

**Investigating Demand Side Outcomes:
Literature Review and Implications**

by

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I. Background

Sectoral employment development programs have demonstrated great promise for helping low-income people get out of poverty. The Economic Opportunities Program, through its Sectoral Employment Development Learning Project (SEDLP), has learned much about how the sector approach works and the principles that underlie its implementation. In particular, we have documented tremendous improvements in the jobs and earnings of participants of these programs. For example, trainees reported an average increase of more than \$7,000 in their annual earnings one year after training and \$10,000 after two years. Further, after two years, hourly wages rose 31 percent for recipients of industry-specific training, as compared to only 7.3 percent for all workers nationwide during the same period. Participants also were more fully employed, with two-thirds of participants reporting working year-round, roughly triple the percentage prior to training. In addition, the quality of jobs held by the participants improved significantly: in the first year following training 78 percent of trainees reported they had access to employer-provided health insurance (compared with 50 percent at baseline), and this number held during the second year following training.¹ Similar gains in outcomes have been seen in studies of sectoral programs conducted by Public/Private Ventures and the Annie E. Case Foundation's Jobs Initiative.²

Sectoral approaches are defined by their deep connections to industry, and by their ability to address issues and concerns of employers as well as workers. It is thought that this dual focus on employer needs and worker needs is one of the keys to their success in sustaining operations and in improving outcomes for low-income workers. SEDLP case study research provided detailed examples of how sectoral strategies have engaged individual employers and other industry actors and how programs have involved these actors in the design and operations of their program offerings. These case studies also pointed out what motivates businesses to participate in these programs, the benefits that they expect, and the degree to which interviewed businesses felt they had received benefits from the program and how they described these benefits. In addition, the case study research also documented programs' strategies for encouraging changes in human resource practices among businesses or public policy changes that would improve the employment environment for low-income individuals.

While SEDLP provided some anecdotal evidence of the value of sector programs to employers, the scope of SEDLP did not allow for any attempt to more precisely measure that value or to think about how sector programs could more systematically capture information documenting the benefits of their services to employers. A more compelling

¹ For details on participant outcomes see: Lily Zandniapour and Maureen Conway, *Gaining Ground: The Labor Market Progress of Participants of Sectoral Employment Development Programs*. SEDLP Research Report No. 3 (Washington, D.C.: The Aspen Institute, February 2002).

² For further information see: Amy J. Blair, *Measuring Up and Weighing In: Industry-Based Workforce Development Training Results in Strong Employment Outcomes*. Sector Policy Project Report No. 3 (Washington, D.C.: The Aspen Institute, March 2002).

analysis of the benefits of the sectoral approach for employers can both encourage more employers to directly participate in sectoral programs and create greater support for public policy initiatives that invest in the approach.

As public policy has increasingly emphasized the obligation of the workforce development system to better meet the needs of employers, it seems strange that workforce development entities have little in the way of performance or outcome measures to use in assessing and demonstrating the extent to which they are indeed meeting these needs. It is unclear how, without more rigorous performance and outcome measurement of the demand side activities of workforce programs, it will ever be possible to evaluate the workforce system's ability to serve the needs of employers.

In addition to providing information for evaluation, by improving the data and documentation that programs maintain on their service to employers over time, programs will be better able to deepen their relationships with existing employer clients as well as to reach out to new ones. For example, in many cases, the relationship that programs build with an employer customer is largely a relationship between specific individuals at the program and at the business. When either party moves on — regardless of the strength or longevity of the connection — it can mean that the relationship must be rebuilt from scratch. Having data to demonstrate the value of the relationship can help programs weather these personnel transitions. Further, programs can also use the data to market their services to new employers, as well as to enhance testimonials from existing employer clients that will support these marketing efforts.

Sector programs' abilities to work on the demand side of the labor market equation are their primary distinguishing feature. In addition to demand side outcomes being important in their own right, there appears to be a dynamic interplay between the strategic thinking involved in assessing need and opportunity for sectoral change, and the provision of up-to-date, appropriate, industry-specific training and job development services. Thus it is important for these programs, as they evaluate and assess their work and their ability to meet their goals, to be able to monitor their progress toward achieving demand side outcomes. The SEDLP case studies documented a variety of approaches to achieving a "systemic change" on the demand side of the labor market, including encouraging updated production or human resource systems among local employers, and working toward changes in public policies that affect the targeted industry. For all six programs evaluated, demonstrating that they provide a service that is of value to the industry was key to establishing their credibility to advocate for change within the industry. Thus, while employer benefits do not capture the range of work on the demand side that sector programs do, it is an important leverage point in achieving sectoral change.

II. Purpose and Organization of This Paper

The purpose of this paper is to present what we have learned to date about evaluating and documenting the value of training to employers. Information is gleaned primarily from a review of relevant literature and is then used to inform the development of a preliminary

framework for assessing employer benefits. The goal is to create a methodology that can then be discussed with leading practitioners, refined and tested. The end result of this work should be a set of tools that informs both programs monitoring their own activities as well as frameworks for future evaluations of sectoral strategies for employment training.

The following section of this paper presents the results of the literature review. We briefly review information about the amount of training that is being offered by employers, with some discussion as to whether these levels indicate an under-investment in training, and we introduce some of the reasons employers might not invest in training. We then look at a sample of the studies that have been done to measure the value of training to employers, and discuss the different methodologies employed, as well as the findings of the studies. Following that section, we present background information on the health sector as it relates to our area of inquiry. The health sector was chosen as an example in order to ground our thinking about how to evaluate employer benefits. The paper then concludes with a discussion of implications for evaluation and a presentation of a preliminary methodology for assessing employer benefits.

III. What the Literature Says About Employer Investments in Training: A Brief Overview

The economic development literature has long noted a positive relationship between the quality of the workforce, as proxied by education levels, and overall economic productivity.³ In addition, economists have argued that investments in human capital, both individual investments in their own education and firm investments in training, do respond positively to changes in profitability and the rate of return on such investments.⁴ Specifically assessing the returns from firm investments in training, however, has not been a straightforward task for economists, because of numerous measurement issues. Given the difficulty in measuring returns, it is unclear whether firms are under-investing in training or not.⁵ Further, given that the structure of firms' investments in training is uneven across classes of workers (e.g. firms invest more in their more educated than their less educated workers), it could be that there is under-investment in training for certain categories of workers. Below we discuss how much training firms are offering, for which workers, and what these findings imply about the importance of efforts external to firms to train low-wage workers.

A. Employer-Provided Training: How Much, for Whom, by Whom and Why

According to *Training Magazine*, United States employers budgeted an estimated \$57 billion in 2001 for formal employer-provided training, a five percent increase over the \$54 billion budgeted in 2000.⁶ In addition, using a somewhat different survey methodology, *Training Magazine* reports that firms budgeted \$47.9 billion for training in 1987 and that these budgets had risen to \$62.5 billion in 1999.⁷ The American Society for Training and Development (ASTD) reports that the level of employer-provided training grew in 1996, 1997 and 1998, then declined slightly in 1999, but resumed growth in 2000 with substantial growth projected for 2001.⁸ In reviewing a variety of nationally representative surveys that took place between 1981 and 1997, Lerman, McKernan and Riegg found "genuine and large increases" in the percentage of workers receiving formal training.⁹ While there are a number of methodological difficulties with accurately

³ For examples see: Zvi Griliches, "Education, Human Capital, and Growth: A Personal Perspective," *Journal of Labor Economics*, Vol. 15, Iss. 1, Pt. 2 (January 1997): 330-344.

⁴ Jacob Mincer, "Investment in US Education and Training." NBER Working Paper Series. Working Paper No. 4844 (Cambridge, MA: National Bureau of Economic Research, August 1994), 1-43.

⁵ Ibid.

⁶ Tammy Galvin, "Industry 2001 Report," *Training Magazine* (October, 2001): 40-66.

⁷ Chris Lee, "Training Magazine's Industry Report 1987," *Training Magazine* (October, 1987): 33-35; "Training Magazine's Industry Report 1999," *Training Magazine* (October, 1999): 37-40. The author of this paper has adjusted 1987 figure to 1999 dollars.

