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Restructuring and Skill Needs: Will Firms Train?

By HAROLD SALZMAN

ABSTRACT: In this article, Harold Salzman presents an analysis of corporate restructuring and resulting organizational outcomes to provide a framework for analyzing the role of the firm in workforce skill development. Salzman bases his analysis on case studies of firms in two industries, insurance and medical imaging equipment, supplemented by case studies of other firms engaged in significant levels of workforce skill development. The study addresses the extent to which restructuring firms are unstable in terms of organizational form—losing the capacity to provide skill development for their workforces—and the extent to which job changes, restructuring, and/or technology increases skill levels and therefore the demand for upgrading the skills of incumbent and new workers. His findings show that, although demand for skills has increased, a number of countervailing factors within firms and in the market inhibit firms' active engagement in skill development.

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DRAMATIC changes in the economy and consequent corporate restructuring are significantly changing the structure of jobs, skill requirements, and the labor-management social contract developed in the postwar period. A central dilemma in these events is the need for a more highly skilled workforce at the same time that firms are restructuring in ways that reduce their capacity and/or willingness to provide workforce skill development.

Two key policy issues are emerging: the extent to which there is a need for workforce skill development and the extent to which firms will engage in training and education for youths and incumbent workers. The extent to which firms engage in workforce skill development is dependent upon an interaction of economic and organizational factors. Thus an analysis of corporate restructuring and the resulting organizational outcomes and job structures provide a framework for analyzing the role of the firm in workforce skill development.

The economy of the 1990s is generally characterized as one of intense global competition, rapid technological advances, and significant transformation in work practices and firm structure, requiring greater levels of workforce skill. It is thought that the best way for both firms and workers to develop a competitive global advantage is to improve the level of workforce skills (Murnane and Levy 1997). Skill demands grew from the 1960s through the 1980s, though there is no clear evidence of a significant skill shift in the 1990s, with the exception of requirements for the

lowest-level jobs (Moss 1997). Although a better-skilled workforce is thought to be beneficial to the economy and certainly to individuals in terms of increased earnings (Murnane and Levy 1997; Lerman 1997), less clear is the extent to which firms are experiencing recent, acute shortages of skill (again, with the exception of the very lowest level jobs and specific technical occupations).¹

Whether or not there has been a dramatic shift recently toward increased skill, long-term trends certainly are for increased workforce skill. Many researchers and policymakers, however, find a fundamental weakening in the commitment and/or capacity of core institutions to provide that skill. Core firms in the U.S. economy traditionally had strong internal labor markets providing opportunities for skill development and advancement, training, and/or prospects for long-term employment that allowed for on-the-job training and returns to investment in education. Ongoing economic flux leads many firms to believe that they can no longer keep a relatively stable workforce in terms of size and skill composition but will need to turn to the market—they believe that they will need to fire those without requisite skills and hire those with needed skills. In a comprehensive analysis of corporate restructuring, Cappelli et al. find that with the breakdown of “traditional methods of managing employees and developing skilled workers inside companies,” a new employment relationship, “where pressures from product and labor markets are brought inside the or-

ganization," establishes market-mediated employment relationships (1997, 4). Thus many corporate executives, researchers, and policy-makers are declaring an end to the role of core institutions (firms and governments) in providing workforce skill development.

Accompanying—or perhaps causing—this change is what some (Davis, Diekmann, and Tinsley 1994) view as widespread "deinstitutionalization" of the traditional organizational form of the firm, implying that firms as single entities will no longer be the central economic institutions (and will be replaced by networks, virtual corporations, and so on). One consequence is the deintegration of the firm. Segments of the workforce that were formerly considered part of the organization are now either located in other, supplier firms—often smaller, with less capacity and fewer resources to train—or, in the case of contingent workers, not considered eligible for training and skill development opportunities.

