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Summative Evaluation of the National Child Benefit

Final Report

October 2013

Strategic Policy and Research Branch

SP-1052-10-13E

Canada

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Evaluation Directorate
Strategic Policy and Research Branch
Employment and Social Development Canada

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SP-1052-10-13E
(Également disponible en français)

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List of Abbreviations

CCCTB	Canada Child Tax Benefit
CB	Child Benefit (variable)
DID	Difference-in-difference
EITC	Earned Income Tax Credit (U.S.)
HRSDC	Human Resources and Skills Development Canada
IV	Instrumental variables
LAD	Longitudinal Administrative Data base
LICO	Low income cutoff
NCB	National Child Benefit
SLID	Survey of Labour and Income Dynamics

* As of July 2013, the official names of the minister and department responsible are the Minister of Employment and Social Development and Minister for Multiculturalism, and the Department of Employment and Social Development Canada (ESDC).

The name of the previous department, Human Resources and Skills Development Canada (HRSDC), is used in this report in a historical context only.

Introduction

The National Child Benefit (NCB) is a joint initiative of Canada's federal, provincial[1] and territorial governments, which includes a First Nations component. It is an important joint undertaking aimed at helping children to get the best possible start in life. Responsibility for the NCB initiative rests with the federal-provincial-territorial ministers responsible for social services.

Launched in 1998, the NCB has three goals: to help prevent and reduce the depth of child poverty; to promote attachment to the labour market by ensuring that families will always be better off as a result of working; and to reduce overlap and duplication by harmonizing program objectives and benefits and simplifying administration. The NCB initiative combines two key elements: federal monthly payments to low-income families with children; and benefits and services designed and delivered by the provinces, territories and First Nations to meet the needs of low-income families with children in each jurisdiction.

This is the second evaluation to be completed on the NCB and was conducted from 2009 to 2012. It specifically assesses the NCB's success with respect to the goals of helping to prevent and reduce the depth of child poverty and to promote attachment to the labour market for the period 1998-2001. It builds on the methodology of the first evaluation, reported in 2005, using two different methods of statistical analysis.

The results of this evaluation confirm the NCB's success with respect to reducing both the incidence of low income and the extent of income shortfalls, particularly for lone parent families. This is true in all regions of the country. There is also evidence to suggest the initiative is promoting attachment to the labour market, especially for lone-parent families.

The evaluation was conducted by evaluation specialists within the Evaluation Directorate, Strategic Policy and Research Branch, Human Resources and Skills Development Canada (HRSDC) under the direction of the federal-provincial-territorial NCB Working Group, with input from an expert panel of seven leading academics.

This evaluation report is an important component of accountability to the public regarding the impact of the NCB. The report provides evidence of the extent to which the NCB initiative is achieving the shared objectives of governments across Canada.

Deputy Minister Ian Shugart, Human Resources and Skills Development Canada and Acting Deputy Minister Dave Ryan, Nova Scotia Department of Community Services on behalf of Federal, Provincial and Territorial Deputy Ministers Responsible for Social Services

[1] The government of Quebec has stated that it agrees with the basic principles of the NCB. Quebec chose not to participate in the NCB because it wished to assume control over income support for children in Quebec. However, it has adopted a similar approach to the NCB. Throughout this report, references to joint federal/provincial/territorial positions do not include Quebec.

Background

This report summarizes the findings from the second summative evaluation of the National Child Benefit (NCB) initiative. The report is divided into seven principal sections. Section 1 provides background on the NCB initiative with a particular emphasis on showing how the initiative interacts with other measures of income support in Canada. This description is then used in Section 2 to develop some theoretical expectations about how the implementation of the NCB might affect the behaviour of recipients. The section also provides a brief summary of the empirical findings from studies of the NCB and other similar programs. Section 3 then describes the quantitative methods to be used to study the NCB in this evaluation. Section 4 discusses the data sources to be used in this process. Basic results of the analysis are presented in Section 5. This is followed in Section 6 by a more detailed analysis of how provincial and territorial social assistance "offset" provisions may have affected the NCB outcomes. Finally, Section 7 summarizes the overall conclusions of the study and offers some suggestions for further research on the NCB program.

1. Description of the National Child Benefit initiative[2]

The National Child Benefit (NCB) is a joint federal-provincial-territorial initiative to support Canadian children living in low-income families.[3] Responsibility for the initiative rests with the Federal, Provincial and Territorial Ministers Responsible for Social Services.[4] Implemented in 1998, it has three goals:

- to help prevent and reduce the depth of child poverty;
- to promote attachment to the labour market by ensuring that families will always be better off as a result of working; and,
- to reduce overlap and duplication by harmonizing program objectives and benefits, and through simplified administration.[5]

The NCB initiative combines two key elements to achieve these goals. The first, the National Child Benefit Supplement (NCB Supplement), is a federal cash benefit to low- and moderate-income families with children. The second referred to as "provincial investments and re-investments," involves provincially and territorially designed programs and services targeting these same families. The aim of the initiative is to reduce poverty in families with children, with a particular emphasis on providing incentives for low-income parents to enter and remain in the workforce.

1.1 Relationship between the Canada Child Tax Benefit base benefit and National Child Benefit Supplement

In 1998, the federal government replaced the national Child Tax Benefit (CTB) with the Canada Child Tax Benefit (CCTB). The CCTB is a non-taxable benefit to help eligible families with the costs of raising children. The National Child Benefit (NCB) Supplement was also introduced in 1998 and is the federal government's contribution to the federal-provincial-territorial NCB initiative. The NCB Supplement is a benefit paid to low-income families with children, which is provided in addition to the CCTB base benefit.

The CCTB system is therefore described as having two components, the CCTB base benefit and the NCB Supplement:

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[2] The description of the program is based primarily on the description provided in the 2*007 National Child Benefit Progress Report,* which was published in 2010 and is available at: **http://www.nationalchildbenefit.ca/eng/pdf/ncb_progress_report_2007.pdf.**

[3] A The NCB initiative includes a First Nations component that is not examined as part of this Summative Evaluation.

[4] The government of Quebec has stated that it agrees with the basic principles of the NCB initiative. Quebec chose not to participate in the NCB because it wished to assume control over income support for children in Quebec. However, it has adopted a similar approach to the NCB initiative. Throughout this report, references to joint federal/provincial/territorial positions do not include Quebec.

[5] The first summative evaluation of the NCB included the third goal of the NCB initiative, "to reduce overlap and duplication by harmonizing program objectives and benefits, and through simplified administration." The purpose of the second summative evaluation of the NCB was to examine the first two goals exclusively.

CCTB – Base Benefit

- A tax-free monthly benefit targeted to low- and middle-income eligible families with children;
- Benefit amount based on net family income;
- In 2008-2009, the Government of Canada invested an estimated $5.9 billion in CCTB benefits;
- Between July 2006 and June 2007, approximately 3.4 million families with 6.0 million children received the base benefit of the CCTB.

Supplemented by the NCB Supplement

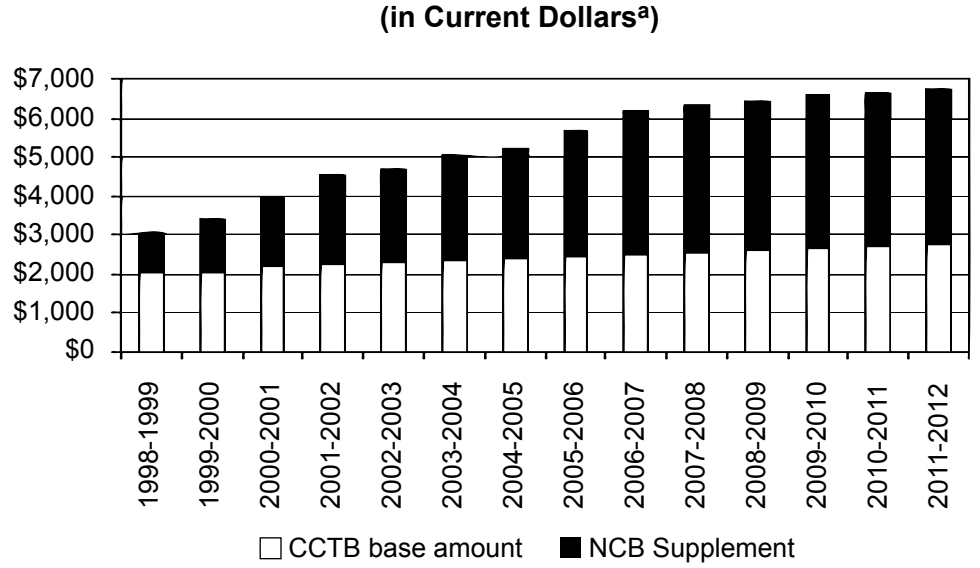
- A tax-free monthly benefit specifically targeted to low-income families with children;
- Benefit amount based on net family income;
- In 2008-2009, the Government of Canada invested an estimated $3.4 billion in NCB Supplement payments;
- • Between July 2006 and June 2007, 1.5 million families with 2.8 million children received the NCB Supplement.

Both benefits are delivered through the tax system (administered by the Canada Revenue Agency). Eligible recipients with children receive the CCTB base benefit and the NCB Supplement through a single monthly payment. The NCB Supplement, added to the CCTB base benefit, represents the Government of Canada's contribution to the NCB initiative. An additional component to the CCTB was introduced in 2004, whereby families with low or modest incomes with children who qualified for the disability amount were eligible to receive a Child Disability Benefit (CDB) supplement with their CCTB.[6]

The Government of Canada has progressively increased expenditures on both benefits since 1998, but with significantly larger proportional increases to expenditures on the NCB Supplement. This is primarily due to increases in the maximum amounts paid to eligible NCB Supplement recipients. Figure 1 shows the relative maximum values of NCB Supplement benefit in relation to CCTB base benefit maximum levels from 1998 to 2012.

