BENEFIT-COST ANALYSIS OF CHILDREN'S GROUND'S APPROACH

A BAREFOOT ECONOMIC SERVICES REPORT PREPARED FOR CHILDREN'S GROUND

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Executive Summary

Barefoot Economic Services was commissioned by Children's Ground to undertake a benefit-cost analysis (BCA) of their approach to reducing complex and entrenched disadvantage in Australia, particularly for Indigenous communities. This report outlines the economic benefits of this approach by quantifying the net economic benefits of reducing disadvantage, providing a BCA for reducing Indigenous disadvantage and quantifying the lifetime costs of government expenditure for Indigenous Australians and the 'average' Australian to compare the differences in government expenditure over the lifetime of the respective individuals.

Children's Ground's approach is a comprehensive, long-term program of activities that is designed to provide sustained investment into children's and their families' ability to expand and exploit their opportunities[1]. It is structured as a 25 year program and cost $10,000 per child per year. It is designed to directly tackle inter-generational disadvantage by working with individual children, families and the community to build capacity and create opportunities.

The economic analysis in this report finds that there is substantial economic benefit from reducing Indigenous Australian disadvantage using the Children's Ground approach. The key reason is the significant savings in government expenditure if disadvantage was reduced.

Significantly, based on current estimates, government spends nearly $2.4 million per Indigenous man over a lifetime versus $744,986 per 'average' Australian male – a difference of over $1.6 million. Despite spending over three times as much per individual, outcomes for Indigenous people continue to be dramatically worse than for the wider Australian population. This starkly demonstrates the need for a different approach to government policy and service delivery to improve Indigenous people's socio-economic outcomes.

In present value terms the Federal and Northern Territory governments would save over $450,000 per Indigenous Australian if the Children's Ground approach was successful. Furthermore, there are significant net economic benefits possible from the Children's Ground approach. We estimate the NPV of the Children's Ground approach would generate nearly $440,000 per Indigenous disadvantaged individual. This translates to a Benefit Cost Ratio of 3.82. The following table summarises the findings.

Benefit-Cost Ratio (4.5% discount rate)

Benefit Cost Ratio	
Indigenous	**3.82**
Indigenous excl. Early Childhood Development, Education and Training	**2.78**

[1] Children's Ground (2012).

1 INTRODUCTION

Australia is one of the world's wealthiest countries and ranks among the top countries in the OECD Better Life Index[2].

Despite the level of affluence, there continues to be a significant number of people within Australia that experience complex and entrenched disadvantage[3]. This experience is particularly acute within Indigenous communities. In fact, in 2009 the United Nations assessed Indigenous communities in Australia to be worse in some respects than 'third world' countries[4].

The experience of disadvantage imposes significant costs to the individual, government and the wider community particularly in terms of quality of life and the cost of services. Despite significant investment by Federal, State and Territory governments, the proportion of people experiencing complex and entrenched disadvantage has not changed.

Children's Ground is delivering a new approach to addressing these challenging problems.

Barefoot Economic Services was commissioned by Children's Ground to undertake a benefit-cost analysis (BCA) of their approach to reducing complex and entrenched disadvantage in Australia. While this report focuses on Indigenous disadvantage, analysis on reducing non-Indigenous disadvantage is included in Appendix 4.

The report is structured as follows. In chapter 2, we discuss complex and entrenched disadvantage in the Australia context. In chapter 3, we described the Children's Ground approach. In chapter 4 we present a methodology of the economic analysis undertaken, including a literature review that was used to inform the choice of method and a discussion of the key assumptions. Chapter 5 presents the results of our economic analysis. Chapter 6 concludes the report.

[2] Organisation for Economic Co-operation and Development (OECD) (undated).
[3] McLachlan, et al. (2013).
[4] United Nations Department of Economics and Social Affairs (UN DESA) (2009).

2 Background: Complex and Entrenched Disadvantage

Among social policy researchers and practitioners, there is no generally agreed definition of complex and entrenched disadvantage[5]. Nevertheless, most theorists agree that disadvantage is multi-dimensional and includes economic, social, geographic, historical, political and health factors[6]. These factors are mutually-reinforcing and it is only by understanding their interrelationships that practitioners can develop effective programs to reduce disadvantage.

2.1 Impact of Complex and Entrenched Disadvantage

Disadvantage has a clear impact on an individual's economic well-being. One indicator of disadvantage is lower income and wealth. However, researchers have been unable to agree on a specific income and wealth level that defines a person as disadvantaged[7]. This is because each person has different needs or consumption. Any economic indicators of disadvantage must take into account the 'flow' of economic resources (income coming in and consumption spending going out) and the 'stock' (i.e. wealth) as well as 'deprivation', or the inability to purchase goods and services that are regarded as essential to the community (e.g. medical care). However, such economic indicators should be used in conjunction with social, geographic and health indicators to provide a comprehensive understanding of disadvantage.

Economic, social, geographic and health indicators have mutually-reinforcing impacts on each other[8]. For example, low income may be the outcome of inadequate schooling; poor health may also lead to low income or vice versa. An inter-generational perspective can help disentangle which indicators are correlated and which are causing disadvantage. This is especially relevant for Indigenous Australians given the history of institutionalised discrimination against them. From an inter-generational perspective, a lack of adequate schooling for a parent may lead to lower income and an inability to provide adequate schooling for their children because they are unable to afford to live close to adequate education facilities or being unable to afford school materials.

Another aspect of disadvantage is the importance of the social context of disadvantage, or 'social capital' and 'social exclusion'[9]. Social capital refers to features of a community that govern social interactions between individuals, such as networks, trust and norms. Individuals within a community with strong social capital would be able to manage events that affect the community. For example, a community with strong social capital may be able to develop and implement community projects that benefit all members. Social exclusion refers to the restriction of opportunities through rules or the social environment. For example, lack of personal safety may discourage individuals from travelling to a potential workplace. Social exclusion could be seen as the converse of the capabilities approach. Social capital and exclusion highlight the importance of social networks, norms, trust as well as institutional rules as a cause of disadvantage.

[5] McLachlan, et al. (2013).
[6] Price-Robertson (2011).
[7] McLachlan, et al. (2013).
[8] Price-Robertson (2011), McLachlan, et al. (2013)
[9] Price-Robertson (2011), McLachlan, et al. (2013)

Several measures have been developed to attempt to measure the impact of disadvantage in Australia[10]. What is clear from these studies is the complexity of tackling disadvantage. Specifically, the difficulty of disentangling correlation from causation.

2.2 Australian Disadvantage

Australia has historically low rates of disadvantage compared to other Organisation of Economic Co-operation and Development (OECD) economies[11]. However, there are pockets of persistent disadvantage. Despite the recent economic boom, over 600,000 adult Australians are experiencing core disadvantage[12] – one percent of Australians aged 15 plus years are estimated to experience deep social exclusion from 2001 to 2009;[13] similarly, around 4% of Australian adults experience core disadvantage between 2006 and 2010. [14]

2.3 Indigenous

Many Indigenous Australians experience deep disadvantage[15] – Indigenous Australians are expected to live 10 years less than non-Indigenous, are less attached to the labour market (74% of Indigenous males are in the labour market compared to 86% of non-Indigenous males) and are 14 times more likely to be imprisoned[16].

The causes of Indigenous disadvantage are complex and rooted in European colonisation of Australia and the 'consequent dispossession, disruption and dislocation of Indigenous people.[17] These historical events denied economic resources and opportunities that were available to the majority Australian population. Furthermore, the intergenerational effects of poverty and loss of autonomy has a compounding impact on Indigenous disadvantage. [18]

2.4 Benefits of Early Intervention

There is significant literature on the socio-economic benefits from Children's Ground's approach to intervene early to reduce disadvantage. Economic studies have shown that there is high net economic benefits from early intervention. Furthermore, Children's Ground's approach of sustained effort is supported by these studies. These studies suggest the earlier and more sustained the intervention, the greater the benefits both to the individual, their community and society in general.

[10] Price-Robertson (2011), McLachlan, et al. (2013)
[11] McLachlan, et al. (2013)
[12] Core disadvantage is where someone simultaneously experiences income poverty, deprivation and social exclusion(Ibid.).
[13] Ibid.
[14] Ibid.
[15] Steering Committee for the Review of Government Service Provision (SCRGSP) (2011), Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b).
[16] Steering Committee for the Review of Government Service Provision (SCRGSP) (2011), Australian Institute of Health and Welfare (AIHW) (2013a).
[17] HREOC Social Justice Report 2002: Measuring Indigenous disadvantage https://www.humanrights.gov.au/publications/hreoc-social-justice-report-2002-measuring-indigenous-disadvantage#4.1.1.1
[18] http://www.austlii.edu.au/au/orgs/car/overcoming_disadvantage/pg3.htm

3 CHILDREN'S GROUND'S APPROACH

Children's Ground seeks to create an environment for families and communities to realise their aspirations for the next generation of children – to be free from trauma and suffering, to enjoy equity and safety and to be able to grow into adulthood happy, healthy and with agency over their social, cultural and economic future.

To deliver on this outcome Children's Ground believes that there needs to be a fundamental shift in the way service agencies and governments operate. The Children's Ground platform is therefore based on five key reforms in the areas of governance, workforce, investment, approach and evidence.

Of particular note for this report is the Children's Ground service delivery approach which is a comprehensive, long-term program of activities designed to provide sustained investment into children's and their families' ability to expand and exploit their opportunities[19]. It is structured as a 25 year program and costs $10,000 per child per year.

Children's Ground's focus is on learning, wellbeing, community development and economic development. On a day to day basis this includes the provision of early years learning; support to access health services; provision of a nutrition program and counselling; an out of hours learning program – including art, song and dance and sport; and employment and training.

The core principles of Children's Ground's work are:

- *Start early* – begin with early childhood
- *Stay for the long term* – work with communities over the course of a generation
- *Work with everyone* – to ensure change for the whole community
- *Deliver the whole* – responding to the whole child through an integrated suite of services that support the social, cultural, cognitive, physical, spiritual and economic wellbeing of the child and their family is joined together in an individualised approach
- *Child, family and community led* – local people have agency in Children's Ground as designers, researchers, service users and deliverers.
- *Expect and deliver the best*- programs are resourced at a level that ensures quality learning, development and wellbeing with an expectation of outcomes on par with mainstream Australia
- *Innovation* – everything at Children's Ground is informed both by Aboriginal culture and knowledge systems as well as research into best practice around the world
- *Intense and frequent* – recognising that the majority of learning happens outside the traditional classroom, services are delivered six days a week across a wide range of hours and throughout the year (including school holiday programs).

An outcome and accountability framework has been developed to evaluate change within the communities with whom Children's Ground works to determine the impact of the model and the potential for wider systemic change.

[19] Children's Ground (2012).

4 METHODOLOGY

This BCA of Children's Ground's approach to reducing complex and entrenched disadvantage in Australia was undertaken in four key stages:

1. Undertake a document review to identify any cost benefit analysis that currently exist and might provide a framework for approaching the analysis for Children's Ground,
2. Develop the analytical framework for the analysis including key indicators,
3. Undertake the analysis by applying the analytical framework to the data, and
4. Prepare the draft and final report.

The following section provides the findings of the first two stages of the project along with the key assumptions used in the economic analysis summarised in Section 5.