We may be entering an era in which workers' skill development is no longer being provided by their firms, where workers may be unable to obtain new skills on the job and advance internally. Instead, it is said, individuals will be responsible for their own skill development in order to remain employable, thus facilitating frequent job changes as firms continually readjust the size and skill composition of their workforces. These changes in the economy and within the corporation are thought to increase the need for skill, but, at the same time, diminish the institutional capacity to develop it.

The issues addressed in the study reported here are the trends in corporate restructuring—particularly, how unstable these firms become in terms of organizational form—and the dynamics of corporate restructuring and job changes that influence the demand for skill by firms. These two factors are important for assessing the extent to which firms are likely to engage in skill development, to address the question posed by Lisa Lynch: "If there is an emerging consensus in the United States that training is necessary for competitiveness, why isn't everyone doing more training?" (1994, 65).

This study involves case studies of large firms that have undergone, or are undergoing, restructuring that encompasses changes in organizational structure and changes in job structure. The focus of the study is how structural changes in firms and jobs affect the skills needed and the involvement of firms in skill development efforts. The focus is broader than job training because it includes how changes may affect formal and informal opportunities for on-the-job learning; linkages with, and the use of, education providers; and approaches to workforce development.² The study adopts an organizational, as well as economic, perspective, seeking to understand firms' training and workforce development decisions by building on the work of Scott and Meyer (1991).³ Little research has been done from an organizational perspective on the dynamics of skill demand—on how restructuring firms obtain needed workforce skills; how they develop plans for skill development; and how the internal dynamics

of firms, the market environment, and other firm-level factors influence workforce development.

CASE STUDIES OF RESTRUCTURING FIRMS

This research is primarily of two industries—insurance and medical imaging equipment—supplemented by case studies of several other firms that are engaged in significant levels of workforce skill development (such as apprenticeship programs or linkages with community colleges).

The insurance industry is a service industry employing workers with a broad range of skill levels; it traditionally has had a highly developed internal labor market in which on-the-job learning, supplemented in some functional areas with externally obtained education, offered the potential for significant mobility. It is an industry that has only within the past five years been sharply exposed to economic pressure and is now undergoing significant restructuring both in terms of internal organizational structure and industry structure. In the life insurance market, the product itself is undergoing change as it becomes a financial planning product, putting insurance companies into competition with financial product companies.

The medical imaging equipment industry is part of the manufacturing sector. Medical imaging equipment includes five basic types, known as “modalities”: X-ray (both conventional and digital radiography), computed tomography (CT), magnetic resonance imaging (MRI), ultrasonic, and nuclear medical instruments.

This industry is representative of new, high-technology-based manufacturing and is of interest as a knowledge-intensive industry that is crossing the boundary between hardware and software, manufacturing and services, involving highly skilled work combined with high-quality demands for assembly and basic parts manufacturing. It is a global industry with about \$8 billion in sales per year.

Within the past five years, the industry has experienced significant market pressure as a result of increased health care cost containment. The industry changed from being almost a cost-plus business into one that is significantly cost constrained. In many countries, the medical industry is subject to increased scrutiny and regulation, further increasing the pressure to improve quality performance (see Tilly and Handel 1997 for an analysis of this industry and recent changes).

The case studies reported here are of three companies, including smaller specialty equipment companies. To better understand the factors that motivate firms to engage in skill development and, in particular, use community colleges, these cases are supplemented by case studies of firms that have actively engaged in significant skill development efforts. This has allowed us to explore cases in which there is a strong initiative to provide training and education through linkages with community colleges. One company is a large firm that manufactured electronic and mechanical devices, and the other produced computer hardware.

FINDINGS

This study addresses the extent to which restructuring firms are unstable in terms of organizational form—losing the capacity to provide skill development for their workforces—and the extent to which job changes, restructuring, and/or technology increases skill levels and therefore increases demand for upgrading the skills of incumbent and new workers. The findings first discussed are the macro-level structural changes in firms, followed by discussion of internal job structure changes. The implications for training and skill development are then discussed.

