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THE SYSTEMATIC STUDY OF COST -BENEFIT ANALYSIS IN ENGLISH LANGUAGE TRAINING

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Abstract

Cost -benefit analysis in its broadest sense is the process of ranking policy options from an economic point of view, taking account of both the benefits of the policy and its costs. The policies range from an investment project that is small enough so that a partial equilibrium approach will suffice, to a broader fiscal policy change, such as a tax, subsidy or regulation that will have general equilibrium repercussions on several markets. In taking an economic point of view, we are concentrating on net benefits of the policy as they affect the wellbeing of individual households of the economy, typically as judged by their own preferences. We are eschewing political feasibility considerations as well as non-economic objectives, such as non-discrimination, liberty, and so on.

Keywords: Cost-benefi, English , Economic, Policy, Non-Discrimination, Liberty

Introduction

Historically, cost-benefit analyses have enabled policy and program managers to make informed decisions about resource allocations for substance abuse treatment policies, programs, and practices. Such analyses also can inform decision making for substance abuse prevention. This report provides the best estimates of the magnitude of the costs to society from substance abuse and the costs and benefits gained through effective prevention. The report draws on the data and methods of recent substance abuse costs and cost savings studies. The overarching goal is to provide a broader base from which to understand the costs of substance abuse prevention programs and the potential cost savings as a result of implementation. Increasingly, the American public supports investment in prevention programs as a strategy for dealing with America’s substance abuse problems (Blendon & Young, 1998¹; Maguire & Pastore, 1996²) Research demonstrates that substance abuse prevention programs work: they can reduce rates of substance use and can delay the age of first use. Studies also have shown that prevention programs not only prevent substance abuse; they can contribute to cost savings (Aos et al., 2004³; Caulkins et al., 2002⁴; Miller & Hendrie, 2005⁵; Swisher et al., 2003⁶).

¹ Blendon, R.J., and Young, J.T. (1998). The public and the war on illicit drugs. *Journal of the American Medical Association*, 279(11), 827–832.

² Maguire, K., and Pastore, A.L. (1996). *Sourcebook of criminal justice statistics – 1995*. Washington, DC: U.S. Government Printing Office.

³ Aos, S., Lieb, R., Mayfield, J., Miller, M., and Pennucci, A. (2004). *Benefits and costs of prevention and early intervention programs for youth*. Olympia, WA: Washington State Institute for Public Policy.

⁴ Caulkins, J., Pacula, R., Paddock, S., and Chiesa, J.R. (2002). *School-based drug prevention: What kind of drug use does it prevent?* MR-1459-RWJ. Santa Monica, CA: RAND.

⁵ Miller, T.R., and Hendrie, D. (2005). How should governments spend the drug prevention dollar: A buyer's guide. In: Stockwell, T., Gruenewald, P., Toumbourou, J., and Loxley, W., eds. *Preventing harmful substance use: The evidence base for policy and practice*. Chichester, England: John Wiley & Sons. pp. 415–431.

⁶ Swisher J.D., Scherer J., and Yin R. (2003). Cost-benefit estimates in prevention research. *Journal on Primary Prevention*, 25(2), 137–148.



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Traditionally, the purpose of training and development has been to ensure that employees can effectively accomplish their jobs. Today, the business environment has changed, with intense pressure on organizations to stay ahead of the competition through innovation and reinvention. In fact, according to the 2006 SHRM⁷ Workplace Forecast, the importance of continued learning is an overarching trend of societal needs, indicating that organizations must foster learning as a social responsibility to ensure they are competitive in the global marketplace.

By definition, training and development refers to the process to obtain or transfer knowledge, skills and abilities needed to carry out a specific activity or task.⁸ The benefits of training and development for both the employer and employee are, in fact, much broader. To meet current and future business demands, training and development encompasses a wide range of learning actions, from training for tasks and knowledge sharing to improved customer service and career development, thus expanding individual, group and organizational effectiveness.

If the true test of the value of an economic theory is longevity, the human capital model passes with flying colors. Its basics are simple and empirically testable (and generally validated). An individual will invest in his or her human capital an additional year of schooling or on the job training as long as the marginal gain from that investment exceeds its added cost. The gains extend over a lifetime and are discounted to the present. If some of these gains accrue to others, governments need to stimulate individuals to take them into account in making decisions. Public action may also be needed if poor individuals cannot mobilize the resources to finance the investment now, despite a promise of big gains in the future.

