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Organizational hiring criteria help determine which individuals enter organizational labor markets as well as serving as an important component of organizational control systems — more effort placed on screening workers at entry means that less emphasis may be placed on training and socialization or on monitoring them once in the organization. The determinants of organizational selectivity in hiring, including the use of educational credentials, written and unwritten tests, and screening on the basis of workers' characteristics were examined using a sample of 254 establishments in the San Francisco Bay Area. The analyses suggested that hiring standards for different occupations (both white and blue collar) within establishments were positively correlated with each other and were affected by the same set of factors. Formal hiring standards were positively related to the presence of a personnel department, to the amount of training and technological change, and to the presence of an internal labor market. The proportion of the workforce covered by collective bargaining was negatively related to organizational selectivity, and there was no effect of economic sector (core versus periphery) and organizational size once other organizational factors were controlled. The results indicate that hiring standards reflect not only organizations' skill requirements but also the preferences of various groups for such standards and their ability to enforce these preferences.•

Personnel selection systems have been an important focus for research for more than 60 years (Dunnette and Borman, 1979), and such systems are themselves apparently centuries old. Yet, the research on selection has adopted a particular focus that has led to the virtually complete neglect of any attempt to explain organization-level variation in selectivity or the use of various hiring criteria. The purpose of this article is to begin to change the way we think about organizational hiring standards and, specifically, to argue for the incorporation of hiring standards and procedures as dependent variables in analyses concerned with the structuring of the employment relationship. To accomplish this, we undertake three tasks: (1) to review some theoretical perspectives that can elucidate factors associated with organizational-level variation in hiring standards; (2) to present evidence indicating that it is empirically sensible to speak of an establishment-level effect on hiring standards; and (3) to demonstrate that some factors derived from the theoretical perspectives significantly affect hiring standards measured at the establishment level of analysis.

The current focus in the literature on selection is mostly on application. It takes the existence of jobs and occupations with different skill requirements as given, presumes that people have a set of skills and abilities that, although potentially changeable over time with training, are fixed at one moment in time, and proceeds from the premise that the task of selection is to match the individuals with the most appropriate or highest level of necessary skills to the jobs or occupations in question. Thus, selection research has focused on how best to measure and characterize both job elements for use in selection procedures (e.g., McCormick, 1976; Tornow and Pinto, 1976; Prien, 1977) and the skills and aptitudes an individual possesses in a

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reliable, valid, and nondiscriminatory fashion. For instance, there has been extensive research on the use of interviews (Schmitt, 1976), biographical information (Owens, 1976), and tests (Guion, 1965). Test construction and validation is an important research focus, as are the connections between ratings on scores on various assessment procedures and subsequent job performance or job tenure.

Although obviously useful and important, this approach neglects some important complementary points of view. Two critical ones are (1) that job requirements and selection standards reflect establishment-level, as well as job- or occupational-level characteristics; and (2) that such selection standards reflect the interplay of organizational and institutional interests, as well as the technical requirements of work. It is to these two issues that the present analysis is addressed.

It should be clear at the outset that we are not asserting that occupational or job-specific factors are unimportant in determining hiring standards and hiring procedures or that the technical requirements of the job do not affect the skills sought in the workforce and how those skills are assessed. Rather, we simply maintain that there are establishment-level decisions concerning how selective to be and that this selectivity extends across occupations and jobs and that the decision about selectivity reflects organizational forces as well as technical requirements of jobs.

BACKGROUND AND HYPOTHESES

There is an implicit assumption in much of the literature on jobs and job structures that there is some underlying technical imperative that causes the employment relationship and occupational structures to look the way they do. In the present case, this line of reasoning would maintain that it is not sensible to speak of organizational factors associated with selectivity but, rather, that hiring standards are occupation- or job-specific, dictated by the particular nature of the work to be done and the skills required to perform such work. Although we agree that requirements will differ across occupations, we argue that hiring standards also reflect a general policy set at the establishment level and, thus, that selectivity will tend to co-vary across occupations within an establishment. Our first hypothesis, then, is that hiring standards for different occupations within a given establishment will be positively correlated and are affected by similar organizational factors and processes. To the extent that this is true, an organizational level of analysis must supplement job-level analyses to understand hiring standards.

Four theoretical perspectives are potentially useful in helping us understand variation in selectivity at the establishment level of analysis: (1) a technical perspective, which maintains that hiring standards reflect employers' needs to screen workers on the basis of the intellectual and technical complexity of jobs; (2) a control perspective, which maintains that hiring standards are used to screen individuals on the basis of characteristics that index their general reliability and dependability, or in some versions, their socialization to norms and values desired by the organization; (3) an institutional perspective, which maintains that hiring standards are in some in-

stances a taken-for-granted part of "good" personnel practices and are implemented and adopted on that basis because they are normatively expected and sanctioned; and (4) a political perspective, which maintains that there are some organizational interests (such as personnel departments) that benefit from having formal hiring standards because of enhanced power, and others, such as unions, that have the opposite incentive, and thus, the hiring standards that emerge are in part the result of the interplay of these organizational actors and their relative potency.

Because hiring standards have almost never been examined as dependent variables, particularly at the organizational level of analysis, the available evidence concerning the validity of each of the four arguments is meager, at best. Most attention has been focused on the evaluation of the technical perspective, particularly with respect to the use of educational credentials. Collins (1979) reviewed evidence indicating that the rise in the general level of education in the U.S. could not be traced directly either to the changing mix of occupations toward ones requiring more education or to the upgrading of skills required in present occupations. Berg (1970) reported that at the individual level of analysis, there was little evidence that education, beyond some threshold value, increased productivity, and a similar finding seems to hold at the societal level (Peaslee, 1969), such that once a general level of literacy is attained, there is not much evidence that increasing education is importantly related to economic development and growth. Collins (1979: 40) reported that technological change was related to educational requirements for both managers and blue-collar workers, using organization-level data. However, after controlling for other organizational factors such as size and national prominence, he concluded that "technological change produces significantly higher educational requirements only in smaller, localistic organizations and in organizational sectors not emphasizing normative control" (Collins, 1979: 41).

The evidence indicates, then, that changing educational requirements appears to be at best only weakly related to the technical requirements of work, though it is clear that most of the analyses have been done either at a very aggregate level of analysis, such as whole societies, either cross-sectionally or over time, or at the individual level.

