

An Economic Appraisal of the *youngballymun* Initiative



Table of Contents

Executive Summary	5
1.0 Introduction	9
2.0 Background	10
2.1 The economic case for early intervention	10
2.2 Early intervention in Ireland	10
2.3 Public spending in Ballymun	12
2.4 youngballymun	13
3.0 Methodology, data and inputs	14
3.1 Context	14
3.2 Scope	15
3.3 Calculating the return on investment	16
3.4 Determining Impact	23
3.5 Input costs	24
4.0 Findings	26
4.1 The ROI ratio	26
4.2 Share of value	27
4.3 Sensitivity analysis	29
5.0 Recommendations and conclusions	31
5.1 youngballymun recommendations	31
5.2 Policy recommendations	34
5.3 Concluding remarks	
References	
Appendix 1: Write Minded	42
Appendix 2: Ready Steady Grow	
Appendix 3: 3,4,5 Learning Years	
Appendix 4. Additional Costs data	51
, ppenen e. Pala gapo	

List of Figures

Figure 1: OECD spending on pre-primary and childcare in 2007	11
Figure 2: Share of value by projects	27
Figure 3: Share of value (weighted by costs of programme)	28
Figure 4: Comparisons between programme and comparison group in	
relation to fine motor development	47

List of Tables

Table 1: Evaluations being conducted for youngballymun	14
Table 2: Reason for inclusion and exclusion of projects	15
Table 3: Short and long-run outcomes and cost implications	18
Table 4: Number of children and teachers accessing the programme	21
Table 5: Teacher SDQ baseline data	22
Table 6: Parent SDQ baseline data	22
Table 7: Percentage change in outcome for each subscale by programme	22
Table 8: Cost implications for remaining problem categories	23
Table 9: Input costs	24
Table 10: Other programme costs not included	25
Table 11: Probabilities of effectiveness modelled in sensitivity analysis	29
Table 12: Varying assumptions in sensitivity analysis	30
Table 13: Write minded assumptions underpinning anticipated outcomes	44
Table 14: Outcomes, proxies, costs and benefit period	45
Table 15: Outcomes from High/Scope and similar programmes	50

List of Boxes

Box 1: How we calculated the ratio – Incredible Years	. 19
Box 2: The discount rate	. 25
Box 3: Data gaps	. 35
Box 4: UK national datasets	. 36
Box 4: UK national datasets	. 36

Research Team

Just Economics

Written by Eilís Lawlor Jade Yapp (Research support) Rory Moody (Research support)

The youngballymun Process Evaluation Team

Sinéad McGilloway (Principal Investigator) (NUI Maynooth) Morgan O'Brien (NUIM) Grainne Ni Mháille (NUIM) Yvonne Leckey (NUIM) Maurice Devlin (NUIM) Elliot Stern (University of Lancaster) Michael Donnelly (Queen's University Belfast)

[External education expert: Professor Tom Collins]

Peer Review

This report has been independently reviewed by Professor Ciarán O'Neill, NUI Galway and by *youngballymun's* Expert Evaluation Advisory Committee.

Acknowledgements

Thanks to the staff at *youngballymun* in particular Gemma Cox, Eleanor McClorey, Paddy White and Hazel O'Byrne, and to the Chair of the Board, John Dunne.

Design by Ollie Clarke at Realness Creative realnesscreative.com

How to cite this publication:

Lawlor, E. & S. McGilloway (2012) An Economic Appraisal of the *youngballymun* Initiative. Just Economics. London.

Executive Summary

About the study

youngballymun is an area-based initiative that delivers a suite of early intervention services to children and families in Ballymun. The first five-year phase of the ten-year initiative, which is funded jointly by the Irish Government and the Atlantic Philanthropies, will complete in 2012. A key question with regard to the overall success of *youngballymun*, to date, concerns the extent to which it may be considered to offer good value for money. This is the focus of the current study, which forms part of an overarching process evaluation being carried out by an international team led by NUI Maynooth (McGilloway et al, 2012).

Different research teams are evaluating each of the individual services/strategies separately. Some of these have produced interim results, which have formed the basis of the assumptions used in this analysis. Services and strategies have only been included where sufficient outcomes data are available, or where outcomes could be inferred from evaluations in other settings. Four services/strategies met these criteria:

- The Parent-Child Psychological Support Programme (a component of Ready, Steady Grow - youngballymun's area-based Infant Mental Health Strategy): A centre-based intervention aimed at improving attachment and developmental outcomes for babies 3 – 18 months
- *3,4,5 Learning Years Service:* Supporting the integrated implementation of the HighScope curriculum and Siolta the National Quality Framework for Early Childhood Education in pre-school and childcare settings
- The Incredible Years-youngballymun: Supporting the implementation of a whole-school approach to the Incredible Years Parent, Teacher and Child Training Series. This is an evidence-based parent, child and teacher programme aimed at improving behaviour and social and emotional development in school-going children
- *Write Minded:* An area-based literacy strategy that provides supports for the implementation of evidence-informed practices to promote literacy and language.

One frontline service – a youth mental health initiative - has been excluded from the study, as there is insufficient outcomes data available. An additional aim of the service is to improve to create 'systems change' within mainstream services in Ballymun. This aspect of the programme initiative has also been excluded due to a lack of outcomes data but is being addressed within the individual service level evaluation in the overarching process evaluation.

Background

Ballymun is one of the most economically disadvantaged areas in Ireland. Since its development in the 1960s, it has had virtually no private sector investment, and no local economy to speak of. Unemployment, and its associated social problems, has always been high, even during the boom years of the late 1990s. Consequently, the public sector has been required to invest heavily. It is also the most important employer, along with the Community and Voluntary Sector. *youngballymun* estimates that some €40 million is spent every year on health, education, youth and community services for children and families (approximately €8,000 per household). In addition, the Ballymun regeneration – the largest in Ireland's history - which is due to complete in 2014, is estimated to cost €900 million. Unfortunately, no published evaluation of the regeneration exists to draw upon in this study, and attempts to causally link it to changes in socio-economic trends are difficult. What is clear is that per capita

investment by the public sector in the area over the past decade has been extremely high by national standards. Therefore, questions about value for money are paramount.

Successive studies show that children in Ballymun experience early cognitive and developmental delays relative to national norms and averages. For example, the incidence of children born with low birth weight is more than twice the national average, and about a third of parents of children aged four report that their children have social, emotional and behavioural needs, which is 60 per cent higher than a representative sample of children in Britain. Conduct and hyperactivity problems are particularly prevalent, both of which have very costly long run consequences for the children, their families and society generally.

The approach to economic appraisal

The study is described as a 'value for money' study (VFM). This is a generic term, which we use here to mean something specific; that is the relationship between spending and short, medium and long-term outcomes. By outcomes, we mean the *changes* that take place as a result of an activity. Usually (although by no means always) changes in the prevalence, or magnitude of outcomes result in changes in Government income and expenditure. It is these changes that the study has attempted to capture.

In simple terms, the approach taken involved collating primary and secondary data on shortrun changes in outcomes (e.g. conduct problems) and using these to predict long-run changes in outcomes (e.g. reduced crime) and associated cost implications (e.g. incarceration costs). To do this, we reviewed the evidence on the relationship between outcomes observed at the service level and the implications of those changes for future service use. In addition, deskbased research was carried out to estimate how long those benefits would last, the level of 'drop off' that was likely to take place, and the extent to which observed outcomes were attributable to the intervention in question or other factors.

Cost implications refers to either an increase or decrease in government finances. Increased tax revenue and national income are examples or the former, whereas reduced demand for public services is an example of the latter. Estimates of where these were likely to occur were drawn primarily from other cost benefit analyses. For example, if we know the likelihood that someone will become a prolific offender, we can use secondary research to estimate the extent to which they will have contact with the Criminal Justice System and what each of these contacts is likely to cost.

Data limitations

Data limitations were a recurring problem in this analysis. It was outside the scope of this study to generate any new data; therefore it was reliant on what was already published. The evaluations of the services were not designed initially with the requirements of cost benefit analysis in mind. This problem materialized in three ways. First, outcomes data were not available for all of the services. One strand of Incredible Years did not have a baseline evaluation and the performance of the pre-school intervention is currently being measured on process, rather than outcome indicators. Second, because of the complexity of the intervention and the nature of the strategy, most of the evaluations, to date, have not included any form of control group. The exception is the PCPSP evaluation. However, the study has not yet concluded and the results therefore were not available within the timeframe for incorporation into this study. Third, the quality of the published data on the costs of public services was poor and, at times, estimates from the UK had to be used. This final data gap, although substantial, was considered less of a problem than the gaps in outcome and counterfactual data from the services themselves.

In light of these data limitations, this report is presented as a 'forecasted' study. Therefore, we are only able to predict where we expect value to be generated by the services. This may be

described as analogous to a financial budget, where the best available data are used to make predictions, which are then updated with actual data. Further research will be required to support the forecasts made in this report. Thus, the main benefit of this study is to develop a model that can be adjusted in the future when better data are available and to describe the kind of measurement system that would be required for future VFM studies.

Findings

From the evidence reviewed here, the findings suggest that *youngballymun* is predicting a positive return to the State; that is, the value of future benefits should exceed the costs of investment. If current changes in outcomes can be sustained and shown to be additional to what would have happened without the intervention, they will reduce the likelihood that children will develop emotional, behavioural and developmental problems and increase the likelihood of improved literacy. We expect that this in turn, will lead to fewer incidents of ill health, worklessness, criminal activity and low educational attainment in adulthood. The present value of the benefits for each annual intake of children to the services is almost €7 million over a 25-year period. With an input cost for *youngballymun* of €1.5 million into these services, this translates into a return on Investment (ROI) of 1:4.50. This means that for every Euro invested in these interventions, €4.50 of savings to the State are generated.

Sensitivity analysis tested the robustness of the model to changes in individual assumptions. It found that the model was relatively robust. Even if we reduce the rate of effectiveness across all the programmes by 50 per cent, the return is still positive at 1:2.20. As indicated earlier, it was only possible to evaluate approximately 50 per cent of the costs of the initiative, as the other 50 per cent was to services that could not be included here due to data limitations. If we set the return against the full costs of the initiative, the ratio drops to 1:2.21. This demonstrates the need for a cost benefit case for support to be made for all services and to be incorporated into a VFM framework over time.

Interpreting the ratio

There are many different types of evidence that can be used to make a case for or against investment in a programme. Cost-benefit ratios are often attractive to policy makers and funders because of their simplicity. However, the ratio is only one piece of evidence and its meaning should, therefore, be kept in perspective. In any assessment of the viability of the initiative, the findings of the individual evaluations and the overarching process evaluation need to be considered as well. That said, any ratio above 1:1 may be considered positive and, therefore, makes a reasonable case for investment.

It is also difficult to ascertain what proportion of this 'saving' is cashable, or to what extent these changes result in reduced costs to the Exchequer. For some interventions and outcomes, a relatively small number of changes have been predicted. This means that, although the savings in relation to those individuals are significant (e.g. where children do not develop conduct disorders), the wider impact on services is less so. Data on marginal costs are required to estimate this accurately, but were rarely available. In many instances, given the scale of the changes in outcomes, the savings are best described as resources freed up within the system, rather than savings.

A final possibility is that the analysis underestimates the benefits of the interventions. For example, it is conceivable that a child in Ballymun could receive wrap-around support services from the age of birth to 16 years, and no account has been taken in this study of the potential cumulative impacts of the interventions on individuals over time. More research is required to understand whether this life cycle approach creates a virtuous circle as benefits are compounded.

Recommendations

The main recommendations from this study are to improve the quality of data at the project, local, regional and national level to enable better outcomes measurement and assessments of costs and benefits. Should the programme be continued, the requirements of value for money studies can be built into the next phase of evaluation design. For the State, a new information strategy is required that provides timely, robust data on social and economic trends. In addition, more effort should be dedicated to calculating unit and marginal costs of public service use; as these will be required if the Government is to properly implement its new value for money principles.

Conclusion

Breaking the cycle of intergenerational disadvantage is extremely challenging. The available evidence suggests that appropriate, well-run, evidenced-based programmes can make a difference and should play a part in any strategy to tackle inequality. In spite of this, Ireland has one of the lowest levels of investment in under-5s in the OECD. It has also seen an increase in problems in areas such as literacy, obesity, poverty and mental health of young people. Given the current economic climate, it is reasonable to ask why make a case for early intervention? However, given that most commentators now accept that intervening early reduces costs in the long run, it may well be the most appropriate time to consider such investment. Value for money is currently high on agenda of the Irish government, and this research aims to make a contribution to the debate on how investment in evidence-informed prevention and early intervention services can contribute to greater public benefit from public spending.

1.0 Introduction

In 2010, a team led by NUI Maynooth, was commissioned to carry out an overarching process evaluation of the *youngballymun* initiative. An economic component was included in the study in order to assess the overall Value for Money (VFM) of the initiative. Following a selective tendering process, *Just Economics* was engaged by NUI Maynooth to undertake a VFM sub study, the aim of which was to calculate the economic return to the State from the investment in the initiative.

Delivering greater returns for the taxpayer has been a concern of many governments since long before the global financial crisis of 2008. However, since then, the issue has taken on greater urgency. The crisis and subsequent recessions across Europe have led to higher unemployment and greater economic hardship, which require governments to spend more to alleviate their negative impacts. Yet, this coincides with unprecedented budget cuts, which means that everyone is being asked to do more with less. Assessing public spending on the basis of value for money contributes to this new imperative in two ways. Firstly it should make public finances 'go further' by allocating resources towards programmes that have the greatest impact. Secondly, it increases the acceptability, and support, for taxation by demonstrating less wastage and greater accountability. In response to this, the Irish government has identified value for money as a key consideration in deciding how public money should be spent (Department of Public Expenditure and Reform 2012 http://vfm.per.gov.ie/). To this end, it has developed a set of principles that should underpin economic appraisal and these have informed, in part, the conduct of the current study (ibid).