Methodology

The systematic review involved collection and evaluation of the existing English language evidence relating to the effectiveness of cost benefit analysis. The focus of the review was on cost benefit analysis targeted directly at training skills, with the objective of directly or indirectly affecting outcomes. In conducting the review, two major strands of interventions were identified. In the main report we examine the existing evidence on job training course in detail.

Whereas the early cost-benefit studies used relatively simple research methods, today quite complex and sophisticated statistical and other techniques have been developed. However, the underlying concepts and problems have, for the most part, remained the same. The methodology used in cost-benefit analysis outside the world of education essentially applies in its entirety to educational cost-benefit studies but, in addition, the latter give rise to complex conceptual and computational problems of their own. It is important that the various problems indicated in this section are seen in context and are not taken to invalidate what is still a widely-used and very useful technique.

According to the traditional method of calculating rates-of-return to investment in education and skill training from a detailed cost-benefit analysis. The computation of educational costs is not a simple matter; it is possible to arrive at a number of different definitions of costs, which may result in contrasting figures (Hough, 1991)⁹. Nevertheless, the principles involved in calculating costs in education are not essentially different from

⁷Schramm, J. (2006). SHRM workplace forecast. Alexandria, VA: Society for Human Resource Management.

⁸Society for Human Resource Management. SHRM HR Glossary: www.shrm.org.

⁹ HOUGH, J.R., (1991) An Economist looks at Education, (Loughborough University).



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those involved in calculating costs elsewhere. To determine the benefits from education is much more difficult and involves philosophical issues relating to the purposes of education and how to assess whether these are being achieved. Economists have tended to concentrate on the relatively hard evidence that exists in most countries that those people with higher levels of education on average receive higher incomes throughout their working lives than people with lower levels of education. These differences, as measured by data known as age earnings profiles, appear to be relatively stable and consistent over time. It has therefore seemed reasonable to regard the income-stream differentials, or some proportion of them, as attributable to the education received and it has become conventional to use them to measure the benefits from education. Clearly, to do so is not without problems and leaves a number of questions unanswered but efforts to find alternatives have met with difficulties. One of the most interesting alternatives was the attempt to measure the contribution of education directly by comparing the physical output of educated and less educated workers (Jamison and Lau, 1982)¹⁰.

At the outset it is necessary to decide whether to use the Present Value method or the internal rate-of-return method. This is a rather technical distinction between the former, which deducts the present value (arrived at via discounting) of costs from the present value of benefits to arrive at a net figure, and the latter, which arrives at the rate of discount which equates the total benefits with the total costs.

Review of literature

Cost-benefit analysis evaluates projects and interventions in order to measure their profitability by comparing costs and benefits where both are measured in monetary terms (Levin, 1983)¹¹. In principle, cost-benefit studies can be performed at the private, corporate and social level, measuring costs and benefits to the individual, to the implementing enterprise or organization, and to society, respectively (Metcalf, 1984)¹².

Cost-benefit analysis involves four steps.

- First, the project's relevant costs and benefits must be identified. Economic benefits can be defined as all goods and services made available to the economy by the effect of a project or intervention. Direct benefits occur to the immediate users of the project's output, while indirect benefits or positive external effects, and refer to the outcome of a project such as spillover effects or the creation of further employment. These indirect effects result in a net gain to society, but not to a direct gain to the individuals who acquire the project's output (Dasgupta et al., 1972)¹³. In addition to the economic benefits, additional objectives of a society such as equity or environmental objectives may be achieved by the intervention which, in principle, should be identified and specified.

Costs are treated in analogy to benefits. They are defined in terms of opportunity costs, which is the maximum alternative benefit foregone. By devoting resources to a particular use, society has to sacrifice the benefits that could be obtained from using them for other purposes (costs are defined as sacrificed benefits and therefore benefits with a negative sign). The net benefit (benefits minus costs) is defined as " ... all goods and

¹⁰ JAMISON, D. and LAU, L. (1982), *Farmer Education and Farm Efficiency* (Baltimore: John Hopkins University Press).

