JOB TRAINING AND RETRAINING IN THE U. S. LABOR MARKET

I

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Introduction

This paper describes current job training practices in the United States. After Clinton's Administration was established, Professor Reich of Harvard University became labor secretary. He pointed out the necessity of job training especially for young workers and newly graduating students who are going into the job market. In order for young people who want a better job to acquire new technology to meet current job requirements, they need to be trained and be educated properly.

According to a report of the U. S. department of labor, formal job programs are provided by one-fifth of establishments, totaling more than two-thirds of all U. S. workers. Hypotheses about the factors related to organizational training efforts were drawn from three major theoretical perspectives—human capital, credential-training, and structural/institutional theories—and prior empirical research findings.

Organizations have different ideas about job training when it comes to who pays the training costs. If training is deemed beneficial to an organization from that company's point of view, a company wouldn't mind paying the total training cost of company-specific training. However, if it is not beneficial directly, the company would be cautious about paying the total cost especially for general training. Probably the cost would be shared by both the company and its employees in such cases, or else the organization would request the government to support the training program.

Employees or those who are in the job market generally do not mind paying for their future job education and training. Also some governmental organizations will pay supporting money under a subsidy scheme. Workers are keen on paying for their own individual technology acquisition in areas of high technology such as computer, biotechnology and new materials related skills/knowledge. Training is a central component in programs and policies to eliminate illiteracy, improve numeracy, reduce poverty, retool displaced workers, improve technical proficiency, and impart social skills to both workers and managers.

Private-sector training programs are an estimated $210 billion annual enterprise, about $30 billion of which is spent on formal training programs (Carnevale et al. 1990, p23). The formal programs reach some eight million students each year (Eurich 1985). A review of three major surveys reveals that between 10-15% of workers have received formal training from their current employers (Brown 1990). Despite a thriving applied commerce in training programs, most of the

evidence on program effectiveness appears to be based on case studies and nonsystematic anecdotes (Carnevale et al. 1990).

Economists and sociologists tend to focus on different aspects when analyzing complex production processes, overlooking the fact that participants in work organizations engage both in producing goods and in learning skills (Rosen 1979).

Economic production is a joint function of workers and their employers. New job applicants come into the labor market with skills acquired through prior general training (usually in secondary school or vocational education), and through prior part or full-time employment experiences. Employing firms evaluate the applicant pool for candidates' potential contributions to organizational performance. Subsequent to hiring, both the new workers and their employers make further skill invesments through informal on-the-job work experiences and formal training programs, with expectations of mutual positive returns in the form of increased personal rewards and firm productivity. The three main theoretical explanations of these processes are the human capital, credential-screening, and structural/institutional approaches.

This paper examines job training in U. S. organizations, using a representative sample of establishments encompassing both private and public sector employers. It also covers job training of Japanese firms operating in the U. S. in the form of joint venture businesses or in the form of wholly owned subsidiaries. One of these is TMM (Toyota Motor Manufacturing) and the second is Idemitsu Lubricants

CORRELATIONS, MEANS, AND STANDARD DEVIATIONS of INDEPENDENT VARIABLES

VARIABLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Size (Log)	1.00																											
2. Small Parent	.27	1.00																										
3. Large Parent	.21	-.08	1.00																									
4. Agric-Mining	.03	-.05	-.04	1.00																								
5. Construction	-.15	-.08	-.12	-.07	1.00																							
6. Manufacturing	.10	-.03	.04	-.05	-.11	1.00																						
7. Transportation	.12	-.01	.06	-.04	-.09	-.06	1.00																					
8. Wholesale	-.02	.23	-.05	-.03	-.08	-.05	-.04	1.00																				
9. Retail	.17	.06	.10	-.06	-.15	-.09	-.08	-.07	1.00																			
10. FIRE	.02	-.02	.16	-.06	-.14	-.09	-.07	-.06	-.11	1.00																		
11. Business Serv	-.17	-.04	-.16	-.10	-.24	-.15	-.13	-.11	-.20	-.18	1.00																	
12. Professional	.01	-.03	-.05	-.08	-.20	-.13	-.11	-.09	-.17	-.16	-.28	1.00																
13. Public Admin	.08	.11	.24	-.04	-.08	-.05	-.04	-.04	-.07	-.07	-.12	-.10	1.00															
14. Percent Women	.03	-.04	.10	-.12	-.35	-.15	-.13	-.17	.00	.03	.16	.36	.10	1.00														
15. Percent White	-.07	-.03	.02	.05	-.00	.03	-.01	.07	-.03	-.06	-.11	.11	.02	-.06	1.00													
16. Departments	.37	.04	.09	-.04	-.08	.04	.05	.03	-.03	.06	-.13	.02	.26	.08	.04	1.00												
17. Formalization	.57	.33	.42	-.05	-.16	-.08	.17	.05	.08	.08	-.20	-.04	.28	-.01	.00	.36	1.00											
18. Levels	.44	.12	.10	-.01	-.11	-.11	.09	.17	.03	.08	-.13	.19	.07	.10	-.01	.21	.29	1.00										
19. Decentralization	.11	-.30	-.39	.05	.10	.02	.02	.05	-.16	.03	.13	.02	-.29	.03	-.06	-.00	-.26	.05	1.00									
20. FILMs	.66	.32	.40	-.03	-.08	.08	.02	.06	-.16	.02	.13	-.00	.04	-.01	-.02	.22	.59	.33	-.08	1.00								
21. Percent Union	.10	-.00	.17	-.10	.30	.12	.46	.01	.06	.18	-.17	-.04	.27	-.18	.06	.11	.26	.01	-.34	.06	1.00							
22. Market Compet.	.09	.06	.04	.11	.14	-.02	-.06	-.09	.16	-.17	-.31	-.11	-.02	-.08	.02	.07	.09	.02	.01	-.11	.11	1.00						
23. Foreign Compet	-.02	-.04	.06	-.02	.12	.23	-.11	.16	.18	.04	-.14	-.08	-.00	-.10	-.07	.09	.04	.05	-.07	.01	.05	.19	1.00					
24. Uncertainty	-.02	-.06	.03	-.08	.02	.09	-.06	.18	-.07	-.00	-.08	-.09	-.10	.05	.10	.04	-.05	-.10	.13	-.00	.02	.13	.09	1.00				
25. Complexity	.25	.16	.14	-.02	-.11	.12	-.02	-.07	.11	.11	-.04	-.04	.08	-.04	.14	.10	.23	.10	-.04	.06	.33	.08	.19	.23	1.00			
26. Other Problems	-.30	-.19	-.24	.00	.10	-.08	.09	-.01	-.01	.16	-.12	-.01	.01	-.12	.00	-.04	-.37	-.15	.04	.05	-.39	-.13	.08	-.19	-.31	1.00		
27. Employee Probs	-.23	-.10	-.09	.04	-.06	-.13	.10	.01	.01	-.21	.04	-.06	.08	.01	-.02	-.10	-.21	-.11	.00	-.01	-.30	-.06	-.27	-.11	-.25	.49	1.00	
28. Institutional	.35	.12	.17	-.07	.09	.01	.05	-.13	.05	-.03	.20	.04	.11	.06	-.01	.19	.34	.10	-.05	.14	.25	.10	.10	.01	.09	-.15	-.27	1.00
Means	.83	.06	.08	.02	.14	.06	.04	.03	.10	.09	.24	.18	.03	46.58	88.22	.28	2.01	2.21	1.91	11.66	-1.13	3.21	1.56	.80	1.55	2.59	2.61	1.23
Standard Devs	1.13	.24	.28	.16	.35	.24	.20	.18	.31	.29	.43	.39	.19	42.26	28.03	.97	2.52	2.90	.29	14.31	.66	.74	.79	.74	1.04	.41	.35	1.13

Company, Appolo America. The theoretical bases of the inquiry lie in human capital theory, which emphasizes marginal productivity principles of investment; in credential-screening concepts, which highlight employer demands for quality labor; and in institutional analyses of work, which stress structural components of markets and organizations. Our approach does not pose these theoretical orientations as mutually exclusive alternatives, but seeks instead to draw useful insights from each perspective to guide a comprehensive analysis of employer-provided training. To accomplish such a theoretical synthesis, detailed attention must be paid to workers' resources, organizational and industrial characteristics, and the processes by which employers match workers to jobs. Information on these areas is drawn from (Granovetter 1998; Lang and Dickens 1988).

Section I deals with the three different categories of training and retraining. Section II presents research and analysis based on real data. The rest of this paper will appear in the next journal. Section III will investigate the training and retraining focusing on frequency of re-training, seriousness of the re-training strategies and employee age, future expenditures on training and re-training, how training budgets are spent and changes in office and production areas. Section IV will show two pilot examples of Japanese firms operating in the U. S. in the next coming journal. Conclusion of this first preliminary result comes finally.

Section I.

Human Capital Investment. As initially proposed by labor eco-

nomists (Schultz 1963; Becker 1964; Mincer 1974; Blaug 1976), human capital theory emphasized the supply of worker characteristics without explicity taking into account employers' labor demands. In this respect, the human capital approach shared much with the status attainment perspective in sociology (Blau and Duncan 1967; Featherman and Hauser 1978). As Horan (1978, p. 538) noted, both theories rested on the "functionalist conception of social structure in which social positions are conceived of as levels of performance, which are differentially evaluated and required within a competitive market situation." The main difference between the two traditions was that human capital theory tended to focus on earnings, while the early status attainment literature stressed occupational outcomes (Sørensen 1975, p. 340). Most status attainment analysts used the Duncan Socioeconomic Status Index (SEI), which combines aggregate occupational incomes and educations. Thus, the status attainment approach in a very meaningful sense also examines economic stratification.

As its core proposition, human capital theory proposed that rational workers invest in personal productive capacities in order to maximize their lifetime expected earnings (more generally, their status attainments). Activities that increase productive skills—formal education, job searching, work experience, training, health—are rewarded with higher income. The importance of pre-employment formal schooling lies in its presumed enhancement of a potential worker's productivity, which is preferred by employers. Such general human capital skills as literacy, numeracy, and punctuality can be readily transferred among many jobs. The role of post-employment training, however, is a "question...that continues to haunt the human-capital research

program" (Blaug 1976, p. 840).

Investments in human capital after leaving formal schooling take two basic forms: (1) informal work experience, such as learning-by-doing on the job, including coaching by co-workers and monitoring by supervisors; and (2) formal training programs, in which explicit instructions are given apart from productive tasks, whether conducted on- or off-site. How much and what kinds of job training occur are functions of the worker's marginal productivity at equilibrium. The basic equation (Becker 1964, p. 11) at time $t = 0$ before any formal training occur is:

$$MP_0 + G = W_0 + C$$

where MP_0 is the worker's current marginal productivity; G is the firm's future income return for providing the training; W_0 is the worker's current wage; and C is the sum of training costs and opportunity costs arising from time spent in training. Thus, a rational firm can be induced to provide job training only when it expects to capture sufficient worker marginal productivity gains to offset its training costs. Employers cannot reap any gains from general training, because wages will rise in a competitive labor market by the same amount as the worker's marginal product. Because a worker's enhanced productivity allows him or her to quit for a higher-paying job elsewhere, the firm thus would lose its investment in that worker. A major conclusion from the human capital approach is that firms will provide general job training to an employee "only if they [employers] did not have to pay any of the costs" (Becker 1964, p. 12). Therefore, a

trainee must bear the entire costs of general training, by accepting lower wages during the training period. (i. e., $W_0 = MP_0 - C$). The inducement to accept this training wage-cut is the worker's expectation of subsequently earning much higher wages through her or his greatly enhanced productivity (Farkas et al. 1988, p. 108). In effect, firms "sell" general training to workers by inducing them to accept initially lower wages than available elsewhere, but later paying increased wages to reward their employees' improved performance. This hypothesis is consistent with evidence from cross-sectional concave age-earnings profiles (Murphy and Welch 1990).

