

# Working Paper no. 8: The Case for an Investment Approach to Reducing Child Poverty

August 2012

## Purpose

1. This paper was prepared to provide the EAG with information about the economic consequences of child poverty and the extent to which early investment to reduce child poverty is cost-effective.
2. This paper has informed the direction and recommendations of the EAG's *Solutions to Child Poverty in New Zealand: Issues and Options Paper for Consultation*. These are preliminary findings, and a final report will be published in December 2012. The findings in this paper do not necessarily represent the individual views of all EAG members.
3. The EAG wish to acknowledge the members of the Secretariat for their work on this paper.

## Introduction

4. There are significant economic costs associated with child poverty. This paper examines the nature and magnitude of these costs drawing on the relevant national and international evidence. Particular attention is given to the costs that child poverty imposes on governments and the wider society. On the basis of the available evidence, the paper develops two main arguments. First, it highlights the case for the state to invest in reducing child poverty on the grounds that such investment will reduce further public expenditure. Second, it argues that investment in the early years of a child's life is particularly cost-effective. Hence, from an economic perspective it is more efficient to invest early rather than later (i.e. in remedial spending) – or, to put it more simply, prevention is better than cure.
5. The paper proceeds as follows. First, it explores some of the conceptual and methodological issues surrounding the measurement of the costs of child poverty. Second, it reviews the literature on the costs of child poverty, highlighting the various estimates of the fiscal and wider economic costs. Third, it presents the evidence and the case for early investment in children.
6. The nature and measurement of child poverty are discussed in EAG Working Paper no.1: Defining and measuring child poverty and No 4: Child Poverty – International Approaches and Comparisons. For the purposes of this paper, children are taken to be living in poverty if they are in households with incomes below 60 percent of the median household disposable

income and/or experiencing a defined level of material deprivation (see Perry, 2009, 2011, 2012).

7. This paper focuses on the consequences of child poverty rather than its causes. In brief, however, it is worth noting that there are many competing views concerning the causes of child poverty. Often a distinction is drawn between the proximate and underlying (or root) causes of poverty. The proximate causes include low family (or household) income, perhaps due to unemployment or low earnings capacity, and changes in family structure (e.g. separation, divorce, etc.). The underlying causes of poverty are more controversial. At least five distinct, but not necessarily mutually exclusive, reasons for poverty have been summarised by Blank (2003). It is variously argued, for instance, that poverty is caused by:
  - i. economic underdevelopment: that is, poverty is caused by an absence of effectively functioning markets. This is generally limited to developing countries
  - ii. the fact that individuals are under-prepared or unable to participate productively within market economies due to age, health and familial situation, being under-educated and/or under-skilled, and lacking employment options
  - iii. social and political forces that occur outside the market, such as political disruption (conflict), corruption, racism and favouritism towards certain ethnic groups, that result in economic exclusion of certain groups of individuals and communities
  - iv. individual behavioural characteristics and lifestyle choices, including drug and alcohol addiction, poor family planning, etc.
  - v. poverty alleviation policies themselves: for example, providing short-term assistance rather than long-term development strategies can sometimes exacerbate poverty; likewise, social assistance programmes, if poorly designed, can foster welfare dependence rather than incentives to become economically independent (see Blank, 2003, pp. 448-458).
8. The relative importance of these underlying causes will obviously vary depending on the context. Overall, considerations of economic underdevelopment are of limited relevance to New Zealand. The respective roles played by the other four factors is a matter of greater contention, although the evidence suggests that individual behaviour characteristics and lifestyle choices are not a major cause of child poverty in New Zealand (see EAG Working Paper No 20: how problem gambling, substance abuse and family functioning impact on child poverty).

## **The consequences of child poverty**

9. Child poverty matters from a number of perspectives. First, it violates long-established and widely-held notions of fairness. Children brought up in poverty are often deprived of many of the opportunities that children in wealthier households enjoy. Such opportunities include access to important societal 'goods', the resources necessary for the development of vital human capabilities, and the capacity to participate as full and equal members of society.

Outcomes of this nature conflict with the principle of equality of opportunity which lies at the cornerstone of most notions of fairness or social justice in democratic societies. To compound matters, social and economic inequality has increased significantly in recent decades across much of the developed world (Wilkinson and Pickett, 2009) which has exacerbated the problem of unequal opportunities.

10. Second, not merely are poor children often deprived of valuable opportunities, they also suffer significant hardship and deprivation, often with long-term consequences. The negative effects of child poverty are well documented by decades of research. Children who grow up in poverty are statistically more likely to suffer worse outcomes than other children, including poorer educational and health outcomes, higher unemployment (or employment in low-skilled jobs), and higher rates of crime (Currie et al., 2007; Duncan and Brooks-Gunn, 1997a; Duncan et al., 1998; Griggs and Walker, 2008; Fergusson et al., 2004). It is important to remember that correlation does not imply causation, especially in the complex and multi-faceted issue of child poverty. By and large, however, the evidence shows that child poverty has selective but nonetheless substantial detrimental effects on the well-being of younger children and future outcomes in both adolescence and adulthood (Jenkins and Siedler, 2007).
11. Third, many of these consequences impose costs on the wider society. From an economic point of view, significant levels of child poverty can be seen as a burden on society as it imposes large aggregate costs on the economy. The costs of children growing up in poverty are generally split into three broad categories:
  - i. **Productivity costs:** children growing up in poverty are more likely than those not in poverty to be less productive in later life, thus leading to reduced economic output and forgone earnings;
  - ii. **Crime costs:** children who grow up in poverty are more prone to participate in crime (incurring costs to the criminal justice system)
  - iii. **Public health sector costs:** children who grow up in poverty are more likely to have poor health in both childhood and later life.
12. Several recent studies from the UK, USA and New Zealand (Blanden et al., 2010; Bramley and Watkins, 2008; Duncan et al, 2008; Pearce, 2011; Hirsch 2006, 2008; Holzer et al, 2008) have argued, from a strictly economic perspective, that child poverty is detrimental to a country's economic output, both in the short-term and long-term. These studies make estimates of how much child poverty is costing the economy, and go on to argue that given the amount of money spent on addressing child poverty, prevention would be a more cost-effective approach in the long-term.
13. In the short term, there are 'immediate' or remedial costs to the government that come from addressing child poverty. One way is to look at the extra costs incurred to public services due to the existence of child poverty – for instance, costs to the public health sector from preventable diseases such as rheumatic fever and skin diseases caused by poor quality housing. Child poverty also has long-term costs on the economy. As children from poorer