¹¹ Levin, H. M. 1983. *Cost-effectiveness. A Primer. New Perspectives in Evaluation. Vol. 4.* Beverly Hills: Sage Publications. P.21

¹² Metcalf, H. 1984. "The Economics of Vocational Training. Past Evidence and Future Considerations". Staff Working Paper No. 713. Washington D.C.: World Bank. P.96.

¹³ Dasgupta, P., S. Marglin, and A. Sen. 1972. *Guidelines for Project Evaluation.* New York: UNIDO. P.16.



services made available to the economy that would not have been available in the absence of the project.” (Dasgupta et al., 1972)¹⁴

- In a second step, costs and benefits must be given a value in order to be comparable. Market prices are used to assess a private investor's prospects and social prices to assess the project from society's point of view.
- Third, costs and benefits must be compared over time by discounting those occurring in future periods.
- Finally, benefits have to be related to costs so that different projects can be compared. Different evaluation criteria may be applied such as pay-out period, benefit-cost ratio, net present value or the internal rate of return to investment (Roemer and Stern, 1974)¹⁵.

Concepts of Cost Benefit Analysis

Cost-benefit analysis is used in both planning and evaluation. In planning it is used to predict whether the benefits of an innovation, an intervention such as training, or a capital investment will be equal to or greater than the costs of the intervention. For example, if you are trying to decide whether to hire a vendor to offer a leadership course, cost-benefit analysis can estimate whether the organizational benefits of the training will equal or exceed the training costs.

When used in evaluation, which is the primary purpose of this booklet, cost-benefit analysis (CBA) is used to estimate the actual organizational results. After the training or other type of intervention has been implemented, cost-benefit analysis can be used to determine whether there was any real benefit in comparison to the actual costs.

The most common approach is to calculate return on investment (ROI). This is accomplished by producing a financial estimate of both the benefits and the costs to determine whether the benefits exceed the costs.

Definitions of Cost, Cost-Effectiveness, and Cost Benefit

The economic literature uses a variety of definitions for cost, cost-effectiveness, and cost benefit. However, for the purposes of this report, each of these terms is defined below:

1. Costs are defined as expenditures to deliver services and expenditures to receive services¹⁶.
2. Cost-effectiveness is defined as expenditures required to achieve an effect¹⁷.
3. Cost benefit is defined as the ratio between expenditures to deliver a program and the reduced social costs over time as a result¹⁸.

Cost benefit analysis, simply put, is the monetary or safety valuation of the risk of performing a task (or performing a task in a certain way) vs. benefit of performing the task (or performing the task in a certain way). One of the simplest examples is the use of gloves when performing maintenance on a mechanical saw. What are

¹⁴ Ibid. p.40

¹⁵ Roemer, N. and J. J. Stern. 1974. *The Appraisal of Development Projects: A Practical Guide to Project Analysis with Case Studies and Solutions*. New York. P.24-38.

¹⁶ Chatterji, P., Caffray, C. M., Jones, A. S., Lillie-Blanton, M., and Werthamer, L. (2001). Applying cost analysis methods to school-based prevention programs. *Prevention Science*, 2, 45–55.

¹⁷ Hurley, S. (1990). A review of cost-effectiveness analyses. *The Medical Journal of Australia*, 153, s20–s23.

¹⁸ Plotnick, R. D. (1994) Applying benefit-cost analyses to substance use prevention programs. *International Journal of the Addictions*, 29, 339–359.



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the risks of not wearing gloves? What are the benefits? A maintenance person may contact a saw blade during the performance of their work and cut themselves. Gloves will protect the maintenance operator from cuts or severe lacerations, but the gloves may also impede the maintenance operator from accessing small parts or points within the machine, making their task that much more difficult. Weighing the risks and benefits is sometimes a confusing, and complicated, process, and is not just a monetary or financial decision. Financial decisions many times determine whether or not equipment or machinery is replaced. A simple return on investment (ROI) strategy is one of many types of investment information that would go into a financial decision. A cost benefit analysis is more than a return on investment strategy, there are many other factors that influence a decision. Safety is one of these factors.

