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Employer-Provided Training

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ABSTRACT

It is widely thought that changes which firms have implemented in recent years to improve their competitiveness have substantially affected the skill requirements of jobs. The upgrading of skill requirements has, in turn, prompted Congress to spur employer-provided training of incumbent (i.e., employed) workers through the Workforce Investment Act and the American Competitiveness and Workforce Improvement Act. This represents a marked departure from the typical populations served by government training resources. In this report, what is known about the intensity, content and incidence of companies' human capital investments is explored along with the distribution of employer-sponsored training by business and employee characteristics. Then, the impact on employees and employers of post-school skill acquisition is analyzed. The report also examines whether employer-supported training of incumbent workers is underprovided and the policy implications for Congress. This report will not be updated.

Employer-Provided Training

Summary

The consensus is that the importance of a skilled workforce to the economic performance of nations, firms and employees has increased in recent years. To compete in today's fast-paced global marketplace, companies have strived to increase the efficiency of their operations through heightened utilization of technological and other workplace innovations. It is widely thought that these changes have substantially affected the skill requirements of jobs. The upgrading of job skill requirements has, in turn, prompted Congress to spur employer-provided training of incumbent (i.e., employed) workers through the Workforce Investment Act (P.L. 105-220) and the American Competitiveness and Workforce Improvement Act (P.L. 105-277, Title IV). This represents a marked departure from the typical populations served by government training resources (i.e., low-income and dislocated workers).

Employer-provided education/training lacks a clear definition. It may be tailored to the needs of a given firm (i.e., specific training) or impart skills that are useful across firms (i.e., general training). Training may be informal (e.g., watching or asking others) or formal (e.g., attending on-site classes or vocational schools). These and other variations can differentially affect the costs and benefits of incumbent worker training. The latest available estimates, which are for the mid-1990s, suggest that companies' expenditures on formal training ranged between $42 billion and $52 billion. In terms of benefits, employer-supported training raises employees' wages or improves their job stability and increases productivity or decreases turnover at firms.

It appears that a case can be made for government to promote general (transferable) skills training because firms could well underinvest in this activity. However, as much remains unknown about which kinds of firm-supported training are most effective and how much formal and informal training already is being provided, policymakers seeking to stimulate the training of incumbent workers may want to tread warily in this new area. The possibility of a formal training subsidy prompting firms to substitute federal monies for their own or substituting formal for unsubsidized informal training rather than increase the total quantity of training also implies the need for caution. And, while the currently low unemployment rate may have contributed to policymakers' focus on skill development for individuals who already have jobs, incumbent workers are virtually guaranteed some degree of employer-provided training. In contrast, unemployed persons have only their own presumably scanty resources and, traditionally, federal training funds to draw upon to learn new or upgrade existing skills.

To date, it appears that Congress has carefully entered the field of incumbent worker training by devoting relatively small sums to this purpose (less than $80 million since 1999), including matching requirements in some instances and by prohibiting the use of government resources for training that companies would have undertaken anyway. The recency of the grants awarded to stimulate employer-provided training makes it unlikely that evaluations will be available shortly to shed light on the federal initiative, however.

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Education and training are two examples of human capital investments, which are expenditures that increase the resources embodied in people. Through the expansion of people's knowledge and skills, human capital investments raise productivity and income in future years.[1]

Knowledge and skill formation contribute to a nation's economic performance. To the extent that income growth per capita is caused by increases in land and physical capital per worker, the future rate of growth will slow because additional assets result in diminishing returns. However, the development and application of people's scientific and technical knowledge enable economic growth to continue by raising the productivity of labor and other factors used in the production of goods and services.[2] The adoption, adaptation and diffusion of technological and other workplace innovations, in turn, rely on a nation's having a well-educated and well-trained labor force.[3]

The consensus is that the importance of a knowledgeable, flexible workforce to the economic performance of nations and firms has increased in recent decades. The industrial age was marked by incremental changes which had minimal impact on the skill requirements of most jobs. To compete in the fast-paced global marketplace of the post-industrial age, firms have strived to increase the efficiency of their operations through heightened utilization of computer technology, reconfiguration of the corporate structure and reorganization of production processes. These quantum changes in the way business now is being conducted are widely thought to have substantially affected the skill requirements of jobs. For example, factory workers today might be required to operate sophisticated computerized equipment or to participate in problem-solving teams. Firms sometimes have found that they first must overcome deficiencies in these workers' basic employability (e.g., computation and communication) skills — which previously had not been much in demand — before providing them with the specific skills necessary for implementation of workplace innovations.[4]

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[1] Becker, Gary S. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago, University of Chicago Press, 1993. (Hereafter cited as Becker, *Human Capital: A Theoretical and Empirical Analysis*.)

[2] Productivity is the amount of output produced per unit of input (i.e., land, labor and capital). In the case of labor productivity, it is a measure of the goods and services produced per worker or hour worked.

[3] Mincer, Jacob. *Studies in Human Capital*. England, Edward Elgar Publishing Limited, 1993. (Hereafter cited as Mincer, *Studies in Human Capital*.)

[4] Hollenbeck, Kevin. *Classrooms in the Workplace*. Kalamazoo, MI, W.E. Upjohn Institute

(continued...)

The accumulation of knowledge and skills has come to play a more important role in the labor market prospects of workers, as well. The premium employers pay to workers with greater educational attainment has increased considerably in the past 2 decades: men (women) with bachelor's degrees went from earning 50% (41%) more than men (women) with high school diplomas in 1979, to 92% (76%) more in 1998.[5] As a consequence of this trend, some policymakers are interested in upgrading workers' skills not only for efficiency but also for equity reasons. It is hoped that additional training will mitigate the growth in wage inequality which began in the 1970s.[6]

Although educational attainment is an often-used proxy for skill level, the nature of recent workplace changes may have sped the rate at which formal education becomes obsolete. Observers thus assert that post-school skill acquisition is now of greater importance to adult workers who want to remain employable or to improve their earnings. Demographic changes are believed to bolster the case for lifelong learning as well: the aging of the labor force means that, for growing numbers of workers, the period of formal schooling has long since passed; and the increasing share of minorities "who, on average, experience lower high school completion rates, lower educational attainment scores, and greater literacy problems" means more workers could be unprepared for the labor market's faster growing, higher paying jobs.[7]

Investments in the nation's human resources are made when students attend secondary or post-secondary educational institutions, unemployed workers enter government-sponsored training programs and when employees participate in work-based learning activities. This report focuses on the latter, that is, on the training investments firms make in incumbent workers who no longer are attending school full-time.[8]

Although nearly all of the government's training resources remain focused on low-income or dislocated workers, Congress has shown increased interest since the late 1990s in expanding the amount of training that firms provide to their current employees. Passed in August 1998, the Workforce Investment Act (WIA, P.L. 105-

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[4] (...continued)
for Employment Research, 1993. (Hereafter cited as Hollenbeck, *Classrooms in the Workplace*.)

[5] CRS Report 95-1081, *Education Matters: Earnings by Highest Year of Schooling Completed*, by Linda Levine.

[6] The increased return to education since the 1970s has prompted speculation that the distribution of training may have contributed to the growth in wage inequality. According to Jill Constantine and David Neumark (Training and the Growth of Wage Inequality. *Industrial Relations*, v. 35, no. 4, October 1996), the increased incidence of training among more educated workers was not large enough to have substantially affected the wage structure.

