



NSW Department of  
Community Services

## **Technical Report 1**

# **BENEFIT ASSESSMENTS IN CHILD WELFARE**

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**Economics, Research and Information Directorate**

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## **EXECUTIVE SUMMARY**

Decisions about public funding of child protection and welfare programs require consideration of the relative costs and benefits of such programs. While the costs associated with establishing these programs are often relatively easy to quantify, the benefits are less so. This often leads to undue emphasis being placed on costs. Consequently, it is important that the benefits of child protection and welfare services are fully understood and the techniques for valuing them are used appropriately in public funding decisions.

This report presents a review of the available literature on benefit assessments undertaken in child welfare and related fields. It also examines how benefit assessments can best be undertaken for various aspects of DoCS's service delivery.

The valuation techniques analysed in this report include three market-based techniques, the surrogate market technique, and three survey-based techniques. Market-based techniques utilise observable market prices and observable output levels to estimate child welfare program benefits. The surrogate market technique uses price differentials in a proxy market to infer values for program benefits. Survey-based techniques can ask respondents directly what they would be willing to pay or alternatively, they can ask respondents to rank options containing attributes of a child protection program.

Benefit assessments will be required for both program evaluation and program funding decisions. For program evaluation, experimentally designed longitudinal studies will produce an accurate assessment of program benefits.

Program funding decisions require timely information to decide whether to implement an initiative. Depending on the objectives of the proposal and the benefits to be quantified, particular valuation techniques may be more applicable than others. In the majority of cases, a combination of the techniques will provide a comprehensive assessment of program benefits.

Results of previous studies can also be applied to analysis of DoCS program proposals. However the initiative's design, socioeconomic and geographical context, target group, method and mode of service delivery must be considered before direct comparisons can be made.

## 1. INTRODUCTION

Child protection and welfare services aim to protect children from abuse and neglect, to enhance their cognitive and social development and provide further supports necessary for them to lead independent, well-adjusted and fulfilling lives as young people and adults.

It is important to be cognisant of the social and economic factors impacting on the achievement of these aims. Increasing rates of domestic violence, divorce and drug and alcohol use cause additional stress upon families and increase the risk that child abuse and neglect will occur. Economic pressures such as the rate of unemployment and costs of living and general economic hardship are also positively related to the incidence of child abuse and neglect.

DoCS' main objectives are:

- to support children and families as early as possible to improve developmental outcomes for children, improve the capacity of parents to cope, and to reduce the trauma and costs of child abuse;
- to ensure children and young people in care are developing in a safe and stable environment; and
- to improve service provision so that higher quality services, better targeted to their needs, are available to DoCS clients at less cost.

There is little doubt that achievement of these objectives would generate significant benefits not only for children and young people, but also for their families and the wider community.

Decisions about public funding of child protection and welfare programs require consideration of the relative costs and benefits of such programs. While the costs associated with establishing these programs are often relatively easy to quantify, the benefits are less so. This often leads to undue emphasis being placed on costs. Consequently, it is important that the benefits of child protection and welfare services are fully understood and the techniques for valuing them are used appropriately in public funding decisions.

This report presents a review of the available literature on benefit assessments undertaken in child welfare and related fields. Benefit assessment is an attempt to quantify all the benefits of a particular proposal, preferably in monetary terms. In undertaking benefit assessments, a number of valuation techniques are used. The report discusses the different valuation techniques available, critically examines the relative strengths and weaknesses of each technique, and explains how the results of previous benefit assessments can be used for economic evaluation of new proposals.

The report is structured as follows:

Part 2 examines the range of potential benefits accruing to different stakeholders as a result of child protection and welfare initiatives.

Part 3 discusses the valuation techniques available and provides examples of the use of the techniques in practice.

Part 4 discusses the strengths and limitations of the valuation techniques.

Part 5 discusses how valuation techniques can be used by DoCS to measure the benefits of services to children, young people and families. The valuation techniques that are more appropriate to use for different program benefits and factors to consider in using findings from previous benefit assessments in economic evaluation of new DoCS proposals are also examined.

## 2. RANGE OF BENEFITS

It is widely acknowledged that child protection and welfare services provide a wide range of benefits (Plotnick and Deppman, 1999; Rolnick and Gruenwald, 2003; FACS, 2001; Waldfogel, 1999; Cleveland and Krashinsky, 1998; Karoly, Greenwood, Everingham, Houbé, Kilburn, Rydell, Sanders and Chiesa, 1998; Karoly, Kilburn, Bigelow, Caulkins and Cannon, 2001; Browne, Frates, Rudge and Tradewell, 2002; etc). Benefits can be measured from the point of view of the children and young people directly receiving the service, their carers, taxpayers and society as a whole.

Children receiving child protection and welfare services can potentially benefit through improved general and mental health, improved cognitive functioning and higher educational attainment. In the longer term, benefits can include greater economic self-sufficiency and reduced criminal involvement.

Carers can potentially benefit through improved parent-child relationships, improved health and better employment opportunities. The wider community benefits from reduced incidence of crime, increased economic production due to greater workforce participation and the avoidance of public spending on welfare, crime, special education and health care.

Benefits of child welfare initiatives generally go beyond the direct participants. Early intervention programs can positively affect parenting behaviour and result in greater economic self-sufficiency for the parents. Taxpayers benefit as a result of initiatives that reduce public expenditures on health and education and other remedial costs. Moreover, subsidised children's services allow respite for the carer, and provide the opportunity for their involvement in the paid workforce.

### 2.1 Program benefits for participants

Some child welfare programs aim specifically to reduce repeated and recidivist child abuse and neglect. Project 12-Ways in the United States (US) has been found to reduce the likelihood of repeated abuse or neglect during and following treatment (Lutzker and Rice, 1984 in James, 2000). Increasingly, however, child abuse prevention programs are viewed along a continuum of interventions, which focus on improving family behaviours (James, 2000).

The potential benefits to participants of early intervention programs broadly include (but are not limited to):

- Reductions in child abuse and neglect;
- Improvements in cognitive or emotional development;
- Improvements in educational progression and attainment;
- Improvements in health-related indicators; and
- Improvements in social functioning.

Project 12-Ways in Illinois, United States (US) aims to reduce repeated and recidivistic child abuse and neglect by providing multifaceted in-home services such as parent-child training, stress reduction, and money management training to young and unmarried mothers (Lutzker and Rice, 1984 in James, 2000).

Benefits over the longer-term include:

- Increased economic self-sufficiency; and
- Reduced levels of involvement in criminal activity.

Gains in cognitive or emotional development are commonly measured through test scores for cognitive development (generally Intelligence Quotient (IQ) scores) and measures of socioemotional development. For example, participants in the Carolina Abecedarian early childhood program showed significantly higher IQ scores than those in the control group (Masse and Barnett, 2002).