⁸ Mark E. Van Buren and William Erskine, *State of the Industry Report: ASTD's Annual Review of Trends in Employer-Provided Training in the United States* (Alexandria, VA: American Society for Training and Development, February 2002).

⁹ Robert I. Lerman, Signe-Mary McKernan and Stephanie Riegg, "Employer-Provided Training and Public Policy" (Washington, D.C.: The Urban Institute, December 20, 1999), 1-41.

capturing training costs¹⁰ — and different studies tend to make different choices about which costs to include and how to measure them — nonetheless, a variety of studies all seem to point in the same direction: employer investments in training have been increasing over time.

To some degree this finding is not surprising. In recent years many U.S. companies have adopted a variety of high performance work practices, such as quality circles, self-managed work teams, and job rotation or cross-training that place more responsibility and authority for problem solving with front line workers. Indeed, looking at data from 1992 and 1997 National Establishment Surveys, Osterman found a substantial rate of diffusion and increase in such practices, with the percentage of establishments employing two or more of these high performance practices that involve at least half of their “core” employees jumping from 26 percent to 70.7 percent during this time period.¹¹ Other authors have found that rapid technological change causes companies to invest more in production workers.¹² These findings are in line with much of the commonly heard rhetoric regarding the increasing need for skilled workers in the “knowledge economy.” The data above seem to imply that companies themselves are making investments in order to meet a rising demand for skills, as would be predicted by Mincer, who notes “although the data on training are far from adequate, there is enough evidence to indicate that in recent decades, education and training responded positively to the changing profitability of human capital.”¹³ Given the constraints on individual firms, however, their investments may not be optimal, both in terms of having an appropriately skilled workforce to ensure firm competitiveness and in terms of distribution of gains from economic activity within our society.

Most reports on employer-provided training focus on employer investments in formal training, but there is some research on informal training as well. Frazis et al. define formal training as “training that is planned in advance and has a structured format and a defined curriculum” while they define informal training as “unstructured, unplanned and easily adapted to situations and individuals.”¹⁴ As might be expected, they find the incidence of informal training to be much higher than that of formal training. In their analysis of the Bureau of Labor Statistic’s Survey of Employer-Provided Training (SEPT), they find that 70 percent of time spent in training is spent in informal training.¹⁵

A look back at some historical data from two studies, one in 1982 and the other in 1992, provides further information on how much employee time was spent on both formal and informal training activities. The 1982 Employment Opportunity Pilot Projects (EOPP)

¹⁰ An example of one discussion on choices to be made in capturing data costs can be found in: Harley Frazis, Maury Gittleman, Michael Horrigan and Mary Joyce, “Formal and Informal Training: Evidence from a Matched Employee-Employer Survey,” *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, Vol. 9 (Greenwich, CT: JAI Press, Inc., 1997), 47-82.

¹¹ Paul Osterman, *Securing Prosperity* (Princeton, NJ: Princeton University Press, 1999).

¹² Ann Bartel and Nachum Sicherman, “Technological Change and the Skill Acquisition of Young Workers,” *Journal of Labor Economics*, Vol. 16 (October 1998): 718-55.

¹³ Mincer, “Investment in US Education and Training,” 1-43.

¹⁴ Frazis et al., “Formal and Informal Training,” 49.

¹⁵ *Ibid.*, 48.

Employers Survey was sponsored by the National Center for Research in Vocational Education and implemented by the Gallup Organization, and the 1992 study was run by the University of Kentucky's Survey Research Center with sponsorship from the U.S. Small Business Administration.¹⁶ These two studies focused on training provided to new hires. The studies found that the number of hours spent by new hires on either formal or informal training per employee rose by about 15 percent over this 10-year period, from 133 hours in 1982 to 152.4 hours in 1992. Formal training represented only a very small portion of this training, 10.7 hours in 1982 or 2 percent of available working hours, and 18.6 hours in 1992 or 4 percent of available working hours. Informal training by a supervisor was the most common form of training, representing roughly 58 percent of total training hours in both years. Informal training by watching others was the next most common type of training, although it was the only form of training that dropped (by 13 percent) over the 10-year period between the two studies.

Worker Characteristics and Receipt of Employer-Provided Training

Lerman et al. estimates that employer-provided formal training reaches between 35 and 65 percent of all U.S. workers within a given year.¹⁷

Education Level: In their review of training surveys, Lerman et al.¹⁸ find that the amount of training workers receives increases with their level of education, and that, accordingly, workers with a high school diploma or less receive the lowest amounts of employer-provided training. Bishop makes a similar finding, but also notes that workers with job-relevant vocational training receive more training than their similarly educated peers.¹⁹ Mincer posits that improvements in education may increase the efficiency of on-the-job training, raising rates of return for training provided to better educated individuals and is perhaps part of the reason employers choose to invest more in better educated workers.²⁰

Earnings: Lerman et al.²¹ also find that the incidence of employer-provided training is positively related to earnings — i.e., individuals with higher earnings receive more training. Bishop notes that the groups that are least likely to receive training from their employer — blue collar and high school dropouts — experience very high wage payoffs when they do get training.

Job Category: One of the studies cited by Bishop analyzed the percentage of firms that offered training to different categories of workers in 1988 and then in 1994. It found that, while middle managers tended to be the biggest beneficiaries of training, companies were cutting back on training in this category, because it is cheaper and less risky to hire new middle managers away from other firms, rather than invest in training workers from

¹⁶ John Bishop, "What We Know About Employer-Provided Training: A Review of the Literature," Working Paper 96-09 (Ithaca, NY: Cornell University Center for Advanced Human Resources Studies, July 1996), 3-81.

¹⁷ Lerman et al., "Employer-Provided Training and Public Policy," 1-41.

¹⁸ Ibid.

¹⁹ Bishop, "What We Know About Employer-Provided Training," 3-81.

²⁰ Mincer, "Investment in US Education and Training," 1-43.

²¹ Lerman et al., "Employer-Provided Training and Public Policy," 1-41.

within the company. The next category of workers most likely to benefit from training are those at the executive level. Five percent more companies were investing in executive training in 1994 than in 1988, reflecting perhaps an effort to keep good top managers. Production workers are the category least likely to get training, with only 40 percent of firms in 1994 saying they train their production workers. The chart below shows the percent of respondent companies that provide training in each category.

Training Beneficiary	Percent of Companies Providing Training in 1988	Percent of Companies Providing Training in 1994	Change Between 1988 and 1994
Executive Training	65%	70%	+5%
Middle Managers	78%	72%	-6%
Professionals	60%	66%	+6%
Customer Service	45%	50%	+5%
Sales People	43%	42%	-1%
Production Workers	35%	40%	+5%

Basic Skills Training: A survey conducted by the American Management Association in 2000, documented a significant and steady decline in the percentage of firms offering remedial training, from 24 percent in 1994 to 13.2 percent in 1999. This finding is corroborated by the ASTD data that show that in 2000 basic skills training consumes the least of the training dollar, 2 percent, compared to 10 percent for Managerial/Supervisory Skills and 8 percent for Professional Skills.²² A study published annually by *Training Magazine*,²³ which is based on data gathered from a random sample of readers, finds that more than half of companies provide no training in basic skills remediation, language acquisition, or welfare to work transitions. According to the International Adult Literacy Survey, however, more than 40 percent of adults in the U.S. have substantial literacy or other basic skills deficiencies.²⁴ The fact that employers are increasingly unwilling to address this skill area highlights an important training gap for the U.S. workforce.

Firm Characteristics and Investments in Training

Most firms offer some level of formal employer-provided training, and nearly all firms provide a degree of informal employer-provided training. Lerman et al. review a number of national surveys of employer-provided training, but concentrate primarily on three: the 1997 National Employer Survey (NES) administered by the Bureau of the Census, the 1995 Survey of Employer-Provided Training (SEPT) conducted by the Bureau of Labor Statistics, and the Adult Education component of the 1995 National Household Education Survey (NHES) conducted for the National Center for Education Statistics. Synthesizing the results of these surveys, they conclude that approximately 85 percent of

²² Van Buren and Erskine, *State of the Industry Report*.

²³ Galvin, "Industry 2001 Report," 40-66.