[7] U.S. Department of Labor. *Involving Employers in Training: Literature Review*, Research and Evaluation Report Series 97-K. Washington, D.C., 1997. p. 13.

[8] In this report, the terms "incumbent" or "employed worker" and "employee" are used interchangeably as are the terms "business," "company," "employer" and "firm".

220) allows states to use some of their allocations for "innovative" incumbent worker training programs (Section 134(3)(A)(iv)(I)) and the Secretary of Labor to carry out, through grants or contracts, demonstration and pilot projects to develop and test the effectiveness of various training approaches directed at diverse target populations, including upgrading skills among employed persons living and working in enterprise communities or empowerment zones (Section 171(b) and (c)). The American Competitiveness and Workforce Improvement Act (ACWIA) was included as Title IV of the FY1999 omnibus appropriations act (P.L. 105-277), which was enacted in October 1998. In Section 414(c), additional funding was provided for WIA's Section 171(b) demonstration programs that afford technical skills training to both employed and unemployed workers. More recently, the Administration has requested $30 million for a new incumbent worker program to be initiated in FY2001. The competitive grant program would focus on demonstrating innovative approaches to training/skill upgrading among non-management incumbent workers.[9]

What Is Employer-Provided Training?

The complexity of the activities that comprise firm-sponsored education/training makes this question difficult to answer. It is a complicated subject to study for the following reasons:

- To begin with, it lacks a clear definition. Training may be tailored to meet a business' particular needs, but it also may impart knowledge that would be useful to employees regardless of their place of employment. Employers may require participation in post-school skill development or employees may voluntarily undertake it. Employment-based programs may be of shorter duration and have a more remedial focus[10] or a more occupational focus than school-based programs that confer formal academic credentials. Alternatively, some corporate educational programs grant degrees. Perhaps the only common feature is *the involvement of the firm, in some manner, with the post-school knowledge acquisition of its*

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[9] The meaning of incumbent worker training varies somewhat. One solicitation for grant applications for an incumbent worker demonstration program stated that:

While in general the term "incumbent worker training" may be used to denote any existing efforts on the part of employers to provide training to currently-employed workers in order to help keep these employees employed, the term will be used in the solicitation to describe efforts to keep firms and workers competitive by keeping workers employed, averting layoffs, upgrading workers' skills, increasing wages earned by employees, and improving employees' employability.

In the FY2001 budget request, incumbent worker training not only is invoked as a means of averting layoffs/plant closings due to trade or technological innovations but also as a synonym for lifelong learning that enables firms to build career ladders for their employees.

[10] "Basic skills" or "workplace literacy" instruction focuses on developing reading and writing English, math, English-language communication and interpersonal skills.

employees.The nature of employer involvement in training provision — financial and otherwise — varies. Companies may themselves develop and have in-house personnel lead training programs or they may pay others to perform all or part of the training function. At the same time, they may subsidize their employees' skill formation through paid time-off from work or through tuition reimbursements. The manner of government involvement in employer-sponsored training also varies. Firms themselves may be eligible for financial support from state governments that provide training grants or tax credits as part of their economic development efforts, for example. They also may be eligible for assistance through WIA, which permits federal funds to be spent — for the first time — on the training of employed persons (where no public announcement of a closing has been made). In addition, for-profit firms generally may deduct training expenses when calculating their federal income tax liabilities.[11]

- The subject is further complicated because company investments in incumbent workers are of different types, are delivered in various ways and are of wide-ranging content. Employer-sponsored education and training is *informal* (e.g., an experienced employee showing a new-hire how to perform a task) or *formal* (e.g., an employee attending a class or seminar). While informal training typically occurs at the workplace, formal training may take place there or off-site (e.g., at a community college or commercial trade school). In the case of on-site formal training, a class may be led by an instructor located at the firm or broadcast via satellite. Alternatively, employees may learn from interactive, multimedia technologies. And, the content of the training may relate to the performance of particular jobs (e.g., management skills training) or it may have broader applicability (e.g., interpersonal skills training). Differences in such variables as the type, location, delivery mode and content of training could well have disparate effects on the earnings and productivity of incumbent workers — two commonly used outcome measures.Lastly, employer-supported education and training is neither transparent nor centralized. Rather, it is an amalgam of not readily observable actions being undertaken largely on an independent basis by billions of employers, other training providers and employees. The lack of a uniform accounting method for business' investments in its employees has hampered the collection of high-quality data.[12] Moreover, information needs to be

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[11] Businesses generally may expense training investments (i.e., account for them immediately) rather than amortize them over time. These investments include compensation of in-house trainers, compensation of trainees including educational assistance benefits and payments to outside training providers.

[12] "Firms do not keep good or standardized data on their training expenditures. When asked to estimate the amount spent on training, some firms will estimate their actual program costs while others will compute program costs plus the costs of the employee's time spent in the

(continued...)

> obtained from two groups (i.e., employers and employees) in order to have comprehensive statistics on formal and informal training. But, evidence suggests that the parties sometimes provide different responses to survey questions.[13]

Thus, despite widespread agreement on the importance of employment-oriented skill development among incumbent workers who no longer are full-time students, large gaps remain in our understanding of the issue. The sections below set forth what we know, first examining the intensity, content and incidence of companies' human capital investments. Then, the distribution of training by business and employee characteristics is explored. Next, the impact on employees and employers of post-school skill acquisition is analyzed. The report closes with an examination of whether employer-sponsored training of incumbent workers is underprovided and the policy implications for Congress.

The Intensity, Content and Incidence of Training

It is difficult to measure accurately the cost of and time involved in employer-provided training, as well as its content and prevalence, because much of it occurs informally (i.e., learning by doing, watching or by talking with others). Formal training (i.e., learning by attending a planned activity with a defined agenda that is conducted in a structured setting) at least has a clear start and finish, which should make it easier to measure the cost of the activity.[14] (The employees' hourly compensation must be multiplied by the time spent in training to derive the opportunity cost of training to employers, i.e., value of the output forgone while employees are being trained.) Because it is difficult to determine how much time is spent learning informally, cost information usually is limited to formal training. It also is problematic to ascertain the incidence of informal training because employees may not readily recall these activities or not regard them (e.g., getting advice from co-workers) as training *per se*.[15]

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[12] (...continued)
program while still others will impute an overhead rate to cover fixed costs (facilities, training staff, etc.)." Osterman, Paul. Skill, Training and Work Organization. *Industrial Relations*, v. 34, no. 2, April 1995. p. 133. (Hereafter cited as Osterman, *Skill, Training and Work Organization*.)

[13] Barron, John M., Mark C. Berger and Dan A. Black. How Well Do We Measure Training? *Journal of Labor Economics*, v. 15, no. 3, part 1, July 1997.

[14] Brown, Charles. Empirical Evidence on Private Training in: Commission on Workforce Quality and Labor Market Efficiency. *Investing in People: A Strategy to Address America's Workforce Crisis*. Washington, D.C., U.S. Government Printing Office, September 1989. (Hereafter cited as Brown, *Investing in People*.)

[15] The National Longitudinal Survey of the High School Class of 1972 and the Current Population Survey training supplements (1983 and 1991), which query individuals or households, yield much lower incidences of informal training than the surveys of the Small Business Administration and the Employment Opportunity Pilot Projects, which query (continued...)