[6] The first CDB payments were included with the March 2004 CCTB payments. Eligible families received

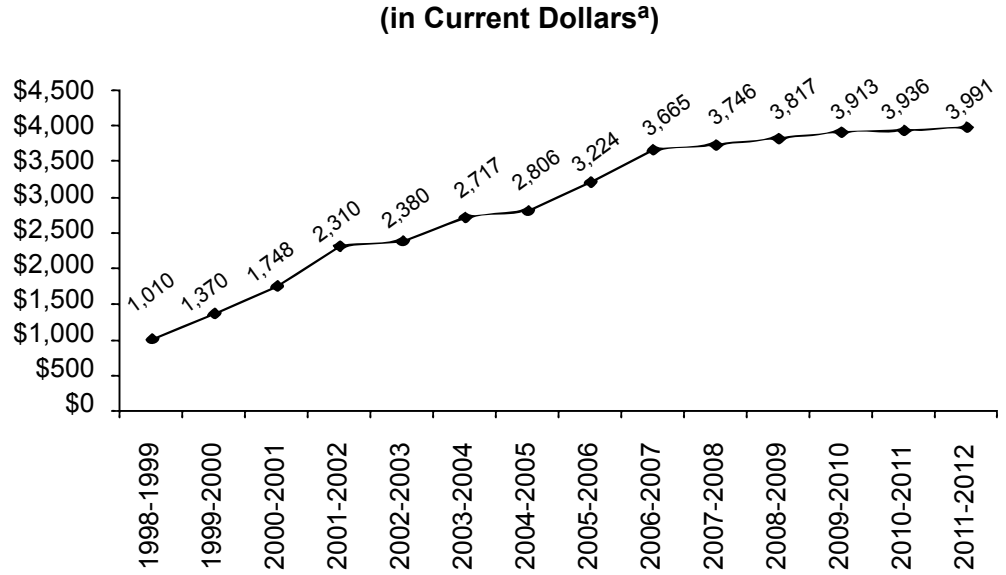
Figure 1: Maximum levels of federal child benefits for two-child families: 1998-1999 to 2011-2012



[a] Current Dollars are the actual dollars in a given year not adjusted for inflation.

While the Canada Child Tax Benefit base benefit amounts have increased moderately, the National Child Benefit Supplement maximum levels have increased from just over $1,000 in 1998-1999 to nearly $4,000 in 2011-2012. This increase in NCB Supplement amounts is shown explicitly in Figure 2.

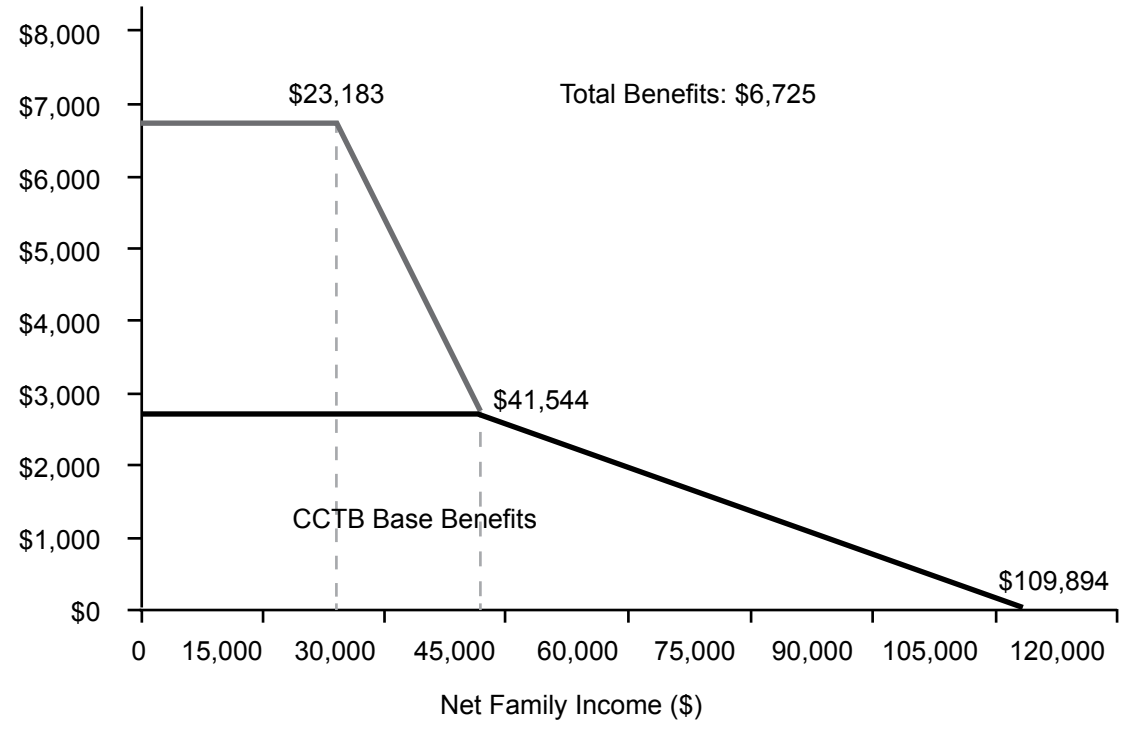
Figure 2: Maximum levels of National Child Benefit Supplement benefit for two-child families: 1998-1999 to 2011-2012



[a] Current Dollars are the actual dollars in a given year not adjusted for inflation.

A specific family's eligibility for Canada Child Tax Benefit and National Child Benefit Supplement benefits is determined by net family income. Figure 3 illustrates the benefit structure of the NCB Supplement and CCTB base benefit for families with two children as of July 2007.

Figure 3: Canada Child Tax Benefit and National Child Benefit Supplement for a two-child family: July 2011 – June 2012



[a] Current Dollars are the actual dollars in a given year not adjusted for inflation.

As Figure 3 shows, during the 2011-2012 benefit year (from July 2011 to June 2012), two-child families with net incomes below $24,183 received the maximum benefit level of $6,725 in combined CCTB base benefit and NCB Supplement. All families in receipt of the NCB Supplement receive the maximum level of the base benefit of the CCTB.[7] Families with net incomes above $24,183 but below $41,544 continue to receive the maximum level of the base benefit of the CCTB, but the level of the NCB Supplement to which they are entitled decreases as family income increases. Finally, those families with net incomes above $41,544 receive only the base benefit of the CCTB. The level of this benefit also decreases as family income increases, and is fully phased out at $109,894.

[7] The first CDB payments were included with the March 2004 CCTB payments. Eligible families received

1.2 Provincial and Territorial Approaches to Replacing Social Assistance Benefits for Children

Provinces and Territories have the flexibility to adjust social assistance or child benefit payments by an amount equivalent to the NCB Supplement. If they choose to adjust social assistance or provincial and territorial child benefits payments, they then reinvest these social assistance savings (or provincial and territorial child benefit savings) and any additional funds in benefits and services for low-income families with children. Specifically, under the NCB Governance and Accountability Framework, provinces and territories have agreed to reinvest their savings in benefits and services which share the goals of the NCB. In the early years of the NCB initiative, most but not all provinces and territories applied this adjustment to those on social assistance within their jurisdictions. However, considerable change in the offset system has occurred since the implementation of the NCB. The 2007 NCB progress report identified three approaches to the offset process operating in the provinces and territories.

1.2.1 The Social Assistance Offset Approach:

Under this approach, child benefits remain within the social assistance system, but have been gradually displaced by federal increases to the NCB Supplement. Provinces and territories either deduct the NCB Supplement as an unearned income charge against social assistance or reduce their social assistance rates for children. In the case of income offset, social assistance recipients have the amount of the NCB Supplement they receive deducted from their social assistance entitlement. This approach was used in Manitoba,[8] Prince Edward Island,[9] and Ontario,[10] and is still used in Yukon, Northwest Territories and Nunavut. In the case of rate reduction, the social assistance rate is reduced by the maximum NCB Supplement. Alberta[11] uses this approach. Reinvestment funds under the social assistance Offset approach are the savings in social assistance.

(Adapted from NCB Progress Report 2007, pp. 10-11)

Under this approach, eligible families effectively have the entire amount of any NCB Supplement payments made to them deducted from their social assistance benefits through a reduction in their entitlement.

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[8] Effective July 2000, Manitoba discontinued recovering increases to the NCB Supplement for all families receiving income assistance. Effective July 2001, Manitoba stopped recovering the NCB Supplement for children age six and under. Effective January 2003, it stopped recovering the NCB Supplement for children age 7 to 11 years; and, effective January 2004, it stopped recovering the NCB Supplement for children age 12 to 17 years.

[9] In 2001, PEI began to use increases in the NCB Supplement to fund an increase in the Healthy Child Allowance, a social assistance benefit. As of April 1, 2011, PEI ceased to consider NCB as income for Social Assistance clients, and at the same time dissolved the Healthy Child Allowance.

[10] The 2004 through 2007 increases to the NCB Supplement were flowed through to social assistance recipients. The 2007 Ontario Budget announced that all future NCB Supplement increases would flow through to social assistance recipients and that the full value of the NCB Supplement would be exempt as income starting in July 2008.

[11] Since 2003, Alberta has enhanced the mix of income and in-kind benefits and services to families receiving assistance through the Alberta Works - Supports for Independence (SFI) program by flowing through full increases to the NCB Supplement. Effective April 1, 2004, Alberta Works-Income Supports replaced SFI.

1.2.2 The Integrated Child Benefit Approach With Adjustment:

In the mid- to late-1990s, several jurisdictions restructured their social assistance systems. In two provinces, children's benefits are now delivered through a separate income-tested child benefit program that is integrated with the CCTB. Under this approach, increases in the NCB Supplement are offset in full or in part against the provincial child benefit. In British Columbia, the savings from this offset become the province's reinvestment funds. In Saskatchewan, the amount of reinvestment funds is set at the amount that was being used for basic child benefits under the social assistance system at the time the system was restructured.

(p.11)

Unlike the first offset approach, eligible families in receipt of social assistance do not have NCB Supplement payments deducted from their social assistance benefits through a reduction in their entitlement. In many cases, only a portion of a families' child benefit entitlement is deducted; however, in some cases, this deduction may represent 100% of the NCB Supplement payments made. The present study has not focused on modeling this approach separately so as to better isolate the effects of offsetting.

1.2.3. Integrated Child Benefits Approach Without Adjustment:

Other jurisdictions chose similarly to restructure their social assistance systems. Basic benefits for children were removed from the social assistance program and are now provided through a separate income-tested program integrated with the CCTB. In these cases, however, there is no offset of the NCB Supplement against provincial child benefits. In Newfoundland and Labrador[12] and Nova Scotia[13] the amount of reinvestment funds is set at the funds that were being used for basic child benefits under the social assistance system at the time the system was restructured and has remained the same for subsequent years.

(p.11)

Unlike the previous two approaches, eligible families in receipt of social assistance would not have their child benefit entitlement deducted at all under this third approach; however, the restructuring of the social assistance system may result in lowering the point at which households are better off working than on social assistance and therefore may produce labour market incentive effects by addressing the "Welfare Wall" in a way similar to the other two approaches. Again, the present study has not focused on modeling this approach separately but has rather focused exclusively on cases where offsetting was occurring without the integrating of benefits versus where it was not occurring at all.

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[12] Newfoundland and Labrador redesigned its income support program in 1999–2000. All basic benefits for children have been removed from the newly created Income Support Program as these benefits are now provided through the combined CCTB and Newfoundland and Labrador Child Benefit. As a result, Newfoundland and Labrador does not adjust its Income Support benefits for increases in the NCB Supplement, nor does it adjust the Newfoundland and Labrador Child Benefit.