The control perspective argues that firms seek a loyal and reliable workforce. Education and other hiring requirements are set because they index workers' values, attitudes, and loyalty (Bowles and Gintis, 1976; Edwards, 1976; Collins, 1979).

Collins (1979: 32) reviewed evidence that indicated that "education has been used as a means of cultural selection." Noland and Bakke (1949) and Hollingshead (1949) both reported data indicating that employers regarded education as a screening device to select workers with "proper" values. In his study of 309 California organizations, Collins reported several types of data consistent with this argument. First, selection on the basis of not having a police record was correlated with the organization's educational requirements; second, the use of other worker characteristics in screening, such as not hiring "job-hoppers," also was correlated with the use of educational

requirements. More importantly, Collins (1974, 1979) developed a theory of organizational hiring standards based on organizational needs for loyalty. He argued that "public trust" organizations, those emphasizing "a public image of service ideals, safeguards and/or confidentiality" (Collins, 1979: 33) are in greater need for loyal employees than other (i.e., market) organizations.[1] Therefore, public trust organizations follow a strategy of "normative control" whereby the organization relies on workers' internalization of organizational goals and values. Normative control is assured by hiring educated workers who presumably acquired the required values through education.

Collins presented evidence that net of size, technological change, and "national prominence," public trust organizations had higher educational requirements than market organizations. Moreover, Collins (1979: 42) reported that at all levels except blue-collar, the organization's control type was the most important predictor of educational requirements.

There are some problems with Collins's analysis that need to be remedied — namely, he did not control for other factors that might also be related to the selectivity of organizations, such as the presence of a personnel department and the extent to which the organization was unionized. Nevertheless, his analysis is important, since it is virtually the only organization-level study that examines the determinants of educational requirements, and it provides some data indicating at least the potential importance of organizational control type and, presumably, requirements for control on the selectivity of hiring practices.

The literature from the dual economy or dual labor market tradition makes a similar type of argument. Edwards (1975, 1979) maintained that firms operating in the monopolistic core achieve workers' compliance by following a strategy of "bureaucratic control," the salient feature of which is offering workers better working conditions and a "career." As a result, the supply of workers to these firms is abundant and enables core firms to follow more rigorous selection procedures that presumably screen out disloyal and unstable workers. However, in an empirical study based on individual-level data, Rosenberg (1980) demonstrated that workers' stability or perceived instability does not explain their ability to obtain employment in the core.

Institutionalization theory holds that organizational forms and practices serve as signals to the external world that the organization is conforming to socially expected ways of conducting its operations (Meyer and Rowan, 1977; Zucker, 1977; Meyer, 1980; Tolbert and Zucker, 1983). Presumably, some sectors are more institutionalized than others (Scott and Meyer, 1983), and organizations that have more difficulty achieving legitimacy through task-related activities because of the difficulty of evaluating their performance should be more likely to adopt institutionalized practices (Meyer and Rowan, 1977: 354; DiMaggio and Powell, 1983: 156). Meyer and Rowan (1977) actually illustrated their arguments about institutionalized practices with reference to the development of personnel activities:

The discipline of psychology creates a rationalized theory of personnel selection and certifies personnel professionals. Personnel depart-

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Public trust organizations include financial and professional services and government, public transportation, communication, and utilities organizations.

ments and functionaries appear in all sorts of extant organizations, and new specialized personnel agencies also appear. . . .Employees, applicants, managers, trustees and governmental agencies are predisposed to trust the hiring practices of organizations that follow legitimate procedures — such as equal opportunity programs, or personality testing — and they are more willing to participate in or to fund such organizations. (pp. 344, 349)

The available evidence on the relationship of institutionalization to the structuring of the employment relationship is sparse, and few studies from this perspective include an analysis of organizational hiring standards. Tolbert and Zucker (1983) reported that the diffusion of civil service reform followed a pattern consistent with that expected by the institutionalization perspective. At first, the adoption of the reforms could be explained at least partly by the presence of conditions favoring such reforms or the absence of forces opposing them. However, after the reforms became institutionalized and accepted as the proper way of doing things, individual governmental characteristics no longer accounted for adoption versus nonadoption. Baron, Dobbin, and Jennings (1986), examining the diffusion across time and industries of a number of modern personnel practices, observed that World War II, and the increased intrusion of the government into the regulation of employment and the economy more generally, produced a discontinuous increase in the extent to which many such practices were implemented.

The argument of the political perspective is that organizational policies and practices, including personnel policies, emerge at least partly because of the interests of various groups in certain policies and the relative power of those groups within the organization. For the establishments examined in this study, one can reasonably argue that personnel professionals have an interest in the establishment of more formal and more selective hiring standards, because that increases their role in the organization and because such practices are consistent with the idea of modern, effective personnel management. Unions also have an interest in hiring criteria, since screening could be used to keep out individuals with prounion attitudes.[2] In addition, the idea of credentialism is antithetical to union-favored concepts of skills based on seniority and a less differentiated, more homogenous workforce that, because members have more in common, is more likely to be willing to take collective action. Finally, it is likely that in dispersed organizations operating in multiple sites, management in the central office may be interested in having hiring standards common across the organization as a way of ensuring more control and uniformity in practices and in the workforce.

There is, again, limited evidence relevant to this perspective. Pfeffer and Cohen (1984) found that the use of internal labor market (ILM) practices was positively affected by the presence of a personnel department and negatively related to the extent of unionization, results consistent with the arguments made here. Baron, Dobbin, and Jennings (1986) have argued that numerous modern human-resource-management policies, instituted under the pressures of World War II and governmentally imposed requirements, were maintained after the war through the activities of personnel professionals and with the urging of personnel associations. In their historical analysis,

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There are numerous recent examples of this point, including apparently successful attempts by the Japanese to screen out prounion workers at both the New United Motors plant (the former General Motors plant) in Fremont, California, and in other automobile manufacturing plants in the U.S. Moreover, even if such attempts are not fully successful, the unions' belief that such attempts will be made and might be successful will lead the unions to try to delimit employer discretion in hiring and selectivity.

they found that the extent of unionization was also an important variable in the adoption of personnel practices across various industries. This relates to Gordon and Thal-Larsen's (1969) finding that it was common in unionized plants for the union to exert some influence over hiring.