In contrast to general training, specific training increases the productivity of workers only within the firm that provides it (Becker 1964, p. 18). Because firm-specific skills and knowledge (for example, operating a unique machine or serving a special clientele) are useless elsewhere, workers have less incentive to quit but also little reason to pay the training costs. Firms are willing to pay for specific training, discounted for long-run equilibrium, because larger profits will result from their specially trained workers' increased marginal productivity. To assure lower turnover, employers also should be willing to pay higher post-training wages, in effect providing employees with some return on their training investments. Thus, wage increase and job quits decrease with length of time in the firm, assuming that the amount of specific training is proportional to tenure with an employer (Farkas et al. 1988, p. 108). In situations where workers receive a mix of both general and specific training, "the fraction of costs paid by firms would be inversely related to the importance of the general component, or positively related to the specificity of the training"

(Becker 1964, p. 23).

Whether or not employers can reap gains from their provision of general training depends on supply and demand features of labor markets. Empirically separating an employee's firm-specific skills from his or her general skills is very difficult. Consequently, assessing the human capital assertion that company training tends predominantly to be firm-specific may be unresolvable. Companies' willingness to invest in their employees' general training may vary with such factors as prevailing societal norms, workers' mobility aspirations, labor market tightness.

Credential-Screening. These principles, which also include market signaling concepts (Spence 1974), emphasize the demand-side characteristics of employers' recruitment practices (Berg 1970; Stiglitz; 1975 Jencks et al. 1979; Collins 1979). Firms face pools of applicants with uncertain abilities, from which they must make new hires. Selections are based on assessing available information about probable worker qualities and the likelihood of remaining employed long enough to repay any investments in informal work experience and formal job training. Because monitoring an applicant to ascertain her or his actual ability or performance is costly, firms use the applicant's formal schooling credentials and their attributes as a signal of general skill level (cognitive learning, social competence, and motivation to persist on task). In the strong screening version (Blaug 1976), firms resort to formal schooling credentials as an indicator of the applicant's pre-existing abilities, even if the candidate's educational experiences did nothing to enhance her or his productive capacity. Status attainment analysts implicity assumed that schooling makes indi-

viduals more productive and hirable, as did "cultural capital" speculations (DiMaggio 1982). In effect, schools serve as efficient sorters of students, identifying and certifying the aptitudes and abilities most desired by employers. Thus, the well-known positive relationship between education and earnings results from firms' signals to the labor market that applicants presenting higher educational qualifications will receive higher-paid employment.

In weaker screening versions, employers treat an educational certificate as a signal about an applicant's potential productivity for jobs that require further specialized training within the firm. Rather than testifying to acquired job-relevant abilities, a certificate signifies a holder's latent aptitudes for obtaining such skills under the employer's tutelage. For example, Thurow's (1975) job-competition model consists of a labor queue in which job applicants are lined up by the firm according to their perceived trainability potential. Formal education credentials serve as indirect evidence of "absorptive capacity" (p. 88), even if no relevant cognitive skills were learned in school. The farther a student has persisted with formal schooling, the more likely she or he is to be compliant in order-taking, punctuality, test-taking, and stick-to-itivity. Such candidates will stand higher in the firm's queue as preferred low-training cost applicants. The screening principle can be generalized to other attributes believed to signal productivity. Thus, employers often interpret applicants' genders and races as indirect evidence of their potential trainability and labor force persistence. "Statistical discrimination" results when employers reduce their risk of hiring some unstable or untrainable employees by using such visible attributes as screening devices, thereby attributing

to all workers their category's average traits (Thurow 1975, pp. 170-180).

Credentialism seems most pertinent to the hiring decision, where limited information is available about the productivity and trainability of prospective workers. Bills (1988) argued that credentials are used mainly to get a foot in the door, after which other evidence becomes more relevant to promotions and wage increases. Subsequent to hiring, firms use a probationary period in which they directly observe a new recruit's performance (Barron et al. 1987, p. 78). This close monitoring allows for more relevant assessments of how well the new worker fits the initial job. Supervisors make post-hire appraisals about the recruit's social skills and learning capacity, evaluating her or his potential for productivity enhancement through various employer training programs. Only workers judged to possess higher ability will be retained in the firm's workforce beyond the probationary period. However, the demand for high-quality labor varies not only among organizations but within organizations as well. The costs of monitoring, evaluating, training, and placing qualified workers can be expected to vary substantially across the range of firms in the economy. Various institutional mechanisms have arisen to deal with uncertainty inherent in the internal screening process.

Structural/Institutional Approaches. The "new structuralism" in the sociology of work emphasizes the role of work structures and economic institutions (organizations, industries, classes) in the generation of inequality (Baron and Bielby 1980; Kalleberg and Berg 1987; Marini 1989; Hachen 1990). These elements include "normative and coercive factors" (Bridges and Villemez 1991, p. 748)—such as union

power, establishment size, occupational systems, extent of government employment, and discrimination—which may facilitate or constrain opportunities for individual wage and occupational prestige attainments. The primary determinants of individual inequalities lie not so much in personal resources, as in access to bureaucratic employment systems, specialized job markets, and socially embedded organizations, industries, and occupational communities (Lorence 1987, p. 240; Baron and Bielby 1984; Granovetter 1985). These complex work contexts constitute explicit and implicit rules and regulations that shape the opportunities and rewards available to both employees and employers. Thus, structures and institutions may have direct effects on outcomes, as well as conditioning the impact of human capital and screening attributes. For example, some work contexts require greater skills regardless of individuals' human capital and other attributes. Combining institutional concepts with supply- and demand-side principles yields a synthesis that explains how workers are matched to their jobs and when further training will occur (Granovetter 1981; Garen 1988).

The job-matching process extends beyond the initial screening/ hiring phase at which formal credentials may loom largest. During the post-hiring period, the organization's labor demands grow increasingly important. Upon entering a new job, neither the recruit nor the employer knows whether this initial match will prove mutually productive and rewarding, given the nonspecific nature of the human capital clues used in making the hire.

Competencies and compatibilities are only revealed during the

probationary period, as the firm and the worker update their information about one another. The recruit must decide whether the job and career prospects seem sufficiently rewarding to stay with the firm, or whether a search for alternatives (including leaving the labor force) would be more advantageous. The firm also must decide whether the new recruit is sufficiently reliable in the first job to warrant retention, and whether additional training (general and/or specific) could enhance her or his future performance. Thus, probation involves joint sorting processes that over time increase the complementarity between jobs and their workers. Ill-matched workers are selected out by receiving below-market benefits so that they eventually quit to find work elsewhere. Well-matched workers are retained by employers, who make firm-specific training decisions on the basis of continually updated information. To retain and induce quality effort from their most productive workers, firms design their reward policies (wages/ benefits, training programs, and promotion opportunities) so that benefits rise with increasing tenure (Cothren 1991). The match between workers' experience- and training-acquired competencies and specific jobs are also improved by promotion trajectories within firm internal labor markets (FILMs).[1] Earnings, fringe benefits, and pensions increase with promotions, both because of higher worker pro-

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1) Althauser and Kalleberg (1981, p. 130) defined an internal labor market "any cluster of jobs, regardless of occupational titles or employing organizations, 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 and skills". In a FILM, employers control system, in contrast to occupational internal labor markets (OILMs), which are controlled by the people holding the jobs, See also discussions of FILMs ey Osterman (1984); White and Althauser (1984); and Althauser (1989).

ductivity and because above-market inducements are necessary to prevent other firms from raiding the skilled workforce. Objectively better working conditions (which are subjectively reflected in higher job satisfaction and organizational commitment) serve as similar nonpecuniary rewards. The institutional structures and processes involved in matching workers to jobs over their careers do not operate uniformly across a highly differentiated economy, but are localized in various niches. Thus, some industries are likely to develop elaborate FILMs and compensation packages to attract and retain a highly qualified workforce (the Polaroid strategy), while others seek mainly to replenish a rapidly turned-over workforce with new raw recruits (the McDonald's solution). Similarly, some firms collaborate with their employees unions, while others resist their incursions onto the shop floor. Structural analysts grapple with basic explanations for where, when, and how such differentiation arises, as well as the processes by which workers are sorted into these slots.

Sociologists and economists continue to debate the existence of dual or otherwise segmented labor markets (see Hodson and Kaufman 1982; Hanson et al. 1987; and Dickens and Lang 1988, for reviews of the now voluminous literature). While it is beyond this paper's capacity to adjudicate between proponents of single, dual, and multiple segments, that controversy draws attention to the importance of identifying industrial sectors whose firms are more likely to make extensive employee training investments. For example, Boston (1990) found higher levels of company and school training in primary labor markets (see also Cohen and Pfeffer 1984). A critical factor appears to be the ratio of capital to labor in an industry (Hudson and Kaufman

1982; Lang and Dickens 1988). More capital-intensive enterprises, such as manufacturing companies, have less volatile demands for labor and hence are better able to recoup their long-term investments in firm-specific job training. Capital-intensive firms tend to pay better wages (feasible through their location in monopoly and oligopolistic product markets) in order to avoid shirking, absenteeism, and turnover that could threaten their large stocks of sophisticated fixed capital. Better wages, fringe benefits, and working conditions attract more stable and productive applicants. The extensive training provided by these sectors creates a skilled workforce, which can then be compensated from the profits their enhanced productivity helps to generate. In addition, once a well-paid and highly skilled workforce has been assembled, firms use de facto lifetime employment contracts and FILMs to minimize layoffs and voluntary quits.

The institutional perspective explicitly emphasizes extra-organizational processes that induce great uniformity of organizing activity (Powell and DiMaggio 1991). Scott and Meyer (1991) used institutionalism to generate a series of hypotheses about the likelihood that modern organizations will offer formal training of one type or another. They argued that organizations tend to copy generally valued models of employee instruction that are only loosely linked to firm-specific tasks and purposes, with loose controls and evaluation systems that are "in many respects directly analogous to the operation of the traditional education system" (1991, p. 322). Historically, company educational opportunities became diffused and legitimated in many employment contexts as part of a generally expanding "organizational citizenship" (Monahan et al. 1992). Social forces ranging from

specific task performance demands to political control requirements and general societal pressures for developing participants' skills have become so pervasive that many training forms and processes "seem reasonable and appropriate in all sorts of organizational contexts and not just in those to which the original justifications and explanations most forcefully applied" (Scott and Meyer 1991, p. 322). Where such institutionalization is most entrenched, firms' conformity to external training norms will be strongest.

Section II

JOB TRAINING RESEARCH

As a prelude to formulating testable hypotheses, this section examines the scant empirical evidence on firm job training efforts. Data come from studies of workers and employers.

