

# INTERNAL LABOR MARKETS: LABOR-PROCESS AND MARKET-POWER EFFECTS

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## ABSTRACT

In contrast to previous research incorporating organization- or industry-level factors, this paper utilizes a job-level perspective to test the effects of labor process and market-power variables on the internalization of employment relationships. We hypothesized that four job-level considerations affect the use of internal labor markets: interdependence (i.e., interpersonal complexity), information impactedness (i.e., informational complexity), union representation, and firm-specific skills. Data on 250 jobs at 19 firms in six industries surveyed by the U.S. Bureau of Employment and Training's Occupational Field Analysis Centers were used to test the hypotheses. Analyses revealed that firm-specific skills interacted to varying degrees with both interdependence and information impactedness to predict the use of internal labor markets, as do information impactedness and union representation. At the same time, union representation was found to attenuate the relation between interdependence and such internalization. We discuss the implications of these results for studying employment arrangements, as well as for making public-policy and strategic-management decisions.

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*Advances in Industrial and Labor Relations*, Volume 8, pages 183-206.

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ISBN: 0-7623-0245-3

During the past decade, there has been a tremendous increase in employment externalization (i.e., the use by employers of temporary workers, contract labor, and outsourcing services). Concomitant with this increase, many have assumed a corresponding decrease in the use of internal employment arrangements such as internal labor markets (ILMs). As Davis-Blake and Uzzi (1993) have argued, however, this may not be the case. In fact, these authors argue, and we would agree, that internalization and externalization are complementary arrangements whereby employers can benefit from the control and stability provided by ILMs and simultaneously take advantage of the flexibility provided by temporary workers and the like. Moreover, "because internalized and externalized work arrangements complement one another, they are likely to have many of the same determinants" (p. 198).

In this respect, Baron and Bielby (1980) contend that a full understanding of employment structures depends on recognizing the dynamic and diverse nature of individual firms, their management, and their employees. Until recently, however, many studies examining both internalization (e.g., Beck, Horan, and Tolbert 1978; Schuler and Jackson 1987; Sonnenfeld and Peiperl 1988) and externalization (e.g., Gordon and Thal-Larsen 1969; Mangum, Mayall, and Nelson 1985; Mayall and Nelson 1982) have, by looking only at macro-level variables (e.g., industry sector, business strategy), assumed a homogeneity of work settings, as well as of employment arrangements across firms, not to mention within departments (Althausen 1989a).

Accordingly, we argue that a more complex conceptualization of work settings would facilitate a better understanding of internal labor markets, as well as lay the initial groundwork for more extensive studies of labor market externalization/internalization. In particular, we contend that research on internalization should be broadened beyond organization- and industry-level factors to include job-level considerations. Work settings should not be viewed as homogeneous or firms as monolithic in their employment arrangements. Within individual firms, there is typically substantial variation in the opportunity structures for different jobs and jobholders (cf. Jackson, Schuler, and Rivera 1989). Whether such variations are due to technological requirements, control considerations, or custom, firms are likely to establish different career ladders for different types of jobs and jobholders (Osterman 1982; Rosenfeld 1992). Thus, the study reported herein includes a set of variables measured at the job-level.

Further, most organization- and industry-level research into internal labor markets can be classified into three general explanatory categories: (a) management/labor conflicts; (b) firm-specific skills/on-the-job training; and (c) labor scarcity. The present study combines these explanations in two ways. First, we follow Althausen's (1989b) contention that labor scarcity is "an essential ingredient" in most internal labor markets. "The underlying feature of firm-specific skills is that of scarcity of skills, i.e., by definition, firm-specific skills are not available from the external market" (Althausen 1989b, p. 156; see also Doeringer and Piore 1971).

Thus, we approach firm-specific skills and union representation as separate but reinforcing sources of labor scarcity. Second, we argue that organizational uncertainty creates the potential for management/labor conflict and, thus, provides opportunities for new task and skill definitions (e.g., Kalleberg and Berg 1987).

## **A JOB-LEVEL APPROACH TO INTERNAL LABOR MARKETS**

In addition to organization- and industry-level explanations, we propose that a more complete understanding of internal labor market development may be gained by examining the skills required by the occupants of specific jobs, as well as the relative power of competing coalitions to determine relevant skills. Evidence suggests that macro factors such as labor-market stratification, industry segmentation, and competitive strategies do not capture meaningful distinctions in either work settings or employment arrangements (e.g., Baron and Bielby 1980; Mintzberg 1983; Porter 1985). Moreover, although previous research (both macro- and micro-level) tends to assume that managers' choices, whatever they concern (e.g., technology, labor control), are unconstrained by political factors, this is seldom the case (Pfeffer 1981, 1989). Working from Cyert and March's (1963) coalitional approach to organizational decision-making, few firms can be realistically viewed as unified actors. Rather, virtually all firms can be more appropriately viewed as shifting combinations of interest groups (i.e., competing coalitions) fluctuating in power. When a particular interest group controls a valued resource, such as legal or scientific expertise, it is also likely to have power within its organization (e.g., Hickson, Pugh, and Pheysey 1969; Hinings et al. 1974). One of the ends to which this power may be used is the shaping of a firm's structure. As part of this structuring, more powerful groups will typically try to increase the amount of discretion in their own jobs while maintaining or reducing the level of discretion in other jobs (Hodson 1991; Scott 1987). Such claims for increased job discretion are often justified by "proofs" of the comparative complexity or value of the jobs in question (e.g., Dornbusch and Scott 1975; Freidson 1986).