Trends in Training Costs

Annual approximations of formal training expenditures for the 1980s generally cluster between $12 billion and $30 billion.[16] The American Society for Training and Development (ASTD) produced a more recent estimate by combining data from the U.S. Bureau of Labor Statistics' Survey of Employer-Provided Training, the National Household Education Survey, and the ASTD Benchmarking Forum. In 1995, firms in the private sector incurred $25.2 billion in direct costs and $27.1 billion in indirect costs related to formal training for a total of $52.3 billion.[17] In contrast, survey data from the U.S. Bureau of Labor Statistics (BLS) show that during 1994 employers spent about $16.6 billion on selected direct costs of formal training.[18] And, between May and October 1995, employers' payments for selected indirect costs of formal training (i.e., trainees' wages and salaries) were about $12.8 billion.[19] Thus, for an entire year in the mid-1990s the cost of formal training was about $42.2 billion. For the mid-1990s, then, the latest available estimates suggest that companies' expenditures on formal training ranged between $42 billion and $52 billion.

Employers appear to have increased their commitment to the formal training of incumbent workers in recent years. According to a BLS survey of employers in the private nonfarm sector with at least 50 employees on their payrolls, 69.2% raised their expenditures on formal training during the early 1990s while just 5.2% lowered them.

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[15] (...continued)
employers. This discrepancy suggests that workers may not remember informal training very well or they may not consider informal practices to be training while employers do. Barron, John M., Mark C. Berger and Dan A. Black. *On-The-Job Training*. Kalamazoo, MI, W.E. Upjohn Institute for Employment Research, 1997. (Hereafter cited as Barron, Berger and Black, *On-The-Job Training*.)

[16] Mangum, Stephen L. Evidence on Private Sector Training in Commission on Workforce Quality and Labor Market Efficiency, *Investing in People*.

[17] ASTD's measure of direct costs includes in-house expenses for curriculum development, salaries and benefits for training personnel and contractors, purchase and maintenance of equipment and the space used for training, as well as outside expenses for tuition reimbursement, contributions to union- and trade association-sponsored training funds, travel/living expenses of employees while attending off-site training and payments to outside training providers. ASTD's measure of indirect costs includes the wages/salaries and fringe benefits of employees while receiving training. Bassi, Laurie J., with Anne L. Gallagher and Ed Schroer. *The ASTD Training Data Book*. VA, ASTD, 1996. (Hereafter cited as Bassi, Gallagher and Schroer, *The ASTD Training Data Book*.)

[18] BLS' measure of direct training costs includes the following: wages and salaries of in-house trainers, payments to outside trainers, tuition reimbursements and contributions to union- or trade association-sponsored training funds. Unlike ASTD's measure of direct costs, it excludes payments for equipment, supplies, space, travel time and the benefits of in-house trainers.

[19] While ASTD's measure captures as part of indirect costs the benefits of trainees, BLS' measure is limited to trainees' wages and salaries. In addition, BLS' sample excludes establishments with fewer than 50 employees while ASTD's sample includes them. Frazis, Harley with Maury Gittleman, Michael Horrigan and Mary Joyce. Results from the 1995 Survey of Employer-Provided Training. *Monthly Labor Review*, June 1998.

Larger firms were more likely than smaller firms to have increased the financial resources devoted to formal training over the period.[20] Another employer survey, this one designed by the National Center on the Educational Quality of the Workforce (EQW), similarly found that 57% of private for-profit firms with at least 20 employees expanded their training activities during the first half of the 1990s.[21] Companies continued to raise the level of training investments during the second half of the 1990s as well.[22]

Training Content by Hours of Participation

Employees averaged 10.7 hours in formal training activities during the May-October 1995 period, two-thirds of which involved job-skills development. Computer-related instruction absorbed the most time (2.1 hours per employee), followed by professional and technical skills training (1.3 hours per employee) and production- and construction-related skills training (1.1 hours per employee). Although management skills training was the most prevalent type of job-skills training that establishments provided,[23] it accounted for comparatively few hours (0.8 per employee).

The development of more broadly applicable skills took up the remaining one-third of formal training time. Much of this time was spent in communications, employee development and quality training (1.4 hours per employee) and occupational safety training (1.2 hours per employee). Not only did employees attend more activities related to occupational safety training (0.6 activities per employee) than any other type of formal training, but many firms also offered instruction on this subject (72%). In contrast, orientation training was as prevalent among firms as safety training according to the BLS employer survey, but it accounted for much less of an employee's work time (0.6 hours and 0.1 activities per employee).

The content of informal training closely reflects that of formal training. Employees reported that production/construction training and computer training accounted for more hours than other kinds of informal job-skills training. Occupational safety and communications/employee development/quality training

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[20] U.S. Bureau of Labor Statistics. *BLS Reports on the Amount of Employer-Provided Formal Training*. USDL 96-268, July 10, 1996. (Hereafter cited as BLS, *BLS Reports on the Amount of Employer-Provided Formal Training*.)

[21] National Center on the Educational Quality of the Workforce. *First Findings from the EQW National Employer Survey*. Philadelphia, PA, University of Pennsylvania, 1995. (Hereafter cited as National Center on the Educational Quality of the Workforce, *First Findings from the EQW National Employer Survey*.)

[22] McMurrer, Daniel P., with Mark E. Van Buren and William H. Woodwell, Jr.. *The 2000 ASTD State of the Industry Report*. VA, ASTD, 2000.

[23] About 67% of private nonfarm establishments with at least 50 employees offered formal training in management skills in May-October 1995, according to BLS *Reports on the Amount of Employer-Provided Formal Training*.

accounted for more hours per employee than other kinds of informal general-skills training.[24]

Basic Employability Skills. Somewhat surprisingly in light of oft-heard accounts about the inadequacy of workers' basic skills,[25] relatively few employees surveyed by the BLS said that they received or spent much time participating (either on a formal or informal basis) in workplace literacy training.[26] Similarly, results from the BLS and EQW employer surveys show that practically no time or funds were expended on formal remedial instruction.[27] And, smaller firms appear to be even less likely than larger firms to offer workplace education programs.[28] While acknowledging such findings, ASTD nonetheless found it "somewhat significant" that any businesses teach employability skills because "such training covers the very basic types of skills that public education is intended to provide."[29]

The Incidence of Training

Informal Compared to Formal. Almost all incumbent workers at private nonfarm establishments with 50 or more employees in the mid-1990s had received informal training while with their current employers (95.8%). Formal training was less prevalent, with 84.4% of incumbent workers having participated.[30]

Results from other sources similarly show that the incidence of informal training greatly surpasses that of formal training. A 1992 U.S. Small Business Administration (SBA) survey of private nonfarm employers found that just 6.9% of newly hired employees received off-site formal training and 20.5% received on-site formal training. In contrast, 90.6% of new-hires received informal training from management

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[24] BLS. *BLS Reports on the Amount of Formal and Informal Training Received by Employees*. USDL 96-515, December 19, 1996. (Hereafter cited as BLS, *BLS Reports on the Amount of Formal and Informal Training Received by Employees*.)

[25] Firms reported that nearly 36% of job applicants whom they tested in 1998 for literacy and/or math skills lacked the basic qualifications for the positions sought. American Management Association. *1999 AMA Survey on Workplace Testing: Basic Skills, Job Skills, Psychological Measure*. NY, 1999. Between 25% and 40% of hourly paid workers had some basic skills deficiency in the early 1990s. Hollenbeck, *Classrooms in the Workplace*.

[26] About 3% of employees spent just 0.2 hours per employee in informal basic skills training. Under 7% of employees spent less than 0.1 hours per employee in formal basic skills training. BLS, *BLS Reports on the Amount of Formal and Informal Training Received by Employees*.