4.1 DOCUMENT REVIEW

In 2013 the Productivity Commission undertook a comprehensive review of the literature on Australian disadvantage[20]. The authors investigated competing methodologies of quantifying the economic impact of deep and persistent disadvantage. They conclude that an 'avoidable cost' (or 'regrettables') framework is the most appropriate because it estimates the realistic reduction of disadvantage rather than assume it could be eradicated. Avoidable costs are the value of resources that could be used in alternative programs if expenditure was reduced to the 'average' Australian level. An additional advantage of this framework is that it yields estimates that inform policy-makers on potential savings from reducing avoidable costs rather than more contestable estimates of the costs of disadvantage.

Several studies in the US on early childhood development programs use an avoidable cost framework to estimate the benefit-cost of the impact of investing in pre-school education of disadvantaged US children[21]. Typically, they estimated benefits for the child and to the government from improving children's ability to develop academically and socially. For example, increase in lifetime earnings is a common measure of benefit for program participants. Likewise, savings from reduced crime is a common measure of benefit for government. These US studies estimate strong net economic benefits for the individual and governments. For example, Rolnick and Grunewald (2003) estimate that the Perry School Preschool generated $8.74 for each $1 invested for the individual at 27 years of age and $7.16/$1 invested in government budgetary savings. This yielded a total benefit cost ratio of $15.90 per $1 invested. Furthermore, economists have used these studies to argue that investment in early childhood development yields greater economic gains than subsidising existing businesses[22].

The above studies did not include benefits beyond the child (program participant) and government budgets. However, parents may be beneficiaries of early childhood development programs. Furthermore, health benefits are not always included. The BCA of the Abecadarian program included impacts on parents and health outcomes[23]. Mothers of program participants were found to have higher weekly earnings and were able to obtain higher qualifications. This was because of stable child care arrangements as part of the Abecadarian program. Maternal benefits were estimated to add

[20] McLachlan, et al. (2013).
[21] Rolnick and Grunewald (2003), RAND Corporation (2008).
[22] Rolnick and Grunewald (2003), RAND Corporation (2008).
[23] Masse and Barnett (2002).

$73,608 per child over 34 years at a 3% discount rate[24]. Higher quality schooling is expected to influence children's ability to process information on health. The Abecadarian study estimates the benefits of greater health awareness, as proxied by lower smoking rates, by valuing the increased longevity of participants. The authors estimate that at a 3% discount rate, greater longevity yielded an economic benefit of $17,781 per child[25].

Some non-BCA studies are useful for informing the development of a BCA framework for Children's Ground's approach. Deloitte Access Economics perform a general equilibrium analysis of the economic impact of 'closing the gap' between Indigenous disadvantage and 'average' Australian in terms of longevity, employment and labour productivity (i.e. earnings) presents a useful approach for a similar type of BCA study[26]. Specifically, how to analyse the policy objective of 'closing the gap'. Deloitte Access Economics (2014) introduce a policy 'shock' that raises longevity, employment and labour productivity to the Australian average. This study found that reducing Indigenous disadvantage would contribute 1.15% to Australia's Gross Domestic Product, or $24 billion in 2012/13 dollars[27].

The Productivity Commission's study on Australian governments' expenditure on Indigenous and non-Indigenous Australians provides useful data to help any study concerned with reducing Indigenous disadvantage[28]. It provides disaggregation by jurisdictions, policy area, indigenous, non-indigenous, per person and programs.

Individually, none of these studies provides an 'off-the-shelf' BCA framework that is suitable for the breadth of Children's Ground's approach. That is, none of the studies is a BCA of the economic benefits of reducing Indigenous disadvantage in terms of higher incomes, lower crime, improved health and reduced dependency on social welfare. However, parts of each study can be usefully incorporated into an over-arching BCA framework to study how Children's Ground's approach can deliver economic value.

4.2 Analytical Approach

BCA is a technique for assessing the financial benefits and costs of investing in a particular program or approach. A BCA has two broad purposes:

1. To determine if the benefits of an investment or decision exceeds its costs (cost effective), and
2. To provide a basis for comparing the costs and benefits associated with different options (efficiency)[29].

For this project the analysis focuses on determining the potential benefits (savings) for the individual, community and government in terms of education, health, social and economic outcomes from the investment made in Children's Ground. In technical terms we are comparing the 'scenario' of what is likely to occur through an investment in Children's Ground with the 'counterfactual' of continuing existing government investment in addressing Indigenous disadvantage. Our assumption is that

[24] Ibid.
[25] Ibid.
[26] Deloitte Access Economics (2014).
[27] Ibid.
[28] Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b).
[29] Department of Finance and Administration (DoFA) (2006).

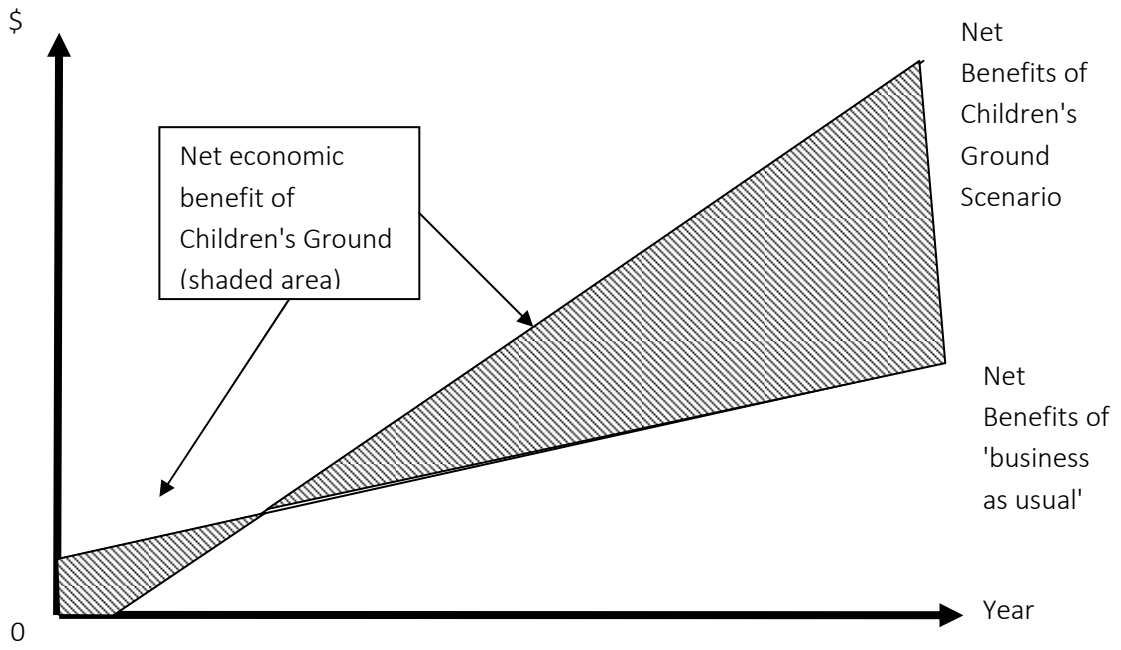
Children's Ground will enable Indigenous people to achieve the same outcomes as the 'average Australian'.

Based on the analysis undertaken in the literature review, we decided to quantify benefits and costs using an avoidable cost framework as recommended by the Productivity Commission[30]. This simplifies data collection by quantifying benefits as avoidable costs of government expenditure. An avoidable costs framework was also appropriate given the desktop and time limited nature of the research.

The data for the analysis has been mostly drawn from SCRGSP (2012a). Specifically, we have used Northern Territory (NT) estimates of Indigenous per head of expenditure as a proxy for State/Territories expenditure on remote Indigenous communities. We use 'State' to refer generically to States' and Territories' expenditure on remote Indigenous communities in the rest of this report. See section 4.3 for a description of the data.

Graphically, benefit-cost analysis can be summarised as follows:

Figure 1 Graphical Depiction of BCA



The BCA calculates the difference between the Children's Ground scenario and the counterfactual. This is represented by the shaded area in Figure 1. In this figure, this represents the case where the benefits of Children's Ground's activities exceeds the foregone net benefits of the counterfactual.

In our analysis, we have two counterfactuals:

- Indigenous disadvantage (counterfactual 1) and
- Australian disadvantage (counterfactual 2).

[30] McLachlan, et al. (2013).

We compare these two counterfactuals to the Children's Ground scenario. This is simulated by the reduction of government expenditures to the 'average' Australian level as estimated by the SCRGSP (2012a). In this report, we focus on the results for reducing Indigenous disadvantage. See Appendix 4 for results applying this framework to reducing non-Indigenous Australian disadvantage.

The analysis was conducted at an individual level rather than a group level. However, it does not preclude the scaling-up of the analysis to a group level. Two types of analysis, lifetime costs and BCA, have been undertaken. More technical details on the BCA methodology can be found in Appendix 1.

4.2.1 Lifetime Costs

Lifetime costs are the sum of government expenditure over an individual's life expectancy as described in section 4.3. Similar to the BCA, we have compared the lifetime of costs to the counterfactual case and the scenarios. Unlike the BCA, the period of analysis is equal to the life expectancy of the individual.

In the counterfactual case for the Indigenous scenario, the life expectancy of Indigenous males and females will be for an individual born in 2010-12 to be 69 and 74 years respectively[31]. The counterfactual is compared to the case where the individual's life expectancy increase to the Australian average of 80 and 83 years for males and females respectively. Under the scenario, government expenditure is assumed to be at the average Australian level. See Appendix 1 for the mathematical formulation of lifetime costs.

4.2.2 Benefit-Cost Analysis

The quantified avoidable costs represent the 'counterfactual' if Children's Ground was not implemented. Specifically, the counterfactual quantifies the costs to government of maintaining current levels of expenditures. Furthermore, the counterfactual also includes the current level of income that Children Ground's clients receive. We have followed Deloittes Access Economics in using average weekly earnings for Indigenous and non-Indigenous individuals to calculate annual income[32]. This ensures that the counterfactual comprehensively accounts for the benefits (avoided government expenditure) and costs (income received under counterfactual).

To derive the net benefit of Children's Ground's approach, the counterfactual net benefit is subtracted from the Children's Ground scenario's net benefit. This will yield the benefit-cost from Children's Ground's activities. The benefits from the Children's Ground scenarios are the income to the clients. The costs are the new level of government expenditure and the investment by Children's Ground into each of its individual clients.

The net benefits were calculated on an annual basis and discounted over 30 years. The period 30 years was chosen to capture the full 25 years of investment and subsequent 5 years of benefits. A longer time period was not chosen because it was felt there would be diminishing value in longer time frames of analysis. The discount rate was sourced from long-dated Australian government bond's yields (presently, around 4.5% for 10-years Australian Government Bonds)[33]. This calculation is the net present value of the net benefits over 30 years. That is, what is the value of Children's Ground's

[31] Australian Institute of Health and Welfare (2013).
[32] Deloitte Access Economics (2014).
[33] Reserve Bank of Australia (RBA) (2014).

programs in today's dollars. The benefit-cost ratio (BCR - i.e. the economic benefit per dollar of cost) is essentially the sum of the discounted ratios of benefits to costs. See Appendix 1 for details on mathematical formulas used in our analysis.

We used the data from SCRGSP (2012a) as described in section 4.3 below. The financial data from SCRGSP (2012a) is in 2010-11 dollars. Where possible we have used 2010-11 data. Where that has not been possible, we have used estimates as close to 2010-11 as possible. For data from different years, we did not adjust for inflation given the relatively stable macroeconomic environment Australia has experienced and the forward-looking nature of the BCA. At most this will result in an inaccuracy of plus or minus 10%. See Appendix 3 for specific vintage of specific data.