This report is divided into four sections. The first provides the background and context to the study. The second describes the approach and methodology used whilst the third section presents the findings from the study. The fourth and final section concludes the report and offers some recommendations. More detail on how the calculations were carried out is provided in the appendices.

2.0 Background

2.1 The economic case for early intervention

One of the attractions of 'upstream', preventative programmes to policymakers has been their reported economic benefits (Allen 2011; Aos 2004). However, although most commentators admit that early intervention can be effective, only a small number can boast empirically robust evaluations. For example, the Allen report in the UK identified fewer than 20 such interventions. These include the Incredible Years programme which is being implemented in Ballymun and throughout many other areas of the country (Allen, 2011). The challenge of designing a successful early intervention is, therefore, considerable. Factors that may impede successful early intervention include the difficulty in replicating results across different cultural and geographical settings (Welshman 2010). In addition, there appears to be a 'window of opportunity' at a young age where maximum impact can be achieved (Feinstein 2002; Aos 2004; Heckman 2006; Meisels and Atkins-Burnett 2006).

If spending on prevention, early years, and family policy represents good value for money, then why do most countries under-invest in these areas? Indeed, it is thought that 60–70 per cent of children and adolescents with significant mental health problems in the UK do not receive the appropriate intervention at an early age (see Barnes and Freude-Lagevardi, 2002). One of the reasons, understandably, is a reluctance to fund expensive programmes that do not have a guaranteed return. As Pithouse (2008) notes, the literature cannot 'answer' political questions such as the optimal disposal of resources to deliver the desired impact or how to identify and prioritise treatment groups, and neither can it guarantee returns. These are political, rather than 'scientific' questions. In addition, there is the length of the investment period. Returns may not start to materialise until the next generation and are certainly longer than the normal policy-making timescale.

One solution to this is to define VFM more holistically i.e. as related to long-run returns, rather than short-run cost minimisation. In the UK, for example, a new bill – the Social Value Duty - has recently been approved by parliament, which mandates local authorities to consider the social, environmental and economic impacts of their spending decisions, alongside cost implications. The bill was introduced in recognition of the fact that local authorities tend to choose the 'cheapest' goods and services over those that represented 'best value'. This is also consistent with the UK Treasury's definition of efficiency as the 'optimum relationship between whole life costs and outcomes'(UK Treasury 2003).

2.2 Early intervention in Ireland

Spending on early years services in Ireland has been historically quite low. For example, in 1990, spending on family policy accounted for 1.6 per cent of GDP whereas the equivalent in Sweden was 4.4 per cent. Although the spending gap has narrowed in some areas of family spending, childcare and pre-primary spending are still relatively under-resourced (see Figure 1). Most Early Childhood Education and Care (ECEC) arrangements in Ireland are privately

provided and privately financed by parents, so spending is notably low, below the average and behind middle-income countries such as Chile, Mexico and Korea.¹



Figure 1: OECD spending on pre-primary and childcare in 2007²

Drawing a causal link between public spending and outcomes is difficult, but broad comparisons are nonetheless instructive. Denmark, the largest spender, has the lowest child poverty in the world at less than 3 per cent (OECD, 2005). By comparison, Ireland has one of the highest rates in the EU with 9.5% living in consistent poverty, and a further 21.2% 'at risk' of poverty (Dunne et al. 2007). Rates of literacy in Ireland have been falling quite dramatically and mathematical skills are now below the OECD average and dramatically lag behind high spending countries such as Finland (PISA Survey, Education Research Centre, 2009). Obesity has continued to increase with 25 per cent of young people now overweight or obese (WHO European Childhood Obesity Surveillance Initiative, National Nutrition Surveillance Centre, 2008), whereas the equivalent figure in Denmark is less than 10 per cent.

The Prevention and Early Intervention Programme for Children (PEIP) - of which *youngballymun* forms a part - is a joint initiative to pilot area-based preventative services in Ireland. Initiated by the Atlantic Philanthropies and the Irish Government, it is being piloted in three severely disadvantaged communities in Ireland. The areas chosen for the pilot have been defined as having a high level of community development and a "*real impetus to improve outcomes for disadvantaged children*".³ The initial funding of €38 million has been in place for five years and Government and Atlantic Philanthropies are now in the process of assessing the impact and outcomes of the initiative. The emphasis of the PEIP programme appears to be very much on developing psychosocial protective factors to boost resilience. Prevention is

¹ These data may not include the recent universal pre-school year. However, this alone is unlikely to dramatically change the relative position.

² Highlighted in green for emphasis. According to this chart, 100 per cent of Irish spending is on childcare.

defined, therefore, as being about providing people with the tools to develop skills and resources to counter their circumstances, and which reduce the likelihood that poor socioeconomic circumstances will translate into negative health, education and behavioural outcomes. The intention is that individual projects/services can be rigourously evaluated, benchmarked and the findings used to inform future policy development and service delivery.

2.3 Public spending in Ballymun

Ballymun is one of the most socially deprived areas in Ireland and is characterised by high levels of poverty, unemployment, crime, addictions and a low education and skills base. Studies, including the evaluations conducted by *youngballymun*, have found a very high incidence of conduct problems and hyperactivity amongst children in Ballymun (McKeown and Haase 2006; Morgan and Epsey 2012). Although home to approximately 16,000 people, levels of enterprise and employment creation have been historically low, and it has never sustained more than a handful of local shops and services. Prior to the recent regeneration programme, there had been virtually no private sector investment in the area for 30 years (Comptroller and Auditor General 2007). The public sector is, on the other hand a substantial investor. It is estimated that the annual spend on services for children and young people across education, health and youth and community sectors is almost €40 million, or approximately €8,000 per household (source: *youngballymun*).

In 1997, a decision was taken to embark on a property-led regeneration of the Ballymun area under the auspices of Ballymun Regeneration Ltd. with an approved budget of €442 million. However, it is estimated that the physical redevelopment which is due to complete in 2014 will cost closer to €1billion. The regeneration aimed to rehouse a large proportion of Ballymun residents, thereby leveraging private sector investment and improving local economic outcomes.⁴ As it reaches its final phase, it makes a useful case study within which to discuss some of the issues relating to economic appraisal in Ireland to date.

Evaluating the success of the regeneration in value for money terms is challenging. There is neither a published evaluation framework, nor is there a concrete set of objectives against which success can be measured. More specifically, there is no baseline assessment of outcomes prior to regeneration and no (publicly available) research that compares the ex-post changes to the value of the investment. The absence of evaluation for a large-scale infrastructure project is highly unusual by international standards. This is particularly surprising given the scale of the investment; it amounts to approximately twice the annual budget of the Department responsible for it, or is the equivalent of giving each of the 5,000 or so households in Ballymun almost €200,000 each.

One official investigation was carried out by the Comptroller and Auditor General (C&AG) in 2007. It focused primarily on the reasons for delays and cost overruns, but also reported that levels of unemployment, early school leaving, drug use and crime, remained stubbornly high.⁵ For example, if we compare the year prior to the beginning of the regeneration process (1996), to the year that the report was written (2007), unemployment in Ireland fell by two-

³Minister's speech

http://www.childrensdatabase.ie/viewdoc.asp?Docid=264&CatID=12&mn=&StartDate=01+January+200

⁴International evidence suggests that successful regeneration is extremely difficult to do well. It is notoriously badly evaluated but what evidence exists, suggests that whilst programmes may be designed to slow the decline of deprived areas, few have been shown to close the gap with wealthier areas (Griggs et al. 2008; Potts 2008; Robertson, McIntosh, and Smyth 2010).

⁵ http://audgen.gov.ie/viewdoc.asp?DocID=1090&CatID=5&StartDate=1+January+2012

thirds (World Bank, 2012). When considered in this way, unemployment in Ballymun only fell by half the national average, which is an increase in relative terms. Thus, it is difficult to make a case for attributing the rise to anything other than the benign economic climate of the period. The C&AG report does conclude, however that the experience with the regeneration programme should "position the Department to formulate more rigorous evidence-based projections for future regeneration programmes" and that it should "ensure that the baseline position is established and that there is regular monitoring of key outcomes."

It is important to note that *youngballymun* is not part of the regeneration, and was established in part, to promote effective evidence-based working in Ballymun. Nonetheless, there are important lessons about the need for robust evaluation strategies of social projects from the experience of the regeneration in Ballymun.

2.4 youngballymun

The *youngballymun* strategy was developed by the Ballymun Development Group for Children and Young People over a three-year period (2003-2006) and became operational in 2007. Its goal is to reduce intergenerational disadvantage by providing high quality, evidence-based, universal⁶ services to children in Ballymun from pregnancy to early adulthood. The suite of services/strategies, which are being implemented in partnership with local and national organisations include: (i) Ready, Steady, Grow; (ii) 3,4,5 Learning Years; (iii) Incredible Years-*youngballymun*; (iv) Write-Minded; and (v) What's Up, youngballymun's youth-mental health initiative (formally Jigsaw-*youngballymun*).⁷ In addition, *youngballymun* is designed to function holistically as a 'community change initiative', the aim of which is to improve the overall effectiveness and efficiency of services more generally. Key features of this aspect of the programme which are covered in more detail in the larger process evaluation report (McGilloway et al, 2012), include:

- Life-cycle response (end-to-end services for children and young people)
- Service integration
- Innovation
- Capacity building
- Sustainability of services within mainstream providers
- Research/evaluation culture

⁶For a discussion on the merits of universal vs. targeted services, see a recent report on Early Childhood Education and Care in Ireland (Start Strong 2012)

3.0 Methodology, data and inputs

3.1 Context

Returns from early interventions are difficult to calculate at the initial stages, simply because there is limited longitudinal evidence to draw upon. Most children do not become costly to the state until they are at least in their teenage years. There are exceptions to this, such as children who are taken into care, but in the main, the impacts of negative early childhood experiences, or poor quality care generally do not begin to impact on services until they reach adulthood (e.g. Heckman et al. 2010). The scale of those costs will also vary hugely depending on the different pathways that young people take as they move into adulthood. As most of the *youngballymun* services are still in early stages of implementation and the expected sources of benefit are not likely to emerge for some time, this analysis relied heavily on secondary data.

Fortunately, child development is a very well researched area and there is a substantial amount of information available internationally from academic and governmental sources that document the nature and trajectories of social problems. An important caveat, however, is that they are primarily UK, or US-based studies and an assumption has to be made that the findings are appropriate to the Irish, and indeed Ballymun context. Therefore, every effort has been made to select studies that have been carried out in disadvantaged communities, and that control for socio-economic circumstances in their analysis to ensure the best fit with this initiative.

It is important to note that this study is just one of a number being carried out as part of the evaluation of *youngballymun*, some of which have provided the evidence for the economic modelling in this study. Table 1 explains how the separate evaluations, including this economic appraisal, relate to each other.

Programme	Evaluation	Reference:
Overarching	Process evaluation which assesses the initiative as a whole (and of which the economic appraisal is a part)	NUI Maynooth (McGilloway et. al. forthcoming)
Ready Steady Grow	Controlled trial of a range of child development outcomes	Geary Institute (forthcoming)
3, 4, 5 Learning Years Ex-post and ex-ante evaluation of implementation		SQW (Clarke 2011)
Literacivic	Qualitative study	NUI Maynooth (Ni Mhaille, McGilloway et al, 2012)
Jigsaw	Mixed methods	Headstrong

Table 1: Evaluations being conducted for youngballymun

3.2 Scope

Economic analyses require six different types of data: 1) Data on the costs of the programme; 2) Output data on the number of users and numbers completing etc.; 3) at least two readings of outcomes data, one at entry and one at exit point; 4) counterfactual data (i.e. what would have happened anyway without the intervention; 5) data that link outcomes observed to future changes in use of public services; and 6) data on the value of the change in the use of public services to government. None of the services had all requisite pieces of data, however, four were considered to be sufficiently well evaluated to merit inclusion: Incredible Years, Write-Minded, 3,4,5 Learning Years, and Ready Steady Grow. Two services were excluded and the reasons for inclusion/ exclusion are outlined in Table 2.

intervention	Reason for inclusion/exclusion
Incredible Years	Included: Baseline and some early outcomes data and intervention supported by evidence from elsewhere
Write Minded	Included: Baseline and some early outcomes data, possible to infer potential benefits from secondary research
Ready Steady Grow	Included: Some baseline data and some evaluations at other sites, although other assumptions such as deadweight and benefit period inferred from other research
3,4,5 Learning Years	Partially included: Possible to use baseline data from IY study and reasonable amounts of secondary evidence of cost effectiveness
Jigsaw- <i>youngballymun</i>	Excluded: No good examples of similar evidence base, or outcomes evaluations to draw upon.
Literacivic Bursary Scheme	Excluded: Not a service per se. Outcomes not measured quantitatively, and not likely to be material to the overall analysis given its scale. Also, does not fall under early intervention banner.
Overarching programme	Excluded: This part of the <i>youngballymun</i> 's activities are the main focus of the overarching evaluation, so large amounts of qualitative data already exist. Not possible to estimate cost savings.