The Carolina Abecedarian Early Childhood Intervention in the US began in 1972 and provided intensive, high quality preschool services to children up to five years of age from low-income families (Masse and Barnett, 2002). Other aspects of the intervention included child medical services, parental support and parental involvement in supplementary educational projects set for the child for completion at home. The aim of the program was to improve academic performance and social functioning at school entry (Karoly et al. 1998).

Educational improvements are observed in several areas such as better achievement test scores, increased rates of school completion, higher educational attainment, faster movement between school grades and reduced need for special education programs. For example, preschool participation in the Chicago Child Parent Centres early intervention program resulted in an 11 percentage-point lower rate of placement into special education (Reynolds, Temple, Robertson and Mann, 2002). Participants were also significantly less likely to repeat a grade.

The Chicago Child Parent Centres in the US is relatively large-scale, federally funded program which began in 1967, targeting children from economically disadvantaged families. The program initially provided a structured half-day program for 3-4 year old children and included health and social services and parental involvement. The program has been expanded to provide services for older children and currently operates from 24 public school sites located in high poverty districts (Reynolds et al. 2002).

However, many studies have found that short-term benefits in IQ have not persisted into adolescence, ie. benefits have “faded out”. The Carolina Abecedarian study showed that while positive IQ effects of the intervention tended to diminish by age 15, reading and mathematics test scores remained positive and significant, compared to the control group (Campbell and Ramey, 1995 in Masse and Barnett, 2002).

Program participants may experience reduced levels of child abuse and maltreatment, improvements in general and mental health and less emergency room visits. The Chicago Child Parent Center study by Reynolds et al. (2002) showed that preschool participants at age 17 had a significantly lower rate of child maltreatment than the comparison group, 5% versus 10%. Results from a youth risk behaviour survey enabled Masse and Barnett (2002) to calculate estimates of smoking rates for the program and non-program groups of the Carolina Abecedarian study. These rates were 39% and 55% respectively.

Children’s services can benefit children by ensuring a safe and nurturing environment in which social and cognitive skills can develop naturally. Osborne and Milbank (1987) found that children who attended different types of preschool arrangements achieved one third of a standard deviation higher on school tests at ten years of age than those who had not attended preschool (in Cleveland and Krashinsky, 1998). Cleveland and Krashinsky argued that preschool participation leads to a greater tendency to undertake post-secondary education and thus leads to higher future family income due to the positive correlation with school performance at age ten.

The long term economic benefits of original interventions are best demonstrated through longitudinal studies. The benefits include reduced dependence on social welfare programs and higher lifetime earnings as a result of higher educational attainment. In one of the most widely quoted longitudinal studies, Schweinhart (2003) found that at age 27, 57% of the High/Scope Perry Preschool program group had received welfare assistance as adults, compared with 80% of the no-program group. In terms of reductions in criminal activity, by age 28, former participants had an average of 2.3 arrests compared with an average of 4.6 arrests for non-participants (Schweinhart, 2003).

The High/Scope Perry Preschool Program was a model program, which commenced in 1962 and targeted African American children affected by poverty, aiming to improve social and cognitive outcomes. Participants attended centre-based classes, which were combined with teacher home visits. The program is widely recognised for the high quality of its teaching staff and the high staff:child ratio (Karoly et al. 2001).

Students attending after school programs in the US have been found to achieve higher reading and mathematics test scores than the state average (Bissell, 2002 in Brown et al. 2002). In another study, Lattimore, Mihalic, Grotperter and Taggart (1998) observed that participants of the Quantum Opportunities Program had a higher probability of becoming high school graduates, compared with a control group (in Brown et al. 2002). Furthermore, the likelihood of program participants progressing to tertiary education was found to be much higher than for the control group, 42% compared to 16%.

More effective placement policies can result in significant benefits to children and young people. Initiatives designed to place children in out-of-home care according to the child's individual physical and psychological needs can lead to more stable and secure placements (Doran and Berliner, 2001). The literature on placement breakdown suggests that with a greater focus on permanency planning and tailored placements, the incidence of placement breakdown could be reduced, leading to more positive mental health and educational outcomes for children in care. Children could also benefit from an improved sense of own worth and reduced attachment difficulties.

## **2.2 Program benefits for carers**

Child welfare programs typically have important positive effects on carers. Home visiting programs, for instance, aim to have lasting effects on both mothers and children by providing the supports necessary to foster better maternal skills, increase linkages to community services, and build a safer and more nurturing home environment. Benefits for carers include improvements in parent-child interactions and an improved home environment (Karoly et al. 1998).

Carers can also benefit from subsidised childcare through reduced childcare expenses and increased time available to gain additional educational qualifications and to work while children are being cared for (Openheim and MacGregor, 2002). Carers enjoy the benefits of an increased ability to accept career promotions and skills development opportunities. Having more time available for labour force participation also avoids the deleterious effects of extended periods of absence from the workforce that erode job skills and future earnings power (Cleveland and Krashinsky, 1998).

Masse and Barnett (2002) also found that when Carolina Abecedarian program children were 5 years old, their mothers had higher levels of educational attainment

and were employed in higher paying jobs. Greater educational attainment and increased training were shown to have positive effects on economic self-sufficiency in terms of increased earnings and reduced reliance on welfare payments.

A longitudinal study of the Elmira Prenatal/Early Infant Project (PEIP) revealed significant short-term health improvements for mothers as a result of the home-visiting program. These included reduced cigarette use, better nutrition and improved childbirth class attendance (Olds, Henderson, Tatelbaum and Chamberlin, 1986, in Karoly et al. 1998).

The Elmira PEIP provided nurse home visits to mostly high-risk new mothers in Elmira, New York, between 1978 and 1980. Prenatal visits were designed to improve pregnancy outcomes. Following the child's birth and until age 2, home visits were designed to improve parenting skills and increase economic self-sufficiency through linkages with various social services (Karoly et al. 2001).

### **2.3 Program benefits for taxpayers**

Because the Government is likely to be the major source of funding for child welfare initiatives, it is helpful to identify the benefits accruing solely to taxpayers who 'foot the bill'. Expressing the benefits in dollar terms would assist in ascertaining whether the investment of public funding has resulted in a positive return. The exercise may provide support for investing earlier in child welfare to avoid large public outlays in the future for potentially preventable outcomes (Karoly et al. 2001).

Oppenheim and MacGregor (2002) argue that a number of public benefits can be realised from the provision of high-quality preschool education for children from low-income families. They include, (but are not limited to) the following budget savings and revenues:

- Reduced expenditure on welfare assistance;
- Fewer claims for unemployment benefits;
- Higher income tax payments from greater earnings of program participants;
- Less burden on the criminal justice system;
- Reduced expenditure on grade retention;
- Reduced expenditure on special education; and
- Reduced health expenditures.

Taxpayer benefits such as these can be realised through a variety of early intervention programs. For instance, savings and revenues to the Government as a result of the Elmira PEIP project were observed in several areas, including reduction in health services, taxes from increased employment, reduction in welfare cost and reduction in criminal justice system cost (Karoly et al. 1998).