4.3 Indicators Framework

We based our analysis on the estimates of government expenditure from the *2012 Indigenous Expenditure Report*[34]. This data source is especially ideal for the Indigenous scenario and the individual-level of the analysis. We used the per person government expenditure figure. Also, the data is disaggregated into 'intensity of use' and 'cost of provision' components. The former is an estimate reflects how frequent the government service is used (i.e. variable cost). The latter reflects the additional cost of servicing Indigenous people due to remote location or providing culturally-sensitive service (e.g. Indigenous liaison officers). We used only the intensity of use component because the cost of provision component is unlikely to be affected by Children's Ground's activities.

The report also disaggregates estimates by State and Territory jurisdictions. We will base our analysis on NT estimates because this best reflects Children's Ground's operational focus on remote Indigenous communities. According to SCRGSP (2012a), 80% of Indigenous Australians who live in remote areas are from the NT. Therefore, the per head estimates for the NT is an appropriate proxy for State expenditure on Children's Ground's key client groups[35]. Furthermore, the data set can be disaggregated in terms of Federal and State funding and program areas which will allow Children's Ground to show how a specific government stakeholder might be affected by Children's Ground's activities.

Through our framework we have attempted to capture the economic impact of a successful application of Children's Ground's outcome framework. Specifically, the framework is designed to capture the improvement in a child's well-being through an improvement of their:

- Health,
- Education,
- Employment prospects and income,
- Safety,
- Housing, and
- Community development.

The reduction in avoidable cost is a proxy for an improvement for a child's well-being because it indicates the child is in less need of those government services. For example, a reduction in health spending per child indicates that the child has improved underlying health and therefore has less

[34] Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b).
[35] Ibid.

need for health services. Therefore, we would expect that Children's Ground is successful if its activities result in lower spending on avoidable costs. However, caution should be used in using government expenditure data as a proxy for demand or need given that it is a measure of supply.

Some limitations to a benefit cost analysis and an avoidable costs framework should be noted.

In an avoidable costs framework necessarily includes education spending as an avoidable or undesirable cost. However, education investment is critical to addressing disadvantage. For Children's Ground to be successful, improvements in education achievement would need to occur. This would result in higher education spending as retention rates increase and as children progress to tertiary or vocational education. In this framework, an increase in education spending is actually an indication of success. Education spending could be seen as a *necessary* rather than an avoidable expenditure. To avoid this confusion, we present results including and excluding early child development, education and training expenditure.

Further, a BCA is by its very nature focused on the financial impact of disadvantage - e.g. the cost of time spent in hospital, the cost of childcare, the financial benefit of employment. Non-quantifiable outcomes such as changes in the level of happiness or increased family stability as a result of a consistent income source cannot be captured in this framework. A more detailed Social Return on Investment (SROI) analysis would be needed to be able to work with the community to quantify these non-financial benefits. We will discuss some non-quantifiable outcomes of the Children's Ground approach in chapter 5 that might be able to be further explored through an SROI.

Also, it is worth bearing in mind that the estimates from SCRGSP (2012a) are averaged over the population of the group in question, not average expenditure using the service. Therefore, these estimates may under-estimate the cost of providing an additional unit of that service to a disadvantaged Indigenous person. In the absence of information to the contrary, we are unable to adjust the SCRGSP (2012a) estimates to the appropriate level. The reader should bear in mind that our results flowing from the SCRGSP (2012a) data represents the lower end of costs per disadvantaged Indigenous person.

In Appendix 2, we present the proposed indicators framework with an explanation for the specific indicators, and relate these indicators to non-economic indicators that are easier to capture in the field.

4.4 Key Assumptions

In this section we will discuss the key assumptions of our economic analysis. A comprehensive list of assumptions is presented in Appendix 3 for more detail. The key assumptions used in this economic analysis are:

- Children's Ground's approach is successful;
- Age demographics;
- Per person estimates;
- Discount rate; and
- Social benefits proxied as reduction in government expenditure.

4.4.1 *Success of Children's Ground's Approach*

In this economic analysis, we have assumed that Children's Ground's approach is successful in achieving per person expenditure reductions in avoidable cost. Given this, it may be appropriate to view the results as an indicator of the potential benefits of the Children's Ground approach rather than a 'guaranteed' return.

4.4.2 *Per Person Estimates*

We have assumed that per person estimates are suitable proxies for per user estimates for simplicity. The estimates from SCRGSP (2012b) are per person estimates rather than per user estimates. For Indigenous people, the per person estimates may not vary substantially from per person estimates because of the greater prevalence of disadvantage in Indigenous populations[36]. More detailed statistical work is required to accurately define the per user estimates. A more detailed SROI could examine this issue.

One challenge this approach does present however is in relation to the cost of education. As the current Indigenous population has a younger age profile than the non-Indigenous population, the per person estimate is not accurately transferrable to the 'average Australian' context. It has been beyond the scope of this analysis to provide a more accurate estimate. For this reason two estimate of the BCA have been provided, one that includes education and training and one that does not.

4.4.3 *Discount Rate*

We used the rate of return for long-dated Australian government bonds as the discount rate in our analysis. We use this rate to reflect the risk-less nature of government expenditure and the length of Children's Ground's project.

4.4.4 *Social Benefits*

As indicated above, our analysis assumes that the social benefits from reducing Indigenous and Australian disadvantage can be measured by a reduction of government expenditure on avoidable costs. This is a partial view of the complete measure of benefits that could be created by Children's Ground's approach. This approach was taken due to the time limited nature of the analysis and to provide a straight financial assessment of the costs and benefits as a baseline, which may provide a platform for a more detailed SROI analysis.

[36] McLachlan, et al. (2013).

5 Business Case for Investing in Children's Ground's Approach

In this chapter we present the results of the economic analysis of Children's Ground's approach to reducing Indigenous disadvantage. Specifically, in order, we present results for lifetime costs, potential government expenditure savings, net present value and the benefit-cost ratio. These results highlight the potential savings to government and the net benefit to the Australian community from reducing Indigenous disadvantage in Australia. We finish this chapter with a discussion of unquantified benefits and costs identified in this report.

5.1 Lifetime Costs

Table 1 presents undiscounted lifetime costs by scenario and gender. The results highlight that lifetime costs are significantly higher for an Indigenous person than the 'average' Australian. Specifically, this represents a 3.2 and 3.3 times expenditure for non-Indigenous males and females respectively. This is despite the lower life expectancy of Indigenous Australians. This reflects the higher intensity of use of government services by Indigenous Australians.

Table 1 Lifetime Costs by Scenario and Gender (Indigenous)

Year	Total (2010-11 $)
Indigenous (Counterfactual 1)	
Male	**$2,388,788.79**
Female	**$2,540,208.79**
'average Australian' (Scenario)	
Male	**$744,986.15**
Female	**$765,050.15**

Table 2 contains a comparison between the counterfactual and the base case scenario. Indigenous Australians are estimated to cost the Australian and State governments over $1.6 million and nearly $1.8 million per male and female respectively. In the next section, we go into more details on the drivers of the government expenditure for Indigenous Australians.

Table 2 Comparison of Scenario Lifetime Costs by Gender (Indigenous)

Lifetime Costs Comparison (Undiscounted)	
Indigenous (Counterfactual 1)	
Male	**$1,643,802.64**
Female	**$1,775,158.64**

Despite spending over three times the amount spent on non-Indigenous people, the social, health, educational and economic outcomes for Indigenous people are significantly worse. This would suggest that a new approach to policy and service delivery is needed to make a more positive impact.

5.2 Savings in Expenditure

Table 3 contains present value estimates over 30 years of government expenditure per person on a gross and net expenditure basis for Indigenous Australians. The estimates have been discounted to reflect the present value of the savings. Note, that this presents a key component but partial view of the BCA. The estimates are disaggregated by government level; i.e. by Australian and State/Territory government. Furthermore, these estimates are disaggregated by COAG's 'Overcoming Indigenous Disadvantage' report framework[37]. This enables analysis of key government beneficiaries from the reduction of expenditure on avoidable costs.

For Indigenous disadvantage, the Federal and State governments could potentially benefit from saving over $450,000 per person over 30 years from reducing expenditure on Indigenous disadvantage. The greatest potential source of expenditure savings is in the category of 'healthy lives' (i.e. health). Indigenous Australians generally have poorer health outcomes than the general Australian community[38]. As a result, this drives higher expenditure on health relative the 'average' Australians. The Federal and State governments are estimated to spend nearly $85,000 and $90,000 respectively per State Indigenous Australians than for the 'average' Australian.

The State government is the main beneficiary of the Children's Ground approach for reducing Indigenous disadvantage, not only from savings in health but also in 'early childhood development, education and training' (over $114,000), 'safe and supportive communities' (nearly $87,000) and 'home environment' (over $47,000).Care should be taken in interpreting these results. Savings from early childhood development, education and training may be the result of statistical differences rather than a reduction in use intensity. Given that children are the main users of these services, these estimates may reflect difference in Indigenous and non-Indigenous demographics and may inadequately capture the improvement in educational outcomes.

Savings from safe and supportive communities reflect the lower need for law enforcement, child protection and welfare services for disabilities. Similarly, savings from the home environment reflect lower demand for social housing.

The Federal government would mostly benefit from the Children's Ground approach but it would depend on the specific outcome areas. Besides health, the Federal government would benefit from lower per person expenditure on 'economic participation' (over $25,000) and 'safe and supportive communities' (over $9,000). Lower spending on economic participation is driven by lower demand for income assistance and training programs. Similarly, lower demand for welfare services leads to a reduction in 'safe and supportive communities'. However, if the Children's Ground approach is successful, this may entail increases in 'early childhood development, education and training' (nearly $3,000) and 'home environment' (over $1,000). For the former, higher attendance and retention in university, TAFE and vocational training drives higher spending for the Federal government. For the latter, the increase in spending is caused by an increase in rental assistance as people shift from using social housing to renting private properties.

The estimates in

[37] Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b)
[38] Steering Committee for the Review of Government Service Provision (SCRGSP) (2011), Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b).

Table 3 differ from Table 1 by a significant margin. First, lifetime costs are not discounted whereas the estimates in

Table 3 are discounted. Secondly, the period of analysis is the life expectancy of the individual (at least 69 years for Indigenous males) compared to 30 years for the estimates on the present value of government expenditure savings. Given that the results for lifetime costs are not discounted, additional years of government expenditure would be disproportionately larger than if they had been discounted.

The State government would benefit the most from Children's Ground's approach to reduce Indigenous disadvantage compared to the Federal government. The State government would benefit the most ($338,000 compared to $115,000 for Federal government). Nevertheless, the Federal government would save significant amounts in health and economic participation. Specific Federal departments would have an interest in investigating expenditure savings. This analysis illustrates how information from

Table 3 can be used to allocate engagement effort by outcome areas and level of government.

The estimates in

Table 3 also illustrate how Indigenous disadvantage as described in section 2.3 is manifested in government expenditure. This is most clearly seen with healthy lives expenditure where the significant gap between Indigenous and 'average' Australians health outcomes are substantial. If the Children's Ground's approach is successful in reducing disadvantage by specifically reducing the gap in health, educational and socio-economic outcomes, both levels of governments (and ultimately tax-payers) would benefit.