²⁴ Organisation for Economic Cooperation and Development, *Literacy in the Information Age: Final Report of the International Adult Literacy Survey* (Paris, 2000).

establishments with more than 50 employees provide formal training, and that approximately 70 percent of all establishments provide formal training.²⁵

Establishment Size: Lerman et al. find that the amount of training provided by employers and received by employees is positively related to establishment size. Similarly, Bishop, in his review of the literature on employer-provided training, finds that the likelihood of receiving formal training is higher for workers in larger establishments. Further, in discussing the design of the SEPT, Frazis et al. note that the sample was restricted to firms with 50 or more employees “in part because previous research showed that smaller establishments often have no formal training” and within their sample of firms with 50-plus employees, they find that the likelihood of providing formal training and the amount of training provided increases with establishment size.²⁶

Industry Sector: Studies also find that training provision varies from industry to industry. Not all studies have the same findings with regard to which industries provide the most training — in part because of how the questions were phrased and the types of training that different studies included in their surveys. For example, in the Survey of Employer-Provided Training (SEPT) the provision of training was examined in two different ways (1) establishments were asked whether they provide training, and (2) employees were asked whether they received training. The wholesale trade sector comes out the highest among all sectors according to responses to the first question, with 98.4 percent of establishments reporting that they provide employee training, and the lowest among all sectors according to responses to the second question, with 68.1 percent of employees reporting receiving training in the last 12 months.²⁷ ASTD cites wholesale and retail trade and health care as industries that provide low levels of training, and nondurable goods manufacturing as an industry providing high levels of training. In contrast, the National Household Education Survey (NHES) cites finance, insurance and real estate (FIRE) and health services as industries providing high levels of training.²⁸ Thus, findings regarding industry are mixed.

Establishment Characteristics: Economic theory would predict that establishments with low turnover would provide more training because that would allow employers greater opportunity to recoup the costs of training through the increased productivity of their workforce. Frazis et al. found this to be borne out in their data, noting that high turnover establishments provided less formal training than did other establishments.²⁹ Lerman et al. in their review of training studies, however, find that this is not consistent across studies, noting that the 1997 NES does not show that the percentage of establishments providing training varies significantly with establishment turnover.³⁰ Lerman et al. do

²⁵ Lerman et al., “Employer-Provided Training and Public Policy,” 1-41.

²⁶ Frazis et al., “Formal and Informal Training,” 48-49.; Harley Frazis, Maury Gittleman, Michael Horrigan and Mary Joyce, “Results from the 1995 Survey of Employer-Provided Training,” *Monthly Labor Review* (June 1998): 3-13.

²⁷ Ibid.

²⁸ Van Buren and Erskine, *State of the Industry Report*.

²⁹ Frazis et al., “Results from the 1995 Survey of Employer-Provided Training,” 7.

³⁰ Lerman et al., “Employer-Provided Training and Public Policy,” 31.

note, however, that the finding that workers are more likely to receive training in establishments that provide employment benefits is consistent across studies.³¹

Union Status: Unions have traditionally played a very important role in encouraging training and are thought to play a particularly important role in increasing the opportunities for blue-collar workers to have access to formal training. According to the 1991 National Organizations Survey (NOS), 91 percent of companies with an active union offered formal training, compared to 65 percent for companies with no active union.³² Surprisingly, however, Lerman et al.³³ in their review of training surveys, find that incidence and intensity of training vary little by whether an establishment is unionized. In their discussion of findings from the SEPT, Frazis et al. note that, although collective bargaining agreements and the comparatively lower turnover in union jobs would be expected to encourage greater employer investments in worker training, employers may be able to hire already-skilled workers for union jobs, because union jobs carry higher wages, and unions also offer some training directly to workers lessening the need for employer training.³⁴

Employer Rationale for (Not) Providing Training

Employers most likely do not provide a “societally optimal” level of training, for the simple reason that not all gains from the provision of such training accrue to employers. Workers also benefit from training, primarily through higher wages and benefits, and society as a whole likely benefits, through the more efficient production of higher quality goods and services. Various researchers also cite aspects of the employers’ environment that may also discourage investment in training. Lerman et al.³⁵ note that employers may have limited information and could be unaware of the productivity gains or improvements in employee turnover that are likely to result in training, and thus under invest. Bassi et al. note that the lack of information employers have is in part a result of accounting rules that do not require firms to report investments in training, unlike other research and development or capital investments. Thus firms cannot “see” whether and how training creates value among other firms. In addition, Lerman et al.,³⁶ among others, comments that training expenses must be expensed as costs, rather than amortized, and thus tend to have an unfavorable impact on a firm’s balance sheet and profit and loss statement, discouraging managers concerned about reports on firm performance from investing in training. Indeed the research of Bassi et al.³⁷ does support the conclusion that training can have negative short-term impacts on current profit and loss statements, while at the same time improving the longer term outlook for a firm. Bishop also notes that the Fair Labor Standards Act makes it difficult for firms to share the costs of training

³¹ Ibid.

³² Peter Cappelli, Laurie Bassi, Harry Katz, David Knoke, Paul Osterman and Michael Useem, *Change at Work* (New York: Oxford University Press, 1997), 135.

³³ Lerman et al., “Employer-Provided Training and Public Policy,” 31.

³⁴ Frazis et al., “Formal and Informal Training,” 58-59.

³⁵ Lerman et al., “Employer-Provided Training and Public Policy,” 31.

³⁶ Ibid.

³⁷ Laurie Bassi, Paul Harrison, Jens Ludwig and Daniel McMurrer, “Human Capital Investments and Firm Performance” (Bethesda, MD: Human Capital Dynamics, June 2001), 1-20.

with workers (who will share in the benefits of training), because firms cannot ask workers to contribute toward the cost of their training by undergoing training during unpaid time.³⁸ While it is possible to address some of these issues, particularly employer awareness of the benefits of training, other issues are more difficult, and thus it is unlikely that employers would ever provide a societally optimal level of employee training.

Implications for Sector Programs

In sum, we see that employers have been increasing their investment in training in recent decades, perhaps in response to the increasing return to human capital investments in today's economy. However, workers with low earnings, low education levels and in entry-level or production positions are less likely to receive employer-provided training. Further, despite the basic skills deficiencies among U.S. adults, redressing this situation seems to be a low priority for most employers' training dollars. Thus, sector programs, by concentrating their training on low earning, less educated and entry-level employees seem to be addressing an area in which employers are reluctant to invest. Moreover, sector programs often integrate basic skills into their curricula, addressing a pressing need within today's labor force. Among firms, the main finding is that smaller establishments tend to offer less training and, indeed, outside of health care, the majority of sector programs tend to work most closely with small- to medium-sized employers. Thus, sector programs appear to address an important training need in today's labor market, and to operate in a way that is complementary to current employer training activities.

³⁸ Bishop, "What We Know About Employer-Provided Training," 3-81.

IV. Methodologies for Measuring the Impact of Training Within Firms

In order for sector programs to become more articulate about the employer benefit they provide, they must be able to describe this benefit, which requires an underlying measurement of the benefit. A first step in developing an approach that sector programs or an external evaluator could use is to examine the methodologies that have been used to date to measure such employer benefits. As we reviewed the literature, we focused specifically on the benefits employers derive from training, because training is the common activity across sectoral employment development programs. In reviewing this literature, the goal was to understand both the strong and weak points of the various methodologies, and to consider the appropriateness of the methodologies for use among sector programs. Thus, while we generally note the findings of the studies regarding the benefits of training for firms, drawing conclusions about the efficacy of training based on the findings of these studies is not a primary concern of this section.

Literature from business, academic and policy sources was consulted. The study approaches fall into two broad categories: (1) those involving surveys of large numbers of firms and (2) case studies of individual firms, or occasionally small sets of firms. The different methodologies employed within these two broad classes, the types of data and indicators used, general findings and implications for application to sectoral programs are discussed below.

A. Multi-firm Studies

A number of studies have attempted to measure the impact of employee training on the productivity of the firm by using data on a large sample of firms collected through mail or phone surveys.³⁹ The survey data is analyzed using econometric models, which determine the degree to which specific variables contribute to the productivity of the firms studied. In these studies, the relationship between input and output variables is modeled using mathematical techniques based upon assumptions drawn from the field of economics. Most large-scale data set studies have drawn their data from a heterogeneous group of firms.

