be due to one or more measurement issues (e.g., inability to measure and include the individual power of the departmental representatives that submitted the job evaluation requests, our particular research context's dependent variable operationalizations at the two levels, somewhat constrained variance on the dependent variable). Whatever the case, further research on the cross-level power interaction effects at each resource level is needed to validate or invalidate this portion of the model.

The proposed model extends the Pfeffer (1981) models in three additional ways. First, it explicitly takes into account group resources ultimately flowing to group members and individual resources combining at the group level. Consider, for example, budget allocations being distributed to faculty members as pay raises (i.e., group to individual level) and the sum of a department's individually earned research funding providing a department with a reputation for being well funded (i.e., individual to group level). Second, the model specifies both levels of resource allocation as affecting the ability to cope with critical problems. For instance, faculty raises attract and retain the high performers most likely to bring in outside grants and contracts. just as departmental reputation can facilitate student enrollment. Finally, a third extension in the model is the positive effect of solving critical problems on individual, as well as group, power. By bringing in outside grants, a faculty member becomes more valuable and powerful, as does the department that brings in more tuition-paying students. (We note that similar examples of the level-specific flow of power to resource allocation to critical problem solving to increased power exist outside the university environment). In sum, because the proposed dual-level model may provide a more sophisticated representation of the relationship between power and resource allocation, we hope that it will stimulate future research on the topic.

Although the focus of this study is on a dual-level approach to investigating power and resource allocation, the employment of job evaluation and HRM as our setting yields additional inference. Studying power in the context of job evaluation in particular, and HRM in general, is a departure from the rational model of behavior that has dominated the study of HRM (Ferris & Judge, 1991). In this study, we considered the effect of two aspects of social context (departmental and positional power) on job evaluation outcomes. If subunit or positional power affects job evaluation outcomes, then the fundamental assumptions of job evaluation should indeed be questioned. Our results indicate that job evaluation measures more than merely the worth of a job; it also captures the dynamics of the job's environment. One important implication

involves the area of comparable worth. If job evaluation is a function of power, the use of job evaluation to resolve comparable worth issues within a firm is highly problematic.

From the perspective of organizational effectiveness, our findings raise the issue of whether power effects on job evaluation and other HRM-related resources facilitate or detract from organizational survival and success. That is, do power-driven disproportionate resources gained through job evaluation (and, perhaps, other HRM functions), and the resultant perpetuation of relative power distributions, have a negative or positive effect on an organization as a whole? This issue may be of particular interest given that HRM appears to be highly susceptible to frequent use of political influence. That is, HRM's role in numerous resource allocation processes (e.g., job evaluation, the setting of the market wage, performance appraisal. collective bargaining, recruitment and selection), coupled with the discretion involved with much of that decision making (which is a necessary condition for power effects, [Salancik & Pfeffer, 1974]), would seem to make HRM an obvious target of group and individual power. Because such apparent susceptibility may mean that power runs rampant in HRM resource allocation decisions, the question of whether power effects through HRM are ultimately good or bad for an organization takes on substantial importance. We suggest that multilevel approaches to power and resource allocation would be a first step toward addressing such important and complex questions.

In this study, we examined group and individual levels of power and resource allocation in a job evaluation context, with job positions in the pay hierarchy as the resources in question. Building on prior level-specific research, we attempted to synthesize the individual level (i.e., positional power) and group level (i.e., departmental power) resource allocation dynamics. We hope that this synthesis provides new insights into the relationship between power and resource allocation. Moreover, we encourage researchers to use the proposed model to further investigate the pervasiveness of power in organizations by studying additional ostensibly rational management procedures such as job evaluation. Similarly, future job evaluation research, and HRM research overall, should benefit 'from complementing a rational approach with attempts to account for power and political influence.

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