

**THE EXTERNAL COSTS OF POVERTY:
A CONSERVATIVE ASSESSMENT**

A Report to the United Way of Calgary and Area

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HIGHLIGHTS

This report was compiled in response to a request from United Way of Calgary and Area for information on the costs of poverty in Calgary. We provide an estimate of the 'external' costs of poverty as a contribution towards constructing a compelling case for sustained poverty reduction in the city. By *external* costs we mean costs incurred by people other than those who live in poverty.

Poverty has been associated with increased need for health care, reduced high school completion rates, the need for more early childhood and special education services, additional demands on the criminal justice system, and costs associated with the provision of income and social support.

To provide an estimate of these costs, we limited ourselves to using data that were readily available. Thus, we provide a 'ball-park' estimate of costs.

Our findings suggest:

- Increased costs of health care in Calgary of at least \$3.35 million per year and possibly as much as \$16.3 million
- Increased costs associated with the schools system of at least \$4.9 million and perhaps as much as \$7.9 million
- Costs elsewhere in the economy could amount to as much as \$32.6 million per year

Poverty is not inevitable. There are a number of policies and programmes that have been shown to be effective in reducing the depth or the incidence of poverty. The external costs of poverty represent the potential savings that could be realised were we to implement an effective and sustained programme of poverty reduction in the city. They are just one component of the social benefits of poverty reduction. The existence of these costs provides a case for a programme of poverty reduction even if one is not convinced of the need for such a programme on the grounds of social justice alone.

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SUMMARY

There is no question that poverty, particularly sustained poverty, imposes loss of well-being on those who experience it. In addition, poverty also imposes costs on members of society beyond those deemed 'poor'. These 'external' costs include increased spending on health care and special education for example. If the external costs of poverty are high enough then we all stand to benefit from a reduction in its incidence. A case can be made for poverty reduction strategies therefore independent of any appeal to social justice. It may be in each of our interests to reduce poverty.

In this report we endeavour to document what is currently known about the external costs of poverty in Calgary. In doing so, we restricted ourselves to using readily available data. In the event this proved a significant limitation. We were surprised just how little information is available to allow one to estimate the external costs of poverty.

We also adopted an explicitly economic approach. Thus, we regard costs as forgone resources – that is resources that must be committed to addressing the consequences of poverty and so cannot be used to other beneficial activities – and have attempted to provide a \$ valuation of these resources. A more popular way of operationalising cost is in terms of 'bad consequences'. The human costs of poverty in this view include the loss of dignity and self esteem, and the reduced life expectancy experienced by people who live in poverty. This is not the approach we have adopted.

What is the level of poverty in Calgary?

Canada has no official poverty line and no official method of measuring poverty. Official sources instead refer to the numbers of people living in low income or 'strained circumstances'. Three approaches to measuring poverty (or more strictly low income) are described – Statistics Canada's Low Income Cut Off points, the Low Income Method (based on median adjusted household income) and the Market Basket approach (of which two alternative measures are described the Federal Market Basket Measure and the Fraser Institute's Basic Needs Index). The three 'government' methods all tell a very similar story with only minor differences in the numbers of people deemed to be living with low income. The Fraser Institute's measure is more an indicator of subsistence level poverty than relative poverty and so complements the other measures by providing additional information on the depth of poverty in Canada.

Using the LICO approach, data for 1995 suggest that 20% of people in Calgary are living in households with incomes below the low income threshold. One quarter of children aged 5 years or less in Calgary live in low income households. Aboriginal people, recent immigrants, lone parents and people with disabilities are more likely than average to experience poverty.

For many of these people, poverty is a transient experience, but 30% of people living in poverty do so for protracted periods of three years or more.

Our methods

To estimate the external costs of poverty we have first identified the areas of resource use that we thought would be affected by the level of poverty in Calgary. These include health care, education, criminal justice, social support, and income support. For each of these spheres of activity we then used whatever information we could find to measure the impact that we think a change in the level of poverty might have on the associated costs. Having measured the change in resource use we then provide estimates of its \$ value.

There is not a great deal of pertinent information and so we had to make several assumptions to fill in the gaps in what was available. We have been explicit where we have made assumptions and, where this was necessary, we have tried to err consistently on the side of conservatism. We believe our estimate of costs is therefore an understatement. The external benefits of poverty reduction (over and above the benefits enjoyed by people released from poverty) are likely to be substantially greater than the estimates we present here.

The results

Our results suggest that, at the very least, savings in the order of \$8.25 million could be made each year if we were to implement successfully an effective and sustained poverty reduction strategy. This comes from reductions in the cost of health care and special education and the benefits that arise to us all from higher rates of high-school completion. If our more speculative estimates about changes in other sectors of the economy prove correct, then the costs of poverty could be closer to \$56 million per year.

Clearly the existence of poverty in Calgary affects more than just those who experience it first hand.

Moving from costs towards a case for poverty reduction

These costs represent a portion of the benefits that we could potentially realize were we to reduce poverty. To construct a compelling case for poverty reduction, however, we need to know that we can reduce the level of poverty and can do so at a cost that is less than the benefits to be gained. That is, we need to know whether there are cost effective strategies for reducing poverty.

Identifying such strategies lay beyond our remit, but given the importance of considering the cost-effectiveness of options to reduce poverty alongside estimates of its external costs, we briefly reviewed what was known about how poverty could be reduced. Thankfully there is good evidence of the effectiveness of income transfers, programmes to encourage employment and self sufficiency, early childhood interventions to improve school performance and completion rates, and programmes of support to families that

more than repay themselves in terms of reduced use of formal services and reliance on welfare payments.

Our review of this evidence is neither systematic nor comprehensive, but it does enough to indicate that poverty is not inevitable. There are things that we can do to reduce its extent if the political and popular will exists.

Poverty imposes considerable costs on the wider society. The benefits of a sustained poverty reduction programme spread beyond those who currently experience poverty. While it is common to argue for poverty reduction on the grounds of social justice, our work shows that even those who are unconvinced by this argument stand to benefit from a reduction in the level of poverty.

1. INTRODUCTION

There is no question that poverty, particularly sustained poverty, imposes loss of well-being on those who experience it. Notwithstanding this, poverty also imposes costs on society beyond those deemed 'poor'. Children from poorer families are more likely to drop out of school and fail to fulfill their potential. Society as a whole, not just the families concerned, suffers from the wasted human capacity. Poorer people are also more likely to experience ill health and so the costs of health care are likely to be higher than they would otherwise be, at least to the extent that poorer health outcomes translate into increased use of services. These are examples of *external* costs: that is costs incurred by the rest of society in addition to the burden borne by those living in poverty.

Opinions vary about the causes of poverty. At one extreme, some assert that the causes lie in social factors and the responsibility for eliminating poverty is a collective one. At the other extreme, some would argue that responsibility lies with the individuals concerned and social responsibility ends with the provision of a minimum safety net. The existence of external costs complicates the picture. If the external costs of poverty exceed the costs of reducing it then a case can be made for poverty reduction strategies *irrespective* of what one believes about its causes. That is, even if one is not convinced of the need for poverty reduction strategies on the grounds of social justice, the external costs associated with poverty can provide grounds for intervention based on self interest.

This report was prepared in response to a request from United Way of Calgary and Area for information that could help them develop a compelling case in support of their sustained poverty reduction initiative. We interpreted our brief to discover and assimilate whatever information on the *external* costs of poverty in Calgary was readily available.

The report is set out as follows. Following this introduction, in section 2, we discuss the alternate ways in which poverty or low income is measured in Canada and report on the extent of poverty in Calgary. We side step the debate about how poverty *ought* to be measured, that is whether it should be measured in absolute or in relative terms, and refer the reader instead to the paper by deGroot-Maggetti (2002) for a useful discussion of the issues. The costs that we enumerate in this report are as associated with inequality in income as they are poverty and so it is not important whether people living at the low end of the income distribution are regarded as living in poverty or living with low income.

In estimating the costs of poverty, we have adopted an economic perspective and in section 3, we discuss what this means and how it affects what we regard as a cost. Our best estimates of the actual costs associated with poverty in Calgary appear in section 4. The final section discusses the results of the exercise. We highlight some of the caveats to bear in mind when considering the report's findings and discuss the connections between the costs of poverty and the steps that need to be taken next to construct a compelling case for sustained poverty reduction.

2. POVERTY IN CANADA AND CALGARY

2.1 OFFICIAL MEASURES OF LOW INCOME AND POVERTY

Canada has no official poverty line and no formal way of measuring poverty. Official documents refer instead to people living in low-income households or in ‘straitened circumstances’.