³⁹ Frequently cited studies include: John Bishop, "On-the-job Training of New Hires," in *Market Failure in Training*, eds. David Stern and Josef Ritzén (New York: Springer Verlag, 1991), 61, 96; Ann Bartel, "Productivity Gains from the Implementation of Employee Training Programs," *Industrial Relations*, Vol. 33 (October 1994): 411-425; Harry Holzer, Richard Block, Marcus Cheatham and Jack Knott, "Are Training Subsidies For Firms Effective? The Michigan Experience," *Industrial and Labor Relations Review*, Vol. 46, No. 4 (July 1993): 625-636; Sandra Black and Lisa Lynch, "Human-Capital Investments and Productivity," *American Economic Review*, Vol. 86 (2), (May 1996): 263-267; Hong W. Tan and Geeta Batra, "Enterprise Training in Developing Countries: Overview of Incidence, Determinants, and Productivity Outcomes," Occasional Paper No. 9 (Washington, D.C.: The World Bank, September 1995), 1-42; Mark Huselid, "The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance," *Academy of Management Journal*, Vol. 38 (June 1995): 636-672; and Mark Huselid and Brian Becker, "Methodological Issues in Cross-Sectional and Panel Estimates of the Human Resource-Firm Performance Link," *American Economic Review*, Vol. 35 (July 1996): 400-422.

These studies draw their data from surveys (mail, telephone, or in-person) of firms. In conducting the surveys, researchers make different choices with respect to how they will sample the universe of establishments. For example, some focus on a particular industry (e.g. manufacturing), or firms of a particular size (e.g., more than 50 employees). As with all surveys, sampling procedures and response rate can introduce bias into the research. Further, the design of the survey — i.e., the specific questions asked — determines the field of potential variables that can be used to estimate the effect of training and the type of analysis that can be done. Black and Lynch⁴⁰ note that some researchers have used subjective measures of productivity in their surveys, such as asking a respondent to rate changes in productivity over a certain time period and that this practice limits the comparability of responses both across firms and within firms over time. Other researchers, including Black and Lynch,⁴¹ have used survey data that ask specific questions about inputs (e.g. labor, cost of materials, etc.) and outputs and then used this information to directly estimate a production function in order to examine effects of training on productivity.

While econometric models often yield useful insights, it is important to understand that they are based on a set of assumptions. First of all, when applying econometrics, the researcher has to make an assumption about the functional form of a production process: it can be linear or non-linear; it might exhibit constant or decreasing returns to scale, etc. Another task is to specify the correct model: omitting some important variables and/or excluding the others may result in erroneous conclusions. In addition, a problem that often arises in cross-sectional analysis is the so-called “endogeneity” problem in which the independent variable is determined simultaneously with or causes the dependent variable. For example, one might assume that training is responsible for the observed productivity growth, but it is also likely that higher productivity growth motivates firms to offer training.

Examples of Multi-firm Studies

The work of Holzer et al.⁴² illustrates some of the choices that researchers make in conducting analysis of the effects of training across firms. The authors conducted a survey of manufacturing establishments in Michigan to look at both the effects of training on output quality and the effect of a public subsidy program on the amount of training provided. They conducted a mail survey of establishments that had applied to participate in the public program in question and received 157 responses, a 32 percent response rate. The authors included a variety of questions to assess quality of output, based on their understanding of the measures firms include in their own quality control programs. The authors used regression analysis to estimate relationships between both grant receipt and level of training provided, and between level of training provided and quality of outputs. In estimating the impact of training on output quality, the authors choose to use scrap rate as their measure of output quality, because it was the quality measure with the “highest response rate and with the clearest interpretation.” The authors found that increases in

⁴⁰ Black and Lynch, “Human-Capital Investments and Productivity,” 263-267.

⁴¹ Ibid.

⁴² Holzer et al., “Are Training Subsidies for Firms Effective?” 625-636.

training improved (reduced) the scrap rate, and that these improvements lasted beyond the year in which employees were trained. The authors noted, however, that their estimates of the effect of training on product quality may not have included other effects, such as reductions in re-work, and thus may have underestimated the affect on quality overall. The authors also found that training had little impact on firm sales or employee wages, but hypothesized that these outcomes are longer-term outcomes that would not be reflected in the data they had available.

Bassi et al.⁴³ innovate on some of the usual indicators of training impact, and examine the relationship between human capital investments and subsequent stock market performance. The authors posit that this approach helps to get around the uncertainty about the timing between the training investment and the pay-off (in form of increased sales, profits, etc.) that Holzer et al. allude to above, because the market will reflect expected future earnings in the stock price.⁴⁴

In their research, Bassi et al.⁴⁵ use 1996-98 training data collected by ASTD and 1995-99 Compustat financial data on publicly traded companies. Their initial sample consisted of 575 publicly traded firms that submitted their training data to ASTD. The authors acknowledge that one might expect some bias in the data, given that they have a set of firms that are sufficiently interested in training to be aware of and submit their training information to ASTD. The authors note, however, that they compared their data to a random, national training survey and found the data to be generally consistent on the observable characteristics of the firms. Nonetheless, a substantial source of bias in sampling cannot be ruled out. In addition, organizations submitting data to ASTD may submit data for a sub-unit of the organization or for the organization as a whole, while the Compustat data refer to the firm as a whole, not sub-units or individual establishments, so the information on training may only be for a sub-unit of a firm, while the information on firm performance would be for the whole firm. On the other hand, the ASTD data involve standard measures for formal education and training investments that ASTD developed in collaboration with a group of large corporations, thus the data have the advantage of being reasonably detailed as well as consistent across respondent firms. Data collected included: training expenditures per employee, types of training provided, and the delivery mechanism for the training.

The researchers developed an interesting indicator to assess the impact of training expenditures on the firm – Total Shareholder Return (TSR). TSR measures the change in stock price plus dividends in a given year. The data was tabulated to determine if training investments in one year contribute to TSR in the next. This metric sought to capture market judgments about the firms' performance and future financial outlook.

The researchers found that private training has a positive effect on long-run measures of a firm's profitability, including Tobin's Q (the market value of a firm's assets divided by their replacement value) as well as TSR. Thus, firms that invest more tend to have higher

⁴³ Bassi et al., "Human Capital Investments and Firm Performance," 1-20.

⁴⁴ Holzer et al., "Are Training Subsidies for Firms Effective?" 625-636.

⁴⁵ Bassi et al., "Human Capital Investments and Firm Performance," 1-20.

market returns. They also found, however, that training expenditures have a negative and statistically significant correlation with profits. These findings support the theory that expenditures on training are investments in future productivity.

Tan and Batra⁴⁶ used data from firms in “emerging economies,” and rather than measure a specific indicator of output quality, gathered data about firm inputs as well as outputs in order to estimate a production function. The World Bank published Tan and Batra’s study as part of its research on “Enterprise Training Strategies and Productivity.” The authors use data from five economies representing 500 firms in Colombia in 1992; 300 firms in Indonesia in 1992; 2,200 firms in Malaysia in 1994; 5,072 firms in Mexico in 1992; and 56,047 firms in Taiwan, China in 1986. The five data sets included broadly comparable, firm-level data on the following key variables:

- Establishment characteristics – year established, single-plant or multiple-plant, two-digit industry classification and foreign capital participation;
- Total employment, workforce structure and compensation;
- Information on training expenditures, R&D and foreign technology licenses, and exports;
- Data on production and inputs, including capital assets, employment immediate inputs, and energy used.

The study sought to understand the factors that influence employer decisions to provide training; to determine whether there is any correlation between employer investment in training and firm-level productivity, and to assess whether in-house or externally provided training has a larger impact on productivity. The analysis also looked at the types of training provided, whether it was “formally structured” or “informal, on-the-job training by coworkers or supervisors.” The authors reached the following conclusions:

- Training was found to have a positive and statistically significant impact on firm-level productivity in all five countries.
- The results for in-house and external training are somewhat mixed. However, they conclude that in-house formal training, as compared to most external sources of training, has a large and significant impact on productivity.
- Most commonly identified constraints to training are: poor information about the benefits, the high cost of training and the inability to exploit scale economies in training, weak managerial capabilities, and the absence of competitive pressures.