*The dynamics of
corporate restructuring*

The study's findings suggest that corporate restructuring actually involves three distinct types of change in corporate organization and strategy. What is notable about this period of restructuring is that it appears to reverse a historical pattern of growth that involved the acquisition of other companies and internalization of ever more functions and steps in the production process. The companies in the study were highly vertically integrated firms. The insurance companies had developed multiple lines of insurance to foster growth and market position (to be so-called full-service companies). They did not integrate various product lines in terms of organizational structure, however; thus they resembled in some ways an insurance conglomerate rather than an integrated single-product company.

Each industry, for different reasons, developed intense cost pressures that made existing approaches to business less viable. For the medical industry in the early 1990s, cost containment, changes in reimbursement practices, and other factors led to drops in sales and significant profit declines following a decade of nearly constant double-digit growth (Tilly and Handel 1997). In insurance, deregulation, which allowed more companies to offer a range of financial products, coupled with large investment and underwriting losses—for example, the collapse of real estate markets and a series of casualty losses from hurricanes and earthquakes (Salzman and Buchau 1997)—and changes in health care all threatened the viability of the multiline organization of insurance, as well as profitability.⁴

The first stage of corporate restructuring involves the overall reorganization or sale of unrelated businesses or lines to achieve organizational focus. This ranged from the breakup of diversified conglomerates to the narrowing of product focus (for example, reducing the number of lines in a multiline insurance company). The second stage involves improving operational efficiency through downsizing, layering, outsourcing, and changing jobs in ways such as broad banding, forming work groups, and increasing work loads, but generally not significantly changing the nature of the job activities.

The first two phases of restructuring—organizational focus and operational efficiency—are consistent with the common characterizations of restructuring. It is the attributes of

these phases that have led to predictions of constant turmoil in labor markets, with the end of long-term employment and the rise of market-mediated employment relationships. Some of these changes result in initial cost savings and increases in stock values, though not uniformly (Moss, Salzman, and Tilly 1998; American Management Association 1996). Whether or not these strategies reduce costs and increase stock values, they do lead to a number of problems as companies try to innovate and grow.

To innovate and grow, firms developed a third restructuring stage (cf. Porter 1996). This stage of restructuring, for innovation and growth, is one that is developing and only in its early stages in the case study companies. It is too early to have a clear description of the characteristics that will define companies in this stage; the exact forms are still quite varied; and a dominant form is probably not yet established. It is possible, however, to postulate that the dynamic in this stage will be toward reconstituting organizational integration and recognition of organizational boundaries as important. The importance of firms as organizational entities implies that internal labor markets—and the firm-workforce commitments that are necessary to support these structures—will also be developed, albeit in new forms.⁵ This trend can be illustrated by patterns found in the insurance industry. Each company experienced problems after the initial stages of restructuring to varying degrees, but all were experiencing a distinct shift in organizational restructuring from

focus and efficiency to innovation and growth.

In one insurance company, the changes were in organization, product, and customer focus. The firm was redefining the organization from being a product-defined to a market-defined financial services company, viewing its competition not as other insurance companies but as financial service companies. The product was being redefined from a set of individual products to an integrated and comprehensive set of financial services and instruments; the customer was shifting from institutions to end buyers. This involved yet another organizational restructuring, following the downsizing and delayering of the first two stages.

To support its new focus on offering a portfolio of financial products to customers, this insurance company integrated strategic business units and product lines that had been traditionally separate or were separated as part of the initial restructuring (such as annuities and life insurance). This integration created a larger organizational entity and pushed the cost and efficiency evaluation (individual profit-loss accounting) to a higher level (to the combined division, rather than the level of product line, as in the previous restructuring). This, the company felt, allowed it to focus on product- and customer-based strategies without being hampered by focusing on the microefficiencies of single products or operations, as it had been during the efficiency stage of restructuring.