Task descriptions then cannot be seen as wholly objective statements of work demands in that they are based on subjective perceptions of the complexity or value of individual jobs. Thus, if firms are viewed as typically being composed of competing coalitions (i.e., labor and management), it is reasonable to conclude that the definition of such internal labor market factors as firm-specific skills, operational efficiency, and so on are at least somewhat perceptually based. Moreover, being perceptually based, they are subject to some degree of control by a dominant coalition (i.e., the group with the most power) (Pfeffer 1981, 1989; Mintzberg 1983; Stark 1986). For example, if labor desires more autonomy it is likely to emphasize the complex and uncertain nature of its tasks (Kalleberg and Leicht 1986). In contrast, managers who wish to retain control are likely to define

labor's tasks as simple and routine. Which group's concept of reality prevails is, in part, based on power (Benson 1977). Scott (1987) argues that this is particularly true in firms with a large number of professionals. It would also seem reasonable to expect this to be true in firms with strong unions (especially when new technologies are introduced), as well as under other conditions of labor scarcity (Carroll, Haveman, and Swaminathan 1992).

In a recent reconstruction of Williamson's (1981) transaction-cost approach to employment relationships, Boswell (1988; see also, Fligstein and Fernandez 1988) came to a similar conclusion with regard to power, and its potential for the reshaping of employment structures. Williamson (1981) asserts that firms will choose hierarchical arrangements (e.g., internal labor markets) over competitive market processes when the transaction costs of doing business in a market exceed those that would be incurred by internalizing these transactions. In his reconstruction, Boswell (1988) contends that labor/management conflict is the primary determinant of transaction costs. He associates Williamson's (1981) twin concepts of interdependence or interpersonal complexity and information impactedness or informational complexity with "worker control" and the notion of asset specificity with "market power." "Worker control" over a labor process is due to the ability of workers to collectively restrict output (i.e., through interdependence or interpersonal complexity), as well as the inherent necessity for creative decision making in some tasks (i.e., information impactedness or informational complexity). "Market power" in an external labor market is manifested when workers with firm-specific skills can safely threaten to quit or when groups (i.e., competing coalitions) like unions or professions can restrict hiring and firing. Boswell (1988, p. 142) consequently argues that internal labor markets are likely to exist where labor has power to raise transaction costs such that "management cannot afford to do without them."

Once the job-level possibilities of coalition conflict and competing claims for increased discretion are introduced, recourse to organization- and industry-level monocular explanations for the use of internal labor markets become problematic. That is, consequent variations in work settings, as well as employment arrangements across firms and departments can no longer be ignored in favor of organization- and industry-level factors alone.

#### Labor Processes

Research by Williamson (1975) and others (e.g., Alchian and Demsetz 1972; Eisenhardt 1985; Ouchi 1979; Wachter and Wright 1990) indicates that interdependence creates difficulties in monitoring individual productivity. Higher levels of interdependence create what Alchian and Demsetz (1972) have referred to as "nonseparabilities," in which it becomes difficult to ascertain what portion of a team's productivity should be credited to individual

team members. This difficulty is the result of bounded rationality or limited information (Williamson 1981).

When individual productivity cannot be determined on an immediate basis because of limited information, it becomes necessary to observe marginal productivity over time. That is, information relating to individual performance must be gathered piece-meal with a final decision regarding performance acceptability being made at some future date. Thus, merit as a basis for reward gives way to seniority and experience and, again, it becomes necessary to bind individual and firm interests to ensure against opportunistic employee behavior; that is, what Williamson (1981) describes as the pursuit of self-interest "with guile." Moreover, as previously noted, and apart from Williamson's (1981) purely cost explanation, higher levels of collective output often also require higher levels of interdependence or interpersonal skill. The integration of tasks across workers requires a common understanding of individual duties. Such understanding is garnered through experience and interaction with co-workers and is thus an additional reason to bind individual and firm interests (Davis-Blake and Uzzi 1993). From an employee perspective, the requisite experience and co-worker interaction necessary to effectively perform interpersonally complex jobs creates an opportunity for exercising labor-process control through collective action.

In the instance of informationally complex jobs, again, the problem for management is one of bounded rationality or limited information (Williamson 1981), in which managers lose some of their ability to predict behavior and thereby outcomes. Discretion increases uncertainty and, to the extent that a firm is dependent on workers with informationally impacted jobs, market power is also increased. Discretion likewise entails increases in administrative costs (e.g., larger payrolls for higher skilled employees, duplications in effort and knowledge). Additionally, standardization of processes and outputs becomes more costly as informational complexity increases. In such situations, it is generally argued (e.g., Eisenhardt 1985; Mintzberg 1983; Ouchi and Maguire 1975) that firms have two options to reduce uncertainty and, thus, costs. First, workers, whose outside training ensures their ability as well as adherence to professional standards, can be externally recruited. Or, alternatively, training and normative indoctrination can be undertaken internally. The latter requires both time and money, resources that a rational firm would be unwilling to expend without later payoff. Such payoff would only occur if workers, trained and indoctrinated, are retained over an acceptable payback period.

#### Market Power

Whereas the ability of workers to collectively restrict output due to monitoring difficulties is a source of "worker control" over a labor process, firm-specific assets can lead to labor scarcity and, hence, become a source of "market power" (Diprete 1987; Doeringer and Piore 1971; Kanter 1984; Williamson 1975;

Williamson and Ouchi 1981). Asset specificity occurs when workers have firm-specific skills, knowledge, or abilities (e.g., experience with unique firm procedures and policies). The bilateral monopoly understanding of firm-specific skills argues that workers with firm-specific skills are just as helpless in this situation as are employers. That is, that firm-specific skills are a zero-sum game. Whereas this argument is true from a theoretical standpoint, it ignores empirical evidence to the contrary as employers and workers with firm-specific skills do, indeed, engage in the occasional lock-out/walk-out.