backgrounds are more likely to suffer worse educational outcomes and face higher rates of unemployment, this leads to reduced productive activity – generating a loss of goods and services to the economy (see Holzer et al. 2008). As Boyce et al. (2009) state in their review of the childhood roots of health disparities, “early experiences of child maltreatment and poverty have been associated with heightened immune responses in adulthood that are known risk factors for the development of cardiovascular disease, diabetes, asthma, and chronic lung disease” (p. 2254). This not only incurs the short-term costs of having to treat the related illnesses, but also imposes ongoing costs as the child’s poor health often has negative consequences throughout their life-course. Furthermore, there is well documented evidence of a strong correlation between health and success in the labour market (Jenkins and Siedler, 2007).

14. Thus, there is a considerable body of evidence that early investment in children makes economic sense, as investing in disadvantaged children when they are young is more cost-effective than intervening when they are older (Allen, 2011; Field, 2008; Marmott et al., 2010). Effective early investment in children also increases their learning abilities and raises their productivity at later ages (Heckman and Masterov, 2007). As longitudinal studies have shown (Blanden et al., 2010; Holzer et al., 2008), children in poverty who later become unemployed produce a reduction in overall economic output through forgone earnings (i.e. opportunity costs), and less government revenue from lost taxation.

## **Methodological issues**

15. There are, however, some significant methodological issues that need to be addressed in order to estimate the economic costs of child poverty. One of the critical issues is what constitutes a cost. In particular, some studies (Pearce, 2011) include welfare and benefit payments which arise as a consequence of child poverty one-for-one as economic costs of child poverty. However, economically speaking, these welfare payments are not a cost but a transfer (i.e. the money is taken from one person through taxation and redistributed to another). The economic costs of the transfer are the behavioural changes induced by raising and paying the money. The person taxed may reduce their labour supply, as might the person who received the transfer. These reductions in output are the true economic cost, not the amount of the transfer itself. In terms of the efficiency cost of raising taxes to fund transfers, in New Zealand it is conventionally accepted that the efficiency cost is about 20 cents in every dollar transferred. Bramley and Watkins (2008) sum up the issue as follows:

- Currently, a lot is spent on these transfers but they do not fully succeed in lifting children out of poverty. One of the ways of eliminating child poverty would be to spend significantly more on these transfers. Estimating the amount required provides a primary means of measuring the cost of eliminating child poverty. Of course, there are other ways of reducing child poverty, notably through increasing the number of parents in work and the level of income earned, for example through active labour market policies. These alternatives also carry public and private costs. It is difficult in

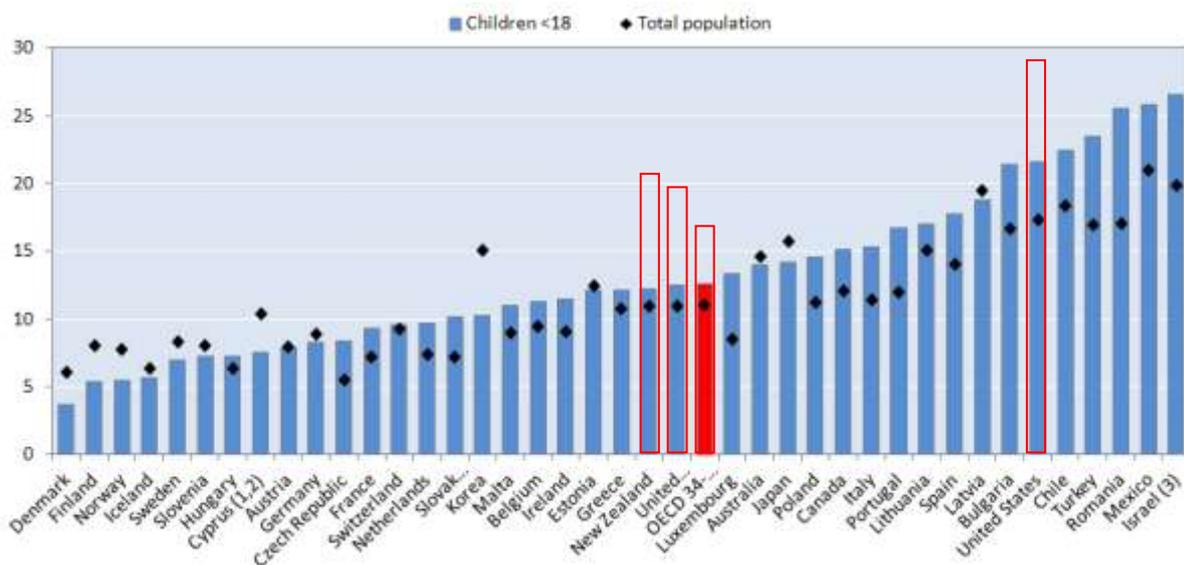
practice to separate the amounts paid in respect of children and the amounts paid for other household members (p.8).