[13] With the advent of the NCB Supplement in 1998, Nova Scotia enhanced the supports available for children of low-income families by introducing the Nova Scotia Child Benefit as a provincial reinvestment initiative. In 2001, children's benefits were removed from the province's income assistance program, substantially increased and fully integrated with the CCTB to establish a single, non-taxable monthly payment for all low-income families with children. At the same time, Nova Scotia ensured that any future increases to the NCB Supplement flowed directly through to families receiving income assistance.

In addition to the above three approaches, New Brunswick chose not to implement the structural replacement of social assistance benefits for children in the NCB initiative and also continued to provide the NCB Supplement directly to recipients without offsetting.

For the purposes of this evaluation, the above approaches to replacing social assistance benefits for children and to offsetting (or not offsetting) of the NCB Supplement have been regrouped into three categories so as to better isolate the effect of offsetting of the NCB Supplement payments: (1) jurisdictions that did not offset, (2) those that deducted 100% of NCB Supplement amounts from social assistance benefits through an offset, and (3) the remaining jurisdictions where the approach to offsetting falls outside of these two categories (encompassing those that restructured their child benefits system with or without offsetting). Although it is recognized that the approaches grouped together in the third category are not the same and would not necessarily produce similar effects on household labour market decisions, this grouping has been adopted for methodological reasons. A detailed account of this breakdown is provided in Section 6. Section 2 provides some of the theoretical underpinning with regard to expected impacts of particular offsetting approaches.

1.3 Provincial and Territorial Investments and Reinvestments

In addition to the reinvestment funds offered as a result of the social assistance savings, some provinces and territories make additional NCB investments in programs and services that are consistent with the goals of the NCB initiative. These investments differ from reinvestments only in so far as their provincial and territorial funding does not result from savings under the NCB initiative. Essentially, these are additional provincial or territorial programs that align with the goals of the NCB initiative, but that are above and beyond those facilitated through the federal investment in the NCB Supplement. This similarity means that in cases where offset funding is not earmarked for specific provincial programs, it is functionally impossible to differentiate reinvestment from investment programming. Given the rarity of this earmarking, an operational separation of investment and reinvestment programming is not possible.

Under the reinvestment framework, reinvestments and investments are providing new or enhanced supports for low-income families with children. These supports are categorized in six key areas:

- child/day care initiatives;
- child benefits and earned income supplements;
- early childhood services and children-at-risk services;
- supplementary health benefits;
- youth initiatives; and,
- other NCB programs, benefits and services.

In general it was not possible to analyze the effects of any of these investments/reinvestments because adequate data on them were not available at the individual level. Occasionally, in the discussion of the results, however, speculations will be made regarding how such initiatives may have affected the observed outcomes. Provincial income benefits that fall under the category of NCB investments or reinvestments have, however, been used as controls in the evaluation as part of the econometric model.

2. Theoretical and Empirical Background

The NCB program (and programs similar to it) has been the subject of many theoretical and empirical evaluations. This section will look at a few of these evaluations. Many of the evaluations use as a starting point a model of labour supply in which a person must choose how many hours to work. Although the model is a very simple one (because it disregards such long term effects as acquiring skills or changing family circumstances) it is helpful in developing a context within which to view the results (especially as they relate to the relationship between the NCB program and social assistance receipt). The details of this model are provided in Appendix A. A brief summary is provided below.

The analysis of budget constraints in Appendix A shows why the prediction of the effect of the NCB initiative on the key outcome of labour force activity may be difficult to make on a priori grounds. Implementation of the NCB initiative incorporates a general income effect that tends to reduce labour supply because individuals can obtain the same amount of income with less work effort. This income effect is stronger when there is no social assistance offset than when there is a 100 percent offset. With the offset there is a definite substitution (wage) effect favouring greater labour supply because a positive net return to working occurs at fewer hours of work than it does with no offset. But the overall impact of the NCB initiative is further complicated by the portion of the budget constraint in which such benefits phase out because, in this range, marginal (implicit) tax rates are increased and net returns from working reduced. Additionally, the simple situations described in the models in Appendix A would be made more complicated if the positive labour supply effects of the "investment" aspects of the NCB program were also considered. Similarly, it is important to recognize that the simple model in Appendix A refers only to a single individual. When there are two or more adults in a household, labour supply responses may be much more complex because the NCB Supplement may create incentives for cross substitution of work effort among household members. For this report we have not attempted to model these more complex effects and hence we do not explicitly report labour supply outcomes in households with more than one adult.

The theoretical impact of the NCB on social assistance receipts is more straight-forward, at least in the offset case. With the offset, it is clear that the NCB initiative should reduce social assistance receipts on a dollar-for-dollar basis in the absence of any labour supply responses. The effect would be even greater with positive labour supply responses. In the absence of the offset, the effect of the NCB on social assistance receipts would come only from the labour supply effects of the program, which (if negative) could actually increase such receipts.

This discussion makes clear that the overall impact of the NCB on total family income or on measures related to total family income (such as the incidence of low income) is ambiguous. The "bottom line" impact will depend on both the specific components of the program and on the behavioural responses it elicits. Ultimately, therefore, the direction and size of such impacts will be an empirical question.

A number of studies have looked at these impacts empirically both for the NCB initiative itself and for similar programs in other countries. The results from the following studies will be discussed briefly: (1) the first National Child Benefit summative evaluation (2005); [14] (2) the Milligan and Stabile (2007) paper focusing on the social assistance offset issue; and (3) research from the United States on the Earned Income Tax Credit (EITC).

2.1 Évaluation of the National Child Benefit Initiative: Synthesis Report (2005)

The primary focus of the first National Child Benefit summative evaluation was on examining the extent to which the NCB initiative achieved the three primary goals of the program outlined in Section 1. With regard to reducing child poverty, the evaluation found that the NCB initiative had significant positive impacts in reducing the incidence of families with children living in low-income conditions and in reducing the severity of low-income conditions for those families that continued to live below the low-income threshold. In particular, the evaluation found that:

- Simulation results for 1996-1999 indicated that the NCB Supplement resulted in a reduction in the number of families with children living below the low income cutoff (LICO).[15] The low income rate over this period fell by 4.6 percentage points.[16]
- There was a reduction of approximately 8.7 percent in the low-income gap for families with children living under the LICO.
- The estimated impact of the NCB Supplement on both the low-income rate and low-income gap appeared to be greater for two-parent families than for single-parent families.
- Simulation results for the year 2000 showed similar impacts in the form of reductions in the incidence and severity of low-income conditions for families with children. The impact was greater for two-parent families.
- The NCB initiative has had a positive effect on reducing the impact and depth of poverty both for families on assistance and for employed families.

[14] The official title of the first NCB summative evaluation is: Evaluation of the National Child Benefit Initiative: Synthesis Report (2005).

[15] The Low-Income Cut-Off (LICO) is the income level where a family spends 20 percent more than the average family on basic needs, including food, shelter and clothing. LICOs vary by the size of the family and the population of the area of residence. The LICO is not an absolute measure of poverty; rather, these statistics are often used to study relative low income in Canada.

[16] The LICO results for the 2005 Evaluation of the National Child Benefit Initiative used the after-tax LICO, whereas, for methodological reasons, this evaluation has opted to use the before-tax LICO. Aside from these differences, the use of divergent methodologies in the two evaluations does not lend itself to making precise comparisons between the results of the two studies. However, it is noteworthy that the trends in the results of the two studies are similar.

The evidence on the impact of the NCB initiative in promoting attachment to the labour market was mixed. In most jurisdictions, the design of the NCB initiative made work financially more attractive than social assistance for families with children by improving the difference between minimum wage employment and social assistance.

- Under the previous arrangements, if welfare recipients left social assistance for full-time minimum wage employment, single parent families with two or three children faced a decline in income of 8.5 percent and 13 percent respectively.[17] Single parents with one child experienced only a slight income gain while two-earner families had a stronger income increase.
- Under the NCB initiative, annual income from full-time employment at the minimum wage (supplemented by income transfers) improved by an average of $3,200 compared to income from social assistance. Single-parent families with three children experienced a slight loss in disposable income when leaving social assistance for work.

Findings were further supported by provincial case studies, which indicated that the NCB initiative reduced the social assistance caseload for families with children. However, evidence that the introduction of the initiative did not lead to shorter spells on social assistance was also found.[18] As a result, the effect of the NCB initiative was likely that of reducing the number of families *entering* social assistance. Lowering the "Welfare Wall" resulted in families not in receipt of social assistance remaining off assistance, and, for those who had been on assistance, neither increasing nor decreasing their labour supply. There was also indication that receipt of an unconditional cash transfer by the working poor may result in reduced employment. The findings raised the possibility that, for such workers, the additional financial support was being accompanied by a move to reduced hours of work (ranging from 8-12 percent) in the form of increased part-time work.

Evidence from surveys and focus groups identified a range of factors that affect parents' decision to work, including general family responsibilities, the need to maintain a balance between work and parenting, and the availability and costs of childcare. Therefore, findings suggest that some families used the NCB Supplement to spend more time with their children, thereby easing the work-parenting trade-offs they faced.

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[17] This information reported in the final report of the 2005 summative evaluation was derived from technical reports produced for the evaluation. The results were based on unweighted averages for 11 jurisdictions using data from 1997 through 2001. Results varied considerably by jurisdiction.

[18] Survival regression analyses were carried out on the monthly caseload data of British Columbia, Manitoba and Saskatchewan and indicated that for both single parent families and couples with children in Saskatchewan and British Columbia, the restructuring of social assistance benefits *did not* lead to families spending less time on assistance. However, results from the time series analyses of social assistance caseloads in Alberta, Saskatchewan and Newfoundland indicated that the NCB initiative has been associated with cumulative caseload reductions of approximately 6 percent in Saskatchewan, 10 percent Alberta, and 3 percent in Newfoundland. Therefore the two results suggest that the NCB's impact was on reducing the rate of new entries onto assistance.

Finally, the first summative evaluation also found that the NCB initiative produced progress in reducing overlap and duplication among governments and in streamlining operations and reported that joint work by federal, provincial and territorial partners on the design of NCB benefits, and the establishment of more transparent processes related to the development, sharing and reporting of data, have led to improved program design.