Table 3 Expenditure per Indigenous Person (4.5% discount rate)

Government Expenditure by COAG Objectives	Present Value ($) (Gross Expenditure)		Net Present Value of Savings ($)
COAG Objective	Indigenous	Children's Ground's Scenario	Indigenous
Early Childhood Development, and Education and Training			
Australian Government	5,009.14	7,937.68	-2,928.54
State/Territory Government	236,678.13	122,648.37	114,029.76
Total	*241,687.27*	*130,586.05*	*111,101.22*
Healthy Lives			
Australian Government	107,744.35	22,769.47	84,974.89
State/Territory Government	126,174.31	36,600.58	89,573.73
Total	*233,918.66*	*59,370.04*	*174,548.62*
Economic Participation			
Australian Government	31,045.58	5,928.72	25,116.86
State/Territory Government	1,099.61	490.24	609.37
Total	*32,145.19*	*6,418.96*	*25,726.23*
Home Environment			
Australian Government	1,331.24	2,506.89	-1,175.64
State/Territory Government	50,656.44	3,578.80	47,077.64
Total	*51,987.69*	*6,085.69*	*45,902.00*
Safe and Supportive Communities			
Australian Government	28,418.25	19,216.85	9,201.40
State/Territory Government	107,407.97	20,525.94	86,882.03
Total	*135,826.22*	*39,742.79*	*96,083.43*
Australian Government			**115,188.96**
State/Territory Government			**338,172.53**
Total Savings			**453,361.50**

5.3 Net Present Value

Net present value estimates are presented here in two ways (Table 4). First, we present estimates including all the COAG outcome areas. Second, we present estimates that exclude early childhood development, education and training in the calculations.

Table 4 Net Present Value (4.5% discount rate) (Indigenous)

Net Present Value	
Indigenous	**$437,390.26**
Indigenous excl. Early Childhood Development, Education and Training	**$308,354.94**

From Table 4, the omission of early childhood development, education and training expenditure reduces the NPV by nearly $130,000. There are two reasons for this. First, this expenditure is early in the lives of children and would have a greater present value than later expenditure. Second, as mentioned earlier, the Indigenous population has a younger age profile compared with the non-Indigenous population, making it seem as though Indigenous people are more 'intense' users of early childhood development, education and training services.

The NPV estimate (including early childhood development, education and training) is nearly $16,000 less than the present value of government expenditure savings in

Table 3. The key reason for this is the inclusion of Children's Ground's investment of $10,000 per Indigenous child for 25 years. This is partially offset by the increase of unemployment-weighted annualised weekly earnings by around $30,000 per year from year 18. See Appendix 3 on assumptions on unemployment and earnings.

Figure 2 Net Economic Benefits from Reducing Indigenous Disadvantage

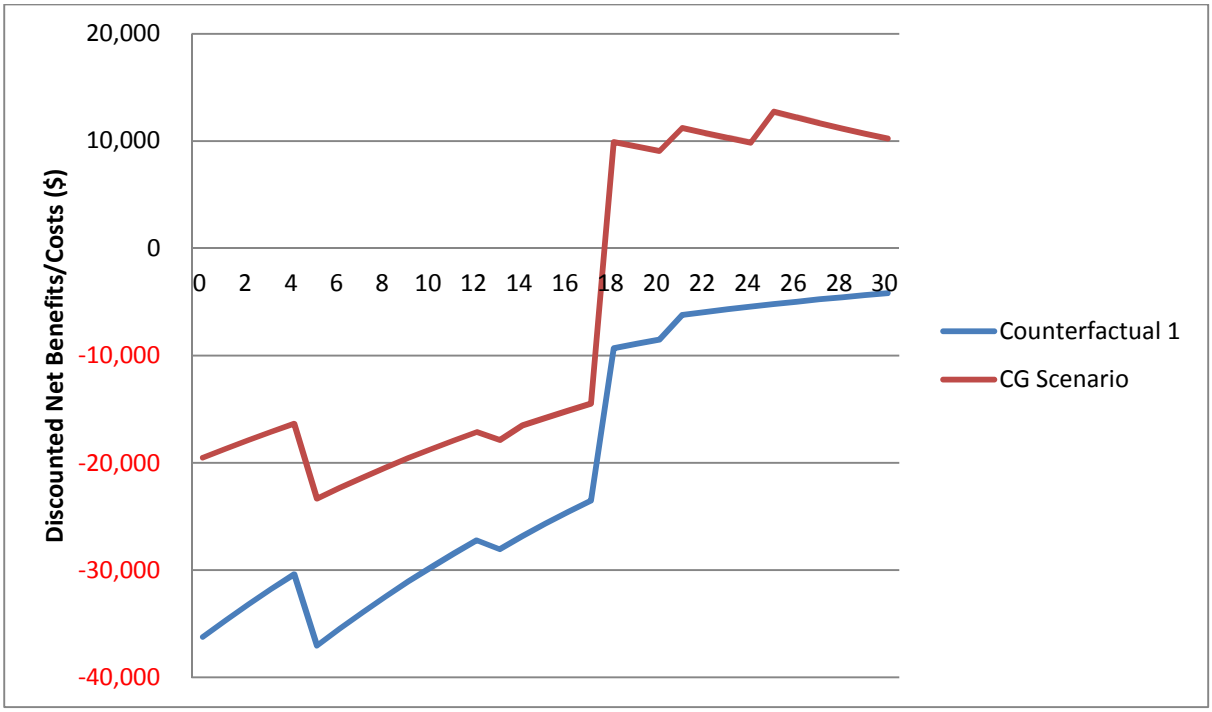


Figure 2 illustrates how the net economic benefits for the Indigenous (counterfactual 1) and Children's Ground's scenarios evolve over the 30 years of the BCA. Two features are worth noting. First, the increase in unemployment-weighted earnings from year 18 is a key driver of the net economic benefits of the Children's Ground's scenario. This illustrates the importance of preparing Indigenous children for the labour market. Second, the economic benefits from the Children's Ground's scenario is greater for all years of the BCA, despite the inclusion of the cost of Children's Ground's investment in the first 25 years. This shows that if successful, the Children's Ground's scenario is likely to generate net economic benefits relatively early because of the significant reduction in government expenditure.

5.4 Benefit-Cost Ratio

Table 5 contains estimates for the benefit-cost ratio both including and excluding early childhood development, education and training. The BCR is consistent with the positive NPV estimates. Furthermore, reducing Indigenous disadvantage is estimated to yield higher returns. To put the returns into perspective, the East West link in Melbourne is estimated to yield a benefit-cost ratio of 1.4 at a 7% discount rate[39]. Reducing Indigenous disadvantage would be expected to be a more efficient investment because of a higher BCR of 2.78-3.82.

[39] Victorian Government (2013).

Table 5 Benefit Cost Ratio (4.5% discount rate) (Indigenous)

Benefit Cost Ratio	
Indigenous	**3.82**
Indigenous excl. Early Childhood Development, Education and Training	**2.78**

5.5 Unquantifiable Benefits and Costs

Traditionally, a BCA requires the tangible and intangible impacts of a project or intervention to be expressed in monetary terms. Tangible measures are relatively easy to apply values to – for example, and as has been done in this report, it is possible to measure the private returns to schooling in terms of additional earnings. Intangible costs and benefits often relate to the non-marketed impacts generated by the intervention and are usually harder to measure. For example, the gain in self-confidence associated with increased schooling has a positive impact that is difficult to put a monetary value on.

For the purposes of this report, it is useful to briefly make reference to the following:

- The intangible or unquantifiable costs and benefits of Children's Ground's activities and
- The costs and benefits that are outside of the scope of the BCA.

This section is not intended to provide a comprehensive list of these items but rather to highlight the variety of ways the Children's Ground initiative can impact communities and individuals. A more detailed SROI analysis could take these additional impacts into account and provide a more comprehensive analysis of the costs and benefits of Children's Ground's approach.

5.5.1 Unquantifiable impacts

Providing education services is an area that results in a number of unquantifiable impacts. In particular, Hammond highlights self-confidence as a key non-monetary outcome of learning[40]. The study links self-esteem as having positive impacts on psychological health and the ability of individuals to cope with potentially difficult situations. These benefits are not captured in the traditional BCA analysis.

Other studies examine the unquantifiable impacts of unemployment. Dolan et al. (2007) specifically looks at unemployment in Europe and found that unemployment reduces the probability of a high life satisfaction score by 19% and overall happiness score by 15%[41]. Similarly, Hunter (2000) looks at the social costs of unemployment for Indigenous Australians and identifies increased social exclusion as a key problem for unemployed people[42]. Children's Ground places a high priority on providing employment and training to local community members, many of whom are users of the service and often long term unemployed. The evidence shows that reductions in unemployment brought about by initiatives such as those being implemented by Children's Ground are likely to have a substantial impact on individual and community well-being. These impacts are not easily captured in the BCA analysis.

[40] Schuller, et al. (2004).
[41] Dolan, et al. (2008).
[42] Hunter (2000).

The Royal Australian & New Zealand College of Psychiatrists list specific impacts on mental health from the Australian Indigenous experience with European colonisation[43]. Impacts include low self-esteem as a result of institutionalised discrimination, depression, higher suicidal tendencies and distrust of non-Indigenous authority. These mental health issues can directly affect economic participation and adopting health advice that could reduce their disadvantage. Also, the loss of culture reduces social capital within the communities because of the breakdown of cultural norms that governed behaviour within Indigenous communities. Improving safety and stability would have a positive impact in reducing these unquantifiable impacts by alleviating anxieties. Some of these unquantifiable impacts may be indirectly captured in expenditure savings.

5.5.2 IMPACTS OUTSIDE THE SCOPE

As outlined previously, this BCA is conducted at an individual rather than a group level. This has implications in terms of the broader community and inter-generational impacts of that are included in the analysis.

For example, the BCA estimates the income benefits that accrue to individuals as a result of an increase in education. Wolfe and Haveman (2001) highlight a number of other impacts which contribute to overall social wellbeing but are not included in this BCA. These include the positive association between schooling and the cognitive development of one's children[44].

Children's Ground is also working to build a sense of community and improve the overall safety of the communities it works with. Reductions in crime rates, decrease in violent behaviour and the associated reductions in imprisonment rates have clear monetary benefits for service provides and government. What is not as easily captured are the benefits realised by the broader community. In this regard Cohen (2000) identifies that some of the most significant costs of crime are the pain, suffering and loss of quality of life suffered by the victims[45]. It is difficult to put exact monetary figures around associated reductions in pain, suffering and improvements in quality of life and they are therefore not included in the BCA.

[43] The Royal Australian & New Zealand College of Psychiatrists (RANZCP) (undated).
[44] Wolfe and Haveman (2002).
[45] Cohen (2000).

6 CONCLUSION

The economic analysis in this report finds that there is substantial economic benefit from reducing Indigenous Australian disadvantage using the Children's Ground approach. The key reason is because of the significant savings in government expenditure if disadvantage was reduced. For example, in present value terms the Federal and Northern Territory governments would save over $450,000 per Indigenous Australian respectively if the Children's Ground approach was successful. Furthermore, there are significant net economic benefits possible from the Children's Ground approach. We estimate the NPV and BCR of the Children's Ground approach would generate nearly $440,000 of 3.82 respectively.