[27] For example, just 0.1 hours per employee or 1% of formal training hours were spent learning basic skills according to the 1995 BLS employer survey.

[28] In 1991, less than 5% of firms with under 20 employees said they had established an education program compared to 20%-30% of firms with 200-499 employees. Bassi, Laurie J. *Smart Workers, Smart Work*. Washington, D.C., The Southport Institute for Policy Analysis, 1992. (Hereafter cited as Bassi, *Smart Workers, Smart Work*.)

[29] Bassi, Gallagher and Schroer, *The ASTD Training Data Book*, p. 55.

[30] BLS, *BLS Reports on the Amount of Formal and Informal Training Received by Employees*.

or supervisors, 60.5% from co-workers and 64.5% from watching others. Among other things, the lower incidence of formal training in the SBA compared to the BLS survey suggests that employers are less likely to provide training that entails substantial outlays (e.g., on tuition or transportation) to new-hires than to employees with longer tenure who thereby have demonstrated an attachment to their firms.[31]

Table 1. Wage and Salary Costs of Training and Hours of Training by Establishment Size
(May-October 1995)

Costs and hours	Establishment size			
	All	**50-99 employees**	**100-499 employees**	**500 or more employees**
Total wages & salaries paid to employees while in training ($ in billions)	37.1	5.7	16.8	14.6
Formal training	12.8	1.3	5.5	5.9
Informal training	24.2	4.3	11.3	8.7
Per-employee wage & salary costs of training ($)	647	462	654	754
Formal training	224	110	215	308
Informal training	423	352	439	446
Per-employee hours of training	44.5	40.1	48.0	42.6
Formal training	13.4	8.2	13.5	16.6
Informal training	31.1	31.9	34.5	26.0

Source: U.S. Bureau of Labor Statistics. *BLS Reports on the Amount of Formal and Informal Training Received by Employees*. USDL 96-515, December 19, 1996.

Data on hours of training also reveal that most employer-provided training is informal. As shown above in **Table 1**, the typical employee spent much more time engaged in informal than in formal training during a 6-month period in 1995 (31.1 hours and 13.4 hours, respectively). According to the SBA survey, newly hired workers averaged considerably more time in informal than in formal training as well.

By Firm Size. Smaller businesses offer much less formal training than larger businesses. On average, incumbent workers at establishments with 50-99 employees were engaged in formal training one-half as long as employees of establishments with

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[31] Barron, Berger and Black, *On-The-Job Training*. Note: A nationally representative sample of both small and large establishments were surveyed.

at least 500 employees. (See **Table 1**.) Smaller firms also spent one-third as much per employee as firms with at least 500 employees in 1994 on such direct costs of formal training as the wages and salaries of in-house trainers, payments to outside trainers, tuition reimbursements and contributions to outside training funds.[32]

In contrast, smaller firms especially utilize informal training. At employers with 50-99 workers, employees reported that they averaged 31.9 hours of informal training in May-October 1995, or almost 4 times the amount of formal training. (See **Table 1**.) At establishments with 100-499 employees, the 34.5 hours of informal training per employee was little more than 2½ times the amount of formal training. And, at companies with 500 or more employees, the 26.0 hours of informal training was an even smaller multiple of formal training.

As shown in **Table 1**, informal training accounted for about two-thirds ($24.2 billion) of employers' spending on the wages and salaries of participants in both formal and informal training ($37.1 billion) during a 6-month period in 1995. While smaller firms' expenditures for both informal and formal training were less than those of larger firms, the gap was widest for formal training. This again indicates the considerable use of informal training among smaller firms.

The Distribution of Training

The surveys from which the following findings were derived differ in a number of respects, and for that reason among others, their results sometimes disagree. Different populations are surveyed (e.g., employers as opposed to employees, all establishments versus only those with at least 50 employees or a nationally representative sample in contrast to one that disproportionately includes low-wage firms or is confined to young adults). Questions are phrased in varying ways (e.g., how long does it typically take an employee to become fully trained and qualified for a particular job versus the length of training that an employee actually engaged in). And, the time period referred to differs (e.g., training undertaken while at the current employer or within the first 3 months on the job). Nonetheless, there are several points on which the empirical literature agree.

Who Provides Training?

It is well-established that larger firms more often provide training, particularly formal training, than smaller firms.[33] The positive relationship between formal training

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[32] BLS, *BLS Reports on the Amount of Employer-Provided Formal Training.*

[33] According to a 1993 BLS survey of formal training of private nonfarm establishments, for example, just 69% of the smallest companies (i.e., 0-49 employees) provided formal training compared to 98% of firms with 50-249 employees and 99% of firms with at least 250 employees. The EQW survey includes incidence data for both formal and informal training: on average, 81% of private for-profit firms with 20 or more employees offered formal training in 1994, while the same was true for just 75% of firms with 20-49 employees; the gap in

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and firm size, even after other variables are taken into account, may be due to larger companies' enjoying economies of scale. Put another way, up-front expenses could be less of a barrier to training for larger firms because they have more employees across which to spread those costs that are little changed as the number of trainees increases (e.g., the cost of course development or the salary of an in-house instructor). Perhaps for the same reason, small employers that are part of multi-establishment firms are more likely to provide formal training. That is to say, multi-establishment businesses could spread fixed training expenses over a large number of plants/offices and thereby keep down their smaller locations' human capital costs. Another interpretation of the direct relationship between training and firm size is that smaller firms may be more fearful of employees being hired away by competitors. Moreover, the production losses incurred when an employee participates in a formal training program held off-site may be greater at smaller firms.[34] Similarly, larger firms may find it easier to free-up co-workers to informally train others without experiencing substantial output losses.[35]

Firms that experience comparatively high employee turnover tend to less often sponsor training. Training also is diminished at companies that are more sensitive to downturns in the business cycle or that are in areas with persistently high unemployment. A potential explanation for the inverse relationship between training and these three variables — employee turnover, volatile product demand and high unemployment — is that employers are reluctant to invest in employees when they know chances are great that the worker will be laid off or quit before the cost of their investment can be recouped.[36]

In contrast, industries that experience rapid technological change are more likely to provide formal on-the-job training to their incumbent workers generally and to do so for a larger share of their employees. By implication, technological change may make knowledge and skills obsolete thereby promoting greater company training. But, because the training gap between more and less educated is estimated to narrow at firms experiencing rapid technological change, it appears that the general skills of highly educated workers may enable them to adjust to new innovations with less

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[33] (...continued)
informal training is much narrower, with 97% of firms employing at least 20 employees offering informal training versus 96% of firms with 20-49 employees. Frazis, Harley J., Diane E. Herz and Michael W. Horrigan. Employer-Provided Training: Results from a New Survey. *Monthly Labor Review*, May 1995; and National Center on the Educational Quality of the Workforce, *First Findings from the EQW National Employer Survey.*

[34] Lynch, Lisa M., and Sandra E. Black. Beyond the Incidence of Employer-Provided Training. *Industrial and Labor Relations Review*, v. 52, no. 1, October 1998. (Hereafter cited as Lynch and Black, *Beyond the Incidence of Employer-Provided Training*.)

[35] Barron, Berger and Black, *On-The-Job Training*.