2.2 Milligan and Stabile

The Milligan and Stabile (2007) analysis of the NCB initiative focused primarily on the positive labour market incentives provided by provincial social assistance 100 percent offset policies. The authors found that these policies had a significant positive effect on the employment and earnings of single women and a marked reduction in receipt of social assistance. Specifically, the authors' estimates imply that each $1,000 of NCB Supplement receipt in provinces with a 100 percent offset policy had the following impacts on all single women:[19]

- Rates of employment increased by a statistically significant 4.6 percentage points. The impact on earnings, though positive, was not significantly different from zero, however.
- Annual social assistance benefits declined by a statistically significant $681. The likelihood of social assistance receipt also declined by a statistically significant 3.4 percentage points.
- Total income for these families increased by a statistically significant $811.

A principal goal of the current evaluation was to determine whether such results hold up for other categories of NCB recipients and whether the estimates are robust to alternative methods of estimation.

2.3 Studies of the Earned Income Tax Credit in the United States

The Earned Income Tax Credit (EITC) has become the largest income transfer program targeted at low income people in the United States. Although the program is similar to the NCB in that eligibility requires that recipients have at least one "qualifying" child, the benefit structure is quite different. Specifically, the amount of the EITC benefit at first rises with earnings, thereby acting as an effective wage supplement. At higher levels of earnings, the EITC benefit levels out before phasing down. EITC benefits reach zero at an earnings level of about $41,000 for a family with two children. In general the goals of the EITC program closely mirror those of the NCB in terms of reducing child poverty and increasing labour force activity. But the differences in benefit structure can have quite different behavioural responses. For example, Saez (2002) argues that when most labour supply responses occur at the "extensive margin" (whether to work or not – a situation which seems the most prevalent), a program with a relatively low guaranteed benefit accompanied with low, or

[19] Please note, results are reported here using the authors' regressions based on a pool of all single women in order to provide a more direct comparison to the results for the second summative evaluation of the NCB. Milligan and Stabile also report their results using data from a pool of single mothers only (Column 2 of Table 4). Those results were similar to those using the pool of all single women (Column 3 of Table 4).

even negative, implicit taxes on earnings is optimal. In this regard then Saez favours an approach closer to the EITC than to the NCB initiative. However, as discussed above, the NCB initiative with a social assistance offset clearly comes closer to this ideal than does either the existing social assistance program or the NCB with zero offset.

Empirical research on the EITC is generally consistent with the expectation that the program will significantly increase labour supply in low-income families. The extensive survey of research by Hotz and Scholz (2003) concludes that the EITC has a large positive effect on the labour force participation of single parent households. Although the range of the existing estimates is large, most clusters between 2 and 10 percentage points increase in employment probabilities (relative to overall employment rates of approximately 60 percent for low education single women with children). Estimated labour supply effects of the EITC on workers in two-parent families are more varied with small positive effects for men being offset by somewhat larger negative effects for women. Possible interactions between the EITC and other social programs (such as TANF or SNAP[20]) have not been extensively studied.

3. Methodology

The second summative evaluation of the NCB used a modification of the approach taken by Milligan and Stabile (2007), and augmented it with a completely different approach utilizing a difference-in-difference methodology. The following section provides a brief description of the two approaches. A more detailed discussion is provided in Appendix B.

Early evaluation results, using a similar model to the one ultimately adopted for the study, but using considerably different data development techniques, were reviewed by an expert panel of seven leading academics in the areas of economics, statistics and econometrics and internally by specialists at HRSDC. This review necessitated a complete redesign of the instrumental variables and difference-in-difference studies, which ensured that the methodology adopted was the most robust possible and represented the most comprehensive approach so far undertaken by any study of the NCB to this point.

3.1 The Modified Miligan-Stabile Approach

The first approach used a statistical technique called "instrumental variable estimation" (IV). The purpose of this approach is to adjust for the fact that there is a definitional relationship between a household's economic circumstances and the amount of the NCB Supplement received. Without adequate attention to this problem, it can appear that receipt of the NCB benefit actually makes a household worse off. The technique proceeds by using a simulation program to predict the NCB supplement for which a household is eligible on the basis of their family size and residence and the specific date being examined. This predicted value is used in place of the actual benefit received in the final analysis. This

[20] SNAP is the Supplemental Nutrition Assistance Program (that is, "Food Stamps"). TANF is the Temporary Assistance for Needy Families Program (that is, "social assistance" or "Welfare").

circumvents the definitional relationship between specific household circumstances and the amount of the NCB Supplement received while at the same time providing a consistent estimate of the actual impact of the Supplement.[21]

The IV analysis also controlled for such factors as parents' education and differing levels of social assistance from jurisdiction to jurisdiction, as well as for constant differences in the general economic environment. Experimentation with simple province/time interactions was also undertaken to capture the effects of possible changes to social assistance systems or changes in the economic environment. Including these interaction terms did not alter the results obtained in any substantial way, suggesting that the basic results were relatively robust to the changing environment faced by NCB recipients.

3.2 Difference-in-Difference Approach

As a general verification of the IV results, a separate difference-in-difference (DID) approach was employed to estimate the impact of the NCB Supplement on the outcome variables. To implement this approach the evaluation looked at households that received the NCB Supplement in a given year (usually 1999) and looked at the change in a number of outcomes for those households in relation to a period before the NCB Supplement was available, comparing this change to the change experienced by non-NCB Supplement-recipient households. Such an approach can help to control for unmeasured household characteristics that do not change over time. In order to ensure that NCB Supplement recipients were being compared to similar non-recipients, a statistical matching procedure was employed.

4. Description of the Data

The basic data source ,[22,23] used was the second panel from the Survey of Labour and Income Dynamics (SLID). This panel covers six years (1996-2001) and contains approximately 17,000 Canadian households, excluding, however, individuals residing in the territories.[24] Although more recent panels of the SLID are available, the decision to use a DID analysis to verify the results limited the analysis to the use of a panel with data from before the implementation of the NCB initiative.

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[21] A similar technique was used to control for the definitional relationship between household circumstances and the amounts of CCTB and provincial benefits. Although these predictions were used in the analysis to control for levels of these other benefits, results for this estimation are not specifically reported because the study focused exclusively on the impact of the NCB supplement

[22] Perhaps the two most significant issues that arose in the data development process were related to construction of the child benefit variables. Because data on such benefits were often missing in the SLID, the CTaCS simulator was used to calculate NCB Supplement, CCTB and Provincial Child Benefits for all families in the sample using all of the data available (including household income). Benefit values calculated in this way were quite consistent with those actual benefit values appearing in the SLID. For complete information on the CTaCS simulator, please see Professor Kevin Milligan's website at **http://faculty.arts.ubc.ca/kmilligan/ctacs/.**

[23] Although the Government of Quebec has stated that it agrees with the general principles of the NCB initiative, that province chose not to participate in the program because it wanted to assume control over income support for children in Quebec. Hence, while Quebec does operate a program similar to NCB, SLID sample members from Quebec were excluded from our analysis.

[24] Although data for the territories were not therefore available for the studies conducted for this evaluation, if programs and labour market conditions in the territories were similar to those in the provinces modeled, it should be possible to extrapolate the results here to these other regions, although the evaluation has not examined that possibility in detail.

The evaluation also examined the utility of using the larger Longitudinal Administrative Data base (LAD), which would cover more recent years and include information for the territories, but found that technical issues and limitations with access to the databank restricted the ability of the study to be completed on the LAD within the schedule of the present project. However, the LAD may prove quite useful for future evaluations of the NCB and programs similar to the NCB.

The analysis considered two categories of households: single[25] adult households and couples households. Although obtaining consistent results for couples proved to be difficult (as discussed below), descriptive statistics for both groups are shown in Table 1. Table 1 also shows the subset of each household category composed only of NCB Supplement recipients. For all of the samples, the sample sizes shown in the table refer to person-year observations.[26] Because the SLID may under-sample low income households (see Frenette, Green, and Picot, 2004), sample proportions may not accurately reflect population figures. However, such under-sampling should not affect the validity of the impact estimates provided in this report if the underreporting is random with respect to receipt of the NCB Supplement.

Table 1: Descriptive Statistics (Means)

Variable	All Singles	Singles with NCB Receipt	All Couples	*Couples with NCB Receipt*
NCB Benefit ($/year)	82.7	1,203	57.2	1,252
CCTB Benefit ($/year)	228	1,809	565	2,446
Provincial Benefit ($/year)	46.0	462	51.9	593
Urban (%)	77.1	75.8	67.4	54.1
Homeowner (%)	64.2	45.2	87.8	69.6
Male (%)	31.5	5.1	NA	NA
Age	47.7	34.5	48.3	37.5
Foreign Born (%)	17.4	7.7	13.1	7.1
Disabled (%)	9.1	4.7	5.6	5.8
Visible Minority (%)	6.0	6.3	5.6	11.2
Education: 1-8 years (%)	14.1	4.6	10.8	9.3
Education: 9+ years, not graduation (%)	15.1	11.1	17.3	22.8
High School Graduate (%)	14.9	15.3	21.5	21.4
Post-Secondary Education, no Certificate (%)	16.2	20.1	9.7	11.0

[25] Because the study intended to look at all NCB Supplement recipients, it was decided to include all single adult households in the sample regardless of whether that adult was male or female. Overall 31.5 percent of single adult households were male in the sample, but the fraction was much lower (5.1 percent) for single adult NCB Supplement recipients. For comparability to other studies the regressions were also run looking exclusively at single female households, but the results were not substantially different from those obtained by using all single adult households.

[26] Because of the panel nature of the data, the actual number of households represented in the data is considerably less and this was taken into account in estimating the standard errors attached to the estimates.

Table 1: Descriptive Statistics (Means)				
Variable	**All Singles**	**Singles with NCB Receipt**	**All Couples**	***Couples with NCB Receipt***
Post-Secondary Education Undergraduate Certificate (%)	35.2	46.3	38.6	33.2
Graduate Degree (%)	3.2	1.9	1.8	1.2
Number of individuals Household	2.22	3.26	3.28	4.57
Number of Children	0.217	1.545	0.860	1.96
Outcome Variables				
Positive Earnings (%)	59.6	74.1	78.4	80.0
Earnings ($/year)	13,700	8,660	32,300	11,700
Social Assistance Receipt (%)	15.0	39.0	5.7	26.1
Social Assistance Benefits ($/year)	785	2,679	244	2,352
LICO Probability (%)	24.9	41.2	9.0	58.7
LICO Gap ($/year)	1,375	2,893	711	5,634
Total Income ($/year)	21,200	13,200	46,100	18,800
Sample Size	28,116	1,932	22,704	1,039

Table 1 shows that receipt of the NCB Supplement is relatively rare in a national sample such as that provided by the SLID. Only about 10 percent of single adult households received such benefits and fewer than 7 percent of couples households did.[27] The demographic characteristics of the NCB Supplement recipient households are quite different from all households. Most obviously, NCB Supplement recipient households have many more children. Single adult households receiving NCB benefits have on average about 1.5 children and couples recipients have on average nearly 2 children, while those not in receipt of NCB benefits have fewer than one child on average. Many of the other entries in Table 1 reflect this basic difference in family structure, so one should be very careful in drawing any conclusions from these raw data. On measures of economic well-being the NCB households are also quite different (as expected). For example, home ownership rates are significantly lower in the NCB samples. Interestingly, however, measures of educational attainment are not very different among the samples reported in Table 1.