One of three methods is often used to count the numbers of people living with low income. The first, and most widely used, is the *Low Income Cut Off* (LICO) method developed by Statistics Canada. LICOs have been computed since the late 1960s (Sheridan, 1996). The approach starts by taking the proportion of the average household’s income that is spent on necessities. A household is then deemed to be a low income household if its spending on these same necessities is 20 percentage points greater than this average (Sheridan, 1996). The proportion of household income spent on necessities has fallen over time and data from the Household Expenditure Survey shows that the average household now spends about 35% of its income on food, shelter and clothing. Thus, a household whose spending on these same necessities amounted to 55% of its total income would fall below the LICO and would be deemed to be living with low income.

Despite the arbitrary nature of the threshold, the LICO approach has stood the test of time. Its results are also broadly consistent with those generated by other methods of measurement.

Different LICOs are derived for different types of community to reflect the different demands placed upon the household incomes of families living in large versus small cities and in urban versus rural areas. Before tax LICOs for 2000 are shown in Table 1. This year is chosen to facilitate comparison among the alternate measures of low income. The LICOs for 2003 are shown in Appendix 1.

Table 1 Before Tax Low Income Cutoffs for 2000 using the 1992 Base

Family size	POPULATION OF AREA OR TYPE OF AREA OF RESIDENCE				
	500,000 or more	100,000 to 499,999	30,000 to 99,999	Small urban regions	Rural (farm and non-farm)
1	\$18,371	\$15,757	\$15,648	\$14,561	\$12,696
2	\$22,964	\$19,697	\$19,561	\$18,201	\$15,870
3	\$28,560	\$24,497	\$24,326	\$22,635	\$19,738
4	\$34,572	\$29,653	\$29,448	\$27,401	\$23,892
5	\$38,646	\$33,148	\$32,917	\$30,629	\$26,708
6	\$42,719	\$36,642	\$36,387	\$33,857	\$29,524
7 +	\$46,793	\$40,137	\$39,857	\$37,085	\$32,340

Source: Canadian Council for Social Development

A family of four (two adults and two children) living in Calgary in 2000 would have been regarded as living in ‘straitened circumstances’ therefore if its annual income before taxes and transfers was less than \$34,572.

The second approach to measuring poverty is the *Low Income Measure*, which regards households as living with low income if their income is less than 50% of the median *adjusted* family income. The low income thresholds for families of different sizes and composition for 1997 are shown in Table 2.

Table 2 Low Income Measure

FAMILY SIZE	COMPOSITION		INCOME CUT OFF (\$ / year)	
	Adults	Children	1997 Prices	2000 Prices
1 Person	1	0	12 914	13 611
2 People	2	0	18 080	19 056
	1	1	18 080	19 056
3 People	3	0	23 245	24 500
	2	1	21 954	23 140
	1	2	21 954	23 140
4 People	4	0	28 411	29 945
	3	1	27 119	28 583
	2	2	25 828	27 223
	1	4	25 828	27 223
5 People	5	0	33 576	35 389
	4	1	32 285	34 028
	3	2	30 994	32 668
	2	3	29 702	31 306
	1	4	29 702	31 306

Source: Human Resources & Development, Canada 2003 and authors’ calculations

The adjustment to family income takes into account the different needs of families of different sizes. Larger families need higher incomes but ‘economies of scale’ exist as household size increases. A family of four therefore does not typically require twice the income to maintain the same standard of living as a family of two for example. An ‘equivalence scale’ is used to reflect differences in family size. In the LIM, the oldest adult receives an allowance of 1.0. Each additional family member aged 16 years or over is allowed 0.4, and each child under age 16 receives an allowance of 0.3. An adult living alone has an adjusted family size of one. A couple with two children both aged under 16 has an adjusted family size of two (1+0.4+0.3+0.3). To adjust the incomes of these two families and make them comparable, their incomes are divided by the adjusted family

size. In other words, the family of four is assumed to require twice as much income as the single person living alone to meet the same level of household need.

Using changes in the consumer price index to revalue these amounts to prices current in 2000, the threshold for a family of four living in Calgary would have been \$27,223.

The third measure is the Federal *Market Basket Measure* of low income. Market basket measures, of which the Federal MBM is just one example, reflect a different approach to that adopted in either the LICO or the LIM. Where both the LICO and the LIM reflect *relative* poverty, the market basket approach calculates the cost of a specific ‘basket’ of goods and services and so reflects the number of people in Canada whose incomes fall below a certain *absolute* standard of living.

The content of the basket of goods and services on which the Federal MBM is calculated is based on that required by a reference family consisting of two adults aged 25-49 years and two children, a girl aged 9 years and a boy aged 13. This level of detail in specifying the family is required in order to calculate the costs of appropriate clothing and footwear. The expected cost of the standard basket for families of different size and configurations is then estimated using the equivalence scale described above.

The cost of the standard basket of goods and services is calculated for specific urban communities and for communities of different sizes to reflect differences in prices between communities. Thus, it is more sensitive to differences in the cost of living among communities. The Federal MBM threshold for Calgary (along with the thresholds for Edmonton and rural Alberta for comparison) is shown in Table 3.

Table 3 Federal Market Basket Measure Income Threshold for the Reference Family living in Alberta (2000)

COMPONENT	Calgary \$	Edmonton \$	Rural Alberta
Food	6 183	6 259	6 499
Clothing and footwear	2 156	2 156	2 156
Shelter	8 707	7 874	6 377
Transport	1 392	1 488	3 517
Other	5 743	5 795	5 960
Total	24 180	23 571	24 509

Source: Human Resources & Development, Canada 2003

2.2 THE DIFFERENCES BETWEEN THESE MEASURES

The LICO is a Canadian construct where the LIM is more commonly used in Europe. Both capture inequality or relative poverty rather than absolute poverty and as such, both are criticized by some commentators. The Fraser Institute, in particular has been vocal in calling for a change in the way poverty is regarded in Canada and has supported the use of the market-basket approach, whilst remaining critical of the specific way in which the Federal MBM has been constructed (Sarlo, 2003a, Sarlo 2003b). Sarlo (2003b) suggests that the inclusion in the Federal MBM of the costs of video rentals and tickets to sports events for example distances the measure from a ‘popular’ understanding of poverty. The argument gets at the heart of what poverty means in Canada since, as Mitchell and colleagues (2003) observe, the inclusion of such items in the Federal MBM reflects the fact that Canadians reject the notion of poverty based on subsistence. This alternative view regards someone as poor if he or she cannot participate adequately in social life.

The different ways of defining poverty do have some impact on the results that one gets (Table 4).

Table 4 Incidence of Low Income by Different Measures (After Tax)

	% PEOPLE LIVING IN LOW INCOME (2000)					
	LICO		MBM		LIM	
	Canada	Alberta*	Canada	Alberta*	Canada	Alberta*
All People	10.9	10.1	13.1	11.9	11.1	9.5
- Aged under 18 years	12.6	12.2	16.9	15.4	13.5	11.7
- Aged 18 to 64	11.0	10.4	13.2	12.0	11.3	9.8
- aged 65 and over	7.3		5.8		5.4	
Elderly Families	2.9		4.5		4.1	
- Elderly married couples	1.2		2.4		1.8	
- Other elderly families	9.1		11.7		12.0	
Non-Elderly Families	8.7	7.7	11.6		9.5	7.7
- Married couples	5.8		8.2		6.9	
- Two parent families	7.5		10.8		7.8	
- Lone parent families	30.2		35.6		31.9	
- Male head	11.8		16.9		13.8	
- Female head	33.9		39.5		35.6	
- Other non-elderly families	9.4		11.8		10.8	
Unattached Individuals	28.6	27.0	25.6	25.2	24.9	23.4
- Male	25.5	23.3	24.7	22.6	23.4	21.0
- Female	31.6	31.2	26.5	28.1	26.3	26.2
- All elderly	19.9		11.7		12.2	
- All non-elderly	31.8		30.7		35.3	

Source: Applied Research Branch, Human Resources & Development, 2003

* Some information suppressed by Statistics Canada because of small sample numbers in cells

For single people, the LICO indicates higher percentages of people living in low income households than is suggested by either of the other two measures. That is, there are some individuals deemed to be on low incomes by the LICO approach who can nevertheless afford the basket of goods and services that underpins the Federal MBM. For families, however, the position is reversed. As defined by the Federal MBM, both the after tax LICO measure and the LIM *underestimate* the proportion of Canadians experiencing low income.

These ‘official’ measures of low income can be contrasted with the measure of poverty developed by Chris Sarlo for the Fraser Institute (the Basic Needs Index) (Sarlo, 2001). Like the Federal MBM, Sarlo’s approach is based on a market basket of goods and services, but unlike the measures described above, his notion of poverty is one of subsistence. He specifies and estimates the cost of a basic diet in order to derive an estimate of the income required to sustain a family. The diet is frugal: it is consistent with the Canada Food Guide but it lacks amenities such as tea or coffee for example, as these are deemed to be of questionable nutritious value. He derives an estimate of the costs of ‘minimally adequate’ shelter by assuming that a family of four would rent a property at the average cost of the bottom half of the rental market. In 1997, a family of four living in Calgary was allowed \$608 per month for accommodation costs.