To support the new organizational structure, the insurance company began a series of significant changes in

the job structure. The effort in this company is to transform one side of the business from an insurance company into a financial services company, involving a set of changes not just in products and business practices but also in organizational culture. Some of the requirements for, and initiatives toward, innovation in products and selling strategies, however, were hampered by several of the previous efforts to achieve greater efficiency and now required new measures to stabilize the organization.

In other companies, similar effects of the first two stages of restructuring were observed. After a transitional phase of downsizing, selling off business units, and delayering to achieve operational efficiency, the firms began to focus on growth and innovation strategies. This effort is leading to reestablishing stability and reintegrating many of the functions that were externalized. Notable are the changes in outsourcing, jobs, and job structure.

Outsourcing and contingent workers

A central change in internal organizational structure during the late 1980s and early 1990s was the increased use of outsourcing and contingent workers. The use of both types of workers represents different dimensions of firms' changing their organizational boundaries. The shift to suppliers often represents a shift in the type of workforce used for a function formerly internal to the firm, as does the use of contingent workers. In the initial stages of corporate restructuring, firms in this

study focused almost exclusively on cost reduction through outsourcing and the use of contingent workers. The magnitude of outsourcing and contingent workers varied widely across the firms. At one extreme, a firm outsourced 12,000 parts over 18 months after deciding to restructure. In doing so, it eliminated most of its production workforce. Another manufacturer went to contingent workers for about 25 percent of its production workforce. Because these shifts were cost- and focus-driven, there was little assessment of the impact on production, service delivery, quality, or the remaining workforce.

Examining the impact of outsourcing revealed a number of shortcomings that suggest that these strategies may be reaching their limits. In the initial stages of restructuring, the focus was on externalizing formerly internal functions, often for use of the market to improve cost and efficiency. That was generally accomplished by using suppliers who provided significantly lower-quality jobs (in terms of both skills and wages) to their workforces and had minimal internal infrastructures (to track processes and procedures). When outsourcing non-commodity components and larger subsystems, firms found quality suffered because of low workforce skills and a lack of infrastructure and procedures to ensure quality in the supplier firms.

As the problems of the initial wave of outsourcing became recognized, companies began to require their suppliers to increase quality through implementing quality processes and technology. The firms also had to in-

crease their staff to test incoming products from suppliers and therefore increased their monitoring costs. The increased demands on suppliers led to many either giving up the contracts or building an infrastructure resembling that of the outsourcing firm. In some ways, what core firms gained by not having to focus on production issues they lost in having to focus on supplier management and, not uncommonly, involvement in developing or managing the supplier's infrastructure and workforce.

The outcome of this third restructuring stage is the rebuilding of stable organizations. These new organizational forms tend to be more occupationally—or at least functionally—homogeneous as a result of the outsourcing and deintegration of noncore functions.⁶ There is also a move back to organizational integration through “in-sourcing,” reducing the number of suppliers and expanding the permanent workforce. The in-sourcing observed tends to be the reintegration of areas that were considered strategic and/or fit with other maintained functions, such as an engineering function but not production. In the third restructuring stage, growth strategies of firms usually involve organizational growth and often the shrinking of extra-organizational linkages (such as suppliers).

The use of contingent workers is also being reconsidered in some of these companies. In nearly all instances, managers found that using contingent workers hindered some aspect of efficiency, skill development, and overall workplace climate. Contingent workers had higher turn-

over, fewer skills, and less organizationally specific knowledge. Moreover, the firms were less likely to invest in training for contingent workers while having to provide more basic orientation because of higher turnover. Production and service quality were considered lower, requiring more supervision and more rework. In other companies, the use of contingent workers created a second-class workforce, which, it was often felt, created divisions between workers, lowered morale, and/or hampered integration of contingent workers as equal participants (for example, in the assignment of work tasks and learning opportunities). Contingent workers were useful in conducting narrowly defined tasks but not in contributing to the broader scope of organizational performance that firms in the third stage were trying to make part of all jobs.⁷

In both outsourcing and the use of contingent workers, there are areas where externalizing the activity was done with little change and/or was easily divisible and not strategic (such as security, custodial, and cafeteria services), but often once outsourcing or the use of contingent workers became a strategy, it expanded throughout the firm. These findings suggest that, as firms move toward innovation and growth, significant outsourcing and use of contingent workers become inhibiting factors.