The lower portion of Table 1 shows the seven key outcome variables that were examined in this study.[28] The main labour supply measures were whether a household reported any income from earnings and, if so, the overall amount of those earnings. Perhaps surprisingly, NCB Supplement recipient households actually reported a greater frequency of earnings for

[27] Because the data in Table 1 refer to the six years 1996-2001, the estimated participation rates must be adjusted for the fact that NCB benefits were not available in 1996 and 1997.

[28] As described previously, no attempt was made to explicitly model employment and earnings outcomes for couples households. Mean outcomes for such variables for these households are reported in Table 2 for simple comparisons only.

both the singles and couples sub-samples. Dollars of earnings were, however, significantly lower for the NCB Supplement recipient households. NCB households were also more likely to receive social assistance benefits and the amounts of these benefits were consequently much larger ($2,679 vs. $785 for singles and $2,352 vs. $244 for couples). For single adult households, average total income for NCB recipients was approximately 63 percent of average total income for all single adult households. For couples the difference was even larger – average income for NCB recipient households was 41 percent of that for all couples households. Comparisons of total household incomes to the low income cutoff (LICO[29]) mirrored these patterns. Approximately 41 percent of NCB Supplement recipient single adult households had incomes below their respective LICO amounts. For couples' households the percentage was nearly 60 percent.[30] The "LICO gap" (i.e. the difference between a household's LICO and its actual income for those for whom this number is positive[31]) averaged approximately $2,900 per year for single adult NCB Supplement recipient households and over $5,600 per year for couples NCB Supplement recipient households

5. Basic Results

This section will illustrate the basic results obtained from examining the overall impact of NCB benefits. Estimates for both the instrumental variables (IV) approach and the difference-in-difference (DID) are presented together so that both the similarities and differences in these results can be contrasted and compared. In general, it was found that the results for singles were quite similar under both estimation methods, but that the results for couples were considerably less consistent. Consequently, the results for couples have not been reported alongside the singles results in the body of this report. Instead, a few illustrative results for couples are reported in Appendix D. There the report concludes that the difficulties with the couples estimation suggest that further research may be warranted on precisely how couples' outcomes should be modeled.

The basic results for the IV estimates for single adult households are shown in Table 2 and the DID estimates are shown in Table 3. In all cases, only the estimates related to the NCB Supplement variable itself, normalized to reflect the effect of a $1,000 increase in such benefits, are shown.[32]

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[29] The LICO for a 3 person family in 2001 was $34,022.

[30] In interpreting these tables it is important to keep in mind that the "all household" data include some households that might have received NCB benefits in 1996-1997 had the program been available. Because most of the analysis was done on the "all households" sample it was best to show the data for this sample in Table 1 rather than focusing on the distinction between recipients and non-recipients.

[31] For example, if a household's LICO is $20,000 and its actual income is $18,000, it would have a LICO gap of $2,000. Reductions in the size of this gap are a beneficial outcome from the NCB Supplement.

[32] Estimating the impact of NCB benefits on a binary outcome such as employment or social assistance receipt was done using the two-stage IV probit program in Stata. Because this technique is non-linear, the marginal impact of NCB varies depending on the actual point at which it is calculated. For simplicity it is assumed that the impact should be evaluated at 1.65 standard deviations below the mean of the probit index because we were dealing with low income populations with outcomes near the 5th percentile in many of the outcome variables. In practice this meant that the figures in Table 2 (and elsewhere) reflect the coefficients of the probit index reported in the Stata output multiplied by 10,000 [= 1,000 (for $1,000 of NCB Supplement) times .10 (the value of the Normal density function at -1.65) times 100 to convert from decimals to percentages.]

For those interested in the details of the analysis, a few representative results showing all variables used are reported in Appendix B. In general, the IV estimates [33] controlled for all of the factors[34] listed in Table 1 earlier.

Table 2: Basic Results for Singles (IV Estimates)

Outcome Variable	Estimated NCB Effect[1]	Standard Error
Percent Employed	+7.37 %**	0.811
Total Earnings (dollars)	+$1,090**	494
Probability of Social Assistance Receipt	-4.20 %**	0.596
Total Social Assistance (dollars)	-$1,440**	147
Probability of Low Income	-8.54 %**	0.811
LICO Gap (dollars)	-$1,120**	166
Total Income (dollars)	-$287	455

[1] *Effect per $1,000 of NCB benefits. Estimates for binary outcomes (percentages) are evaluated at 1.65 standard deviations below the mean of the probit index.*

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

Table 3: Basic Results for Singles (DID Estimates)

Outcome Variable	Estimated NCB Effect	Standard Error
Percent Employed	+9.60 %**	3.30
Total Earnings (dollars)	-$386	888
Probability of Social Assistance Receipt	-4.77 %	3.14
Total Social Assistance (dollars)	-$853**	203
Probability of Low Income	-9.34 %**	4.19
LICO Gap (dollars)	-$763*	390
Total Income (dollars)	-$2,010**	963

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

[33] Although the first stage of the IV regressions is not reported, in general these were quite strong. For example, the t-statistic on the NCB Supplement instrument was always above 10 in the regressions and the associated F statistics were significant at the .01 level.

[34] As mentioned earlier, the IV regressions also included measures of parents' education and dummy variables for year, province, and number of children.

The IV estimates in Table 2 yielded several interesting results. Receipt of the NCB Supplement was estimated to have a significant positive effect on both the probability of reporting earnings and on the dollar value of earnings. The estimated increase in employment of 7.4 percentage points is roughly consistent with other estimates from studies of the NCB program and from the U.S. literature on the Earned Income Tax Credit program. [35]

This increase in earnings led to a significant reduction in both the probability of receiving social assistance (4.2 percentage points) and in the dollar values of benefits received ($1,440) by NCB recipient households.[36] Because the reduction in dollars of social assistance received is much larger than can be explained by the reduction in the probability of receipt, these results showed that the impact on social assistance occurs at both the "extensive" (that is receipt of any social assistance) and "intensive" (that is, the amount of benefits received) margin – a finding that proved important in the interpretation of the results when the social assistance offset provisions were looked at explicitly.

Finally, the IV results in Table 2 show that, although NCB Supplement receipt had no significant impact on average household income overall, such receipt did have a major distributional impact on the lowest incomes. Overall, the incidence of below LICO incomes was estimated to be reduced by 8.5 percentage points with the average LICO gap being reduced by over $1,100. This seems to provide clear evidence that the program is having its intended impact on child poverty.[37, 38]

Table 3 shows the estimates for the same seven outcome variables shown in Table 2, but this time using a DID methodology. In order to employ this methodology empirically, several decisions had to be made. Adopting 1996 as the base year was an obvious choice, being a pre-NCB program year sufficiently removed from the implementation of the NCB program, but there were four possible post-NCB program years that might have been used. After some experimentation, 1999 was ultimately decided upon as being the post-NCB implementation year. That year provided households some opportunity to adjust their behaviour to the availability of the benefits. However, 1999 was close enough to the 1996 base year to alleviate potential concerns regarding changes in marital status or in the number of children that might affect the validity of the comparisons.

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[35] Because the effects of the NCB program on the actual budget constraints faced by households are complex, it is difficult to calculate a precise labour supply elasticity to accompany this result. However, if one assumes (as did Milligan and Stabile, 2007) that the NCB program improved the net return to work by 15 percent, the 12.4 percent increase in labour supply (calculated by dividing the 7.4 percentage point increase in employment by the overall rate of employment for single adult households of 59.6 percent) implies an elasticity of 0.82, well within the range of estimates from other similar programs.

[36] Table 1 shows that 39 percent of all single adult households who collected the NCB supplement also collected some social assistance benefits. Average benefits collected among all such households were about $2,700 per year. Average collections contingent on collecting any benefits were $6,870 annually.

[37] Table 1 shows that 41.2 percent of all single NCB recipients had below LICO incomes and that the LICO gap was nearly $3,000 per year for all single NCB recipients. The LICO gap for those with below LICO incomes averaged $7,022 per year.

[38] The estimates for single women only were quite close to those for all singles. They were also reasonably close to the estimates from Milligan and Stabile (2007) summarized in Section 2.

In addition to choosing a pre- and post- year for the DID methodology, a matching procedure was also required so that the NCB Supplement recipients would be compared only to non-recipients who seemed otherwise similar. In order to do this, a model[39] that predicted the likelihood of NCB participation on the basis of the baseline characteristics shown in Table 1 needed to be estimated. After propensity scores were assigned to each household, a kernel matching routine was then used to estimate for each NCB participant a weighted average outcome for similar non-participants.[40] Finally, the overall mean and standard deviation for changes between 1996 and 1999 in these outcomes were computed for all NCB Supplement recipient households and their kernel-matched comparisons. These "difference-in-difference" figures are reported in Table 3.

In many important respects the DID estimates in Table 3 were quite similar to the IV results from Table 2. For example, the DID estimates showed a positive effect of NCB Supplement receipt on employment of 9.6 percentage points, fairly close to the 7.4 percentage points estimated using the IV approach. Estimated reductions in the probability of social assistance receipt (4.8 percentage points versus 4.2) or of below LICO income (9.3 percentage points versus 8.5 percentage points) were also quite similar in magnitude, although the DID estimate for social assistance was not significantly different from zero. Some of the dollar amounts in Table 3 were quite different from those in Table 2, however. For example, the earnings gain estimate in the DID results was not significantly different from zero, whereas it was statistically significant in the IV regressions. Similarly, the DID estimates showed a decline in total household income (-$2,010), whereas the IV estimates found no statistically significant impact.

Overall, then, both the IV and DID estimates were quite consistent in finding that NCB participation increased employment, reduced social assistance, and improved the low income status of single adult households. These results were also quite similar to those found in the studies reported by Milligan and Stabile (2007) for provinces with 100 percent social assistance offset provisions. Hence these specific results of the second summative evaluation of the NCB can be reported with a high level of confidence. The estimates for earnings and total income remain ambiguous, however, and the reason for this is not clear. One explanation may be that the matching procedure used in the DID estimates did not work well for outcomes related to total income (because of the large variation in income in the SLID data), but it is also possible that such a large variation may also have affected the validity of the IV estimates. To examine such possibilities the study investigated a variety of subsamples containing somewhat smaller variation in household incomes, but these investigations did not clarify reasons for the differences between the IV and DID estimates.