Sarlo’s aim is to construct a measure of *absolute* poverty rather than relative poverty (though he acknowledges that the distinction between the two concepts is artificial as what constitutes the minimum absolute standard is itself a product of what is deemed acceptable by society). The resulting income thresholds, which define a family as living in poverty, are substantially lower than any of the measures described above (Table 5).

Table 5 Poverty Lines as defined by the Basic Needs Index (1997)

Family Size	Calgary (\$)	Alberta (\$)	Canada (\$)
1 person	7 921	7 813	8 511
2 people	12 430	12 260	13 356
3 people	15 108	14 704	16 233
4 people	17 549	17 080	18 856
5 people	19 820	19 290	21 296
6 people	21 959	21 372	23 594

Source: Sarlo (2001)

The Basic Needs Index apparently halves the proportion of the population deemed to be living in poverty. According to Sarlo’s figures, the rate of poverty in Canada is closer to 5% (rather than 11%) of the population, while child poverty rates are closer to 10% (rather than 20%). It is important to recognise however that what Sarlo does with his Basic Needs Index is draw the threshold between poor and ‘non-poor’ at a lower level of

income. The distribution of Canadian incomes is not affected by the measure of poverty used. Thus, Sarlo's estimates do not mean that *fewer* people experience low income. Rather, his work *complements* the figures produced by Statistics Canada by providing additional information about the *depth* of poverty. That is, the data from Statistics Canada suggests that 20% of Canadian children live in 'straitened circumstances' and, according to Sarlo's estimate, we know that one-half of these children live in households experiencing subsistence levels of poverty.

2.3 THE EXTENT OF POVERTY IN CALGARY

The most recent readily available figures for the numbers of people living in poverty in Calgary relate to 1995 (Table 6). Data are only available using the LICO method.

Summarising the table, at the time of the survey, nearly 20% of Calgarians were living in low-income households. One quarter of children in Calgary were living in low-income households. The likelihood of living in a household experiencing low income varied with years of education, employment status, the presence of a disability, ethnic status and age. Women, lone parents, unattached seniors, recent immigrants and Aboriginal people are especially likely to be living in households with low incomes.

The figures represent just a snapshot of people living in low-income households. The percentages are therefore made up of people who experience temporary spells of low income as well as those whose experience of low income is more sustained. Using data from 1993 to 1996, Drolet and Morissette (1999) showed that at any one time over this period, 20% of the population were experiencing low income, that 5% of the population lived in low income households throughout the whole four-year period and that 30% of those who experienced low income did so for spells lasting longer than three years. Lone parents (and their children of course) are particularly prone to experiencing low income for protracted periods (Finnie, 2000).

Table 6 The Extent of Poverty in the Calgary Metropolitan Area (1995)

	Total Number of People	Number Below LICO	(%)
All People	811 500	160 500	19.8
Unattached Individuals			
- Non elderly women	40 700	17 600	43.2
- Non elderly men	54 800	20 000	36.5
- Elderly women	15 100	8 000	53.0
- Elderly men	4 700	2 000	42.6
Economic families			
- Couples with no children < 18	95 600	8 500	8.9
- Couples with children < 18	90 800	13 600	15.0
- Lone parent families < 18	18 800	9 200	48.9
- Other families	14 100	3 000	21.3
Children in families			
- Children aged 0 - 5	67 500	16 600	24.6
- Children aged 6-17	135 600	27 700	20.4
Population groups (all people)			
- Males	407 000	85 800	21.1
- Females	404 500	74 700	18.5
- Recent immigrants (since 1986)	33 600	15 800	47.0
- Visible minorities	127 100	40 200	31.6
- Aboriginal identity	14 400	7 100	49.3
- People with disabilities	72700	24 000	33.0
Education			
- Post secondary certificate	225 500	29 300	13.0
- Secondary education	136 000	27 100	19.9
- < Secondary education	208 000	50 100	24.1
Employment status			
- Full Time / Full year employment	252 900	20 500	8.1
- Part time / Full year employment	36 300	7 000	19.3
- Part time / Part year employment	184 400	45 900	24.9
- No employment in 1995	95 900	33 000	34.4

Source: Lee, 2000

3. DEFINING THE COSTS OF POVERTY

3.1 ECONOMIC COSTS AND THE COSTS OF POVERTY

There is no question that living in poverty is not good for the people concerned. Our focus though is on the *external* costs of poverty – that is the costs incurred by the rest of society other than those who experience poverty first hand. Our interest in the external costs of poverty is not meant to imply that the private costs are inconsequential. The burden of poverty borne privately by the 20% or so of Calgarians who experience it daily is substantial *and* consequential. Rather our interest is in examining the suggestion that poverty imposes costs on the wider society and therefore it may be in our *collective* interests to reduce its extent even without appeal to social justice.

As economists, we operationalise the term ‘cost’ in a particular way. It is common to see the term ‘cost’ used to refer to ‘bad consequences’. This is the approach adopted by the Canadian National Council of Welfare, for example, in its report ‘The Costs of Poverty’. The authors of this report refer to ‘the human cost of poverty’ and include within this the increased incidence of low birth weight babies, increased burden of illness, reduced labour force participation, lowered educational achievement, the break up of families and the lives lost due to homicide or suicide – all of which have been associated with poverty (National Council of Welfare, 2001).

This is a popular use of the term cost, but we do not use cost in this way. We instead attribute cost to the use of society’s scarce resources. The distress and adverse social consequences that accompany poverty, while undeniably bad, are not in themselves a resource and so are not regarded as economic costs. Poverty is not something that we would like to experience, but this in itself does not make the distress associated with living in poverty a cost. Instead, the argument that we make here is that a society with any appreciable level of poverty will need to use more of its resources to support the less well off, to provide health care for the additional low birth weight babies, to provide remedial education for children whose development is stunted by low income, to prevent family breakdown and minimize its consequences were it to occur for example, and that these actions incur costs. Such a society will incur more of these costs than a society without the same degree of poverty, and, all else being equal is therefore less well off than it might be otherwise.

A reduction in the external costs of poverty is therefore part of the social benefit to be reaped were we to reduce the extent of poverty – a benefit that accrues to us all in addition to any increase in the well-being, health and quality of life of people currently living in poverty.

It also follows from the way that we operationalise the notion of costs, that when we refer to ‘the costs of poverty’, we are implying that poverty is the *cause* of the costs being considered. This is a strong statement to make and one that needs interpretation. In some cases, both poverty and the cost that is being considered are the *consequences* of some

other common causal factor. People with severe mental illnesses for example are likely to be both ‘poor’ *and* heavy users of health services. In order to derive an estimate of the *additional* health care costs attributable only to poverty, we would need to strip out the effects of the person’s underlying mental condition on his or her use of health services. Were we not to do this, we would overestimate the savings that could be realised were we to reduce poverty and thereby reduce health care costs.

A second example arises from unemployment. This can be regarded as a waste of human potential – an opportunity to produce more that is not taken. A society with high levels of unemployment is therefore less well off than it could be. It is also likely to have higher levels of poverty, but the poverty in this instance is the *result* of the unemployment and the consequent loss of production. The lost production that unemployment implies is not a cost of poverty therefore.

3.2 WHAT COUNTS AS THE EXTERNAL COSTS OF POVERTY?

The external costs of poverty arise because of society’s response to the additional needs that are generated because there are people who live in poverty. What are these additional needs? Poverty has been associated with reduced health status and higher school-drop-out rates. Some also suggest that poorer people are more likely to engage in certain types of criminal activity. Considerable resources are also devoted to meeting the basic needs of people who live in poverty. The external costs of poverty therefore relate potentially to the *additional* burden on the health care system, resources forgone because of lack of educational attainment, increased costs associated with policing and the judicial system and the costs associated with providing programmatic support for people living in poverty.

We discuss these costs in the following section.

Not all apparent costs are economic costs however. Welfare payments made to people on low incomes for example are not an economic cost in the sense described above. This will sound surprising to many people. Such payments are after all a substantial item on the provincial budget. Around \$400 million per year is spent on income support for people who live in poverty in Calgary.

In what sense is this huge payment not a cost? The key to this question lies in recognizing just what resources, if any, are used up by this spending. The answer is far less than that suggested by the magnitude of the welfare payments themselves. Welfare payments represent a *transfer* of income from one sector of society to another (in this case from tax-payers to welfare recipients). They are not in themselves a payment for resources. The transfer of money does not change the aggregate amount of resources available to Albertans. It simply changes which Albertans have access to the resources that this money can buy.