Appendix 1: Technical Methodology of Lifetime Costs and Benefit-Cost

Lifetime Costs

Using this thinking, the net lifetime costs can be calculated with the following equation:

$$LC^s = \sum_{t=0}^{x} C_t^s - \sum_{t=0}^{y} C_t^0 \qquad \text{Equation 1}$$

LC^s is the net lifetime costs under scenario s, x is the life expectancy under scenario s' counterfactual, y is the life expectancy for the average Australian, C_t^s and C_t^0 are the government expenditure costs under the counterfactual and Children's Ground scenario, respectively. Note, the costs are not discounted. Given this, longer life expectancy could conceptually result in higher net costs than what would occurred under the counterfactual.

Benefit-Cost Analysis

The quantified avoidable costs will represent the 'counterfactual' if Children's Ground did not implement its programs. Specifically, the counterfactual quantifies the costs to government of maintaining current levels of expenditures. Furthermore, the counterfactual also includes the current level of income that Children's Ground's clients receive. We will follow Deloittes Access Economics in using average weekly earnings for Indigenous and non-Indigenous individuals to calculate annual income[46]. This ensures that the counterfactual comprehensively accounts for the benefits (avoided government expenditure) and costs (income received under counterfactual). The counterfactual can be summarised in a net benefit calculation:

$$NB_t^s = Y_t^s - C_t^s \qquad \text{Equation 2}$$

Where, NB_t^s is the net benefits, Y_t^s is the income, and C_t^s is the costs (mostly government expenditure) all under the counterfactual (represented by the superscript s) for year t. Superscript s denotes the counterfactual for scenarios 1 (Indigenous disadvantage) and 2 (general Australian disadvantage). There are two counterfactuals because the avoidable costs baseline would differ for each scenario. Note, that the net benefit is calculated for each year from t=0...., 30 (i.e. the net benefits are calculated for 30 years).

To derive the net benefit of Children's Ground's approach, the counterfactual net benefit is compared to the Children's Ground's scenarios. This will yield the benefit-cost from Children's Ground's activities. The benefits from the Children's Ground scenario are the income to the clients. The costs are the new level of government expenditure and the investment by Children's Ground into each of its individual clients. Similarly, to equation 1, the net benefit for scenarios are:

$$NB_t^0 = Y_t^0 - C_t^0 \qquad \text{Equation 3}$$

Where, superscript 0 denotes the Children's Ground scenario. Note, equation 3 is used for both scenarios because we are assuming Children's Ground's programs will reduce government

[46] Deloitte Access Economics (2014).

expenditure to the 'average' Australian level as estimated by the Productivity Commission[47]. Using equations 1 and 2, the cost-benefit can be calculated as:

$$\boldsymbol{BC_t^s = NB_t^0 - NB_t^s} \qquad \text{Equation 4}$$

Where, BC_t^s is the benefit-cost at year t for scenario s. The net benefits will be calculated on an annual basis and discounted over time as follows:

$$\boldsymbol{BC^s = \sum_{t=0}^{30} \frac{BC_t^s}{(1+r)^t}} \qquad \text{Equation 5}$$

Where, BC^s is the discounted cost-benefit over 30 years, $\sum$ is the summation operator and r is the discount rate. The discount rate can be sourced from long-dated Australian government bond's yields (presently, around 4.5% for 10-years Australian Government Bonds)[48]. Equation 4 is also the net present value of the net benefits over 30 years. That is, what is the value of Children's Ground's programs in today's dollars. The benefit-cost ratio (i.e. the economic benefit per dollar of cost) can be estimated as follows:

$$\boldsymbol{BCR^s = \sum_{t=0}^{30} \frac{\left[{(B_t^0 - B_t^s)} / {(C_t^0 - C_t^s)} \right]}{(1+r)^t}} \qquad \text{Equation 6}$$

Equation 6 is essentially the sum of the discounted ratios of benefits to costs. This equation summarises the discounted benefit into per dollar of costs.

[47] Steering Committee for the Review of Government Service Provision (SCRGSP) (2012b).
[48] Reserve Bank of Australia (RBA) (2014).

APPENDIX 2: INDICATORS FRAMEWORK

Indicator	Measure	Indigenous
Early child development, and education and training		
Preschool education (GPC 0431)	Preschool education programs for children up to 5 years of age delivered in a school-type environment designed to bridge the gap between home and school atmosphere.	Monitor **'preschool attendance rates'** for both Indigenous and non-Indigenous disadvantaged. Indigenous intensity of service use is mainly driven by the younger age profile of the Indigenous population. • children aged 0–4 years accounted for 13 per cent of the Indigenous population, compared with 6.2 per cent of the non-Indigenous population Data from Baxter and Hand (2013) that shows that the odds of children being in ECE in the most advantaged regions were 1.24 times the odds of being in ECE in the least advantaged (Baxter and Hand 2013).
Child care services (GPC 0621.1)	Child care services and services for children which are developmental in nature.	Monitor **'Child care service user (no.)'** for both Indigenous and non-Indigenous disadvantaged. Indigenous intensity of service use is mainly driven by the younger age profile of the Indigenous population. • children aged 0–4 years accounted for 13 per cent of the Indigenous population, compared with 6.2 per cent of the non-Indigenous population Data from Baxter and Hand (2013) that shows that the odds of children being in ECE in the most advantaged regions were 1.24 times the odds of being in ECE in the least advantaged (Baxter and Hand 2013).
Primary education (GPC 0411) weighted by Completion Rate	Educational programs that provide a sound knowledge of reading, writing and simple mathematics and an elementary knowledge of other subjects for children from ages 5 to 7 until ages 10 to 12.	Monitor following indicators: • **Primary education attendance rate** • **Reading ability** • **Numeracy ability** Indigenous intensity of service use is mainly driven by the younger age profile of the

Indicator	Measure	Indigenous
		Indigenous population. • young people aged 5–19 years accounted for 36 per cent of the Indigenous population, compared with 20 per cent of the non-Indigenous population Non-Indigenous disadvantaged Australians may have lower attendance and achievement rates.
Secondary education (GPC 0412) weighted by Completion Rate	Educational programs that extend Secondary programs on a more subject-oriented pattern for a period of 4 to 6 years. Some vocational and technical training might occur particularly in the final years.	Monitor following indicators: • **Secondary education attendance rate** • **Years in secondary school** • **Completion rate** • **Reading ability** • **Numeracy ability** Indigenous intensity of service use is mainly driven by the younger age profile of the Indigenous population. • young people aged 5–19 years accounted for 36 per cent of the Indigenous population, compared with 20 per cent of the non-Indigenous population Non-Indigenous disadvantaged Australians may have lower attendance and achievement rates.
University education (GPC 0421) weighted by Graduation Rate	Educational programs leading to a university first degree, post-graduate degree or other higher qualifications. Entry generally requires matriculation at secondary level or equivalent.	Monitor following indicators: • **Graduation rate** • **Post-graduate graduation rate** • **Type of degree obtained** • **Employment rate** Indigenous intensity of service use is mainly driven by the younger age profile of the Indigenous population. • young adults aged 20–24 years accounted for 8.7 per cent of the Indigenous population, compared with 7.1 per cent of the non-Indigenous population Bradley Review of Higher Education 2008 showed students from high SES

Indicator	Measure	Indigenous
		background are 3 times more likely to attend university than students from low SES background (Bradley *et al.* 2008). Access rate (proportion of the group in the total intake) for low SES is 15%. Access rate of 25% would show adequate representation of low SES students. Though low SES students have high pass and retention rates. Research shows that once people get to uni, the chances of completing the courses is not affected by SES background.
TAFE and VET (GPC 0422 and 1331) weighted by Completion Rate	**TAFE (GPC 0422):** Educational programs in 'music', 'fine arts and design', 'courses designed to meet specific requirements of industry and commerce' and 'non-vocational courses offered by colleges of technical and further education'. Entry may not require matriculation at secondary level or equivalent. **VET (GPC 1331):** 'Training programs' such as 'apprenticeship schemes' designed to facilitate entry into the workforce of people currently not employed or in need of retraining.	Monitor following indicators: • **TAFE or VET qualification obtained** • **Completion rate** • **Employment rate** Approximately 54 per cent of the Indigenous population aged 18–64 years were employed (including Community Development Employment Projects (CDEP) participation) in 2008 — compared with 76 per cent of the non-Indigenous population. Indigenous intensity of service use is mainly driven by the younger age profile of the Indigenous population. • young people aged 5–19 years accounted for 36 per cent of the Indigenous population, compared with 20 per cent of the non-Indigenous population Enrolment rate for individuals from 1st quintile of population is 19% compared to 25% for the 'average' Australian (most disadvantaged) (National VET Equity Advisory Council (NVEAC) 2013).
Healthy Lives		
Hospital services (incl. mental health institutions) (GPC 0511, 0512 and 0520)	**Admitted patient services (GPC 0511):** All activities of acute care hospitals, free-standing hospices, alcohol and drug treatment centres, and same-day establishments (except activities involving health research and formal health education). **Non-admitted patient services (GPC**	Monitor following indicators: • **Hospitalisation rates** • **Incidence of disability** • **Incidence of chronic conditions** Indigenous Australians generally have poorer health outcomes than other Australians — on average, they die younger, have greater incidence of disability and chronic health conditions, and experience a lower quality of life. The gap in life (at birth) expectancy between Indigenous and non-Indigenous Australians for 2005–2007 was 11.5 years for

Indicator	Measure	Indigenous
	0512): Accident and emergency services outpatient clinics, dental clinics, outreach services, community health services and other services provided by acute care institutions not included in *admitted patient services in acute care institutions* (GPC 0511) and *health research* (GPC 0570). **Mental health institutions (GPC 0520):** Outlays on 'Psychiatric hospitals' and 'psycho-geriatric nursing homes'.	males and 9.7 years for females. Indigenous Australians are also twice as likely to rate their health as fair or poor compared with non-Indigenous Australians. Also, seven times more likely to be hospitalised due to chronic conditions. Similarly, non-Indigenous disadvantaged people have shorter life expectancies and higher hospitalisation rates (Australian Institute of Health and Welfare (AIHW) 2012, 2013a).
Public and community health services (GPC 0550, 0541, 0542, 0549.2, 0549.3. 0549.4)	**Public health services (GPC 0550):** Public health services consisting of population health programs and preventative health service programs. Population health service programs are defined as those programs which aim to protect, promote and/or restore the collective health of whole or specific populations. Preventative health service programs are those programs which have the aim of preventing disease. **Community mental health services (GPC 0541):** Outlays on specialised mental health programs for the mentally ill treated in a community setting.	Monitor **'Incidence of chronic diseases'.** Chronic diseases (e.g. cardiovascular disease, diabetes, mental disorders and chronic respiratory diseases) were responsible for 70 per cent of the gap in health outcomes between Indigenous and non-Indigenous Australians in 2003 Disadvantaged Australians tend to have poorer health outcomes than more advantaged members of the community (Australian Institute of Health and Welfare (AIHW) 2012).