Additionally, taxpayers can potentially benefit from reduced expenditure on victims of crime and victims of child maltreatment as a result of early interventions (Reynolds et al. 2002). Unlike benefits accruing to participants, carers often display measurable program benefits in the short term, leading to immediate cost savings for taxpayers (Karoly et al. 2001).

Out-of-home care initiatives that aim for increased placement stability can potentially reduce public expenditures on mental health services for children with severe behavioural problems.

## **2.4 Program benefits for society**

There are also significant benefits to society arising from child welfare initiatives. These include higher economic production and productivity leading to higher national income (Pinkney and Ewing, 1997; Rolnick and Gruenwald, 2003).

A program that reduces the amount of future crime committed by children also lessens the victimisation experienced by other people (Karoly et al. 1998). These other people will face reduced losses from crime, primarily in the form of decreased property losses and medical expenses, less personal injury and risk of death, and less emotional pain and suffering (Miller, Cohen and Wiersema, 1996). To accurately measure the total savings to potential victims of crime, both tangible and intangible losses should be considered.

A program that reduces the incidence of unhealthy behaviours in later life, such as drinking in conjunction with driving, will deliver benefits to insurance policy holders in the form of reduced insurance premiums for health and car insurance (Karoly et al. 1998).

Home visiting programs that advise new mothers on the immunisation and nutritional requirements of newborn babies and young children benefit subsequent children as well as the original child. Future generations of program participants may also benefit from increased earnings due to the positive relationship between parental and child education and income levels (Birsall and Cochrane, 1982 in Masse and Barnett, 2002).

A sibling of a child who has participated in an early intervention program will potentially benefit from the improved behavioural examples set by the participant child. The sibling will benefit from exposure to an effective role model.

## **2.5 Monetary and non-monetary benefits**

While some of the benefits flowing to children, families and society are relatively straightforward to value in monetary terms, others are very difficult to do so. Because of this, there is a tendency to underestimate the total benefits achievable from a program.

Non-monetary benefits of child protection and welfare initiatives commonly include happier and healthier children, better functioning families and safer and stronger communities. Individuals may also derive value from a program, despite the fact that specific benefits may not accrue directly to them. An individual may value a program, which results in reduced incidence of child abuse and neglect, due to their concern for other people's welfare. These altruistic values are difficult to measure in monetary terms.

There are philosophical concerns over attributing a dollar value to the prolonging of a child's life or better quality of life as a result of successful child abuse prevention programs (Dubowitz, 1990). Other benefits that are difficult to monetise include a mother's greater satisfaction with her relationship with her child resulting from participation in a sustained home-visiting program (Karoly et al. 2001).

Due to their empirical nature, the tangible losses associated with criminal activity, such as property loss, medical expenses and income lost while injured, are relatively simple to quantify in monetary terms. Conversely, expressing pain and suffering experienced by the crime victim in monetary terms is a more difficult to quantify and controversial area.

Improved educational participation and attainment may result from an out-of-home care placement that plans for permanency and an appropriate match between the carer and child. The improved educational outcome could result in the personal consumption value of learning and educational experiences. Moreover, spillover benefits could include an increase in civic and pro-social contributions that would be inherently difficult to value in monetary terms (Haveman and Wolfe, 1984 in Masse and Barnett, 2002).

### **3. VALUING BENEFITS**

#### **3.1 Measuring program effects**

Child protection and welfare program effects can be measured through the use of either longitudinally designed studies or cross-sectional studies. An accurate evaluation of program effects will distinguish outcomes caused by the program from outcomes realised naturally or by other interventions. There are trade-offs between using cross-sectional or longitudinal study format.

Longitudinal studies are generally preferred, because a causal effect can be concluded from the results. Cross-sectional analyses support a conclusion of 'association' rather than causation. In addition, a longitudinal study can directly model the effects of other variables (such as age, gender, etc) for individuals. This increases the power of the study and a smaller sample size is required.

Longitudinal studies take the form of either randomised control trials or cohort studies. Longitudinal randomised control studies involve randomly assigning children to treatment and control groups and tracking their progress over time. Cohort studies also follow a treatment group and a group not receiving the treatment over time, however there is no random assignment involved.

Cohort studies are more common in the social sciences because the randomised process is often difficult to execute and there may be ethical concerns. Retrospective cohort studies are easier and cheaper than prospective ones, but are less desirable because the results are subject to selection and recall bias.

However, it is expensive and time-consuming to follow-up individuals in a longitudinal study, and bias may result from a high attrition rate. Cross-sectional studies are cheaper and less time-consuming, but the evidence of causation may be less convincing. The quality of evidence from a cross-sectional study, however, can be improved by:

- Undertaking more than one comparable data collection – before and after the intervention and program,
- Including a control group,
- Replicating the program in several different population groups, and
- Incorporating into the analysis a range of factors that potentially affect the outcome.

#### **3.2 Valuation Techniques**

Economists use people's preferences as the basis for pricing or valuing goods and services. Given limited budgets, people make trade-offs between their preferences and choose that combination of goods and services that give them the largest total utility. The 'willingness to pay' concept gives a convenient monetary indication of preferences, and a measure of the value people place on goods and services. The prices people pay for goods demonstrates their willingness to pay for these goods, conditional on their ability to pay, ie. when the market price is greater than their willingness to pay, people do not buy the good. However, their willingness to pay could be considerably greater than what they actually end up paying. The difference between what people are willing to pay and what they actually pay is termed consumer surplus.

The total economic value of a good or service is the sum of use value and non-use value. Use value is the value that people derive from consumption of, or contact with the good or service being valued. For instance, parents derive value from respite or involvement in the paid workforce because their child is attending a childcare service. Children can benefit from childcare through improved cognitive and social functioning.

Use value also includes the option value, which is the benefit derived from possible future use, as opposed to benefits derived from current use, of the good or service. Option value may represent the value of the option to benefit from using a preschool service at a future date. All valuation techniques discussed in this report can provide estimates of use value.

A person's total utility may also depend on their altruistic preferences. Non-use value is the value derived from benefits resulting independently of any direct or indirect use of a good or service (Fredman, 1995). It would include the personal satisfaction derived from the knowledge that others can benefit from the existence of the good or service, or altruism. These values are unrelated to actual or potential use and reflect people's concern for others and their desire for all children and young people to be free from abuse and neglect.

The value that people place on knowing that other people's children will not be abused or neglected due to an effective prevention and early intervention program is an example of altruistic value. Altruistic values can potentially be measured using non-market valuation techniques such as contingent valuation, choice modelling and conjoint analysis.

A number of valuation techniques are available to produce monetary estimates of child welfare initiatives. These include market-based techniques, surrogate market techniques and survey-based techniques.

Market-based techniques use observable market prices to value changes in earnings, remedial costs, and preventative expenditures, or whatever is affected by a change in the quality or extent of child welfare initiatives. Market-based techniques examined in this section include productivity, preventative expenditure and remedial cost techniques. The literature review indicated that market-based techniques were the dominant valuation techniques employed.