As with monitoring difficulties, situations of labor scarcity are also affected by "opportunistic behavior" (Williamson 1975; see also, Matthews [1986] who emphasizes the purely cognitive costs of organizing and monitoring employment contracts). The circumstance under which opportunism manifests itself, however, is one of "small numbers" (Williamson 1975) rather than interdependence or information impactedness. In the beginning of an employment relationship, before a worker's experience becomes firm-specific, bidding for jobs is open and freely competitive. Williamson, Wachter, and Harris (1975, p. 265), however, observe that, over time,

the idiosyncratic nature of... [worker] experience effectively destroys parity at the contract renewal interval. Incumbents who enjoy nontrivial advantages over similarly qualified but inexperienced bidders are well situated to demand some fraction of the cost savings which their idiosyncratic experience has generated.

Thus, an employment relationship that began with competitive bidding for jobs becomes a situation of labor scarcity in which opportunistic behavior can flourish.

Again, Althauser (1989b), however, has proposed that the common element in market power explanations of internal labor markets is not asset specificity per se, but the end product of any factor that restricts a firm's labor supply and, thereby, prompts labor scarcity (see also, Fligstein and Fernandez 1988). Thus, for instance, labor scarcity can be an outcome of union and professional association activities, as well as firm-specific skills and so forth. Thus, whereas asset specificity can restrict a firm's labor supply and thereby increase market power, as noted, collective restrictions imposed by unions and professional associations can do likewise. Indeed, Boswell (1988) has argued that one purpose of professional or union credentialing is to restrict labor supply or rather to create "small numbers" bargaining (see also, Mintzberg 1983).

In this regard, Boswell (1988) further contends that in reality numerous factors influence labor mobility and that the absence of firm-specific skills does not always attenuate the possibility of internal labor markets (see also, DiMaggio and Powell 1983; Finlay 1983). This is especially the case "where market restrictions are codified through union contracts or state certification, ... [and] market restrictions can become reified and continue to exist even where deskilling has occurred" (Boswell 1988, p. 144; see also, Strang and Baron 1990). Although Williamson (1981) equates asset specificity and internal labor markets with efficiency rather

than market power, he does however recognize that "where human asset specificity is slight ... the presumption is that these outcomes [internal labor markets] are driven more by power than by efficiency considerations" (p. 567). Thus, it is quite possible that even when asset specificity does not exist, internal labor markets will. That is, through the power afforded by established union contracts and professional credentials, workers can redefine their jobs (Benson, 1977; Scott 1987; Strang and Baron 1990) and develop some degree of control over a labor process.

## HYPOTHESES

### Labor Processes and Market Power

The greatest possibility of internal labor market development, however, arises where some combination of monitoring difficulties and small numbers exist. That is, internal labor markets should be most likely where workers have control over a labor process and the power to reinforce their control by restricting the supply of labor. Both forms provide protection against labor-market competition and create a greater possibility of internal promotion. They are, however, to some extent interdependent in that the existence of one establishes conditions for developing the other. As has been noted, where competing coalitions exist (in this case management and labor), the efforts of each will be geared toward securing and increasing their own discretion, usually at the expense of the other (Benson 1977; Mintzberg 1983; Pfeffer 1981, 1989; Scott 1987).

In the case of workers with control over a labor process, the presence of higher levels of skill complexity (i.e., both interdependence/interpersonal complexity and information impactedness/informational complexity) promote the development of a market mechanism to protect that control. In contrast, the existence of external market power provides opportunities for the elaboration of labor-process control through such things as increased autonomy and seniority rights.

The preceding literature review and discussion suggests the following hypotheses:

**Hypothesis 1A.** Jobs with high levels of interdependence and union representation are more likely to be located in internal labor markets than jobs characterized by either high levels of interdependence or union representation.

**Hypothesis 1B.** Jobs with high levels of interdependence and firm-specific skills are more likely to be located in internal labor markets than jobs characterized by either high levels of interdependence or firm-specific skills.

**Hypothesis 2A.** Jobs with high levels of information impactedness and union representation are more likely to be located in internal labor markets than jobs characterized by either high levels of information impactedness or union representation.

**Hypothesis 2B.** Jobs with high levels of information impactedness and firm-specific skills are more likely to be located in internal labor markets than jobs characterized by either high levels of information impactedness or firm-specific skills.

## METHOD

### Sample

The data used in this study were acquired directly from the headquarters of the U.S. Bureau of Employment and Training's Occupational Field Analysis Centers (OFACs) in Raleigh, NC. To produce and periodically update *The Dictionary of Occupational Titles (DOT)* (U.S. Department of Labor 1977), OFACs analyze jobs in all U.S. industries that have been assigned an SIC code. The primary method of OFAC data collection is observation-interview, with supporting data coming from job descriptions, and administrator interviews in target organizations. Because OFAC analyses contain specific information about job-level characteristics, including job technologies, training, skills, and promotion hierarchies they are well suited for testing the focal hypotheses. Moreover, OFACs also gather organization- and industry-level information regarding the structure, number of workers, overall technology, unionization, and environmental competitiveness of the firms in which jobs selected for analysis are located, thus making examination of more macro-level issues (e.g., business-level strategy, transformation processes, market power) possible as well.