Thus far, we have considered the general arguments of the four perspectives and the available evidence that bears on them. Table 1 shows our interpretation of the predictions made by each of the perspectives for the relationship between the various independent variables we will be using and organizational hiring standards. Plus and minus signs indicate that the perspective predicts either a positive or negative relationship, respectively, while a zero means that the perspective either does not make a prediction or that there is no expectation on the basis of that perspective for any relationship between the variable in question and organizational hiring standards. Plus and minus signs in parentheses indicate that one could argue that the perspective would suggest a positive or negative association between the variable in question and hiring standards but that the relationship is largely spurious, mediated by other causal factors more proximately related to hiring criteria. We will consider each perspective's specific predictions in turn.

Table 1

Predicted Relationship of Independent Variables to Organizational Hiring Standards from Different Theoretical Perspectives

Independent variables	Technical	Institutionalization	Power/internal politics	Control	
				Collins	Edwards
Size	0	+	0	0	(+)
Core Sector	0	0	0	0	+
Public trust establishment	0	+	0	+	0
Technological change	+	0	0	0	0
Training	+	0	0	0	(+)
Unionization	0	(+)	−	0	(+)
Personnel department	(+)	(+)	+	(+)	(+)
Internal labor market practices	+	(+)	0	0	(+)
Single-site establishment	0	−	−	0	(−)

Note: Plus and minus signs show predicted direction of relationships; a zero indicates there is no relationship predicted by the perspective; signs in parentheses indicate that a positive or negative association may be suggested by the perspective but that the relationship is largely spurious.

The technical perspective emphasizes the positive effect of both technological change and training on organizational selectivity. The technological change argument has been developed in Bell (1973) and is summarized in Collins (1979), but it must be recognized that there is an alternative argument. Braverman (1974) and others have maintained that technological change has resulted, at times, in deskilling the workforce. If this is the case, technological change should be negatively related to organizational selectivity. We will look for the sign of the relationship, but we will also examine whether there is more variation (heteroscedasticity) among organizations that have experienced more technological change. The positive sign on training indicates that most of the literature maintains that

more training either indexes or produces more technically complex work, and hence, more training should be associated with more selective hiring standards to ensure the provision of workers who are more trainable (Thurow, 1975). Finally, the positive relationship with internal labor market practices derives from the observation that "modern employers increasingly try to select not for entry jobs but for several jobs, job sequences, and progression lines" (Wilensky and Lawrence, 1979: 221). This argument suggests that organizations that expect to promote their workers have an incentive to raise standards above those required for entry-level positions in other organizations. Moreover, since it is more difficult to dismiss workers who occupy positions within an internal labor market, mistakes in hiring are more costly in organizations that have internal labor market practices. Thus, such organizations have an additional incentive to raise hiring standards (Doeringer and Piore, 1971).

The positive relationship, using the technical perspective, between having a personnel department and hiring standards reflects the fact that one may want and need a department or group to administer screening devices to ensure that workers have the technical skills required. Note, however, that in this formulation, the personnel department is a vehicle for the implementation of hiring standards that derive from other sources, and therefore, although there may be a significant bivariate relationship, once the sources of worker hiring standards are controlled, there should *not* be an independent effect of having a personnel department on organizational selectivity. Focusing on the technical requirements of work, this perspective makes no prediction of a relationship between hiring standards and organizational size, sector, unionization, or dispersion.

The institutionalization perspective, by contrast, emphasizes the importance of being in an institutionalized sector. Scott and Meyer's (1983) distinction between organizations that make up the institutional and technical sectors is virtually indistinguishable from the typology of public trust and market organizations advanced by Collins (1979), so that the institutionalization perspective expects a positive effect on hiring standards of an organization's being a public trust organization. Furthermore, the perspective would argue that larger establishments or those that are part of larger firms are more visible; hence they need the legitimacy of institutionalized practices more than do other establishments. Therefore, a direct positive effect of size and a negative effect of being a single-site establishment is consistent with this perspective.

The relationship of unionization, having a personnel department, and internal labor market practices with organizational selectivity would be consistent, according to this perspective. Each of these variables is an indicator of an institutionalized employment practice. Thus, having an institutionalized employment practice such as an internal labor market makes it likely that one would have other, institutionalized practices such as formal and selective hiring standards (see Baron, Dobbin, and Jennings, 1986, for a discussion of how dimensions of the employment relationship vary together). But this line of argument posits the causal mechanism as deriving from the organization's location in an institutionalized sector or needing

social legitimacy, and thus, there should not be an independent effect of these variables on hiring standards once sector and size are statistically controlled.

Because the power and internal politics approach focuses on internal practices, it makes no predictions about the effects of establishment size or organizational type on hiring standards. Moreover, it is silent on the effect of technology and training, as well as ILM practices, on hiring. The argument is that having a personnel department will have a direct positive effect on hiring, and being a single-site organization will have a negative effect on hiring standards. Using a simple power perspective, the effect of unionization seems straightforward: since unions either try to control hiring standards directly, as in using hiring-halls, or seek to restrict employer selectivity to forestall screening on the basis of antiunion attitudes, there should be a negative relationship between unionization and hiring standards set by employers (as opposed to union-imposed standards). However, Kalachek and Raines (1980) argued that unions have the effect of raising wages. They hypothesized that these higher wages would attract more job applicants and that profit-maximizing employers would raise hiring standards as a consequence. Their empirical analysis used data at the individual level of analysis and took educational attainment as the measure of hiring standards of the firm. Their empirical results showed some effect on educational attainment of being a union member, but by far the strongest predictor of the education of the worker was the industry and type of worker. There are numerous problems with this type of analysis, not the least of which is using educational attainment as a very imperfect measure of overall hiring standards, or even using education as an indicator of minimum cut-offs. Even more importantly, because the analysis is conducted at the individual level, virtually no organizational-level variables are used. Nevertheless, the study is interesting because it makes a prediction exactly opposite to that expected on the basis of the unions' interests in restricting employer selectivity.

The argument of the control perspective would be that hiring standards depend on the form of control employed. Collins (1979) would predict higher standards in public trust organizations, where normative control is prevalent, and Edwards (1979) would expect higher standards in the industrial core, characterized by bureaucratic control. Although both sectors are defined on an industry basis, the industries that make up each are not identical. Both control perspectives maintain that technical requirements are largely irrelevant in explaining the use of different hiring standards. The control perspective would be consistent with there being a positive effect from having a personnel department, but the effect would be because of the association of the department with other characteristics of core firms and with the implementation of a strategy of bureaucratic control. Thus, according to this view, personnel department effects are a consequence of sectoral location and should disappear once sectoral location is controlled.