Indicator	Measure	Indigenous
	Other community health services (0549.2-.4): Domiciliary nursing services; well-baby clinics; dental health services; home nursing services which are not delivered as part of a welfare oriented program; services provided to particular community groups such as Aborigines; family planning services; alcohol and drug rehabilitation programs not involving admission; and, other health services provided in a community setting.	
Health care subsidies and support (GPC 0549.1 and 0590.1)	**Other community health services (0549.1):** Commonwealth subsidies for services of private medical and private dental practitioners and optometrists through Medicare and other programs. **Other health administration (0590.1):** Health affairs and services that cannot be assigned to one of the preceding subgroups. Included are outlays on: health insurance schemes designed to cover all or part of the costs of health care; the administration of Medicare by the Health Insurance Commission; and, any subsidies for private health insurance.	Monitor **'Use of medical, pharmaceutical, dental and other health services'** indicator. Low users of medical, pharmaceutical, dental and other health services, compared with more advantaged Australians, perhaps because of greater reliance on public health services.
Economic Participation		
Labour and employment services (GPC 1339 and 1390)	**Other labour and employment affairs (GPC 1339):** Outlays on administration, support, regulation, research, etc. of other labour	Monitor following indicators: • **Employment rate for ages 18-64 of target population** • **Unemployment rate**

Indicator	Measure	Indigenous
	and employment affairs. **Other economic affairs nec (GPC 1390):** Outlays on administration, regulation, promotion, research, operation, etc. of 'distributive trades' (i.e. retail).	Approximately 54 per cent of the Indigenous population aged 18–64 years were employed (including Community Development Employment Projects (CDEP) participation) in 2008 — compared with 76 per cent of the non-Indigenous population. In 2008, Indigenous Australians had a higher unemployment rate than non-Indigenous Australians (17 per cent and 3.6 per cent, respectively), and a long term unemployment rate almost six times greater than that of non-Indigenous Australians (5.2 per cent and 0.9 per cent, respectively). Disadvantage tends to be correlated with lack of employment (McLachlan *et al.* 2013).
Social security support (GPC 0610)	Administration costs that can be separated from the provision of welfare services. Social security includes sickness benefits; benefits to ex-service personnel and their dependents; permanent disability benefits; old age benefits; widow's, deserted wives, divorcees, and orphans benefits; unemployment benefits; sole parents benefits; other social security; and other social security affairs, including administration.	Monitor following indicators: • **Social security support as their main source of income (% of target population)** • **Unemployment rate** • **Long-term unemployment rate** Indigenous people have been over-represented in the Australian income support system. In 2008, 40.4% of the Indigenous population reported government cash pensions and allowances as their main source of personal income, compared to 13.8% of non-Indigenous people. A range of adverse socioeconomic conditions contribute to a high dependence on income support by Indigenous people, including poor standards of health, lack of employment opportunities in some local labour markets and lower levels of educational attainment. Similarly, non-Indigenous disadvantaged Australians are dependent on social security for similar reasons.
Home Environment		
Housing (GPC 0711.1, 0711.2, 0711.3, 0621.4 and 0629.1)	**Housing (0711)** Housing affairs and services. Includes outlays on: 'provision of housing for the general public and people with special needs', 'acquisition of land for dwelling construction', 'slum clearance', 'administration of rent controls and eligibility standards for public housing', 'conditional financial assistance for the construction of homes', 'rental subsidies	Monitor '**Homeless (% of target population)**' indicator. Indigenous Australians are more likely to use social housing and are over-represented in homelessness statistics, accounting for 9.0 per cent of the homelessness population but only 2.5 per cent of the total population in 2006. Homelessness is a key indicator of disadvantage for both Indigenous and non-Indigenous people (Chigavazira *et al.* 2013; McLachlan *et al.* 2013).

Indicator	Measure	Indigenous
	and allowances', 'mortgage financing of homes for ex-service personnel and other low cost mortgage financing for home building or purchase', 'producing and disseminating information about housing', and 'applied research into and experimental development of housing standards and design'. **Homeless person's assistance for young people (GPC 0621.4):** Includes outlays on: Supported Accommodation Assistance Program for youth (SAAP); services delivered by residential institutions, such as centres, villages, shelters, hostels, orphanages, youth refuges, juvenile hostels; and child/juvenile counselling. **Homeless person's assistance for people other than youth (0629.1):** Includes outlays on: homeless persons' assistance, for example, Supported Accommodation Assistance Program (SAAP) for people other than youth; information, advice and referral services; prisoners' aid; care of refugees; women's shelters.	
Safe and Supportive Communities		
Public order and safety (GPC 0311, 0320, 0330, 0312 and 0390)	**Police Services (GPC 0311):** All activities concerned with the prevention of illegal activities and apprehension of criminals.	Monitor following indicators: • **Arrest rate (% of total population)** • **Conviction rate (% of total population)** • **Number of times arrested**

Indicator	Measure	Indigenous
	Law courts and legal services (GPC 0320): Legal representation and advice on behalf of the government and others. This includes outlays on the 'costs of crown prosecutions', 'trusteeship services and law reform', 'registration of legal titles to property', and 'registration of births, deaths and marriages'. Law courts and legal services excludes outlays on industrial law classified to *other labour and employment affairs* (GPC 1339), and 'tribunals and appeals boards' that can be classified to specific purpose categories. **Prisons and corrective services (GPC 0330):** 'Places of secure detention for convicted persons, alleged offenders and non-institutional corrective services', 'prisons, prison farms, remand centres and asylums for the criminally insane', 'places of secure detention for juveniles', 'child offenders and children on remand for alleged offences', 'youth training centres', 'juvenile corrective institutions' and 'community-based correction activities, where the offender or alleged offender is at large in the community but is required to adhere to certain rehabilitation sessions, such as parole and probation services, community service orders and attendance centres'. **Fire protection services (GPC 0312):** Includes outlays on:	Indigenous Australians are over-represented in the criminal justice system — as at June 2011, just over one in four (26 per cent) of the total prisoner population was Indigenous International studies have suggested that declining criminal behaviour leads to improved socio-economic outcomes (Masse and Barnett 2002; Rolnick and Grunewald 2003; Schweinhart *et al.* 2005; RAND Corporation 2008).

Indicator	Measure	Indigenous
	• contributions to volunteer fire brigades; operations of fire brigade boards; and, roadside clearing operations. **Other public order and safety nec (GPC 0390):** Outlays on 'programs relating to the control of animals' (such as dog registration, pounds, control of stray cattle and associated veterinary costs), 'beach inspectors', 'life saving and beach patrols', 'maintenance of state emergency services (such as through local government contributions), and their operations that cannot be allocated to disaster relief' classified to *welfare services nec* (GPC 0629) or *natural disaster relief* (GPC 1430), 'control of explosives', 'human rights organisations' and 'community relations'.	
Welfare services for people with a disability (GPC 0623)	Respite care; development care; substitute care; domestic and personal assistance, services delivered by residential institutions, transport other than public transport; supported employment and rehabilitation, community centres, for example, day care centres for people with a disability; nursing homes for people with a disability; and, financial assistance not primarily related to inadequate earning capacity.	Monitor the following indicators: • **Users of disability welfare services** • **Type of disability services used** Disability could be a key cause for disadvantage due to the restriction of opportunities (Price-Robertson 2011; McLachlan *et al.* 2013).
Child protection and out-of-home care services (GPC 0621.2)	Child, youth and family welfare services which are protective (children) in nature.	Monitor the following indicators: • **Users of child protection** • **Children in or have been in out-of-home care**

Indicator	Measure	Indigenous
		The trauma of child abuse and neglect could lead to disadvantage (McLachlan *et al.* 2013).
Family and youth services (GPC 0621.3)	Child, youth and family welfare services which are developmental (youth), and supportive (families) in nature.	Monitor the following indicators: • **Users of child services** • **Users of family services** • **Users of youth services** Use of youth and family wealth services may be correlated with disadvantage.
Other welfare (GPC 0629.2 and 0690)	**Other welfare services nec (GPC 0629.2):** Information, advice and referral services; prisoners' aid; care of refugees; premarital education; aboriginal welfare services; women's shelters; general casework services which lead to the determination of eligibility for income assistance or welfare services; multi-client services (food and clothing) in times of personal and family emergencies and relief of victims of man-made disasters; departments, bureaux or program units which serve the welfare services system including those that disseminate information, prepare budgets, policy and research; financial assistance (other than for the aged and the disabled) not primarily related to inadequate earning capacity; and, community and management support. **Social security and welfare nec (GPC 0690):** Both social security and welfare affairs and services that cannot be assigned to one of	Monitor **'Users of other welfare services'** indicator. As above, use of welfare services may be correlated with disadvantage.

Indicator	Measure	Indigenous
	the two preceding groups of major group 06, including administration costs that cannot be classified to either social security or welfare affairs.	
Income		
Annualised average weekly earnings	Use Deloittes Access Economics (2014) estimates of Indigenous average weekly earnings annualised. Accounts for earnings gaps between Indigenous and non-Indigenous employees. Disadvantage income from ABS estimation of 'low income' (cat. no. 6523).	• Indigenous: $18,200 • Non-Indigenous disadvantage: $19,448
Children's Ground		
Investment	Projected expenditure by Children's Ground per child.	$10,000 per year for 25 years (i.e. from years 0 to 24).

APPENDIX 3: LIST OF ASSUMPTIONS

Assumptions	Comment	Value (if applicable)
General Method	Used intensity of use cost estimates for Indigenous and 'average Australian'. Disadvantaged weighting were calculated to adjust 'average Australian' data for disadvantaged social economic status. See below in 'disadvantage weightings' for specific details.	
Indigenous data	From SCRGSP (2012) for NT per person government expenditure data in 2010-11 dollars	
Non-Indigenous Disadvantaged data	From SCRGSP (2012), where possible at the national level (unless stated otherwise). Based on the 'average Australian' data but weighted for different income, unemployment and educational completion rates where possible.	
Average Australian' data	From SCRGSP (2012) for Australian per person government expenditure data in 2010-11 dollars	
Scenarios		
Counterfactual 1	Business as usual for disadvantaged Indigenous individual	
Counterfactual 2	Business as usual for non-Indigenous disadvantaged individual	
Scenario	Children's Ground success in raising disadvantaged individual to 'average Australian' level	
Discount Rate	4.5% pa for Australian Government Bond maturing in 2033 (Reserve Bank of Australia (RBA) 2014)	4.50%
Children's Ground Investment	Constant investment from years 0 to 24. From Children's Ground.	$10,000.00
Healthy Lives	Assumed to be lifetime expenditure because of	

Assumptions	Comment	Value (if applicable)
	universal access.	
Life expectancy	Assume after year 30, costs continue at same value until death	
	-Indigenous, male (Australian Institute of Health and Welfare (AIHW) 2013a)	69
	-Indigenous, female (Australian Institute of Health and Welfare (AIHW) 2013a)	74
	-Non-Indigenous Disadvantaged , male (Australian Institute of Health and Welfare (AIHW) 2012)	76
	-Non-Indigenous Disadvantage, female (Australian Institute of Health and Welfare (AIHW) 2012)	81
	- 'average Australian', male (Australian Institute of Health and Welfare (AIHW) 2013a)	80
	- 'average Australian', female (Australian Institute of Health and Welfare (AIHW) 2013a)	83
Non-Indigenous Disadvantaged Health relativities	Used to weight Healthy Lives - use potentially preventative hospitalisations by socioeconomic status.	
	- Calculated as the ratio of 1st SES quintile (516,854) to 3rd SES quintile (443,106) preventable hospital emergencies as % of Australia quintile population (4+ million and ~4.2 million respectively (Australian Institute of Health and Welfare (AIHW) 2013b).	120%
Economic Participation	Assumed to commence at year 18 and weighted by unemployment to reflect the expected government expenditure for social security and income support payments for that individual.	
Annualised Weekly Earnings	For 2011-12. Use 'equivilised household disposable income' which allows comparisons between individuals and multi-person households	