[39] Technically, the Probit estimation technique was used to assign a "propensity score" to each person in the sample that reflected his or her likelihood of receipt of the NCB Supplement.

[40] The estimation procedure used the PSMATCH2 sub-program of Stata.

6. *Modeling the Social Assistance Offset*

Section 2 showed that the effect of the NCB program on individuals' budget constraints depends importantly on how the program interacts with other income transfer programs. Specifically, whether dollars of NCB Supplement receipt are "offset" against social assistance payments or not has an important effect on whether the NCB initiative creates significant positive labour supply incentives. This section reports on the results attempting to model these effects. As will be shown, it was found that the social assistance offsets had some of the expected effects.

A first step in the evaluation of offset provisions was to identify the actual policies followed in the various provinces and territories. As discussed in section 2, these provisions can be quite complex. Ultimately the regions were categorized into the following three categories: (1) Those with no offset provisions and which did not initiate changes to how child benefits were administered; (2) Those with 100 percent social assistance offset provisions; and (3) Those which adopted a set of provisions in which either structural changes to the child benefit system with offsetting, or structural changes without offsetting, were adopted. The rationale for this regrouping is that the anticipated employment effects of the first two categories are more predictable than for the other category and that this regrouping allows the studies to better isolate the effect of offsetting on household outcomes. As shown in Figure 4, during the time frame of the panel data used for this evaluation, only one province (New Brunswick) fell into the first category,[41] three provinces had explicit 100 percent offset provisions,[42] and the remaining provinces[43] were placed together under the heading "Integrated Child Benefit With or Without Adjustment." Because of this grouping of provinces that integrated their child benefits, it was not possible to provide separate estimates for the differing approaches actually taken by jurisdictions included in this category. Rather, the estimates represent an effect averaged across all regions included in this category.

[41] Although it is possible that unexplained differences between New Brunswick and other regions could have affected the results, the statistical robustness of the findings, together with the inclusion of provincial dummy variables, adds credence to the belief that the reported results accurately reflect behavioral outcomes.

[42] Since Manitoba discontinued recovering increases to the NCB Supplement for all families receiving income assistance in 2000 and, in 2001, stopped recovering the NCB Supplement for children aged 6 and under, for methodological reasons Manitoba has been placed in the third category as not having a 100% offset approach throughout the 1998 to 2001 period.

[43] The SLID excludes data from the Territories; consequently only the remaining Provinces were included in the model.

Figure 4: Jurisdictions categorized according to their offset approach in effect between 1998 and 2001

Offset Category	Jurisdictions
1. Jurisdictions that did not offset	New Brunswick
2. Jurisdictions that deducted 100 percent of NCB Supplement amounts from social assistance benefits through an offset	Prince Edward Island, Ontario, and Alberta
3. Jurisdictions that integrated their child benefit system with or without offsetting	Nova Scotia, Newfoundland, Manitoba, Saskatchewan, and British Columbia

The second issue faced in modeling offset and restructuring provisions was deciding on the appropriate methodology. Sample sizes available in the SLID precluded a separate DID analysis by offset type; therefore, the methodology was constrained to using an IV approach. For that approach, separate NCB effects were estimated by offset regime, but this involved adding two additional program variables in the model.[44] Overall the models involved five program-related variables, a large number for this sort of statistical approach. Although the diagnostic procedures that were used for the IV estimates again suggested that the methods were providing significant statistical power, there remained the concern that the estimates might not be especially robust to the actual specifications being used. Hence, the results reported here should be regarded more tentatively than those in Section 5.

Table 4 reports on the offset approach estimates for single adult households. Figures reported in the table refer to the estimated impact of a $1,000 increase in NCB Supplement payments under the three different offset procedures. The base case in the table is the "no offset" approach. The statistical significance for this approach is then evaluated relative to no NCB benefits. For the 100 percent offset and structural change with and without offset approaches, statistical significance is measured relative to the no offset case. Hence, a lack of statistical significance for these cases indicates that the effect of the NCB Supplement in these regions is not significantly different from that in the zero offset region. Hence, an absence of statistical significance in Table 4 does not mean that the effect is insignificantly different from zero.

[44] Because the models now had five endogenous variables, the IV procedure required at least five instruments. The two added instruments were provided by interacting offset status with the instrument for the NCB Supplement. As described in Wooldridge (2010) it is important that all of the endogenous variables be handled in the same way in making such estimates. A potential shortcut of multiplying offset status times predicted NCB supplement would create what Wooldridge calls a "forbidden regression."

Table 4: Basic Offset Estimates for Singles (IV Estimates)			
Outcome Variable	***No Offset*[1]**	**100% Offset[1]**	**Integrated Child Benefit with/without Adjustment[1]**
Percent Employed	+3.95 % *	+7.46 %	+7.19 %
Total Earnings (dollars)	-$1,347	+$1,921++	+$403+
Probability of Social Assistance Receipt	-5.29 %**	-5.29 %	-2.83 %
Total Social Assistance (dollars)	-$338	-$1,799++	-$1,168++
Probability of Low Income	-13.19 %**	-9.23 %	-7.71 %
LICO Gap (dollars)	-$383	-$1,238++	-$1,099+
Total Income (dollars)	-$2,276**	+$151++	-$511+

[1] *Effect per $1,000 of NCB benefits. Estimates for binary outcomes (percentages) are evaluated at 1.65 standard deviations below the mean of the probit index.*

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

\+ Effect significantly different from no offset at .05 level (one tail test).
++ Effect significantly different from no offset at .01 level (one tail test).

Again, the social assistance and low income impacts in Table 4 were the most consistent. All of the offset approaches showed significant reductions in the receipt of social assistance (a reduction of 5.3 percentage points in the no offset case) and in the prevalence of low income (a reduction of 13.2 percentage points in the no offset case). There were no significant differences in these outcomes depending on the offset approach used. As might have been expected, the reductions in the dollar amounts of social assistance were estimated to be largest in jurisdictions with 100 percent offset provisions (nearly $1,800 versus $338 in the "no offset" region). The results in Table 4 suggested that this large decline resulted both from the mechanical effect of NCB benefits on social assistance receipts in 100 percent offset regions and from possible positive labour supply effects in those regions. In other words, while it is true that, in the case of the 100 percent offset jurisdictions, $1,000 of NCB Supplement received (which is the unit of analysis used here) would automatically produce a reduction in social assistance of $1,000, the fact that the result obtained ($1,800) is significantly greater than the expected amount ($1,000) suggests that a significant part of this result is most plausibly attributable to families leaving social assistance for employment. Particularly interesting was that the LICO gap seemed to have been reduced the most in the 100 percent offset regions ($1,238 versus $383 in the "no offset" region) despite a reduction in social assistance receipts.

The labour supply impacts in Table 4 are generally consistent with the expectations described in section 2. In particular, earnings increases were significantly greater in 100 percent offset regions (+$1,921) than in other regions (+$403 in the "Integrated child benefits with/without offset" regions and -$1,347 in the "no offset" regions). Results for employment were similar in direction to the earnings estimates, but in this case differences from the zero offset case (though in the expected directions) were not statistically significant.[45] Hence, the analysis did provide support for the notion that carefully structured offset provisions can have important labour supply effects for single adult households.

Overall, the results of this evaluation clearly vindicated the use of both the IV and DID methodologies. These yielded reasonable results in most cases for single adult families and helped to illuminate some of the problems in estimating NCB impacts for multiple adult families. Future applications of these methods may be even more successful if they employ more recent panels of the SLID or if they can take advantage of the larger sample sizes provided in the Longitudinal Administrative Data base.

7. Conclusions

In general, the evaluation found strong antipoverty effects of the program, along with generally positive employment results for single-parent households. All of the estimates suggest that both the incidence of low income and the extent of such income shortfalls were reduced by the NCB program. That was true even in regions where dollars of NCB Supplement received were counterbalanced by declines in social assistance receipt. Specifically, with regard to reducing child poverty, every $1,000 of NCB Supplement received resulted in a decrease in the probability of a single parent household falling below the low income cutoff (LICO) of between 8.5 percentage points and 9.3 percentage points. Moreover, the gap in income for those whose income placed them below the LICO was reduced by between $760 and $1,120 for single parents.

The NCB Supplement also seems to have had a positive effect on labour market activity for single adult households. There was clear evidence of increased employment in single adult households (increases between 7.4 percentage points and 9.6 percentage points) and this was accompanied by significant increases in earnings of approximately $1,100 annually. Additionally, single-parent households experienced decreases in social assistance receipt ranging from $850 to $1,440. The labour supply findings for singles were also generally consistent with the theoretical expectation that such responses would be greatest in regions with 100 percent offset provisions (because it is in those regions that the positive labour supply incentives are the strongest).[46] Specifically, reductions in social assistance were estimated to be nearly $1,800 in jurisdictions with 100 percent offset provisions versus $338 in the "no offset" jurisdiction.

[45] The estimated gains in employment were quite similar in magnitude to those estimated in Milligan and Stabile (2007). The earnings gains estimates in Table 6 were, however, larger than those obtained in this earlier work.

[46] The theoretical expectation is based on the idea that an individual receiving less government support because of a reduction in social assistance benefits will be more likely to accept employment, including jobs with fewer hours of work

Overall, strong antipoverty effects of the program, along with generally positive employment results, were found for single-parent households. These findings provide clear evidence that the NCB initiative is meeting its goals with respect to child poverty, and suggest that it is also, in some cases, promoting attachment to the labour market.

Because of the need to include a base year in the analysis that was prior to the inception of the NCB, impacts of the initiative could only be measured for the time period from 1996 to 2001. Substantial increases in the maximum amount of NCB Supplement entitlement have been instituted since that time, along with significant changes to provincial and territorial approaches to offsetting in some jurisdictions. No longitudinal study of the initiative has been undertaken and efforts to complete one using the Longitudinal Administrative Data base in this study proved to be infeasible during the current study timeframe, mostly due to technical issues and difficulties accessing the data. Future studies should nonetheless be undertaken that attempt to capture more recent developments in the initiative.

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Appendix A: A Simple Model of the National Child Benefit Supplement and Labour Supply

This Appendix will sketch a simple graphical analysis of the labour supply implications of the NCB Supplement and its related offset provisions. Figure A1 shows the labour supply decision of a single worker. Hours of work are shown on the horizontal axis, measured *from right to left* starting at zero. Total income (consumption) is shown on the vertical axis. The line AB shows this person's budget constraint when there is no income supplementation. The slope of the line is given by the wage rate that this person is able to earn in the marketplace.