Evidence from Employee Surveys. Almost all the empirical evidence about employers' job training efforts comes from studies of the consequences for employees, especially their post-training wages (Brown 1990). The primary data sources are labor force surveys—the Panel Study of Income Dynamics (PSID), the Current Population Survey (CPS), and the National Longitudinal Survey (NLS)—in which self-reported training experiences comprise only a small portion of a broader inquiry into worker behaviors. Some surveys have only imprecise measures of training. As an item commonly used to elicit information on skill levels (i.e., training time), the PSID asked, "On a job like yours, how long would it take the average person to become fully qualified ?" Subtracting a respondent's response from her or his accumulated time in the job yields an implicit measure of the amount

of training received to the current job (e.g., Duncan and Hoffman 1979). But, that item does not separate formal training in company programs from informal learning while working, nor does it distinguish whether some training relevant to the current job had been acquired from a previous employer. Similarly, the CPS has variously asked: "What training was needed to get the current or last job and what training is needed to improve skills on the current job ?" (Pergamit and Shack-Marquez 1986); and "Did you need specific skills or training to obtain your current (last) job ?" (Boston 1990). Again, neither approach clearly identifies the sources of any training that a respondent may have obtained.

The NLS Youth Cohort annual panels, begun in 1979, created "some of the most comprehensive data available on private-sector training" (Lynch 1991, p. 153). For as many as three training programs per year, respondents were asked the starting and leaving dates (months), hours per week, type of occupation, and whether they had completed the program. In 1982-84 and 1987-89, items also were included about who encouraged the training; reasons why the respondent enrolled (e.g., high pay, interesting program, job-related); whether it was tied to a current or prospective job; whether it occurred on or off the work-site; and who paid for it. Table 1 summarizes the extent of new nongovernmental and nonmilitary training experiences just for the respondents' first jobs held since the previous interview (the 1987 and 1988 figures are averages for the preceding years, because no training data were collected at the 1987 NLS panel). Each year, about 10 per cent of the sample reported starting a new training program, with about three-quarters lasting beyond a month (although

Table 1. Training Experiences for First Job Only in Annual National Longitudinal Surveys Youth Cohort (percentages)

	1979	1980	1981	1982	1983	1984	1985	1986	1987[a]	1988[a]	1989
Any Training Since Last Interview	8.3	9.2	8.8	9.6	9.7	9.5	9.3	10.3	11.4	11.4	14.6
Training of More Than a Month	7.6	6.8	6.1	6.7	6.5	5.7	5.4	6.8	–	–	–
Company Training	1.2	1.3	1.2	1.3	1.6	1.9	1.4	2.1	3.8	3.8	6.2
Apprenticeship	0.6	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.9
Vocational-Technical Institute	4.5	3.7	3.1	3.4	2.8	2.0	2.0	2.2	1.8	1.8	1.5
All Other Training Programs	3.0	3.2	3.0	3.7	3.7	3.1	2.7	3.6	2.1	2.1	2.9
Seminars/Training at/outside Work	–	–	–	–	–	–	–	–	3.1	3.1	5.5
(N)	(12,686)	(12,141)	(12,195)	(12,123)	(12,221)	(12,069)	(10,894)	(10,655)	(10,485)	(10,465)	(10,605)

[a] No training items were asked in the 1987 interview; the 1988 percentages are averages for each of the preceding two years.

SOURCE: NLSY Annual Codebooks

not necessarily full-time). "Company training" accounted for about one-fifth of all responses during the cohort's first eight years. "Vocational or technical institutes" were the largest single source, with apprenticeship and six other categories (e.g., business colleges, nursing, barber-beauty, correspondence schools) comprising the remainder. However, beginning with the 1988 interviews (which also covered the preceding year), company-provided training increased dramatically, to account for one-third or more of all training activities. Two new reponse categories—"seminars or training programs at work not run by the employer" and "seminars or training programs outside of work"— together accounted for another third of participation. Respondents also reported that their employers paid for about two-thirds of all training in this latter period. Clearly, the cumulative experience of employer-supplied training comprises a substantial proportion of the post-school instruction for these young workers. These NLS rates lead to much higher estimates of cumulative company training than the 10-15% levels cited by earlier surveys (Brown 1990).

Several studies indicated that larger organizations provide more formal and informal training (Cohen and Pfeffer 1986, p. 14; Barron et al. 1987, p. 82; Kruse 1992), although the relationship might be curvilinear (Brown et al. 1990, pp. 54-55). (However see Schiller [1983], who argued that small employers train a disproportionate share of the younger workers, who then are hired away by larger firms.) Larger organizations enjoy economies of scale, technological specialization, and sufficient (slack) resources to release more employees from current production during working hours to acquire additional job skills intended to enhance their future productivity. Cit-

ing Bishop (1982), Carnevale et al. (1990, p. 42) concluded that "employees in small businesses tend to get less training and the training they do receive tends to be in more concentrated categories." Further, larger firms also pay a larger proportion of their employees' training costs both inside and outside the workplace, for example, at universities or vocational-technical institues.

Job training of women is a much-neglected topic, with the notable exception of low-income government training programs. A few studies found women receive less formal and informal training than men (Duncan and Hoffman 1979; Taylor 1985; Greenhalgh and Stewart 1987; Gronau 1988; Boston 1990; Lynch 1991; Kalleberg 1992). The differential seems to stem from employers' perceptions that their investments are less likely to be recaptured in future productivity because women are believed to have weaker labor force attachments. Exits for child-rearing reduce the value of human capital investments through the depreciation of skills and less acquisition of additional human capital, although such deficits can be more easily repaired than new human capital obtained (Mincer and Polachek 1974). This statistical discrimination by employers implies substantial gender biases in training experience.

Like gender, racial and ethnic differences in job training suffers from research neglect. Minorities are seen as especially requiring compensatory job training under equal employment and affirmative action policies to bolster human capital. Yet, except for low-income government training programs, most studies found that employers provide blacks with less formal and informal training than whites

(Duncan and Hoffman 1979; Taylor 1985; Blank 1989; Boston 1990). No research has been done on company training of Hispanics.

The impact of unions on job training reflects workers' collective power to shape their employers' behavior (Kalleberg et al. 1981). To limit outside hiring union contracts often stipulate that job training vacancies must be filled by order of seniority. This constraint reduces both organizations' and workers' incentives to engage in general training, since enhanced marginal productivity is not used to select candidates, thus resulting in less training within unionized firms (Mincer 1983; Gronau 1988). In addition, given the lower quit rates among union members, organizations need to rely less on firm-specific training to lock workers into their jobs. Union emphasis on stable pay differentials within firms and between industries should also further discourage provision of training to a firm's nonunionized workers (Duncan and Stafford 1980). However, where job training of union members is written into a collective bargaining agreement, its expenses are likely to be paid by the firm (Ferman et al., 1990).

Evidence from Employer Surveys. In contrast to surveys asking employees about their training experiences, almost no research on company training has been conducted with representative employer samples. For example, Training, a monthly commercial publication for training industry professionals, published the results of its annual surveys since in 1981. But, it typically sent questionnaires to 12,000 firms employing 100 or more workers, drawn from Dun & Bradstreet's directory and the magazine's subscription list. This size restriction effectively eliminated from consideration over half the labor

force and 98 per cent of all employers (see Table 2 below). Even worse, the response rates have been abysmal: only 14% in the 1991 survey (Training Magazine 1991). Similarly, Saari et al. (1998) restricted study of 1,000 for-profit companies to those having at least 1,000 employees, obtaining a 61% response rate. Stephan et al. (1998) obtained a 36% response to a survey of human resources departments in Fortune 500 companies. Monahan et al. (1992) restricted their study of training in 140 Santa Clara County, California, employers to organizations having at least 25 employees. It is impossible to draw conclusions from these study designs about the rates and types of training in the population of all U. S. employers.

The best previous evidence about training efforts by a representative employer sample came from the 1980 and 1982 Employment Opportunity Pilot Project (EOPP) Survey of Firms. Sponsored by the National Institute of Education and National Center for Research in Vocational Education, this panel was administered to 3,400 firms located in 28 areas (10 EOPP sites and 18 comparison sites), concentrated in the South and Midwest with about half in SMSAs. Large and/or low-wage firms were oversampled (Bishop and Kang 1984; Barron et al. 1985; Holzer 1990). Five measures of job training for the most recently hired worker were collected at the second wave: the total number of hours typically spent during the first three months (1) by specially trained personnel providing formal training; (2) by line supervisors and management in formal individualized training and extra supervision; (3) by co-workers away from other tasks providing informal training and supervision; (4) by the new employee watching others do the job; and (5) by company personnel providing job

orientation. Newly hired workers spent a mean of 150 hours (median = 81 hours) in all five kinds of on-the-job training during their first three months. The figure is comparable to Tierney's (1983) estimate of 120 hours of formal training over an unknown interval, based on 1978 CPS data.

Barron, Black, and Lowenstein (1987, 1989) used the EOPP data to test employer size and job matching hypotheses. They confirmed a hypothesized size-effect, linking the probability of each of the five types of training increase with organization size (measured by the log of the number of employees in the area, and by the existence of subsidiaries outside the area). However, the proportion of the workforce unionized did not have significant net effects on any training measure. Used as an independent variable in multiple regression equations, the log of total training hours was positively related to the rate of wage growth, the rate of productivity growth, number of applicants screened, and the amount of time employers spent screening applicants. Holzer (1990) found that hours of formal training, informal training, and co-worker training had significant positive effects on wages, wage growth, productivity, and productivity change scores net of other work experience and personal characteristics.

Evidence on training costs per worker is almost nonexistent. Moser and Seaman (1987) surveyed training managers in five Southwest states in 1983, drawn from the membership roster of a professional society. They found that a majority of the units' budgets was spent on in-house training, primarily for technical training rather than for professional development. Although they reported average

total training expenditures rose from $353, 572 in 1980 to $719, 350 in 1983, they did not indicate per capita costs. Hill (1991) collected firm training cost data in 1983 from Pennsylvania employers who had recently hired persons in seven technical and clerical occupations where post-secondary education was preferred but not required. She found that firms spent an average of $8, 487 to train high-school graduates and $6, 250 to train post-secondary graduates for these jobs, suggesting a one-quarter savings in costs from hiring more credentialed workers. Informal training costs, particularly wages in excess of productivity, were roughly twice the formal training costs. She concluded that, contrary to human capital theory, firms incur substantial general training costs: "They tend to use informal training to provide specific skills and formal training to provide more general skills when training high-school graduates."

In summary, the empirical findings on employer job training practices is spotty. Samples tended to be nonrepresentative of all employing organizations and measures of training activity were often imprecise. Most evidence about firm behavior was indirect, from inference about employers derived from self-reports by employees. Most research has been conducted by labor economists or training professionals predominantly from a human capital theoretical orientation. With the recent availability of a national sample of work establishments, a pivotal opportunity arises to generate better knowledge about employer training activities, from a broader array of theoretical perspectives. The next section discusses a set of testable hypotheses about the sources of employer training programs.

RESEARCH HYPOTHESES

Testable hypotheses about the factors related to organizational training programs were drawn from the three theoretical perspectives and the empirical findings described above. Although the propositions are presented here in bivariate, deteris parivus form, their examination requires a multivariate model for assessing the net explanatory contributions of each factor.