Welfare payments are a cost to taxpayers (or less accurately, a cost to the government), but they are a source of income or benefit to the people who live in poverty. The cost to one group is therefore offset (except for the costs of administration), by the income received by the people who live in poverty. In terms of a social balance sheet, the two items cancel out. There is no net loss of resources and so there is no social cost.

This point might be best illustrated by considering the counterfactual case. What would the situation be if we made no transfer payments to people living in poverty? Taxpayers in Calgary would be better off to the tune of \$400 million, but people living in poverty would be even less well off than they are now. The gains experienced by one group are offset almost exactly by the losses experienced by the other. From the perspective of the whole society the changes cancel each other out.

Actually, the position is more complicated than as described here. First, there is a cost of *administering* the transfer system, which includes the salaries of the public servants who must determine eligibility and administer the payments. Secondly, there is a cost associated with financing the transfer. The act of raising taxes to pay for the welfare payments distorts the incentives people have to work hard and be productive and so there will be knock-on effects elsewhere in the economy.

The cost of financing such expenditures is the more important of the two. Administrative costs are not usually very sensitive to small changes in the size of the program being administered and so there is not likely to be any substantial saving to be made by a reduction in the extent of poverty in Calgary. For convenience, we can assume that there would be no savings in the costs of administering the smaller welfare payment system that would result from a reduction in poverty. In this way, we *understate* the costs of poverty. Our estimate of costs is therefore a conservative one. The benefits of reducing poverty will be greater than the costs that we estimate here.

The costs of financing welfare payments can be substantial and the more generous the transfers, the greater are the tax receipts required to finance the redistributive program, and the more substantial the costs of financing will be. Dahlby (1994) has estimated the cost of raising public funds in Alberta to be 40 cents on the dollar. That is, every \$1 of public spending incurs an additional cost of 40 cents because of compensatory changes in the broader economy.

To complicate matters further, some studies do treat welfare payments as a cost. Typically these studies have adopted a narrower perspective than the one adopted here. That is, they seek to evaluate the financial consequences to governments of alternative public policies. From such a narrow perspective, the income received by the beneficiaries of transfer payments is not counted because welfare recipients are outside of government. The payment is included as a cost though since it comes out of the public budget. We see this 'government' perspective adopted in some of the policy evaluations described in section 5.

4. COUNTING THE COSTS OF POVERTY IN CALGARY

4.1 HEALTH CARE COSTS

There is no doubt that poverty is bad for one's health (Wagstaff, 2002). Using data from the Canadian Population Health Survey, Humphries and van Doorslaer (2000) found a high degree of income related, health-inequality. Children from low income households are more likely to have lower functional health and are less likely to participate in organized physical activities at school (CCSD, 2003). Associations have also been found between living in poverty and having a child who was hyperactive or obese, though the strength of the association depended on where one drew the poverty line (Phipps and Curtis, 2000).

The impact that poverty has on health care *costs* is less clear, however. A lack of available data has hampered our search for evidence.¹ However, a more troubling reason is that people who live in poverty do not necessarily access or use services as much as their higher health needs would suggest. In Europe, for example, low socioeconomic status has been associated with greater use of family practitioner services, but not specialist services (van Doorslaer et al., 2003).

The picture in Canada is a complicated one. Alter and colleagues (1999) found that area-level socioeconomic status (that is the average income of the neighbourhood in which a patient lived rather than the income of the patient herself) was positively associated with the use of cardiovascular services in Ontario. That is, people living in richer neighbourhoods tended to make greater use of specialist services than their less well off colleagues. Paszat and colleagues (1998) similarly found that area-level income was positively associated with the chances that women would receive radiotherapy for breast cancer.

Kephart and colleagues (1998), however, found an inverse relationship between income and physician visits in Nova Scotia – lower income implied greater than average use of physicians. Similarly, in Winnipeg, residents in low-income neighbourhoods made higher use of family practitioners and had higher rates of hospitalization (Roos and Mustard, 1997). Rates of surgical procedures and consultations with specialists, however, did not vary or did not vary by as much as one would expect given the differences in affluence between the rich and poor neighbourhoods. For Manitoba as a whole, Mustard and colleagues (1998) found a strong inverse relationship between hospital use and income (people on low incomes made greater use of hospital services) after adjusting for age, sex and family size, but no relationship between income and utilization of physician services

¹ Statistics Canada tell us that it is not possible for them to run a customized analysis of health service utilization against adjusted household income to compare health care costs of people in poor households versus non poor households in Calgary because small samples in some cells might allow individuals to be identified.

More recently, Dunlop and colleagues (2000) also found a mixed picture using national data from the 1994 National Population Health Survey. Income was not associated with the probability of attending a family physician, but among people who saw a physician at least once in the year under study, people on low incomes were more likely to make high use of family practitioner services (defined as six consultations per year or more). Despite having worse health and seeing the family practitioner more times, people on low incomes were less likely to see a specialist however.

The picture therefore appears rather mixed, but one should not read too much into this since any comparison between these studies is hampered by the failure in some of this work to adjust for differences in age and gender among the income groups (Mustard et al., 1998).

Only the studies in Manitoba, by Roos and Mustard and by Mustard and colleagues, present the evidence on the relationship between income and health care use in a form that can be used to estimate the additional costs of health care associated with low income. The study by Roos and Mustard examined health service use in Winnipeg in 1992 using neighbourhood income as its measure of socio-economic status (Table 7).

Table 7 Health Service Use in Winnipeg in 1992 by Relative Affluence of Neighbourhood of Residence

Category of Health Service	Lowest Quintile	Second Quintile	Middle Quintile	Fourth Quintile	Highest Quintile
Family practitioner consultations / resident	5.8	5.2	5.0	4.8	4.7
Specialist consultations / resident	1.6	1.6	1.6	1.5	1.7
Days in hospital / 1000 residents	937	711	637	569	500

Source: Roos and Mustard, 1997

To be able to derive estimates of the additional costs of health care arising from low income from these data, we need to make two assumptions. First, since these figures refer to neighbourhoods sorted by income quintile rather than to people sorted by individual income, we need to make an assumption about the income of the *individuals* who live in the lowest income quintile neighbourhoods. The simplest assumption to make is that the bottom quintile neighbourhoods also contain the bottom quintile of individuals. That is, applying the data to Calgary, we assume that the 20% of Calgary's population living in low income (160,500 people) all live in the 20% of neighbourhoods that fall at the bottom of the affluence scale.

The assumption is unlikely to hold in practice but it is a conservative assumption. There will be a number of people whose personal income would place them in the lowest quintile of the individual income distribution but who live in neighbourhoods classified in the second quintile or higher. Equally, there will be people who are living in the poorest neighbourhoods even though their individual income would place them in a higher

quintile if it were individual income that had been measured. However, if people who live in poverty do make greater use of health services, then this mixing of the population by neighbourhood will serve to reduce the differences in utilization between high and low income neighbourhoods and so we probably understate the effect of income on health care costs.

Secondly, we need to make an assumption about the effect that increasing the incomes of people in the lowest quintile would have on their use of health services. In the extreme, we could assume that if the incomes of those in the lowest quintile were equal those in the second quintile then this would eliminate the differences in health care utilization between these two groups. Thus, consultations with family practitioners would fall from 5.8 to 5.2 per person and days in hospital would fall from 937 to 711 per 1,000 people. These reductions in use would be experienced by the 160,500 people living in Calgary in the bottom income quintile. Thus, there would be 96,300 fewer consultations with family practitioners ($160,500 \times 0.6$) and 36,270 fewer days in hospital (160.5×226).

The standard cost of a consultation with a family practitioner in Alberta is \$28 (Medicare rates) and so the potential savings in physician services equals \$2.70 million ($96,300 \times \28). The average cost of a day in hospital in Calgary is \$900 and so savings in hospital costs would equal \$32.64 million per year ($36,270 \times \900). The potential savings to be made if the reduction in poverty flowed through to a commensurate reduction in health service use could be as great as \$35 million per year therefore, of which 92% is from reduced use of hospitals.

To be even more conservative, we might assume that the difference in utilization would only halve if we were to eliminate the difference in incomes between the first and second deciles, or equivalently that only one-half of the costs of health care would be freed up following a reduction in poverty-related use. Even then, the potential savings would be equal to \$17 million per year of which more than \$16 million per year would come from reduced hospital expenditures.

That is, if the pattern of health service use and income observed in the Winnipeg study is similar to what we would see in Calgary, then even under quite conservative assumptions, reducing the extent of poverty could save the Calgary Health Region as much as \$16 million per year. To put this figure into context, the Region was expecting a budget deficit of just over \$7 million in 2003 (Calgary Health Region Annual Report, 2002-2003). Thus, the potential savings to accrue to the region should poverty be reduced are more than twice the Calgary Health Region's budget deficit.