16. Against this, the provision of public services that seek to address the consequences of child poverty can be legitimately counted as a direct economic cost as they are a transactional service (i.e. a good or service is transferred from a provider to a user). An example of this could be the health sector treating illness and disease related to poor quality housing, or the costs of incarcerating people from disadvantaged socio-economic backgrounds. For the purposes of this paper, and in line with the overwhelming majority of studies cited in Table 1, the costs of child poverty will be taken to exclude the social assistance provided to low-income and beneficiary households, but to include public expenditure related to child poverty.
17. The economic costs will depend on a variety of factors, including:
  - i. the methodology used to calculate the specified costs
  - ii. the level of child poverty and how this varies over time
  - iii. the duration of child poverty and its timing in the child's life course
  - iv. issues around the impact that income has on children's outcomes (as opposed to other environmental and hereditary factors).<sup>1</sup>
18. The costs of poverty will be determined, in part, by the amount of child poverty that exists in a given country. Child poverty rates vary across the OECD (see Figure 1), with an average rate in recent years of about 12-13 percent (if calculated by "the share of all children living in households with an equivalised disposable income of less than 50 percent of the median for the total population" (OECD, 2011)). Rates are of course higher using a 60 percent threshold. Nordic states typically have the lowest rates of child poverty (below 8 percent on a 50 percent measure). By contrast, the United States has relatively high rates (above 20 percent).
19. Using the OECD definitions, child poverty rates in New Zealand are about the same level as the OECD average (i.e. 12-13 percent). However, using a 60 percent median household income threshold, New Zealand's child poverty rate is between 18 percent and 25 percent, depending on whether the measure used is before housing costs or after housing costs. The wide gap between the 50 percent and 60 percent thresholds, in New Zealand's case, indicates that "compared to most of the other countries New Zealand's income distribution for households with children [is] more dense in the 50 percent to 60 percent of median range" (Perry, 2011, p. 136). Assessments of the costs of child poverty will necessarily vary depending on which poverty thresholds are used (and thus who counts as being poor).

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<sup>1</sup> For a good literature review on these issues, see Harper, Marcus and Moore (2003).

**Figure 1: Child poverty rates in OECD countries at 50 percent median household income (60 percent median for NZ, UK, USA and OECD in red bars)**



Source: OECD (2011) and Perry (2011)

20. The duration of poverty is an important factor to include when considering economic costs. The evidence suggests that the costs associated with poverty will depend on the length of time spent in poverty as a child. To quote Holzer et al., (2008, p. 45): “longer (or more permanent) spells of poverty will likely be costlier than shorter (or more temporary) ones”. The timing of poverty in the child’s life course is also important to consider, given that research by Duncan et al. (1998) suggests that poverty in early life (0-5 years of age) may impose the most damaging and long-lasting effects on children.
  
21. A contentious topic in the literature is the attribution question – to what extent does (a lack of) income impact on the outcomes of children? That is, what negative impacts are due to poverty (and how do we know), and what are due to non-poverty related factors, such as environmental and hereditary factors? Whilst there is a solid body of evidence which suggests that household income for children is an important factor for future outcomes, there is equally a large body of evidence which suggests that other factors are not only important, but diminish the impact of income. Holzer et al. (2008, p. 44) comment as follows:
  - An important issue raised by our approach is whether the estimated effects of poverty for children are caused by low family income per se, or by a broader range of family and community forces that adversely affect the poor. Susan Mayer’s book (1997) argues that the costs of poverty have less to do with income than with the quality of the family life, schools, and neighbourhoods that poor children experience. In turn, these non-pecuniary factors might be reflected in a range of attitudes, behaviours, and values that poor children develop and carry into adulthood, which might have been caused by their parents’ and peers’ attitudes, behaviours, and values in addition to (or even instead of) their low childhood income.

22. Duncan et al. (2010), who have generally been in favour of raising incomes of parents as a means of poverty reduction, also address this issue: “researchers generally do not dispute simple correlations between income and child developmental outcomes. However, there is much controversy about whether these income effects are causal ... Even supposing that income is measured well across the entire period of childhood, it is difficult to isolate the causal impact of income, as many factors might jointly determine family income and child development” (p. 308). For example, parents with higher cognitive abilities are more likely to provide a higher quality learning environment for their children, regardless of the amount of money spent on books and computers. Studies such as Mayer (1997) therefore have found that the estimated impacts of income account for less “once adjustments for omitted-variable bias are implemented” (Duncan et al., 2010, p. 308). However, while a lack of income is not the only cause of poor outcomes, many years of research has shown that increases in family income, particularly for poor families, have positive impacts on children (Gershoff et al., 2007; Duncan and Brooks-Gunn, 1997b). In short, it is important to recognise these attribution issues if analyses of the economic costs are to be reliable.
23. Clearly, therefore, addressing these methodological issues when analysing economic costs of poverty is crucial. The following section of the paper will briefly summarize some key studies listed in Table 1, and how the respective researchers calculated their estimates in light of the aforementioned issues.

### **Economic consequences of child poverty – the international evidence**

24. Evidence from recent UK, US and New Zealand studies, shown in Table 1, demonstrates that child poverty in developed economies comes at a significant economic cost to governments and taxpayers. To put some sort of tangible figure on the economic impacts of child poverty, the studies represent the costs as proportions of gross domestic product (GDP). Depending on what factors are included in the analysis, the studies show that the monetary costs associated with child poverty are approximately 1-4 percent of GDP per annum. Whilst all the studies used similar methodologies (albeit with varying controls on reference groups), the specific aspects of costs correlate very closely to each other – in particular, the impact that child poverty has on future earnings.

**Table 1 - studies on the monetary costs associated with child poverty (listed by GDP estimate)**

<b>Study author and country</b>	<b>Criteria</b>	<b>Estimated cost as % of GDP</b>	
Pearce (2011) – NZ	Impact on earnings, crime, health, welfare	Earnings	1.24% - 5.8%
		Crime	1.07% - 1.23%
		Health	0.61% - 1.37%
		Welfare	0.6% - 0.8%
		<b>Total range</b>	<b>3.52% - 9.2%</b>
		<b>Point estimate</b>	<b>4.5%</b>
Holzer et al. (2008) – USA	Impact on earnings, crime, health	Earnings	1.3%
		Crime	1.3%
		Health	1.2%
		<b>Total</b>	<b>3.8%</b>
Blanden et al. (2010) – UK	Impact on earnings and crime	<b>Total</b>	<b>1%</b>
Duncan et al. (2008) – USA	Impact on earnings and the effects of low income	<b>Total</b>	<b>1%</b>
Bramley & Watkins (2008) – UK	Impact of child poverty on public expenditure	<b>Total range</b>	<b>0.5 - 1%</b>

25. Several of the studies, such as Holzer et al. (2008), Blanden et al. (2010) and Bramley and Watkins (2008), explicitly state that their research represents the savings that could be made if the conditions associated with child poverty were to be eliminated. That this is a hypothetical situation is precisely the point. These costs tell us, in part, that the current situation is expensive – not only for children and their outcomes, but economically. Holzer et al. (2008, p. 42) argue that this prompts a need to look at more cost-effective ways to address child poverty. They maintain that spending significantly more in poverty reduction through early investment is a viable policy option:

- When viewed in economic terms, expenditures on effective poverty reduction policies can be viewed as public or social investments, which generate returns to society over time in the form of higher real gross domestic product (GDP), reduced expenditures on crime and health care, reduced costs borne by crime victims and those in poor health, and more general improvements in everyone’s quality of life. To make the case for these investments, we need to estimate the social costs associated with poverty, and thereby gain some sense of the returns on investments in effective poverty alleviation policies.