Surrogate market techniques use price differentials in a related (or surrogate) market to estimate the values people place on child welfare. The surrogate market has generally taken the form of the labour market whereby levels of occupational risk are reflected in wage premia that can be used to derive values for reductions in risk as a result of child welfare programs.

In the absence of data on market prices, survey-based techniques, which rely on directly or indirectly deriving willingness to pay for services, can be used. The most prominent of these is the contingent valuation technique, which seeks the personal valuations of the survey respondents for child welfare services, contingent upon a hypothetical market. Conjoint analysis and choice modelling techniques can extract willingness to pay by examining the extent to which individuals trade-off different attributes of a product or service.

### **3.2.1 Productivity Technique**

#### *3.2.1.1 Methodology*

The productivity technique uses market prices and observable outcomes such as educational attainment and health indicators to value changes in productivity caused by child protection and welfare initiatives. It cannot capture the value of consumer surplus, so valuations will typically underestimate total benefits achievable from a program. Program outcomes can be either measured through an experimentally designed longitudinal study, or projected based on prior research and informed assumptions.

In this technique, the increment to lifetime income earned by individuals as a result of an initiative is measured. These increases in lifetime earnings provide an indication of the monetary value of a particular child welfare initiative.

The productivity technique can also be used to measure the increased productivity of carers. Carers can increase their participation in the workforce and thus increase their earnings.

#### *3.2.1.2 Applied examples of the technique*

In their 1997 study entitled “The Economic Costs and Benefits of School-Based Early Intervention”, Pinkney and Ewing discuss increased productivity as a result of a program to increase secondary school completion amongst homeless youth. One of the costs of youth homelessness is reduced productivity as a result of labour market disadvantage and unemployment.

To the extent that school-based early intervention can prevent youths from dropping out of secondary school and assist them in gaining a certain level of education, productivity gains are equal to the value of the new worker’s wage (Pinkney and Ewing, 1997). The authors provide an estimate of the increased productivity that could potentially be realised as a result of a successful intervention program. Their estimate includes lost earnings associated with failing to complete Year 12 and lost earnings associated with forgone tertiary education. It is based on an assumed relationship between youth homelessness and educational attainment and national statistical data on earnings by school leaving age.

Schweinhardt (2003) calculated the productivity effects of the High/Scope Perry Preschool Program by evaluating the percentage of participants who reported monthly earnings in excess of \$2000 at age 27, relative to the control group. The percentage difference was then applied to the incremental earnings to calculate total increased earnings as a result of the program. Productivity effects of the program were presented from the perspective of the Government and thus measured the increased taxes paid by the preschool participants.

Masse and Barnett’s (2002) longitudinal study of the Abecedarian Early Childhood Intervention program examined the increased productivity of participants and their mothers, as well as the additional productivity expected by future generations of the participants. Estimated increased lifetime earnings for participants as a result of the program were based on cross-sectional data matching levels of future educational attainment and earnings for ages 22-65. The probability that participants would survive to each age was taken into account and then earnings were discounted. Finally, probabilities for future educational attainment were used to calculate the expected value of discounted lifetime earnings, given educational attainment at the age of 21.

Estimates of the increased productivity of mothers was based on self-reported income data of both the program and no-program groups (Masse and Barnett, 2002). Earnings of future generations were estimated based on estimates of the responsiveness of child income to changes in the income of the parent.

Other benefits that have been monetised include the additional productivity due to reduced rates of smoking (Masse and Barnett, 2002). The authors focused on the value of differences in expected mortality rates to calculate the productivity improvements accruing from the Abecedarian early intervention program. Using US data on the life expectancy of individuals who either are, or had been a regular smoker by age 20 and valuations of life, Masse and Barnett estimated the economic value of health-related improvements attributed to the program.

### **3.2.2 Preventative Expenditure Technique**

#### *3.2.2.1 Methodology*

The minimum value people place on child welfare initiatives can be estimated by observing how much they are willing to spend to avoid undesirable consequences. The willingness to incur expenditure on various risk-reducing goods and services for children could give an indication of the value of child protection programs. The amount spent by parents on baby capsules for car travel could be taken as an estimate of the value of reduced risk of injury or death to children. The amount paid by parents for childcare or pre-school services could provide an indication of the value placed on the benefits of child welfare programs.

Expenditure on child protection services provided by community services departments also gives an indication of how much society is willing to pay to prevent child abuse and neglect. These expenditures provide a lower bound estimate of the value of child welfare initiatives because they do not include any consumer surplus.

#### *3.2.2.2 Applied examples of the technique*

An example of the preventative expenditure technique involved identifying the amount paid by affluent parents for high quality childcare or preschool services (Cleveland and Krashinsky, 1998). The identified expenditures provide a minimum estimate of what the affluent parents would be willing to pay to prevent negative outcomes for their children.

Another application of the technique involved examination of the market for safety products to estimate the value of reduced risk of mortality to children. Jenkins, Owens and Wiggins (2001) undertook a study of the bicycle safety helmet market to produce estimates of the value of a statistical life for a variety of childhood and adult age ranges. The results of the Jenkins et al. (2001) study are reflective of preventative expenditures made by carers to reduce the risk of harm to children. The Jenkins et al. (2001) study findings could be used in valuing the benefits of a program designed to prevent child deaths as a result of abuse and neglect.

Previous studies have examined the 'market for safety' by observing the increase in demand for smoke detectors as prices drop (Miller et al. 1996: 14). The expenditure on other protective goods and services such as burglar alarms can also be taken as a measure of the amount individuals are willing to pay to reduce their risk of death (Karoly et al. 1998). The value of reduced exposure to the risk of pain and suffering, reduced quality of life and even death associated with crime can be taken as a measure of the value of a program designed to reduce the incidence of crime.

### **3.2.3 Remedial Cost Technique**

#### *3.2.3.1 Methodology*

The remedial cost technique involves identifying expenditures that attempt to remedy the damage caused by child abuse and neglect. By identifying these remedial expenditures, the technique provides a value of the benefits that could be realised by a child protection initiative. The extent of remedial costs associated with a particular initiative can be measured using an experimentally designed study or projected based on prior research and informed assumptions.

Expenditure by organisations, such as health, responsible for treating abused and neglected children are examples of remedial costs. This approach can also identify the remedial costs associated with children who have not been provided with ideal development conditions in early childhood. These expenditures are remedial in that they are attempting to repair the damage to children who have achieved poor outcomes as young people and adults.

Remedial expenditures provide a reasonable estimate of the minimum amount society would be willing to pay to protect children from abuse and neglect or other negative outcomes.

#### *3.2.3.2 Applied examples of the technique*

McGurk and Hazel (1998) estimated the total cost of child abuse and neglect in South Australia for the 1995/96 fiscal year. Costs borne by health, education and criminal justice organisations, that provide assistance to children who have been abused and neglected, formed part of the estimates.