The initial hypothesis considers how organizational size is related to the presence of any job training program and its scope (proportions of employees trained and per-capita amounts of resources expended):

> H1: Larger employers are more likely to provide formal job training programs than are smaller employers.

This size effect occurs both at the establishment (workplace) and at the firm (company or agency) levels of analysis. It arises both because larger organizations have the economies of scale, including slack resources which allow some employees to be diverted from immediate production to training that improves future performance, and because of the diversity of tasks within larger organizations that necessitate more continual upgrading of workforce skills.

However, once such factors as industrial sector, workforce composition, and organizational structure are taken into account, the magnitude of the bivariate size-training relationship is likely to be reduced, if not eliminated altogether. Hence, from the credential-screening pers-

pective, the expected relationship between the social composition of the workforce and training efforts is crucial:

> H2: Employers with workforces that are more white and male provide more training than employers with more extensively minority and female workforces.

Employers are more prone to see women and minorities as less trainable and less reliable employees, and hence as greater risks for skill upgrading. Hence, these types of employees will be placed lower in the training queue.

The structural/institutional approach emphasizes the importance of both internal organizational and external environmental forces on organizational behaviors. First, the more differentiated an establishment into specialized units, the greater its requirements for skilled employees. Hence the more likely is the scope of formal training programs to covary with such structural dimensions as departmentalization, formalization, decentralized decision making and internal labor markets:

> H3: Employers with more complex internal structures provide more training than employers with simple structures.

Because internal structures comprise several dimentions, which may vary in their relationship to skill demands and training, we need to examine their separate effects. For example, less departmentalized organizations may require their workers to perform more diverse

tasks, which necessitates higher levels of skills than required of workers in more departmentalized organizations. Since the various structural components are known to covary with organizational size, simultaneously controlling the size and structural measure will help to disentangle the relative contributions of each to the scope of training.

The external environment affects organizational behavior through the threats and opportunities it presents for collective performance. Where conditions are more calculable, the continual upgrading of workers skills to meet changing productive contingencies is less urgent:

H4: Employers operating in turbulent environments provide more training than employers facing more placid conditions.

Thus, the greater the perceived threat from labor unions, domestic and foreign competitors, difficulties in securing qualified labor, and maintaining effective products and services, the more likely are organizations to respond by attempting to assure their own dependable workforces than to leave things to chance.

To the extent that formal training programs have become legitimated and diffused at differing rates throughout the economy, some organizations face greater social pressures to comform to such standards:

H5: Employers exposed to normative social pressures provide more training than employers insulated from such pressures.

The more embedded an organization is in associations, interest groups, and regulating systems that promote ideologies of organizational citizenship through training, the more prone it is to adopt such practices itself.

Finally, from the human capital perspective, the types of training offered by employers will be aimed mainly at enhancing only those worker skills which can be recaptured in subsequent organizational productivity:

H6: Among employers providing training, more resources will be allocated to firm-specific than to general training programs.

Not only are absolute levels of expenditure greater for firm-specific training, but the probability of specific training rises with the magnitude of training expenditures.

In addition to these a priori hypotheses, we also explore some conditional relationships that involve interactions among three or more variables, specifying how internal and external contexts affect training activity. Because these relationships lack foundation in either theory or prior research, we do not spell out expectations about their form here.

THE DATA AND MEASURES

The National Organization Survey. Data to test the propositions

above came from the 1991 National Organization Study (NOS), a multiplicity sampling of U. S. work establishments conducted by the Survey Research Laboratory at the University of Illinois. The sampling framework for NOS was constructed from information provided by 1,517 respondents in the 1991 General Social Survey (GSS), an area probability sample of the noninstitutionalized U. S. adult population conducted annually by the National Opinion Research Center. Each GSS respondent was asked for the name, address, and phone number of the place where he or she was employed and, if the spouse were working, the same information about the spouse's establishment. The GSS sample reported a total of 1,427 establishments (for 912 respondents and 515 spouses, including duplicates). The Survey Research Laboratory attempted to conduct 45-minute interviews with an informant from each establishment. Usable information was not obtained from 300 organizations because of refusals, ineligibility, or inadequate reports by GSS repondents. Of the remaining 1,127 establishments, interviews were completed with informants from 727, yielding a response rate of 64.5%. Because the GSS cluster sampling procedures tended to pick up several employees of the same organization, 33 of these organizations were duplicates, leaving 694 unique establishments. Typical informants were the organizations' personnel directors, owners or chief managers (564 responded by phone and 130 by mail questionnaire). For more details on NOS data collection procedures, see Spaeth and O'Rourke (1992).

The NOS questionnaire sought data on many of the organization's human resources policies and practices, including: the establishment's legal form; its workforce size and composition; its core product or ser-

vice; the numbers and types of workers in the core production occupation, in management, and in the occupation of the GSS respondent; procedures for recruiting, training, and promoting employees; fringe benefits and child-care provisions; occupational earnings and criteria; establishment departmentalization, formalization, and centralization; recent productivity and profitability performance; the external social, political, and economic environments; and the establishment's relation to its parent firm if any.

Sample Weights. The NOS can be used to generate two kinds of samples, representing U. S. employees and their employers. First, because the 727 GSS respondents and their spouses constitute a representative sample of the U. S. employed population, their establishments were sampled by the NOS in proportion to their numbers of employees. Hence, this weighting scheme can be used to analyze how the labor force is distributed among establishments, for example, the average size of the organizations in which Americans work. Second, when the NOS data are weighted by the inverse of each establishments' number of employees (full- plus part-time), then adjusted to equal the initial N, the resulting sample treats each organization as equivalent members of an organizational population.[2] Thus, this weighting scheme can be used to analyze the establishment population, for example, the average number of employees per organization.

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2) The 33 duplicate organization records were omitted. Because no information on number of employees was obtained from three establishments, the final weighted sample N is 691 establishments, equal to the number of informant interviews involving unique establishments with known employee size.

The distinction between the two weighting schemes can be illustrated with the NOS informants' estimates of establishment sizes. According to the self-weighted estimates, in the first column of Table 2, more than 40 percent of the labor force works in establishments having 100 or more employees, and more than one in twelve works in units of 2,000 or more workers. But, when the data are weighted so that establishments are the units of analysis, the size skew becomes very pronounced. As shown by the estimates in the second column, almost 87% of all workplaces have fewer than ten employees, while very large organizations are exceeding rare. In most analyses reported below, this second weighting scheme is used, so that inferences can be made about the extent of job training in the population of U. S. work establishments. But, occasionally the first weighting method is

Table 2. Percentage Distributions of Establishment Sizes,
Under Two NOS Weighting Schemes

ESTABLISHMENT SIZE CATEGORIES	GSS EMPLOYEES	SIZE-WEIGHTED ESTABLISHMENTS
1-4	15.1	78.9
5-9	6.4	8.0
10-49	24.3	10.5
50-99	10.9	1.4
100-499	21.7	1.1
500-999	6.9	0.1
1,000-1,999	5.4	0.0
2,000 & over	9.4	0.0
TOTAL	100.0	100.0
(N)	(724)	(691)

applied, to permit conclusions about the incidence of training experiences among the labor force.

Whenever a subset of the cases was selected for analysis, the LIMDEP computer program used to analyze the data automatically rescaled the weights to sum exactly to the number of subsample observations. Thus, when the entire sample of establishments was analyzed, the weighted total was 691 cases and within this weighted total sample, 159 weighted cases have formal training programs. But, when only that subsample of establishments having training programs was selected for analysis, the rescaled total was 494 cases, equaling the number of informants reporting training programs. Although LIMDEP's weighting procedure somewhat altered the standard error estimates in multivariate equations, no consensus exists about the preferable weighting of subsamples.

Measures. Job training activity was measured in great detail by the NOS. Informants were first asked, "Apart from on-the-job training, in the past two years did [organization name] provide any employees with formal job training, either on or off the premises ?" If any training occurred, they were then asked the size of the in-house staff and whether any training had been conducted: on the premises by establishment staff; either on or off the premises by staff from the larger organization (if any existed); and off-site by outside agencies, consultants, or schools. Next, informants were asked the total amount of money, including staff time and all other costs, spent on training in the past two years, and also the number of employees participating in training during that time. Finally, they were asked about the types of training: whether any of three types of workers received training

(core production workers, General Social Survey respondents' occupations, and managers); reasons why training was offered; training program evaluation techniques; and effectiveness ratings (see the next section for some descriptive statistics).

Measures of the explanatory concepts used in testing the research hypotheses included: ORGANIZATIONAL SIZE and INDUSTRIAL SECTOR:

Log Establishment Size: The natural log of the total number of full- plus part-time employees.

Small Parent Organization: for establishments belonging to a larger organization, a dichotomous (dummy) variable if the parent has 1,000 or fewer total employees at all sites.

Large Parent Organization: a dummy variable if the parent has more than 1,000 total employees at all sites.[3]

Industrial Category: dummy variables for 10 broad classifications: Agriculture and Mining; Construction; Manufacturing; Transportation and Communication; Wholesale Trade; Retail Trade; Finance, Insurance, and Real Estate [FIRE]; Business Services [including Repair, Personal Services, and Entertainment-Recreation]; Professional Services; and Public Administration.

WORKFORCE COMPOSITION:

Female Workforce: Percent of the establishment workforce (full-

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3) No consensus exists in the literature on the definition of "large" and "small" organizations. For example, Brown et al. (1990) chose 500 employees as the dividing point for large firms and 100 employees as the cutoff for large establishments.

and part-time) that is female.

White Workforce: Percent of the establishment workforce (full- and part-time) that is white.

INTERNAL STRUCTURAL DIFFERENTIATION:

Vertical levels: Number of levels from highest to lowest position within the establishment.

Departmentalization: Number of separate formal units in the establishment (finance; accounting; health-safety; public relations; personnel-labor relations; research and development; long-range planning; and marketing-sales).

Formalization: Number of types of written documents (rules-and-procedures manuals; job descriptions; performance records; employment contracts; personnel evaluation; hiring and firing procedures; safety and hygiene; and fringe benefits).

Decentralization: Average level at which six types of decisions are made.[4]

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4) Informants were asked who actually made the final decision in eight areas—the head of the organization, someone below, or someone above (if the establishment belonged to a larger organization). These areas were: (1) the number of people employed; (2) which new employees to hire; (3) using subcontractors or temporary workers; (4) evaluating worker performance; (5) worker promotions; (6) wage or salary levels; (7) discharging or laying off workers; and (8) worker scheduling and overtime. Each response was coded 1 if someone above the establishment was involved in the decision; 2 if the establishment head was the highest person involved and 3 if the decision involved only someone below the establishment head. A principal components factor analysis with oblique rotation revealed that six of these eight indicators loaded on a single factor (eigenvalue = 4.95, percent of variance explained = 61.9%). Thus, the decentralization score consists of the average response code to items 1, 2, 3, 5, 6, and 7. A higher average score represents decision-making that occurs at lower levels within the organization.

Internal Labor Markets: Average standardized scores of three items indicating the extent to which three occupations are filled from within the organization and the degree to which there are promotions to higher levels within the occupations.[5]

ENVIRONMENTAL TURBULENCE:

Unionization: Percent of 1988 workers belonging to unions in detailed industry classifications (from Curme et al., 1990)

Market Competition: How much competition in the organization's main market or service area, on a four-point scale from "none" to "a great deal."