26. The next section of the paper briefly explores three of the studies, namely Blanden et al. (2010), Holzer et al. (2008), and Bramley and Watkins (2008), to provide examples of how the costs of child poverty were calculated.

## **Blanden et al. (2010) – productivity and crime costs**

27. Estimating the productivity costs of child poverty is essential, as they are linked to future earnings. The less productive a person is in the labour market, the lower the person's earnings are likely to be. These lost earnings are a productivity cost – “a cost that is incurred because the opportunity to be productive and generate earnings is lost ... Since all earnings ultimately derive from economic output, it is reasonable to consider any forgone earnings associated with poverty as reflecting lost output for the economy” (Holzer et al. 2008, p. 43).
28. A UK study by Blanden, Hansen, and Machin (2010) focuses on the productivity costs that occur through lost earnings that arise from children growing up in poverty. The goal of the analysis is “to get as close as we can to accurately quantifying the impact of abolishing child poverty” (p. 294). The authors use data from the British Cohort Study (BCS70). This is a longitudinal study which follows all those born during a week in April 1970, and tracks participants at ages 5, 10, 16, 26, 30 and 34. The data collected show the family income levels at age 16, and then the participants' earnings at age 34. Recognising the various potential limitations to their approach, the authors add controls such as parental characteristics (education, marital status, ethnicity and gender)<sup>2</sup> which do not change with income variation, as they are “cautious about stating that we have precisely identified the causal effect of child poverty” (p. 294). They also include individual characteristic controls such as test score results at age 5. They note that poverty may or may not directly affect these outcomes; therefore they control with and without these test score results. The authors define childhood poverty as “a binary variable measured at age 16 for those cohort members living in a household with less than £100 per week gross household income ... [producing] a poverty rate of around 20 per cent of households when the cohort children were 16 years old” (p. 292). However, in order to reduce a substantial amount of unobserved heterogeneity, they go further by comparing those who are ‘poor’ with those who are just above being ‘poor’. Therefore, they also include in their sample those who have family income of less than £200 per week.
29. Their findings, taking into account the controlled variables, showed that there was a 21 percent reduction in the earnings at age 34 of children who grew up in poverty. If none of the controlled factors were included, child poverty was found to reduce earnings by 28 percent. The study also compared the differences in life experience of children who lived in households with an income below £100 a week, and those with a weekly household income of between £100 and £200. Depending on what variables were controlled for, there was a reduction in earnings at age 34 of 10-14 percent. The study also found that those at age 16 who were in poor households were 4-7 percent less likely to be employed at age 34.
30. The paper also considers other social and economic costs of child poverty, such as the increased likelihood of being involved in crime, having poorer health and reduced well-

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<sup>2</sup> They note however that “it is unlikely that this will be sufficient, as there will also be many other family and child characteristics that are associated with child poverty but are less easily observable” (p. 294)

being. While they note that their estimates of the GDP costs will not be as precise as their estimates for earnings, they nonetheless point out that they will be “indicative of the scale of the costs associated with the negative outcomes experienced by poor children along these dimensions” (p. 307).

31. Their costs for crime are calculated by “using a probit model to estimate the increased probability an individual who grew up in poverty had of reporting they had been arrested by the age of 34 compared with an individual who was not exposed to childhood poverty, using the BCS data” (p. 307). They base their estimates on various controls, but settle for the model which controls for family and individual characteristics. The costs of crime are computed by the percentage change in probability of ever being arrested X the number of arrests associated with this X the total cost of each arrest X the number of adults who grew up in poverty. The probit results show that poor children at age 16 have a higher probability of being arrested by a range of between 5.4 and 9.1 percentage points. In monetary terms, this puts the cost of crime at “£31 billion... [or] £1.65 billion when annualised over ages 16 to 34. This compares with a total cost of crime against individuals and households in 2003–04 of around £36.2 billion” (p.308).
32. The authors note that in order to accurately estimate the health costs of child poverty they would need a measure of adult health to relate back to child poverty, then relate these differences in health to differences in expenditure. However, the data from the BCS are not adequate for such an exercise. While they also note that a reduction in life-satisfaction measures from the BCS at age 34 show strong correlations with experiencing childhood poverty, they do not attempt to quantify this either. Instead they prefer to restrict their analysis to the more readily calculated estimates from labour market and crime benefits, “whilst... acknowledging that even bigger GDP estimates would follow if the health and well-being effects could be more accurately quantified” (pp. 309-310).
33. The authors thus conclude: “we calculate the GDP savings made by eradicating child poverty to be at least 1 per cent of GDP. This calculation is based on estimating the forgone earnings (and employment prospects) of workers who experienced child poverty (at age 16) and the wider benefits from reduced crime” (p. 310). They also note that because they could not adequately include the impacts of health and well-being, they most probably underestimate the actual costs of child poverty.

### **Holzer et al. (2008) – productivity, crime, and health**

34. Holzer et al. (2008) seek to “estimate the links between poverty among children and the correlated elements of their behaviour or circumstances as adults that generate economic costs for US society” (p. 42). The ‘links’ that they focus on are lost earnings, adult crime, and poor health. They note that these aren’t the only possible costs of poverty, but are likely to be the largest and the easiest to quantify. The costs of health and crime go beyond the individual who is sick or jailed, as they extend to the victims of crime and the taxpayers who pay for the public expenditure to address these problems. They next review estimates of the costs that crime and poor health per person impose on the economy, then aggregate these

average costs per child living in poverty in the United States to estimate the costs of child poverty on the wider society.