Implementation of a program with a 100 percent implicit tax on earnings is shown by the line segment ACD in Figure A1. If this person works zero hours, he or she receives an income grant given by the distance AC. As hours of work increase, this grant is reduced on a dollar-for-dollar basis so that the net income (and consumption) stays constant between points C and D. At point D the Social Assistance grant becomes zero and this person's budget constraint is again given by the market-determined wage. The horizontal segment CD is sometimes referred to as the "welfare wall" because, in this range, additional work effort yields no extra income.

Adding an NCB-type income supplement[47] to Figure A1 is a fairly simple matter, but the details of the budget constraint will depend on precisely how the benefit is treated in computing the social assistance benefit. In perhaps the simplest case there is no adjustment to that benefit. In that case, the NCB benefit is largely an add-on, simply increasing family income for any degree of labour market effort. The details of this add-on are shown in Figure A2. There the NCB Supplement amount is given by distance CE. Because social assistance benefits are still being reduced by earnings, income stays constant between points E and F. At point F social assistance benefits are again reduced to zero and this person gains extra income from working more. The segment FG has the same slope as AB (the market wage) but is shifted vertically upward by the receipt of the NCB Supplement. At point G, however, the NCB benefit begins to be reduced for added earnings. This has the effect of flattening the budget constraint between points G and H. In this range the net return to working is less than the market wage because of the implicit tax inherent in the NCB benefit structure. Beyond point H, the NCB benefit is exhausted and the person's budget constraint returns to that dictated by the market.

[47] Because this evaluation only examines the NCB program, the discussion has been simplified here by assuming this is the only such child-based income supplement. The empirical work, however, also considered benefits paid under the Canada Child Tax Benefit (CCTB) and the various provincial and territorial initiatives.

Finally, the case where the NCB benefit is subject to a 100 percent offset in computing the social assistance benefit is shown in Figure A3. Now the initial segment of the budget constraint is again AC although part of this distance is the NCB benefit (JC) and the remainder is the social assistance benefit (AJ). Because of the presence of the NCB Supplement, the social assistance benefit is reduced to zero sooner than in Figures A1 and A2, at point K. Along the segment D*L this person gains the full advantage of the market wage until the NCB benefit itself begins to be reduced (at point L). Again, this person returns to the market-determined budget constraint once the NCB benefit has been reduced to zero (at point M).

A comparison of Figures A1, A2, and A3 shows why the prediction of the effect of the NCB program on the key outcome of labour force activity may be difficult to make on *a* priori grounds. Implementation of the NCB program incorporates a general income effect that would tend to reduce labour supply. This income effect is stronger when there is no social assistance offset than when there is a 100 percent offset. With the offset there is a definite substitution effect favouring greater labour supply because a positive net return to working occurs at fewer hours of work than it does with no offset. But the overall impact of the NCB initiative is further complicated by the portion of the budget constraints in which such benefits phase out since there marginal (implicit) tax rates are increased. Of course, the simple situations described in the figures would be made more complicated if the positive labour supply effects of the "investment" aspects of the NCB program were also considered or if multiple adult households, where there may be substitution effects among workers, were considered.

The expected impact of the NCB on social assistance receipts is more straight-forward, at least in the offset case. With the offset, it is clear that the NCB should reduce social assistance receipt on a dollar-for-dollar basis in the absence of any labour supply effects. The effect would be even greater with positive labour supply effects. In the absence of the offset, the effect of the NCB on social assistance receipts would come only from the labour supply effects of the program, which could actually increase such receipts.

This discussion makes clear that the overall impact of the NCB on total family income or on measures related to total family income (such as the incidence of low income) is ambiguous. The "bottom line" impact will depend on both the specific components of the program and on the behavioural responses it elicits. Ultimately, therefore, the direction and size of such impacts will be an empirical question.

Figure A1: No National Child Benefit

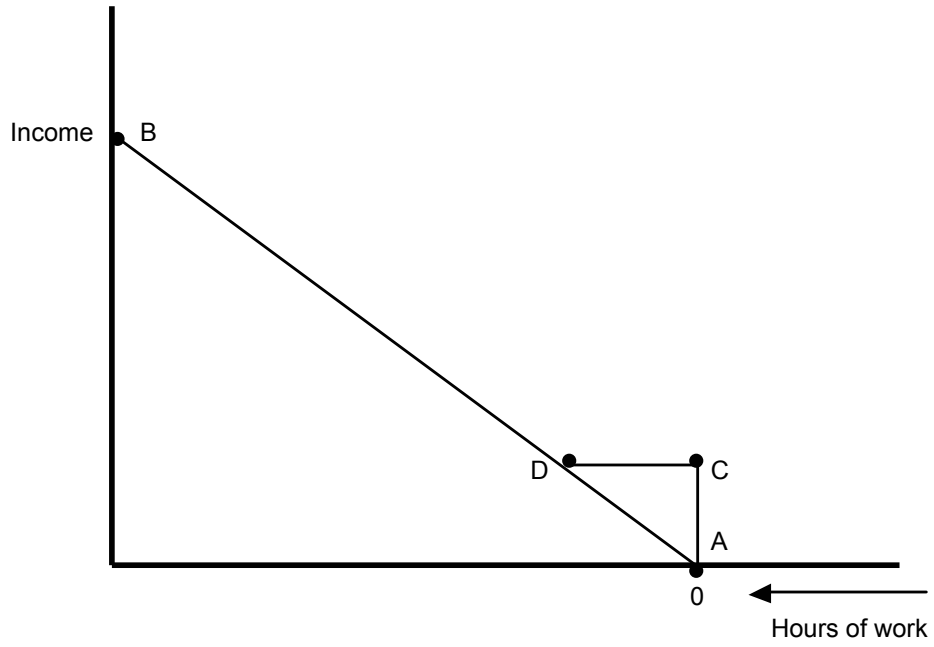


Figure A2: National Child Benefit No Offset

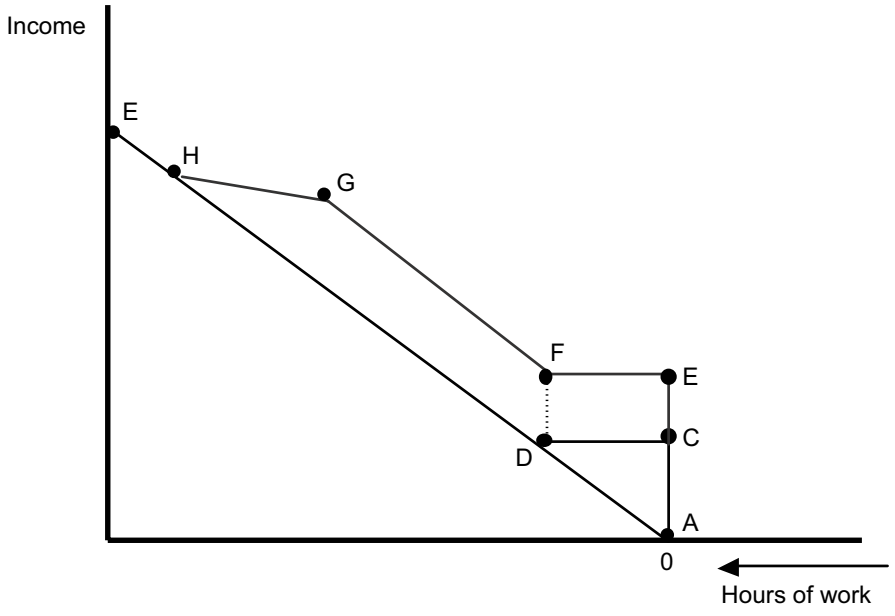
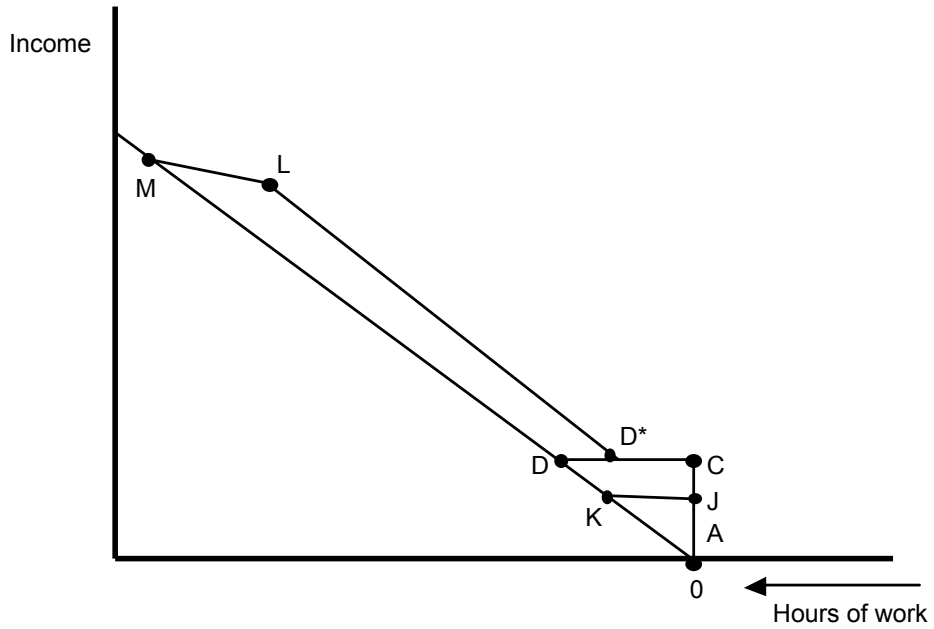


Figure A3: National Child Benefit 100% Offset



Appendix B: Description of Methodology Used

As discussed briefly in the report, evaluation used a modification of the approach taken by Milligan and Stabile (2007), and augmented it with a completely different approach utilizing a difference-in-difference methodology. The following section will describe the two approaches.

a. The Modified Milligan-Stabile Approach

For this approach the study has estimated equations of the general form:

$$y_{it} = \beta_0 + \beta_1 CB_{it} + \beta_2 X_{it} + u_{it} \qquad (1)$$

Where y_{it} is some outcome (such as earnings or social assistance receipt) exhibited by the household i in period t, *CB* is the child benefit received by this household during the period and X represents a vector of other household characteristics thought to affect y. In the original Milligan and Stabile paper the *CB* variable was taken to be benefits received under the NCB initiative and, for most of the key estimates, that variable was multiplied by a binary variable indicating whether a particular province or territory had a 100 percent social assistance offset provision. In the second summative evaluation, this approach was modified in the following two ways:

- The Child Benefit (*CB*) variable was disaggregated into three components: (1) The NCB Supplement; (2) Benefits received under the base benefit of the Canada Child Tax Benefit (referred to in future in this report just as CCTB); and (3) Provincial Child Income Benefits. This permitted the study to control for the impact of all child-based income benefits. However, because this evaluation focused only on the NCB Supplement, no attempt was made to model the impacts of these other benefits explicitly.[48]
- The effect of the entire NCB Supplement was initially estimated before looking at the possible effects of the offset provisions. This allowed for the more general impacts of the program to be estimated rather than focusing exclusively on the social assistance offset (as was the case in Milligan and Stabile).

