
THE WIDER BENEFITS OF LEARNING: A SYNTHESIS OF FINDINGS FROM THE CENTRE FOR RESEARCH ON THE WIDER BENEFITS OF LEARNING 1999-2006

Centre for Research on the Wider Benefits of Learning

Introduction

The Centre for Research on the Wider Benefits of Learning was established by the Department for Education and Employment (now the Department for Education and Skills) in 1999. Its role, in recognition that the benefits and purposes of learning go beyond the enhancement of individual and national economic productivity, was to define the nature of these wider benefits and explore how they might be realised.

This research brief brings together and summarises findings from the first seven years of research at the Centre, setting out the key overall messages of the Centre's work. These take not only the form of important specific findings but also conceptual maps and frameworks of the most relevant relationships, and implications for policy and future research.

Key Findings

- 1) The importance of learning is wide-ranging, extending well beyond qualifications and economic success - learning has the power to exert a causal influence on a range of factors, including:
 - Our well-being - in the UK, results show that attainment of at least "O" Levels reduces the risk of adult depression by 6 percentage points.
 - Our health - for instance, US data shows that, for individuals born between 1931 and 1941, an additional year of education improves the probability of reporting good health from 81.0% to 84.4% for men, and from 79.5% to 84.3% for women.
 - Our attitudes - for instance participation in adult learning has beneficial effects on race tolerance, authoritarian attitudes, political cynicism and political interest.
 - Our behaviour - for instance educational interventions have been shown to reduce crime levels. A study of the impact of two government interventions - the Reducing Burglary Initiative (RBI) and Educational Maintenance Allowances (EMA) - on male juvenile convictions for burglary found that in areas where both initiatives were introduced convictions for 16 to 18 year olds for burglary fell between 1.1 and 1.5 per 1,000 relative to areas where neither programme was introduced.
- 2) The impact of education depends not only on the *quantity* of education experienced and qualifications achieved but on the *quality and nature* of the educational experience - its appropriateness to the individual, and their engagement with learning.

3) The wider benefits of learning are realized not only through qualifications and employment skills, but through:

- the development of personal "soft" skills and attributes such as self-efficacy, self-regulation and social and communication skills.
- social interaction and the development of social networks. These interactions form a key part of the process of realizing the wider benefits of learning, affecting attitudes and value systems.
- gaining qualifications and the signals which this gives about personal capabilities and their value in the labour market.

4) The effects of education may not always be positive. For instance, self-worth may be damaged if challenges are beyond an individual's capabilities; learning can raise expectations that cannot be met, disrupt existing social networks or put additional strain on limited family time and resources.

5) There is a strong association between the educational outcomes of parents and their children: those people who do well at school, who obtain higher qualifications tend to have children who do the same. There are several possible important causal mechanisms which may be at work here over and above the effects of genetic inheritance:-

- Income and poverty
- Parenting style and warmth
- Parental educational behaviours with their children (e.g. whether they read to their children, take them on outings, etc)
- Parental values, aspirations and values
- Social inclusion and community support

However, there are important caveats:

- For most of these the evidence is still somewhat equivocal, showing strong statistical associations, often even when statistical controls have been used, but falling short of demonstrating a direct causal effect. A key exception is income (particularly poverty) which *does* appear to be an important determinant of the

intergenerational transmission of educational success.

- The effects of the mechanisms outlined above to promote or hinder the intergenerational transmission of educational attainment tend to occur when they operate together, compounding the level of risk or benefit, rather than when they are present in isolation.

6) It has commonly been supposed that increasing the duration of parental education will increase the educational attainment of their children. However, we find that duration of parental education may have only minimal effects. This is thought to be evidence of education's role in social or economic positioning, whereby additional time in education (and logically, additional qualifications) reflects some individuals' attempts to maintain social and economic advantage over others.

7) It is not just the level of education which is important in realizing benefits at the national level, but equality of access, as countries with very unequal levels of education also tend to have lower levels of societal cohesion.

8) The wider benefits of learning can also have knock-on economic effects. The estimated range of costed benefits is inevitably large, as there are margins of error associated with both the estimate of the scale of the benefit itself and with the cost calculation. However, it has been estimated for instance that, if education levels were raised such that 50% of women with no qualifications gained Level 1 academic qualifications, the benefit would be £1.1 billion (with a 90% confidence interval of £0.3 billion to £1.9 billion) per annum in terms of reduced mental health costs.

What do we mean by "wider benefits"?