[36] Lillard, Lee A., and Hong W. Tan. Private Sector Training: Who Gets It and What Are Its Effects? *Research in Labor Economics*, v. 13, 1992. (Hereafter cited as Lillard and Tan, *Private Sector Training: Who Gets It and What Are Its Effects?*)

additional training than is needed by workers with fewer years of schooling.[37] Other organizational transformations have been found to have similar effects on employer-provided training. For example, firms that have implemented innovative workplace practices (e.g., requiring employees to exercise responsibility for quality control or for problem solving) not only exhibit a greater probability of offering formal training but also are more likely to train a greater share of their workforces. The same findings hold, all else being equal, for businesses that are relatively capital-intensive and have comparatively well-educated workforces. Employer-supported training thus seems to complement rather than substitute for investments in physical and human capital, which suggests that concerns about businesses replacing high-skilled workers with new technologies or low-skilled workers may not be well-founded.[38]

Companies that try to actively maintain a long-term relationship with their employees appear to sponsor more training as well. According to one empirical analysis, the hours of formal training are greater at establishments that offer more benefits (e.g., employee assistance plans, employer-financed child care, health insurance, pensions or paid family leave) and that have more innovative workplace practices (e.g., pay for knowledge, job redesign or rotation, quality circles, or teams).[39] Another study similarly found that off-the-job training is more likely at firms that feel it is important to help improve the well-being of their employees' personal and family lives (e.g., through the provision of family friendly benefits) and that have instituted innovations characteristic of "high-performance workplaces" (e.g., quality circles or total quality management).[40] In contrast, various studies have come to different conclusions about the effect of unionization on employer-provided training.[41]

Who Gets Trained?

Educational attainment is a significant determinant of who gets trained, even after holding other variables constant. The probability of formal training receipt increases with years of schooling, that is to say, education and training are complements rather than substitutes for one another. Because individuals who enter the labor force with relatively limited education thus face little prospect of additional

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[37] Bartel, Ann P., and Machum Sicherman. Technological Change and the Skill Acquisition of Young Workers. *Journal of Labor Economics*, v. 16, no. 4, 1998.

[38] Lynch and Black, *Beyond the Incidence of Employer-Provided Training.*

[39] Frazis, Harley, Maury Gittleman and Mary Joyce. Correlates of Training: An Analysis Using Both Employer and Employee Characteristics. *Industrial and Labor Relations Review,* v. 53, no. 3, April 2000. (Hereafter cited as Frazis, Gittleman and Joyce, *Correlates of Training*.)

[40] Osterman, *Skill, Training and Work Organization*. Note: The positive relationship between organizational change and the incidence of formal training also is demonstrated in research that utilizes a survey of individuals rather than of firms. Leigh, Duane E., and Kirk D. Gifford. Workplace Transformation and Worker Upskilling: The Perspective of Individual Workers. *Industrial Relations*, v. 38, no. 2, April 1994.

[41] See, for example, Frazis, Gittleman and Joyce. *Correlates of Training*; and Lynch and Black, *Beyond the Incidence of Employer-Provided Training*.

structured learning once employed, company training effectively widens the skills gap between less and more educated workers.[42]

Some demographic features tend to depress the chance of training receipt. All else being equal, the probability of non-white males obtaining training was estimated to be significantly lower than that of other males. Racial differences in the incidence of training appear to be less evident among younger than older men. The effect of race on training is not apparent among women or among low-income workers, according to one analysis. It also concluded that economically disadvantaged workers (regardless of race) are less likely to get post-school training.[43]

Studies have come to mixed conclusions about the impact of gender on training receipt, in part because they have measured different things (e.g., the intensity as opposed to the incidence of training) or have disaggregated the data in different ways (e.g., all women as opposed to women by race or marital status). Although some studies estimate that men and women spend about the same amount of time in training, one determined that women were more likely to fill positions that require less training.[44] The latter finding may result from differences in job turnover by sex (a reflection of the weaker attachment to the labor market of women generally and of married women especially) or from discrimination.[45] While there may or may not be much of a gender gap in the overall incidence of training, the sources of training do seem to vary by sex even after controlling for other variables: young men are more likely to participate in company training and in apprenticeships and young women in off-site or off-the-job training (e.g., vocational schools or seminars outside of work).[46]

Agreement is widespread in the economic literature that the probability of training receipt rises with employee tenure. Consequently, those employees who accumulate little tenure with a firm because they change jobs often or enter/exit the labor force frequently are less likely to be offered training. At some point in the seniority or age spectrum, however, training tapers off. This probably is, in part, because the payoff period for the firm's investment shortens.

There are several reasons why firms might want to delay offering training to recently hired workers, although doing so means that they forgo the return to training that would have occurred during the early part of the employment period. Employers might put off the training of new-hires because they are uncertain at the outset of the employment relationship about the likelihood of employees' leaving before the

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[42] Lynch and Black, *Beyond the Incidence of Employer-Provided Training.*

[43] Lillard and Tan, *Private Sector Training: Who Gets It and What Are Its Effects?*

[44] Veum, Jonathan R. Gender and Race Differences in Company Training. *Industrial Relations*, v. 35, no. 1, January 1996; and Barron, John M. with Dan A. Black, and Mark A. Loewenstein. Gender Differences in Training, Capital and Wages. *The Journal of Human Resources*, v. 28, no. 2, spring 1993.

[45] Royalty, Anne Beeson. The Effects of Job Turnover on the Training of Men and Women. *Industrial and Labor Relations Review*, v. 49, no. 3, April 1996.

[46] Veum, Jonathan R. Training Among Young Adults: Who, What Kind, and For How Long? *Monthly Labor Review*, August 1993.

companies' investment can be recouped. Alternatively, employers might postpone training beyond the first year of employment if they think individuals are better able to learn after they have become acclimated to their job and to the work environment. Companies also might delay training until they determine who are the likely candidates for promotion and then concentrate their investments on them. Regardless of the reason, training apparently is not limited to recently hired workers; instead, it is an ongoing process provided to employees throughout much of their tenure at a firm.[47]

The Impact of Training

Workers undertake training to raise their earnings and improve their job security over otherwise comparable individuals. For their part, employers invest in training to increase labor productivity and to decrease costly employee turnover.

Returns to Employees

Earnings and Earnings Growth. Empirical studies unanimously confirm a major tenet of human capital theory, which is that training plays an important role in wage determination.[48] Trained workers earn higher wages and their wages rise more rapidly than those of comparable employees, according to numerous nonexperimental analyses.[49]

The timing and size of the payoff to training could vary with the kind of training. *Specific training* — defined as the development of skills that enhance the productivity of a worker only at the firm that offers it — likely provides a fairly immediate return to the worker. (Examples of specific human capital are knowledge of the personnel policies or organization of work processes at a particular employer.) *General training* — defined as the development of skills that enhance the productivity of a worker at many employers — may provide a somewhat delayed return. (Examples of general human capital are the knowledge of computer software or automotive repair.) General skills development also may have a larger payoff because of its greater portability across firms. In other words, employers presumably are able to pay smaller wage premiums to retain employees who have had specific training

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[47] Loewenstein, Mark A., and James R. Spletzer. Delayed Formal On-The-Job Training. *Industrial and Labor Relations Review*, v. 51, no. 1, October 1997.