Not all multi-firm studies rely on complicated econometric techniques and analysis. Some surveys are designed with a more qualitative approach to analysis in mind. An example here would be The Conference Board’s evaluation of the U.S. Department of

⁴⁶ Hong W. Tan and Geeta Batra, “Technical Efficiency and SMEs: Comparative Evidence from Developing Economies,” Occasional Paper No. 19 (Washington, D.C.: The World Bank, 1995).

Education's workplace education programs (WEPs), designed to develop basic skills.⁴⁷ In this analysis, more than 100 interviews were conducted, representing more than 40 public and private-sector workplaces. From these interviews the authors cited a variety of organizational benefits that employers attributed to the WEP program and noted that 98 percent of employers reported at least one economic benefit gained from the program. Many of the benefits to employers recorded by Bloom and Lafleur are listed below, as they are useful indicators to consider for sector programs.

- Improved quality of work
- Better team performance
- Improved capacity to cope with change in the workplace
- Improved capacity to use new technology
- Increased output of products and services
- Reduced time per task
- Reduced error rate
- Better health and safety record
- Reduced waste in production of products and services
- Increased customer retention
- Increased employee retention
- Reduced absenteeism

Although most of the large-scale studies described here (and most others not cited here) find that investments in employee training yield some form of positive outcome for the firm, these studies tend not to have cost information, and therefore are unable to assess whether the investments in training undertaken by the firm are worthwhile. A possible exception to this finding is Bassi et al.⁴⁸ although in that case data limitations may bias the study, and data requirements make replication of the approach somewhat difficult. The case study approach, discussed below, gets around some of these limitations on cost information.

B. Case Studies

Case studies also are prominent in the literature that documents how training benefits employers. This methodology is the primary approach used in business literature, and is common in academic literature. Most case studies employ a return-on-investment (ROI) framework. Indeed, the ability to access cost information and directly relate the information to performance changes is an important methodological advantage of case studies. In case studies, data is collected from a variety of sources, including personnel files and face-to-face interviews with managers, in order to understand the role of different variables, such as training, human resource policies and wages, on the production process. Thus case studies can allow for the integration of subjective and objective measures in the analysis.

Case studies vary widely in the range of data employed, the outcome indicators used and the overall level of rigor in data gathering and analysis. From an academic perspective,

⁴⁷ Michael R. Bloom and Brenda Lafleur, "Turning Skills Into Profit: Economic Benefits of Workplace Education Programs," Research Report 1247-99-RR (Washington, D.C.: The Conference Board, July 1999), 1-15.

⁴⁸ Bassi et al., "Human Capital Investments and Firm Performance," 1-20.

many case studies suffer from several methodological limitations. In her literature review, Bartel identifies a number of limitations of case studies, including relying on subjective measures of trainee productivity gains (rather than measuring productivity changes directly), monitoring performance pre- and post-training over insufficient time periods, reliance on small sample sizes and extrapolating findings to large groups of employees, bias in selection of trainees to participate in a program (e.g. selecting the best or most experienced employees), informing trainees that their performance will be monitored post training, and ignoring the impact of changes in the operating environment that were instituted at the same time as the training program.⁴⁹ Bartel recommends the following as characteristics of an ideal case study:

- A pre- and post-test control group design should be used. Employees are randomly assigned to the trainee group or the control group and both groups take pre- and post-tests. If the trainees perform better on the post-test than the control group, then the training is assumed to be the cause of the difference. An alternative to this approach is a time-series design, where the trainees serve as their own control group. Performance is measured repeatedly and at regular intervals, before and after the training. Any improvements in post training performance can be assumed to be due to the training, as long as all other factors affecting performance remained constant.
- The evaluation of training performance should be based upon actual measures of individual worker's productivity obtained from the company's existing database.
- The company should track performance over a long enough time to capture the rate at which the improvement depreciates with time, in order to avoid over-estimating the benefit of training over a one-year period.

Jack Phillips⁵⁰ is a leading advocate of companies' employing a return-on-investment methodology to evaluate their training programs, and his proposed approach builds on Donald Kirkpatrick's classic training evaluation model. In Kirkpatrick's approach, training is measured at four different levels:

1. Measurement of participants' reaction to training at the time of training
2. Measurement of participant's learning of the content of the training
3. Measurement of participants' use of their new skills and knowledge on the job
4. Measurement of the value of the training to the business

Phillips adds a fifth stage, in which the benefit of the training is monetized (if it hasn't been already) and compared to the costs of the training in order to calculate ROI.

Phillips identifies surveys, questionnaires, interviews, focus groups, observation and performance records as valid data collection methods, and, in direct contrast to Bartel, allows for the use of estimates of the impact of training on output variables by a variety of parties including supervisors, training participants, subordinates to training participants, senior management and, in some instances, customers. Phillips encourages the assigning of monetary values to 'soft' or less tangible benefits of training, such as

⁴⁹ Ann Bartel, "Measuring the Employer's Return on Investments in Training: Evidence from the Literature," *Industrial Relations: A Journal of Economy & Society*, Vol. 39, No. 3 (July 2000): 502-524.

⁵⁰ Jack J. Phillips, *Return on Investment in Training and Performance Improvement Programs: A Step-by-step Manual for Calculating the Financial Return* (Houston, TX: Gulf Publishing Company, 1997).

increased job satisfaction, improved teamwork, increased organizational commitment, etc., and to ‘hard’ or more easily quantified benefits, in order to get an estimate of total benefits. He recognizes, however, that this is not an exact process and therefore recommends a process of adjustment in which participants are asked to indicate their level of confidence in the monetary values estimated. The total program benefits are the sum of the adjusted benefits. Below are some examples of hard and soft data presented by Phillips:⁵¹

Hard Indicators

Output	Time	Costs	Quality
Units Produced			
Tons Manufactured			
Items Assembled	Equipment Downtime	Budget Variances	Scrap
Items Sold	Overtime	Unit Costs	Waste
Forms Processed	On-Time Shipments	Cost by Account	Rejects
Loans Approved	Time to Project Completion	Fixed Costs	Error Rates
Inventory Turnover	Processing Time	Overhead Costs	Rework
Patients Visited	Supervisory Time	Operating Costs	Shortages
Applications Processed	Training Time	Number of Cost Reductions	Product Defects
Students Graduated	Meeting Schedules	Project Cost Savings	Deviation From Standard
Work Backlog	Repair Time	Accident Costs	Product Failures
Shipments	Work Stoppages	Program Costs	Inventory Adjustments
New Accounts Opened	Order Response	Sales Expense	Time Card Corrections
	Late Reporting		Percent of Tasks Completed Properly
	Lost Time Days		Number of Accidents

Soft Indicators

Work Habits	New Skills	Work Climate
Absenteeism	Decisions Made	Number of Grievances
Tardiness	Problems Solved	Number of Discrimination Charges
Visits to the Dispensary	Conflicts Avoided	Employee Complaints
First Aid Treatments	Grievances Resolved	Job Satisfaction
Violations of Safety Rules	Counseling Success	Employee Turnover
Number of Communication Break-downs	Listening	Litigation
Follow-Up	Reading Speed	
	Intention to Use New Skills	
	Frequency of Use of New Skills	
Development and Advancement	Attitudes	Initiative
Number of Promotions	Favorable Reactions	Implementation of New Ideas
Number of Pay Increases	Attitude Changes	Successful Completion of Projects

⁵¹ Ibid., 116-117.

Number of Training Programs Attended	Perceptions of Job Responsibilities	Number of Suggestions Implemented
Requests for Transfer	Perceived Changes in Performance	Setting Goals and Objectives
Performance Appraisal Ratings	Employee Loyalty	
Increases in Job Effectiveness	Increased Confidence	

In sum, the review of case studies reveals a variety of standards for conducting case studies, and a wealth of potential indicators that one can consider adapting to an assessment of how employers benefit from training. A couple of brief examples of this approach are given below.