An alternative estimate of the excess health care costs associated with poverty can be derived from the study by Mustard and colleagues (1998). This takes data for the Province of Manitoba as a whole for the financial year 1986/87, and while the data are a little old, this study has the advantage in that it reports health service use by household income adjusted for age, sex and family size (Table 8).

TABLE 8 Costs of Health Service Use (Manitoba 1986/87)

Income Decile	Physician Services Costs (\$,000)	Ratio to mean	Acute Hospitals Costs (\$,000)	Ratio to mean
First (lowest)	19,880	1.01	44,225	1.19
Second	19,800	1.00	55,305	1.49
Third	20,620	1.05	48,370	1.31
Fourth	20,200	1.03	32,175	0.87
Fifth (middle)	19,255	0.98	41,705	1.13
Sixth	19,265	0.98	33,520	0.91
Seventh	18,255	0.93	24,220	0.65
Eighth	19,940	1.01	30,650	0.83
Ninth	19,885	1.01	32,150	0.87
Tenth (highest)	19,845	1.01	27,045	0.73
Average	19,985		36,935	

Note: Costs adjusted for age, sex and household size and expressed in 1986/87 prices as per original Source: Mustard et al., 1998

For physician services, there is no relationship between income and use. Use of hospital services does display the expected negative gradient (more income / less use of services) except for the people in the lowest income decile, whose use of hospital services is lower than that of people in the two income deciles above them. The authors of the original paper suggest that this is probably because of misreporting of incomes in the bottom decile.

Once again, there are a number of steps to be taken before we can use these data to estimate the health care costs attributable to poverty in Calgary. Since physician services did not vary by income, we focus only on acute hospital costs.

The first step is to estimate the costs of acute hospital care in Calgary. To do this we have taken the Calgary Health Region's expenditures for 2003 for inpatient acute services and for emergency and outpatient services. Taken together these services amount to 70% of all (direct) service related expenditures in the region (that is 30% of service related spending is for non-acute services). We have then added to this sub-total 70% of all diagnostic costs. The result approximates (and probably understates) acute hospital costs in the Health Region. The total figure for 2003 is \$885.9 million.

The second step is to take the percentage shares of acute hospital costs attributable to each income decile, using the Manitoban data. Thus, people in the lowest income decile are assumed to use 12% of all acute hospital costs, while people in the second decile are assumed to use 15% of acute hospital costs. These expenditure shares can then be used to divide the estimated costs of acute hospital care in Calgary among the 10 income deciles. The results are shown in Table 9.

TABLE 9 Estimated Costs of Use of Acute Hospitals for Calgary (2003)

Income Decile	Share of acute hospital costs	Acute hospital costs (\$,000)
First (lowest)	0.12	106,076
Second	0.15	132,652
Third	0.13	116,018
Fourth	0.09	77,173
Fifth (middle)	0.11	100,031
Sixth	0.09	80,399
Seventh	0.07	58,093
Eighth	0.08	73,515
Ninth	0.09	77,113
Tenth (highest)	0.07	64,869
Total		885,940

Source: Authors' calculations

The third and final step is to make some assumptions about the effect that alleviating poverty would have on these hospital cost shares.

If we accept the original authors' contentions that the share of hospital costs attributable to the lowest income decile is an anomaly, then one approach would be to assume that alleviating poverty might leave the bottom decile unaffected but would reduce the health service use of people in the second decile to equal that of people in the third income decile. In this case, the potential savings in hospital costs would amount to \$16.6 million per year (\$132.6 million minus \$116 million).

Alternatively, to be more conservative, we might accept the results of the Winnipeg study at face value and attribute lower hospital costs in the lowest income decile to problems with access. Alleviating poverty might then *increase* the hospital costs of people in the lowest decile at the same time as it reduced costs among people in the second income decile. Thus, the costs of hospital care provided to people in the lowest income decile would *go up* by \$10 million per year (from \$106 million to \$116 million) as their higher income leads them to demand more services. The net result is still a saving in hospital costs, albeit a reduced one equal to \$6.7 million per year.

To be even more conservative, we might assume that reducing admissions arising primarily from poverty would only halve the differences in costs, perhaps because the marginal savings to be realised by a reduction in utilisation are less than the average costs per day in hospital. The savings would still be considerable however - between \$3.35 million and \$8.3 million per year.

Thus, with the two Manitoba studies, we can generate a range of estimates of the excess health care costs associated with poverty in Calgary. Even our most conservative estimate

suggests savings in the order of \$3.35 million per year, but the benefits of poverty reduction could be as great as \$16.3 million per year.

4.2 COSTS ASSOCIATED WITH EDUCATION

4.2.1 High School Completion

Children who drop out of high school without completing their education are more likely to end up in low paying jobs and to experience repeated spells of unemployment. Consequently, they are likely to earn less over their lifetime than their contemporaries who do manage to complete high school.

The costs of early school drop out can be substantial therefore, but the largest part is borne by the individual concerned; that is, it is ostensibly a *private* cost rather than an *external* cost. However, the available evidence does not always distinguish between private and external costs. It is also questionable whether children in grades 10 and 11 really do make a rational decision to leave school early, in the sense that they weigh up the full costs and benefits of continuing in school versus dropping and decide to leave school early if the benefits of doing so exceed the costs. We have therefore included discussion of the full education-related costs of poverty here.

The poverty related cost of high school drop out is the product of the number of children who drop out of school because of poverty and the cost per drop out. The rate of high school completion has been increasing but the gap in completion rates between students from poor and non-poor families is increasing. Using data from Statistics Canada, Ross and colleagues (1994) show that children from low income households drop out of school at a rate now more than 2.5 times that of their non-poor contemporaries (Table 10).

Table 10 School drop-out rate among children 16 and 17 years of age by family income class in Canada

Family income status	1981	1986	1991
Not living in poverty	13.6%	7.5%	5.1%
Living in poverty	22.8%	16.5%	12.9%

Source: Ross et al., 1994

Figures from Alberta learning suggest that 65% of students entering grade 10 in public schools in Calgary (i.e., excluding Roman Catholic schools) complete school within 3 years and 74% do so within 5 years. However, many of those who do drop out of school return to the education system at some point and by ages 25-34, 89% of people in Alberta have the equivalent of a completed high school education.

We can use this information to estimate the number of young people who drop out of school because of poverty. The first step is to take the annual cohort of students in year 10 in Calgary schools and apply the proportion of young people aged 6 – 18 years who are currently living in poverty (taken from Table 4) to deduce the number of students living in poverty. This provides an estimate of the number of young people in school living in poor and non-poor households. We then apply the relative drop out rates reported in Table 10 to the results to estimate the number of dropouts coming from poor and non-poor households. The results are shown in Table 11.

Table 11 Number of High School Drop Outs in Calgary due to Poverty

	Number	Drop out rate	Not completing high school	
			(a) current	(b) expected
Students from non poor households	5970	5.1%	304	304
Students from poor households	1530	12.9%	197	78
Total (annual cohort)	7500	6.7%	502	382

Source: Authors' calculations

The annual cohort of students entering grade 10 in Calgary is around 7,500. Of these, 1,530 (20.4%) are likely to come from families living in poverty and 5,970 from families with at least adequate household income. If we apply the relative drop out rates from Table 10 to these numbers, then a total of 502 young people from this cohort will fail to complete high school (column (a)). Of these, 304 (5.1% of 5,970) will be students living in non poor households and 197 (12.9% of 1,530) will be students living in poverty.

The final column, headed (b), shows the expected number of high school drop outs if the rate among young people living in poor households was the same as the rate among young people living in non poor households. The difference between columns (a) and (b) represents the number of students who might complete high school if they were not living in poverty. That is, we could expect an extra 120 young people to graduate from high school each year if we could alleviate their experience of poverty.

This method probably *understates* the number of young people dropping out of high school because of poverty however. The estimated number of drop outs (502) represents only 6.7% of the annual cohort of 7,500 students, whereas the data from Alberta Learning suggests as many as 11% of young people will fail to complete high school by age 34. Thus, we could adjust the numbers of dropouts by the fraction (11/6.7) in order to make the drop out rate more consistent with the Provincial figures. In this case, we would expect to see 825 young people fail to complete (11% of 7,500) of whom, 324 would have come from low income households. This latter number would fall to 128 if

alleviating poverty reduced the rate of high school drop out among students living in low income households to that seen in non-poor households. Thus, alleviating poverty might allow as much as 197 extra young people to complete high school each year.

In summary, depending on which approach is used, a successful attempt to alleviate poverty could result in an additional 120 to 200 young people completing high school each year, all of whom would come from among the most disadvantaged families in Calgary.