In estimating the benefits of an early intervention program for homeless youth, Pinkney and Ewing (1999) used costs of health deterioration for students experiencing chronic and long-term homelessness. Chronic homelessness was estimated to result in 50% greater (than the average) health costs for the rest of the students' lives (40 years) and long-term homelessness was estimated to result in 50% greater health costs for a two year period.

The remedial cost technique can also provide an indication of the benefits associated with reduced crime. These include tangible costs associated with property damage and loss, medical care, mental health care, police and fire services and victims services. Miller et al. (1996) estimated the value of tangible losses suffered by crime victims in the US using results from the National Crime Victimization Survey, state hospital records, insurance administration costs, findings from a survey of mental health care professionals, police and emergency response costs and victims' services costs.

A quasi-experimental study of the Chicago Child Parent Centres estimated the criminal justice system cost savings by identifying the difference between the program and comparison group's juvenile arrest records. Using the petitions to the juvenile court as a measure of crime, juvenile criminal justice system expenditures included the combined cost of the administrative expenditures associated with arrest and the weighted national average of the proportion of cases leading to different types of treatment for offenders (Reynolds et al. 2002). Estimates of adult justice system expenditures were calculated based on juvenile arrests, due to the correlation between juvenile crime and future criminal activity.

Reynolds et al. (2002) also calculated the educational cost savings associated with reduced grade retention and reduced special education placements from kindergarten to year 12. The average per pupil cost for general education in Chicago was used to estimate the cost of an additional year of school. Expenditures for special education were the weighted average annual cost per pupil for the categories: "specific learning disability, emotional or behavioural disturbance, speech and language impairment and mental retardation" (ibid, p. 15). The outcome measures to calculate the avoided costs were average incidence of grade retention by age 15 and average number of years receiving special education.

Remedial costs in the form of unemployment benefits, single-parent supports and welfare payments can be estimated using a similar methodology. Identification of these remedial costs provides an indication of the benefits to taxpayers caused by a program designed to encourage mothers into the workforce.

Social payments are transfer payments and generally it is accepted that transfer payments do not alter the valuation of benefits to society. However, to the extent that these payments are funded through taxes, and given taxes have distortionary effects on allocative efficiency, there will be benefits associated with significant reductions in social payments. The associated administration costs can also be identified as a potential saving to society (Masse and Barnett, 2002). Moreover, the availability of taxpayer funds for alternative investments can be viewed as a social benefit of the program.

### **3.2.4 Surrogate Market Technique**

#### *3.2.4.1 Methodology*

This technique uses observed behaviour in a surrogate market as a proxy value for benefits in another market. Observable trade-offs between income and wellbeing are observed in one market context, which are then used to measure similar trade-offs in alternative markets (Healey and Chisolm, 1999). For example, trade-offs that are observed between income and risk in the labour market can be used to make inferences about trade-offs that may occur in the provision of child welfare and protection services.

Because this technique elicits individual willingness to pay by revealing preferences in market situations, the demand curve can be estimated and the value of consumer surplus can be captured.

#### *3.2.4.2 Applied examples of the technique*

Risky jobs are expected to be paid a wage premium as compensation for the willingness to accept a certain level of risk. Wage data pertaining to occupations that vary in their risk of fatal injury can be modelled to estimate the value of a statistical life (Healey and Chisolm, 1999). These values could be utilised in the benefit assessment of a program designed to reduce the incidence of child death as a result of neglect and abuse.

The surrogate market technique has also been applied to measure the value of intangible losses to victims of crime using the average jury award to a crime victim as compensation for the pain, suffering, fear and lost quality of life experienced (Cohen and Miller, 1994 in Miller et al. 1996). The study excluded punitive damages in order to isolate the portion of the jury award directed at compensating the victim for pain, suffering and lost quality of life. The lawsuits examined claims made by victims of assault, rape and burns.

### **3.2.5 Contingent Valuation Technique**

#### *3.2.5.1 Methodology*

The contingent valuation technique is survey-based. It would directly ask individuals what they would be willing to pay for some desired outcome relating to child protection and welfare. In assessing their willingness to pay, respondents would be provided with a reasonably detailed description of the specified outcome, the circumstances in which the outcome would exist and how payment would be exercised.

The survey needs to describe the hypothetical market characteristics in sufficient detail to ensure respondents understand its relevant features and to minimise potential biases. This is to ensure that responses to the survey questions reflect the actual behaviour of players in the marketplace (Bann, 2002).

Survey questions can be designed to extract willingness to pay information to suit a variety of initiatives. For example, the survey could ask respondents to state what they would be willing to pay to ensure that children are not sexually abused, or it might ask respondents what they would be willing to pay to ensure children are not emotionally neglected, and so on.

The contingent valuation survey could also include questions on respondent's opinions and expectations of the outcome in question. The responses provide useful additional information about behavioural patterns and can also be used as a check to determine whether the individual has responded strategically to bias the results.

This technique can be used to value non-marketables such as the intangible losses incurred by victims of child abuse and neglect, which are difficult to quantify through use of other techniques.

#### *3.2.5.2 Applied examples of the technique*

The contingent valuation technique has been used to measure household willingness to pay for a public health program designed to reduce alcohol dependence. Pellegrini and Jeanrenaud (2003) conducted a survey of Swiss households, to determine what they would be willing to pay to reduce the incidence of alcohol dependence by one unit. Analysis of the survey results revealed that altruism was the main reason for payment.

The technique has also been used to measure the value people attach to human life. A New Zealand-based study estimated the value of life by conducting a survey that asked respondents what they were prepared to pay to prevent death and injury caused by motor vehicle accidents (Miller and Guria, 1991 in McGurk and Hazel, 1998).

### **3.2.6 Conjoint Analysis and Choice Modelling**

#### *3.2.6.1 Methodology*

Conjoint analysis and choice modelling are alternatives to the more familiar contingent valuation technique. These are techniques, which examine preferences in terms of contribution of a number of attributes of the product or service to the final choice. They use experimental designs to vary attribute levels across hypothetical products or services, which are described to survey respondents.

In a conjoint analysis, each respondent ranks a set of products into preference order. This can be used to infer the partial value assigned by each respondent to each attribute level (Ryan and Farrar, 2000). By observing the trade-offs between income and attributes, including the cost of an attribute at varying levels, willingness to pay estimates can be generated (Healey and Chisolm, 1999).

In a choice modelling study, each respondent evaluates a set of products and indicates which one he or she would choose (Bann, 2002). This is repeated several times for different choice sets. The aggregate choice frequencies can be modelled to infer the relative impact of each attribute level on choice.

#### *3.2.6.2 Applied examples of the technique*

Choice modelling was used to estimate the cost benefit ratios for competing clinical service developments. Using integer programming together with choice modelling, the optimal combination of clinical service developments within a given budget could be determined (Farrar, Ryan, Ross and Ludbrook, 2000).

