



Bulletin

- Water
- Energy
- Retailing
- Transport
- Financial services
- Healthcare
- Telecoms
- Media
- Post
- Competition policy
- Policy analysis and design
- Regulation
- Strategy
- Contract design and evaluation
- Dispute support services
- Market design and auctions

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A FRAMEWORK FOR ESTIMATING THE SOCIAL RATE OF RETURN TO ADULT BASIC SKILLS

Every two years, the UK Government makes decisions about its policy priorities in a spending review. Even when the big political choices have been made – between education and law and order, for example – difficult decisions need to be taken as to how to allocate funds within budgets, requiring detailed analysis of both the costs and benefits of policy options. Frontier worked with the Department for Education and Skills to construct a framework of costs and benefits that could be used to assess the worth of training adults in numeracy and literacy skills.

It has been estimated that in England about seven million adults cannot read, write or undertake numerical calculations at the level expected of an 11-year-old¹. For some, this means difficulties reading relatively simple adverts or calculating change from a ten-pound note. For others, the problem may be less acute but nevertheless can restrict their ability to undertake certain activities at work. In 2001, the Department for Education and Skills (DfES) therefore launched "Skills for Life": a strategy to →

encourage the acquisition of basic literacy and numeracy skills and provide adults the opportunities for acquiring them.

In developing the strategy for the medium term, the Department faces a key policy question – what is it worth investing in boosting basic skills, both in absolute terms and relative to other spending options? Knowing the social rate of return to basic skills can help answer this question. The social rate of return is a measure that compares the benefits to individuals - and the rest of society - with the costs of implementing the policy.

The principles involved in estimating the social rate of return on such education programmes are essentially the same as those involved in estimating the rate of return on any investment – a question that economists are often asked to answer. Earlier this year, Frontier provided economic advice to the DfES in preparation for the 2002 spending review. One of Frontier's tasks was to consider the framework and information needed to estimate the social rate of return on the "Skills for Life" programme.

COSTS ARE STRAIGHTFORWARD

We suggested to the DfES that the costs – to society – of developing the Skills for Life programme should be relatively straightforward to identify. They consist of the costs to:

- *central government*, associated with the (free) provision of learning opportunities, including the direct provision of places, spending on raising awareness, the design and implementation of the national curriculum and the development of teaching staff;
- *employers*, arising directly from the provision of facilities or trainers, or indirectly through allowing employees to take time off for basic skills learning; and
- *individuals*, in terms of the "opportunity cost" of the activities that they give up in order to spend time on a basic skills course.

While estimates do not currently exist for all of these cost elements, the necessary data can be collected. For example, those responsible for providing basic skills training could monitor how many employers participate, what they do – and how learners would otherwise be spending their time. Part of the value of setting up the framework for evaluating costs and benefits early is that the necessary systems for collecting the data can be put in place.

BENEFITS REQUIRE MORE THOUGHT

The benefits associated with investing in basic skills are more difficult to assess. The range of possible outcomes is much wider than for costs, and the experiences of individuals are likely to vary to a greater extent. For example, gaining basic skills could allow one person to find employment after previously being unemployed. For another, it could result in more interaction with his children, helping with homework, for example, with no pecuniary gain.

In developing a framework for analysis, we began by identifying the following potential benefits from the acquisition of basic skills.

- *Productivity gains*: literacy and numeracy skills can raise productivity by widening the range of activities that the adult learner can undertake, improving the quality of output and/or helping the adult learner become more efficient at carrying out particular tasks. These benefits accrue specifically to the individual. In addition, however, there may be further productivity gains that accrue to co-workers, whose productivity may also rise. These are known as productivity spillover benefits.
- *Wider benefits*: both individual learners and society as a whole may also benefit from a number of wider effects. There is evidence to suggest that individuals with literacy and numeracy skills (and, more generally, a higher level of qualifications):
 - have better health;
 - are less likely to display criminal/anti-social behaviour; and
 - make a greater contribution to communities.

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The existence and size of these wider benefits are more uncertain than the effects on individual learners' productivity. The link between basic skills and such wider outcomes is difficult to observe; the outcomes are influenced, often more directly, by many other factors. Furthermore, even if a link can be observed, it is difficult to quantify.

We considered these wider benefits to be too speculative to be included within the calculation of the social rate of return at this stage. However, where there is strong reason to believe a relationship exists, these wider benefits should be included in the framework for analysis. This might mean listing them "below the line", pending further research to identify them more accurately. This is likely to be particularly important for basic skills, since literacy and numeracy are thought to have a closer link to these wider outcomes than other qualifications.