There is still some way to go before we can translate these numbers into costs, however. Table 12 describes the different categories of cost and benefit arising from high school completion. The table has been adapted from that reported by the Applied Research Branch of Human Resources Development Canada (2000). Costs and benefits are divided into 'direct' and 'indirect' rather than 'market/monetary' and non-market as in the original since this better describes the type of cost reported in each cell of the table.

Table 12 The Costs and Benefits of High School Completion

	DIRECT		INDIRECT
	Costs	Benefits	
Public / External	(a) Public sector spending on education	(b) Extra income taxes due to enhanced earnings through education	Lower crime, higher economic growth, greater social cohesion, greater personal life satisfaction, better health
Private	(c) Private costs of education including forgone earnings whilst at school	(d) Higher earnings with more education (net of taxes paid)	
SOCIAL	(a) + (b)	(c) + (d)	

Source: Authors' adaptation of table appearing in Applied Research Branch, 2000

Direct costs (benefits) are those that arise directly from the individual's decision to complete high school. For example, the individual will incur costs associated with staying on at school (school expenses as well as forgone income) but in return can expect higher lifetime income.

Indirect costs and benefits are those that arise subsequently to the decision to stay on at school, because being better educated is associated with better health, a better sense of personal satisfaction, greater social cohesion and so on.

The table also serves to illustrate the difference between private costs (benefits) and public or external costs (benefits) - the former accruing to the individual, the latter to the rest of society. Social costs (benefits) are represented by the net sum of all costs and benefits.

There have been two major attempts to quantify the costs associated with high school drop out (or equivalently the benefits associated with high school completion). Unfortunately, the results are not consistent with each other.

The first was compiled for the Conference Board of Canada. To present the results in a more intuitive manner, we show the benefits of high school completion rather than the costs of drop out (Table 13). The figures represent an estimate of the financial benefits to be gained were all students to complete high school. Column (a) reports the costs of staying on at school until high school completion, including the costs of the additional education plus the student's personal expenses. Direct benefits represent the additional income that the high school graduates would earn compared to their earnings stream were they to leave school early. Indirect benefits represent a monetarised estimate of the benefits associated with better health and greater social cohesion etc. The result is the much-cited 'cost' of \$4 billion from high school dropout.

Table 13 Costs and Benefits of High School Completion: Total Costs (1989 prices) Based on LeFleur (1992)

	MARKET		NON-MARKET	TOTALS
	(a) Costs	(b) Benefits	(c) Net benefits	(c) + (b) – (a)
Public (External)	\$ 2,067 million	\$ 1,697 million	\$ 1,738 million	\$ 1,368 million
Private	\$ 156 million	\$ 1,335 million	\$ 1,492 million	\$ 2,671 million
SOCIAL	\$ 2,223 million	\$ 3,032 million	\$ 3,320 million	\$ 4,039 million

Source: LeFleur, 1992

It has been suggested however that this report overstates the costs of non-completion because a drop out rate of 30% was used. The rate of high school drop out has fallen since LeFleur compiled her report, and as indicated is probably closer to 10% in Alberta by ages 25 - 34. The higher non-completion rate exaggerates the *total* cost but not the *per capita* cost, which is what we are interested in. The final cost of \$4 billion was generated by 137,000 young people leaving school early. The *per capita* cost is therefore \$24,840 in 1989 prices. In Table 14, we adjust the results of the LeFleur estimates to express them as *per capita* costs in year 2000 prices.

Table 14 Costs and Benefits of High School Completion: Per Capita Costs in Year 2000 Prices Based on LeFleur (1992)

	MARKET		NON-MARKET	TOTALS
	(a) Costs	(b) Benefits	(c) Net benefits	(c) + (b) – (a)
Public (External)	\$ 19,220	\$ 15,780	\$ 16,160	\$ 12,720
Private	\$ 1,450	\$ 12,420	\$ 13,880	\$ 24,840
SOCIAL	\$ 20,670	\$ 28,200	\$ 30,040	\$ 37,560

Source: Authors' calculations based on LeFleur, 1992

The final figure is a total cost per high school drop out of \$37,560 of which \$24,840 (66%) is incurred by the individual who leaves school. This figure represents the total *lifetime* cost of high school drop out. That is, the flow of cost and benefits identified in Table 12 has been computed for each year over the expected lifetime of the representative individual and then discounted so that it can be expressed as a *net present value*.

Despite the criticism that the LeFleur estimates *overstate* the costs of high school drop out, the second attempt to compute the same costs came up with a higher per capita figure. The Applied Research Branch of Human Resources Development Canada reports the results of (as yet) unpublished work by Vaillancourt and Bourdeau-Primeau (Applied Research Branch, 2000). Vaillancourt and Bourdeau-Primeau computed the net present values of the future income streams of high school graduates and high school drop outs for men and for women using a 3% discount rate (i.e., the rate at which income earned in future is discounted so that it can be expressed in terms commensurate with the present day). The results (that is the differences between the life time incomes of high school graduates versus non graduates) are shown in Table 15.

Table 15 Differences between the Lifetime Incomes of High School Graduates and non Graduates (Year 2000 prices)

	High school completion relative to completion at			
	Grade 9	Grade 10	Grade 11	Grade 12
Men	\$ 150,155	\$ 120,770	\$ 91,390	\$ 56,180
Women	\$ 94,660	\$ 131,650	\$ 48,960	\$ 7,620

Source: Authors' calculations based on Applied Research Branch, 2000

Thus, a young man contemplating leaving school in grade 10 rather than grade 12 would forgo income with a present value of \$120,770 over his working lifetime. A young woman contemplating the same action would forgo \$131,650 in lost earnings.

An alternative way of presenting the same information is to show the *rate of return* to staying in school. Technically, the internal rate of return is equal to the discount rate that would make the net present value equal to zero. It can be regarded as the rate of interest earned by an investment in education. The *private* rate of return is therefore the rate of interest that one would earn by investing in one's own education (Table 16).

Table 16 Private Rates of Return for Men and Women in Prairie Provinces: Differences between High School Graduates and non Graduates

	High school completion relative to completion at		
	Grade 10	Grade 11	Grade 12
Men	52%	75%	16%
Women	35%	74%	0%

Source: Applied Research Branch, 2000

Social rates of return (that is private *plus* public) are much lower since the public sector bears most of the cost of educating young people. There is still a substantial return to society as a whole though, from investing in high school completion (Table 17).

Table 17 Social Rates of Return for Men and Women in Prairie Provinces: High School Graduates versus non Graduates

	High school completion relative to completion at		
	Grade 10	Grade 11	Grade 12
Men	21%	30%	10%
Women	13%	20%	0%

Source: Applied Research Branch, 2000

The difference in the two estimates of the net present value of high school completion is large (the Conference Board of Canada and the work by Vaillancourt and Bourdeau-Primeau) and we have been unable to reconcile the two studies. The difference makes it difficult to derive an estimate of the costs of poverty in Calgary. The most conservative approach therefore is to take the smaller of the two estimates (i.e., the updated per capita

results from the study by the Conference Board of Canada) and apply this to the numbers of poverty-related high school dropouts in Calgary.

Thus, with between 120 and 200 young people failing to complete high school because of poverty; each one costing \$37,560 in forgone income, tax revenues and other costs to society, the total cost for Calgary lies between \$4.5 million and \$7.9 million. This is the cost over the lifetime of the cohort of young people failing to graduate, but it represents just a single year’s cohort. Thus, the costs are repeated each year with each successive cohort of young people exposed to poverty.

4.2.2 Costs associated with early childhood services

Children living in low income households are 1.8 times more likely to be enrolled in remedial or special education classes than children living in households with adequate income (Ross et al., 2000). Reducing poverty might therefore be expected to reduce the need for special education services and the costs associated with its provision. Data from Alberta Learning suggests that there are 1,325 children in Calgary who are receiving early childhood services for mild or moderate degrees of special need at a total cost of \$2.86 million per year (Table 18). To be conservative, we have excluded children with severe needs from this calculation, the rationale being that a poverty reduction strategy in itself might not have much impact on the incidence of severe disability.

Table 18 School Board Funding of Early Childhood Services for Children with Mild and Moderate Special Needs

School Board	Enrolments	Total Costs (\$) per year
Calgary Roman Catholic No 1	375	807,921
Calgary No 19	950	2,046,614
Total	1325	2,854,535

Source: Alberta Learning, www.learning.gov.ab.ca/departement/budget/2004/BoardFunding

If we assume that the need for special education services is equally distributed outside of the bottom income quintile and is 1.8 times higher than this among children in the lowest income quintile, then we can compute an estimate of the excess costs of early childhood services attributable to poverty. This degree of relative risk suggests that there are 411 children from the lowest income quintile and 228 children from each of the remaining quintiles receiving special support. Thus, poverty *per se* leads to an additional 183 children requiring special support each year (that is the difference between the current rate (411 per year) and the rate that one would expect if the need for early childhood services was unrelated to income (228 per year per income quintile). At an average cost of \$2,155 per child, this suggests that savings in the region of \$394,250 per year could be realised if poverty were to be eliminated.