## **4 STRENGTHS AND LIMITATIONS OF TECHNIQUES**

### **4.1 Productivity Technique**

#### *4.1.1 Strengths*

The reliability of results from the productivity technique is high as they are based on observable market prices, which reflect the actual values individuals place on goods and services. The method also relies on observable output levels such as educational attainment and rates of smoking.

The productivity technique is relatively easy to apply. It has been used mainly to estimate changes in future earnings associated with different levels of educational attainment. Reliable wage differentials corresponding to different levels of educational attainment are readily available and accumulated experience in their use is high.

The productivity technique is especially useful when long-term follow-up of participants and a comparison group is not possible. Data sources such as expected survival rates and expected participation in tertiary education assist the calculation of future earnings increments resulting from child protection and welfare initiatives.

#### *4.1.2 Limitations*

The productivity technique will typically underestimate the total benefits of a program because of its inability to capture the value of consumer surplus or altruism.

### **4.2 Preventative Expenditure Technique**

#### *4.2.1 Strengths*

Like the productivity technique, the preventative expenditure technique uses observable market prices to assess benefits, so the findings are reliable.

The preventative expenditure technique is a relatively quick and practical valuation technique to use, requiring minimal data. Therefore, it can be used for situations where resources such as time, data and funding are scarce.

#### *4.2.2 Limitations*

This approach provides only a minimum estimate of the benefits. This is because they do not include any additional consumer surplus after the preventative expenditure has been made. That is, most parents and carers may be prepared to spend in excess of the amount they have actually spent on the preventative measure in question.

Like the productivity technique, the preventative expenditure technique cannot provide an estimate for altruistic value because the identified expenditures are made to protect individual household members only and do not account for altruistic notions.

### **4.3 Remedial Cost Technique**

#### *4.3.1 Strengths*

The remedial cost technique also uses observable market prices to value benefits. The potential savings generated by programs designed to reduce the incidence of child abuse and neglect can be relatively easily identified using the cost records of organisations that provide assistance to victims of child abuse and neglect. Furthermore, cost records of the criminal justice system, hospitals and victim survey data can be used to calculate remedial costs associated with crime in general.

The remedial cost technique is useful when long-term follow-up of participant and comparison groups is not possible. The findings of previous experimentally designed longitudinal studies can provide an indication of the likely reduction in remedial costs as a result of some new initiative.

#### *4.3.2 Limitations*

The remedial cost technique assumes that the benefit of the remedial activity exceeds the cost, otherwise the cost would not have been incurred. It thus provides only a minimum estimate of benefits. Because remedial expenditures are not related to demand considerations or estimates of willingness to pay, consumer surplus is ignored and the technique may underestimate the total value of a particular initiative. Moreover, altruistic values cannot be estimated using this technique.

A major limitation of this approach is that the remedial good or service provided to victims of child abuse and neglect does not entirely remove the deleterious effects of child abuse and neglect. It is argued that the devastating effects of child abuse can never be fully compensated by child welfare services and supports. While the remedial cost technique can provide a value for tangible crime victim losses, it cannot provide a value for intangible losses associated with crime.

### **4.4 Surrogate Market Technique**

#### *4.4.1 Strengths*

As this technique is based on price differentials in related markets, results obtained are reflective of actual consumer choices and are reasonably reliable. Because willingness to pay is revealed in the surrogate market, a value for consumer surplus can be captured by this technique.

#### *4.4.2 Limitations*

One limitation of this technique is that price differentials in the related market may depend on a variety of factors. For instance, an existing wage differential could reflect a higher skill requirement and greater years of experience. It is necessary to control for these confounding factors to ensure that wage premia reflect the trade-off between risk and income (Olsen, Smith and Harris, 1999).

Another limitation is that because the preferences revealed in the surrogate market are based on personal trade-offs between income and wellbeing, the technique can not provide an estimate for altruistic value.

## **4.5 Contingent Valuation Technique**

### *4.5.1 Strengths*

The contingent valuation technique can be applied in a number of settings and situations where market-based techniques would be relatively ineffective, due, for instance, to a lack of required information available from the market. Its ability to value public goods for which no market exists, is a major strength of this technique.

Unlike market-based or surrogate market techniques, survey-based techniques, such as contingent valuation, can ask respondents about their altruistic preferences and thus provide an estimate of altruistic value. To the extent that individuals would be willing to pay for the benefit they derive from knowing that children are safe from abuse and neglect, altruistic value is a potentially significant component of the total economic value of a child welfare program.

Another advantage of the contingent valuation technique is that it is flexible. The survey can ask respondents about their opinions and expectations of the outcome in question. This provides information about the motives for different valuation preferences.

### *4.5.2 Limitations*

The contingent valuation technique is survey-based and so there is a risk that respondents may misinterpret the questions or attempt to behave strategically. The elements of the contingent market should be described in a level of detail sufficient to ensure respondents understand the features of the good to be valued and the context in which it is provided, and ensure that they find the market situation believable (Smith, Olsen and Harris, 1999). Otherwise, there is potential for 'hypothetical bias' and 'strategic bias' to affect the valuation.

Hypothetical bias occurs when respondents overstate or understate their willingness to pay due to the hypothetical nature of the survey, because they have no prior experience in dealing with the service in question.

Strategic bias occurs when individuals provide responses that undervalue or overvalue their true valuations in order to skew the results in their favour. Respondents may provide false valuations in an attempt to influence the provision of the good or the respondent's own level of payment for the good (Smith et al. 1999).

Another limitation is the potential for compliance bias to affect the valuation. Compliance bias may result when respondents frame their responses in an attempt to please the interviewer. Compliance bias could be significant in attempting to value child welfare and protection services due to the emotive issues involved and the desire for some respondents to appear overly philanthropic.

Finally, in order to elicit accurate value estimates, the contingent valuation technique requires a carefully constructed survey and sampling methods, and use of sophisticated econometric modelling (Bann, 2002). Consequently, undertaking this valuation technique could be an expensive exercise in terms of time, funding and required skills.

## **4.6 Conjoint Analysis and Choice Modelling**

### *4.6.1 Strengths*

Similar to the contingent valuation technique, these techniques can be used in a number of settings and situations where market-based techniques may not be applicable. Like contingent valuation, conjoint analysis and choice modelling techniques can provide an estimate of altruistic value.

Because respondents are given numerous opportunities to state their preferences for an attribute over a range of payment levels, conjoint analysis and choice modelling techniques may overcome some of the response bias inherent in contingent valuation (Alpizar, Carlsson and Martinsson, 2001). This repeated sampling allows consistency testing to take place. Another advantage of these techniques over contingent valuation is that they can provide estimates of the value of specific attributes of a good or service.

These techniques can link theoretical behaviour observed in real-life situations, based on realistic examples of expected market offerings. In this way, they can overcome some of the weaknesses caused by the hypothetical nature of contingent valuation techniques.