Examples of the Case Study Approach

Bartel has conducted considerable research in this field, and one of her own case studies can illustrate some of the key features she envisions for a case study. Bartel⁵² looked at data from personnel records from a large manufacturing company to estimate the company's ROI in training its professional employees in management skills, communication skills and technical areas. The sample included 19,000 employees, at least half of whom had received between 3.3 and 4.4 days of formal training each year during the period 1986-1990.

Bartel hypothesized that the probability of being selected to participate in training would increase with the relative status of an employee. Relative status was captured by dividing each employee's salary by the average of the salaries of other employees in the same job. The study results confirmed that receipt of training was based upon an individual's relative status. Further, she found that for each day of training, wages were raised by 1.8 percent and that the job performance scores of training participants climbed after the training, confirming the link between training and productivity. Taking into account the cost of a day of training, the productivity gains of training, and the rate at which these gains depreciate per year, Bartel calculated an internal rate of return of between 26.1 percent and 49.7 percent for the training provided by the manufacturing firm studied.

Phillips⁵³ weaves a case study on the National Auto Products Company (NAPCo), a manufacturing firm, throughout the book to demonstrate the ROI techniques, step by step. A pilot group of 16 supervisors at one plant received a 24-hour training in supervisory skills. Four performance areas needing improvement were identified: productivity of the work units, measured by the percentage of shipments met; quality, measured by the number of rejects per million units of production; employee turnover; and absenteeism.

NAPCo chose two techniques to isolate the impact of the training program from other changes occurring in the operating environment. Since they had pre-training data on all four indicators for a six-month period prior to the training, they constructed a trend-line

⁵² Bartel, "Measuring the Employer's Return on Investments in Training."

⁵³ Phillips, *Return on Investment in Training and Performance Improvement Programs*.

projecting the values of these indicators, assuming no training were implemented. They also included in the follow-up questionnaire a section in which the participants had to indicate how much of their performance improvements were related to the training and how much to other factors. Since both techniques have methodological limitations, credibility of findings can be enhanced if each technique produces similar results. Including the cost of the supervisors' time while in training, the training consultant's fee, supplies and materials, food, facilities and evaluation expenses, NAPCo estimated the cost of training to be \$36,031. The benefits of training based on the participant assessment of impact came to \$254,911 and based on the trend line analysis benefits came to \$302,863. Phillips recommends choosing the more conservative estimate to enhance credibility of the results. Nonetheless, in this instance the analysis concludes a very substantial 607 percent ROI for the training.

In looking at the two case studies, Bartel clearly has a more rigorous approach. She has a large sample size allowing for more precise estimates, she makes adjustments for bias in trainee selection, and she considers the "depreciation" of skills over time in her estimates of value. In contrast, the Phillips case has a sample size of 16, which may or may not have some selection bias, and rather than estimate depreciation of skills, the benefits are assumed to remain level for one year and then terminate completely. Phillips, however, takes a much more applied approach, describing the company's decisionmaking process at various stages along the way. For example, he notes that the company initially hoped to use a control group methodology, but found the available options for implementing that impractical. Throughout the case study he includes details that demonstrate how NAPCo balanced the needs of operating the company with the desire to develop sufficiently compelling data about the outcomes of the training.

Interestingly, however, in a review of the literature, Bartel cites a couple of case studies similar to the Phillips model as approaching her ideal. One of these, a study of the benefits of customer service training at International Oil Company, has a sample size of only 12 trainees.⁵⁴ However, indicators were clearly specified and the company used an 11-month follow-up period in assessing benefits. The authors make a fairly compelling case for the training having been a clear benefit. They estimate an ROI of 501 percent during the first 11 months after training, but since costs of training were inadequately identified, the true ROI is likely to be lower than that.

C. Conclusions

It is quite clear from a review of this literature that there is no "best" way to assess employer benefits from training. In multi-firm studies, a variety of types of data are used, and researchers may choose to collect data that proxies productivity or may have a data set with information on firm inputs and outputs and model the production function, or they may simply ask for the subjective judgments of a large number of respondents regarding the impact of training on firm outcomes. Similar variety is seen in case study approaches. Thus, in contrast to measuring participant outcomes — where a certain set

⁵⁴ Rebecca Payne, "Improving Customer Service Skills: International Oil Company," in *Measuring Return on Investment* (Alexandria, VA: American Society for Training and Development, 1994).

of outcome indicators are commonly measured and a random assignment control group methodology is considered the “gold standard” — there is no clear “in an ideal world” methodological choice for a study to measure employer benefits.

All the approaches reviewed have their strengths and limitations, most of which are noted above. In sum, large-scale data set studies can gloss over differences in the production functions of firms and, hence, not accurately capture outcomes. They may also suffer from endogeneity in the model chosen, and they often lack data on costs of training. While case studies may overcome many of these limitations, other methodological issues arise, and, importantly, findings from case studies can not be generalized necessarily across firms. Finally, no studies were found that addressed head-on the value at a firm level of hiring trained versus untrained workers.

The studies reviewed, however, did shed light on the variety of potential measures that could be used and different ways the data might be analyzed. Given that the first industry in which we will apply this approach is the health care industry, we keep in mind some of the distinctive features of health care work as we develop a proposed methodology. In the next section, we briefly note some of the characteristics and features of the health care sector, in order to provide some context for our proposed approach, which is then described in the final section.

V. A Note on the Health Care Industry

In its investigation of employer benefits of sector programs, it seemed obvious that, in order for the work to be appropriately grounded in practice, a specific sector should be chosen for initial exploration and application. Health care was selected as the first sector to explore for two primary reasons. First, a large and growing number of sector programs work in the health care industry. The National Network of Sector Partners (NNSP) estimates that in 2002 there were more than 200 sector programs nationwide and 61 had a focus on health care – the highest industry concentration among the 23 industries specifically identified, and more than double the 26 health care focused programs NNSP identified in its scan of the field in 2000.⁵⁵ Additionally, in the U.S. Department of Labor’s Sectoral Employment Demonstration pilot program – designed to gauge the ability of the sector framework to take root in the public workforce system – a plurality (45 percent) of grantees were engaged in activities within the health care industry.

The second reason for choosing health care is that health care facilities, and the need for health care workers, are nearly universal. From hospitals and laboratories, to doctors’ offices and nursing homes, almost every American community is touched in some form by the health care sector. Often, a hospital or other larger health institution is among the major employers in a local area, and they typically establish significant roots in their communities. Given current workforce shortages in health care (described in more detail below) and the pervasiveness of the sector, it is likely that even greater numbers of health-focused sector programs will develop. Thus, given the current prominence and likely growth of health care in the sector field, the Workforce Strategies Initiative has chosen to pilot the Employer Benefit Assessment Methodology in the health care industry.

A. Size of the Health Care Industry in the U.S. Economy

At present, the health care industry is one of the largest industries in the U.S., both in terms of contribution to GDP and in the size of its workforce, and it continues to grow at a very rapid rate. In the year 2000, \$1.31 trillion was spent in the United States on health care services and supplies, representing roughly 14 percent of the GDP of the U.S. These expenditures are expected to grow at an annual rate of 15 percent in 2003, and are expected to reach \$2.17 trillion by 2008.⁵⁶ These skyrocketing health care expenditures are spread among several key categories. In the year 2000, 33 percent of all health spending was on hospital care, while 20 percent was on physician services, including fees. Nursing homes and prescription drugs each represented 8 percent, and administrative costs associated with the industry represented 5 percent of all health care expenditures. The remaining 26 percent of spending was spread among a variety of

⁵⁵ Kimberly Tarr, “Sector Snapshot: A Profile of Sector Practitioners in 2003” (Oakland, CA: National Network of Sector Partners, 2003).