Using Collins's version of the control perspective, we would expect no other variables other than public trust, indexing the form of control, to be related to hiring standards. The case for Edwards's bureaucratic control arguments is somewhat more

complicated. Since core establishments are, almost by definition, larger, part of multiunit firms, unionized, and offer training and internal promotion possibilities, associations between these variables and hiring standards would be expected, from this perspective. However, these factors should be primarily related to hiring standards because of their association with location in the core sector of the economy. Edwards argued that because bureaucratic control requires compliance with work rules, continuous employment, and promotion from within, core employers "try to screen out workers who show up for work irregularly and manifest the other undesirable work characteristics dysfunctional for bureaucratic employment" (Edwards, 1979: 23). Thus, another test of this theory would be to examine whether or not core establishments screen out workers on the basis of traits indicating instability more than do other organizations. Since other perspectives do not make predictions specifically on this point, this theory's prediction about the relationship between sector and screening on the basis of certain worker traits is unique.

METHOD

These arguments were investigated using data collected and previously analyzed by Gordon and Thal-Larsen (1969) on a sample of 309 establishments in the San Francisco Bay Area. The sample was a one-fifth random sample representative of the universe of establishments from all industries (including government and nonprofit) in the area, employing more than 100 persons. Manufacturing establishments are somewhat overrepresented, while trade and service establishments are somewhat underrepresented, compared to their numbers in the Bay Area population of all establishments. The data were collected from 1966 to 1968 through interviews with personnel managers or other officials who were familiar with the establishment's employment practices. The data include information on recruitment, selection, training, promotion, and compensation policies and practices. The sample is relatively unique in its size, industry coverage, and the comprehensiveness of the information gathered on dimensions of the employment relationship. However, with the exception of Collins (1974, 1979) and the original cross-tabulations presented by Gordon and Thal-Larsen (1969), no use of these data has been made.

The unit of analysis was the establishment, not the total organization nor the specific job or occupation. We have already argued that one of the purposes of the study is to see whether there are establishment or organizational factors that affect hiring standards generally, and when we examine whether there are organization-level effects, the reasonableness of this assumption of more general policies and procedures will be explored. Granovetter (1984: 327–328) has argued that in studying labor-market practices, the establishment is the most appropriate unit of analysis:

> . . . there are several reasons why the establishment is a reasonable unit of analysis. . . . When production workers are employed in one plant of a larger corporation, that plant typically defines the internal labor market in which their career line can progress. This is probably the case for lower-level white-collar workers as well. . . . Thus, to the

extent that one's interest . . . lies in a discussion of what kind of labor market situation workers find themselves in . . . establishments rather than firms are the appropriate unit.

Many of our independent variables may vary over different establishments in the same firm. Thus, although it is important whether the establishment is part of a larger firm, the establishment seems to be a useful and appropriate level of analysis to begin to explore factors affecting dimensions of the employment relationship, including hiring criteria.

Employer Selectivity

Four dependent variables that measure the existence and selectivity of hiring standards were used in the analysis. One assessed the establishment's educational requirements. It was an additive scale composed of eleven items, each of which measured whether or not the establishment required a certain level of education for a given occupation. For three white-collar occupations (professional, technical, and managerial workers), whether or not a college degree was required was measured. For the white-collar occupations of supervisor, salespersons, and clerical workers, as well as for all blue-collar occupations (foreman and skilled, semiskilled, unskilled, and service workers), whether or not the establishment required a high school degree was assessed. An establishment's education score was the number of occupations for which it required an educational credential, divided by the number of occupations for which it had nonmissing values. Establishments having missing values on more than five occupations were excluded from the analysis. Cronbach's alpha for the educational credential scale was .89.

The second dependent variable assessed the establishment's use of tests. It was an additive scale comprising eight items, each of which indicated whether the establishment administered written or unwritten tests to prospective employees in the white-collar occupational categories of professional and technical workers, managers and officials, clerical and sales persons, and in the blue-collar occupations of skilled, semiskilled, unskilled, and service workers. The establishment's score on the use of tests was the number of occupations for which it administered tests to applicants, divided by the total number of occupations on which it had nonmissing values. Establishments having missing values on more than four occupations were excluded from the analysis. Cronbach's alpha for the use-of-tests scale was also .89.

The third dependent variable was labeled selectivity. It was an additive scale that comprised the establishment's score on the educational-credentials and use-of-tests scales as well as its score on three additional selection criteria: (1) whether police records barred hiring for the various occupations; (2) whether there was a maximum age for hiring by specific occupations; and (3) whether there was a probationary period for new employees. Although some of the information in this scale was already included in the test and education scales, we used the selectivity scale in order to test the various theories not only for particular hiring standards, but for what this scale assumed: that educational requirements, test use, having a probationary period, age limits, and barring employment to persons with police records assessed the same basic construct — whether

the establishment was more or less selective than other establishments in screening prospective employees. Cronbach's alpha for this scale was .55. The Appendix presents the reliability analyses for these scales.

To test whether similar factors affect hiring standards in all occupations, four occupation-specific selectivity scales were constructed that measured selectivity for the four occupations employed by most establishments — managers and clerical, skilled, and unskilled workers. Each occupation-specific scale included items measuring requirements for that occupation only. Establishments having missing values on any specific occupation were excluded from the analysis for that occupation.

The fourth dependent variable was a stability scale, which assessed the establishment's emphasis on worker traits that presumably signal stability or instability and intermittent attachment to the labor force. It was an additive scale that comprised three items, each of which indicated whether the establishment official, in response to interview questions, expressed "marked reluctance to hire" the following types of workers: (1) job hoppers; (2) the long-term unemployed, and (3) persons living far away. There was no information in this case about whether the reluctance to hire such workers was limited to specific occupations. This is a somewhat more subjective scale than the others we used, relying on officials' perceptions of the establishment's reluctance to hire, based on certain traits. However, it is important to include this analysis because the argument from the dual labor market literature is founded on employers' presumed unwillingness to hire workers with characteristics associated with unstable employment. The establishment's stability score is the number of positive answers divided by three; establishments having missing values on any of the items were excluded from the analysis. Cronbach's alpha for this scale was .48. The Appendix presents the reliability analysis for this scale.