Table 2: Reason for inclusion and exclusion of projects

Many of the changes that the 'community change' aspect of the programme is trying to achieve, are better described as outputs, or as short-term service level changes (e.g. seeing clients more quickly, or more joined-up working). This aspect has not been included in this study but it is one of the foci of the larger process evaluation, (McGilloway et al, 2012). In the

longer term, if efficiencies could be shown to lead to be better outcomes and if this could be demonstrated quantitatively, these could be incorporated into the model,

In light of these data limitations, this report is presented as a 'forecasted' study. Therefore, we are only able to predict where we expect value to be generated by the services. This may be described as analogous to a financial budget, where the best available data are used to make predictions, which are then updated with actual data. Further research will be required to support the forecasts made in this report.

3.3 Calculating the return on investment

The approach taken to calculating the ROI was to establish the consequences or pathways that resulted from the different interventions (i.e. the outcomes) and then to attach costs to them. Although there was some variation in approach depending on the intervention and outcomes, we broadly followed the set of steps set out below.

Step 1: Identify the relevant key outcomes from each service. Although, *young* ballymun has a logic model that informs the programme, this was not sufficiently outcomes-based for our purposes.⁸ For example, an outcome such as 'developing a new way of working', is not easily quantifiable, or monetisable. In order to incorporate it into an economic model, it would be necessary to know what happens as a result of this new way of working. The first step, therefore, was to identify short, medium and long-term outcomes from the projects. This process was informed both by indicators that had been identified in the project evaluations and evidence about the impacts on future life chances of early childhood experience. For example, if the project was using the Strengths and Difficulties Questionnaire, then it was assumed that some reduction in conduct and behavioural problems was being predicted as a result of the intervention. The outcomes are set out in Table 3 for each of the interventions.

Step 2: Find evidence of effectiveness. These data included probabilities (which indicate the likelihood of each consequence occurring) and were obtained from a variety of sources. Primary data from the interventions were reviewed where available. In addition, data were reviewed on the effectiveness of the services in other settings (e.g. randomised controlled trials, observational studies, meta analyses). These were chosen on the basis of their rigour and/or overall 'fit' with the study.

Step 3: Establish a baseline from which to measure change. There were a number of baseline studies available, which described the level of need amongst children who were accessing the service. These were used to identify which group of children was at risk of developing problems later in life. If a study did not have its own baseline assessment, data from another similar cohort was used.

Step 4: Establish the cost implications. This step relied on existing literature to forecast where and when children would be likely to start accessing services; for example the likelihood that children with behavioural problems will enter the Criminal Justice System.

⁸ youngballymun's logic models were developed primarily as communications tools (rather than evaluation tools) to provide a graphical representation and concise information on the purpose of the initiative, the components of the initiative, and the sequence of activities and accomplishments. It was recognised from the outset that more work would be required by evaluators to finalise appropriate and measurable outcome indicators.

Step 5: Estimate additionality. The model was adjusted to take account of what would have happened without the intervention. It also assumes a rate of 'drop off' over time and a relatively short 'benefit period'. Estimates for these adjustments are all based on available research. Some of the data are drawn from controlled studies, which have reduced the need to make these estimates.

Step 6: Project into the future and calculate the return ratio. The entire benefit period of the project is 25 years, although a much shorter timescale is considered for most outcomes. The total discounted value of the benefit is then compared to the investment. This produces a ratio e.g. for every Euro invested in the project, $\in X$ of savings to the State are generated.

Step 7: Sensitivity analysis. This step systematically tested the most sensitive assumptions such as the rate of effectiveness of the programmes.

Box 1 describes in detail how the figures were estimated for one of these interventions - the *Incredible Years Programme*. Similar detailed information on how costs were calculated for the other programmes and the assumptions that underpin them is provided in Appendices 1-4.

Intervention	Outcome area	Short-run cost	Long-run outcome	Long-run cost
	Conduct problems	Foster care	Reduced unemployment	State benefits and foregone taxes
	Hyperactivity Peer problems	SEN assistance Psychiatric outpatient	Reduced ADHD in adulthood	Costs relating to mental health disorders
Incredible Years	Emotional problems Pro-social problems	Hospital outpatient Truancy and exclusion	Reduced criminal activity	Costs relating to criminal convictions and incarcerations
	Parental depression	Parental depression ⁹	Reduced substance misuse	Costs relating to physical health problems
	Improved literacy	SEN assistance Reduced grade retention Costs relating to truancy and	Increased productivity Higher incomes	Costs relating to loss of productivity
Write Minded	(average)		Reduced risk of long- term health problems	Costs relating to physical health problems
		exclusion	Reduced unemployment	State benefits and foregone taxes
Ready Steady Grow	Attachment disorder Developmental delay	Foster care SEN assistance Psychiatric outpatient Hospital outpatient Truancy and exclusion	As for Incredible Years	As for Incredible Years

⁹Parental depression was not included in this model. As many of the parents are likely to be medical card holders, the marginal cost increases that relate to primary care are likely to be relatively low.

Box 1: How we calculated the ratio – incredible Years

The quality of parent-child relations has been shown to reduce disruptive behaviour and its negative long-term impact on social integration (Piquero et al. 2009). A lack of positive parenting and harsh parenting are both reported to be related to externalising problems in pre-schoolers (Brophy and Dunn, 2002; C^ot´e, Vaillancourt, Le Blanc, Nagin, & Tremblay, 2006; Rubin, Burgess, Dwyer, & Hastings, 2003). Incredible Years is an evidence-based parent, teacher and child training intervention that aims to build children's social skills and reduce aggression and behavioural problems. It has been delivered and evaluated in many settings with generally very positive results (Webster-Stratton and Hammond 1997; Webster-Stratton, Reid, and Hammond 2004; McGilloway et al. 2009; McGilloway et al. 2010; Furlong and McGilloway 2011; McGilloway et al. 2012). It has also been found to be cost effective (Edwards et al. 2007), including in an Irish context as part of the Incredible Years Ireland Study (O'Neill et. al. 2010)

There are three strands to the programme. Teacher Classroom Management and Dina Dinosaur Classroom Curriculum are both classroom-based; the former involves working with teachers on their classroom management skills and the latter (known as the child programme) is a social and emotional learning curriculum delivered within a classroom setting over two years (in Ballymun schools). The third strand is the Parenting Programme, which is a training programme that helps to improve parents' skills and competencies in managing emotional and behavioural problems in their child

The Incredible Years (IY) programme was introduced in Ballymun in 2007 and all three strands are being delivered across the community. In order to obtain an estimate of where future benefits are likely to accrue and any related cost savings, we constructed a simple model for each strand that captured the risk that negative outcomes would arise as a result of the programme. Table 4 lists the number of teachers/parents that are trained and the number of children participating in the two-year curriculum. Primary data have only been gathered for two of the strands: Dina Dinosaur Classroom Curriculum (DDCM) and the Parenting Programme (PP). No data are available on the effectiveness of the Teacher Classroom Management Programme (TCM). However, because this is an evidence-based programme, we are able to infer some estimates of effectiveness from other settings.

The first step in building the model was to establish an appropriate baseline. The baseline data from DDCM and PP are set out in Tables 5 and 6. As we can see, parents reported a much higher level of need than teachers, but this relates to the fact that most of the parents presenting have been 'identified as appropriate' for the IY programme as a result of concerns relating to the child. A higher level of need would therefore be expected. By contrast the Dina Classroom Curriculum and Teacher Classroom Management Programme, are more universal and are delivered across the school setting. As a result, the baseline for the Dina Classroom Curriculum was also used for the Teacher Classroom Management, as they were believed to serve a similar group of children.

The next step was to calculate the rates of effectiveness for each of the strands. For the programmes with primary data this was quite straightforward. For the TCM programme we used data from a similar study by McGilloway et. al. (2010). A further step used the change in SDQ data to predict changes in use of public services. Longitudinal research into the extent to which SDQs can predict future psychiatric disorders has found that each one point increase in scores yields an average of a 22 per cent increased chance that the child will develop a

relevant disorder (Goodman and Goodman, 2009). This finding allows us to calculate the percentage change in outcomes for each of the strands based on the above data (2).¹⁰

As we can see, the change for the Parenting Programme is much larger than for the classroom-based programme, implying that, as adults, the reduced risk of developing problems is greater. However, this would be expected as this is a more intensive programme aimed at small groups of parents over a 12 - 14 week period. In addition, children are presenting with higher needs to begin with. From these data, we were able to calculate the number of children that we would expect to benefit from the programme in a similar way to the previous calculation. This yielded figures for the number of children that would be expected to avoid developing conduct and behavioural problems in adulthood.

Of all of the problem categories (as measured by the SDQ subscales), the most costly is conduct disorder, and the remainder of this section will explain in detail how the costs were calculated for this outcome. Antisocial behaviour in childhood (of which conduct disorder is the most common) is a major predictor of social exclusion in later life (Colman et al. 2009). More than any other risk factor (including being male, or leaving school at 11), it predicts high costs to the state from criminality, unemployment and service dependence. The cost is large and falls on many agencies (estimated at \$70,000 by age 28 (Scott et. al. (2001)). It is also the most common reason for referral of children and adolescents to mental health services (Scott et. al. 2001; Foster and Jones 2005). Farrington (1995) found evidence of 'path dependency' in this area; 40 per cent of 8-year-olds with conduct disorders were repeatedly convicted of crimes such as vandalism, theft and assault in adolescence. Other evidence also suggests that anti-social behaviour stemming from conduct problems tends to persist into later life (Coles et al. 2010).

Data on the trajectory of young people with conduct problems is largely absent in Ireland, so we had to rely primarily on UK data. In their study on the costs to the UK of conduct disorders, Scott et. al. (ibid.) used data from an epidemiological study of psychiatric problems and attainment in people from a disadvantaged inner London borough (2001). The study began in1970 when the children were 10 and tracked their use of public services into their late 20s (n = 2281) differentiating them by whether they had conduct problems, conduct disorders, or neither. We have used these data to estimate the reduced public service use from the progamme. The costs that we expect would be avoided as a result of a reduction in conduct problems were as follows:

Foster care In-school assistance Social work costs State benefits and foregone taxes Hospital inpatient Hospital outpatient Conviction Incarceration

The Scott et al study also provided data on the number of children from the cohort that had the same long-term outcomes, but did not have a conduct problem to begin with. This provided us with an estimate of 'deadweight' or what would have happened anyway.

¹⁰These were calculated by multiplying the difference in ex-ante and ex-post evaluation scores by 22%, which is the likelihood that a one point reduction in SDQ scores will reduce the incidence of future problems. We have assumed a linear relationship here, which may be inexact. However, the shape of the curve is not known.

Once we had arrived at the net number of total expected incidents avoided, the next step was to predict the benefit period, or how long the benefits were likely to last. For many of the outcomes, this was straightforward; for example, special educational needs are likely to be required throughout school if a child is diagnosed with a behavioural problem. On the other hand, foregone taxes and benefit dependence would not start until the child was at least 16. Most outcomes, were modelled from age ten as this was the age that the Scott et. al. study (on which the calculations are based) began to monitor service use. The longest benefit period set was five years and no benefit was modelled beyond the age of 28. Finally, we assumed that the benefits 'dropped off'' (a combination of recidivism and attribution to other factors) at a rate of 33 per cent a year. This estimate from a meta analysis of parenting programmes, is the average difference between the recidivism in experimental versus control groups (Piguero et al. 2009). The final step was to ascribe financial values to all of the costs. Details on these how costs were ascribed are in Appendix 4. These were then aggregated and discounted by 3.5 per cent per year to arrive at the total present value (see Box 2 for a discussion of the discount rate). Cost implications were estimated in a similar way for emotional problems, hyperactivity and peer problems (see Table 8).

The total present value savings for the Incredible Years intervention is €3.1 million. For conduct disorder alone, this is a saving per child affected of almost €69,000 (€3.1 million divided by the number of children that are expected not to develop a problem). This is very close to the figure arrived at by Scott et. al. in their study. The reliability of the findings was then tested in a Sensitivity Analysis by varying the key assumptions. In this instance, the most significant variable is the effectiveness of the programme. The Incredible Years programme has been widely evaluated in other settings, and also featured prominently in a recently published Cochrane review (Furlong et al, 2012) funded by the HRB and undertaken by an international team led by NUI Maynooth (including some members of both the *youngballymun* process evaluation team and the Incredible Years Ireland Study team). We have used the findings from these studies to vary the results (see Section 4.3 for more detail on sensitivity analysis).