35. The authors use longitudinal data from the Panel Study of Income Dynamics (PSID) from the period 1979-1994 for their analysis. Their 'in poverty' reference group was applied to those children with family incomes at twice the poverty line – their justification being that “this is considered by many researchers to be the upper bound of where a true 'poverty line' might be drawn” (p. 45). The poverty measure used is an absolute (or fixed-line) income measure rather than a relative (or moving-line) income measure. Holzer et al. note that there continues to be debate about which measure to use,<sup>3</sup> but an absolute measure leans more towards income levels having stronger effects on income, rather than other broad measures of 'inequality'. This approach “also suggests a more supply-based interpretation of how poverty hurts children, i.e., one that emphasises the effects of growing up poor on individual skills, productivity, and behaviour” (p. 46).
36. Holzer et al. state that their approach is based on a broad interpretation of the causal effects of child poverty, including low parental income, environmental factors associated with poverty, personal characteristics from parents, schools and neighbourhoods. “Our broader interpretation of the effects of poverty enables us to avoid the issue of causal effects of income *per se* and measure the impact of poverty along with its related characteristics such as neighbourhood and parental characteristics” (p. 44). They note that their approach may attribute too much of these causal effects to child poverty, so their paper factors in studies which estimate the hereditary and intergenerational transmissions that influence child poverty.
37. To calculate productivity costs, the authors cite Mayer (1997) and Corcoran and Adams (1997). These studies show, without controlling for parental characteristics and education, that doubling family incomes at or below the poverty line raises the earnings of their sons by 30-40 percent. They cite other analyses of PSID data which show that 9.6 percent of American children experience poverty for more than half of their childhood, and another 8 percent for at least one quarter of their childhood. They then adjust for the fact that median earnings in the US are 60 percent of mean earnings. Combining all these factors together, the authors estimate that the impact of reduced productivity due to child poverty lowers GDP by 2.1 percent. However, they account for hereditary factors by citing Jencks and Tach's (2006) review of siblings and twins, who estimate that the hereditary portion of intergenerational transmission of inequality is about 40 percent (implying that environmental factors make up 60 percent). Controlling for these factors, they estimate the cost of productivity losses to the US economy to be 1.3 percent of GDP per annum (or around \$170 billion).
38. For crime costs, Holzer et al. cite two studies – one (Bjerk, 2007) which finds that children in the bottom quartile of the income distribution are 1.3 times more likely to commit crime

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<sup>3</sup> See Perry 2011 and other appropriate EAG Working Papers for discussion on this subject.

compared to youth in the second quartile; and the other (Elliot and Ageton, 1980), using data from the 1977 National Youth Survey, which finds that ‘lower class’ youth report committing four times as much crime as ‘middle class’ youth. Holzer et al. conclude from these studies that 20 percent of the annual incidence of crime is attributable to child poverty. Allowing for hereditary controls, they estimate the total cost of crime due to poverty to be 1.3 percent of GDP (\$170 billion).

39. Lastly, Holzer et al. look at health costs. These costs not only include additional expenditures on child poverty-related illness, but the value of lost quantity and quality of life associated with early mortality and mobility. Assuming that four million births occur each year and a child poverty rate of 15 percent, Holzer et al. find that child poverty raises direct expenditures on health care by \$22-26 billion per annum (around 0.2 percent of GDP). For the quantity and quality of life factors, they cite Cutler and Richardson (1998). Cutler and Richardson use a model wherein they assign an annual value of life at \$100,000 which is then adjusted to quality of life measures (QALY). QALYs are essentially life expectancies, which are adjusted for the effects of various illnesses. Pearce and Poletti (2011) give the example of blindness costing 0.89 in QALY terms – meaning the value of life of a blind person is \$89,000, or in other words, the cost of blindness per year is \$11,000 per person. Cutler and Richardson estimate that poverty increases costs per value of life to \$124,000 compared to a child born into a family above the poverty line. Translating this into today’s annual value, Holzer et al. “conservatively” use a value of \$200,000 as the annual value of life (those in poverty being \$248,000). They thus calculate that the lost ‘health capital’ plus additional health expenditures to cost the economy 1.2 percent of GDP (around \$160 billion).

### **Bramley and Watkins (2008) – public service costs**

40. Bramley and Watkins (2008) provide an estimate of the extra costs to selected public services due to the existence of child poverty. The report “estimates the financial burden child poverty places on public services. It looks at systematic data on actual *spending on selected services in geographical areas which have greater or lesser concentrations of child poverty*. By examining these relationships, and considering other key factors driving expenditure levels, inferences are made about the extra costs of child poverty” (p. 4).
41. In their analysis, the authors incorporate a wide range of services that are “provided to individuals or families on a basis of need or demographic eligibility, including education, most health services, subsidised housing... services which provide local ‘public goods’ such as policing and the criminal justice system ...; area-based regeneration initiatives, and more general supplementary expenditure targeted on deprived neighbourhoods” (p. 1). The study does not include social security and similar cash transfers which go to families with children, but they do include some housing-related assistance for poorer families<sup>4</sup> (explained in the ‘methodological issues’ section).

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<sup>4</sup> Analysis in this report leads to an estimate of 72 percent of expenditure on social housing being attributable to poverty (p. 5).