Technological Change

Technological change is one proxy for the level of skills required and is considered a technical determinant of educational and other credentials (e.g., Collins, 1979). To measure the degree of technological change the establishment experienced, a seven-item scale was constructed from questions asking whether the unit had done one or more of the following during the 1960–1966 period: (1) built a new plant; (2) remodeled a plant; (3) installed new equipment; (4) modernized existing equipment; (5) significantly changed internal operating procedures; (6) eliminated inefficient working arrangements; or (7) changed material used in the production process. The technological change score was the number of types of change the establishment underwent, divided by seven. Establishments having any missing values on any of the items were excluded from the analysis. Cronbach's alpha score for this scale was .72. The Appendix presents the reliability analysis for this scale.

Training

The provision of training also indexes the level of skill required and the need for employees who are "trainable" (Thurow,

1975). Three measures of establishments' investment in training were used. The first, labeled "vestibule," was a dummy variable indicating whether the establishment provided and paid for training given before the employee assumed full duties of the position; the second, labeled "OJT," measured the degree to which an establishment provided employer-supported, on-the-job training; the third, labeled "outservice," indexed the degree to which an establishment paid for training provided off site by others, such as universities. These last two variables had a range of 0–3, where 0 indicated that no training was provided.

Internal Labor Market Practices

To see if hiring criteria differed systematically according to whether the establishment tended to follow a promotion-from-within policy and, therefore, might be initially hiring people who were promotable, a scale measuring the presence of internal labor market practices was constructed. The scale was constructed from answers to five questions, each of which indicated whether the establishment engaged in the following practices: (1) had an established promotion-from-within policy; (2) had promoted most employees with at least five years of service at least once; (3) filled all or almost all jobs from within; (4) frequently promoted unskilled laborers to semiskilled jobs (for manufacturing establishments only); and (5) frequently promoted semiskilled laborers to skilled jobs (for manufacturing establishments only). The internal labor market scale score was the number of policies followed, divided by the number of items on which it had nonmissing values. Establishments having missing values on more than three items were excluded from the analysis. The scale had a Cronbach's alpha score of .64.

Other Variables

Measurement of the other variables was fairly straightforward. The presence of a personnel department was coded using a dummy variable with a value of 1 if there was a formal personnel department and 0 otherwise. The power of unions was assessed by the proportion of the workforce covered by collective bargaining. The size of the establishment was measured as the natural logarithm of the number of employees in 1967.

Establishment type was dummy coded in two ways. We used Collins's (1979: 35) definition to classify establishments as being market or public trust. In addition, establishments were coded by industrial sector, to examine the usefulness of the core-periphery distinction, using the classification scheme developed by Tolbert, Horan, and Beck (1980).

Establishments that were single sites (rather than branch or headquarters) were coded as 1 on a variable labeled "single."

Table 2 shows the means and standard deviations for the variables used in the analysis for the 254 establishments for which there were complete data. The establishments in the sample tended to be large manufacturing establishments connected to larger firms, to be unionized, and to be in the core sector of the economy. Generalizing the results of this analysis to smaller establishments should, therefore, probably be done only with great caution.

Table 2

Means and Standard Deviations of Variables (N = 254)

Variables	Mean	S.D.
Selectivity scale	.610	.224
Stability scale	.450	.320
Use-of-tests scale	.347	.360
Educational credentials scale	.457	.324
Public trust establishments	.232	.423
Core sector	.697	.461
Single site	.240	.428
Ln size	6.011	1.015
On-the-job training	.858	1.072
Vestibule training	.201	.401
Outservice training	1.441	1.370
Technological change	.385	.267
Unionization	53.012	34.237
Personnel department	.642	.480
Internal labor market practices	.570	.307

RESULTS

The argument investigated was that it made sense to analyze hiring criteria at the establishment level of analysis. Three types of evidence were used to evaluate this argument. First, as indicated in the reliability scores presented with the measures and as shown in the reliability analyses presented in the Appendix, the alphas and corrected item-total correlations for the scales measuring selectivity, the use of tests, and educational requirements are at least moderately high, indicating that the items do tend to form a scale. Second, the factors reported in Table 4 (below) as affecting overall selectivity work in approximately the same fashion when the four occupations of managerial, clerical, skilled, and unskilled workers are analyzed separately (Table 5, below). Thus, the same factors that are associated with hiring standards overall are associated with each of these four, more specific occupations, and the results are comparable across the occupations.

Third, the argument that there are establishment-level policies would seem to suggest that for any given indicator of hiring standards (e.g., the use of tests), there should be at least moderately high correlations between the establishment's use of the criterion for one occupation and its use for others. Three selection criteria were examined for these correlations. For the use-of-tests measure, eight separate occupations were examined, so there were 28 possible pairwise correlations. The average correlation was .545, and all of the 28 were statistically significant at less than the .001 level of probability. For the use of educational credentials, 11 occupations were examined, so there were 55 possible pairwise correlations among occupations. In this instance, the average correlation was .405; only three of the correlations were not statistically significant, and 43 of the correlations were significant at less than the .001 level of probability. Finally, one of the items used in the overall selectivity scale was whether or not the establish-

ment imposed a maximum age limit for each of eight occupations. Again, there were 28 possible pairwise correlations. In this case, the average correlation was .89, and all correlations were statistically significant at less than the .001 level.

The evidence taken together certainly is quite inconsistent with the idea that there are standards and criteria set for occupations separately, with no relationship among them. Rather, each of the three analyses is consistent with the position that there is at least some degree of establishment-level effect on the setting of hiring standards. Consequently, in what follows, we primarily discuss the overall results; the analyses for the selectivity scale are given separately in Table 5, however, for four occupations.

Table 3 presents the zero-order correlations among the variables at the establishment level of analysis.