Programme	Number of children	Number of parents
Teacher Classroom Management	510	43 (trained)
Dina classroom curriculum	127	54 (trained)
Parenting Programme	183	91

Table 4: Number of children and teachers accessing the programme

Level of need	Emotional Symptoms % (n)	Conduct Problems % (n)	Hyper- activity % (n)	Peer Problems % (n)	Pro-social Behaviour % (n)	Total Difficulties % (n)
Normal	87 (2150)	84 (207)	70 (172)	88 (218)	75 (177)	74 (183)
Some Need	4 (11)	6 (14)	6 (15)	4 (9)	10 (23)	13 (33)
High Need	9 (21)	10 (26)	24 (60)	8 (20)	15 (36)	13 (31)

Table 5: Teacher SDQ baseline data, Junior Infants (N=246) Dina Classroom Curriculum

Table 6: Parent SDQ baseline data, 2011 (N=91) Parenting Programme

Level of need	Emotional Symptoms % (n)	Conduct Problems % (n)	Hyper- activity % (n)	Peer Problems % (n)	Pro-social Behaviour % (n)	Total Difficulties % (n)
Normal	60 (98)	39 (64)	59 (96)	60 (98)	79 (129)	49 (81)
Some Need	12 (20)	17 (28)	11 (18)	11 (19)	10.5 (17)	15 (24)
High Need	28 (46)	44 (72)	30 (50)	29 (47)	10.5 (17)	36 (59)

Table 7: Percentage change in outcome for each subscale by programme

Subscale	Parent Programme	Teacher Programme	Classroom Programme
Emotional	**16%	15%	3%
Conduct	18%	12%	3%
Hyperactivity	22%	0*	12%
Peer	**13%	0	10%
Pro Social	20%	0	17%

* Not statistically significant ** Only significant at (p<.05)

Subscale	Cost implications
	Substance misuse
Hyperactivity	ADHD (healthcare)
	ADHD (economic)
Emotional Problems	Costs relating to mental health disorders
Peer Problems	State benefits received in adulthood
(perpetrator)	Costs relating to criminal conviction
	State benefits received in adulthood
Peer Problems (victim)	Social work costs
	Costs relating to depression

3.4 Determining impact

In order to properly evaluate the effectiveness of a policy or programme, it is important to attempt insofar as possible, to measure the *additional* contribution that it has made to avoid double counting, or over claiming. Where a controlled trial is being used, this is not necessary, as most of the confounding factors have been accounted for. However, controlled trials (particularly with a randomised design) are rare in social science, and it is often not possible practically, ethically, or financially to conduct them. As this study has not had the benefit of data from controlled studies, it has endeavoured to compensate for this by separately estimating the following:

Deadweight – what would have occurred in the absence of the intervention

Attribution – the credit that the intervention can take for any outcomes that are observed if there are also other actors involved

Displacement/substitutability – whether benefits are truly additional or moved to/from elsewhere

Benefit period - This takes account of the fact that outcomes often last beyond the initial intervention and where this is the case, value is projected into the future.

Drop off - A drop-off rate is applied to acknowledge that outcomes are not maintained at the same level over the benefit period

Estimates of deadweight, attribution and displacement are subtracted from observed outcomes to arrive at the *impact* of the intervention. Displacement and substitution are only usually only applicable to employment related outcomes and in line with recent guidance, have only been modelled in sensitivity analysis (Fujiwara, 2010).

3.5 Input costs

All of the input costs were provided by *youngballymun* (see Table 9). The accounting year is based as far as possible on 2011 prices and data, as all of the services were established by then. The annual cost does not include set-up costs, or costs for the overarching programme (e.g. the core *youngballymun* staffing and capital costs), which are detailed in Table 10. The total spend in 2011 was €3.1 million, which includes a one-off exceptional spend on measurement and evaluation (M&E) services.

The total input costs include:

- The annual running costs for the four services
- A proportion of set-up costs
- A proportion of measurement and evaluation costs

Table 9: Input costs

Intervention	2011	Cost per beneficiary
Incredible Years	€349,295	€437
Ready Steady Grow	€399,751	€1,937
Write Minded	€183,896	€324
3,4,5 Learning Years	€387,693	€697
M&E costs	€200,000	
Total input	€1,520,335	

Table 10: Other programme costs not included

Intervention	2011
RSG (once off IMH specialist)	€100,000
Write Minded community programme	€75,000
What's Up?	€191,838
Learning Community (Includes Literacivic, Communications, Facilitation, Learning Community Fund, &Innovation supports)	€381,567
Overarching programme	€545,848
One off M&E	€332,948

Box 2: The discount rate

The rate used to discount some social and environmental outcomes can be the subject of controversy (for a summary of these debates, see Neumayer 2004). For outcomes that are occurring far into the future (e.g. reduced criminal behaviour in young adulthood), the application of a high discount rate greatly diminishes their present value. This encourages short-termism and can make long-run investments seem inefficient. Early intervention is one such area. Proponents of high discount rates argue that these can be inferred from people's behaviour, exhibited by a low propensity to save for the future (Nordhaus 2007). Proponents of low discount rates for outcomes critical to our future welfare, such as a stable and predictable climate, argue that we should overlook human weakness to save for the future and apply the discount rate we need to make investments in mitigation attractive (Stern et al. 2006). There are merits in each of these viewpoints and a thorough discussion of them is not required here. What is interesting about early intervention is that it is one area where research shows that citizens generally care enormously about the health and wellbeing of children (not just their own), and are willing to pay for it (Nagin et al. 2006).

Deciding on the 'right' discount rate is therefore complex. An analysis by Bartik (2009) on investment in early intervention concludes that policymakers should discount the future, but not too much, and that they should be willing to invest in early childhood programmes in spite of the long time horizon. Not investing at all implies a very high discount rate, as much as 10 per cent in his estimation, which is not realistic. The discount rate of 3.5 per cent used in this study is the one recommended by the UK Treasury for capital investments; it is higher than the one recommended by Stern in his review of climate change (another area where discounting creates perverse incentives), but lower than the rate used in most commercially financed projects (UK Treasury 2003). The discount rate is varied in sensitivity analysis (Table 11).

4.0 Findings

This section reports the ROI ratio along with a discussion of the share of value across interventions and outcomes, as well as the findings from the sensitivity analysis.

4.1 The ROI ratio

youngballymun is forecasting a positive return to the State from all of the early intervention services reviewed here. Where the services are successful, they should reduce the likelihood that children will develop emotional, behavioural and developmental problems and increase the likelihood of improved literacy. This will in turn lead to fewer incidents of ill health, worklessness, criminal activity and low educational attainment in adulthood.

The present value¹¹ of the benefits for an average annual cohort of children in Ballymun is almost \notin 7 million over a 25-year period.¹² With an input cost for *youngballymun* of \notin 1.5 million per annum into these services, this translates into a Return on Investment (ROI) of 1:4.58. This means that for every Euro invested in this series of interventions, \notin 4.58 of savings to the State are generated. Details of how this was calculated are set out in Box 1 and Appendices 1-3.

Interpreting cost-benefit analysis ratios is often difficult. Whilst the findings demonstrate a case for investment, caution is also advised. Many of the estimates are derived from secondary data sources and do not in and of themselves demonstrate effectiveness in the *youngballymun* context. The findings are presented as a guide to the kinds of savings that could be realised. Thus, the main benefit of this study is to develop a model that can be adjusted in the future when better data are available and to describe the kind of measurement system that would be required for future VFM studies.

As indicated earlier, it was only possible to evaluate approximately 50 per cent of the costs of the initiative, as the other 50 per cent was to services that could not be included here due to data limitations. To illustrate this, if we set the return against the full costs of the initiative against the outcomes from just four of the services, the ratio would drop to 1:2.21. This demonstrates the need for all of the services should be able to make a case for support on a cost-benefit basis and over time be incorporated into a VFM framework.

On the other hand, it is also possible that the analysis underestimates the potential for value creation. For example, it is conceivable that through the whole youngballymun strategy a child in Ballymun could have received universal wrap-around supports from the age of birth to adolescence. This study does not take account of the potential cumulative impacts of the interventions on individuals over time. More research is required to understand whether this strategy creates a virtuous circle as benefits are compounded across the lifecycle.

It is difficult to ascertain what proportion of the projected 'saving' is cashable; that is, to what extent this results in reduced costs to the Exchequer. For some interventions and outcomes, a relatively small number of changes have been predicted. This means that, although the savings in relation to those individuals are significant (e.g. where children do not develop

¹¹ The present value takes account of the fact that the savings occur in the future and 'compensates' the investor for this by converting the return into today's figures.

¹²This figure was arrived at by following a similar set of steps as detailed in Box 1 (see Appendices 1-3)

conduct disorders), the wider impact on services is less so. The example of prison costs is instructive here. Unless the reduction in the number of prisoners reaches a level which enables a prison or a prison wing to be closed or not opened, the only savings from diverting that number will be incremental costs e.g. food, laundry and so on. The major costs such as payroll and administration will not be greatly affected (see 'Cost Benefit Knowledge Bank for Criminal Justice'¹³ and The Cost Effectiveness of Community Based Sentences¹⁴). In many instances, the savings are better described as resources freed up within the system, rather than savings *per se*.

4.2 Share of value

Figure 3 shows the breakdown of social value across the interventions, which is weighted by the number of participants attending each service. Care should be taken when interpreting this chart. First, these interventions are not really comparable, as they are providing very different services to children at different life stages. Second, the findings are very much driven by the type of data that are available.

Nonetheless, as we can see, the findings appear to support Heckman's theory that the returns are greatest in the very early years (Heckman 2006). Based on the predicted outcomes, the PCPSP should generate more almost half the expected return, followed by pre-school and then in-school interventions.



Figure 2: Share of value by projects

¹³http://cbkb.org/toolkit/marginal-costs/

¹⁴ http://www.justice.govt.nz/publications/global-publications/r/review-of-community-based-sentences-innew-zealand/the-cost-effectiveness-of-community-based-sentences#Fiscal%20costs



Figure 3: Share of value (weighted by costs of programme)

However, the PCPSP is also the most expensive intervention, so when we compare the value per participant to the cost per participant, the share of value breakdown changes (Figure 4). According to these data, the Incredible Years Programme creates the most value relative to costs. However, this may relate partly to better quality data on effectiveness being available for Incredible Years.

4.3 Sensitivity analysis

Given that this is an assumption-driven exercise, it is important to carry out sensitivity analysis to test which of the interventions are most sensitive to change, and to ascertain how changing them alters the return ratio. A key assumption underpinning this analysis is the effectiveness of the interventions. Table 12 sets out the variations in assumptions and the subsequent changes to ratios.

Three other variables were considered to be potentially sensitive and important to test in sensitivity analysis: the discount rate, the costs of residential care (as the published costs are particularly high) and the substitution effect of increased employment. Table 12 shows the results of these tests. As we can see, these variations did not substantially affect the ratio (i.e. they did not undermine the case for investment).

The findings in Table 12 set out the most noteworthy findings from sensitivity analysis. Although many of the financial proxies were varied, no individual proxy had an impact on the ratio. It is the view of the research team that the model is quite robust to changes in these assumptions.

Intervention	Variable	Revised ratio
Incredible Years (TCM)	Increase to UK average for conduct and hyperactivity problems	5.87
Incredible Years (Parenting)	Increase parenting to UK average for all problems	9.86
Write Minded	Sustain improvements to 5 th class (beyond age 11)	5.76
3,4,5 Learning	Extend effectiveness to all children at risk	5.66
Ready Steady Grow	Include low birth weight and improve effectiveness of developmental delay to same as attachment	6.19
Overall effectiveness	Reduced effectiveness of each of the programmes by 50 per cent	2.28

Table 11: Probabilities of effectiveness modeled in sensitivity analysis

Table 12: Varying assumptions in sensitivity analysis

Intervention	Variable	Revised ratio
Discount rate	Reduce to 3 per cent (Bartik 2009)	4.82
Discount rate	Reduce to 1.2% (Bartik 2009)	6.23
Employment substitution	Displace economic benefits at 20 per cent (Greenberg et al. 2011)	4.86

5.0 Recommendations and conclusions

This final section sets out the recommendations from the study. These are divided into recommendations for *youngballymun* and for policy makers. The research presented in this report is primarily based on findings and research gathered at sites outside Ballymun. As a result, there are only a limited number of recommendations for *youngballymun* that are based directly on the study. The overarching process evaluation, of which this study forms a part, contains a number of key lessons for youngballymun, its partners and for area-based initiatives more generally (McGilloway et al, 2012) and should be read in conjunction with this analysis.

5.1 Recommendations for *youngballymun*

1. Incorporate value for money requirements into future evaluations: Value for money is best defined as the relationship between spending and the value of the outcomes generated. This requires the inclusion, where possible, of non-economic outcomes and value to stakeholders other than the State. It is an issue that has grown in importance in recent times. This could be enhanced by the adoption of approaches such as Social Return on Investment (SROI), which use a more holistic definition of value for money (Nicholls, J, Lawlor, E, and Neitzert, E 2009). If SROI is to be incorporated into *youngballymun*'s work (or the work of other similar area-based initiatives in Ireland or elsewhere), it should be embedded within the services and incorporated into management information systems to inform the strategic direction of the organisation, rather than being used purely to demonstrate programme effectiveness.

2. Strengthening the evidence base. There are significant gaps in the evidence base regarding early intervention in Ireland, and *youngballymun* is well placed to make a contribution here. All of the frontline services considered here, will require on-going, high quality, longitudinal research to support them. Although this process is underway, it could be improved in the following ways:

- Ensure where possible that all studies have a comparison or control group (e.g. Write Minded and Incredible Years). The simple approach of conducting ex-ante and ex-post evaluations does not establish how much of the change is due to the intervention itself. For example, SDQ scores typically improve with time even when children receive no assessment or intervention, partly as a result of regression to the mean (an effect of measurement error) and partly as a result of spontaneous improvement (youthinmind, 2012). For a universal programme, identifying an appropriate control is difficult. However, there are ways to overcome this. For example, progress in Ballymun schools could be benchmarked against other disadvantaged schools (ideally as a group). This would tell us whether changes that are observed are part of wider trends in literacy in schools generally. In addition, Youthinmind have devised a way of measuring the 'added value' of specialist services, which is drawn from data based on longitudinal community surveys of young people. It is only suitable for parent data but this is where the most change has been observed in the programme (youthinmind 2012).¹⁵
- The quality of data could be improved by obtaining SDQ completion for parents, teachers and (where appropriate) children. In general terms, SDQs have found strong correlations between parent and teacher responses, suggesting good validity (Becker et al. 2004). However, other studies have found discrepancies (Papageorgiou et al.

¹⁵The formula for this calculation is y = a+b1x1+b2x2+b3x3...