Traditionally the returns on investment to education have been described in terms of income and finance. But learning has benefits for outcomes other than the purely economic - health, well-being, social cohesion and community participation. These may in turn have economic benefits (e.g. reduced costs of crime), but also have value in terms of quality of life (e.g. increased feelings of public safety).

These benefits may be realised at different levels:

Individual and family - for instance in reducing the likelihood of depression, or increasing the adoption of positive health behaviours (e.g. not smoking, take-up of preventative health care).

Community - for instance community cohesion, low levels of crime.

National - manifesting themselves in overall health and mortality rates, crime rates, engagement with civic life and political processes.

The benefits at each level may feed into those realised at the next level, by not only simple aggregation of benefits, but through dynamic and interacting processes, which we discuss in more detail later in this paper.

The wider benefits of learning: how much?

The work of the centre has focussed on the benefits of learning in terms of three major areas of outcome: health; crime/social behaviour; and families. Below we look at some of the main findings in each of these areas, and at some of the implications in terms of costs and savings.

Health

Findings show that there are returns to education in the form of health benefits - in terms of **self-reported health, lower mortality rates, lower incidence of depression and obesity**, and in health-related behaviours - **diet, exercise, smoking, and take up of preventive health care** measures. The Box below gives some examples of estimated causal effects of education on health outcomes.

Box 1: Educational effects on health outcomes

- In the UK, results show that attainment of at least "O" Levels reduces the risk of adult depression by 6 percentage points. (Chevalier and Feinstein, 2006)
- In the US, for individuals born between 1931 and 1941, an additional year of education improves the probability of reporting good health from 81.0% to 84.4% for men, and from 79.5% to 84.3% for women (Adams, 2002)

- In the US, for individuals born between 1914 and 1939, an additional year of schooling is estimated to reduce the probability of dying in the next ten years by 3.6. percentage points. (Lleras-Muney, 2002)
- In the US, for individuals born between 1937 and 1956, an additional year of college education decreases smoking prevalence from 52% to 48.2% and increases smoking cessation from 46% to 51%. (de Walque, 2004)
- In Sweden, for men born between 1945 and 1955, an additional year of education increases the likelihood of having a Body Mass Index within the healthy range from 60% to 72%. (Spasojevic, 2003)
- In the US, for white adult males born between 1934 and 1943, an additional year of education reduces the need for personal care in adulthood by 0.67 percentage points. This result is substantial given that only 3.2 percent of this group required personal care. (Arkes, 2003)

The need to rely on international results here in part reflects the difficulty of locating evidence that shows a causal relationship, rather than one based merely on association. The results shown have been selected on the basis that they use statistical techniques such as an instrumental variable analysis that allow confidence that education has a causal impact on health outcomes, even if the reasons or mechanisms for this effect may be only partially understood. The measure of education used in these cases is either duration, or qualification level. However, there is also evidence that other educational factors may have importance for health, in particular the quality of the school experience and personal factors such as engagement at school (Hammond and Feinstein, 2006). While the techniques used in this study cannot show definitive cause, analysis shows that engagement is statistically significant even after health and personal factors are taken into account, and so there are good empirical reasons to believe that failure to flourish in school is an important risk factor for ill-health in later life. We conclude from this that learning matters and that broad-based conceptions of learning are important if education is to achieve the potential wider benefits rather than the wider risks.

The role of adult education in realising health benefits

Where we have comparisons, the **effects of initial schooling on health are generally greater than the effects of subsequent adult learning**. However, adult learning remains an important influence in positive outcomes in health and well-being amongst adults, whether or not they flourished at school. It may also have a role in redressing some of the existing health imbalances between different sections of the population, as there is a suggestion that the health benefits of adult learning may be greater for educationally disadvantaged people than for others.

Knock-on economic benefits

There are also potentially important **cost savings** to be made through the health benefits of education. For instance, if 10% of women in the UK who obtained no qualifications were to gain a level 1 qualification, the resulting reduction in the incidence of depression would lead to estimated savings of between £6 million and £34 million per year based on NHS costs and the cost of lost working hours. If all aspects of mental health were similarly affected and the intervention raised such that 50% of women with no qualifications gained Level 1 academic qualifications, the benefit would be between £300 million and nearly £1,900 million per annum. (Feinstein, 2002b) The ranges quoted here are large because there are margins of error associated both with the calculations of the cost of depression, and with the estimation of the strength of effects of education on depression. Combining the results to produce an estimated cost saving also combines and compounds the margins of error.