Foreign Competition: How much competition in the main market or service area from foreign organizations, on the same scale.

Expected Employee Problems: Average of expected problems over the next three years in three areas, on a three-point scale from "not a problem at all" to "a major problem" (hiring qualified workers; training qualified workers; improving employee compensation and benefits).

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5) The three jobs are the "core" production workers in the establishment, the job of the General Social Survey respondent or spouse, and managers or administrators. For each job, an informant was asked: (1) "Do you sometimes fill (JOB) vacancies with people already employed at (ORG) ?"; (2) "Are there different levels of (JOB) ?"; and (3) "Is it possible for a (JOB) to be promoted to a level above (JOB) ? [IF YES] How often does this happen ?" (The third item was not asked about managers.) The response to each item was standardized using the weighted sample mean and standard deviation, then an average item Z-score was calculated across the three jobs. An organization's FILM scale was computed as the mean of these average item Z-scores, either for all three items or for two items when no promotions were possible. Higher scores indicate more extensive internal labor markets in the organizations.

Expected Performance Problems: Average of expected problems over the next three years in five areas, on same three-point scale (relation with unions; government regulations; improving quality of products, services, or programs; developing new products, services, or programs; increasing productivity).[6]

Environmental Uncertainty: Average agreement with two items ([JOG] reacts mostly to outside pressures"; "Making long-range plans for this organization is hindered by the difficulty of predicting future events").

Environmental Complexity: Average agreement with four items ("The techniques, skills, and information needed by [ORG] are changing very rapidly", "To achieve our goals, it is essential to work cooperatively with many other organizations", "Our relations with other organizations are sometimes marked by conflict"; [ORG] concentrates on doing what it does well and takes few risks)."[7]

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6) The eight perceived problem items were subjected to a principal components factor analysis with varimax rotation. The five expected performance problem items loaded highly on the first factor (eigenvalue = 3.79, percent of variance explained = 47.4%) and the three expected employee problems loaded highly on the second factor (eigenvalue = 1.00, percent of variance explained = 12.5%).

7) The six environmental turbulence items plus a seventh ("The political climate right now is very favorable to our goals") were subjected to a principal components factor analysis with varimax rotation. The four complexity items loaded highly on the first factor (eigenvalue = 1.67, percent of variance explained = 23.8%), and the two uncertainty items loaded highly on the second factor (eigenvalue = 1.13, percent of variance explained = 16.2%).The political climate item was the sole item loading highly on the third factor (eigenvalue = 1.01, percent of variance explained = 14.5%).

INSTITUTIONALIZATION:

Institutionalization: Number of positive responses to four items ("Does [ORG] belong to an association of organizations like it ?", "Is [ORG] subject to a periodic review by an outside accreditation or licensing organization ?", "In evaluating [ORG's] performance, to what extent do you pay attention to practices of other organizations like [ORG] ?": "How much are [ORG's] operations regulated by government agencies ?)[8]

To preserve cases for the analyses reported below, missing values of all independent variables were replaced by the mean score for the weighted observations having nonmissing values. But organizations having missing values on the dependent training variables were omitted from the equations. The Appendix table shows the correlations, means, and standard deviations for the weighted independent variables used in the analyses.

THE VOLUME OF JOB TRAINING

The 1991 National Organizations Study (NOS) training items allowed an extensive profile of the magnitude of formal training efforts by U. S. organizations in the early 1990s. Although only one-fifth of all establishments (22.6%) provided some formal training, this training was offered by organizations covering more than two-thirds of the labor force (71.7%). Most job training was done in-house. Among those organizations providing training, 42% used their own

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8) These four items were subjected to a principal components factor analysis with varimax rotation and all loaded highly on a single factor (eigenvalue=1.73, percent of variance explained=43.1%).

staffs to conduct this activity on-site, while 31.0% brought in outside agencies, consultants, or schools to conduct on-site training. Among the small number of establishments that were part of a organization (about one-sixth of the sample), 77.1% either brought in trainers from the parent organization or sent their employees off the premises to be trained. The in-house training staffs tended to be small, with a median of just two trainers (mean = 3.77). However, given the strong correlation between staff size and establishment size, the labor force had access to median company training staffs of four trainers (mean = 11.1). These staffs were fairly stable, with only 6.3% of organizations reporting some decrease in the past two years and 42.8% reporting an increase.

Because size and training are correlated, the amount of money spent on job training by U. S. work organizations depends on whether organizations or workers are the unit of analysis.[9] Including staff time and other costs, establishments with training programs reported spending a median of $2,500 on training during the previous two years (mean = $15,679).[10] But, when the data represent the labor

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9) The weighting gives greater emphasis to small establishment's values (see Table 2) and hence pulls down the median and mean values. When unweighted, the sample gives greater emphasis to employees of larger establishments, which have higher median/mean values.

.10) Missing observations occurred on the measures of training expenditures (107 cases among the 494 establishments with training programs) and percentage of workers covered (39 cases). These Missing values are not randomly distributed across observations. Based on multiple logistic regression analyses, the establishments that did not report training budgets were more likely to be unionized and in the wholesale industry, and less likely to be decentralized, institutionalized and in the business service industry. Organizations not providing data on the percentage of employees trained were more likely to be in the FIRE industry, to have internal labor markets, and to have fewer expected other problems.

force, U. S. workers were employed in establishments whose training programs spent a median of $15,000 (mean = $343,710). The number of workers trained also varied considerably according to the weighting applied. The median establishment trained four employees (mean = 17.7), but workers located in organizations where the median number of employees trained was 50 (mean = 660.8). Additional relationships between training and organizational size are examined below.

For courses conducted off-site, most organizations (71.3%) paid their employees' participation costs, through a combination of tuition benefits or reimbursements (91%) and paid release time from work (69.4%). State, local, and federal governments paid for some training in only a minority of the establishments (18.3%); the Job Training Partnership Act was involved in less than three percent of all programs. A majority of informants (50.9%) felt that the amount of resources they devoted to training had remained roughly constant over the past two years. But, 42.8% reported that their training expenditures had increased during that interval. A majority (53.1%) said that their organizations were devoting more resources to training than "other places of roughly the same size."

NOS asked about the extent to which training programs were used for four purposes. Three items received substantial majorities saying "to a great extent" or "to some extent": (1) to provide or improve managerial skills (88.3%); (2) to train employees in the use of computers and other new equipment (80.4%); and (3) to train them on the safe use of equipment or tools (73.1%). However, very few establishments (15.3%) taught remedial skills in literacy or arithmetic.

Emulation ("to keep up with the training practices of other organizations that do work like yours") was the main reason cited for offering training by 77.6% of establishments. Legal requirements (37.0%) and union contracts (7.7%) were mentioned much less often. A majority of program informants (56.0%) said that formal training was an "essential" or "very important" factor in their employees' promotion chances.

All but a handful of organizations formally evaluated their training programs. NOS asked about four methods of program assessment: (1) by formal testing of trainees (49.4%); (2) by trainee opinions (51.0%); (3) by supervisor evaluations of employee performance (55.7%); and (4) by program director's assessments (40.9%). The median number of evaluation techniques used was 2.00 (mean = 1.95). Informants rated the overall effectiveness of their training efforts as "highly effective" 59.7%) or "somewhat effective" (36.8%), but less than one per cent said they were not at all effective.

PRESENCE OF ANY TRAINING PROGRAM

Hypothesis 1 asserts that larger organizations—at both the establishment and the firm (parent organization) level—provide more job training than do smaller organizations. Table 3 shows how the various measures of formal company training programs varied with establishment size. Fewer than one-eighth of the smallest organizations offered any training during the past two years (column 1). But, majorities of the other establishments had some kind of program, rising from 57% of those with 5-9 employees to over 98% of organizations with 2,000 or more employees. Among the 494 establishments providing any training, the use of outside trainers increased dramati-

Table 3. Relationship of Establishment Size to Training Programs

ESTABLISHMENT SIZE	PCT. ANY TRAINING (1)	PCT. USE OUTSIDERS (2)	PCT. OF EMPLOYEES (3)	TRAINING BUDGET (4)	COST PER EMPLOYEE (5)	COST PER TRAINEE (6)
1-4	11.5	13.2	12.0	$2,126	$71	$1,239
5-9	57.0	30.3	39.4	4,424	401	1,031
10-49	63.3	45.2	41.7	10,851	290	1,042
50-99	86.1	64.8	52.1	51,223	674	1,453
100-499	89.9	56.8	54.0	110,650	434	1,153
500-999	93.3	70.1	45.6	222,072	311	740
1,000-1,999	91.4	79.3	50.6	575,144	343	923
2,000 & over	98.3	90.3	63.6	1,541,078	394	1,138
MEAN	22.6%	31.0%	18.2%	$15,679	$130	$1,131
F ratio	36.4***	10.88**	8.14***	14.61***	3.64***	0.16
(df,df)	(7,683)	(7,486)	(7,677)	(7,371)	(7,647)	(7,373)
η^2	.274	.136	.078	.216	.038	.003

** p < .01   *** p < .001

cally with size from 13.2% of the smallest to 90.3% of the largest organizations (column 2). A similar differential occurred for employer-paid training conducted off the premises, with only 57.1% of the smallest but 97.6% of the largest organizations providing these benefits to employees (data not shown). Although the smallest establishments were less likely to give release time to these trainees, there were no size differences in tuition reimbursements (data also not shown).

Table 3 reveals a steep size gradient in the proportions of establishment employees who participated in training (column 3): the mean percentage rose from 12% of the smallest establishments' workforces to almost 64% of the largest. Extrapolating the mean of 18.2% of all employees over a two year period to the U. S. national labor force of 125 million indicates that some 11.4 million workers annually received formal job training.

The total amount spent on training (including staff time as well as direct costs) also showed a significant size gradient (column 4). Expenditures increased from barely $2,000 by the smallest units to over $1.5 million by the largest. However, per capita expenditures exhibited very little size variability (column 5 an 6). First, when the average training costs for all employees were calculated (that is, when organizations with no training programs were included), establishments spent on average just $130 per employee for two years. Extrapolating this value to the labor force, total training expenses paid directly by U. S. organizations exceeded $8 billion annually. Although the per-employee costs varied significantly with establishment size, most of that difference was concentrated between the smallest size category and all others. Establishments with fewer than five workers spent only $71 per person on training, whereas other units' costs

ranged between $290 and $674 with no monotonic pattern. Second, when training costs were calibrated only as the average expenditure per employee actually trained, no significant size gradient occurred. The mean expense per trainee was $1,131 over a two-year span, with virtually identical amounts spent by the very smallest ($1,239) and largest establishments ($1,131).

Although we do not offer explicit hypotheses about the variation in training across industrial sectors, their bivariate relationships are worth examining, as we control for industrial sector in the multivariate analyses below. Column 1 of Table 4 displays the means on the several training measures for each of ten major industrial sectors. Training programs were most common in the wholesale trade, agriculture-mining, FIRE, public administration, and transportation-communication sectors, and least often available in the retail, professional services, construction, and manufacturing industries. However, manufacturing establishments that did offer training were more likely to turn to outside trainers, followed by transportation and communication, FIRE, and public administration, while in-house training was most prevalent in the business services, wholesale trade, and agriculture-mining sectors (column 2). In terms of extent of employees trained, the manufacturing sector covered the fewest workers (6.1% of employees trained in two years), while the wholesale trade sector trained nearly 86% of its employees (column 3). Because this level is four times higher than any other industry, it suggests an unusually deviant subsample of organizations (there were just 24 cases in the wholesale sector), rather than a genuinely exceptional level of training by that industry.