42. Bramley and Watkins use a regression analysis model with poverty as one of a number of explanatory variables (such as demography and socio-economic status). To make their calculations, they: a) consider the average spending per child and the percentage of child poverty in a given area; b) calculate how much extra spending is associated with the proportion of children living in poverty; c) estimate the percentage of overall spending on services attributable to child poverty; and then d) apply this percentage to the total spending to estimate the national costs of child poverty for each service (see Hirsch (2008) for a summary of Bramley and Watkins).
43. They recognise the limitations in their approach as a way of comprehending the full costs of poverty: “often, the amount of extra spending on poor children is not sufficient to ensure that they receive an adequate, fair or equal standard of service. Thus, the outcomes tend to be systematically worse for poorer children and areas with a lot of poor children. These poorer outcomes are likely to create further costs ‘downstream’ when the children are older” (p.9). For the purposes of their paper, Bramley and Watkins do not explore this aspect of the costs. However, these ‘downstream’ costs are detailed well in Blanden et al. (2010) and Holzer et al. (2008). In total, public expenditure in the UK on child poverty-related costs is estimated to range from £11.6 billion to £20.7 billion per annum, or about 0.5-1 percent of GDP.<sup>5</sup>

### **The New Zealand context**

44. Turning now to New Zealand, John Pearce (2011) has undertaken a preliminary estimate of the annual costs of child poverty. Pearce uses a similar methodology to Bramley and Watkins (2008) by focusing on the extra costs that child poverty imposes on public services. Like the other studies discussed above, the purpose of Pearce’s paper is to analyse the costs of child poverty and consider the economic implications for the New Zealand’s economy.
45. In line with international studies of a similar nature, Pearce assesses the impact of poverty in specific areas (e.g. a) earning capacity, b) justice system costs, and c) health system costs) but he also includes social welfare costs as a fourth dimension in his analysis. Pearce’s approach is thus fairly broad, which can account for his wide-ranging estimates. Earning capacity, for example, includes “educational performance and its effects on lifetime income and individual earnings, lifetime income effect on Government tax revenue, lifetime income effect on GDP, and intergenerational effects on second generation’s children’s probabilities of experiencing poverty” (p.3). The costs to the justice system include police, courts, corrections, and victim’s costs; the health system costs include reported health system expenditure, relative hospital admissions by deprivation index, with a Treasury analysis of health outcomes by education; and welfare costs of the domestic purpose benefit and unemployment benefit which could be saved if poverty was eliminated (pp. 3-4).

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<sup>5</sup> For a more detailed analysis of the breakdown of costs in table form, please see the original paper.

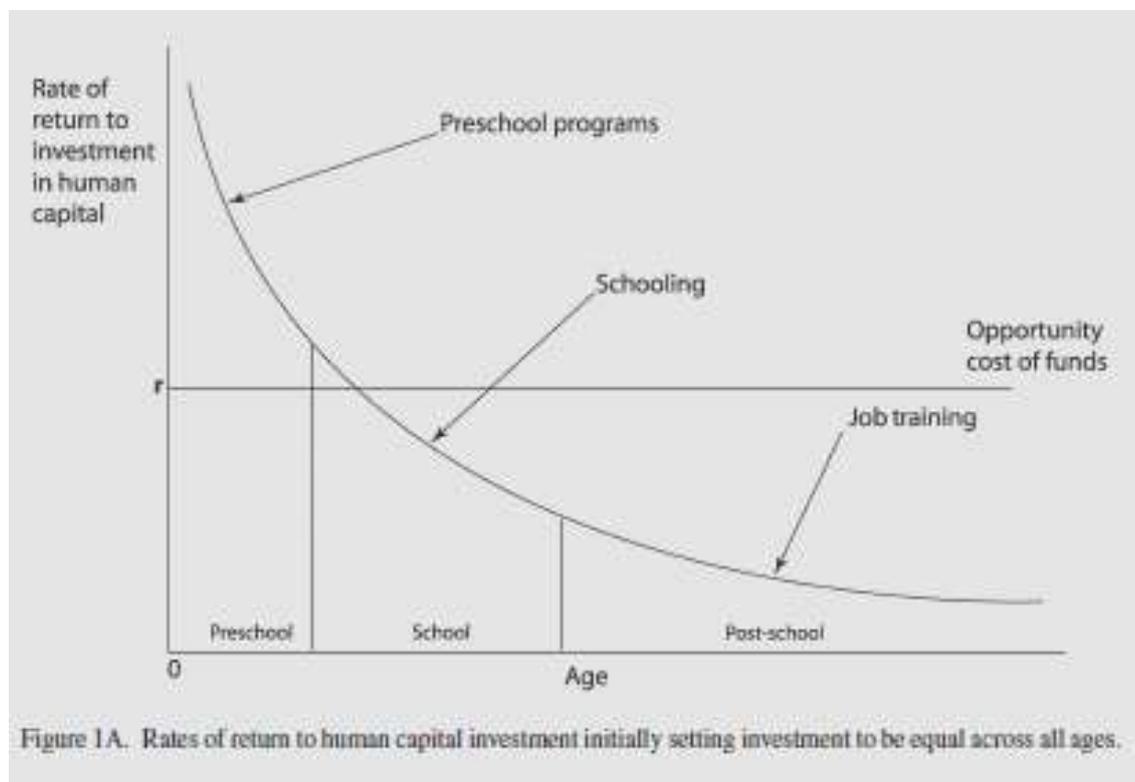
46. As noted, unlike Holzer et al. (2008) and Blanden et al. (2010), Pearce includes welfare payments as a 'cost' of child poverty. His justification for doing so rests on the "corollary that eliminating child poverty will reduce the numbers of families in poverty and so reduce the demands on the benefit system" (p.4). While it makes sense to say that with fewer people on welfare we would spend less money on providing benefits, as discussed previously, welfare and benefit payments are technically transfers rather than direct economic costs. Also, it is hard to distinguish between the role of benefits as a 'solution' to poverty and their role in lessening its effects.
47. Aggregating these costs, Pearce estimates the total cost of child poverty to the New Zealand economy to range from 3.5 percent of GDP (\$6.3b) to 9.3 percent of GDP (\$16.6b) per annum. He settles on a mid-point estimate of 4.5 percent (about \$8b). If welfare costs were not included in his analysis, his point estimate would correlate reasonably well with the 3.8 percent figure that of Holzer et al. (2008).
48. Note that outcomes for New Zealand children are unsatisfactory in several key areas. For example, New Zealand ranks 29<sup>th</sup> out of 30 OECD countries for 'health and safety', which covers infant mortality, low birth rate, vaccination rates for measles and pertussis (2<sup>nd</sup> and 5<sup>th</sup> worst respectively), physical activity, and youth suicide rates (OECD, 2009). Not surprisingly, the OECD concludes that "New Zealand needs to take a stronger policy focus on child poverty and child health, especially during the early years when it is easier to make a long-term difference" (2009b, p. 1).