2008). Multi-informant studies are recommended to overcome this risk and it is important to note that most evaluations (e.g. McGilloway et al, 2010) rely on more than one source of data including observational assessments. Goodman et. al. (2000) found that studies which triangulate the responses of parents, teachers and older children, identify individuals with a psychiatric diagnosis with a specificity of 94.6% (95% Cl 94.1-95.1%) and a sensitivity of 63.3% (59.7-66.9%). The SDQ questionnaire was particularly effective at identifying conduct problems, hyperactivity and depressive disorders when used in this way (ibid.).

• A plan for evidencing outcomes from the overarching aspects of the programme or the programme 'model', informed by the process evaluation, should be put in place to identify where benefits and cost savings are being generated. This could involve tracking a sample of participants in their use of services and compare this to a matched group of participants in an area without such an initiative.

The recommendations above do have substantial resource implications. To date, *youngballymun* has been required to contract out evaluation services, and whilst there is a role for this -particularly in the early stages of project development - it can be costly. It is recommended that (with the agreement of funders) that skills in-house are maximised to carry out as much of the evaluation as possible, reserving external contracting for auditing and peer review purposes. In addition, taking a more strategic approach to measurement at the beginning of a funding period should ensure that *youngballymun* is asking evaluators for the kinds of information they need. Even with a smaller amount of money than has been in place it should be possible to carry out sufficient outcomes measurement to meet the requirements of a study such as this.

3.Employing outcomes-based theories of change. Each of the services/strategies has a clear set of objectives, but these could be more clearly articulated by focussing on an outcomes-oriented theory of change. For example, whilst *youngballymun* has a logic model that underpins its work, this tends to focus largely on *outputs*, but it is only by measuring outcomes that effectiveness can really be demonstrated (Nichol 2006; Paynter 2009). Thus, an analysis of the type and scale of outcomes from each of these services would be useful in building upon the work reported here. It is also worth noting that the larger process evaluation is based largely on a theory of change approach, which should help to inform the overall strategy as it develops and evolves into the future.

4.Linking project and community 'indicators'. Linking with Recommendation 3, more clarity is required on whether youngballymun is seeking to achieve change at the community level. If this is so, then more needs to be done to critically evaluate what is needed to achieve this. From a measurement perspective, project level outcome indicators would need to be matched to community-level outcome indicators (e.g. a reduction in crime amongst the client group corresponding to a reduction in crime in Ballymun). In addition, the programme would benefit greatly by benchmarking Ballymun against areas that do not have a pilot programme (e.g. Finglas). This would enrich the evidence base as to whether the area-based aims of the strategy are/were really effective. Although the ROI on the initiative is positive, it is a different question as to whether the set of interventions will be sufficiently transformative to achieve this. Youngballymun aims to prevent children from succumbing to the risks associated with disadvantage, by building up their resilience and improving their learning and wellbeing, rather than tackling the core societal and structural sources of disadvantage. This is especially important if it is found that gains in human capital lead to greater levels of mobility out of Ballymun. Whilst this may be positive for the individuals involved, from a community regeneration perspective, it risks creating a further downward spiral as the most skilled and educated leave.

6. Learning from evaluations to improve service delivery. Any future services should continue to be based on a well-researched evidence-base. Much greater confidence could be placed in these findings if all of the programmes were based on evidence as robust as the IY programme. In particular, Irish examples or models that have been shown to work in Ireland should be considered first in order to avoid any dilution of the project as a result of policy transfer. All of the existing services should also be reviewed regularly in light of the latest evidence emerging from the areas within which they work. For example, baseline data from the Incredible Years Parent programme identified extremely high levels of need amongst a small cohort of young people in Ballymun; almost half of the children had high levels of need in relation to conduct disorder and a similar proportion have some degree of emotional problems and hyperactivity. There is strong evidence to suggest that conduct problems and hyperactivity independently greatly raise the likelihood of psychiatric disorders, impaired social adjustment and other psychological problems later in life. In addition, 12 per cent¹⁶ of babies born in Ballymun have a low birth weight, which is more than double the national average of 5 per cent (McEvoy et al. 2006). It is estimated that each low birth weight costs approximately €41,000 in avoidable health, education and benefit costs.¹⁷ However, this is not an outcome on which existing services are having an impact at this point in time. Neither does the approach generally taken by the interventions (providing psychosocial support to mothers) appear to be successful in reducing the number of low birth weight babies (ibid.), so other interventions are required. In the case of literacy, the literature suggests that creating sustained improvements are very difficult, particularly in the context of declining national trends (Brooks 2007) so ongoing analysis of literacy data is required.

Further analysis of what works, for whom and under what circumstances and whether benefits can be sustained over time, are key questions that still need to be answered. So whilst the interventions either appear to, or have a good chance of working, at this stage of implementation, they are not yet achieving change on such a large scale as to reduce the incidence of problems that are deeply rooted in people's experiences of living in poor socioeconomic circumstances. However, this reflects the typically longer-term timeline of these kinds of area-based initiatives. Finally, the services in this study have mainly focused on young children. Adolescence and teenage years are a vulnerable time in the lifecycle, particularly with transitions from childhood to adulthood. The challenge of achieving meaningful change, or indeed sustaining earlier outcomes is enormous. *Youngballymun's* youth mental health initiative aims to address this gap and to ensure that gains achieved in infancy and childhood can be sustained through adolescence into adulthood. Again, this needs to be accompanied by appropriate outcome monitoring to ensure that it achieves the desired results for children across the lifecycle and that these are appropriately bedded down over time.

¹⁶This was the finding of the baseline evaluation of the Ready Steady Grow programme

¹⁷Calculations made by author based on outcomes for children born with low birth weight. For example, low birth weight babies comprise a majority of the patients in the Neonatal Intensive Care Unit (McEvoy et al. 2006)

5.2 Recommendations for policy

1. youngballymun funding

The mix of innovative services currently running in Ballymun is aimed at children from birth to adolescence, their parents and key service providers. They are broadly grounded in evidence on how to break the cycle of intergenerational disadvantage. The current study compared the long-term benefits to the costs of investment and the findings suggest that there is a case for investment in these projects. However, the forecasted nature of the study means that this should be interpreted with caution.

As mentioned in the previous section, returns from early intervention are by their nature longterm. Thus, the original intention behind a ten-year strategy appears to concur with the best available evidence. Early indications based on the findings reported here and elsewhere in the individual evaluation reports, suggest (tentatively) that the results are moving in the right direction. Whilst this should not lead to complacency, it would suggest that there is a case for allowing the services to develop and embed further. In addition, innovative approaches to funding such services should be explored. For instance, the UK, Ireland and Australia are all experimenting with Social Impact Bonds (SIB) as a way to fund preventative programmes. A Social Impact Bond is a contract with the public sector in which a commitment is made to pay for improved social outcomes that result in public sector savings.¹⁸ The predicted savings are used to raise investment for preventative services that improve social outcomes. Early intervention is ideal for SIB investment, as it is relatively well researched and has potentially high rates of return that could attract a range of diverse investors.

Finally, as mentioned earlier, on the basis of the findings provided here, it is unlikely that the services/interventions in place at present, will by themselves, be enough to radically change the relationship that currently exists in Ballymun between economic disadvantage and negative, costly social outcomes. Early intervention should be seen as part of a strategy, rather than a panacea and more creative ways to build and sustain the economic regeneration of the community are still required.

2. Data quality and management

An initial objective of this study was to calculate the costs of the socioeconomic gaps between Ballymun and the rest of Dublin. However, this kind of research was not possible, as the appropriate datasets are not available. In the absence of national surveys of these issues, it is impossible to carry out area-based assessments of relative deprivation.¹⁹ Thus, although we know that Ballymun is a deprived area because of the published unemployment rate, proportion of public housing and so on, information in other areas is patchy. There is also an over-reliance on census data, which is out of date by the time it is published. This is particularly so in the case of dynamic areas of policy such as enterprise formation, where it is impossible to establish short-term trends. This must also hinder the policy making process, as it is difficult to make a case for investment without such data. Box 3 sets out the areas where data would be required to get a comprehensive picture of the ways in which Ballymun truly differs from other areas. It is acknowledged that data may be available in many of these areas but it is not in the public domain. In addition, whilst there may be published data nationally in many of these areas (e.g. Growing Up in Ireland) they are either not suitable for small

¹⁸http://www.socialfinance.org.uk/resources/guide/technical-guide-commissioning-social-impact-bonds.

geographies, gathered in an insufficiently systematic way, or not available in for more than one time period.

Box 3: Data gaps

Health

Physical health (e.g. longevity, rates of physical illness, hospital admissions, use of GP services)

Incidence of health risk factors such as smoking and obesity etc.

Mental health (e.g. comparative rates of depression and anxiety, psychiatric disorders, behavioural problems in children etc.)

Deprivation

Young people not in education and training at 16 Rates of early school leaving Indebtedness Rates of alcohol and drug dependence

Crime

Incidence of crime (disaggregated by type of crime) Crime victimisation Fear of crime

Social

Life satisfaction Trust and social capital Access to services Transport

Economic development

Enterprises per head of capita Worklessness Rates of long-term unemployed Levels of public and private investment

Although not without its faults, the UK is something of a world leader in data gathering and management and the Irish government could adopt similar approaches. Box 4 describes some important datasets in the UK, which could be usefully replicated in Ireland. Although establishing and administering these surveys carries a significant cost, they may actually be cost effective in the medium to longer term if they serve to strengthen policy-making and enable the planning of more effective services and interventions. Thus, if we take the case of the Ballymun regeneration, better quality and more timely data would have created greater accountability and may have encouraged a more careful allocation of resources that could be linked causally and, therefore, more meaningfully to better outcomes.

¹⁹The Haase deprivation index is an index of multiple deprivation consists of composite of measures including social class, education levels, employment type, household type etc. The main difficulty is that it is based on Census data so only updated every five years. The UK's Indices of Multiple Deprivation are more comprehensive and updated every two years (ref)

Box 4: UK national datasets

The British Household Survey is a multi-purpose study, which follows the same representative sample of individuals – the 'panel' – over a period of years. It is household based, so interviews are conducted with every adult member and contains sufficient cases for meaningful analysis of certain groups such as the elderly or lone parent families.

The British Crime Survey is a systematic victim study currently carried out on behalf of the Home Office. The BCS seeks to measure the amount of crime in England and Wales by asking around 50,000 people aged 16 and over (as of January 2009), living in private households, about the crimes they have experienced in the last year.

The Labour Force Survey is a quarterly sample survey of households living at private addresses in the United Kingdom. Its purpose is to provide information on the UK labour market that can then be used to develop, manage, evaluate and report on labour market policies. The Health Survey for England is a series of annual surveys about the health of people living in

England. There are similar surveys for Scotland and Wales.

5.3 Concluding remarks

The theory, and in many cases the evidence behind early intervention is quite well established. There is also a strong cost benefit case for investing at the earliest possible stage in life (Heckman 2006; Feinstein 2002). However, Ireland is not alone in having the balance of spending skewed towards crisis rather than preventative spending (Aked et al. 2009).

First, there is still a lack of confidence that reported returns on investment will be realised. This is further hampered by the fact that lots of early interventions just do not work (see Barnett 2011). In addition, there is a lack of political will. The long-run nature of the returns makes it difficult for politicians to claim credit and all their incentives are skewed towards the political cycle. Finally, the evidence suggests that for programmes to work in other sites, they need to be faithful to the original and of the highest quality. Even without a global recession, raising additional funds for a radical shift in public spending from which the returns will not be realised for a generation is a difficult task.

None of these issues is completely intractable. Evidence of effectiveness is improving all the time and the pilots funded under the PEIP are a welcome addition. Social Impact Bonds may provide a viable route to raise additional money to fund such projects. In addition, research suggests that investment in early years is potentially popular with voters who understand the logic of 'invest to save' (Nagin et al. 2006). However, there are also no 'magic bullets', or ways to cheaply and easily break the relationship between low incomes and poor outcomes in adulthood. More must also be done to look at the economic fundamentals of communities like Ballymun to change, the prospects for the children, young people and their families who live there.