⁵⁶ Figures are in 1997 dollars and are drawn from the Plunkett Research Web page; Growth rates and GDP figures from John Bailey, “Valuation of the health care industry,” *Weekly Corporate Growth Report* (13 May 2002).

sources.⁵⁷ Home health care, a field that provides a point of entry open to less educated and lower-skilled workers (thus, a target for a number of sector programs), represents only 3 percent of health care expenditures, up from 0.3 percent in 1970. While small, this industry segment has grown very rapidly in the past 30 years from \$2 million in 1970 to \$32.3 billion in 1997. By 2008, the home health care industry is expected to have reached \$288.3 billion.⁵⁸

The health care industry as a whole represents a significant employment opportunity for U.S. workers. In 2001, the health care industry employed roughly 10.7 million people, representing just over 8 percent of non-farm employment.⁵⁹ Projections indicate that about 13 percent of all American wage and salary jobs created between 2000 and 2010 will be in the health services field. The number of jobs in the health care sector is expected to grow by 25.5 percent between 2000 and 2010, and the fastest growth will occur in the bottom rungs of the health care career ladder. For example, medical assistant and home health care grow at a rate of close to 60 percent, far outpacing the projected growth in jobs held by physicians (28 percent).⁶⁰

B. Worker Shortages in Health Care

This rapid growth in health care positions is coupled with an increasing shortage among nursing and allied health professionals, with the nurse shortage being particularly acute right now. An American Hospital Association survey in June 2001 reported a total of 168,000 unfilled positions in the nation's hospitals. Seventy-five percent of these job vacancies were for Registered Nurse (RN) positions. This translates into an 11 percent vacancy rate for RN's in the U.S.⁶¹ A variety of trends have contributed to the nursing shortage. The number of nursing graduates per year started to decline in the mid-1990s, decreasing the supply of new nurses to the field and leading to an increasing average age among nurses. In 2000, the average age of nurses was 45 years old, and many of them are retired or on the verge of retirement. The 2000 National Sample Survey of RNs found that close to 500,000 nurses with current licenses were not practicing their profession.⁶² The shrinking supply coupled with the increases in demand for health services noted above have combined to create an acute overall shortage that is not projected to abate soon. While many employers have recruited nurses from around the world, importing nurses has nonetheless been insufficient to fill the gap.

There are some indications that nurses are abandoning the field due to low job satisfaction. The increased demand for health care services had led to stressful work conditions at some institutions, including increased patient loads and increasing demand

⁵⁷ Center for Medicare and Medicaid Services, *National Health Care Expenditures 2001* (Baltimore, MD: U.S. Department of Health and Human Services, 2002).

⁵⁸ Ibid.

⁵⁹ "Now," *AHA (American Hospital Association) News*, 7 July 2001.

⁶⁰ Bureau of Labor Statistics, *Career Guide to Industries 2002-03 Edition* (Washington, D.C.: U.S. Department of Labor, 2002).

⁶¹ Nancy Pindus, Jane Tilly and Stephanie Weinstein, *Skills Shortages and Mismatches in Nursing Related Health Care Employment* (Washington, D.C.: The Urban Institute, April 2002).

⁶² Ibid.

for overtime work. In addition, many nurses find that due to insurance concerns and other factors, they need to spend increased time completing paperwork, taking time away from patient care. The lack of work satisfaction among nurses is reflected in high nursing staff turnover rates. According to a U.S. General Accounting Office (GAO) survey of hospitals in 2000, the turnover rate among nurses was 26.2 percent. The problem appears to be worse in nursing homes, where in 1997 the GAO found an annual turnover rate of 51 percent for RNs and LPNs in 13 nursing home chains surveyed.⁶³

In its survey, the American Hospital Association found high vacancy rates in other health professions. Rates for pharmacists are 21 percent; for radiological technicians, 18 percent; for billing/coders, 18 percent; and for laboratory technicians, 12 percent.⁶⁴ Though the shortages in these fields are not as prominent as with nurses and nurse aids, the vacancies represent 25 percent of the total unfilled hospital jobs. Hospitals are not the only health care institutions having difficulty recruiting staff. According to a 1999 survey, long-term care facilities in 42 states reported recruitment and retention of paraprofessional aide workers as a major workforce issue.⁶⁵ Preliminary analysis of a survey conducted by the American Health Care Association (AHCA) showed that nursing homes reported vacancy rates of 18.4 percent for RNs, 14.4 percent for LPNs, and 11.7 percent for nursing aides.⁶⁶ As of 2001, the labor shortage issue had become the major concern of hospital CEOs.⁶⁷

Other health professions also have exhibited high levels of turnover, and while in some of these professions the turnover has not resulted in high vacancy rates, nonetheless this turnover represents a substantial cost to employers. For example, a 1998 AHA survey found turnover rates of 40 percent to 100 percent for nursing aides working at 12 nursing home chains.⁶⁸ This turnover rate translates into real costs, although employers are not always sure what these costs are. A Workforce Strategies Initiative survey indicated that employers are aware of their employee turnover rates, and they express a desire for training programs to track employee turnover rates. However, many of them were unable to give solid estimates of the cost related to turnover beyond simply accounting for the annual salaries of the positions.⁶⁹ Uniform information on the cost of turnover is somewhat scant, but the VHA Health Foundation, Inc. has estimated that in the health care industry the cost of turnover to some employers can be as much as 75 percent of the annual salary for that position.⁷⁰

⁶³ Pindus et al., *Skills Shortages and Mismatches in Nursing Related Health Care Employment*.

⁶⁴ "Now," *AHA News*.

⁶⁵ Yoshiko Yamada. "Profile of home care aides, nursing home aides, and hospital aides: Historical changes and data recommendations," *The Gerontologist* (Washington, April 2002).

⁶⁶ Pindus et al., *Skills Shortages and Mismatches in Nursing Related Health Care Employment*.

⁶⁷ "Staff Shortages Loom Large," *Trustee: The Magazine for Health Care Governance* (September 2001).

⁶⁸ *Ibid.*

⁶⁹ Workforce Strategies Initiative, "Documenting the Demand Side: Results of the Employer Interviews" (Washington, D.C.: The Aspen Institute, September 2002).

⁷⁰ VHA Health Foundation, Inc., *Welfare to Work: Strategies for Health Care Work Force Development* (Irving, TX, March, 2001).

C. Where the Jobs Are

Given that health care organizations vary in size, scope and the nature of work, it appears that the industry allows for a diversity of work sites for sector program trainees. Among the more common facilities are hospitals, nursing homes, clinics, laboratories and private physician offices. The table below provides a breakdown of employment in private health services in 2000 by establishment type.

Percent distribution of wage and salary employment and establishments in private health services 2000⁷¹

Establishment Type	Percent of HC Establishments	Percent of HC Employment
Hospitals, private	1.6%	39.3%
Offices of physicians, including osteopaths	41.1%	19.7%
Nursing, long-term and personal care	4.5%	17.9%
Office and clinics of dentists	23.8%	6.8%
Home health care services	3.1%	6.3%
Offices of other health practitioners	19.2%	4.4%
Health and allied services, not elsewhere classified	3.3%	3.5%
Medical and dental laboratories	3.5%	2.1%

Research indicates that smaller facilities, such as doctors' offices, tend to have less difficulty hiring and retaining staff because of their regular hours, less stressful work environments and comparatively better pay. In addition, employment is much more concentrated in institutional settings, such as hospitals and nursing homes, than in offices of physicians. Given the greater concentration of employment opportunities and the greater need, sector programs tend to work with these types of institution in the health care field. In addition, in some markets home care plays a significant role in health care provision, but this varies nationally. In places with large home health operations, these are also often employer partners for sector programs.

D. Implications for Measuring Employer Benefits in Health Care

Conversations with health care employers, sector program operators and industry experts point to some specific issues within the health care field that will need to be addressed to develop a system for measuring the returns to employers of working with health care sector programs. First, there does not seem to be a standard, industry-wide method of measuring turnover and vacancy rates, so it will be difficult to use these indicators as

⁷¹ Ibid.

proxies for level of impact across employers. In addition, the service-based nature of the industry does not easily lend itself to per-employee output or efficiency measures that might be more readily available in other industries, such as manufacturing.

Direct data collection from employers about worker performance also can require a number of informants, as hiring and supervising functions are often separated in large institutions. Further, because of the sensitive nature of the services they provide, health care institutions are particularly wary of sharing information on vacancy rates or staff performance that might erode confidence in its services within its community. Thus, a sufficient level of trust will need to be established to facilitate data collection.