Only one of the three expenditure measures differed significantly

Table 4. Relationship of Industrial Sectors to Training Programs

INDUSTRIAL SECTOR	PCT. ANY TRAINING (1)	PCT. USE OUTSIDERS (2)	PCT. OF EMPLOYEES (3)	TRAINING BUDGET (4)	COST PER EMPLOYEE (5)	COST PER TRAINEE (6)
Agriculture & Mining	35.0	9.5	17.2	$316	$11	$75
Transport, Communication	30.6	48.3	16.7	27,154	112	682
Construction	9.8	25.1	16.0	4,323	23	448
Manufacturing	15.7	66.2	6.1	66,226	218	2,863
Wholesale Trade	51.6	9.5	85.9	12,606	142	491
Retail Trade	20.7	31.5	11.7	7,997	93	710
FIRE	33.5	45.1	20.3	23,456	322	1,730
Business Services	16.4	7.0	13.5	6,032	179	1,665
Professional Services	27.4	39.1	20.6	14,306	77	641
Public Administration	33.2	45.1	22.5	14,746	64	650
MEAN	22.6%	31.0%	18.2%	$15,679	$130	$1,131
F ratio (df,df)	4.27*** (9,681)	8.48*** (9,484)	7.37*** (9,675)	0.23 (9,369)	1.31 (9,645)	3.17** (9,363)
η^2	.053	.136	.089	.006	.018	.073

** p < .01   *** p < .001

across industries, cost per trainee, with agriculture-mining spending only one-fortieth of manufacturing (column 6). The means for the other two measures are also suggestive. Despite the lowest overall coverage rate, manufacturing establishments had the largest total budget ($66,226), again many times that in agriculture-mining ($316). The FIRE sector offered the most extensive training coverage, ranking high not only on the percentage of its establishments providing training (29.3%), but also on total ($23,456), per-employee ($322), and per-trainee ($1,730) expenditures. In contrast, agriculture-mining establishments ran skimpy training programs. Note that, despite the large proportion of employees in training, the wholesale subsample reported neither total, per-employee, nor per-trainee expenditures that were greatly out of line with several other industries' average.

Logistic regression was applied in Table 5 to the dichotomous measure of any training to determine the net effects of organizational size after controlling for industry. Manufacturing served as the omitted reference category for a set of categoric (dummy) predictor variables. In addition to logged establishment size, four dummy variables captured the parent organization's size: (1) no parent firm; (2) small parent (1,000 or fewer total employees in all units); (3) large parent (more than 1,000); and (4) parent firm size unknown, which served as the omitted reference category. This model was a significant improvement over the model consisting of only a constant (the difference in the two models' log-likelihood is 131.8 for 13 degrees of freedom). The model in Table 5 correctly classified 85.1% of the observations. Even with industry controlled, the likelihood of any training program increased with three organizational size measures, consistent with Hypothesis 1. The coefficient for the log of establishment size was

Table 5. Logistic Regression of Any Training Program on Organization Size and Industry

INDEPENDENT VARIABLES	B	s.e.
Constant	-2.76**	(.21)
ORGANIZATION SIZE:		
Log Establishment Size	1.16***	(.12)
Small Parent Organization	1.64***	(.42)
Large Parent Organization	.79*	(.40)
Unknown Parent Size	.48	(.53)
No Parent Organization[a]	--	--
INDUSTRIAL SECTOR:		
Wholesale	2.72***	(.77)
Agriculture, Mining	2.06**	(.78)
Finance, Insurance, Real Estate	1.87**	(.65)
Professional Services	1.63**	(.63)
Business Services	1.40*	(.63)
Transportation	.91	(.74)
Construction	.83	(.69)
Public Administration	.75	(.81)
Retail	.17	(.65)
Manufacturing[a]	--	--
Log-Likelihood	-237.3	
Degrees of freedom	14	
Constant Model Log-Likelihood	-369.1	
N of cases	691	

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

[a] Reference category.

NOTE: Numbers in parentheses are standard errors

strongly positive. In addition, both the dummy variables for small and large parent firms were positive, but the coefficient for unknown parent size was not significant. Thus, holding industry and establish-

ment size constant, the presence of a parent firm increased the probability that an establishment would provide training, with the effect of a small parent about twice the magnitude of a large parent firm. Net of size, five industries were significantly more likely to provide training than the other sectors: wholesale, agriculture-mining, FIRE, professional, and business services.

Measures of the other independent variables were entered into a logistic equation along with logged establishment size, small-and large-parent dummies, and the five significant industry dummies. The establishments appear in Table 6. This model significantly improved the fit over the constant model, and it correctly classified 85.4% of all cases (65% of the organizations with no training and 93.5% of those with any training programs). The coefficient for establishment size remained statistically significant, still supporting Hypothesis 1. However, the small-parent dummy was reduced to insignificance and the large parent dummy had a negative effect, meaning that net of all other factors, organizations with large parents were less likely to train their employees. As suggested in the next section, some of these organizations' employee training may take place at the parental rather than the establishment level.

The coefficients in Table 6 give mixed support to the other hypothesized relationships. Consistent with part of Hypothesis 2, the larger the percentage white, the more training the establishment provided. Contrary to another part of Hypothesis 2, the effect of a larger female workforce was negative—establishments with higher percentages of women employees were more likely to offer a formal training program. Of course, the measure does not indicate whether it was women who benefit disproportionately from the available training, or

Table 6. Logistic Regression of Any Training Program on Independent Variables

INDEPENDENT VARIABLES	B	s.e.
Constant	-9.88***	(1.99)
Log Establishment Size	1.13***	(.19)
Small Parent Organization	.78	(.55)
Large Parent Organization	-1.02*	(.51)
Wholesale	3.55***	(.68)
Agriculture, Mining	3.09***	(.69)
Finance, Insurance, Real Estate	2.13***	(.52)
Professional Services	1.38**	(.45)
Business Services	1.32**	(.44)
Female Workforce Percent	.02***	(.004)
White Workforce Percent	.01*	(.006)
Number of Departments	-.40**	(.14)
Formalization	.41***	(.07)
Vertical Levels	.03	(.05)
Decentralization	-.65	(.53)
Internal Labor Market	.27	(.25)
Unionization Percent	.03**	(.01)
Market Competition	.46*	(.21)
Foreign Competition	-.03	(.17)
Environmental Uncertainty	.64**	(.21)
Environmental Complexity	.21	(.14)
Expected Employee Problems	-.25	(.38)
Expected Performance Problems	.97*	(.47)
Institutionalization	-.10	(.14)
Log-Likelihood	-203.7	
Degrees of freedom	24	
Constant Model Log-Likelihood	-369.1	
N of cases	691	

+   p < .10   * p < .05   ** p < .01   *** p < .001

NOTE: Numbers in parentheses are standard errors

whether the male employees received more company training whenever women were present in larger proportions.

Hypothesis 3 asserted that employers with complex internal

structures are likely to provide more training. Only two of the five internal structural measures were statistically significant: training programs were more likely to be found in formalized settings, but less likely to be offered by establishments consisting of many departments. (The zero-order relationship between training and departmentalization was positive as expected, but once formalization was held constant, the effect of many departments reversed sign.) Perhaps, net of size and other factors, the specialization implied by greater departmentalization reduces an organization's need for employees who possess a variety of skills that require company training. Neither the number of vertical levels, nor the extent of decentralized decision-making, nor the presence of an internalized labor market had a significant net impact on the provision of training.

More evidence supported Hypothesis 4; turbulent environments are associated with more training. Four of the seven environmental measures had positive effects. Training programs were more prevalent when an organization operated in a unionized industry, where it faced stiffer competition in its market or service areas, when it confronted greater environmental uncertainty, and where the informants anticipated performance problems. But, no significant impacts occurred for foreign competition, environmental complexity, or expected problems with employees. Finally, no support was given to Hypothesis 5, that training increased with greater institutionalization.

In summary, some of the research hypotheses about the provision of formal job training by U. S. work establishments were sustained. Some measures of organizational size, workforce composition, internal structural differentiation, and environmental turbulence were each associated with training, although not all measures produced signifi-

cant net effects in the anticipated direction (particularly the female workforce and departmentalization indicators). Institutional forces in particular exerted no noticeable effect on the provision of training.

SOURCES OF TRAINING

Formal company training may be organized in a variety of ways. A major contrast is whether an establishment maintains its own training staff or whether it relies on others to conduct programs on its behalf. Although a variey of such external training auspices are available (e. g., hiring outsiders to conduct courses on the premises; using a parent organization's trainers and/or facilities; sending employees off-site), insufficient cases are available for such fine-grained distinctions. Instead, Table 7 reports the results of a multiple logistic regression in which establishments with their own training staffs were contrasted with those relying on any outside training system. To preserve cases, "no training offered" formed the reference category for the dependent variable. Thus, estimated coefficients represent the net effects of independent variables on the presence of either type of training relative to establishments with no training at all. In this and other equations reported below, nonsignificant variables were dropped before reestimating the remaining coefficients. This multivariate logistic equation significantly improved the fit over the constant model and correctly predicted the outcomes of 71.1% of all cases (67% of those with no training; 90.5% with own-training staffs; but only 13.9% of those with other-training arrangements).

Size differences in the two types of training programs were very evident from the three pairs of coefficients. Establishment size (log-

Table 7. Multiple Logistic Regression of Types of Training Program on Independent Variables, with "No Training" as Reference Category

INDEPENDENT VARIABLES	OWN STAFF B	s.e.	OTHERS TRAIN B	s.e.
Constant	-13.21***	(2.65)	-11.33****	(1.75)
Log Establishment Size	1.47***	(.24)	.83****	(.18)
Small Parent Organization	.40	(.62)	1.50***	(.50)
Large Parent Organization	-1.82**	(.65)	-.25	(.50)
Wholesale	2.68*	(1.16)	3.62****	(.66)
Agriculture, Mining	3.34***	(1.01)	3.13****	(.73)
Finance, Insurance, Real Estate	1.95**	(.69)	1.94****	(.50)
Professional Services	1.22*	(.63)	1.37***	(.46)
Business Services	1.32*	(.66)	1.33***	(.46)
Female Workforce Percent	.02***	(.01)	.02****	(.005)
White Workforce Percent	.02+	(.01)	.01*	(.007)
Number of Departments	-.63**	(.19)	-.30**	(.14)
Formalization	.65***	(.11)	.33****	(.08)
Internal Labor Market	.75*	(.32)	.05	(.28)
Market Competition	.55+	(.32)	.40*	(.21)
Unionization Percent	.03+	(.02)	.03***	(.01)
Environmental Uncertainty	.30	(.31)	.65***	(.20)
Environmental Complexity	.06	(.21)	.26*	(.15)
Expected Performance Problems	.65	(.53)	.84*	(.44)
Log-Likelihood	-275.8			
Degrees of freedom	38			
Constant Model Log-Likelihood	-475.5			
N of cases	691			

+ p < .10 * p < .05 ** p < .01 ***p < .001

NOTE: Numbers in parentheses are standard errors

ged) was almost twice as large for maintaining a local training staff (1.47) as for depending on others to conduct training (.83). (This size effect was especially important among the 85% of the sample which consisted of only a single establishment; see Appendix.) But, for establishments with parent organizations, the parental size produced con-

trasting effects on training type. A large parent reduced the likelihood of local training (-1.82), presumably by locating such activities outside their subordinate establishments. In contrast, small parents were especially critical in boosting their establishments' dependence on nonsstaff training (1.50).