Table 3

Zero-Order Correlations among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Selectivity	–	.220	.619	.623	.265	.100	–.161	.341	.379	.350	.320	.249	–.381	.474
2. Stability	.220	–	.195	.328	–.084	.098	–.225	.058	.102	.083	.200	.093	–.116	.230
3. Tests	.619	.195	–	.337	.161	.145	–.136	.265	.314	.333	.312	.167	–.327	.344
4. Education	.623	.328	.337	–	.103	.164	–.196	.210	.208	.165	.228	.244	–.320	.368
5. Public trust	.265	–.084	.161	.103	–	–.083	.258	.250	.299	.190	.245	.071	–.581	.236
6. Core	.100	.098	.145	.164	–.083	–	–.311	.046	.073	–.012	.169	.098	.011	.079
7. Single site	–.161	–.225	–.136	–.196	.258	–.311	–	–.119	–.003	–.029	–.181	–.075	–.056	–.137
8. Ln size	.341	.058	.265	.210	.250	.046	–.119	–	.383	.391	.261	.254	–.181	.481
9. On-the-job training	.379	.102	.314	.208	.299	.073	–.003	.383	–	.342	.315	.156	–.319	.269
10. Vestibule training	.350	.083	.333	.165	.190	–.012	–.029	.391	.342	–	.212	.241	–.193	.252
11. Outservice	.320	.200	.312	.228	.245	.169	–.181	.261	.315	.212	–	.158	–.191	.259
12. Technological change	.249	.093	.167	.244	.071	.098	–.075	.254	.156	.241	.158	–	.073	.176
13. Unionization	–.381	–.116	–.327	–.320	–.581	.011	–.056	–.181	–.319	–.193	–.191	–.073	–	–.229
14. Personnel department	.474	.230	.344	.368	.236	.079	–.137	.481	.269	.252	.259	.176	–.299	–
15. ILM	.489	.218	.367	.456	.121	.265	–.277	.377	.297	.214	.254	.246	–.282	.429

Ordinary-least-squares-regression equations were estimated entering the variables sequentially in groups, according to some reasonable assumptions about causal priority. This procedure is described in Alwin and Hauser (1975: 42):

> . . . we have developed a method for interpreting the effects of variables in recursive path models. For each endogenous (dependent) variable in the model, obtain the successive reduced-form equations, beginning with that containing only exogenous (predetermined) variables, then adding intervening variables in sequence from cause to effect.

The procedure enables one to assess the relative importance of various independent variables or sets of independent variables by noting the change in the proportion of explained variance. Even more importantly, it permits us to assess the extent to which the effects of causally prior variables are

direct, spurious, or are mediated by other organizational characteristics associated with them. For instance, large organizations are more likely than small ones to have formal personnel departments. By noting the change in the magnitude of the coefficient of the size variable as variables associated with size (like a personnel department) are added to the equation, we can see to what extent the effect of size is direct or occurs through other arrangements and practices to which it is related.

The first equation enters those variables treated as exogenous: the establishment's location in the economy (public trust or market, core or periphery), size, and whether it is a single site or a headquarters or a branch. We argue that these variables are causally prior to the variables entered in equation 2 — technological change and investment in training — and all of these variables are causally prior to the extent of unionization, entered in equation 3. The variable next entered into the equation is the existence of a personnel department. Gordon and Thal-Larsen (1969), among others, have argued that whether or not a firm has a personnel department is largely determined by its size and the extent of unionization. Finally, the last equation enters the variable measuring the extensiveness of the establishment's internal labor market practices. Doeringer and Piore (1971) and Pfeffer and Cohen (1984) have both argued that ILM practices are the result of factors such as size, unionization, technological change, industry sector, and the presence of a personnel department to manage ILM practices.

While we view this causal order as the most plausible, it is certainly not the only possible causal ordering among the independent variables. For instance, it has been argued that ILM practices are the cause of training and technological change, rather than the reverse (Goldberg, 1980). However, the particular causal order is ultimately not critical, since in the final equation, the effects of all variables controlling for the entire set are displayed.

Table 4 displays the results for the equations for overall organizational selectivity, Table 5 for selectivity by specific occupation, Table 6 the results for the use of educational credentials, and Table 7 for the use of written or unwritten tests. The results are fairly consistent across the three dependent variables and across occupations. This suggests that various hiring standards are related and are affected by similar organizational considerations.

As expected by both Collins and the institutionalization perspective, public trust establishments have higher hiring standards than other types of establishments (equation 1). But for the three dependent variables, the effects decline steadily in importance as other variables are added and are not statistically significant in the final equations. The higher selection standards used in public trust establishments are because such organizations are more likely to provide training and in particular are less likely to be unionized ($r = -.58$). Adding unionization to the equation in Table 4 diminishes the positive effect of public trust establishments on selectivity from .16 to .02; in Tables 6 and 7 it changes the coefficient for public trust from .07 and .05 to –.13 and –.11. Thus, controlling for unionization

(and training), public trust establishments have *lower* educational and test requirements than market establishments.

Table 4

Determinants of Organizational Selectivity (Standardized Coefficients)

Variable	Equation (1)	(2)	(3)	(4)	(5)
Ln size	.25•••	.09	.10	–.01	–.03
Core	.05	.02	.02	.01	–.02
Public trust	.25•••	.16•••	.02	.01	.03
Single site	–.18•••	–.15••	–.13••	–.10•	–.08
Technological change		.12••	.11••	.11••	.09•
Outservice training		.12••	.12••	.10•	.10•
Vestibule training		.17•••	.15••	.15••	.14••
On-the-job training		.18•••	.15••	.14••	.13••
Unionization			–.25•••	–.20•••	–.18•••
Personnel department				.28•••	.26•••
ILM practices					.14••
R^2 (adjusted)	.17	.27	.31	.36	.38
F-ratio	14.4•••	12.6•••	13.5•••	15.5•••	14.9•••

•$p<.10$; ••$p<.05$; •••$p<.01$.

Table 5

Determinants of Organizational Selectivity for Selected Occupations

Variable	Managers ($N=238$)	Clerical ($N=266$)	Skilled ($N=213$)	Unskilled ($N=210$)
Ln size	.04	.03	–.03	–.07
Core sector	.03	–.04	–.02	.00
Public trust	.00	–.06	–.01	.01
Single site	.00	–.03	–.04	–.08
Technological change	.06	.07	.10•	.07
Outservice training	.10	.17•••	.04	.04
Vestibule training	.08	.07	.12•	.14••
On-the-job training	.13•	.11•	.10•	.05
Unionization	–.18••	–.22•••	–.21•••	–.22•••
Personnel department	.30•••	.29•••	.25•••	.26•••
ILM practices	.00	.09•	.13•	.21•••
R^2 (adjusted)	.30	.36	.31	.31

•$p<.10$; ••$p<.05$; •••$p<.01$.