Job structure and skills

In the first two stages of restructuring, job changes tend to focus on ways of increasing productivity with-

out deep structural change in the organization of work. Job expansion tends to be horizontal, expanding the number of tasks in a given job at the same level. Other changes often streamline processes to increase output and reduce labor requirements without changing job structures. To develop competitive strategies in the third stage, firms find that conceptually new job structures are necessary. The resulting redesign of jobs into broad functional categories and elimination of a finely graded hierarchy presents new opportunities and new barriers: the skill barriers to entry are greater and the gaps between job functions are greater, but skill development and responsibilities as well as wage progression are also much greater within each broad functional area.

One company, for example, eliminated specific job descriptions and instead defined broad functional area responsibilities (such as "customer associate," which encompasses the responsibility of six former discrete jobs), going from 7000 separate job descriptions or classifications to 2000. Workers no longer enter a narrowly defined job that is part of a vertical career ladder but enter a broadly defined job that encompasses a number of functions. Advancement involves increased mastery of competencies rather than specific task learning. Hiring criteria are no longer based on the assessment of a person's ability to perform a particular function or set of task skills but, rather, on the assessment of his or her ability to master a host of skills and responsibilities. To the extent that this type of restructuring occurs

throughout an industry, it suggests not only an increase in the entry-level skills required at even the lowest level (or a shift to hiring applicants at a different level, such as four-year-college graduates instead of high school graduates) but potentially greater skill and wage development within formerly low-level jobs.

Work content

An important consequence of eliminating task-defined jobs is that organization-specific knowledge becomes more important. Thus one finding is that workforce retention and longer tenure become more, not less, important in these firms. Firms try to develop mechanisms to increase job attachment rather than provide for high turnover; downsizing and workforce reductions may have been a consequence of a transitional phase in a firm's restructuring, but they do not appear sustainable as a permanent feature of its future functioning.

Job structure and skill requirements change as companies move their focus from only operational efficiency to innovation and growth. The commonly discussed increase in skills due to a broadening job structure and increased levels of performance has occurred. What we find is that much of the change is organizationally driven—by use of teams, cross-selling, and multiple service responsibilities—with technology as a supporting, but not driving, factor. The major skill needs or selection criteria identified in our interviews are for soft skills in lower-level employees and for leadership and mana-

gerial skills in professional or managerial employees.

Most of the technology-related changes in insurance and medical equipment production require basic computer literacy rather than high-level computer skills. These technology-related skills were not viewed as significant barriers to hiring and brought generally marginal changes for incumbent workers. On the other hand, eliminating highly divided tasks in insurance meant in some cases that high school-level jobs were reduced or eliminated, with an expansion of college-level jobs. This compositional shift of occupations led to hiring from a different pool of applicants, often defined by formal educational credentials.

RESTRUCTURING AND THE DYNAMICS OF SKILL DEVELOPMENT

The case studies identify the ongoing dynamics of corporate restructuring leading to new stages of development. These new stages create pressures for firms to develop in a direction different from that of the earlier restructuring stages. First, the expectation that firms are becoming fundamentally unstable as organizations—in terms of functions, size, form, and technology—is the central premise underlying expectations of high labor market mobility, short tenure, and constant changes in skill needs by firms. Our findings suggest instead that instability associated with restructuring represents a transitional stage and that firms “reinstitutionalize” as more stable organizations and seek to build stable, albeit changed, employment relationships.

Second, as firms change organizational form, they also change job structures to support new competitive strategies. The changes in job structure are fundamentally organizational changes to deliver services or produce goods differently; although they often require new technology in a supportive role, technology tends not to be the driver of job structure change or the most important factor defining the changes. Thus, often there is not a dramatic change in the hard technical skills needed but in what is assessed as the capacity for learning (for example, for acquiring multiple job skills through training and/or on-the-job learning), as well as soft and character skills.