To obtain our sample, we contacted the North Carolina OFAC and requested data covering the full range of *DOT* job classifications (e.g., professional and kindred, clerical/sales). To ensure our ability to detect industry differences, we also requested data from as broad a range of industries as possible. In particular, we were interested in obtaining information from the durable goods manufacturing, sales and service (both skill-based and labor-based), transportation, government, communications, and electronics/high-tech industries. The job analyses that underlie the data to be examined were conducted between 1986 and 1990 and were to be used in preparation of a fourth edition of the *DOT*. Of the 250 jobs, 95 jobs were *DOT* classified as professional and kindred, 33 as clerical/sales, 4 as service work, 12 as process work, 45 as machine work, 21 as benchwork, 22 as structural work, and 18 as miscellaneous work. *DOT* procedures for analyzing and classifying jobs are discussed in Miller et al. (1980). Detailed information pertain-



ing to the reliabilities of *DOT* ratings resulting from such procedures is presented in Cain and Green (1983) and Cain and Treiman (1981).

## DATA MEASURES

### Dependent Variable

#### *Internal Labor Market Standing*

Althauser and Kalleberg (1981, p. 130) define internal labor markets as "any cluster of jobs ... that have three basic structural features: (a) a job ladder, with (b) entry only at the bottom, and (c) movement up this ladder, which is associated with a progressive development of knowledge or skill." Four binary variables were used to capture each of these features and, thus, gauge a job's *internal labor market standing*. This information was taken from the Job Analysis Schedule (JAS) associated with each job. Following the first structural feature of Althauser and Kalleberg's (1981) definition (i.e., "a job ladder"), the first variable was coded "1" if a job was in a promotion ladder and "0" if it was not. The second aspect of Althauser and Kalleberg's definition (i.e., "entry only at the bottom") was measured using a combination of two variables. That is, for jobs in promotion ladders, a second variable was coded "1" if the job was at the bottom of the ladder and "0" if it was not. And, to capture jobs above the bottom of a ladder that could not be entered from an external market, a third variable was coded "1" if it could not be entered from outside a firm and "0" if it could. Finally, to measure the third element of Althauser and Kalleberg's definition (i.e., "movement up this ladder"), jobs in a promotion ladder were coded "1" if additional promotions were available higher up the ladder and "0" if additional promotions were unavailable.

### Independent Variables

*Interdependence* (or interpersonal complexity) was measured using *DOT* scores (taken from each job's JAS) that rate a job in terms of its complexity of interaction with people. Interdependence scores represent the highest degree of interpersonal interaction required by a job. At one extreme are jobs requiring intensive reciprocal interactions (i.e., "Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual and/or other professional principles"). Such jobs were scored a 9, and include tasks such as "counseling clients in legal matters," and "advising/assisting individuals in the solution of their socio-economic problems." Tasks of this nature require constant and complex reciprocal interactions with clients and peers.

At the opposite extreme are jobs requiring no significant interactions or simple mediating interactions. The former were scored a 1 and the latter a 2. Jobs involving simple mediating interactions include tasks such as "attending to the needs or requests of people" and serving "the expressed or implicit wishes of people." These tasks are episodic and require rudimentary interactions.

*Information impactedness* (or informational complexity) was measured using *DOT* scores (taken from each job's JAS) that rate a job in terms of its complexity of interaction with data. "Data" are described by *DOT* as, "information, knowledge, and conceptions related to data, people, or things resulting from observation, investigation, interpretation, visualization, and mental creation. Data are intangible and include numbers, words, symbols, ideas, concepts, and oral verbalization." At one extreme are jobs requiring complex independent actions (i.e., "Integrating analyses of data to discover facts and/or develop knowledge concepts or interpretations"). Such jobs were scored 7, and include tasks such as "conceiving and developing ideas for application of mathematics to the fields of science and engineering" and "formulating editorial policies of a newspaper and originating plans for special features or projects." These tasks require a worker to make independent decisions in what are very often unstructured and variable situations. The data involved are generally of an abstract nature (e.g., mathematical concepts, philosophical/ethical ideas).

As data interaction complexity decreases each classification reflects a more prescribed structure, greater situational stability and, so, allows for lesser amounts of worker discretion. At the lowest level of data interaction are simple prescribed actions like copying (i.e., "Transcribing, entering, or posting data") and comparing (i.e., "Judging the readily observable functional, structural, or compositional characteristics of data, people, or things"). Copying was scored a 2 and comparing was scored a 1. An example of a task classified as copying is "transcribing addresses from a mailing list to envelopes, cards, advertising literature, packages and similar items," whereas "grades dressed poultry according to size and quality" describes a comparing task. Information encountered in these tasks is stable and allows for extensive structuring of jobs (e.g., "If X then do Y, else do Z"). In these cases, worker discretion is minimized.

*Firm-specific skills* were, following Baron, Davis-Blake, and Bielby (1986), measured as the sum of training and experience time (in months) required for entry into a job. Specifically, firm-specific skills were determined by adding orientation time, on-the-job training time, and time required in prior positions on a given job ladder. Because there were some few instances in which it was difficult to determine whether skills learned on the job were entirely firm-specific this variable is only imperfectly measured. These data were taken from the JAS associated with each job.

Information about which groups of jobs (e.g., departments) were *unionized* was gathered from OFAC reports. A binary variable was created with "1" representing

unionized jobs and "0" representing nonunionized jobs. These jobs were 28 percent of those sampled ( $n = 70$ ).

### Control Variables

In this paper we argue that the inclusion of an additional level of analysis (i.e., job-level) more completely captures the complex nature of employment arrangements, in general, and internal labor markets, in particular. As noted at the outset, it is not our contention that past firm- and industry-level analyses are without merit. The effects of firm size, gender, and industry on internal labor markets are well documented (e.g., Eliason 1995). To control for their effects, all three were included in our analyses as covariates. The variables in question were defined as follows:

- *Firm size*, operationalized as the natural log of the number of workers employed by individual firms according to OFAC reports;
- *Percentage of female job incumbents*, gathered from OFAC reports;
- *Industry*, derived from SIC codes provided on OFAC reports.