Crime and Society

Individual level benefits

At the individual level, participation in adult learning has positive effects on a wide spectrum of health and social capital outcomes with statistically significant effects (at 95% confidence) of participation on nine of twelve outcomes looked at. These outcomes are changes in **smoking, exercise taken, life satisfaction, race tolerance, authoritarian attitudes, political cynicism, political interest, number of memberships, and voting behaviour** (Feinstein et al, 2003). Although effect sizes are small in absolute terms, relative to the generally stable nature of attitudes and behaviours during mid adulthood, participation in adult learning is an

important driver for change and has the potential to affect large numbers of people.

Additionally, quantitative analyses of data from the National Child Development Study (NCDS), controlling for a range of features of the individual and their context up to age 33, found an association between taking courses and transforming from low to good levels of **self-efficacy** between ages 33 and 42 for all cohort members. The association is greatest for those who had low achievement levels at school. (Hammond and Feinstein, 2006)

Community level benefits

There are also benefits at the community level. A study of the impact of two government interventions - the Reducing Burglary Initiative (RBI) and Educational Maintenance Allowances (EMA) - on male juvenile convictions for burglary found that in areas where both initiatives were introduced convictions for 16 to 18 year olds for burglary fell between 1.1 and 1.5 per 1,000 relative to areas where neither programme was introduced. This was also a much greater crime reduction than for areas that introduced the EMA or the RBI singly. (Feinstein and Sabates, 2005)

Some of the community level benefits of learning in terms of **cost reduction** have also been identified. A UK study (Machin and Meghir, 2000) using area crime data for the 43 police forces of England and Wales, excluding the City of London, 1975-1996 showed that a 10 percent rise in the average pay of those on low pay in an area reduces the overall area property crime rate by between 0.7 and 1.0 percentage points. Linking this with work done by the Centre (Feinstein, 2002a) on the relationships between education and crime, we estimate that a 1 point increase in the proportion of the working age area population with O Level or equivalent qualifications, could reduce the costs of crime by between £10 million and £320 million. As with the cost calculations for mental health, the range is large because two sets of confidence limits have been factored in - those associated with the estimated crime saving, and those with the estimated size of the education effect. If the improvement in educational levels were increased such that 1 extra percentage point of those in the area population with O Levels, reached A Level or equivalent qualifications and those with O Levels or equivalent who progressed were replaced by those who had previously had no qualifications, the benefit is predicted to lie between £80 million and £500 million. Assuming linearity, a 5-

point increase would have effects of between £400 million and £2,500 million.

National level benefits

Finally, an international study suggests that at the national level, education may have benefits for **societal cohesion** - defined in terms of measures of **trust** (of individuals and of government), **civic co-operation**, and **violent crime**. This appears to relate not to absolute levels of education, but to the distribution of levels of education: results showed societal cohesion had no relation to mean levels of education, but a strong negative relationship with educational inequality - i.e. countries with very unequal levels of education also tended to have low levels of societal cohesion. (Green, Preston and Sabates, 2003)

Family and intergenerational benefits

Learning may have positive effects within the family, by improving quality of life for family members - for instance if it increases the well-being of parents. A small-scale qualitative study on parental perspectives of family learning found that parents identified four types of benefit:

- **child-related** - where they became more aware of how to teach their children and the opportunities available to do so in everyday life;
- **other-related** - where they gained from meeting new people, making friends and developing a new support network;
- **practical** - where they gained new knowledge and were awarded a certificate which motivated them to want progress to other courses; and
- **emotional** - where they felt they were discovering their 'old selves', reawakening their brains and gaining more confidence.

(Brassett-Grundy, 2002)

It has also been thought that education of parents may have positive effects on **parenting style and their behaviours with their children** - for instance, whether they read to them. Analysis of information about the NCDS cohort, born in 1958, and their parents showed that increasing the length of time that mothers spent in education did not, in itself, have a substantial effect on their parenting style and educational behaviours with their children (Feinstein and Sabates, 2006). While there was a strong association between staying on in post-compulsory education and parenting style, this was due mainly to

the **underlying characteristics** of those mothers continuing in education, not a separate benefit arising from the additional time in education

Life-stage differences: the relative benefits of early and adult education

The effects of education are not uniform across the life-course: their nature and scale vary at different stages of life. It is generally accepted that early interventions and support have the potential for greatest effects, and our own evidence, where we have comparisons, would support this. However, we need to bear in mind that if early interventions are not followed up, evidence suggests that the benefits are dissipated. Further, educational support at a later stage can still have beneficial and protective effects, even into adulthood (Schuller et al, 2004). For instance, **participation in adult education appears to reduce racism, to increase civic participation and have benefits for health related behaviours**. Some examples taken from an analysis of the 1958 National Child Development Study cohort data are given below.