References

- Aked, J., N Steuer, E Lawlor, and S Spratt. 2009. *Backing the Future: Why Investing in Children Is Good for Us All.* new economics foundation.
- Allen, G. 2011. "Early Intervention: The Next Steps." London: HM Government.
- Angeles Cerezo, M., and G. Pons-Salvador. 1999. "Supporting Appropriate Parenting Practices. A Preventive Approach of Infant Maltreatment in a Community Context." International Journal of Child and Family Welfare 4: 42–61.
- Anning, A., J. Stuart, M. Nicholls, J. Goldthorpe, and A. Morley. 2007. "Understanding Variations in Effectiveness Amongst Sure Start Local Programmes: Lessons for Sure Start Children's Centres." Department for Education and Skills, Her Majesty's Printer and Controller of HMSO, London.
- Aos, S. 2004. *Benefits and Costs of Prevention and Early Intervention Programs for Youth.* 04-07. Washington State Institute for Public Policy Olympia, WA.
- Baker, B. L, J. Blacher, K. A Crnic, and C. Edelbrock. 2002. "Behavior Problems and Parenting Stress in Families of Three-year-old Children with and Without Developmental Delays." *Journal Information* 107 (6).
- Barnett, W. S. 2011. "Effectiveness of Early Educational Intervention." *Science* 333 (6045) (August 19): 975–978. doi:10.1126/science.1204534.
- Barnett, W.S., and L.N. Masse. 2007. "Comparative Benefit–cost Analysis of the Abecedarian Program and Its Policy Implications." *Economics of Education Review* 26 (1): 113–125.
- Bartik, T. 2009. "How Policymakers Should Deal with the Delayed Benefits of Early Childhood Programs."
- Becker, Andreas, Wolfgang Woerner, Marcus Hasselhorn, Tobias Banaschewski, and Aribert Rothenberger. 2004. "Validation of the Parent and Teacher SDQ in a Clinical Sample." *European Child & Adolescent Psychiatry* 13 (0): ii11–ii16. doi:10.1007/s00787-004-2003-5.
- Belsky, J., E. Melhuish, J. Barnes, A.H. Leyland, and H. Romaniuk. 2006. "Effects of Sure Start Local Programmes on Children and Families: Early Findings from a Quasiexperimental, Cross Sectional Study." *Bmj* 332 (7556): 1476.
- Besharov, Douglas, Peter Germanis, Douglas M. Call, and Caeli A. Higney. 2011. *The High/Scope Perry Preschool Project*. Maryland School of Public Policy Welfare Reform Academy.
- Bloom, M. R., Conference Board du Canada Custom Economic Services Group, and Conference Board du Canada Centre national des affaires et de l'enseignement. 1997. "The Economic Benefits of Improving Literacy Skills in the Workplace." In .
- Brooks, G. 2007. "What Works for Pupils with Literacy Difficulties." *The Effectiveness of Intervention Schemes*.
- Burroughs-Lange, S. 2006. *Evaluation of Reading Recovery in London Schools: Every Child A Reader, 2005-2006.* Institute of Education, University of London.
- Campbell, F. A, C. T Ramey, E. Pungello, J. Sparling, and S. Miller-Johnson. 2002. "Early Childhood Education: Young Adult Outcomes from the Abecedarian Project." *Applied Developmental Science* 6 (1): 42–57.
- Clarke, C. 2011. Evaluation of the Learning Years' (Support) Service: A Draft Interim Report for Youngballymun Limited. SQW.
- Coles, B., C. Godfrey, A. Keung, S. Parrott, and J. Bradshaw. 2010. "Estimating the Life-time Cost of NEET: 16-18 Year Olds Not in Education, Employment or Training." York University Department of Social Policy and Social Work and Department of Health Sciences, Cited in Audit Commission (2010) Against the Odds.
- Colman, I., J. Murray, R. A Abbott, B. Maughan, D. Kuh, T. J Croudace, and P. B Jones. 2009. "Outcomes of Conduct Problems in Adolescence: 40 Year Follow-up of National Cohort." *BMJ* 338 (jan08 2) (January 8): a2981–a2981. doi:10.1136/bmj.a2981.

Comptroller and Auditor General. 2007. "Ballymun Regeneration."

http://audgen.gov.ie/documents/vfmreports/61_Ballymun.pdf.

Coulombe, Serge, and Jean-François Tremblay. 2006. "Literacy and Growth." *The B.E. Journal of Macroeconomics* topics.6 (2).

http://ideas.repec.org/a/bpj/bejmac/vtopics.6y2006i2n4.html.

Department for Education and Skills. 2010. *Better Literacy and Numeracy for Young People: a Draft National Plan to Improve Literacy and Numeracy in Schools.* http://www.education.ie/servlet/blobservlet/pr literacy numeracy national plan 2010.

http://www.education.ie/servlet/blobservlet/pr_literacy_numeracy_national_plan_2010. pdf?language=EN.

Department of Public Expenditure and Reform. 2012. "The VFM Code." http://vfm.per.gov.ie/.

Dugdale, G., and C. Clark. 2008. *Literacy Changes Lives: An Advocacy Resource*. National Literacy Trust.

Dunne, A., T. Fahey, B. Maitre, B. Nolan, E. Smyth, and C.T. Whelen. 2007. A Social Portrait of Children in Ireland. Dublin: Government Publications. Government publication. Dublin.

Edwards, R. T, A. Ceilleachair, T. Bywater, D. A Hughes, and J. Hutchings. 2007. "Parenting Programme for Parents of Children at Risk of Developing Conduct Disorder: Cost Effectiveness Analysis." *BMJ* 334 (7595) (March 31): 682–682. doi:10.1136/bmj.39126.699421.55.

Farrington, DP. 1995. "The Development of Offending and Antisocial Behavior from Childhood: Key Findings from the Cambridge Study in Delinquent Development." *Journal of Child Psychology* 36: 929–64.

- Feinstein, L. 2002. "Quantitative Estimates of the Social Benefits of Learning, 2: Health (Depression and Obesity). Wider Benefits of Learning Research Report."
- Feldman, Maurice A, Christie L Hancock, Nicole Rielly, Patricia Minnes, and Colleen Cairns. 2000. "Behavior Problems in Young Children With or At Risk for Developmental Delay." *Journal of Child and Family Studies* 9 (2): 247–261. doi:10.1023/A:1009427306953.
- Foster, E. Michael, and Damon E. Jones. 2005. "The High Costs of Aggression: Public Expenditures Resulting From Conduct Disorder." *American Journal of Public Health* 95 (10) (October): 1767–1772. doi:10.2105/AJPH.2004.061424.
- Fujiwara, D. 2010. The Department for Work and Pensions Social Cost-benefit Analysis Framework. 86. Department for Work and Pensions Working Paper.
- Furlong, M., and S. McGilloway. 2011. "The Incredible Years Parenting Program in Ireland: A Qualitative Analysis of the Experience of Disadvantaged Parents." *Clinical Child Psychology and Psychiatry* (November 20). doi:10.1177/1359104511426406. http://ccp.sagepub.com/cgi/doi/10.1177/1359104511426406.
- Goodman, A., and R. Goodman. 2009. "Strengths and Difficulties Questionnaire as a Dimensional Measure of Child Mental Health." *Journal of the American Academy of Child and Adolescent Psychiatry* 48: 400–3.
- Goodman, Robert, Tamsin Ford, Helen Simmons, Rebecca Gatward, and Howard Meltzer.
 2000. "Using the Strengths and Difficulties Questionnaire (SDQ) to Screen for Child Psychiatric Disorders in a Community Sample." *The British Journal of Psychiatry* 177 (6) (December 1): 534–539. doi:10.1192/bjp.177.6.534.
- Greenberg, Speckesser, Knight, and Hevenstone. 2011. "Improving DWP Assessment of the Relative Costs and Benefits of Employment Programmes Working Paper 100". Department for Work and Pensions.
- Griggs, J., A. Whitworth, R. Walker, D. McLennan, and M. Noble. 2008. "Person or Placebased Policies to Tackle Disadvantage? Not Knowing What Works." *York: Joseph Rowntree Foundation*.
- Heckman, J. J, S. H Moon, R. Pinto, P. A Savelyev, and A. Yavitz. 2010. "The Rate of Return to the HighScope Perry Preschool Program." *Journal of Public Economics* 94 (1-2): 114–128.

Heckman, J.J. 2006. "Skill Formation and the Economics of Investing in Disadvantaged Children." *Science* 312 (5782): 1900–1902.

Highscope. 2012. "HighScope Preschool Program Quality Assessment (PQA)." http://www.highscope.org/Content.asp?ContentId=116.

Hodgson, Claire, T Yeshanew, and J Sewell. 2011. Evaluation of the Effectiveness of Write-Minded:Interim Data on Quantitative Analysis. Slough: nfer.

Leonard, C. 2012. "Investing for the Future: Crime Prevention Through Social Development."

Lyons-Ruth, Karlen, M. Ann Easterbrooks, and Cherilyn Davidson Cibelli. 1997. "Infant Attachment Strategies, Infant Mental Lag, and Maternal Depressive Symptoms: Predictors of Internalizing and Externalizing Problems at Age 7." *Developmental Psychology* 33 (4): 681–692. doi:10.1037/0012-1649.33.4.681.

Mac Ruairic, G. 2008. Literacy in Ballymun: Interim Report. Dublin: UCD.

Mann, Emily A, and Arthur J Reynolds. 2006. "Early Intervention and Juvenile Delinquency Prevention: Evidence from the Chicago Longitudinal Study." *Social Work Research* 30 (3) (September 1): 153–167. doi:10.1093/swr/30.3.153.

Mäntymaa, Mirjami, Kaija Puura, Ilona Luoma, Vilja Vihtonen, Raili K Salmelin, and Tuula Tamminen. 2009. "Child's Behaviour in Mother–child Interaction Predicts Later Emotional and Behavioural Problems." *Infant and Child Development* 18 (5) (September 1): 455–467. doi:10.1002/icd.633.

McEvoy, H., J. Sturley, S. Burke, and K. Balanda. 2006. *Unequal at Birth: Inequalities in the Occurrence of Low Birthweight Babies in Ireland*. Dublin: The Institute of Public Health in Ireland.

McGilloway, S., T. Bywater, G. Ní Mháille, M. Furlong, D. O'Neill, C. Comiskey, Y. Leckey, P. Kelly, and M. Donnelly. 2009. "Proving the Power of Positive Parenting: a Randomised Control Trial to Investigate the Effectiveness of the Incredible Years Basic Parent Training Programme in an Irish Context (short-term Outcomes)."

McGilloway, S., L. Hyland, G.N. Mháille, A. Lodge, D. O'Neill, P. Kelly, Y. Leckey, T. Bywater, C. Comiskey, and M. Donnelly. 2010. "Positive Classrooms, Positive Children."

McGilloway, S., G.N. Mhaille, T. Bywater, M. Furlong, Y. Leckey, P. Kelly, C. Comiskey, and M. Donnelly. 2012. "A Parenting Intervention for Childhood Behavioral Problems: A Randomized Controlled Trial in Disadvantaged Community-based Settings." *Journal of Consulting and Clinical Psychology; Journal of Consulting and Clinical Psychology* 80 (1): 116.

McIntosh, S., and A. Vignoles. 2001. "Measuring and Assessing the Impact of Basic Skills on Labour Market Outcomes." *Oxford Economic Papers* 53 (3): 453–481.

McKeown, K., and T. Haase. 2006. *The Mental Health of Children and the Factors Which Influence It: A Study of Families in Ballymun*. Summary report. Ballymun: Ballymun Development Group for Children and Young People.

http://www.youngballymun.org/fileadmin/user_upload/mentalhealth_report.pdf. Meisels, S. J, and S. Atkins-Burnett. 2006. "Evaluating Early Childhood Assessments: A

Differential Analysis." *Blackwell Handbook of Early Childhood Development*: 532–549. Morgan, M, and K. Epsey. 2012. *An Action Research Study to Support a Whole-school*

Approach to the Implementation of Incredible Years Youngballymun. Dublin: youngballymun.

Nagin, D.S., A.R. Piquero, E.S. Scott, and L. Steinberg. 2006. "Public Preferences for Rehabilitation Versus Incarceration of Juvenile Offenders: Evidence from a Contingent Valuation Survey." *University of Virginia Legal Working Paper Series*: 28.

Neumayer, E. 2004. Weak Versus Strong Sustainability: Exploring the Limits of Two Opposing Paradigms. Edward Elgar Publishing.

Nicholls, J, Lawlor, E, and Neitzert, E. 2009. A Guide to Social Return on Investment. UK: Cabinet Office.

Nordhaus, W. D. 2007. "A Review of the Stern Review on the Economics of Climate Change'." *Journal of Economic Literature*: 686–702.

- O'Neill, D., S. McGilloway, M. Donnelly, T. Bywater, and P. Kelly. 2010. "A Cost-Benefit Analysis of Early Childhood Intervention: Evidence from an Experimental Evaluation of the Incredible Years Parenting Program."
- OECD. 2012. Equity and Quality in Education: Supporting Disadvantaged Students and Schools. http://www.keepeek.com/Digital-Asset-Management/oecd/education/equity-and-quality-in-education_9789264130852-en.
- Papageorgiou, Vaya, Efrosini Kalyva, Vaios Dafoulis, and Panos Vostanis. 2008. "Differences in Parents' and Teachers' Ratings of ADHD Symptoms and Other Mental Health Problems." *The European Journal of Psychiatry* 22 (4) (December): 200–210. doi:10.4321/S0213-61632008000400003.
- Parsons, Carl, and Frances Castle. 1998. "The Cost of School Exclusion in England." International Journal of Inclusive Education 2 (4): 277–294. doi:10.1080/1360311980020402.
- Petrou, Stavros, and Ron Gray. 2005. "Methodological Challenges Posed by Economic Evaluations of Early Childhood Intervention Programmes." *Applied Health Economics and Health Policy* 4 (3): 175–181.
- Piquero, Alex, David Farrington, Brandon Welsh, Richard Tremblay, and Wesley Jennings. 2009. "Effects of Early Family/parent Training Programs on Antisocial Behavior and Delinquency." *Journal of Experimental Criminology* 5 (2) (June 1): 83–120. doi:10.1007/s11292-009-9072-x.
- Pithouse, A. 2008. "Early Intervention in the Round: A Great Idea But..." *British Journal of Social Work* 38 (8): 1536–1552.
- Potts, D. 2008. "Assessing the Impact of Regeneration Spending: Lessons from the UK and the Wider World." In *Regeneration and Wellbeing Conference, April, Bradford Centre* for International Development, University of Bradford: Bradford.
- Reynolds, Arthur J, Judy A Temple, Dylan L Robertson, and Emily A Mann. 2002. "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers." *Educational Evaluation and Policy Analysis* 24 (4) (December 21): 267–303. doi:10.3102/01623737024004267.
- Richmond, M., C. Robinson, M. Sachs-Israel, and E. Sector. 2008. *The Global Literacy Challenge*. United Nations Educational Scientific and Cultural Organization Publications (UNESCO). Paris, France. URL: http://www.unesco. org/en/efa/resources/publications [March 14, 2010].
- Robertson, Douglas, Ian McIntosh, and James Smyth. 2010. "Neighbourhood Identity: The Path Dependency of Class and Place." *Housing, Theory and Society* 27 (3): 258–273. doi:10.1080/14036090903326429.
- Schwartz, Robert M., Angela Hobsbaum, Connie Briggs, and Janet Scull. 2009. "Reading Recovery and EvidenceIbased Practice: A Response to Reynolds and Wheldall (2007)." *International Journal of Disability, Development and Education* 56 (1): 5–15. doi:10.1080/10349120802681564.
- Schweinhart, Lawrence J. 2003. "Benefits, Costs, and Explanation of the High/Scope Perry Preschool Program." In .

http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED 475597.