The industry and workforce composition measures yielded no large differences across the two program types. However, three internal structural differentiation variables proved much stronger predictors of maintaining a local training staff. The coefficients for departmentalization and formalization were twice as large in the own-staff equation as in the other-staff equation (− .63 vs. − .30 and .65 vs. 33, respectively). The positive zero-order relationship between departmentalization and training again reversed sign once the overpowering impact of formalization was controlled. The prevalence of an internal labor market was signficaut only for own-staff (.75 vs. .05), suggesting that training is an integral component of the establishment promotion process. In contrast, turbulent environmental conditions seemed more conducive to reliance on non-staff trainers. Although market competition was marginally significant in both equations, the effects of unionization, uncertainty, complexity, and expected performance problems were all much stronger in the other-staff equation. In conclusion, internal complexity encouraged an establishment to acquire its own training staff, while external turbulence induced reliance on outsiders for training assistance.

SCOPE OF TRAINING PROGRAMS

Training programs vary in scope—the number of employees co-

vered and the resources allocated. Multivariate equations for the percentage of employees trained and the establishment's training expenditures (during the preceding two years) are displayed in Table 8, which omits the standard errors to save space. To take advantage of information about the organizations which offered no training programs, the dependent variables were analyzed by the "tobit" method (Tobin 1958). In this censored regression model, organizations having no training activity were coded "0", while those that reported percent of employees trained and dollar expenditures were coded on those continuous scales. The four equations reported in Table 8 each improved significantly over models that fit only the constant. Only predictor variables with significant net coefficients were kept in the final equation for a particular dependent variable.

Evidence for the hypothesized size effect (Hypotheses 1) was almost nonexistent. Due to multicollinearity, the (logged) measure of establishment size could not be entered into either equation for the percent of employees trained or the total training budget. However, having a small parent boosted the establishment's coverage rate, consistent with Hypothesis 1 (column 1). But, in the cost per-employee and cost per-trainee equations (columns 3 and 4), the establishment size coefficients were both significantly negative, meaning that after controlling for other factors, larger establishments actually spent less per capita than smaller ones.

As with the provision of any training, the two measures of workforce composition also exhibit divergent patterns on the four scope measures. Consistent with part of Hypothesis 2, the higher the per-

Table 8. Tobit Analyses of Percent of Employees Trained and Training Expenditures

INDEPENDENT VARIABLES	PCT. OF EMPLOYEES (1)	TRAINING BUDGET (LOG) (2)	COST PER EMPLOYEE (3)	COST PER TRAINEE (4)
Constant	-205.55***	-13.45***	-2,810.7***	-3,966.6***
Log Establishment Size	-ᵃ	-ᵃ	-140.2*	-250.2*
Small Parent Organization	23.52**	--	--	--
Agriculture & Mining	68.77***	--	--	--
Construction	72.14***	--	--	--
Transport, Communication	46.32***	--	--	--
Wholesale Trade	167.20***	--	--	--
FIRE	56.74***	3.53***	7300.1***	1,266.7***
Business Services	37.49***	2.74***	547.9***	1,0004.8***
Professional Services	43.88***	--	--	--
Public Administration	49.88***	2.33*	--	--
Female Workforce Percent	.61***	.02***	3.9***	4.7*
White Workforce Percent	.17*	.04***	5.5**	11.0**
Number of Departments	-13.33***	-.70***	-78.6+	--
Formalization	8.79***	.89***	160.3***	261.0***
Internal Labor Markets	--	.85**	221.4*	406.4*
Market Competition	12.21***	1.44***	147.2*	327.9**
Foreign Competition	4.98*	.46+	--	--
Environmental Uncertainty	9.26**	.68***	187.7**	292.0*
Environmental Complexity	4.01+	.48*	131.1**	146.0+
Expected Employee Problems	-33.23***	--	--	--
Expected Performance Problems	48.40***	--	260.9+	--
Log-Likelihood	-1255.2	-627.78	-1127.9	-1131.9
Degrees of freedom	20	13	13	11
Constant Model Log-Likelihood	-1357.4	-809.18	-1201.3	-1204.8
N of cases	652	584	584	572

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

ᵃ Variable could not be entered into equation.

cent white, the larger the total training budget and the larger the per capita training expenditures. But, contrary to expectations, the more female the establishment's workforce, the greater the training scope on all four dependent variables.

The three internal structure measures produced consistent signs across the four equations. As expected by Hypothesis 3, establishments with internal labor markets and greater formalization offered broader-scope training programs. However, the more departmentalized establishments were likely to train fewer employees, maintain smaller programs, and spend less per employee. These results, consistent with the negative effect of departmentalization on provision of any training reinforce the interpretation that less-differentiated organizations may be compelled to train their workers in a larger variety of work skills.

Substantial support for Hypothesis 4 follows from the numerous positive coefficients for the environmental turbulence measures. Market competition, environmental uncertainty, and complexity increased the scope of training in all four equations. Foreign competition boosted total training budgets, and expected performance problems were positively related to both percent of employees trained and per-employee expenditures. Expected employee problems was the only variable to have a negative effect (on percent of employees trained). The percentage of unionized firms in the industry failed to reach significance in any equation.

Industry effects on training scope deserve some comment. Eight of the industries had positive coefficients in the equation for em-

ployees trained (column 1). That is, each trained relatively more employees than establishments in the omitted manufacturing and retail trade industries. Across the other three scope equations, only a few industries stood out as providing generous training. FIRE and business services on a per-capita basis, and both these industries along with the public sector in total expenditures.

FURTHER SPECIFICATIONS ON TRAINING

To this point, the analyses concentrated on relationships pertaining to all organizations' training programs. In this section, attention shifts to relationships within subsets of the NOS establishments. First, we test the hypotheses about the provision of general and firm-specific training. Then we explore the contextual effects of firm internal labor markets and the interaction of market and foreign competition with other training predictors. These latter analyses reveal nuances in the provision of job training by U. S. organizations.

General vs. Specific Training. As stated in Hypothesis 6 above, human capital theory argues that firms will not pay for employees to acquire nonspecific skills that may subsequently be transferred to other organizations. Firms would be irrational to spend scarce resources when prospects are dim for recapture through improved worker productivity. As long as they can "buy" more qualified employees through the labor market, organizations should avoid "making" their own skilled employees through basic training. Hence, establishments generally should spend little money on general training and provide few employees with general training, but allocate most of their training resources to firm-specific programs. A further implica-

tion is that when organizations expand their training activities, they are more likely to concentrate on specific training at the expense of general training.

Imformants were asked whether any training had been received by the establishment's core production workers, by persons holding the General Social Survey respondents' occupations, and by managers or administrators. They were then asked: "To what extent is formal training used to: (a) teach remedial skills in literacy or arithmetic; (b) train employees to use computers and other new equipment ? (c) train employees on the safe use of equipment or tools ? (d) provide or improve managerial skills" (Four response categories ranged from "not at all" to "to a great extent"). Two dichotomous dependent variables were constructed. The organization provided general training if either core or GSS workers received formal training used, to some or a great extent, for teaching remedial skills. An organization was considered to offer specific training if either core or GSS workers were trained either for computer and new equipment usage or on the safe use of equipment or tools. (The items about manager training were not used.) Note that these general- and specific-training measures were not mutually exclusive activities. Among the 494 establishments providing any kind of formal training program, only 14.9% conducted general training. Specific training was far more prevalent, conducted by 68.4% of the establishments with any training program. Thus, the human capital proposition that employers are more likely to engage in specific than in general training is supported.

Table 9 reports results of two logistic regression analyses, using both types of training as dependent variables. In addition to controlling for the independent variables used previously, both equations en-

Table 9. Logistic Regression Analyses of General and Specific Training

INDEPENDENT VARIABLES	General Training (1)	Specific Training (2)
Constant	-6.48**	2.91+
Agriculture & Mining	-6.05	-4.61**
Business Services	-3.56*	-.53
Professional Services	.49	-1.69***
White Workforce Percent	.03**	-.01
Number of Departments	-.11	-.39**
Formalization	.16*	.61***
Unionization Percent	.04***	-.03**
Environmental Complexity	.61**	-.11
Expected Performance Problems	1.18**	-.21
Institutionalization	-.63***	-.05
Log of Training Budget	-.08	.36***
Percentage of Employees Trained	-.46	.02***
Log-Likelihood	-134.4	-156.0
Degrees of freedom	13	13
Constant Model Log-Likelihood	-208.3	-308.0
N of cases	494	494

+ p < .10 * p < .05 ** p < .01 ***p < .001

tered two measures of organizational training allocations as predictors: the log of the training budget and the percentage of employees trained (their missing values were replaced by means). If the human capital hypothesis is correct, establishments which allocate greater amounts of resources to training should concentrate on specific training but not on general training. And the results clearly demonstrate this differential effect. The coefficients for larger training budgets and more trained employees were both positive in the specific training equation, but neither coefficient differed significantly from zero in the general training equation. The signs of other independent variables

suggest that general training was provided mainly by organizations facing poorer opportunities to acquire skilled employees through the labor market: those operating in complex, unionized environments where future performance problems were anticipated. The negative coefficient for institutionalization implies that general training was prevalent where not constrained by normative pressures. In contrast, an emphasis on specific training is associated with a more extensive formal bureaucracy and lower unionization, but not with turbulent external conditions nor institutionalization.

A Closer Look at FILMs. Another relationship warranting a closer investigation is the impact of firm internal labor markets (FILMs). The analyses above indicated that establishments containing FILMs—consisting of linked occupational sequences with promotion ladders—were significantly more likely to create training programs and to spend more resources on training. Table 10 further explores the connection between training and promotion by separating the subsample of 493 establishments having training programs into 188 with only low-level FILMs (standardized scores of 0 or less) and 305 with high-level FILMs (scores above 0). The dependent variable used in two ordinary least-squares regression equations was "Apart from formal education, how important is formal training as a factor in employees' promotion chances ?" Responses were coded from "essential" (4) to "not at all important" (1). Informants for the high-level FILM establishments were significantly more likely to report that training was important to promotion (mean = 2.73) than were the informants for organizations with low-level FILMs (mean=2.36).