A cost benefit analysis is sometimes confused with a return on investment (ROI) process. A ROI is a type of investment strategy and is generally used to determine if new machinery or equipment is a good investment over time, rather than for a safety and health evaluation. For example, a mechanical saw may require \$5,000 in repairs (new engine, belts, blades, guards, etc.), \$100 each year in maintenance and would produce 100 units of per month. A new saw would cost \$15,000, require the same \$100 in maintenance costs each year, and would produce 120 units per month. If the company received \$25 per unit, the additional revenue would be \$2,500 each year. Additionally, the company could write off the depreciation of new equipment at 10% per year. The new saw would pay for itself after 2 years. (\$6,000 additional product per year, plus \$1,500 tax write off, equals \$7,500. Multiply by 2 years equals the \$15,000 investment in the new saw). If the life of the saw is estimated at more than 2 years, then the ROI is favorable. If the life of the saw is only 2 years, then it is a break-even ROI. If the life of the saw is less than 2 years then the ROI is negative and the company would be better off maintaining the old saw.

However, if the saw is a safety hazard (for example the bolt-holes are stripped and won't hold the blade securely) and there is a risk of injury from use, then the valuation of a new saw is increased. If the potential for an injury (risk) is severe, then the value of a new saw is significantly increased and would easily outweigh the monetary cost of maintaining the old one. The value is no longer just a monetary calculation, and the value is heightened by the protection of worker safety.

Applicability of acquired qualifications in educated people

When people have acquired skills and qualifications during their higher education period, the central question is whether these skills can be transferred to good employer. Hence, skills have to be distinguished into those which can be applied in employer and those which are not transferable. Two different concepts are presented which allow the distinction of skills in terms of transferability. One concept, which may be called the inter-occupational approach, distinguishes between functional and extra-functional qualifications. Functional or process related qualifications relate to the performance, experience, knowledge and skills required for a particular type of job. Extra-functional or process-independent qualifications refer to technical and economic qualifications not tied to one very specific type of work. These include competencies such as the ability to cooperate and communicate, logical thinking, and mastery of symbolic languages, technical understanding and creativity.



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In addition to economic qualifications, there are general and social qualifications such as diligence, attentiveness, thrift, responsibility, ability to adjust, flexibility and openness to life-long learning, change of social role, solidarity and opportunities for freedom of action (Nölker and Schoenfeldt, 1985¹⁹).

Extra-functional or key qualifications are transferable between different types of professions and therefore also transferable from the military to the civilian sector. Extra functional qualifications may have been acquired during the time in the higher education at various levels. First, it is argued that training in the use of English language training and support equipment received by teachers may induce changes at the affective level. Teachers are supposed to acquire modern attitudes and aptitudes by working with modern skills, following instructions, etc. This attitude is considered to contribute to innovative behavior, adoption of new technologies and economic development.

Second, tolerance may be enhanced between people belonging to different ethnic groups or religions. In Eritrea, it was observed that there was a greater convergence of different viewpoints in the military than in civilian life. Experience of a high level of tolerance contributes to the social and political integration of demobilized soldiers (Klingebiel et al)²⁰.

Conclusions

This systematic review of cost benefit analysis for English language training, higher education highlighted the extremely wide variety of initiatives seeking to improve outcomes through targeting training centers or companies. There is a range of evidence supporting the effectiveness of these programmes, and the positive effects that they can have on both skilled people and companies. The long-term economic benefits of investing in higher education have been good for both individuals and countries and will probably remain so in the future, as long as societies need more high-level skills.

Most training evaluation is concerned with whether learners acquire course knowledge and skills and apply them to the job. ROI, on the other hand, is concerned about whether the training is benefiting the organization. The challenge is to identify and quantify what is valued, and then track the results. While objective measures, or “hard” data, are preferable, subjective data can prove credible in some circumstances. In these situations, listing assumptions and procedures from the very start increases their legitimacy.

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¹⁹ Nölker, O. and E. Schoenfeldt. 1985. *Glossar: Internationale Berufspädagogik*. GTZ: Expert Verlag. P. 160

²⁰ Klingebiel, S. et al. 1995. *Promoting the Reintegration of Former Female and Male Combatants in Eritrea*. Berlin: German Development Institute. P. 27.



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