## DATA ANALYSIS AND RESULTS

Descriptive statistics and zero-order correlation coefficients for all study variables are presented in Table 1. All coefficients  $\geq \pm .12$  are significant at  $p < .05$  (two-tailed test). The control variable percentage of female job incumbents was significantly related to the other control variables, firm size ( $r = -.20$ ) and industry ( $r = -.43$ ). It was, however, only significantly correlated with one other variable, union representation ( $r = -.32$ ). This was also the case for firm size and industry. Firm size correlated with union representation at  $r = .35$ , whereas the correlation between industry and union representation was  $r = .45$ . As for the variables of primary interest, internal labor market standing is significantly and negatively related to union representation ( $r = -.31$ ) and positively related to firm-specific skills ( $r = .26$ ). Although interdependence did not significantly relate to either internal labor market standing ( $r = .07$ ) or to firm-specific skills ( $r = .07$ ), it was significantly and negatively related to union representation ( $r = -.12$ ). Information impactedness was also significantly related to union representation ( $r = .37$ ), and positively associated with firm-specific skills ( $r = .14$ ). Finally, information impactedness was also positively related to interdependence ( $r = .31$ ). In general, these correlations are meaningful within the conceptual framework of the reported study and provide support for the suggested linkages between the focal criterion and proposed predictors when viewed as simple associations.

**Table 1.** Descriptive Statistics and Correlations for Study Variables

	r							
	1	2	3	4	5	6	7	8
<i>Dependent Variable</i>								
1. Internal labor market standing	---	.07	.12	.26	-.31	.04	.01	-.09
<i>Independent Variables</i>								
2. Interdependence		---	.31	.07	-.12	-.02	.12	-.10
3. Information impactedness			---	.14	.37	-.36	-.02	-.36
4. Firm-specific skills				---	.15	.08	-.08	-.02
5. Union representation					---	.35	-.32	.45
<i>Control Variables</i>								
6. Firm size						---	-.20	.50
7. Percent female							---	-.43
8. Industry								---
M	1.05	4.75	3.98	6.89	.28	6,779.64	41.27	n/a
SD	1.29	1.11	1.83	19.76	.45	12,109.65	26.27	n/a
Range	0-3	1-9	1-7	0-240	0-1	23-44,438	1.1-98.8	n/a

Note: n = 250; all correlations  $\geq \pm .12$  are significant at  $p < .05$ , two-tailed test.

To avoid multicollinearity between independent variables and their cross products, all continuous data were standardized prior to manipulation (Aiken and West 1991; Cronbach 1987). After examining the plotted residuals for the variable interdependence, it was determined that a reciprocal root transformation was necessary to correct for skewness in this predictor (Berenson, Levine, and Goldstein 1983; Neter, Wasserman, and Kutner 1985).

Because our dependent variable (i.e., ILM-standing) is a multi-component dichotomous construct our independent variables were regressed against each component separately (i.e., job in a promotion ladder, job at bottom of a promotion ladder, job above the bottom of a promotion ladder that could not be entered from an external market, and job in a promotion ladder with additional promotion possibilities). All hypotheses were tested using logistic regression and the results are presented in Table 2.

Our hypothesis (Hypothesis 1A) predicting that jobs with high levels of interdependence and union representation are more likely to be located in internal labor markets than jobs characterized by *either* high levels of independence *or* union representation was supported except where a job is at the bottom of a promotion ladder. At the same time, considering interdependence alone, although the logistic coefficients were significant in only one of four equations, they were all positive, providing some measure of support for Boswell's (1988) contention that internal labor markets will exist where labor has the ability to substantially raise transaction costs. Moreover, interdependence did significantly predict whether a job has additional promotion opportunities, also corroborating the belief that, where interdependencies exist, it becomes important for senior workers to train junior workers for eventual promotion.

Further, whereas our results indicate that jobs with high levels of interdependence *and* union representation seem to encourage the development of ILMs, union representation considered alone was negatively related to ILMs. A look, however, at the industries in our sample (e.g., radio and television, printing and publishing) suggests that many of the jobs we analyzed are likely to be represented by craft unions and, therefore, are less likely to be found in an ILM (Baron, Davis-Blake, and Bielby, 1986; Piore 1975; Strang and Baron 1990). Thus, it would seem that even where a union (craft) should theoretically have no interest in maintaining such employment structures, when extensive interdependencies exist union market power is likely to be used to encourage the development of internal labor markets.

Our prediction (Hypothesis 1B) that jobs with high levels of interdependence and firm-specific skills are more likely to be located in internal labor markets than jobs characterized by *either* high levels of interdependence *or* firm-specific skills was also generally supported. The interaction between interdependence and firm-specific skills was both positive and significant for jobs above the bottom of a promotion ladder that could not be entered from an external market. Further, as indicated, firm-specific skills alone significantly predicted whether a job is or is