Table 6

Determinants of Organizational Educational Requirements (Standardized Coefficients)

Variable	Equation (1)	(2)	(3)	(4)	(5)
Ln size	.16••	.06	.07	–.02	–.05
Core	.11•	.08	.08	.08	.04
Public trust	.12•	.07	–.13•	–.13•	–.11
Single site	–.17•••	–.15••	–.12•	–.10	–.06
Technological change		.17•••	.17•••	.16•••	.14••
Outservice training		.09	.10	.08	.08
Vestibule training		.03	.02	.01	.01
On-the-job training		.09	.04	.04	.02
Unionization			–.34•••	–.29•••	–.27•••
Personnel department				.24•••	.21•••
ILM practices					.18•••
R^2 (adjusted)	.08	.12	.19	.23	.25
F-ratio	6.7•••	5.3•••	7.7•••	8.7•••	5.8•••

•$p<.10$; ••$p<.05$; •••$p<.01$.

Table 7

Determinants of Organizational Use of Tests (Standardized Coefficients)

Variable	Equation (1)	(2)	(3)	(4)	(5)
Ln size	.21•••	.05	.06	.00	–.01
Core	.11•	.08	.08	.08	.06
Public trust	.15••	.05	–.11	–.11	–.10
Single site	–.11•	–.08	–.05	–.04	–.02
Technological change		.04	.04	.03	.03
Outservice training		.16••	.17••	.15••	.16••
Vestibule training		.21•••	.20•••	.19•••	.19•••
On-the-job training		.14••	.10	.10	.09
Unionization			–.28•••	–.24•••	–.23•••
Personnel department				.16••	.15••
ILM practices					.08
R^2 (adjusted)	.10	.19	.24	.25	.26
F-ratio	7.8•••	8.4•••	9.7•••	9.6•••	8.9•••

•$p<.10$; ••$p<.05$; •••$p<.01$.

In general the addition of a new variable to a regression equation that results in diminishing the coefficient of an existing variable indicates one of two things: either the added variable (in this case, unionization) mediates the effect of the original variable (in this case, public trust), i.e., the new variable is the mechanism through which the initial effect occurs, or the initial effect was spurious. We believe that in this case the initial effect of public trust was mostly spurious, although one

could argue that forestalling unionization is the mechanism by which public trust organizations impose higher hiring standards. The problem with this argument is that it assumes that market organizations are more sympathetic to unions, or at least do not oppose them as much as public trust organizations, an assumption we find hard to believe. Also viewing (lack of) unionization as a mechanism by which public trust organizations impose hiring standards assumes that the level of unionization in an organization depends only on management decision, which of course, it does not. We conclude, then, that Collins (1979) found an effect of organizational type on the use of credentials because his analysis did not control for other things associated with this categorization.

Being in the industrial core is statistically significant only until the effect of training and technological change are added (Tables 6 and 7). Once other explanatory factors are included, it seems that sectoral location, in terms of the establishment's position in the macroeconomy does not account for selectivity or the use of educational credentials or tests. A more direct test of this theory is presented in Table 8, where the dependent variable is the establishment's emphasis on screening out unstable employees.

Table 8

Determinants of Organizational Emphasis on Workers' Stability (Standardized Coefficients)

Variable	Equation (1)	(2)	(3)	(4)	(5)
Ln size	.04	−.04	−.02	−.10	−.11
Core	.03	.00	.00	.00	−.01
Public trust	−.04	−.11	−.22•••	−.22•••	−.22•••
Single site	−.20•••	−.17••	−.15••	−.13•	−.12•
Technological change		.05	.05	.04	.04
Outservice training		.17••	.17••	.15••	.15••
Vestibule training		.04	.03	.02	.02
On-the-job training		.07	.04	.04	.04
Unionization			−.20•••	−.16••	−.16••
Personnel department				.20•••	.20•••
ILM practices					.04
R^2 (adjusted)	.04	.06	.09	.11	.11
F-ratio	3.5•••	3.1•••	3.6•••	4.2•••	3.8•••

•$p<.10$; ••$p<.05$; •••$p<.01$.

The findings in this table are contrary to the theoretical position taken by writers in the dual economy and dual labor market tradition. That perspective emphasized that there were core firms — large, unionized, in certain industrial sectors — that offered better wages and working conditions and screened heavily on worker traits indicating attachment to the labor force. The results in Table 8 indicate that being in the core sector is unrelated to screening on stability. Furthermore, being unionized, a single-site establishment, and a large organization — characteristics of core establishments — are

associated with *less* screening on stability traits. Taken together, the results do not lend much support to either version of the control perspective.

The results are almost as inconsistent with the institutionalization perspective as with the control perspective. This is in part because both perspectives expect an effect of public trust on hiring. Institutionalization also expected effects of establishment size and of being a single-site organization. Large establishments do have higher selection standards than smaller ones, but this is because large establishments are more likely to provide training and undergo technological change. Single-site establishments are less selective and are less likely to use tests or educational credentials. In the case of both education and tests, the effect of being a single site becomes insignificant almost immediately when other organizational attributes are added. However, in the case of overall selectivity, the effect remains statistically significant, though it diminishes in magnitude until presence of internal labor market practices is added to the equation. The absence of ILM practices, such as promotion from within, as well as less training and the effects of not having a personnel department help to account for the difference in selection criteria between single-site and other establishments.

The results seem more consistent with the technical and political perpectives. As shown in Tables 4, 5, 6, and 7, training affects organizational hiring standards, and the coefficients for at least one of the training measures remain statistically significant except in the case of educational credentials. Thus, the more firms train their employees, the more likely they are to use tests and to be selective in their hiring.

Technological change and internal labor market practices increase overall selectivity, educational requirements, and the use of tests, although this latter result is not statistically significant. Recall that some argue that technological change may either increase or decrease skill requirements, depending on the nature of the change and its purposes. This line of argument suggests that more technological change should be associated with greater variation in selectivity. An examination of a graph of selectivity plotted against technological change revealed no tendency for there to be more variation or dispersion in selectivity among establishments that had undertaken more technological change (data not shown). Thus, our conclusion is that the primary effect of technological change is that predicted by the technical perspective: the greater the level of technological change, the more selective are establishments.

As expected by the political perspective, the presence of a personnel department increases and the extent of unionization decreases the use of tests, educational credentials, and overall selectivity. The addition of these variables to the models in Tables 4–7 substantially increases the amount of explained variance. Together with ILM practices, training, and technological change, these variables seem to be the most consequential for understanding organizational hiring standards.