These findings, along with those of many other studies, would suggest that firms should be very concerned about improved skill development. Our findings about restabilizing, innovation, and growth strategies of firms should also indicate that firms are interested in, and have the capacity to engage in, greater skill development. Yet we find that, although firms report a shift to higher workforce skill composition, they are not engaging in significantly greater skill development than in the past. This poses an apparent contradiction between the genesis of much recent U.S. policy—which is based on the contention that American employees are underskilled and that U.S. firms need to upgrade their skill levels—and the behavior of firms that are not investing in skill development or significantly greater training.

This apparent contradiction can be explained at least in part by two broad areas: the organizational con-

text of the skill shift and the dynamics of skill development. First, as noted, the significant skill change tends to be compositional—through outsourcing, job restructuring, and/or work process restructuring, lower-level jobs within the core firm are eliminated so that the remaining skill mix shifts upward (although those lower-skilled jobs may still be part of the overall value chain, just located in another organization). Workforce shifts are often accomplished through retention of higher-skilled workers and by hiring higher-skilled workers during periods of higher unemployment (often as a result of industrywide downsizing). Additionally, the new skill needs reflect a change that may make some of the incumbent workforce skills deficient, but they may not necessarily reflect a skill shortage in the labor market (for example, skill deficits reflecting both previous hiring from a different pool of workers and inadequacies in education and training from previous decades).

Thus examining the organizational context of the skill shifts suggests three factors influencing the actual impact of the observed increase in skill requirements:

1. Firms have, by and large, been able to find workers at the level needed, both within their existing workforce (reduced in the restructuring) and in the labor market, though they may be recruiting from a pool of workers different from the previous pool.

2. The compositional shift in the workforce establishes hiring criteria at a level where skill development is

at least adequate and often more than adequate for the tasks (for example, the idea of finding qualifications at a subbaccalaureate level is abandoned because of the wide variability of both hard and soft skills at that level and the difficulty of selection, leading to targeting an applicant pool that, on average, has higher technical skills than required and that has a higher probability of having the soft skills needed). Thus firms may be interested in increasing rates of postsecondary attendance and completion but less interested in the content of the specific education and skill development at the postsecondary level.⁸ For example, one insurance company said it hires only new entrants with four-year college degrees because “if they get through four years of college, they must have some persistence and learning ability.” That is, they could be expected to have good work habits, to have some minimal levels of basic skills, and to be able to learn on the job, but employers were not concerned with the content of their education.

3. Skill shifts are often very gradual, involving only a few hires at a time. Thus the magnitude of the problem tends to be seen as minimal, even if chronic. When there is a significant shift or change that requires a large number of new hires, it is viewed as—and usually is—an episodic event. A sudden expansion of capacity, the opening of a new plant, or relocation are generally not ongoing events and often occur with relatively short notice. Thus a long-term investment for skill development is not viewed as meeting the immediate and short-lived problem. When hir-

ing is constant, it is often viewed as a problem of turnover and thus the focus is on retention rather than development of the hiring pool.

The second explanation involves the dynamics of skill development within the firm and the countervailing factors to investing in skill development, even if skill deficits are recognized. From the perspective of human resource managers, skill development represents a competitive strategy that reflects their functional focus. For line managers, however, workforce skill is but one factor in a portfolio of competitive strategies and production or service delivery deficits. Operations-level factors may include quality systems, inventory management, scheduling, or a host of other factors, of which workforce skill is only one and, often from the line manager's perspective, one that has the less predictable and less immediate payback. Although some of these processes require training, the training required is often minimal and can be done on the job, and overall the barriers to learning new methods are not seen as consequential.