**Table 2.** Logistic Regression for Internal Labor Market Standing

	ILM Structural Features				Additional Promotion Possibilities
	In a Promotion Ladder	At Bottom of a Promotion Ladder	Entry from External Market	No	
<i>Study Variables</i>					
Interdependence	.256	.364	.223	.345*	
Information impactedness	.046	-7.14***	.417	.078**	
Union representation	-.796*	-.890*	-1.405***	-1.103**	
Firm-specific skills	2.127***	-.412	3.151***	.202	
Interdependence x union representative (Hypothesis 1A)	1.744***	.169	2.373***	.573*	
Interdependence x firm-specific skills (Hypothesis 1B)	.100	.219	.080*	.119*	
Information impactedness x union representation (Hypothesis 2A)	-1.06***	.082	-1.086***	-.552	
Information impactedness x firm-specific skills (Hypothesis 2B)	2.58*	-.052	.791***	.109*	
<i>Control Variables</i>					
Firm size	-.117	.232*	-.231*	-.178*	
Industry	.841*	1.357*	.669	.254	
Percent female	.082	3.879	.515	1.117	
Intercept					
Cases correctly classified	74%	86%	90%	73%	
-2 log likelihood	277.83	183.28	121.49	282.51	
G (chi-square goodness-of-fit statistic)	404.10***	263.44	490.47***	244.04	

Note: n = 250; \* p < .05; \*\* p < .01; \*\*\* p < .001.

not included in a promotion ladder and whether access to a job above the bottom of a promotion ladder is closed to an external market. The only case in which firm-specific skills were not positively related to internal labor market standing was in regard to whether a job was at the bottom of a promotion ladder. This negative relationship was to be expected because, by definition, firm-specific skills are gained over an extended job tenure and would thus be unattainable in an entry-level position.

Our hypothesis (Hypothesis 2A) postulating that jobs with high levels of information impactedness and union representation are more likely to be located in internal labor markets than jobs characterized by *either* high levels of information impactedness *or* union representation was not supported. The results for this hypothesis were generally the opposite of what we expected with the interaction between information impactedness and union representation being significant but negative in two of four cases. Again, as in the case of hypothesis H1a, we would suspect that our findings have a great deal to do with the differences in craft and industrial unions included in our sample.

At the same time, although information impactedness considered alone was positive in most cases, it was significant and negative for jobs located at the bottom of a promotion ladder. This result, like that for firm-specific skills, would seem reasonable when one considers that such jobs are generally used as a "proving ground" for new employees before they begin to develop important skills and are allowed substantial discretion.

Hypothesis 2b, that jobs with high levels of information impactedness *and* firm-specific skills are more likely to be located in internal labor markets than jobs characterized by *either* high levels of information impactedness *or* firm-specific skills, was supported except in the case of entry-level positions. Indeed, the logistic coefficient for jobs at the bottom of a promotion ladder was negative, an understandable outcome given the time dependent nature of both firm-specific skills and information impactedness.

With regard to our macro-level control variables some results were as expected whereas others were quite surprising. As Table 2 shows, industry significantly predicted whether a job would be found in a promotion ladder and whether it would be an entry-level position. Industry, however, did not predict whether access to jobs above the bottom of a promotion ladder were open to entry from an external market and it did not predict whether a job provided access to further promotion opportunities. Also, as expected, jobs held predominantly by women were not related to the presence of internal labor markets. Our findings thus support the commonly held belief that the benefits of ILMs are generally available only to men (e.g., Baron et al. 1986; Bielby and Baron 1986).

Finally, although our results for industry and gender effects were expected, Table 2 indicates that the anticipated relationship between firm size and internal labor market standing was not always supported. Whereas our results showed a positive and significant relationship between size and whether a job is at the bot-

tom of a job ladder, size is not significantly related to whether a job is in a promotion ladder. Even more surprising is the relation between size and the two remaining structural features of Althauser and Kalleberg's (1981) ILM definition. Size, in both instances, was significantly and negatively related to whether a job is closed to outside entry and whether additional promotion opportunities exist.

Overall, despite the unanticipated negative findings for union representation when considered alone, Table 2 does indicate broad support for our contention that when jobs are characterized by some degree of control over the labor process, as well as the market power to back it up, they are then more likely to be found in an internal labor market. Each of our models successfully classified a substantial percentage of our cases. Moreover, the log likelihood for each model was nonsignificant, indicating that there is no difference between the proposed models and our actual data. Another indicator of how well our models fit the data is the goodness-of-fit statistic (*G*). Goodness-of-fit, like the log likelihood should also be non-significant, again signifying no difference between the proposed models and our data. The significant goodness-of-fit statistics at the bottom of Table 2, however, contradict the log likelihood for two of our models, thus providing us with reason for further theory development.

## DISCUSSION AND CONCLUSION

Hypothesis 1A concerning interactions between interdependence, union representation, and internal labor-market standing was supported. Our findings, however, run somewhat counter to the established literature regarding unionized jobs and internal labor markets. There are several possible explanations for this result. First, a partial-correlation analysis indicated that union representation was acting to suppress the relation between interdependence and internal labor-market standing. Interdependence was found to relate to internal labor-market standing only in unionized settings.

A second possible explanation deals with theoretical differences in craft versus industrial unions. It has been argued that because industrial unions may often represent employees with firm-specific skills and high task interdependence, they may also favor internal labor-market processes (Baron et al. 1986; Finlay 1983; Fligstein and Fernandez 1988; Strang and Baron 1990; Williamson 1981). In contrast, craft unions, whose members' skills are typically more general, may reject employment relationships that restrict member mobility and autonomy (Baron et al. 1986; Caplow 1954; Fligstein and Fernandez 1988; Piore 1975; Strang and Baron 1990). In the present study, no distinction was made between craft and industrial union representation, although a perusal of the represented industries to which we were given data access (e.g., aircraft manufacturing, radio and television) would suggest that most of the unionized jobs in the focal sample are, indeed, likely associated with craft unions. A predominance of craft union jobs in



our sample would thus explain the negative relation between union representation and ILMs. As noted earlier, however, it would seem that even craft unions will not reject internal labor market arrangements when significant interdependencies are present.