- Scott, S., M. Knapp, J. Henderson, and B. Maughan. 2001. "Financial Cost of Social Exclusion: Follow up Study of Antisocial Children into Adulthood." *BMJ* 323 (7306): 191.
- Smeekens, Sanny, J. Marianne Riksen Walraven, and Hedwig J. A Van Bakel. 2009. "The Predictive Value of Different Infant Attachment Measures for Socioemotional Development at Age 5 Years." *Infant Mental Health Journal* 30 (4) (July 1): 366–383. doi:10.1002/imhj.20219.
- Start Strong. 2012. The Economics of Children's Early Years Early Care and Education in Ireland: Costs and Benefits

Stern, N. H., S. Peters, V. Bakhshi, A. Bowen, C. Cameron, S. Catovsky, D. Crane, S. Cruickshank, and S. Dietz. 2006. *Stern Review: The Economics of Climate Change*. Vol. 30. HM treasury London.

UK Treasury. 2003. "The Green Book." http://www.hm-

treasury.gov.uk/data_greenbook_index.htm

Webster-Stratton, C., M. J. Reid, and M. Hammond. 2004. "Treating Children with Early-onset Conduct Problems: Intervention Outcomes for Parent, Child, and Teacher Training." *Journal of Clinical Child and Adolescent Psychology* 33 (1): 105–124.

Webster-Stratton, and Hammond. 1997. "The Incredible Years - Effective Training Programs to Reduce Children's Aggression and Increase Social Competence." http://www.incredibleyears.com/ResearchEval/studies.asp.

Welshman, J. 2010. "From Head Start to Sure Start: Reflections on Policy Transfer." *Children & Society* 24 (2): 89–99.

World Bank. 2012. "World Development Indicators."

http://databank.worldbank.org/ddp/home.do?Step=3&id=4.

youthinmind. 2012. http://www.sdqinfo.com/c5.html.

Appendix 1: Write Minded

The case for early intervention in literacy is increasingly driven by what has been described as the "achievement gap" whereby the gap between children that have fallen behind their peers in reading, widens over time; this, in turn, impedes their language development and even their (non) cognitive abilities (OECD 2012). Policy makers care about this for two reasons. First, those with low levels of literacy are over-represented amongst the unemployed, in prisons and institutions and amongst those with addictions. For example, 70% of young offenders have communication difficulties (Allen, 2011) and those with the poorest literacy had spent the least amount of time in employment by age 34 (Parsons and Byner, 2008). Where literacy interventions have been shown to be effective, the effects are generally sustained over a short period (three months to two years). The durability of effects thereafter is unknown; however, studies suggest that the poorest readers (those who fall at or below the 10th percentile) are those who are most likely to benefit most over the long-term (Brooks, 2007, Hurry and Slyva, 2007).

The educational system in Ireland is in a period of transition. According to the 2011 literacy and numeracy strategy (Department for Education and Skills 2010), the literacy skills of primary school children – as measured by National Assessments of English Reading – have not improved in more than 30 years despite significant capital investment. Moreover, it shows that 17% of all Irish 15 year olds and almost 25% of teenage boys lack the literacy skills to function effectively in everyday life. There are already two national literacy programmes – Reading Recovery and First Steps - being delivered in schools located in disadvantaged areas in Ireland (DEIS).²⁰ In the last five years, these have seen a three-fold expansion in Ireland. This is in response to research that shows that up to 70% of children who are the hardest to teach, require no further support after a period of 18 weeks of Reading Recovery (DES, 2010).

A baseline assessment of literacy in Ballymun has found that the reading level of children leaving primary school - as revealed by the 6th class scores - creates a "significant difficulty for almost all of the children in the Ballymun area" (Mac Ruairic 2008). The most notable concern here is the extreme drop between 3rd and 4th class in students scoring above the 50th percentile (22% from 37% to 15%). Write Minded is an additional, and complementary areabased literacy strategy being implemented in schools in Ballymun across all years. Key features of the strategy include the development and implementation of a balanced literacy framework, tailored capacity building activities to facilitate the integration of proven language and literacy methodologies into teaching across the curriculum, embedding school-wide assessment and ongoing monitoring procedures, and supporting pupils' transition from primary to post primary school. Alongside the school-based activities, there is a community component which includes the development and implementation of methodologies and initiatives to engage and support families' literacy and educational support skills, and engaging, supporting and mentoring community-based organizations to build their capacity to integrate literacy within their work. The aim is to create cumulative, discrete literacy benefits in Ballymun and to ultimately improve educational attainment of children.

²⁰DEIS is an Irish word, which means opportunity and an acronym for Delivering Equality of Opportunity in Schools. It aims to deliver educational opportunities to children from disadvantaged backgrounds. http://ppds.ie/index.php?option=com_content&task=view&id=59&Itemid=82

There are various estimates of the costs to society of poor literacy, some of which are based on evaluations of the UK's Every Child a Reader (ECaR)(of which Reading Recovery forms a part) (Schweinhart 2003). One of the more balanced estimates is an analysis of the UK Department of Education (2011) which suggests that its cost-effectiveness is approximately £15,000-£20,000 per additional child reaching the expected level of literacy. The principal caveat is related to the durability of the gains; for ECaR to break even, these must be sustained beyond age 11 and lead to an increased likelihood of obtaining formal qualifications (by four percentage points) so that the costs of its provision would be offset by an increase in earnings. In the case of Write Minded we neither know whether the gains are being sustained, nor whether they are likely to lead to more formal qualifications at this stage in the evaluation, and, in the interests of the forecast, we have *assumed* for the purposes of the forecast that they are.

All studies that have sought to quantify the costs and benefits of literacy interventions are based on assumptions of effectiveness. Similarly, determining the projected benefits of Write Minded and the extent to which they are sustained over time requires a degree of inference. Identifying the appropriate intervention group is difficult because although all 2,155 children receive Write Minded, there is (as of yet) no evidence that all children will be benefiting every year. The interim evaluation compared two cohorts of children before and after it was introduced, and the percentage change in effectiveness, which is used in the study, is based on the difference between two cohorts. Therefore, it was decided to model here the benefits for an annual cohort of children (approximately 800).²¹

Evidence suggests that literacy needs in Ballymun are very high, and similar to other disadvantaged schools in Ireland (Mac Ruairic 2008). We have therefore assumed that one third of children would have some need in relation to literacy, which is the finding for disadvantaged schools in Ireland generally (DES, 2011). In our model, it was not possible to split these by low and high needs, as *youngballymun* did not have access to the raw data at the time. In future, a more detailed description of literacy needs data would be helpful as the difference in savings of reducing low and high literacy needs are significant (Richmond et al. 2008)²²

The interim evaluation found a 5 per cent increase in Micra-T²³ scores between two first class cohorts. Whether this relates to a number of children achieving significant change, or all children making small improvements, is not clear. For the purposes of the forecast, this study assumes it relates to the former, which would mean that 40 children per year in Ballymun (i.e. approx. 5% of 800) are likely to significantly benefit from the intervention each year.²⁴ This assumption is of course open to challenge. However, it is worth reminding the reader that the purpose of the study is to demonstrate the expected economic returns were the projects able to follow through on the emerging outcomes so far being observed. We are assuming a degree of success on the part of this project but further research is required to refute, or confirm this.

Poor literacy levels are most closely associated with poor educational attainment and poorer prospects in the labour market (Bloom, et. al. 1997; McIntosh and Vignoles 2001). In addition,

²¹This figure was provided by *youngballymun*

 ²²Reducing high literacy needs have been calculated to be as high as €537 million per year in Holland and €800 million in Switzerland.
 ²³The Micra-T test aims to provide Irish primary school teachers with accurate information on the

²³The Micra-T test aims to provide Irish primary school teachers with accurate information on the reading levels of pupils in their classes. In particular, the tests enable teachers to compare the reading performances of their pupils with reading standards nationally.
²⁴The scores are calculated as averages. This is useful to get an overall picture, however, from a cost

²⁴The scores are calculated as averages. This is useful to get an overall picture, however, from a cost benefit perspective, it would be better to present the data as the percentage of children reaching the average (100 in this instance) who were previously below average, as this would provide a more accurate picture.

there are shorter term cost implications such as special educational support and reduced truancy, exclusion and grade retention. Table 13 sets out the write minded assumptions underpinning anticipated outcomes and the sources of the assumptions that were employed. As we can see, most of the benefits are derived from remaining in school longer and improvements in employment prospects and productivity. Most of these findings were based on controlled studies. However, two exceptions were with truancy and exclusion, where the national truancy and exclusion rates were used (2% and 0.1% respectively). Truancy and exclusion rates within DEIS schools would have been preferable but this was not available.

Outcome area	Assumption	Source
Increased productivity	One extra year in school (7%)	(Coulombe and Tremblay 2006)
Unemployment	Reduced risk (13%)	(Dugdale and Clark 2008)
Special Educational Needs	Reduced risk (3%)	DfES
Grade retention	Half of 'at risk' group repeat a grade	Just Economics assumption
Truancy and exclusion	Reduced risk truancy (25%) and exclusion (5%)	DfES
Long-term health problem	Reduced risk (3%)	(Feinstein 2002)

 Table 13: Write minded assumptions underpinning anticipated outcomes

The extent to which benefits are sustained over time is also crucial here, as research suggests that most children make substantial gains in literacy in the first grade (Schwartz et al. 2009). For example Reading Recovery has been found to have an attrition rate of 17 per cent (Burroughs-Lange 2006). This model assumes similar drop off rates. Higher effectiveness is expected by *youngballymun* from the programme, however, if this can be demonstrated over time, the assumption can be adjusted accordingly. Fourth class (approximately 10 years of age) sees a dramatic drop in literacy standards in Ballymun schools (Mac Ruairic 2008), and this is also the age at which literacy benefits need to be sustained to ensure longer term impacts (Schwartz et al. 2009). Table 14 shows how the proxies were constructed for this calculation alongside costs and benefit periods.

Table 14: Outcomes, proxies, costs and benefit period

Outcome area	Proxy value	Annual cost	Benefit period
Increased productivity	7 per cent of per capita productivity	€2,800	5 years
Unemployment	Foregone tax and benefits (O'Neill et al. 2010)	€15,000	5 years
Special Education	Annual cost of four hours school support	€3,161	10 years
Grade retention	Costs of Irish average (OECD) http://www.oecd.org/dataoecd/35/30 /48362519.xls	€5,750	One off cost
Truancy	UK cost converted and uprated (Parsons and Castle 1998)	€1,000	5 years
Exclusion	UK cost converted and uprated (Parsons and Castle 1998)	€7,300	One off cost
Long-term health problem	Average cost of condition (1 inpatient and 4.5 outpatient admissions)	€66,567	One off cost

Appendix 2: Ready Steady Grow

Ready Steady Grow could be broadly described as a parenting, infant mental health and antenatal programme aimed at pregnant women and all parents of babies aged between 0 and 3 years in Ballymun. It incorporates the Parent Child Psychological Support Programme (PCPSP), which is the focus of this study, that was originally developed in Spain in the 1990s, and which has also been piloted in Tallaght. The PCPSP is a centre-based intervention, which consists of 6 visits that are scheduled for each dyad on a periodic basis (i.e. approximately every 3 months) until the baby is 18 months old. The programme aims to promote cumulative protective effects by targeting children's cognitive and emotional competence, as well as parenting behaviours and parent-child interaction (Cerezo, 2003). Another notable aspect of its approach is that it is a universal service and not targeted at high risk or vulnerable groups. This is in response to the fact that problems can arise at any point in time, even amongst low risk groups and that it can be difficult to accurately predict who will fall into a particular risk category (ibid.). It is also consistent with a strengths-based approach to service delivery, which does not target particular groups.

As with the other programmes, there was a lack of clearly defined outcomes against which to compare our findings. Although the programme has been evaluated in another setting, the evidence provided is patchy and some of it has been difficult to map on to what the programme in Ballymun is trying to achieve. The evaluation being conducted for *youngballymun* is also using a wide range of measures, but these are not the same as those used in the original evaluation, which unfortunately, makes comparisons across the programmes difficult. Based on the measures used in the *youngballymun* evaluation, two aspects of child development have been identified that are linked to outcomes in later life:

- Attachment disorder; and
- Developmental delay

Attachment disorder is a term, which describes a disorder of mood, behaviour, and social relationships arising from a failure to form normal attachments to primary care-giving figures in early childhood. It would normally arise from experiences of abuse or neglect. It is found to be associated with externalising problems later in life (Smeekens, Riksen - Walraven, and Van Bakel 2009; Lyons-Ruth, Easterbrooks, and Cibelli 1997).