From the perspective of others in the firm, workforce skill at the front line is only one competitive strategy. Improvements in marketing, finance, and other areas can provide the basis for highly successful competitive strategies. Although some would say that not investing in frontline workforce skill development is a shortsighted competitive strategy, the evidence supporting this position is mixed at best. In the medical equipment industry, our study finds that superior product quality, engi-

neering, and performance often lead to second-best market sales, behind firms that have superior financing and marketing.

Finally, when evaluating a firm's competitive strategy, it is important to recognize the influence of Wall Street in valuing the company. Production or frontline-level returns to investment in human resource development are often not part of Wall Street performance measures, which pose constraints on expenditures for longer-term investment in human resources. For example, one firm that had used a minimum of 45 contingent workers for the previous five years found contingent workers to be less productive than permanent employees and would not invest in their skill development, yet it would not increase its employment of permanent workers. One measure of the firm's performance was sales per employee, and contingent workers were not counted in the equation. Thus whatever losses in production efficiency and quality it suffered on the shop floor, it made up in its stock price on Wall Street. External pressures such as these can encourage firms to cut their workforces beyond operational requirements and inhibit investment in workforce skill development.

In summary, our findings show a mixed picture in terms of investment in frontline worker skill development. Some firms are starting to rethink the initial employment strategies of low job tenure or high turnover, of using temporary workers, and even skill development strategies to buy skill, but some firms are also focusing on competitive strategies that depend less on fron-

tline workers, developing competitive strategies around marketing and finance, and responding to short-term pressures to maintain and improve stock prices. Although the latter strategies may not be successful—or at least may be limited if pursued to the exclusion of job and skill development strategies that lead to innovation, quality, and timeliness in their product and service—the evidence on this point is not unequivocal. Thus it is not clear the extent to which firms will sustain long-term or deep skill development once an initial workforce skill upgrade or shift in occupational composition is complete. Our findings suggest that although the demand for skills has increased, a number of countervailing factors within firms and in the market inhibit firms' active engagement in skill development.

Notes

1. This perception of an increased need for skills is seen as supported by findings of increasing wage returns to education (for example, Murnane and Levy 1997; Lerman 1997; Berman, Bound, and Grilches 1994), but overall increases in skill and wage inequality appear to have occurred in the early to mid-1980s (Lerman 1997); Howell (1997) finds that recent changes have been very small. Moss (1997), in a comprehensive review of the research, concludes that basic skill requirements have increased (for example, inventory requires numeracy; janitorial work requires literacy to understand hazardous-material handling instructions), but, in terms of advanced skill, "there is no evidence of any really noticeable increase in skills or training needed to get a job and no evidence of any sizeable increase in training obtained while on the job" (25). Moreover, because "training is concentrated among the top professions, the most educated, and most experienced workers . . . one might argue that, on average, less training was pro-

vided to most workers" (Moss 1997, 25; see also Holzer 1996). Useem (1993) reviews the research and finds that training was focused on more experienced and educated employees and that it declined for less experienced, less educated workers. The extent to which factors such as technology and job complexity explain the increase in wage premiums versus the changes in institutional factors that lowered the wages for less skilled workers has been questioned (Howell 1997; Moss 1997). Moss (1997) argues, "Taken as a whole, the studies that attempt to look directly at skill changes indicate that skill demands appear to be increasing, but not at the pace suggested by the statistical literature that infers skill changes, not at a pace commensurate with the importance placed upon it by economists explaining the worsening earnings distribution, and not in a way that is so concentrated on computer use as the technological change argument would require" (15). Although the demand for more educated workers has increased, Moss argues that analysis of changes "in the strategy, behavior, and organization *inside of firms*" is necessary to fully understand changes in skill demand and job quality (23).