DISCUSSION

The observed pattern of results is most consistent with the technical requirements and organizational power and politics

perspectives and least consistent with the ideas of the institutionalization and control perspectives. As predicted by the technical perspective, there are positive effects of all three kinds of training and technological change on organizational selectivity, as well as a positive effect of internal labor market practices. As expected by the organizational political interests approach, there is a positive effect of having a personnel department, a negative effect of the percentage of the workforce covered by collective bargaining, and a negative effect of being a single site, although this latter effect is not statistically significant once internal labor market practices are added to the equation. Note that although the positive effect of the personnel department is, in part, consistent with the technical explanation for hiring standards, its effect should not be evident once factors presumably causing hiring standards, such as technological change and training, are statistically controlled. The fact that there are no effects of being a public trust establishment, of being in the core sector, and of size once other factors are controlled is inconsistent with the earlier results reported by Collins as well as with the predictions of theories that have emphasized the effect of sectoral location (either core or in an institutionalized place in the economy) on the organization of the employment relationship. Thus, while it is plausible that organizations use test scores, education, and worker traits as signals of potential organizational loyalty, the differential use of these hiring standards stems from the ability of organizations to impose them more than from some functional need for loyalty or control.

The results suggest that technical requirements and organizational arrangements affecting the relative potency and existence of interests act together to determine hiring standards and that these effects operate at least in part at the establishment level of analysis. It is, in some sense, not surprising that neither technical factors nor power relations are determinative by themselves. On the one hand, the technology of the workplace does determine the general level of personnel needed to operate that technology and imposes a constraint on the ability of interests either to push for more selective hiring or to resist imposing criteria for employees. On the other hand, the presence of organized interests that want standards imposed either to increase their own power and role in the organization or because such standards are consistent with professional role-derived beliefs about how things should be done, or interests that resist the imposition of such standards because of threats to their position, clearly affect the policies and practices that emerge. Because such interests are organized and present at the establishment level, and because technology and technical complexity also may affect a number of positions, it is scarcely surprising that such factors seem to have general effects at the establishment level of analysis. What emerges from the analysis is a picture of hiring standards being determined by the interplay of technical and political forces, a picture quite consistent with that found for the determinants of internal labor market practices (Pfeffer and Cohen, 1984).

The implications of this analysis for some public policy issues are interesting. Attempts are often made to forecast training requirements and the number of educated workers that will be

needed on the basis of changes in technology. What the present analysis suggests is that such forecasts are more likely to be correct if they incorporate the predicted existence and potency of groups that have interests in hiring standards, as well as predictions of how work will be organized. This is because training requirements are set by more than the technical requirements of specific jobs. They are affected by the general technical nature of work being done in the establishment as a whole, as well as by the presence of personnel functionaries and the degree of unionization, at a minimum. To the extent that the long-term trends of declining unionization and the growth in the numbers and importance of personnel departments in U.S. firms continue, it is likely that hiring standards will increase at a higher rate than that dictated solely by the level of technological change.

On a broader level, these analyses indicate that it is feasible to use organizational theories to account for dimensions of the organization of the employment relationship. The formulations were able to account for a fair amount of the variation in hiring standards across organizations, though substantial variance remains to be explained. As important as the statistical results is the exercise of beginning to apply organization theory to employment issues. For too long, technocratic, economic explanations of the organization of work have been allowed to go unchallenged by alternative perspectives. And when they were finally challenged by radical theories emphasizing control considerations, organizational features were again neglected. In both instances, the dimensions of the employment relationship, such as hiring standards, are presumed to serve some function, in one case solving skill-requirement problems, in the other, problems of control. The perspective developed here emphasizes organizational arrangements and, in particular, considerations of power and control, to account for dimensions of the employment relationship by looking at the desires of various organizational interests and their relative ability to enforce their preferences. No assumptions are made that the arrangements that emerge from this push and pull of interests and demands necessarily serve some overarching purpose. We suggest that this approach is much truer to the perspective of organizations as coalitions of interests and to the institutional features of organizations. In any event, it is only by developing predictions from a number of perspectives and testing them with the relevant data that we will begin both to sharpen the theories and to advance our understanding of these critical organizational features.

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APPENDIX: Reliability Analyses

Item	Corrected item total correlation	Alpha if item deleted
1. Use of Tests Scale (scale mean = 2.88; variance = 7.69; 8 variables; alpha = .89)		
If use tests for:		
Professional/managerial	.68	.87
Managers & officials	.66	.88
Clerical workers	.56	.89
Sales people	.67	.88
Skilled workers	.65	.88
Semiskilled workers	.68	.87
Unskilled workers	.72	.87
Service workers	.70	.87
2. Educational Credentials Scale (scale mean = 5.33; variance = 12.26; 11 variables; alpha = .89)		
College degree required for:		
Professionals	.51	.89
Technical workers	.44	.89
Managers	.42	.89
High school degree required for:		
Supervisors	.68	.88
Clerical workers	.67	.88
Sales people	.73	.87
Skilled workers	.78	.87
Foremen	.77	.87
Semiskilled workers	.70	.87
Unskilled workers	.55	.88
Service workers	.50	.89
3. Age Limits Scale (scale mean = 3.81; variance = 14.08; 8 variables; alpha = .98)		
Maximum age limit in hiring:		
Professionals	.89	.98
Managers	.92	.98
Clerical workers	.94	.98
Sales people	.86	.98
Skilled workers	.90	.98
Semiskilled workers	.93	.98
Unskilled workers	.93	.98
Service workers	.94	.98
4. Stability Scale (scale mean = 1.35; variance = .92; 3 variables; alpha = .48)		
Marked reluctance to hire:		
Unemployed	.32	.34
Job hoppers	.39	.22
People who commute long distances	.20	.54

5. Overall Selectivity Scale (scale mean = 3.04; variance = 1.22; 5 variables; alpha = .55)		
If there is a probationary period	.22	.55
If police record bars hiring	.29	.51
Use of tests	.38	.46
Educational credentials	.41	.45
Age limits	.31	.52
6. Technological Change Scale (scale mean = 2.62; variance = 3.54; 7 variables; alpha = .72)		
If built a new plant	.26	.73
If remodeled plant	.57	.64
If installed new equipment	.47	.67
If modernized equipment	.52	.66
If significantly changed internal operations	.42	.68
If eliminated inefficient arrangements	.41	.69
If changed materials used in production	.33	.70