Assumptions	Comment	Value (if applicable)
	(Australian Bureau of Statistics (ABS) 2013). Assume to start at year 18.	
	-Indigenous (Deloitte Access Economics 2014)	$18,200.00
	-Disadvantaged (low income)	$19,448.00
	-'average Australian'	$47,736.00
	- NB: income tax is not separately included in this analysis because it would result in double counting. Instead, increase in income is an indication of the increase in income tax.	
Unemployment rate		
	- Indigenous - for 2011, for regional areas aged 15-64 years (Australian Bureau of Statistics (ABS) 2012).	19.6%
	- Disadvantaged - used Journeys Home data for homeless survey for Wave 2 (2012) survey (Chigavazira *et al.* 2013) (A).	25%
	- Average Australian, March 2014 (Australian Bureau of Statistics (ABS) 2014b) (B).	5.8%
	- Disadvantaged Weighting (A/B).	437.9%
Home Environment	Assumed to be lifetime expenditure assuming that intensity of use reflects the probability of requiring housing.	
Non-Indigenous Disadvantaged Homelessness	Used unemployment to weight 'Home Environment'. Assumes there is a direct relationship between unemployment rate and homelessness.	
	- Homeless unemployment (from Chigavazira et al. (2013) presenting Journeys Home data for homeless survey for Wave 2 (2012) survey) divided by 'average' unemployment	438%
Safe and Supportive Community	Assumed to be a public good so there is universal	

Assumptions	Comment	Value (if applicable)
	access. For Indigenous communities, differs from 'average Australian' and disadvantaged because of the more intense use of these public services. However, public services that have a family or child protection component are assumed to end at year 18 because it is assumed adults do not benefit from these services.	
Imprisonment Rates (non-Indigenous Disadvantaged)	Used as a proxy to calculate disadvantaged weighting for 'Public Order and Safety'.	
	- used combination of sources to estimate disadvantaged imprisonment rate. Assumed non-functional literacy is an indicator of disadvantage, NSW LC Committee on Increase in Prisoner Populations (2001) estimated that 60% were non-functionally literate (Legislative Council 2001) (A). According to ABS cat. no. 4102, in 2008 46% of national population was functionally illiterate (Australian Bureau of Statistics (ABS) 2008) (B). Thus, disadavantaged imprisonment rate is A/B.	130.43%
Out of Home Care probability (non-Indigenous Disadvantaged)	Disadvantaged weighting for 'Child Protection and Out of Home Care'.	
	- Used estimate from SA report on SES and child abuse of 14/1000 (for 1st decile) compared to 4/1000 for 5th decile (Department for Families and Communities undated). Divide the former by the latter to derive weightings (for 2006/07 to 2008/09).	350.00%
Early Child Development, and Education and Training		
Education Completion Rates (Indigenous)		
- Early Childhood Education	Rates of non-participation for Indigenous Children	79%

Assumptions	Comment	Value (if applicable)
	vary between 21-31% (depending on data set), rates of non-participation were much lower for non-indigenous children (between 10-18%) depending on the study. Decided on 21% to allow for conservative estimation.	
- Primary	Attendance rates for NT Indigenous at government schools(Australian Curriculum Assessment and Reporting Authority (ACARA) 2012).	81%
- Secondary	Attendance rates for NT Indigenous at government schools (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012).	78%
- Tertiary (University)	In 2007, participation rate was approx 1.3% and access rate was 1.5%.	1.30%
-TAFE/VET	National measure of Indigenous participation (age standardised) in VET in 2011 of 18.4% at the national level (National VET Equity Advisory Council (NVEAC) 2013). Participation data was not available by age cohorts at NT level.	18.40%
Education Completion Rates (non-Indigenous Disadvantaged)		
- Early Childhood Education	Data from Baxter and Hand (2013) that shows that the odds of children being in ECE in the most advantaged regions were 1.24 times the odds of being in ECE in the least advantaged (Baxter and Hand 2013).	81%
- Primary	Attendance rates for NSW non-Indigenous at government schools (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012). Used NSW as national proxy to avoid	92%

Assumptions	Comment	Value (if applicable)
	comparison issues and because State with largest disadvantage.	
- Secondary	Attendance rates for NSW non-Indigenous at government schools (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012). Used NSW as national proxy to avoid comparison issues and because State with largest disadvantage.	86%
- Tertiary	Bradley Review of Higher Education 2008 showed students from high SES background are 3 times more likely to attend university than students from low SES background (Bradley *et al.* 2008). Access rate (proportion of the group in the total intake) for low SES is 15%. Access rate of 25% would show adequate representation of low SES students. Though low SES students have high pass and retention rates. Research shows that once people get to uni, the chances of completing the courses is not affected by SES background.	15%
-TAFE/VET	Enrolment rate for individuals from 1st quintile of population (most disadvantaged) (National VET Equity Advisory Council (NVEAC) 2013).	19%
Education Completion Rates ('average Australian')		
- Early Childhood Education	Rates of non-participation for Indigenous Children vary between 21-31% (depending on data set), rates of non-participation were much lower for non-indigenous children (between 10-18%) depending on the study (Baxter and Hand 2013). Used 10% non-participation for conservative estimation.	90%
- Primary	Attendance rates for NSW non-Indigenous at	92%

Assumptions	Comment	Value (if applicable)
	government schools (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012). Used NSW as national proxy to avoid comparison issues and because State with largest disadvantage.	
- Secondary	Attendance rates for NSW non-Indigenous at government schools (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012). Used NSW as national proxy to avoid comparison issues and because State with largest disadvantage.	86%
- Tertiary	PC report on Government expenditure finds that in 2010, 30.5% of 15-19 year old school leavers were enrolled in higher education, 25.1% in TAFE/other study (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012a).	
	-University	31%
	-TAFE/VET	25%
Non-Indigenous Disadvantaged weightings	Used relativities between disadvantaged and 'average Australian' to calculate weights.	
	- Early Childhood Education	89.61%
	- Primary	100.00%
	- Secondary	100.00%
	- Tertiary	49.18%
	-TAFE/VET	77.29%
Education Cost Expenditures per Student (Indigenous)	Estimated per student costs using student number data and aggregate education expenditure data	
Preschool Education (0-4 years)	(A) Number of students enrolled (government) (2012) (Steering Committee for the Review of	1,134

Assumptions	Comment	Value (if applicable)
	Government Service Provision (SCRGSP) 2014).	
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$19,091.00
	- NT government (2010-11) (C)	$12,911,085.00
	Australian Per student cost (B/A)	$16.84
	NT per student (C/A)	$11,385.44
Childcare Services	SCRGSP (2014) did not contain estimates for NT for children enrolled in child care. Used SCRGSP (2012) expenditure per person as a proxy.	
Primary Education	(A) Number of FTE students enrolled in government schools (2010) (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012).	8,878
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$54,310.00
	- NT government (2010-11) (C)	$189,721,943.00
	Australian Per student cost (B/A)	$6.12
	NT per student (C/A)	$21,370.14
Secondary Education	(A) Number of FTE students enrolled in government schools (2010) (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012).	4,167
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$111,367.00
	- NT government (2010-11) (C)	$103,743,156.00

Assumptions	Comment	Value (if applicable)
	Australian Per student cost (B/A)	$26.72
	NT per student (C/A)	$24,894.57
University Education	(A) Number of students participating in university (2012) (Department of Industry undated).	1,101.00
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$4,325,803.00
	- NT government (2010-11) (C)	$1,111,592.00
	Entry rates (2010)	
	- Retention rate from years 7-12 (average 2006-10) (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012).	30%
	- Year 12 cohort (D)	1,241.86
	- Entry Rate (A/D) (E)	89%
	Australian Per student cost ((B/A)xE)	$3,483.34
	NT per student ((C/A)xE)	$895.11
	NB: weighted by participation weight to reflect that not all Year 12 students proceed to TAFE/VET	
TAFE and VET	(A) Number of students participating in VET (2012) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2014).	9,000.00
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$4,189,362.00
	- NT government (2010-11) (C)	$31,448,255.00
	Participation rate (National VET Equity Advisory Council (NVEAC) 2013) (D)	13.60%
	Australian Per student cost ((B/A)xD)	$63.31

Assumptions	Comment	Value (if applicable)
	NT per student ((C/A(xD)	$475.22
	NB: weighted by participation weight to reflect that not all Year 12 students proceed to TAFE/VET	
Education Cost Expenditures per Student ('average' Australian)		
Preschool Education (0-4 years)	Population aged 4-5 years (2010) (Australian Bureau of Statistics (ABS) 2014a).	286,262
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$2,714,615.00
	- State/Territory government (2010-11) (C)	$798,888,190.00
	Australian Per student cost (B/A)	$9.48
	State/Territory per student (C/A)	$2,790.76
Childcare Services	No data available on number of children participating. Used SCRGSP IER (2012) per person estimates.	
Primary Education	Recurrent per student expenditure in NSW for in-school primary FTE (2009-10) (Australian Curriculum Assessment and Reporting Authority (ACARA) 2012). Used recurrent expenditure to conform with PC's use of expenses in calculations (A).	$12,540.00
	- Proportion Aust. Gov't funded (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b) (B)	0.15%
	Australian Government per student cost (AxB)	$18.57
	State/Territory Government per student cost (Ax(1-B))	$12,521.43
Secondary Education	Recurrent per student expenditure in NSW for in-school secondary FTE (2009-10) (Australian	$15,136.00

Assumptions	Comment	Value (if applicable)
	Curriculum Assessment and Reporting Authority (ACARA) 2012). Used recurrent expenditure to conform with PC's use of expenses in calculations.	
	- Proportion Aust. Gov't funded (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b) (B)	0.26%
	Australian Government per student cost (AxB)	$39.24
	State/Territory Government per student cost (Ax(1-B))	$15,096.76
University Education	(A) Number of students participating in university (2012) (Department of Industry undated).	1,257,722
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	7 329 682 083
	- State/Territory government (2010-11) (C)	53 411 030
	Entry rates (2010) (OECD) (D) *NB: may be an over-estimate due to international students being included*	85.00%
	Australian Per student cost ((B/A)xD)	$4,953.58
	State/Territory per student ((C/A(xD)	$36.10
	NB: weighted by participation weight to reflect that not all Year 12 students proceed to TAFE/VET	
TAFE and VET	(A) Number of students participating in VET (2012) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2014).	1,362,485.00
	Aggregate Expenditure (intensity of use) (Steering Committee for the Review of Government Service Provision (SCRGSP) 2012b).	
	-Australian government (2010-11) (B)	$1,684,412,714.00
	- State/Territory government (2010-11) (C)	$6,449,908,553.00

Assumptions	Comment	Value (if applicable)
	Participation rate for people aged 24 years or less (National VET Equity Advisory Council (NVEAC) 2013) (D)	23.60%
	Australian Per student cost ((B/A)xD)	$291.76
	State/Territory per student ((C/A(xD)	$1,117.21
	NB: weighted by participation weight to reflect that not all Year 12 students proceed to TAFE/VET	

APPENDIX 4: RESULTS OF REDUCING NON-INDIGENOUS DISADVANTAGE

In this appendix, we present results of our analysis on reducing non-Indigenous Australian disadvantage. The framework and method is the same as described earlier in the reports. The only difference is the data. In this Appendix, we discuss the data, lifetime costs, expenditure savings, NPV and BCR results.