They are also more suitable for transferring results from previous studies to new proposals as the differences in the various attributes of the product or service can be better accommodated.

### *4.6.2 Limitations*

The techniques generate useful information only if the assumptions behind the selection of value attributes, the experimental design and the data collection methods are sound. If a large number of attributes or combinations are utilised, they may place a heavy cognitive burden upon respondents and the reliability of the results may be diminished (Bann, 2002).

## **5 ASSESSING BENEFITS OF DoCS PROGRAMS**

The preceding discussion has highlighted the different techniques available for quantifying the benefits of child welfare initiatives. This report found that previous benefit assessments used a variety of valuation techniques to estimate total program benefits. This section examines how to critically analyse previous benefit assessment results and apply the results of these benefit assessments in undertaking economic evaluation of new initiatives.

Depending on the aims of the particular initiative, a particular valuation technique may be more appropriate than another one. Child welfare initiatives encompass children's services, child protection services, early intervention and prevention programs and out-of-home care placements. In most cases a combination of the productivity, preventative expenditure, remedial cost, surrogate market and survey-based techniques will need to be incorporated.

### **5.1 Choosing the best approach**

The approach taken to measure the benefits of DoCS programs depends on the ultimate purpose of the benefit assessment. Benefit assessments may be undertaken for the purpose of program evaluation or program appraisal.

#### *5.1.1 Program Evaluation*

Program evaluation involves critical examination of the outcomes and comparing them to the original objectives of the program. The evaluation will attempt to monetise all the benefits and costs of the program to calculate a rate of return to determine whether the program was an efficient allocation of public funding.

Program evaluation in the field of child protection and welfare is unique in that many benefits are not realised until many years after the intervention. This is especially true for early intervention programs. For instance, the savings to taxpayers as a result of the High/Scope Perry Preschool program did not accumulate to match the costs until the participants reached 20 years of age (Karoly et al. 1998). Early childhood is viewed as a crucial period for "physical, cognitive, social and behavioural development" (Karoly et al. 2001: 3). It follows that interventions during this development period may lead to productivity gains and cost savings that can be measured over time.

As discussed in 3.1, longitudinal studies incorporating an experimental design can isolate actual program benefits much more accurately than cross-sectional studies. While longitudinal studies (based on randomised control) are widely agreed (Currie, 2000; Karoly et al. 2001) to be the most appropriate approach for evaluating early intervention programs, there are some drawbacks. These include the length of time taken to assess the benefits, the necessary willingness of individuals to participate and the costs associated with undertaking an intensive study.

Dubowitz (1990) also notes that implementation of randomised trials may be deemed unethical because control groups are denied access to the intervention. However he also points out that this limitation can be overcome by using those individuals waiting for an opening in a program as a potential comparison group. In order to ensure that the evaluation captures all the benefits from a program, longitudinal studies represent the best approach for assessing benefits in a program evaluation.

The Department has a strong interest in further strengthening its investment in early intervention and prevention programs and services. Some early interventions, such

as the Vulnerable Families and Early Intervention projects may be more amenable to longitudinal studies. These projects have the advantage that they have not yet been rolled-out. Assuming adequate planning, remedial cost and productivity techniques can be used to value the benefits of these and other new programs.

The comparison group may be identified and possibly tracked via the Department's recent Key Information and Directory System (KIDS). The comparison group should match a number of characteristics of the program group. Various emotional or cognitive, health and educational outcomes can be tracked and compared. Cost savings and productivity increases can then be calculated using the relevant market prices.

### *5.1.2 Program Appraisal*

Program appraisal requires clarification of the objectives followed by a relatively quick assessment of the benefits expected from a particular proposal, relative to its costs. Information is required in a timely manner to assist the decision to implement a new program. Longitudinal studies are not appropriate due to the time period required to obtain an accurate measure of total benefits.

Depending on the nature of the benefits to be quantified, application of a particular method of valuation technique may be more appropriate than another. Furthermore, to enhance the robustness of the estimates, a number of techniques may be applied simultaneously, so that their findings can be checked against each other.

As discussed in Part 2, many benefits can be realised from different child protection and welfare programs. The main benefits of these types of programs include: reduction in child abuse and neglect, improvement in educational attainment, reduction in crime, reduction in general and mental health problems, reduction in placement breakdowns, reduction in youth homelessness and reduction in problem behaviours of high-need kids. While these benefits represent the major objectives of DoCS programs, there are many other desired benefits that could also be expressed in monetary terms.

Table 1 shows which valuation techniques are most appropriate to express different benefits in monetary terms. They are based on analysis of the relative strengths and weaknesses of each technique and how techniques were used in the literature to value different benefits. Because most programs will produce a range of benefits, the benefit assessment will ultimately utilise a combination of valuation techniques.

Table 1: Valuation Techniques for different Quantifiable Benefits

<i>Benefit to be quantified</i>	<i>Valuation Technique</i>
Improvements in Educational Attainment	Productivity technique
Improvements in Health	Productivity technique/ Preventative expenditure technique
Reductions in Crime	Remedial Cost technique/Preventative Expenditure technique
Reduction in Mental Health Problems	Preventative Expenditure technique/ Remedial Cost technique
Reduction in Problem Behaviours in high-need children	Remedial Cost technique/Preventative Expenditure technique
Reduction in incidence of child abuse and neglect	Remedial Cost technique/Preventative Expenditure technique/Productivity technique
Reduction in youth homelessness	Remedial Cost technique/Productivity technique
Reduction in substance abuse amongst young people	Remedial Cost technique/Productivity technique
Reduction in Child Death as a result of neglect and abuse	Preventative Expenditure technique/ Contingent Valuation technique/Choice Modelling technique/Conjoint Analysis technique
Reduction in Domestic Violence	Remedial Cost technique/Productivity technique
Reduction in Pain, Suffering and Reduced Quality of Life	Contingent Valuation technique/ Surrogate Market technique/Preventative expenditure technique/Conjoint Analysis technique/Choice Modelling technique
Reduction in Placement Breakdowns	Remedial Cost technique

Table 1 shows that, depending on the benefit to be quantified, there is considerable discretion available when choosing the valuation technique. However the relative strengths and limitations of the valuation techniques should be assessed prior to using one technique over another.

## 5.2 Benefit transfer

Results of some studies into the effects of early childhood intervention programs have been widely quoted and have generated significant enthusiasm amongst proponents of early intervention. Though these results are an exciting development in the field of community services, direct application of the results of successful cost benefit analyses, benefit transfer, must be done in an informed manner.

Prior to applying the results of previous benefit assessments to a new program proposal, design characteristics such as service delivery method and mode, program scale, target group and location of service provision as well as the general social, economic and geographical context should be compared between the two programs. It is important to realise that no program will ever exactly replicate the characteristics of the previous programs. By corollary, no program benefits will exactly replicate another program's benefits.