[48] See, for example, Altonji, Joseph G., and James R. Spletzer. Worker Characteristics, Job Characteristics, and the Receipt of On-The-Job Training. *Industrial and Labor Relations Review*, v. 45, no. 1, October 1991; Lynch, Lisa M. Private-Sector Training and the Earnings of Young Workers. *American Economic Review*, v. 82, no. 1, March 1992; and Mincer, *Studies in Human Capital.*

[49] Employees may not be randomly selected for training, in which case trainees could have had higher wages or greater productivity than non-trainees even without training. To avoid overstating the impact of training per se, the studies discussed above identify those factors available in the particular database being used that are known to effect the chance of being trained (e.g., education level or firm size) and control for them when estimating the return to training for employees and employers.

because their skills would not be equally valued and therefore equally rewarded by other employers.[50]

Consequently, some studies have analyzed the impact on earnings and earnings growth of different kinds of formal training. But, very few surveys explicitly inquire whether training is specific or general. They instead may ask about the source of the training, with some sources (e.g., the company) thought to offer training with greater specific content than others (e.g., vocational-technical school). Their results, discussed below, are sometimes contradictory or inconclusive.

One analysis found that participation in formal company training and attendance at off-the-job seminars, which may impart specific or general skills, were positively related to wage levels.[51] Participation in company training improved the wage growth of men and women. Attendance at seminars did so for men only. The rate of earnings gains also was estimated to be directly related to the length of vocational-technical training but unrelated to its incidence. This suggests that, in the case of vocational training, what is important to producing a return on investment is not just participating in the program but actually completing it. Notably, proprietary institutions other than vocational-technical schools (e.g., correspondence courses and business schools) did not appear to raise workers' earnings growth, at least not within the 4-year period under study.[52]

Not only was formal company training estimated to have a significant positive impact on earnings growth in another study, but so too were apprenticeships and correspondence schools. In addition, business and vocational-technical school training as well as apprenticeships appear to have a delayed impact on earnings gains. These findings seemingly contradict those described in the preceding paragraph, perhaps because the reference period of research must be longer to pick up the wage effects from certain training sources. Company training, in contrast, seems to have a more immediate impact on wage growth but the impact lessens over time. Company training includes formal programs staffed in-house, vendor training held at the worksite but run by an outside training provider and outside seminars that employees leave the worksite to attend. Of the three, only vendor training was found to have no influence on wage growth.[53]

Interestingly, the wage effect of training appears to be larger if employers pay for their employees' school-based training than if the employees pay for it

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[50] Becker, *Human Capital: A Theoretical and Empirical Analysis.*

[51] Off-the-job training includes business school, nursing programs, vocational-technical institutes, barber and beauty schools, flight school, correspondence courses, seminars or training programs outside of work, vocational rehabilitation centers and other.

[52] Veum, Jonathan R. Sources of Training and Their Impact on Wages. *Industrial and Labor Relations Review*, v. 48, no. 4, July 1995.

[53] Lengerman, Paul Adrian. The Benefits and Costs of Training: A Comparison of Formal Company Training, Vendor Training, Outside Seminars, and School Based Training. *Human Resource Management*, fall 1996, v. 35, no. 3. (Hereafter cited as Lengerman, *The Benefits and Costs of Training*.)

themselves.[54] One interpretation of this finding is that companies are better than workers at choosing training that provides skills which are most job-relevant. If so, government subsidies to promote incumbent worker training may be more effective at raising employees' earnings if they are offered to firms rather than to individuals through, for example, vouchers. But, an alternative explanation of the smaller wage effect for employee-financed school-based training is that individuals may elect to acquire skills that improve their career mobility in the future rather than skills that immediately raise wages on their current jobs.[55]

Another analysis also found that workers who undertook either formal company or off-the-job training had higher wages than workers who did not. The return was greater for company training, and particularly for completed programs. It did not seem to matter whether the company training took place while the worker was at the prior or current employer. This result suggests that company training may not be synonymous with the development of specific skills. Rather, company training appears to impart skills that are valued equally regardless of who is the employer.[56] Other researchers similarly have concluded that, because *current employers reward employees for skills they acquired while at previous firms*, the skills largely are general and are recognized as such by other employers.[57]

Employment Stability. Here too the issues are not only whether training benefits workers through reduced unemployment but also whether certain kinds of training are more effective than others at enabling workers to find and keep jobs. Studies have most often examined training's effect on wages, with much less analysis of training's impact on job stability or on the other outcome variables discussed shortly in this report.

According to one study that looked only at young men, training is associated with a reduced likelihood of unemployment and this effect may continue for 12 years. Of the sources of training, the impact of company training on the incidence of unemployment was the most enduring at almost 13 years. Training provided by business or technical schools was not found to significantly inhibit unemployment. Of

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[54] In addition to Lengerman, *The Benefits and Costs of Training*, other studies that make the same point are Bowers, Norman, and Paul Swaim. Recent Trends in Job Training. Contemporary Economic Policy, v. 12, January 1994; Grubb, Norton. The Varied Economic Returns to Postsecondary Education: New Evidence from the National Longitudinal Study of the Class of 1972. *Journal of Human Resources*, v. 28, no. 2, spring 1993; and Loewenstein, Mark A. and James R. Spletzer. Dividing the Costs and Returns to General Training. *Journal of Labor Economics*, v. 16, no. 1, January 1998.

[55] Lynch, Lisa M. Private-Sector Training and the Earnings of Young Workers. *American Economic Review*, March 1992.

[56] Parent, Daniel. Wages and Mobility: The Impact of Employer-Provided Training. *Journal of Labor Economics*, v. 17, no. 2, 1999. (Hereafter cited as Parent, *Wages and Mobility: The Impact of Employer-Provided Training*.)

[57] Loewenstein, Mark A., and James R. Spletzer. General and Specific Training. *Journal of Human Resources*, v. 34, no. 4, fall 1999. (Hereafter cited as Loewenstein and Spletzer, *General and Specific Training*.) and Veum, Jonathan. Training, Wages and the Human Capital Model. *Southern Economic Journal*, v. 65, no. 3, 1999.

the types of training, professional/technical training most reduced the probability of unemployment but its impact lasted less than 12 years. In contrast, the positive impact of semiskilled manual training on employment stability was determined to persist for 12.2 years. And, managerial training did not significantly effect the likelihood of unemployment.[58]

Returns to Employers

Productivity. The effect of training on labor productivity has been particularly difficult to empirically ascertain because surveys of individuals that include training questions do not also include questions about employers' economic performance. The dearth of information has led researchers to rely on a very few employer surveys or to use subjective measures of productivity.

One study of manufacturers found those that implemented new formal training programs after 1983 experienced significant productivity increases during the 1983-1986 period. However, the extremely low response rate of surveyed establishments tempers the reliability of the analysis.[59]

Another employer-based study that used as a training variable the number of workers involved in training in 1990 and 1993 did not find a significant impact on productivity. But, the training variable itself probably contributed to the result as it did not capture the accumulated training of all workers. In contrast, the study also determined that the proportion of time spent in off-the-job training was directly related to productivity in manufacturing establishments. The researchers suggest this positive effect results from lower output losses because the training occurred outside work hours or from the advanced nature of this type of training. In the nonmanufacturing sector, computer skills development was found to have a positive effect on productivity. Perhaps, then, the productivity effect at some establishments is due more to the content than to the incidence of training.[60]

Still other employer-based studies utilized a firm's subjective rating of its employees' productivity. The time spent in formal and informal training was estimated to be positively related to productivity growth.[61] In addition, formal and informal company training *received from a previous employer* were found to increase productivity. Off-the-job training seems to generate even more substantial, longer lasting productivity gains for the worker's subsequent employers.[62]

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[58] Lillard and Tan, *Private Sector Training: Who Gets It and What Are Its Effects?*

[59] Bartel, Ann P. Productivity Gains from the Implementation of Employee Training Programs. *Industrial Relations*, v. 33, no. 4, October 1994.