2. There has been some discussion in the United States about "skill development" and education as differentiated from "training." Carnevale and Desrochers (1997), for example, note that employer-based training "has less durability than broader educational preparation" and that it "tends to lose its economic value and transferability over time" (8). King (1996) discussed the long-term implications of skill development versus more narrowly targeted training, and the value of the former for building workforce skill that can provide longer-term competitive advantage to firms and provide the skill base for workers to adapt to technology and other changes without extensive retraining. Other studies also show that education has a higher payoff over the long term and that return-on-investment studies tend to focus only on short-term returns (for example, Lynch 1994). Support for these positions is suggested by observations that Germany is able to maintain one of the world's most highly skilled workforces with the highest training rates for workers aged 20 to 24 but the lowest rate of training for incumbent workers in the industrialized countries (Lynch 1994). Further, Lynch's findings suggest that training expen-

ditures for incumbent workers in countries such as the United States, where there is a comparatively weak underlying base of skills and education, do not achieve the same levels of skill quality as countries that spend less on training but have better initial skill development.

3. Factors explaining the training behavior of firms were explored by Scott and Meyer (1991) from an organizational or institutionalist perspective, and they discuss the reasons why firms do train. They argue that training programs serve organizational functions beyond direct skill development, as part of an overall trend for firms to expand "membership rights." These rights include training as a way of career mobility or as a means of having employees internalize the norms of the organization, particularly as job structures move away from direct supervising or control mechanisms and as a result of training professionals in expanding their profession. Thus training has multiple determinants in addition to its technical function of increasing efficiency, and this may explain why there is an expansion of training to a broader focus on skills that may not contribute directly to efficiency or productivity and that are more transferable (which economic theory would predict not to occur).

4. Employment growth for employees of insurance carriers declined from 2.7 percent annual growth between 1982 and 1987, to 1.1 percent from 1987 to 1992, down to 0.2 percent from 1992 to 1996. Average annual growth is projected to be 1.2 percent in this sector between 1996 and 2006. For the wage and salary category of insurance agents and brokers (which excludes the self-employed and unpaid family), employment growth declined from 4.7 percent annual growth between 1982 and 1987, to 1.4 percent between 1987 and 1992 and increased to 1.9 percent from 1992 to 1996. Average annual growth is projected to be 0.9 percent in this sector between 1996 and 2006 (U.S. Department of Labor 1997). Related to these changes, merger and acquisition activity doubled from \$12.5 billion in 1994 to \$27 billion in 1995 (Standard & Poor's 1996).

5. The consequences and emerging developments in the firms studied may or may not represent the situation for large numbers of firms; generalizability is always a question in evaluating case studies. Since the companies we studied are large and influential in their

industries, however, what they do will be noted and likely imitated if they are successful or, if they are not, will become practices not to follow.

6. They may not be more homogeneous in skill levels because, for example, the elimination of manufacturing could be accompanied by an increase in support staff for engineering, of clerical workers to track contingent workers, and of suppliers.

7. Although contingent workers reduced permanent headcount (a performance measure in some firms and on Wall Street) and made layoffs easier, managers seldom seemed to think that overall costs were reduced. Although the direct wage bill might be less for using contingent workers than using permanent workers, managers identified other costs that were higher but not accounted for in formal assessments of contingent-worker cost savings (cf. Doeringer et al. 1991). For example, contingent workers required more orientation training and still required indirect personnel costs to administer contracts with the employment agency, which required maintaining the support capacity of permanent workers (for example, supervisor capacity to provide training and oversight; administrative capacity to administer the contracts; and so forth). The firm used contingent workers as its disposable workforce, which it could easily hire or fire, and the contingent workers reciprocated in attitude and behavior.

8. This change in hiring level would imply an increase in labor costs given higher premiums for college-educated workers. The companies interviewed, however, said they were not paying significantly more in labor costs than in the past. Two potential explanations are that the existing non-college-educated workforce was more senior and thus earning pay comparable to that of new college-educated entrants, and that, although the wage differential has increased, this increase is due to a decline in real wages of non-college-educated entrants while college-level entrant wages have remained flat. Thus current college-educated entrants are earning wages comparable to the real wages of non-college-educated workers of previous cohorts.

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