Table 10. OLS Regression Analyses of Importance of Training for Promotions, within Types of FILMs

INDEPENDENT VARIABLES	Low Level of FILM (1)	High Level of FILM (2)
Constant	2.88***	1.68**
Log Establishment Size	-.13+	.04
Small Parent Organization	.80**	-.18
Large Parent Organization	.34+	-.31**
Wholesale Trade	1.23***	.47+
Business Services	-.47**	.80***
Retail	.61**	-.17
Female Workforce Percent	-.004+	.03+
White Workforce Percent	-.01+	-.003
Formalization	.07*	.14***
Market Competition	.14	.19**
Foreign Competition	-.03	-.15*
Environmental Uncertainty	.23+	-.47***
Expected Performance Problems	-.45**	-.03
Institutionalization	.22***	.12**
Adjusted R^2	.591***	.397***
N of cases	188	305

+ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

More importantly, the factors affecting the training-promotion link differed sharply across these two subsamples. Where FILMs were nonexistent or weak, the most important independent variables for the training-promotion link were institutionalization, the presence of a parent organization, and expected performance problems. Note that these organizations operated mainly in the wholesale and retail trade industries. In near mirror-image, when FILMs were well-ensconced, establishments that strongly liked training to employees' promotion opportunities were those lacking parent organizations, but

having formalized bureaucratic structures, facing strong market competition, and operating in the business service sector. Note that the institutionalization variable had a coefficient only half as large as the one in the low-level FILMs equation.

The Impact of Competition. The preceding analysis indicated that, while market competition was directly related to establishment training effort, the extent of competition from foreign firms had little direct effect. Thus, U. S. organizations seem relatively nonresponsive to inroads by their over-seas competitors. However, things are not quite so simple. Because of the sequence in which the questions were asked, informants would have combined both domestic and foreign sources of market or service area competition in their responses to the first query. And, because the responses were measured only on an ordinal scale, we cannot simply subtract the amount of foreign competition to obtain the net rivalry from domestic producers. But, as an alternative, three levels of increasing competition can be identified by dichotomizing and crosstabulating the two variables: (1) 97 organizations facing no or very little market and foreign competition; (2) 484 establishments with moderate or great market competition but little or none from foreign sources; and (3) 110 organizations having stiff competition in both arenas. Rather than directly entering these market segments as predictors of training activity, they are treated in Tables 11 and 12 as contextual variables that interact with the other independent measure. These tables show the effects of selected predictors, respectively on the presence of any training program and on the percentage of employees trained, under the three competitive conditions.

The differential impacts of three independent variables were

Table 11. Logistic Regression Analyses of Any Training Program,
Under Three Types of Competition

INDEPENDENT VARIABLES	Low Market, Low Foreign (1)	High Market, Low Foreign (2)	High Domestic, High Foreign (3)
Constant	-20.42*	-4.85***	-35.96**
Log Establishment Size	1.83**	.90***	.79
Small Parent Organization	--	1.58**	--
Wholesale Trade	--	2.73**	--
FIRE	--	1.21**	--
Business Services	--	--	8.58**
Female Workforce Percent	--	.02***	--
Number of Departments	--	-.37*	--
Formalization	.29	.30***	2.20**
Decentralization	--	--	11.38**
Unionization Percent	--	.02*	--
Environmental Complexity	-.01	.42**	2.65**
Expected Performance Problems	4.87*	--	--
Institutionalization	1.69**	-.28+	-.75
Log-Likelihood	-15.85***	-157.89	-11.15
Degrees of freedom	5	11	7
Constant Model Log-Likelihood	-38.1	-268.1	-63.1
(N of cases)	97	484	110

+ p < .10 * p < .05 ** p < .01 ***p < .001

especially noteworthy. The coefficients for environmental complexity and formalization both increased monotonically as the level of competition intensified. In contrast, the magnitude of institutionalization on any training program diminished under heavier competition, although it was curvilinear (U-shaped) across the three equations predicting the percentage of employees trained. These interaction patterns suggest that, when competitive pressures were essentially nil, establishments primarily mimicked what other organizations did. However, as competition arising from internal and external sources

Table 12. Tobit Analyses of Percentage of Employees Trained,
Under Three Types of Competition

INDEPENDENT VARIABLES	Low Market, Low Foreign (1)	High Market, Low Foreign (2)	High Market, High Foreign (3))
Constant	-131.41**	-34.50	-282.32***
Log Establishment Size	--	-15.73***	--
Small Parent Organization	--	33.07***	--
Agriculture & Mining	--	79.64***	--
Construction	--	68.81***	--
Transport, Communication	--	66.24***	--
Wholesale Trade	--	145.92***	112.99***
FIRE	--	62.13***	--
Business Services	--	27.46**	83.25***
Professional Services	--	44.76**	--
Public Administration	--	42.57***	--
Female Workforce Percent	--	.59***	--
Number of Departments	--	-7.22**	--
Formalization	5.32***	11.07***	14.55***
Internal Labor Markets	--	--	-27.06**
Environmental Complexity	-6.59+	8.18**	20.47***
Expected Employee Problems	41.40***	-47.03***	--
Expected Performance Problems	--	30.99**	56.51***
Institutionalization	10.77**	-7.41**	12.67*
Log-Likelihood	-112.9	-968.5.5	-262.7
Degrees of freedom	5	18	8
Constant Model Log-Likelihood	-123.5	-991.5	-260.5
N of cases	90	456	105

+ p < .10 * p < .05 ** p < .01 ***p < .001

grew more fierce, training activity increasingly responded to the establishments' tougher environmental conditions. Organizations with more formalized job structures were especially responsive to the need to develop better-trained workforces. Note also the large positive coefficients under high-high competition for decentralization (on any training) and for expected performance problems (on the percentage

trained). Thus, when organizations confronted dual onslaughts from domestic and foreign competitors, their training programs were shaped less by institutionalized forces and more by the urgency of the situation.

CONCLUSIONS

Formal job training programs are well-established in contemporary U. S. work organizations, available in places where more than two of every three workers are employed. The evidence from the National Organization Survey, the first representative sample of all establishments, bears on theoretical issues and empirical findings about training programs that were previously based on employee surveys or limited employer samples.

A major clarification is the organizational-size effect noted by many labor economists. As observed in worker surveys, job training programs were more likely to be conducted by larger establishments and also when parent organizations were present. However, when the scope of training efforts—as measured by the percentage of workers trained and amounts of money spent—was examined in conjunction with other explanatory factors, the significance of organizational size was either eliminated or actually reversed. That is, larger establishments were actually less likely to train larger proportions of their workforces or to spend extensively on their employees and trainees, once workforce composition, formal internal structures, and external environmental conditions were taken into account. Instead, various combinations of these latter factors were much more relevant to explaining the availability and scope of formal job training programs.

The results of the NOS analyses contribute to three major theoretical explanations of training efforts. The human capital hypothesis was supported by the finding that employers do not pay for general skill-training but larger mainly firm-specific efforts. Only about 15% of the sample establishments with training programs provided their nonmanagerial workers with remedial training (e. g., literacy, numeracy), neither total spending on training nor the proportion of workers trained significantly predicted this type of program. Rather, general training seems to be more a function of such external constraints as environmental complexity, expected organizational performance problems, and unionized industries (contrary to expectations of labor economists). In contrast, two-thirds of establishments with training programs gave their nonmanagerial workers instruction in such firm-specific skills as computer usage and the safe use of equipment and tools. Two measures of organizational training effort—total training expenditures and percent of workers trained— were strongly associated with the presence of such programs. Thus, work establishments seemed to allocate their training resources in ways expected by the rational investment model of human capital theory.

The credential-screening perspective received mixed support from the NOS analyses. The finding that establishments with larger proportions of white employees spent more generously on worker training is consistent with the labor-queue hypotheses that employers tend to view minorities as less "trainable". However, the unexpected result that organizations with higher percentages of female workers were more likely to provide training and to maintain broader-scope

programs is contrary to expectation. Because NOS did not identify the races and genders of employees receiving training, we cannot discount an explanation that male employees were more likely to receive training within female-predominant establishments. However, that interpretation seems less plausible than an explanation that organizations with many women sought to upgrade those employees' skills through formal training. What remains to be explained is why employers selected their women employees but not their minority workers for favorable treatment.

The NOS results strongly confirmed the structuralist emphasis on the importance of both internal properties and external conditions in shaping organizational behavior. These variables were involved in numerous significant direct effects and conditional relationships with the scope of training programs. Formalization exhibited especially robust impacts on all the training measures. Where establishments spelled out their workers' roles in great participants—more their rights and duties as organizational detail—documenting extensive and generous job training programs were provided. Indeed, formal job training may well be seen by company and agency managers as a basic element within a larger bundle of activities that have come to define employees' positions in the modern organization. In workplaces whose labor contracts are formally elaborated, both persons and organizations may develop explicit understandings that mechanisms must be provided for the continual upgrading of worker skills and the enhancement of form productivity.

In addition to their strong direct effects on training, firm internal

labor markets (FILMs) also substantially conditioned the effects of other key variables on the importance of training for employees' promotion chances. Although training is often considered to be a dimension of a FILM, we deliberately separated this component from our measure of establishment-level FILMs, in order to observe its consequences for training. Among organizations with substantial FILMs, the impacts of both formalization and market competition on training for promotion were much greater, but institutional effects were also most pronounced among establishments facing low-competition conditions, such emulation processes seem to play only a limited role in fostering training programs.

Perhaps the most striking results from NOS analyses were the great impacts of environmental turbulence on organizational training efforts. The uncertainty index, which tapped perceived unpredictability in outside conditions, consistently increased the magnitudes of training expenditures and the scope of worker coverage. It was also associated with greater reliance on outsiders rather than an establishment's own staff to train employees. Although the environmental complexity scale, which measured relationships with organizations, had few consistent direct effects on training, it was conditionally related to training in a comprehensible fashion: the stronger the organization's market and foreign competitors, the greater the impact of environmental complexity in fostering training programs. Expectations of company or agency performance problems in the near future also spurred greater training efforts, including reliance on outsiders. The notable absence of any effect of expected employee problems suggests that organizations may view job training as a means of coping with

general contingencies and not merely for assuring better-skilled and more-reliable workforces.

Market competition was an especially robust stimulator of broader training efforts, but the threats from foreign competitors generally had little direct impact. However, by considering the intersection of both market and foreign sources in creating diverse competitive contexts, more precise specifications of other variables' effects were revealed. The more intense those two kinds of competition, the more important were formalization and environmental complexity and the less important the institutional situation for the scope of training programs. An obvious interpretation is that, as external threats rise in salience, establishments' training efforts become more responsive to their unique internal and external situations and less responsive to normative pressures from reference groups.

The 1991 NOS's initial cut at explaining organizational job training programs leaves much research still to be done. Who within organizations gets what kinds of training must be more precisely identified. The relative emphasis on general versus firm-specific training can be further disentangled, particularly the alleged discounting of wages during the training period and their subsequent post-training boost. The purported benefits of training for enhanced organizational performance remain to be demonstrated—greater productivity, efficiency, competitive advantage, workforce retention, and so forth. The macro-micro links connecting organizational training opportunities to workers' career prospects must be articulated. A longitudinal, multi-level data collection design should be implemented that is capable of tracking large numbers of workers within many establishments, from their job entries through training experiences to subsequent work

performances. In parallel, shifts in the organizational structures of jobs and work routines must be monitored and integrated with the micro-level employee data. How do the expanding and contracting mixes of jobs within organizations generate demands for competent workers to fill the new slots ? To what extent are suitable workers recruited from external labor markets and to what extent are they reallocated from among existing employees ? What function do training programs play in adapting both types of workers to newly created positions ? Are formal or informal evaluations more potent in strengthening the ties between workers and positions ? Only by specifying in great detail the role of firm training in matching demands with supplies of labor can we begin better to appreciate its importance for U. S. work organizations.

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