Box 2: Wider outcomes associated with adult learning

- Taking three to ten leisure courses raises race tolerance by 73% more than the predicted change in this attitude for similar adults had they taken no courses.
- 14% of adults who took one or two leisure courses increased their memberships between the ages of 33 and 42, as compared to the predicted 9% of adults with similar characteristics who took no courses of any type.
- Allowing for background characteristics, 24% of smokers who took no courses quit by age 42. Taking one or two courses brings this percentage up to 27.3% which represents an increase in the chances of giving up by a factor of well over one eighth.
- We predict that 38% of adults with the characteristics of learners would increase their level of exercise between 33 and 42 without taking any courses. The estimated effect of taking three to ten courses is 7% points, increasing this percentage from 38% to 45%. This represents an increase in the chances of taking more exercise by a factor of almost a fifth. (Feinstein et al, 2002)

While the techniques used do not allow absolute certainty over causality, the range and nature of the controls used in the analysis give good reasons to suppose that there is a causal effect.

Adult education also has a protective effect: while it does not appear to be effective in changing the attitudes of those with extreme racist-authoritarian attitudes, it does appear to have a **sustaining effect in preventing individuals from adopting such extremist attitudes**. (Preston and Feinstein, 2004)

Negative outcomes of learning

We can thus see that learning can have substantial potential benefits, both economic and in terms of quality of life, in a number of areas and at different life stages. But we also need to recognise that, if learning is not appropriate to the individual or wider society, the effects may not materialise or may even be negative rather than positive. Some possible downsides to adult learning have been identified, a number of which will also be applicable to children: for instance at the individual level **self-worth may be damaged** if challenges are beyond an individual's capabilities; learning can **raise expectations that cannot be met, disrupt existing social networks or put additional strain on limited family time and resources**. And at the societal level education may benefit one individual at the expense of another, **compounding existing inequalities** by enabling the better off individual or family to gain priority for example in accessing limited health resources.

The Mechanisms - How are the Wider Benefits of Learning Realised?

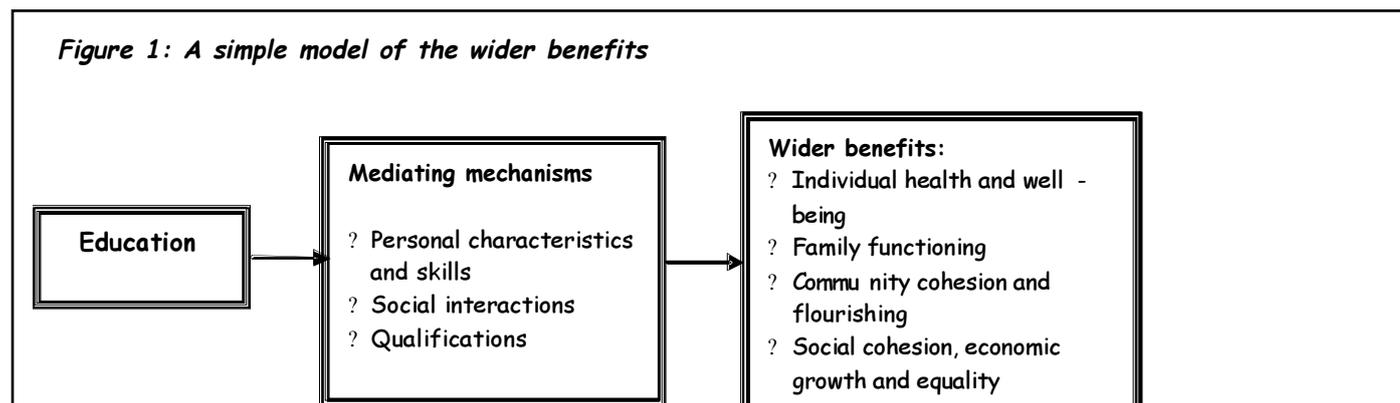
While it is important to understand *the type* of benefits that may accrue from learning at different ages and stages, and how substantial these benefits are, for effective policy intervention it is also important to explore *how* they may be realised. We

suggest the wider benefits of learning may be realised through three major channels. These mediating mechanisms are shown in the model below.