Our interdependence measure also performed positively but not significantly in the other interaction (Hypothesis 1B) in which it was a factor. This provides some measure of support for Williamson's (1975) and others' (e.g., Alchian and Demsetz, 1972; Baron et al. 1986; Eisenhardt, 1985; Ouchi, 1979) belief that higher interdependence not only makes it especially important for more senior workers to pass on skills to junior workers, but also creates nonseparabilities' or difficulties in monitoring individual productivity.

It was argued that although high levels of interdependence alone are often enough to protect workers from a measure of market competition, leverage is increased when mechanisms for restricting the supply of replacement labor exist. Supporting this contention is the significant interaction found between interdependence and firm-specific skills (Hypothesis 1B). Increased control over labor processes represented by high levels of interdependence naturally encourages the development of market mechanisms intended to preserve that control. This should be especially true where competing coalitions such as management and labor exist. The reverse is also possible, in that, the market power provided by firm-specific skills should allow for the elaboration of labor-process control. The significant interaction between interdependence and firm-specific skills implies that the two are interrelated for the extent that the existence of one creates the conditions necessary for the development of the other.

The second labor-process variable, information impactedness, was not found to be significantly related to internal labor markets, failing to support our contention that higher levels of informational complexity increase worker control over a labor process and lessen an employing firm's ability to predict behavior and outcomes.

As with interdependence, it was also argued that the impact of information impactedness on the development of internal labor markets is strongest when worker power to reinforce control over a labor process is also present. The interactions between information impactedness and union representation proposed in Hypothesis 2A, were significant but, surprisingly, negative. As mentioned, this outcome is probably due to the type of union representation characterizing the data set. That is, the theoretical relationship between craft union jobs and a tendency to forgo ILMs in favor of autonomy and mobility would explain our finding that the union information impactedness interaction was significantly and negatively related to all but one of the ILM dimensions.

Hypothesis 2B concerning the interaction between information impactedness and firm-specific skills was supported. High levels of informational complexity have the potential for raising transaction costs and placing primary control of a labor process in the hands of workers. And, again, this internal power is greatly

increased when the presence of unions or firm-specific skills restricts a firm's labor supply.

Of the three control variables included in our analyses, only firm size was consistently significant. In only one case, however, was the relationship positive. This runs counter to the vast majority of previous ILM research and confirms recent claims (e.g., Granovetter 1984; Van Buren 1992) that the relation between ILMs and firm size is far more complicated than it might at first appear. Pfeffer and Cohen (1984), for example, after controlling for the presence of a human resource management department, found no relation between ILMs and firm size. Moreover, both Siahpush (1991) and Van Buren (1992) found negative relationships between these two variables. In a study of 52 manufacturing plants, Siahpush reported a negative and significant relation between ILMs and firm size ( $r = -.25$ ,  $B = -.11$ ,  $p < .05$ ). He attributed these results to the nature of the ILM measure used and further reported that the relationship disappeared when the extent of unionization was held constant. Van Buren's (1992) results are less straightforward. His study of 141 high-growth firms found, as expected, that multi-establishment firms are positively, though not significantly, associated with the use of ILMs. Firm size, however, was found to be negative. Van Buren (1992) argued that this finding supports his belief that high-growth companies, regardless of size, are less likely to employ ILMs. Although our data give us no direct measure of growth, we can extrapolate from what we do know. Of the 19 firms used in this study, nine were located in high-growth industries (i.e., medical services, publishing, television/radio broadcasting). Another six firms were in aircraft manufacturing, an industry that continues to be in gradual decline. Combined, these industry features may explain the unexpectedly low correlation between ILMs and firm size ( $r = .04$ ) and our negative logistic results.

In concert with past research, our results indicate that core industry manufacturing jobs are more likely to be in an internal labor market than other jobs. In the present analysis, industry significantly predicted when a job was in a promotion ladder and when the job was on the bottom rung of that ladder. Although the relationship between industry and the remaining ILM features were not significant, they were positive.

Although there was no significant negative relationship between percent female and ILMs, our results are still consistent with past research (e.g., Baron et al. 1986) in this area. Our positive, though far from significant, results make more sense when the correlations between percent female, union representation, and ILMs are considered together. Whereas union representation is significantly and positively correlated with our measure of ILMs ( $r = .32$ ), it is negatively correlated with percent female. Thus, this suggests that the presence of a union may cancel out the usually negative relation between ILMs and percent female.

It is our belief that these results provide another link in the bridge between job-level and both organization- and industry-level explanations for the development of internal labor markets. They suggest that interactions between labor-pro-

cess and market-power considerations may have significant consequences for individual workers. Considered alone, macro-level explanations for the internalization of labor markets are insufficient for understanding employment relationships (Baron and Bielby 1980). Our results imply that for macro-level phenomena to be of value in enhancing worker mobility and advancement, an individual must first gain access to the "right" job or what Edwards (1979) has called a "good" job. Although previous research (e.g., Beck et al. 1978) indicates that some industries or sectors provide better opportunities for worker mobility and advancement than others, there is often substantial variation in employment arrangements within these categories. Again, as the results of this study show, the key appears to be a "good" job within a particular industry or sector.

Our results also remark on the wisdom of singular job-level explanations for the internationalization and externalization of jobs. They show that transaction efficiency alone is unable to fully explain ILM use and creation. Indeed, as Benson (1977) has noted, when discussing matters of efficiency, one must first answer the question: Efficient for whom? The answer is that what is and is not efficient is often the purview of those in power. Thus, we have argued, and our results confirm, that together with transaction efficiency, job-level explanations must also recognize the role of power relationships. Thus, our findings imply that individual career attainment is dependent on a complex interaction of multiple variables spanning several levels of analysis.