For example, the recent and impressive cost-benefit ratio of 7.16:1 calculated for the High/Scope Perry Preschool program does not mean that other high quality pre-school programs combined with home visiting will produce exactly the same results.

The High/Scope program employed high quality staff, had a high staff:children ratio and utilised a rich curriculum (Karoly et al. 2001). Moreover, the 'model' program began in 1962 and societal pressures are recognised to be much more diverse today. However, one can be reasonably confident that programs that employ high quality staff, high staff:children ratios and utilise a rich curriculum will have a similarly high cost-benefit ratio.

Another issue to consider is that of scale. When implemented on a larger scale, the benefits demonstrated by small-scale programs such as the High/Scope Perry Preschool program may not be replicated.

A program design similar to the High/Scope Perry Preschool but implemented for children from a variety of socioeconomic backgrounds may be unlikely to exhibit the same returns. The High/Scope program targeted children from low socioeconomic status families, where the child scored less than 85 on a standard IQ test (Karoly et al. 2001). Socioeconomically disadvantaged children typically display greater program benefits than children of a higher socioeconomic status. An evaluation of the Elmira PEIP that analysed the benefits to both low-risk families and high-risk families showed that the high-risk families delivered savings to the Government in excess of six times the savings produced by the lower-risk families (Karoly et al. 1998).

Comparing different program cost benefit analyses should be carried out with regard to the program benefits measured and the length of evaluation. The follow-up period of evaluation must be standardised between different programs if they are to be compared (Karoly, et al. 2001). This is because studies that track the outcomes of participants and non-participants to adolescence or adulthood will generally calculate a greater measure of benefits than those that have a shorter horizon for evaluation.

Also, different legal system cost structures, income taxation rates, wages policy, and welfare and unemployment frameworks exist in different geographical locations, resulting in different measures of benefits from child welfare programs. For instance, the Washington State Institute For Public Policy's study of the costs and benefits of crime reduction programs utilised cost estimates pertaining to the Washington jurisdiction (Aos, Phipps, Barnoski and Lieb, 2001). Costs were calculated for the criminal justice system and for treatment of offenders through the juvenile and adult system, including sentencing practices. To the extent that the assumptions and standards on which the cost estimates for Washington are based are different in alternative jurisdictions, the benefit assessment would vary according to the jurisdiction.

The level of care available in different settings will mean that benefits resulting from previous assessments may not be as great in a situation where the level of care being received is of a higher quality. This is because experimentally designed longitudinal studies measure the benefits accruing to participants, caused as a result of the marginal differences in the quality of the care provided to the program children and the control children.

The social and geographical context needs to be considered. For instance, the effects of an intervention program may produce greater crime reduction benefits if the geographical area proposed for an intervention is characterised by a higher incidence of crime than the original program (Masse and Barnett, 2002).

Miller and Guria's (1990) contingent valuation findings of the willingness to pay to prevent injuries as a result of road accidents may not easily be transferred to the field of child welfare and protection. Caution should be exercised when using the results of contingent valuation surveys not specifically targeted at reducing risk to children to

provide a measure of the intangible costs of child abuse and thus an estimate of the benefits of a program designed to reduce the abusive behaviour. This is because the emotive nature of child abuse suggests that most adults would be willing to pay a greater amount to prevent risk to a child than if an adult faced the same risk (Donato and Shanahan, 1999). The same argument is applicable to surrogate market valuations that focus on modelling risk and income trade-offs for adults.

The remedial costs and preventative expenditures incorporated in a benefit assessment should include all relevant costs, reflecting current market prices. For example, valuations using the preventative expenditure technique should incorporate both observable and unobservable costs, such as the time spent using a safety device.

An allowance for consumer surplus may need to be incorporated in the case that it is not explicitly included in the original assessment. Therefore, care needs to be taken to ensure that benefit assessments are comprehensive in their analysis (Dubowitz, 1990).

### **5.3 Methodological Quality**

The robustness of the results of a benefit assessment is dependent on a number of issues such as quality of research design, sample size and rate of attrition. Before applying the results of a previous benefit assessment to argue the case for implementing a particular proposal, it is necessary to examine its robustness. Results from studies that are not sufficiently robust should be used with extreme caution.

An experiment that does not employ random assignment will not necessarily control for differences in observed and unobserved characteristics between program participants and those in the control group (Currie, 2000). Higher quality studies will control for confounding factors such as children's IQ level at program entry, family socioeconomic status and the number of children in the family. A comparison group is an acceptable substitute for a control as long as those children and parents chosen are similar in various measured ways to the program participants.

The sample size should be large enough to identify true differences between the treatment and control groups (Dubowitz, 1990). A large sample increases the power of study findings by increasing the likelihood that identified differences are not due to random variation.

Attrition in the study increases the risk that those remaining in the sample do not represent the characteristics of the original sample. Attrition must be as low as possible to maintain the sample size and in order to avoid differential attrition. Differential attrition can bias the results if the more disadvantaged families do not complete the treatment or alternatively, are not available for follow-up (Karoly, et al. 2001).

Long-term follow-up is desirable to track the progress of both participants as many economic benefits are realised after the original intervention. However, if long-term follow-up is not possible, then appropriate forecasting data and informed assumptions should be used to monetise the total benefits.

The rate of discount used to express future benefits into present values should be an appropriate rate. Sensitivity testing of the calculated benefits should also be undertaken using a variety of rates.

Contingent valuation surveys should not be suffering from the number of biases discussed earlier. They should be statistically reliable, where stated values are representative of the population (Smith, et al. 1999). The survey should also be economically sensible. This requires that stated values should correspond to other variables, such as wages, in a manner expected by economic theory (Smith, et al. 1999).

## **6. CONCLUSION**

In order for DoCS to deliver quality services and support to children, young people and families of NSW, it is essential to have a better understanding of the benefits of child welfare initiatives and to express these in monetary terms as far as possible.

This report has identified a number of different valuation techniques available for assessing the benefits of child welfare initiatives. These methods include three market-based techniques, the surrogate market technique and survey-based techniques.

In undertaking benefit assessments, depending on the benefits to be quantified, a variety of valuation techniques may be appropriate. Generally, a combination of techniques should be used to calculate an accurate measure of total benefits.

The results of previous benefit assessments can also be used to value benefits expected from a new initiative. However, prior to transferring benefits, the initiative's design, socioeconomic and geographical context and target group should be carefully considered.

There is a considerable degree of uncertainty associated with most of the estimates in the literature. These estimates should be viewed as broadly indicative and should be used with caution. It is also important to realise that changing circumstances over time will imply changes to these estimates. Refining existing techniques and developing new ones through interdisciplinary work involving researchers, economists, statisticians and caseworkers will be one of the most important steps in increasing the reliability of the techniques and the validity of the resulting estimates.

As the techniques are used in benefit assessments and as accumulated experience in their application increases, the confidence in both the techniques and the resulting estimates will increase, leading to a better understanding of the benefits of child welfare programs and better informed decisions in child welfare policy making.

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