### **Early investment – life cycle and cognitive skills**

49. The studies reported in Table 1 indicate that given the money spent on curing child poverty, and the long-term effects that childhood poverty has on future outcomes, there is an economic case for investing in preventative measures. A fundamental part of addressing poverty, therefore, is early investment. A report commissioned by the British Prime Minister in 2010 for the Independent Review on Early Child Poverty and Future Life Chances found "overwhelming evidence that children's life chances are most heavily predicated on their development in the first five years of life ... the most effective and cost-effective way to help and support young families is in the earliest years" (Field, p. 5, 2010). Early investment also has greater positive effects on children's cognitive development, which leads to significant improvements in a range of future outcomes – such as academic achievement, university completion, adult wages, and home ownership (Knudsen et al., 2006; see also Gluckman, et al., 2011). There are other clear benefits of education to wider society, including increased GDP, higher productivity, and improved living standards.
50. Thus, the importance of education for all children should not be undervalued. Capabilities are built on earlier developed foundations. In other words, skill begets skill. Knudsen et al. (2006) note the cumulative effect of this principle: "early learning confers value on acquired skills, which leads to self-reinforcing motivation to learn more ... early mastery of a range of cognitive, social, and emotional competencies makes learning at later ages more efficient and, therefore, easier and more likely to continue" (p. 10156).

51. James J. Heckman is a leading economist in the field of human development and life cycle skill formation. His research focuses on how skills and abilities in one stage of the life cycle affect the productivity of learning; what is referred to as human capital accumulation. ‘Human capital’, he writes, “consists of different types of skills and abilities. It is now well established that cognitive ability is an important determinant of schooling and labour market outcomes” (Cunha et al., 2006, p. 709).
52. Central to this idea is that investment in young children is more effective than investing in later parts of a person’s life cycle. When opportunities for the formation of cognitive skills are missed at a young age they are not only harder to implement and less likely to be effective, but to be far more expensive. Adult job training, literacy courses, and prisoner rehabilitation have all proven to yield lower economic returns than interventions aimed at young children – in particular, as Knudsen et al. (2006) note, for males.
53. Figure 2 summarizes the major findings in this area of research. It plots the rate of return to human capital in relation to the different stages of a person’s life cycle. It shows that later remediation efforts are considerably less effective in terms of the rate of return to investment in human capital. In essence, “the rate of return to a dollar of investment made while a person is young is higher than the rate of return to the same dollar invested at a later age” (Cunha et al. 2006, p. 710).

**Figure 2: Rate of return to investment in human capital**



Source: Cunha et al., 2006

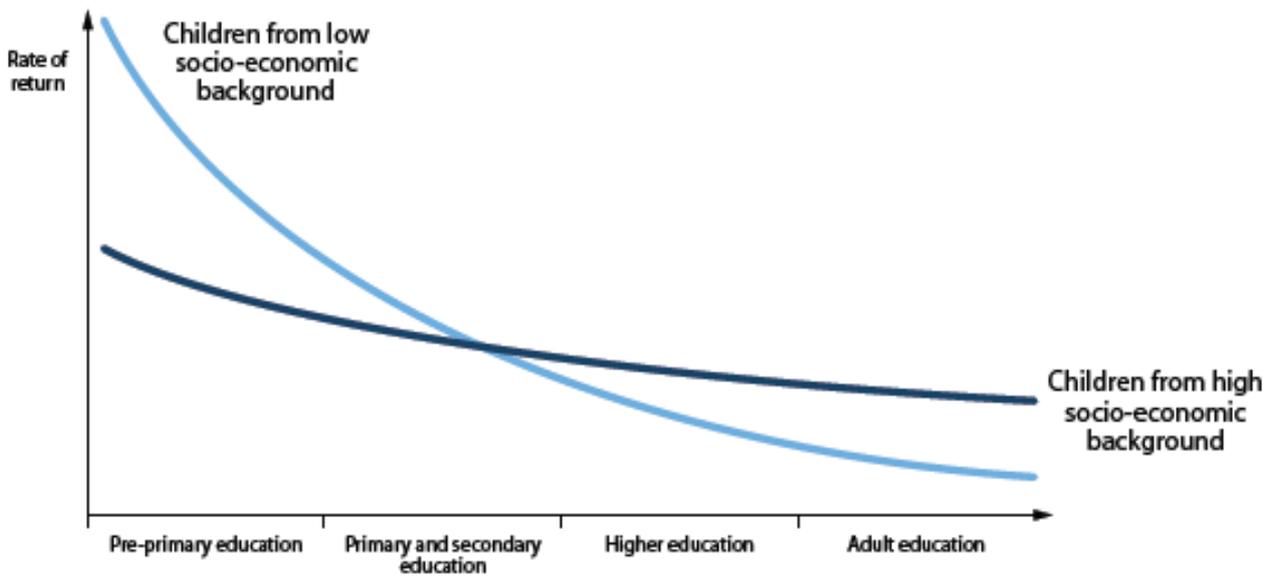
## Early investment for children in poverty

54. How does all this relate back to child poverty? As the Early Childhood Education Taskforce (2011) notes, “in general, evidence shows that the children who have the most to gain for high quality early education are those most at risk of subsequent failure within the school system and other social problems – children from low socio-economic backgrounds” (p.22). Figure 3 (ECE, 2011) clearly illustrates this point.<sup>6</sup>
55. We know from a substantial body of evidence that children who grow up in poverty are more likely to commit crime, drop out of school, and be unemployed. We also know that this has economic as well as social consequences. Therefore, in order to achieve better outcomes for individual children and wider benefits for society socially and economically, early investment is crucial – especially for children from low socio-economic backgrounds. Heckman and Masterov (2007) sum up this argument for investing in disadvantaged children:
- On productivity grounds, it makes sense to invest in young children from disadvantaged environments. Substantial evidence shows that these children are more likely to commit crime, have out-of-wedlock births, and drop out of school. Early interventions that partially remediate the effects of adverse environments can reverse some of the harm of disadvantage and have a high economic return. They benefit not only the children themselves, but also their children, as well as society at large... Skill begets skill; learning begets learning. Early disadvantage, if left untreated, leads to academic and social difficulties in later years. Advantages accumulate; so do disadvantages (2007, pp. 446-7).