- *Personal characteristics and skills*. Learning can promote the development of wide-ranging capabilities, personal resources, skills, and belief in one's own capabilities, ability to deal with adverse situations and to make informed decisions about behaviours that may have consequences in the future.
- *Social Interactions*. Learning can provide access to individuals and groups from similar or different socio-economic backgrounds, promoting social cohesion and providing a forum for community involvement.
- *Qualifications*. While informal and/or unaccredited learning may be valuable in many circumstances and contexts, learning that leads to qualifications may bring benefits that are due both to the accreditation and the broader signalling advantage which that brings.

This, however, is a simplification of a complex reality. In particular, one must remember that the relationships and processes are **dynamic and interactive**. Thus, for example, not only does education influence health, but health may also influence education if, for example, poor health restricts access to educational opportunities.

We also emphasise the importance of **context** in influencing the operation of these mechanisms and the consequent realisation of the wider benefits of learning. For instance at the local level, neighbourhoods and schools may be more, or less, socially diverse, influencing the opportunities for social interaction; families may be more, or less, well resourced, influencing the development of personal qualities.



At the macro-level, labour markets, national policy and the forces of globalisation may have effects on the opportunities available to individuals, the development of communities and on economic equality and growth.

The intergenerational transmission of educational success

A substantial part of the Centre's work has looked at the intergenerational transmission of educational success. There is a strong association between the educational outcomes of parents and their children: those people who do well at school, who obtain higher qualifications tend to have children who do the same. Conversely those who do poorly at school tend to have children who themselves have poor educational outcomes. Understanding the mechanisms behind this observation may be crucial, not only in influencing educational outcomes for individuals and families, but, through support for lower attaining parents, in addressing educational and social inequalities.

This work links only indirectly to the wider benefits of learning, but if we assume that intergenerational transmission can improve educational outcomes for children, it has the potential also to increase the wider benefits that they can expect to recoup from this process. Further, if social inequalities can be reduced, benefits in improved social cohesion may also accrue. We feel therefore that it is appropriate to discuss this aspect of the Centre's work within the wider benefits framework.

A key output of this work is a model of how education can:

- affect key background socio-demographic characteristics of the family such as income and poverty, enabling parents to protect and provide for their family.
- affect parents' mental health and well being, their values aspirations and beliefs for themselves and for their children
- impact on parental styles and educational behaviours with their children

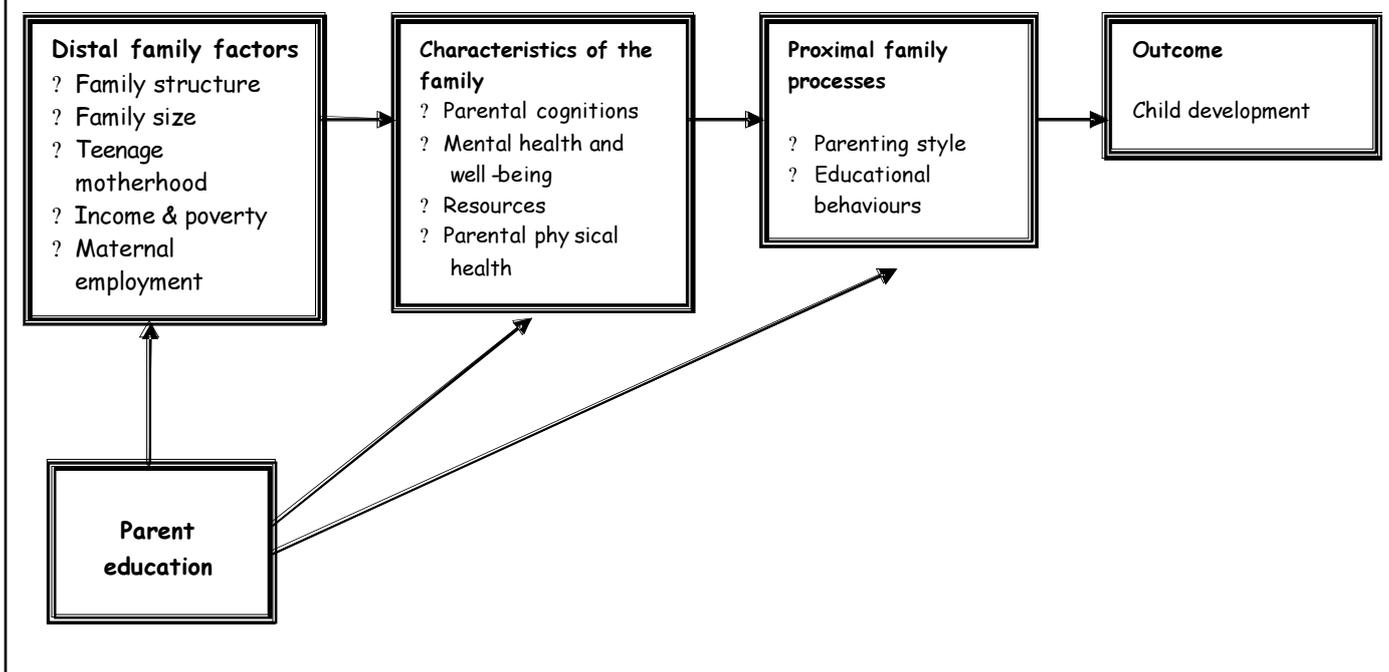
(Feinstein, Duckworth and Sabates, 2004)