4.2.3 Costs of schooling associated with socio-economic deprivation

From September 2004, school boards in Alberta will receive an allocation in their funding to reflect the additional costs associated with children who experience socio-economic deprivation. For the two main Calgary school boards, the total allocation amounts to over \$12 million per year, 70% of which will go to the public school board.

Five census type measures are used to allocate this money among school boards, of which the percentage of families living below the LICO thresholds is one. Thus, the cost of even conventional schooling is dependent on the incidence of low income. It is not possible to separate the influence of poverty on education costs from the influence of the four other variables contained in the formula, but the magnitude of the cost allocation suggests that even if low income carries only a small weight in the total formula, the impact on education costs of reducing poverty could be substantial. If the poverty measure makes up 10% of the funding formula, then eliminating poverty in Calgary could save Alberta Learning as much as \$1.2 million per year.

4.3 COSTS TO THE CRIMINAL JUSTICE SYSTEM

According to figures produced by Alberta Justice, the cost of policing Alberta in 1997 was \$166 per person. With a population of 2.8 million, the total cost of policing in the province in 1997 was \$465.7 million. This represented 63% of the costs of the provincial justice system, suggesting that the total cost of the criminal justice system in Alberta in that year was \$739.2 million. In year 2000 prices, this is equivalent to \$779.1 million.

According to Statistics Canada, the crime rate in Alberta in 1997 was 91.27 per 1,000 population (Statistics Canada), which suggests that the number of crimes in that year was more than 255,000. The cost per criminal event in year 2000 prices is therefore close to \$3,050.

The crime rate in Calgary in 1997 was lower than for the province as a whole at 77.96 criminal events per 1,000 population. The number of criminal events in Calgary each year is therefore around 63,250. At an average cost of \$3,050 per event, the total cost of criminal justice in Calgary is therefore close to \$195 million.

The question then is how much of this cost is attributable to poverty. That is, if we could alleviate poverty in the city, would we expect to see a reduction in the rate of crime and consequent savings in the cost of the criminal justice system?

This is a difficult question to answer. The level of criminal activity is not strongly associated with absolute levels of poverty though it is related to income inequality (Kaplan et al., 1996). Social experiments such as the 'Moving to Opportunity' program in the USA have also shown that moving poor families from public housing schemes in low income neighbourhoods to public housing schemes in higher income neighbourhoods significantly (and substantially) reduces the rate of violent crime among young people,

pointing to a correlation between neighbourhood income and illegal activity (Ludwig et al., 2001).

The observed relationship between poverty and apparent illegal activity is not questioned, however. The issue is what *causes* the relationship. If we are to attribute a portion of the costs of the criminal justice system to poverty in Calgary, then we must believe that it is poverty that causes an increase in illegal activity. While this is a common view, an extensive review of the literature by the National Council of Welfare questions its substance however (National Council of Welfare, 2000). The Council's report suggests that criminal behaviour is 'not linked exclusively to lower-status people and poor neighbourhoods.' Young people from non-poor families are as likely to engage in illegal activity as their poorer contemporaries. The report's authors also state that the '... social status and income of parents have little or no direct effect on the likelihood that children will turn to delinquency although they may in some cases have indirect effects by amplifying life problems that can lead to crime.'

The report acknowledges that poorer people are more likely to be arrested and charged by the police, to be denied bail once charged, to appear in court without adequate legal representation and to wind up with a custodial sentence rather than a non-custodial alternative. They are not necessarily any more likely to engage in illegal activity however. In this view, any extra costs imposed on the judicial system are less the direct result of poverty and are caused more by the judicial system's reaction to people who are poor.

A reduction in the rate of poverty might still reduce costs to the judicial system, however, even if the mechanism by which this is achieved works more through changes in the way the judicial system responds to criminal activity rather than any change in the rate of activity itself. Unfortunately, we have found no readily accessible way of estimating the share of judicial costs that could be attributed to people living in poverty and so can do no more than speculate what the impact might be. As indicated by the calculations reported above, the judicial system in Calgary costs close to \$200 million per year. If these costs fell by just 1% in response to a substantial reduction in the rate of poverty, then the savings that could be realized would amount to around \$2 million per year.

4.4 COSTS TO SOCIAL AGENCIES ENGAGED IN PREVENTING OR RELIEVING THE CONSEQUENCES OF POVERTY

The 'Poverty Matrix' compiled by the United Way of Calgary and Area does an excellent job of illustrating the scope of anti-poverty activity in the city. The matrix identifies 10 funding agencies, 140 provider agencies and more than 300 distinct programs aimed at preventing poverty or alleviating its impact where it occurs. This represents a substantial amount of activity and probably a significant cost. In terms of this report though, the costs that we are interested in are the *avoidable* costs were it possible to reduce poverty. Not all of the costs of these programs are avoidable in this sense. Many of the programs aim to provide some of the necessities of life – food, clothing, shelter etc. The costs of

these items would be incurred irrespective of the level of poverty in the city. People feed and dress themselves even if not living in poverty. The avoidable costs are represented in the resources that could be diverted to other beneficial uses were they not devoted to alleviating the effects of poverty. Thus, we are interested mainly in things such as staff time (paid and unpaid), vehicle costs and possibly capital costs associated with these programmes – and then only in the portion that would be released for another activity, should the level of poverty be reduced.

Teasing out these elements of the total costs of each of the programs is beyond the scope of the current project. It would require an audit of each program's activities to deduce the share of its resources that is responsive to the level of poverty in the city. This would be particularly difficult since many agencies provide a wide range of services to their clients not all of which relate to alleviating or preventing poverty (City of Calgary, 2003). Estimating the proportion of each program's costs that are pertinent to poverty would require considerable time on the part of the analyst and a substantial degree of trust on the part of the agency. The sheer scale of anti-poverty work in the city and the extent to which it is embedded within a range of other social programs makes estimating the additional costs a major activity.

Some indication of the potential costs associated with poverty can be obtained from the report by Family and Community Support Services of the City of Calgary that describes its funding recommendations for 2003 (City of Calgary, 2003). This identifies over 160 programmes, and more than 50 of these cater sufficiently for people on low incomes to appear in the United Way's poverty matrix. These 50 or so programmes receive \$12 million per year in partial funding from the City of Calgary alone and benefit from the support of over 330,000 hours of volunteer input. While it is difficult to identify what proportion of these costs could be saved were we to reduce the level of poverty in Calgary, one can see that even a very modest reduction in the funding required could release as much as \$600,000 per year.

4.5 INCOME SUPPORT AND WELFARE PAYMENTS TO THE POOR

Welfare payments to people on low incomes in Alberta consume approximately \$1.2 billion per annum (Alberta Government Fiscal Plan, 2003). This comprises child health benefits for children in low-income families (\$443 million in 2003-4), Assured Income for the Severely Handicapped (\$357 million), benefits paid to seniors (\$156 million) and Supports for Independence (\$263 million).

Because 40% of the people living in low-income households in Alberta live in Calgary, we deduce that 40% of the welfare budget is allocated to Calgarians. The total cost of providing income support to poor people in Calgary is therefore in excess of \$450 million per annum.

This amount represents a transfer of income from taxpayers in Alberta to people on low incomes and while it is a cost to the former group, it counts as an income to the latter. If

we did not pay these benefits, Alberta as a whole would be no better or no worse off. The *distribution* of income would be very different, however, and this would have adverse consequences, certainly for people living in poverty and probably also for many other Albertans, but the total incomes of Albertans would not be affected – at least not directly as a result of the transfer.

There is a cost associated with raising the funds to support this transfer however, and we cited one report that suggests that in Alberta every \$1 raised in public finance costs an additional 40 cents in changes that happen elsewhere in the economy as a result of the changed incentives that taxation implies.

Thus, if we could reduce the number of people reliant on income support and so reduce the need for welfare payments, there ought to be an additional benefit enjoyed in the economy more broadly. A 10% reduction in the numbers of people needing income support would lead to beneficial changes elsewhere in the economy worth \$18 million per year (\$450 million x 10% x 40%).

4.6 OTHER COSTS ASSOCIATED WITH POVERTY

There are other external costs associated with poverty that we should identify though we have not been able to quantify them in monetary terms. People living with low income tend to participate less in community life and become socially isolated. The effects that this has on health are captured in our cost estimates, but social participation is an important factor in building social capital and social cohesion and each of these contributes to economic growth (Dayton-Thomas, 2001). A less poor, more socially cohesive city is therefore likely to be a more prosperous one as well.