DATA

Disadvantaged non-Indigenous data will be based on SCRGSP's (2012a) estimates of non-Indigenous per head government expenditure and adjusted for lower social economic status. The adjustments will be based on existing research where possible. Otherwise, they will be adjusted based on Children's Ground's staff's experience. See Appendix 3 for additional data sources.

Per head government expenditure data for non-Indigenous also be drawn from SCRGSP (2012a) to represent the 'average' Australian. This data will allow for the calculation of Children's Ground's benefit-cost using the same indicators.

We base our estimates of reducing Australian disadvantage on the per person expenditure data in SCRGSP (2012a). We then modify the disadvantage expenditure based on the difference in need for specific government services. For example, disadvantaged Australian secondary-aged children were 14% less likely to attend school. This estimate would be used to reduce secondary school expenditure for disadvantaged Australians because of the lower demand. We derive these estimates from existing Australian studies. In some cases, no direct estimates were available and assumptions were made on indirect estimates. Given this, some estimates may require revision in the future. Nevertheless, the overall framework is flexible enough to incorporate new information as it becomes available. See Appendix 3 for more details on specific estimates.

LIFETIME COSTS

Lifetime costs are the sum of government expenditure over an individual's life expectancy. Similar to the BCA, we will compare the lifetime of costs to the counterfactual case and the scenarios. Unlike the BCA, the period of analysis is equal to the life expectancy of the individual. We use the same method as specified in Appendix 1.

For disadvantaged non-Indigenous Australians, the life expectancy is 76 and 81 years for males and females respectively[49]. The counterfactual will be compared to the case where the individual's life expectancy increase to the Australian average of 80 and 83 years for males and females respectively. Under the scenario, government expenditure will also be assumed to be at the average Australian level.

Table 6 presents lifetime costs for both non-Indigenous disadvantaged and the 'average' Australian by gender. Table 7 presents a comparison between the two cases. Clearly, lifetime costs are higher for non-Indigenous disadvantaged despite the shorter life expectancy. The next section will go into greater detail on the drivers of the difference in expenditure.

[49] Australian Institute of Health and Welfare (2013).

Table 6 Lifetime Costs by Scenario and Gender (non-Indigenous)

Year	Total (2010-11 $)
Non- Indigenous Disadvantaged (Counterfactual 2)	
Male	**$1,157,719.66**
Female	**$1,225,631.53**
'average Australian' (Scenario)	
Male	**$744,986.15**
Female	**$765,050.15**

Table 7 Comparison of Scenario Lifetime Costs by Gender (non-Indigenous)

Lifetime Costs Comparison (Undiscounted)	
Non-Indigenous Disadvantaged (Counterfactual 2)	
Male	**$412,733.51**
Female	**$460,581.37**

Savings in Expenditure

Reducing Australian disadvantage could potentially yield total savings of nearly $57,000 over 30 years for both the Federal and State/Territory governments (Table 8). The main source of this saving is in 'economic participation' (nearly $22,000). For this outcome area, the Federal government is the main beneficiary (over $20,000) since this level of government bears funding responsibility for social security payments and employment assistance. Home environment is also a key source of savings (over $20,000) as a result of lower demand for social housing and housing assistance should the Children's Ground approach be successful. In this outcome area, the State/Territory governments would be the main beneficiary of the savings at over $12,000 per person. Substantial savings are also possible under healthy lives (nearly $12,000) as a result of improved health outcomes and safe and supportive communities (nearly $8,000) as a result of less demand for law enforcement and welfare services. In both cases, the State/Territory governments would be the primary beneficiaries.

Conversely, if the Children's Ground approach is successful, there will be a greater demand for early childhood development, education and training services as a result of improved retention and completion rates of over $5,000 per person over 30 years. This is primarily driven by increased demand for university education which results in higher Federal expenditure of over $3,000. To a lesser extent, the success of Children's Ground's approach would also drive higher State/Territory expenditure on TAFE and vocational training.

The Australian government would benefit the most from the reduction of non-Indigenous disadvantage ($30,000 for Federal government compared to $26,000 for State/Territory governments).

Table 8 Expenditure per non-Indigenous Disadvantaged Person (4.5% discount rate)

Government Expenditure by COAG Objectives	Present Value ($) (Gross Expenditure)		Present Value of Savings ($)
COAG Objective	Counterfactual 2	Children's Ground's Scenario	Counterfactual 2
Early Childhood Development, and Education and Training			
Australian Government	4,482.37	7,937.68	-3,455.32
State/Territory Government	120,962.80	122,648.37	-1,685.57
Total	*125,445.17*	*130,586.05*	*-5,140.88*
Healthy Lives			
Australian Government	27,282.93	22,769.47	4,513.46
State/Territory Government	43,855.70	36,600.58	7,255.12
Total	*71,138.62*	*59,370.04*	*11,768.58*
Economic Participation			
Australian Government	25,963.69	5,928.72	20,034.97
State/Territory Government	2,146.92	490.24	1,656.68
Total	*28,110.61*	*6,418.96*	*21,691.65*
Home Environment			
Australian Government	10,978.44	2,506.89	8,471.56
State/Territory Government	15,672.68	3,578.80	12,093.88
Total	*26,651.12*	*6,085.69*	*20,565.43*
Safe and Supportive Communities			
Australian Government	20,100.84	19,216.85	883.99
State/Territory Government	27,446.80	20,525.94	6,920.86
Total	*47,547.64*	*39,742.79*	*7,804.85*
Australian Government			**30,448.66**
State/Territory Government			**26,240.97**
Total Savings			**56,689.63**

Benefit-Cost Analysis

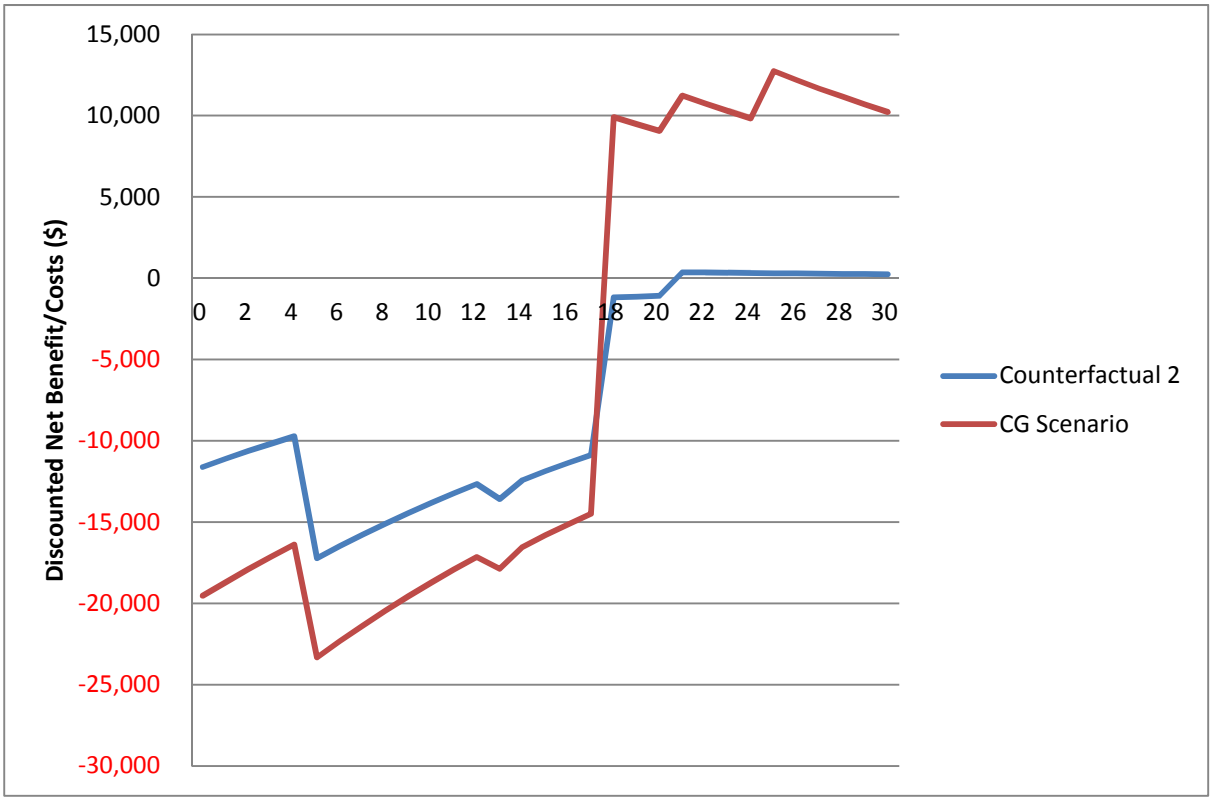
Our analysis shows that reducing non-Indigenous disadvantage yields a positive NPV for both the case of including and excluding early childhood development, education and training (Table 9). We have previously discussed the key drivers of expenditure reduction. Similar to the Indigenous case (section 5.3), the NPV is less than the present value of expenditure savings because of the inclusion of Children's Ground's investment of $10,000 per person per year until year 24. This is partially offset by the increase in unemployment-weighted earnings of over $30,000 per year from year 18.

Table 9 Net Present Value (4.5% discount rate) (non-Indigenous)

Net Present Value	
Counterfactual 2 (Disadvantaged)	**$41,289.23**
Counterfactual 2 (Disadvantaged) excl. Early Childhood Development, Education and Training	**$28.496.02**

Figure 3 is a graphical presentation of the evolution of net economic benefits between the non-Indigenous disadvantaged counterfactual and the Children's Ground scenario. As in the Indigenous case, the increase in unemployment-weighted earnings is a key reason for the Children's Ground scenario generating a positive NPV. However, unlike the Indigenous case, before earnings are included (i.e. before year 18), the Children's Ground scenario was more costly than the counterfactual. This is almost purely because of the inclusion of the Children's Ground investment. In most large-scale investments, it is normal for a project to initially incur a loss until earnings are generated, so this result is not surprising.

Figure 3 Net Economic Benefits from Reducing non-Indigenous Disadvantage



Finally, Table 10 presents the BCR for non-Indigenous disadvantage. The BCR ranges from 1.14 to 1.16 which is significantly lower than in the Indigenous case. Furthermore, it is not substantially higher than 1 (i.e. break-even point) which suggests reducing non-Indigenous disadvantage is a marginal project. The key reason why this is the case is because of the long period required for this investment to generate positive returns (i.e. 18 years). The key drivers of economic benefits are not from reducing government expenditure but instead in increasing the income-generating capacity of non-Indigenous disadvantaged people.

Table 10 Benefit Cost Ratio (4.5% discount rate) (non-Indigenous)

Benefit Cost Ratio	
Counterfactual 2 (Disadvantaged)	**1.14**
Counterfactual 2 (Disadvantaged) excl. Early Childhood Development, Education and Training	**1.16**

In summary, the Children's Ground approach may not be that well suited to reducing non-Indigenous disadvantage compared to reducing Indigenous disadvantage. This is mainly because of the lower counterfactual level of government expenditure for non-Indigenous disadvantage. However, it should be noted that the dataset used to estimate the BCA for the non-Indigenous case was of a poorer quality than the Indigenous case. We suggest improving the quality of data before ruling out the Children's Ground approach for reducing non-Indigenous disadvantage in Australia.

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