Despite these concerns, the size and bureaucratic structures of health care employers could provide more opportunities for gathering data because they generate and produce more information about their employees due to performance management and customer relations concerns. Experiences with health care providers indicate that there is a willingness to know and share this kind of information, if the ultimate result is the demonstration of an employer benefit to the partnership with sector programs.

VI. Designing an Employer Benefit Assessment Methodology (EBAM)

The purposes of this white paper are twofold. First, to organize knowledge about research methodologies that evaluate and document the value or benefits of worker training to employers. Secondly, to inform and lay the groundwork for a new methodology for assessing the benefits that employers of sector program graduates may experience. While the principal goal of a new methodology will be to improve the ability to measure and assess outcomes, we also hope that it will help programs, funders and employers communicate more effectively about the role that training may play in helping meet employers' workforce needs.

In this section we will describe a new methodology that has been drafted for review by a pilot group of respondents representing key stakeholders — employers, training programs and funders. Preliminarily named the Employer Benefit Assessment Methodology (EBAM), the research framework provides a launching point for further refinement by these key stakeholders. Subsequently, it is hoped that a pilot test of the EBAM will be conducted, and that results and other practical feedback will further inform our ability to describe and understand the benefits of industry-based training to employers.

As previously described, studies of the value of training and other workforce development programs to employers have largely focused on measuring the outcomes of training delivered to incumbent workers of individual firms. Thus, their methodologies are not directly transferable to the context of most sector training programs in the health care field, which tend to train unemployed individuals and then assist them in obtaining employment with a variety of employers. Having said this, we have drawn a number of helpful insights from this review of research. These include:

- Indicators to consider that measure key outcomes hypothesized to be related to training;
- A methodology that compares the workplace experiences of trained workers with the average for their peers; and
- The use of qualitative, interview-based methodologies to collect data that cannot be easily organized into “countable” categories, but may still have potential to be analyzed with uniformity and rigor.

A. Preliminary Design for EBAM

A good design for an evaluation methodology will be sensitive to the constraints, needs and interests of the variety of players who will participate or use findings from the research. To achieve this, it is important to involve as many key stakeholders as possible in the planning. Thus the following framework for an Employer Benefit Assessment Methodology (EBAM) is presented with the important caveat that it will be influenced and further refined. The process by which this will occur will include a pilot group representing employers, training programs and funders, who will be invited to assist with planning, development and future implementation.

Workforce Strategies Initiative staff has identified the following groups as key stakeholders in the EBAM planning process. While all have an interest in the process and outcomes of a future evaluation, these interests vary. For the purposes of discussion, we present preliminary thinking about what key stakeholders' interests may be for the EBAM.

<i>Key Stakeholder</i>	<i>Interest</i>
Industry-based workforce development (sectoral employment) programs	Programs want to be able to speak more clearly and specifically about the outcomes and benefits to employers that their services affect.
Employers of graduates	Employers choose among a variety of recruitment activities and services to fill employment openings. They may value information that helps them improve their hiring process and make better hiring decisions.
Funders of sectoral programs	Funders who seek information to help them identify and support programs with the potential for the greatest impact want to understand what is realistic to expect to occur, or to expect to measure, in terms of outcomes.
Workforce Investment Boards (WIBS)	WIBS seeking to design programs or implement policies that meet workforce development needs of local employers may seek information about the value to employers of industry-based training program graduates.

The interests of key stakeholders also serve to drive the questions that the EBAM evaluation will ultimately seek to answer or inform. It is important that evaluation questions also meet a number of criteria, including:⁷²

- It is possible to bring data to bear on the question; i.e., it is truly an empirical question.
- There is more than one possible answer to the question.
- The primary users want information to help answer the question.
- The intended users feel they need information to help them answer the question.
- The primary users want to answer the question for themselves, not just for someone else, and they care about the answer to the question.
- The intended users can indicate how they would use the answer to the question.

The following evaluation questions are presented for review and reflection upon by the key stakeholders who will assist in the design of the EBAM evaluation methodology.

⁷² Characteristics of good evaluation questions are from Michael Q. Patton, *Utilization-Focused Evaluation*, 2nd ed. (Newbury Park, CA: Sage Publications, 1986), 69-70.

WSI anticipates that, through a process of information-gathering interviews with employers and programs, and learning meetings involving a variety of interested parties from all stakeholder groups, we will be able to refine a series of questions that meet the above criteria and will guide a future pilot test of an EBAM evaluation.

Preliminary Evaluation Questions to Consider

- From the perspective of employers who hire industry-based training program graduates, are there any differences between the performance of these employees and the average performance of their overall workforce?
- What are the specific ways in which industry-based training program graduates differ from their peers with regard to their workplace performance? (Can some of these differences be measured in quantitative terms? Can some be discussed in descriptive or qualitative terms?)
- Does hiring industry-based training program graduates affect overall firm productivity or profitability? In what ways?
- What other outcomes are affected by a firm hiring industry-based training program graduates? For example, does it alleviate shortages in the pool of qualified applicants for their jobs? Does it help them diversify their workforce? Does it help them find qualified applicants with special characteristics, such as foreign language skills?

The above evaluation questions are presented for review and further refinement. Obviously, the data required to address them, and the outcomes that one would expect to measure, will flow from the questions as ultimately determined by key stakeholders. Nevertheless, for the purpose of illustrating the types of outcomes one might expect to measure with an EBAM for the health care field and the types of data, or indicators, that might be collected to inform them, we present the following for consideration.

Outcomes and Indicators to Consider

Outcomes/Organizational Benefits	Quantitative Indicators — measurable with methodologies for collection and analysis that rely on “closed-ended” questions that are easily counted or otherwise quantified	Qualitative Indicators⁷³ — measurable with methodologies for collection and analysis that rely on “open-ended” questions and are more descriptive than quantified
Dependable Workforce	Attendance Absenteeism Tardiness	
Improved Labor-Management Relations	Counts of employee complaints/grievances Counts of supervisor complaints	Time spent resolving conflict Perception of level of conflict in workplace
Workforce Continuity	Turnover Voluntary separations Involuntary terminations Promotions Pay increases	
Patient Care	Occurrence of errors Counts of patient complaints Counts of patient positive feedback	
Institutional (non-patient) Customer Retention	<i>**Measures do not directly relate to specific employees**</i> Number of new customers Number of customer complaints Number of customer positive feedback	Perception of how the two groups of employees may relate to any changes in customer base/customer retention/customer satisfaction
Productivity	Time spent per task Number of patients served	Difficulty/types of cases served
Safety	Number of injuries to employees Worker compensation claims	
Employee Performance	Number of citations for positive performance Number of citations for negative performance	Time spent under direction of supervisor Employee flexibility Employee ability to handle change

The specific research strategy or methodology for data collection and analysis employed for the EBAM cannot be determined until evaluation questions have been agreed upon,

⁷³ Some of these indicators could possibly be quantified but it is believed that to do so would result in an unrealistic burden on employers.

hypotheses about outcomes considered, and indicators selected for measurement. Other important considerations will include: who will conduct any subsequent assessment (researchers or training program staff), the likelihood of employers collaborating in processes requiring that they collect data or participate in interviews, the resources available for an evaluation, and the overall timeframe for development of tools and processes, implementation, and analysis.

Having said this, it is anticipated that given the anticipated complexity of research questions needed to assess the value of training, the EBAM will likely require a mix of survey-based and more open-ended interview-based data collection methodologies. The information that will be required to answer or inform the questions proposed here would represent both quantitative “countable” measures as well as more descriptive or qualitative findings. Thus the methodologies and tools developed to organize, collect and analyze it would reflect this diversity. In addition, information describing the experiences of training program graduates would likely need to be compared against those of their peers in the workplace.

The initial development and testing phase of the EBAM will likely be conducted on a very small scale. This is because a small number of sector training programs in the health care field will be involved in development and piloting the evaluation methodology. In addition, most programs do not operate on a large scale, and they place relatively low numbers of graduates in jobs with relatively few employers. Thus this pilot phase of the EBAM is not anticipated to result in findings that can be generalized to outcomes across all firms. Rather, the hope is that the pilot will lead to both a subsequent phase, in which more programs and employers are involved, and an enhancement in our ability to communicate about the range of benefits that accrue to employers of sector training graduates.

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