An unequal and more socially divided community is also likely to *feel* less safe (Putnam, 2000) (irrespective of any effect that poverty might have on levels of illegal activity) and so might be expected to spend more on home security. Indeed, there is evidence to suggest that it is the degree of collective efficacy in a neighbourhood (the extent to which neighbours feel in control and able to look out for each other) rather than poverty *per se* that affects the level of illegal activity (Sampson et al., 1997), though collective efficacy, social cohesion and income inequality (that is relative poverty) are all correlated (Kaplan et al., 1996).²

² Chamlin and Cochran (1997) show that after controlling for poverty and other social factors, the ratio of contributions to United Way to income in a city (which Robert Putnam suggests is a measure of social capital) is inversely related to levels of crime.

4.7 THE COSTS OF POVERTY IN CALGARY

We can now pull these amounts together to derive an estimate of the annual costs of poverty in Calgary (Table 19). The table shows two sets of figures. The first column shows the most conservative estimate. The second column is more speculative and includes an estimate for those elements of cost for which we were unable to derive a definite figure. Thus, our most conservative assumption is that reducing poverty would have no impact on the costs of criminal justice for example, but in the text, we speculate that even if reducing poverty led to only a very modest 1% reduction in the costs of criminal justice in Calgary, then the savings would be in the order of \$2 million per year. Note that even the speculative estimates are conservative in the assumptions that have been used to derive them.

TABLE 19 SUMMARY OF THE EXTERNAL COSTS OF POVERTY

COMPONENT	Conservative Estimate of Annual Cost	Speculative Assessment of Annual Cost
Health care	\$3.35 million	\$16.3 million
Education		
- high school completion	\$4.5 million	\$7.5 million
- special education	\$0.4 million	\$0.4 million
- socio-economic deprivation	-	\$1.2 million - \$12 million
Criminal justice	-	\$2 million
Social support / services	-	\$0.6 million
Income support	-	\$18 million
TOTAL	\$8.25 million	\$46 million - \$56.8 million

By our estimates therefore, the current level of low income / poverty in Calgary costs Calgarians who are not living with low incomes at least \$8 million per year in additional health care and costs associated with education. This is our most conservative estimate of the external costs associated with poverty. The cost could be far greater and could perhaps exceed \$50 million per year if our speculations about the impact that poverty has on other aspects of the economy are valid.

5. CONCLUSIONS

5.1 MOVING TOWARDS A COMPELLING CASE FOR POVERTY REDUCTION: THE COST- EFFECTIVENESS OF POLICY

The information we have provided on the external costs associated with poverty only becomes useful in mounting a compelling case for poverty reduction if there is something that can be done to reduce the problem. That is, if the potential to reduce the costs of poverty can be turned to a reality. To do this, one needs both the political will to act and an array of cost-effective policies and programs. At best, our estimates of the costs of poverty provide one with an idea of the potential benefits to be gained from intervention. Before one can decide whether to act and if so how, one needs to consider both the costs and the likely impact of different forms of intervention. It was not within our brief to review the cost effectiveness of policy responses, but because of the importance of considering the cost-effectiveness of efforts to reduce poverty alongside its costs, we give some thought to the matter here.

David Ross, in his review of policy approaches to address the impact of poverty on health summarises what is known about the effectiveness of national income redistribution efforts (Ross, 2003). Canada's past success in reducing the numbers of seniors living in poverty is directly related to the amount it spends on social programs (i.e. the amount that it is prepared to redistribute from those who have to those who have not). Equally, Ross concludes, Canada's failure to make much impact on the experiences of other demographic groups reflects the lack of spending. In summary, income re-distribution through the tax system is a highly effective way of reducing the number of people living in low-income households. There is, as we have noted however, a cost associated with this option in terms of the distortionary effects that taxation has elsewhere in the economy.

Aside from income redistribution, a number of policy initiatives have been shown to be effective in reducing poverty and the reliance on income support. Many of these bring additional social benefits.

One major Canadian example is the 'Self Sufficiency Project' which aimed to 'make work pay' by providing an additional incentive payment to the recipients of social assistance who took up full employment (Michalopolous et al., 2002). One third of those offered the supplement found employment and overall the intervention succeeded in increasing employment and reducing numbers of people living in poverty, all at low net cost to government. Most notably, the school performance of the children of those enrolled in the program also improved, and unlike the economic benefits, the child outcomes continued even after the parents stopped receiving the incentive payment.

However, among those eligible to receive the income supplement, uptake was considerably higher among those who had work experience and who had completed high school. The supplement was not sufficient therefore to overcome the barriers to

employment faced by young people without a high school diploma; a result that illustrates the importance of supporting such measures with early interventions to counteract the effects of poverty on high school completion.

In this respect, there are useful lessons to learn from the extensive and careful review of the economics of child care by Cleveland and Krashinsky (1998). The authors consider the case for investing in universal, high quality, early child care and conclude that the economic benefits exceed the costs by a factor of 2 to 1. Though not targeting children from low-income families, the economic value of such programs lie in increased labour market participation by parents and improved developmental and educational outcomes in children. Both of these factors have been shown to be protective against poverty and thus, early child care should be considered part of any anti-poverty strategy.

Employment incentive programs and universal childcare and school-based programs each require government action. Operating more ‘downstream’, the work of Gina Browne and colleagues in Ontario has shown how programmatic support in the form of subsidized child care and recreational activities for families receiving social assistance increased the children’s participation in physical and social activities, reduced their use of health and social services and reduced the levels of behavioral disorders (Browne et al., 2001). Families who also received directed support with employment training, financial assistance and health promotion in addition to child care and recreation, were also more likely to come off social assistance, and the savings that this generated for the provincial government effectively paid for the program (Browne et al., 2001).

In short, there is evidence here of a range of policies and programs that have been shown to be effective in reducing the extent of poverty and alleviating its adverse social consequences. Our review is neither systematic nor comprehensive, but it does show that there are grounds for believing that the external costs of poverty can be reduced and at little or no net cost to government.

5.2 CONCLUDING DISCUSSION

We have attempted to quantify the ‘excess,’ external costs of poverty in Calgary using only readily available sources of data. By external costs, we mean the costs incurred by people other than those who live in poverty. By ‘excess’ costs we mean the costs that could be avoided (or savings that could be made) were we to reduce the level of poverty in the city.

Our task proved much more difficult to complete than we imagined. There is very little relevant evidence that is readily available. We have been forced to make several assumptions to use the information that we have found and to fill in the gaps where data were missing.

The results of our work suggest that the level of poverty in Calgary costs Calgarians who do not live in poverty at least \$8.25 million per year. This is our most conservative

assumption. The annual cost could be greater than \$56 million per year if our speculations about elements of the cost for which we were unable to obtain data prove correct.

This work shows that the benefits of a sustained poverty reduction initiative, if effective, spread beyond those who currently experience poverty. While it is common to argue for poverty reduction on the grounds of social justice, our work shows that even those who are unconvinced by this idea stand to benefit from a reduction in the level of poverty.

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After-Tax Low-Income Cut-Offs (LICOs), 2003

Family Size	Population of Community of Residence				Rural
	500,000 +	100,000-499,999	30,000-99,999	Less than 30,000*	
1	\$16,348	\$13,771	\$13,558	\$12,389	\$10,718
2	\$19,948	\$16,803	\$16,544	\$15,118	\$13,079
3	\$25,230	\$21,252	\$20,924	\$19,120	\$16,542
4	\$31,424	\$26,469	\$26,061	\$23,814	\$20,603
5	\$35,122	\$29,584	\$29,127	\$26,616	\$23,028
6	\$38,820	\$32,699	\$32,193	\$29,418	\$25,453
7 +	\$42,519	\$35,814	\$35,259	\$32,220	\$27,878

Source Canadian Council for Social Development

Before-Tax Low-Income Cut-Offs (LICOs), 2003

Family Size	Population of Community of Residence				Rural
	500,000 +	100,000-499,999	30,000-99,999	Less than 30,000*	
1	\$19,795	\$16,979	\$16,862	\$15,690	\$13,680
2	\$24,745	\$21,224	\$21,077	\$19,612	\$17,100
3	\$30,774	\$26,396	\$26,213	\$24,390	\$21,268
4	\$37,253	\$31,952	\$31,731	\$29,526	\$25,744
5	\$41,642	\$35,718	\$35,469	\$33,004	\$28,778
6	\$46,031	\$39,483	\$39,208	\$36,482	\$31,813
7 +	\$50,421	\$43,249	\$42,947	\$39,960	\$34,847

Source: Canadian Council for Social Development



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