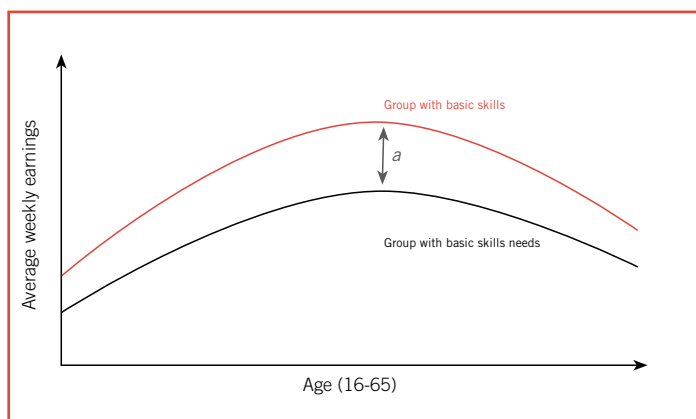
A PLAN IS GOOD BUT USE WHAT YOU'VE GOT

The identification of all the relevant costs and benefits and the placement of these within a framework gave the DfES a plan for collecting the necessary information and taking the work forward.

However, whatever the need for more information-gathering and research, policy decisions often cannot (indeed should not) wait for all the data to be in place. Best use therefore needs to be made of the existing information, taking into account its limitations and drawing the most robust conclusions possible.

So, what can be said at this point about the social rate of return to basic skills? We suggested to the DfES that the answer was quite a lot. First, the DfES know the central government costs of delivery. Second, while very little is known about the wider benefits, there is a considerable amount of academic research relating to the economic returns to basic skills – that is, the productivity gains.

For those learners in work, productivity gains are most easily identified and quantified by assessing the potential uplift in lifetime earnings that would result from gaining a basic skills qualification; this is the approach used to assess the benefits to A-levels and graduate qualifications. There is a relatively strong body of evidence to suggest that – as one might expect – individuals with basic skills do earn more at each point in their life than individuals without these skills. The chart below plots the raw earnings data for individuals at different ages with differing skills levels.



The distance a on the chart represents the average wage differential at any particular age between those with and without basic skills. This is not to say that gaining basic skills would lead to an increase in earnings equal to a – the earnings differential will be affected by personal characteristics and circumstances as well as basic skills. The question is, how important are basic skills? Put another way, what proportion of a can be explained by having basic skills?

Economic analysis (and specifically econometric analysis) can help answer that question too. Econometric models can be built to estimate the association between basic skills and earnings, taking into account personal characteristics that also affect earnings. In advising the DfES, Frontier identified two research studies that have sought to do exactly this for basic skills.

The first of these studies, by Lorraine Dearden², uses the National Child Development Survey to compare the earnings of those with basic skills and those without while taking into account differences such as, age, gender, location and family background. The second, by Stephen Machin³, uses the same survey to consider earnings differences when also taking into account 'soft' factors such as attitude to education when at school.

The table shows the wage differentials between those with and without basic skills, taking into account the effect of other characteristics on wages for each study.

	Numeracy	Literacy
Dearden All	5.7%	12.6%
Machin Male	4.8%	1.7%
Female	4.0%	3.9%


Wage differentials for literacy and numeracy taking into account the effect of other characteristics on wages

The table indicates that, holding other factors constant, those with basic skills in numeracy earn between 4.0% and 5.7% more than those without. For literacy, the earnings differentials range between 1.7% and 12.6%.

WHERE NOW?

Economic modelling, such as that described here, is a good starting point for estimating the benefits accruing to the basic skills learners. To translate the estimates for the "average" learner into estimates for the population of learners will involve making assumptions about the characteristics of learners – again, this is something that can be observed. Once an aggregate measure of benefits has been derived it can be compared with the aggregate costs incurred and an initial estimate of the social rate of return to investing in basic skills training for adults derived.

Our work for the DfES helped the Department to construct a framework within which to assess costs and benefits, and decide which data it needs to collect to derive a robust estimate of the social rate of return to basic skills training. Following this approach, the Department will shortly have much of the information it needs for an initial estimate – an important piece of evidence for policy discussions on the allocation of public money.

SOURCE	<ol style="list-style-type: none"> 1. Department for Education and Skills working group, "Improving literacy and numeracy: A fresh start", 1999 2. Dearden et al. (2000) "The Returns to Academic, Vocational and Basic Skills in Britain", London: Centre for the Economics of Education, London School of Economics. 3. Machin et al. (2001) "Basic Skills, Soft Skills and Labour Market Outcomes: Secondary Analysis of the National Child Development Study", London: DfEE Research Report No 250
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