In each case, education can have an *impact* on these factors (e.g. it may alter the *level* of income, or *degree* of health and well-being) or it may *moderate* them - i.e. change the nature of their effect (e.g. it may alter how income is spent).

Figure 2 illustrates the conceptual model of these effects.

A key mechanism that has both strong evidence to support a causal relationship, and a substantial effect size is **income**: here higher levels of income allow better provision of resources, and protect children against the effects of deprivation. However, the levels of intervention thought likely to be required to make a difference make this impractical as the sole policy lever, at least in terms of direct action.

Figure 2: Conceptual model for the mediating effects of parent education on child development



Some mechanisms have relatively **little effect** on the transmission of educational success. These are **teenage motherhood, family structure and maternal employment**. This is not to say that these factors might not be important influences on subsequent outcomes for some individuals, but simply that at the level of the overall population, they are not primary drivers of the inter-generational patterns.

There are, finally, mechanisms that have effects on child outcomes, but for which we are uncertain as to whether parental education has a causal effect upon them. The effects of **parental mental health** on the attainment of the overall population of children appear to be moderate (although we acknowledge that, for the individual, the effects of poor parental mental health may be severe). **Family size** has a strong and well-evidenced effect on child development. **Parenting style (e.g. warmth and encouragement), parenting behaviours (e.g. whether and how often they read to their children), parental attitudes, values and aspirations** have strong statistical associations with child attainment, even when statistical controls are used. The effects of **context - school, pre-school provision and neighbourhood characteristics** also have some effect on child outcomes, this being more marked for school and pre-school provision than for neighbourhood. The doubt over the causal role of parental education on these factors arises in part from issues of reverse causality (for instance, in the case of parental aspirations for their children, these may be in part affected by the child's own achievements) so the effect sizes are uncertain. However, the effects of parental education on these factors are also ambiguous: empirical evidence of cause is lacking and, as we have noted previously research from the Centre has found negative evidence (i.e. of no effect) regarding *duration* of parental education on both parenting style and parenting behaviours.

Crucially, we are often uncertain as to precisely what aspects of parents' education might have effects on each factor-whether this is the quantity of education, the nature of the outcomes obtained, the quality of teaching, the content of the curriculum or the quality of the relationships made and sustained during education. Certainly, recent analysis by the Centre suggests that the *duration* of parental education may have only minimal effects, not only on parenting style, but on child attainment (Feinstein

and Duckworth, 2006). The strong association of parents' education with children's attainment may rather be evidence of education's role in social or economic positioning, whereby additional time in education (and hence qualifications) reflects some individuals' attempts to maintain social advantage. One implication of this analysis is that making a wider group of people spend longer in education would not yield additional benefits for the attainment of their offspring, unless education were geared to doing so to a greater extent than has previously been the case.

Conclusion

Education has wide-ranging and often sizeable effects well beyond the economy and the labour market. While these wider outcomes may also have knock-on economic impacts, (e.g. through reducing costs of health care or crime), it is important to remember that they have intrinsic value in their effects on quality of life, not only for individuals, but also for society.

If we fail to recognise this, we risk also failing to capitalise fully on the benefits which education has to offer not only this generation, but those to come.

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Additional Information

This Research Brief synthesises the work of the Centre for Research on the Wider Benefits of Learning 1999-2006. A discussion paper relating to this synthesis will also be published online. Copies of the discussion paper and of Research Reports and other publications that form the basis for this Brief can be found at: www.learningbenefits.net

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