[60] Black, Sandra E., and Lisa M. Lynch. Human-Capital Investments and Productivity. *American Economic Review*, v. 86, no. 2, May 1996, Papers and Proceedings of the 108th Annual Meeting of the American Economic Association.

[61] Holzer, Harry J. The Determinants of Employee Productivity and Earnings. *Industrial Relations*, v. 29, no. 3, fall 1990; and Barron, Berger and Black, *On-The-Job Training.*

[62] Bishop, John H., The Impact of Previous Training on Productivity and Wages in Lynch, (continued...)

Employee Turnover. In theory, an investment in specific human capital binds workers to the firm that makes the investment. Expressed differently, training that is very tailored to the needs of a given firm is expected to discourage quits or layoffs that end the mutually beneficial relationship (i.e., employees are paid higher wages and experience greater wage growth than they could get elsewhere because the training is not portable and employers enjoy productivity gains that exceed the worker's wage). An investment in general human capital, in contrast, is not expected to affect worker mobility because the transferability of general skills means that workers are equally productive — and therefore can command the same wage levels and wage growth — at any firm.

As anticipated, employer-provided training reduces the probability of employee separations.[63] While this finding supports the idea that company training is specific, another study estimated the negative effect of employer-provided training on employee turnover is quite small. The magnitude of the mobility effect, in addition to the economists' finding that current employers reward employees for training received while at prior employers, led them to surmise that much employer-provided is general.[64]

In an analysis of workplace education programs, it was found that firms which offered general training in basic skills were more likely to report improved employee retention. Rather than raising turnover as workers with readily portable skills leave for or are poached by other companies, this research suggests that the acquisition of general skills may actually lower separations.[65]

Some Policy Implications

Summarizing the findings on the impact of training, employer-supported training benefits:

- trainees through higher wages,
- training firms through higher productivity, *and*
- third parties who, in this case, are firms that hire employees with prior general training.

The existence of positive externalities — benefits that spillover beyond the parties immediately involved in an activity — imply that firms may not be offering an optimal quantity of training. In deciding how much training to offer incumbent workers, employers consider the costs and benefits of training *to them*. That is to say, they do

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[62] (...continued)
Lisa M. (ed.) *Training and the Private Sector: International Comparisons*. IL, The University of Chicago Press, 1994. (Hereafter cited as Bishop, *The Impact of Previous Training on Productivity and Wages*.)

[63] Mincer, Studies in Human Capital; and Parent, *Wages and Mobility: The Impact of Employer-Provided Training*.

[64] Loewenstein and Spletzer, *General and Specific Training.*

[65] Bassi, Smart Workers, *Smart Work.*

not take into account the positive or negative impact of their decision on others. To the degree that having a skilled workforce confers benefits that exceed the private return to the training firm, employers will not offer the optimal amount of training (i.e., training is said to be underprovided). *The market's seeming failure to provide a socially optimal level of training is a rationale for government involvement in employer-sponsored training.*

There is additional evidence which suggests that training not only generates benefits for other firms but also for society at large. As previously discussed, individuals with relatively more training have higher earnings and greater job security. Consequently, they are more likely to pay higher taxes and less likely to utilize government services (e.g., unemployment insurance or cash welfare and health benefits). As it thus seems that employer-supported training does produce third-party externalities and the market fails to offer it at a socially optimal level, "modest governmental efforts to stimulate general OJT [on-the-job] and employer-sponsored formal off-the-job training would appear to be in order."[66] (See the final section of this report for further elaboration on this point.)

Although employer-sponsored education and training has been found to benefit both employees and employers, the research results demonstrate that very little is known about which kinds of training (e.g., formal versus informal training or formal on-the-job versus off-the-job training) are most effective for employees and firms overall, or for different kinds of employees (e.g., minorities or low-wage workers) and firms (e.g., small employers). Accordingly, policymakers seeking to stimulate incumbent worker training may not want to be too prescriptive about its content, delivery mode or target population.

For equity (i.e., distributional) reasons, however, Congress may want to focus training resources on less educated employees whose relative disadvantage upon entering the labor force is exacerbated by the current pattern of employer-provided formal training. Indeed, demonstration programs under WIA (or its predecessor, the Job Training Partnership Act) and under ACWIA that focus on dislocated worker, incumbent worker or skills shortages training sometimes have targeted groups that historically have needed assistance in overcoming employment barriers (e.g., minorities, disabled and low-skilled workers) and they have included a mixture of basic employability and occupation- or industry-related skills development.[67]

However, a federal subsidy targeted at less-educated or otherwise disadvantaged workers may not induce additional training. Instead, it may prompt companies to substitute formal for informal training of these groups. This could be the outcome of a broad-based training incentive as well. The result of a training subsidy or mandate

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[66] Bishop, *The Impact of Previous Training on Productivity and Wages*, p. 194.

[67] See, for example, the Employment and Training Administration's press release on H-1B technical skills training grants at: [http://www.wdsc.org/sga/awards/99-019finalsum.htm].

thus may be to raise expenditures on formal training, lower the amount of informal training and leave employees' earnings unchanged.[68]

This discussion assumes that policymakers would be interested in subsidizing only formal training because of the difficulty in measuring expenditures on informal training (i.e., distinguishing it from normal work and supervision). This assumption is borne out by a statement in solicitations for grant applications for dislocated or incumbent worker training demonstrations that expressly prohibits the use of federal funds to pay participants' salaries. While trainees' salaries are indirect costs of both formal and informal training, they are likely to account for more of the expenditures on informal training which does not entail certain expenses associated with formal training (e.g., payments to outside training providers for curriculum development and instruction; tuition reimbursement; transportation, lodging or meals; and purchase or maintenance of equipment and classroom space). By putting off-limits the salaries of employees engaged in training, the language in the grant solicitation favors the provision of formal over informal training.

As previously mentioned, however, it is not known whether the payoff to formal training is greater than to informal training. And, it is possible that certain types of skills may be less costly to learn (i.e., more efficiently provided) through informal means. Consequently, the availability of a formal training subsidy may reduce the efficiency of human capital production by encouraging the use of more expensive methods. Further, since smaller firms are more likely than larger firms to train informally, "a subsidy of formal training programs ... is an implicit decision to subsidize larger firms."[69] Perhaps to compensate for this bias, the Labor Department in one instance geared a portion of incumbent worker demonstration grants to assist in the training of employees of small and medium-sized companies (i.e., those with 500 or fewer employees).[70]

Is Employer-Supported Training Underprovided?

The question of whether there is a training deficit among incumbent workers actually is concerned with whether companies are providing the optimal level of *general* training.[71] Firms find it more attractive to provide specific than general

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[68] Barron, Berger and Black, On-The-Job Training; and Bishop, John H. *What We Know About Employer-Provided Training: A Review of the Literature*. Center for Advanced Human Resources Studies Working Paper 96-09. NY, Cornell University, School of Industrial and Labor Relations, July 1996. (Hereafter cited as Bishop, *What We Know About Employer-Provided Training*.)

[69] Barron, Berger and Black, *On-The-Job Training*, p. 114.

[70] U.S. Department of Labor. Employment and Training Administration. Job Training Partnership, Title III, Demonstration Program: Incumbent Worker Demonstration Program. *Federal Register*, v. 63, no. 240, December 15, 1998, p. 69103-69116. Information on awards is available at: [http://www.wdsc.org/sga/awards/99-002award.htm].