In practical terms our results suggest significant changes in at least two types of decision making. First, public-policy makers would do well to consider the possibility that unemployment and instability in individual employment patterns cannot be corrected in the long term through creating just any job or providing just any training. Eyraud, Marsden, and Silvestre (1990) argue that most public retraining programs differ substantially from established industry methods of skill infusion, making it difficult to advance the unemployed into skilled jobs. These researchers contend that one reason for these difficulties is a reluctance on the part of employers to do away with employment arrangements that keep workers investing in established forms of training. Relatedly, Cassell (1990) argues that employers also have a normative bias against public-employment services. As noted, such employment arrangements serve to restrict the supply of replacement workers, and so workers are understandably inclined to defend the investments they have made in their skills. Thus, our results indirectly support Falk and Lyson's (1988) contention that employment problems will continue until "good" jobs and skills are created.

Second, although we did not examine business-level strategies, our results lend themselves to some preliminary speculation regarding the recent call (e.g., Butler, Ferris, and Napier 1991; Ferris, Russ, Albanese, and Martocchio 1991; Tichy, Fombrun, and Devanna 1984) for incorporating human-resource practices into a firm's business-level planning activities. In particular, for human-resource practices to become an integral part of a firm's business-level strategy requires

more than a cursory examination of market conditions and overall industrial relations. Instead, the link between such practices and business-level planning should extend all the way down to the level of job design and beyond to the hiring of specific employees. This will be especially true if recent theoretical attempts (e.g., Butler et al. 1991; Ferris et al. 1991) to tie human-resource practices to firm performance are supported by empirical research. Moreover, Cassell (1990) has argued that any link between human-resource practices and firm performance must fully incorporate the notion of strategic change. In particular, managerial decision-makers at all levels must recognize that environmental changes and firm and individual worker responses to such changes are continuous interacting processes.

In conclusion, a number of extensions to the reported study are possible. First, exploration of a broader range of industries would help to resolve the issue of generalizability across industries or industrial sectors. A larger sample of industries would also allow for comparison of the hypothesized different effects that type of union representation (*viz.*, craft versus industrial) has on interdependence and the growth of internal labor markets. Moreover, a broader range of industries could be used to test theories concerning employment relationships and industry types, as well as a possible connection among industry types, human-resource practices, and the variables examined in this study.

Second, it is also possible that a connection exists between a firm's competitive strategy and its response to changes in labor demand. For example, it can be argued that firms operating in dynamic and unstable environments will attempt to depend on external labor markets for needed labor rather than risk the long-term ties and loss of flexibility entailed in using internal labor markets (e.g., Cassell 1990; Davis-Blake and Uzzi 1993). In contrasting external labor market (ELM) and internal labor market (ILM) responses to changes in labor demand, Eyraud, Marsden, and Silvestre (1990) contend that, although ELMs adjust easily to cyclical fluctuations in labor demand, they adjust less readily to technical or strategic changes. The reason for this sluggishness is that when general occupational skill requirements shift in response to technical or strategic changes, they almost necessarily become more firm-specific and, thus, less transferable. By comparison, ILMs adjust quite easily to changing skill requirements, but less so to reductions in demand for labor.

Third, any change in a firm's labor demand is likely to create conflict over definitions of work (e.g., Benson 1977; Scott 1987). Thus, in terms of tying human-resource practices to firm performance, a firm's external environment and its relative dependence on general occupational skills versus firm-specific skills may have significant consequences for successful strategy implementation. For example, although not a direct test of the effect of ELM versus ILM responses to changes in labor demand on strategy implementation, Ferris et al. (1991) did find a significant relationship among human-resource practices, strategic planning, and firm performance. The question thus remains, "Do successful firms more

effectively incorporate their employment arrangements into their competitive strategies than do their less successful counterparts?"

Finally, if our results hold, it is likely that jobs currently being lost to externalization are either those that traditionally lack the internal (i.e., interdependence and information impactedness) and external (i.e., firm-specific skills and unions) influence that make ILMs an efficient organizational choice or those that have more recently been redefined through changes in product markets and technology (see Kalleberg and Berg, 1987).

Put another way, our results indicate that jobs lacking in power of the labor-process and market varieties not only provide incumbents with no protection against having their jobs externalized, but also provide management with no efficiency rationale not externalizing such jobs. The decision to use external labor sources is not generally made at the individual job level. Whole departments are seldom outsourced, although when this does occur we would argue that it is because the jobs involved all lack labor-process and market power. For example, when firms do outsource an entire function, it is frequently the human-resource (HR) department. Because HR is largely a staff function, it is low on task interdependence and, thus, low on labor-process power. Furthermore, because HR skills are relatively plentiful in the marketplace and generally have no union support, HR department jobs are also typically low in market power. Thus, future research might focus on differentiating, in terms of job characteristics, externalized jobs from those not externalized.

If ILMs are indeed currently being supplanted by market relationships, we would contend that it is a result of (a) increasing global competition that concomitantly increases the costs of ILMs, (b) stagnant and, in many quarters, declining union influence, and (c) rapidly changing technologies that result in new job and skill definitions. However, as stated in the introduction, we strongly believe that the current corporate rage for employment externalization does not mean the end of ILMs. Instead, externalization is, like internalization, a viable means for maintaining the delicate balance between stability and flexibility.

## ACKNOWLEDGMENT

The helpful vetting of Terry Boswell, Allison Davis-Blake, and Michael C. White on earlier draft manuscripts is gratefully acknowledged.

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