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<sup>6</sup> Note this graph is measured in Euros but is derived from Cunha et al. (2006) – Wobmann, and Schutz (2006). ‘Efficiency and Equity in European Education and Training Systems’. Report for the European Commission. Munich, Germany: European Expert Network on Economics of Education, p. 12.

**Figure 3: Returns from spending at different levels of education**



Source: ECE 2011

## Evidence of successful early investment programmes

56. Investing in young children improves life outcomes and therefore brings benefits to society and the economy. Table 2 (ECE, 2011) summarises three early childhood education intervention programmes in the United States. Studies of these programmes which follow up the participants at later ages show increased rates of return for each dollar invested. In the highest returning programme, the High/Scope Perry pre-school, costs are compared against treatment impacts on educational resources, earnings, criminal activity, and welfare receipt (Belfield et al., 2006). The results are not just beneficial for the individual participants, but for wider society with higher tax revenues, lower criminal justice system expenditures, and lower welfare payments. The return for the general public, despite high up-front costs of \$12,356 per participant, was \$12.90 for every \$1 invested (Belfield et al. 2006).

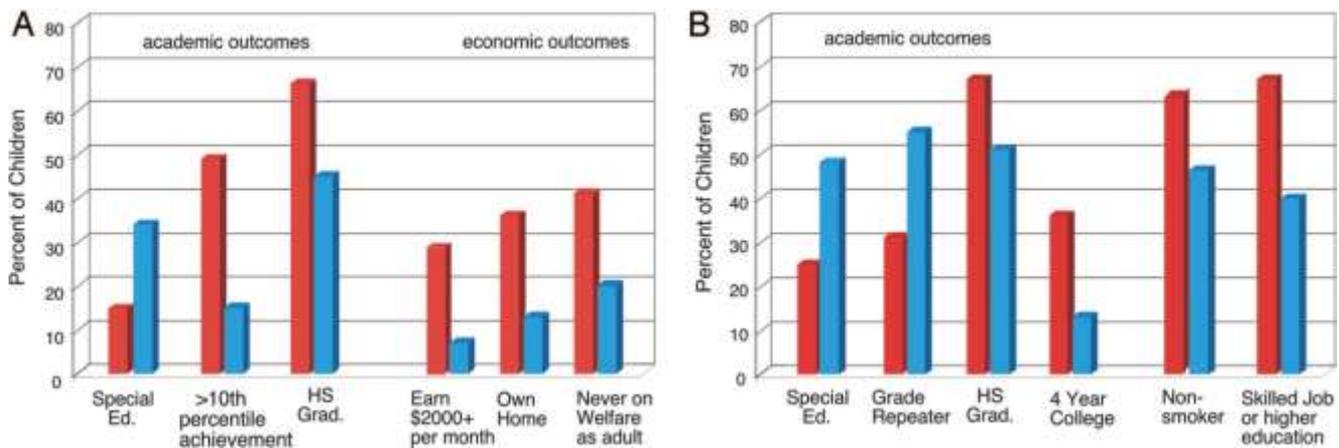
**Table 2: Cost-to-benefit ratios of early childhood education programmes**

<b>Programme</b>	<b>Follow up age</b>	<b>Benefit to cost ratio</b>
Carolina Abecedarian Project	21	3.23
Chicago Child-Parent Centres	21	7.14
Chicago Child-Parent Centres	26	10.83
High/Scope Perry Pre-School	27	8.74
High/Scope Perry Pre-School	40	16.14

57. In the case of the Abecedarian and High/Scope programmes, at-risk children were randomly selected to take part in intensive pre-school interventions. In the case of the High/Scope programme, 58 at-risk children in Michigan in the 1960s were randomly chosen to undergo an intensive pre-school course, with 65 in the control group. The children have been surveyed periodically since, the most recent being at age 40. The Abecedarian programme contained 111 disadvantaged children born between 1972 and 1977 in Chapel Hill, North Carolina. Altogether, 57 children were enrolled in the programme and 54 were assigned to the control group. The children were followed up at age 21. Both programmes had a mix of services that were home and classroom based.

58. In both programmes, positive outcomes for individuals in the intervention group are clearly documented. Figure 4 shows that individuals scored higher academically and had various better economic outcomes. The Perry programme shows that they were also likely to own a home and less likely to go on welfare. As Knudsen et al. (2006) note, “this high rate of return is much higher than standard returns on stock market equity and suggests that society at large can benefit substantially from these kinds of interventions” (p. 10156).

**Figure 4: Results from High/Scope Perry and Abecedarian Programmes**



**Graph A: results from the Perry Programme for participants at age 27. Graph B: results from the Abecedarian Programme at age 21. Both show drastically improved outcomes for the intervention group compared with the control group on academic and economic outcomes. Red = intervention group. Blue = control**

56. It is interesting to note that while IQ levels in both trials rose, children’s IQs from the Perry programme gradually diminished four years after the intervention finished whereas in the case of the Abecedarian Program, which intervened earlier (starting at age 4 months) and lasted longer (until age 8), the gain in IQ persisted into adulthood (21 years old). This shows that persistence and long-term support with intervention programmes is a vital part of their success.

## Summary

59. The evidence presented in this paper highlights that there are significant negative consequences associated with child poverty. These consequences are not only social and psychological, but also economic and fiscal. Credible research indicates that child poverty may be costing some OECD countries up to 4 percent of GDP (depending on the rates of poverty and the methodologies adopted). The evidence also indicates that investing early in a child’s life-course is more cost-effective than investing later. Indeed, the rates of return for some forms of public investment are impressive.

57. The challenge, of course, is whether governments are prepared to invest now in order to reap dividends (and save on expenditures) in the future. Equally, it is important to ensure that public expenditure is effectively targeted and that policies and programmes are adopted which deliver the highest returns.

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