[71] See pages 14 and 18 for a discussion of this and other concepts that are used in this section (continued...)

training because the former does not impart portable skills (i.e., skills that are useful throughout the labor market). Put another way, firms are willing to share with their employees in the costs of specific skills development because they are fairly sure of benefitting from it: as specific skills raise productivity only at the training firm, employees earn higher wages than they would be able to command elsewhere; specific training consequently reduces employee turnover and allows the firm to recoup its training expenses by paying wages that are less than the workers' productivity in the post-training period. In contrast, employers are unwilling to share in the costs of general skills development: as general skills are equally useful to many companies, the training firm must pay employees wages equal to their productivity in the post-training period; if the training firm fails to give employees the entire return to training, they will leave for firms that will pay them a wage commensurate with their transferable skills. Thus, businesses do not have an incentive to pay for general training while incumbent workers do.[72]

The human capital model predicts that employees will pay the full cost of general training by borrowing money, earning a lower wage during training periods or accepting a lower starting wage for jobs that offer general training. If these things occur, there theoretically should not be underinvestment in training. However, employees cannot readily borrow funds to pay for general training and employees could be reluctant to self-finance training because they are uncertain of its rewards.[73] So, if incumbent workers actually had to pay the full cost of general training, underinvestment would be likely. Further, employers may not be able to pay workers a lower wage conditioned on training receipt because of such things as minimum wage legislation, collective bargaining agreements or competition from other firms.[74] Indeed, there is empirical evidence which suggests that the starting wages of workers who receive training are not depressed (or barely so) and that post-training wage growth is smaller than productivity improvements.[75] In addition, there are abundant examples of companies that do not reduce their employees' wages while paying the expenses associated with participation in literacy programs, problem-solving classes or other general skills instruction. All of this implies that — contrary to standard training theory which is predicated on a perfectly competitive labor market[76] —

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[71] (...continued)
of the report.

[72] Becker, *Human Capital: A Theoretical and Empirical Analysis.*

[73] Ritzen, Jozef M.M. Failure for General Training, and Remedies, in: Stern, David, and M.M. Jozef Ritzen (eds.) *Market Failure in Training?* Germany, Springer-Vergal, 1991. (Hereafter cited as Stern and Ritzen, *Market Failure in Training?*)

[74] Bishop, *What We Know About Employer-Provided Training.*

[75] Barron, Berger and Black, *On-The-Job Training*; and Bishop, John H. On-The-Job Training of New Hires in Stern; and Ritzen, *Market Failure in Training?*.

[76] In a perfectly competitive labor market, its numerous firms are wage-takers (i.e., they do not have control over the employee's wage). "The market" (i.e., firms collectively) determines the wage, which is equal to the marginal product of labor. Alternatively, in a non-competitive labor market characterized by one or a few firms, employers are not wage-takers. Rather than the market determining the wage, these monopsonistic firms have power over the wage and (continued...)

employers pay a large share of the costs and garner a large part of the returns to training.[77]

It has been suggested that imperfections in the labor market enable firms to reap some benefit from and therefore to pay toward general training as they do toward specific training. For example, a firm may be able to offer employees with transferable skills a below-market wage in the post-training period and still retain them because other businesses are unwilling to equally reward new-hires for skills whose quantity and content they cannot accurately judge. The fact that employer-provided skill development typically is not accredited permits training firms to gain from this asymmetry of information in the labor market. Further, the termination of an employment relationship is not costless either to the employee who must search for another job or to the employer who must hire a replacement. The presence of search and hiring costs thus may serve to temper employee turnover. Moreover, general skills may complement specific skills so employers are willing to provide instruction in the former to enhance the value of the latter to the firm.[78] In addition, each worker may have a bundle of general skills — in effect, a firm-specific skill mix — that is more useful to the current employer than to other employers and thereby reduces worker mobility.[79]

But, if employees do not foot the complete bill for general skills development and employers instead share in its cost, the likely outcome — given the possibility of employee turnover — is underprovision of general training. When deciding how much general training to offer incumbent workers, a profit-maximizing firm will compare *its* current costs for employee training with *its* future productivity gains. The training firm will not factor into its decision any benefits that might accrue to subsequent employers, to the employees who change employers or to society-at-large. But, as demonstrated by the research previously reviewed, employees who change companies do benefit through higher wages from the training acquired while at previous firms and similarly, companies do benefit through higher productivity from those employees who received training while at previous firms. The presence of these spillover effects, which training firms do not consider, means that employers likely err on the side of offering too little general skills training.[80]

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[76] (...continued)
are able to set it at less than the marginal product of labor (i.e., at less than the wage that would prevail in a competitive labor market).

[77] Acemoglu, Daron, and Jorn-Steffen Pischke. Beyond Becker: Training in Imperfect Labor Markets, *The Economic Journal*, v. 109, February 1999. (Hereafter cited as Acemoglu and Pischke, *Beyond Becker: Training in Imperfect Labor Markets*.)

[78] Acemoglu and Pischke, *Beyond Becker: Training in Imperfect Labor Markets*.

[79] Bishop, *What We Know About Employer-Provided Training*.

[80] An alternative way to determine whether employer-provided training is underprovided is to compare its rate of return to that of other investments (e.g., in education or in physical capita). There is a dearth of high-quality data from which to develop the rate of return to employer-sponsored training, however.

This suggests that there is a role for the federal government to play in employer-sponsored training. In light of the limited information available on what works and what doesn't and on how much total (formal and informal) training currently is being provided to employees, the government may want to tread warily into this new venue for its limited training resources. The possibility that firms could substitute federal monies for their own resources or substitute formal for informal training rather than increase the total quantity of incumbent worker training also implies the need for caution. And, while the historically low unemployment rate in recent years may have contributed to policymakers' new focus on skill development for individuals who already have jobs, incumbent workers are virtually guaranteed some degree of training from their employers. In contrast, unemployed persons have only their own presumably scanty resources and, traditionally, federal training funds to draw upon to learn new or upgrade existing skills.

Up to this point, it appears that Congress has cautiously ventured into the area of employer-provided training. In the case of WIA, the incumbent worker training initiatives are small-scale demonstrations and the grant solicitations explicitly state that federal funds should not to be used for training that employers otherwise are capable of undertaking or that would have been provided in the absence of the grant. While there is no matching requirement for WIA funds going toward incumbent worker training, ACWIA does include such a requirement which mitigates the *total* replacement of company resources with government resources on a given project. Between the two funding sources, less than $80 million likely will have been committed to incumbent worker training through 2000.[81] In addition, the requirement that incumbent worker projects involving WIA or ACWIA funds are to be evaluated hopefully will inform any further legislative proposals in this policy area (e.g., the request for a new incumbent worker program in the FY2001 budget). The recency of many of the awards involving employer-provided training makes it unlikely that evaluations will become available shortly, however.[82]

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[81] Grants totaling $33.1 million were awarded in 1999 and 2000 under Title III of the Job Training Partnership Act (WIA's predecessor) and under ACWIA for the training of incumbent or unemployed workers ($20.7 million and $12.4 million, respectively). Grant solicitations issued in March 2000 are expected to result in awards totaling $47.2 million for the training of incumbent or unemployed workers ($7.2 million and $40 million, respectively).

[82] In April 2000 a request for proposals was issued to evaluate the program year 1998 incumbent worker demonstration program under Title III of the Job Training Partnership Act.