Numerous studies have found a high prevalence of psychopathology in people with developmental delay (Atkinson, Feldman, Condillac, & Laforce, 2000; Borthwick-Duffy & Eyman, 1990; Gilberg, Freedman, Grufman, & Themner, 1986; Iverson & Fox, 1989). Common problems include anger and self-control, attention deficit, autism and withdrawal (Atkinson et al., 2000). Attachment and developmental problems are also both linked to conduct problems (Feldman et al. 2000; Mäntymaa et al. 2009; Smeekens, Riksen - Walraven, and Van Bakel 2009).

To estimate the effectiveness of the PCPS programme in reducing the risk of developing these problems, we used data from Cerezo (2003). Although drawn from a small-scale study (and one conducted by the programme developer), this is the only evaluation of a centre-based pre-natal service of this kind from which we can infer an effectiveness rate. Cerezo found a decrease of 20 percentage points in attachment problems in children post-intervention

(n=16) when compared to a control group $(n=13)^{25}$. As the author acknowledges, this is a very small sample, and the findings, therefore, may not be generalisable. The evaluation of Ready Steady Grow that is currently underway will provide a useful benchmark against which to compare these findings.

Cerezo's research (2003) also finds a 4 per cent decrease in developmental problems. The programme showed statistically significant effects from the fourth visit onwards with regard to Fine Motor Development, and at the sixth visit, for Adaptive Development compared with a comparison group (see Figure 5).²⁶ These findings are consistent with a previous evaluation of the same programme in a Spanish setting by the same author (Cerezo and Pons-Salvador 1999).



Fig

ure 4: Comparisons between programme and comparison group in relation to fine motor development

Children with delays were 3 to 4 times as likely to have total CBCL (problem behaviour) scores within the clinical range (Baker et al. 2002). Smeekens et. al. (2009) found that disorganised attachment explains 22 per cent of externalising behaviour, whereas Mäntymaa et. a. (2009) reported a 13 per cent higher risk of developing conduct problems amongst children who have poor attachment. Using Cerezo's predictions of reduced attachment and developmental problems, it was possible to calculate an expected number of total number of 'avoided incidents' of conduct problems as a result of reduced attachment (Smeekens, et. al. 2009) and developmental problems (Mäntymaa et. a. 2009) (57 and 10 respectively). The costs of conduct problems have already been calculated for the Incredible Years programme (see Box 1) and were, therefore, also used here for children benefiting from this programme.

 $^{^{25}}$ It was not possible to carry out analysis of statistical significance due to the fact that there was a sample of <5 in the 'insecure' category in one of the groups.

²⁶* denotes statisticla significance.

Appendix 3: 3, 4, 5 Learning Years

3,4,5 Learning Years comprises of two strands of work. Strand I is an area-based strategy aimed at supporting quality practice through the implementation of Síolta (the National Quality Framework For Early Childhood Education), and Strand II supports school readiness in preschool children through the delivery of the HighScope curriculum. Due to data gaps and dangers of double counting, this study has just looked at the cost benefits of Strand II.

The evaluation of the original HighScope programme was ground-breaking in the area of early intervention and particularly the application of cost benefit analysis to long-term social problems (Petrou and Gray 2005; Leonard 2012). The study examined the lives of a sample of 123 young African American children living in poverty who were randomly assigned to a programme group that received a high-quality preschool intervention at ages 3 and 4 or no intervention. Data were collected 14 times between the ages of 3 and 40. The results showed that the intervention group significantly surpassed the control group in terms of school success, adult employment rates and earnings, and half as many lifetime arrests and convictions for crime. Two later US-based studies provided further evidence to support this type of investment: the Abecedarian Early Intervention Project and the Chicago Parent Child Programme (Mann and Reynolds 2006; Barnett and Masse 2007). Both of these studies have showed similar impressive results to High/Scope (Petrou and Gray 2005).

In spite of the successes of the HighScope programme in the US, the quality of the study and the generalizability of its findings have been the subject of much criticism (Besharov et al. 2011, Petrou and Gray 2005). Large-scale programmes inspired by the High/Scope Perry Preschool programme have certainly not been able to replicate the results. Most notably, this project provided the inspiration for Headstart in the US and Surestart in the UK (Anning et al. 2007; Belsky et al. 2006; Anning et al. 2007). According to Schweinhart (2007), this was due to inadequate funding and other misconceptions of early childhood programmes. For example, Head Start only used 10% of the High/Scope curriculum in its programmes (ibid.). To the charge that the programme has never been replicated using a random assignment (Besharov et al. 2011), Schweinhart has responded that it is often inappropriate to perfectly replicate studies, and that variations relating to the population and context need to be introduced. He uses evidence from the other randomly assigned preschool interventions cited above to support this (ibid.).

To ensure fidelity with the HighScope model, a system of accreditation - Preschool Programme Quality Assessment (PQA) - has been designed to certify teachers and trainers(HighScope 2012). The PQA covers 63 dimensions of programme quality in 7 domains including: learning environment; daily routine; adult-child interaction; curriculum planning and assessment; parent involvement and family services; staff qualifications and development; and program management.

youngballymun is supporting the implementation of the HighScope curriculum into four preschool settings in the community. Improvements in service delivery are compared according to this measure, with the baseline prior to HighScope implementation. In the absence of any other measure of effectiveness, we have used the results of the PQAs. We acknowledge that service quality is not equivalent to an outcome measure; therefore this is an imperfect proxy. However, the alternative was to assume outcomes across the population

equivalent to HighScope, which given experiences in other settings would certainly run the risk of over claiming.

No baseline assessment of needs was taken in advance of the implementation of HighScope. Therefore, we have used the findings from the baseline community-wide needs analysis carried out by McKweon and Haase (2006). We also split the population attending pre-school with the HighScope curriculum, into male and female, as a notable finding from the cost benefit studies of High/Scope, was the different costs of male and female participants due to differing Criminal Justice System costs.

Our analysis identified a potential 255 children with high social and emotional needs.²⁷ If the PQA scores are a measure of the change that can be expected as a result of this curriculum, this would suggest that there were 92 children (72%) for whom the intervention was effective (Clarke 2011). The outcomes we have modeled here are limited to educational attainment, future drug use and crime (males only), increased earning capacity and improved chance of employment. Other outcomes were excluded, either because they were found not to be statistically significant in follow-up studies of High/Scope, or because they were not applicable in this context (see Table 15). The evidence for cost effectiveness was drawn from Heckman et. al. (2010) and Schweinhart (2003). The Heckman study is particularly useful as it was carried out in response to criticisms of over claiming, and has attempted to provide more realistic estimates than in previous work, with regard to where the cost savings were likely to accrue. Heckman et. al. find that the annual social rates of return generally fall between 7 and 10%, with most estimates substantially lower than those previously reported. However, they also find that the returns are generally statistically significantly different from zero for both males and females and are above the historical return on equity.

Some additional data required for this analysis (e.g. on benefit period) were drawn from the Chicago Longitudinal Study and the Abecedarian Early Intervention Project (Reynolds et al. 2002; Barnett and Masse 2007). Drop off was set relatively low at 5 per cent, as the durability of outcomes from preschool interventions has been shown to be remarkably robust (Campbell et al. 2002) .The difference between the T1 and T2 measurement of PQAs was 41%, and that proportion was removed from the analysis. In addition, deadweight was calculated from the control group for each outcome included (see Table 15).

²⁷There are 201 accessing the ECCE services implementing High/Scope. Forty six percent of the children in Ballymun have been identified as having high social and emotional needs (McKeown and Haase 2006).

Outcome	Perry Preschool Project (Intervention Group (n=58) Control (n=65)	Abecedarian Early Intervention Project (Intervention Group (n=57) Control (n=54)	Chicago Child- Parent Centre (Intervention Group (n=989) Control (n=550)
Sample recovery for high school completion	94%	95%	87%
Special education services by age 15/18	15% vs. 34%	12% vs. 48%	14% vs. 25%
Grade retention by age 15	Not significant	31% vs. 55%	23% vs. 38%
Child maltreatment by age 17	Not measured	Not measured	7% vs. 14%
Arrested by age 19	31% vs. 51%	Not significant	17% vs. 25%
Highest grade completed by age 21/22/27 (mean)	12% vs. 11%	12.2% vs. 11.6%	11.3% vs.10.9%
High school completion by age 21/22/27	71% vs. 54%	70% vs. 67%	66% vs. 54%
Attend college by age 21/22/27	33% vs. 28%	36% vs. 12%	24% vs. 18% at
Employed at age 21/22/27	71% vs. 59%	70% vs. 58%	Not measured
Monthly earnings at age 27	\$1219 vs. \$766	Not measured	Not measured

Table 15: Outcomes from High/Scope and similar programmes

Appendix 4: Additional costs data

Cost	Value	Source
Crime		
Prison place	€ 77,000	Irish prison service (2008)
Average cost of crime	€2655	Criminal justice budget (2011) divided by the number of crimes (author's calculation)
Prolific serious offender	€106,292	(5 crimes, 3 arrests and 1 incarceration)
Prolific petty offender	€13,279	Five crimes
Care		
Foster care costs	€ 4,152.00	Foster care allowance. Estimate of foster care social work time (2 days per week*37) Fostering First
Cost of residential care	€ 220,000.00	Irish Examiner report http://www.examiner.ie/ireland/euro90m-a-year-to-keep- children-in-care-102130.html
Education		
Annual cost of in-school support	€ 3,161.60	(O'Neill et al. 2010) and author's calculations
Social work relating to truancy	€ 1,000.00	(Parsons and Castle 1998) - UK figure
Cost of permanent exclusion	€ 7,300.00	(Parsons and Castle 1998) - UK figure
Grade retention	€ 721	OECD estimate for Ireland http://www.oecd.org/dataoecd/35/30/48362519.xls
Economic		
Productivity per worker	€ 40,000.00	GDP 2011/ employment rate (World Bank 2012)
Productivity per extra year in school	€ 2,800.00	
Estimated economic losses ADHD	€ 4,800.00	12 per cent of productivity
Difference in annual earnings (HighScope)	€3001	(Heckman et al. 2010)
Taxable income from	€601	20 per cent of extra income

HighScope		
Cost of unemployment (lost tax and benefit)	€15,000	(O'Neill et al. 2010)
Cost of in-patient per session	€ 65,847.00	(O'Neill et al. 2010)
Health		
Cost of outpatient (3 sessions)	€ 480.00	(O'Neill et al. 2010)
Cost of outpatient (4.5 sessions)	€ 720.00	(O'Neill et al. 2010)
Costs of healthcare for ADHD	€ 7,098.79	207% higher than without condition
Average length of stay in hospital	6 weeks	OECD Health data (2011)
Cost of long-term health problem (1 inpatient and 4.5 outpatient)	€6,6567	Average number of outpatient visits for diabetes (Maciejewski et. al.)
Health costs of drug use (10% of costs of drug use)	€5847.82	UK data (Heckman et al. 2010)

Appendix 5: Data Gaps

A major challenge in conducting this research was a lack of data throughout, particularly in an Irish context. This section details the gaps that existed at the national, local and project level.

National level data

<u>Costs Data.</u> The lack of published cost data is a risk to this kind of cost benefit analysis. In particular, there is a lack of published data on unit and marginal costs. By way of comparison, in the UK the Public Service Research Unit (PSSRU) publishes unit costs of all social services. The current study relied on a couple of sources of cost data. The first best option was to find data that had been published in previous cost analyses. Even here, this was sometimes simply estimated from departmental budgets (e.g. by dividing the staff bill by the number of staff to arrive at a unit cost for a social worker hour) (O'Neill et al. 2010). The second best option was to use UK (or in one instance OECD) estimates, converted to Euros. It should be stressed that costs from other countries were only used in a minority of cases, and it is the view of the authors that the costs are unlikely as to be so different as to invalidate the findings. Where there was a risk of error, it was more likely to underestimate the costs, as Irish public service costs tend to be higher due to smaller economies of scale.

<u>Data on social trends</u>. Data on national social trends are also lacking. Outside of the census, which has a long time lag, there is little good quality data that can be utilised by researchers. For example, there are no national panel surveys such as the British Household Panel Survey. Data on crime is limited to Garda statistics, which have limited comparability, and economic indicators such as rates of pay, household spending, public spending and enterprise and employment rates are also limited. These data gaps make it difficult to evaluate policies and make assessments of returns to public expenditure. They also highlight an important need to introduce proper data collection procedures in Ireland in order to inform policy decisions and service planning.

Regional / local level data

Data for smaller geographical units are also in short supply and this mirrors the problems at national level. As mentioned earlier, it was not possible to compare rates of crime, incarceration, domestic violence, happiness, homelessness, depression, obesity or enterprise formation in Ballymun with other parts of Dublin or Ireland.²⁸ Neither was it possible to see whether trends in these areas had improved, or disimproved over time. These gaps meant that changes at the community level could not be controlled for and the impact on Ballymun as a community could not be measured.

²⁸ An exception is drug use. The National Drug Prevalence Survey (which includes alcohol) is carried out approximately every three years and for one year there was a booster sample in Ballymun. Data are reported regionally as there is a regional drug task force.

Project level data

youngballymun is clearly committed to building an evidence base, and there are some areas that it can continue to develop in order to improve the quality of data being gathered. For example, as we have seen, SDQs are completed and gathered routinely as part of the Incredible Years service; however, these do not provide a sufficient basis on which to ascertain effectiveness due, in particular, to the absence of a control group (unlike the much larger *Incredible Years Ireland Study* which is based mainly on a series of Randomised Controlled Trials). However, identifying an appropriate control group is difficult for a universal service. See section 5.1 for recommendations on how to enhance this aspect of the organisation's measurement.

youngballymun

Pioneering Prevention and Early Intervention

www.youngballymun.org