As Milligan and Stabile recognized, estimation of equation (1) by ordinary least squares will result in biased estimates of the impact of the *CB* variable because the amount of child benefits received is determined together with the values of many of the outcome variables to be examined (such as household earnings). In formal terms, the *CB* variable is "endogenous" and special estimation methods must be employed in order to obtain

[48] Similarly no attempt was made here to control explicitly for contemporaneous changes in social assistance or other programs primarily because this would have required data collection beyond the scope of the project. However, the estimation methods used should have provided a control for these changes (see the discussion below).

consistent estimates.[49] Following Milligan and Stabile, an "instrumental variable" (IV) estimation strategy was used, which was originally developed by Currie and Gruber (1996). With this strategy, the *CB* variable was predicted for each household on the basis of three "exogenous" factors: time, province, and number of children. This exogenous variable was then treated as an "instrument" used to identify the actual impact of *CB*. Because the *CB* variable was disaggregated into three components, in practice three instruments were created and all three of the child benefits were treated as being endogenous.

The IV regressions also included measures of parents' education and dummy variables for year, province, and number of children. These dummies were included to control for differing levels of social assistance from jurisdiction to jurisdiction, as well as for constant differences in the general economic environment. Experimentation with simple province/time interactions was also undertaken to capture the effects of possible changes to social assistance systems or changes in the economic environment. Including these interaction terms did not alter the results obtained in any substantial way, suggesting that the basic results were relatively robust to the changing environment faced by NCB recipients.

b. Difference-in-Difference Approach

As a general verification of the IV results, a difference-in-difference (DID) approach was employed to estimate the impact of the NCB Supplement on the outcome variables. To implement this approach the evaluation looked at households that received the NCB Supplement in a given year (usually 1999) and looked at the change in a number of outcomes for those households in relation to a period before the NCB Supplement was available, comparing this change to the change experienced by non-NCB Supplement-recipient households. Such an approach can help to control for unmeasured household characteristics that do not change over time.

A major challenge with the DID approach in this application is that NCB Supplement recipients will usually be a small and economically distinct subgroup of all households in the data set. Applying the DID methodology indiscriminately can therefore yield largely meaningless results. A common solution to this challenge is to employ some form of matching procedure to the sample so that the DID calculation is applied only to those in the comparison sample who are relatively similar to the NCB Supplement recipients along measurable characteristics. The specific approach adopted for this study used propensity score matching in which the samples were matched according to their estimated likelihood of participating in the NCB program. This propensity score method was pioneered by Rosenbaum and Rubin (1983) and is widely used when random assignment of a treatment is infeasible (as is the case with the NCB Supplement). Specifically, the "kernel" variant of the propensity score approach was used. This approach makes use of data from all non-NCB Supplement recipient households, but weights the data from those households with propensity scores similar to those of recipient households more highly.

[49] For example, because the NCB Supplement is only received by households with relatively low earnings, an unadjusted estimate of the correlation between earnings and the NCB Supplement will make it appear that receiving the Supplement "causes" a reduction in earnings.

Appendix C: Examples of Instrumental Variables Regression Results for Singles with all Variables Reported

Variable Name	Total Earnings	Total social assistance	LICO Gap	Total Income
NCB Supplement	1.09* **(0.49)**	-1.44** **(0.15)**	-1.12** **(0.17)**	-0.29 **(0.46)**
Canadian Child Tax Benefit (CCTB)	-4.27** **(0.97)**	1.11** **(0.34)**	2.46** **(0.55)**	-4.46** **(0.92)**
Provincial Child Benefits	-1.27** **(0.45)**	-0.31* **(0.15)**	-0.51** **(0.20)**	-1.30** **(0.42)**
Urban Dwelling	2047.55** **(194.00)**	67.73* **(31.72)**	238.34** **(43.07)**	2239.34** **(204.12)**
Home Ownership (¬Household includes at least one home owner)	3600.26** **(180.78)**	-777.31** **(32.02)**	-974.81** **(46.41)**	4502.56** **(184.25)**
2 Individuals in Household	-1944.73** **(227.40)**	176.89** **(30.98)**	-891.97** **(48.07)**	-3032.75** **(235.34)**
3 Individuals in Household	-4608.49** **(288.62)**	133.25** **(44.82)**	-1261.15** **(59.52)**	-5929.33** **(288.32)**
4 Individuals in Household	-6518.75** **(333.33)**	105.62 **(57.63)**	-1672.41** **(79.33)**	-8194.07** **(335.64)**
5 Individuals in Household	-5871.45** **(393.07)**	-119.72 **(69.78)**	-1756.02** **(107.88)**	-7960.61** **(414.08)**
6 or more Individuals in Household	-5122.31** **(497.64)**	64.34 **(98.20)**	-1611.59** **(173.17)**	-6490.74** **(512.12)**
Male	2060.69** **(199.07)**	-115.08** **(27.21)**	-165.23** **(43.27)**	3617.37** **(204.25)**
Age 25-34	6903.23** **(268.05)**	208.97** **(45.46)**	-557.29** **(76.16)**	7203.17** **(274.74)**
Age 35-44	10244.81** **(338.92)**	298.72** **(64.30)**	-747.08** **(86.58)**	11310.30** **(333.53)**
Age 45-54	10143.55** **(392.77)**	140.96* **(64.77)**	-520.25** **(94.52)**	12718.12** **(387.55)**
Age 55-64	-267.16 **(418.48)**	103.99 **(72.66)**	-215.97* **(108.01)**	8232.12** **(427.63)**
Age 65+	-10161.04** **(308.37)**	-867.97** **(56.49)**	-1937.17** **(89.14)**	7793.71** **(353.35)**
Has a disability	-8481.76** **(221.72)**	1942.68** **(76.09)**	1425.76** **(75.20)**	-7281.73** **(232.89)**
Visible Minority	-1981.53** **(549.17)**	393.86** **(99.32)**	727.36** **(151.26)**	-2475.84** **(549.36)**
Aboriginal	-3220.85** **(395.16)**	696.70** **(102.77)**	555.59** **(123.69)**	-2823.78** **(383.01)**

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

Variable Name	Total Earnings	Total social assistance	LICO Gap	Total Income
Born in USA[50]	3669.06** **(892.33)**	234.72 **(163.37)**	64.60 **(214.27)**	-3415.52** **(982.33)**
Born in Europe	-280.35 **(308.36)**	-90.46* **(41.17)**	-978.59 **(707.64)**	-978.59 **(707.64)**
Born in Asia	797.79 **(705.71)**	-377.17** **(119.10)**	912.70** **(232.49)**	-978.59 **(707.64)**
Born elsewhere	1967.30* **(927.64)**	-328.54* **(141.44)**	405.90 **(249.39)**	1728.96 **(954.99)**
1-8 years of education[51]	1773.27** **(568.28)**	-1215.96** **(168.59)**	-135.69 **(171.73)**	1457.12** **(521.21)**
9-13 years of education but no high school degree	889.89 **(578.62)**	-1233.79** **(169.20)**	-166.45 **(171.04)**	2359.71** **(533.32)**
High school completed	3135.62** **(590.43)**	-1682.74** **(168.77)**	-494.29** **(172.33)**	5745.30** **(547.91)**
Attended Post-Secondary Education but not completed	2303.11** **(603.48)**	-1561.06** **(170.04)**	-240.94 **(175.21)**	5016.918** **(558.75)**
Post-Secondary Education completed	6355.24** **(586.24)**	-1915.40** **(167.34)**	-843.11** **(168.50)**	9637.47** **(543.21)**
Additional Post-Secondary Education degrees or certificates	13489.40** **(904.16)**	-1970.41** **(178.52)**	-889.57** **(196.55)**	18024.65** **(862.95)**
Father has some High School Education	1291.98** **(269.73)**	-179.00** **(45.13)**	-250.56** **(56.35)**	1714.22** **(273.94)**
Father completed High School Education	964.51** **(307.07)**	-209.96** **(48.08)**	-153.81* **(65.11)**	1237.31** **(312.70)**
Father has Post-Secondary Education	-49.83 **(329.21)**	-185.59** **(50.95)**	108.55 **(71.75)**	221.07 **(337.02)**
Mother has some High School education	661.03* **(270.78)**	-28.06 **(48.58)**	-45.80 **(59.20)**	676.01** **(275.33)**
Mother completed High School	2688.55** **(314.30)**	-176.37** **(51.64)**	-211.35** **(66.13)**	2043.23* **(322.71)**
Mother has Post-Secondary Education	1681.74** **(329.88)**	-244.80** **(48.93)**	-67.81 **(70.99)**	1312.69* **(342.91)**
Prince Edward Island[52]	1769.41** **(478.60)**	-413.67** **(85.36)**	-407.85** **(111.70)**	880.05 **(480.40)**
Nova Scotia	426.06 **(388.07)**	-31.77 **(69.64)**	86.82 **(95.35)**	103.47 **(401.70)**
New Brunswick	1397.45** **(399.65)**	-45.89 **(73.42)**	-305.05** **(91.00)**	1342.90** **(409.37)**
Ontario	5397.44** **(362.66)**	-63.70 **(62.63)**	-517.99** **(80.21)**	5227.63** **(367.50)**

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

[50] The base case for place of birth is Canada.

[51] The base case for years of education is no education.

[52] The base case for province is Newfoundland.

Variable Name	Total Earnings	Total social assistance	LICO Gap	Total Income
Manitoba	3830.25** **(394.50)**	282.75** **(66.82)**	-69.70 **(98.87)**	2866.39** **(404.26)**
Saskatchewan	4173.07** **(400.47)**	-338.75** **(67.13)**	-636.20** **(88.20)**	2923.18** **(414.65)**
Alberta	4813.63** **(418.89)**	-64.52 **(68.79)**	-262.92** **(95.91)**	4072.23** **(429.44)**
British Columbia	5167.20** **(433.89)**	-114.86 **(67.65)**	-106.36 **(99.04)**	4862.30** **(440.31)**
Year – 1997	642.81** **(243.44)**	-96.65* **(46.47)**	-43.43 **(65.20)**	596.76* (252.37)
Year – 1998	1374.43** **(254.21)**	-58.96 **(45.40)**	-51.44 **(66.66)**	1474.52** **(263.58)**
Year – 1999	1858.30** **(264.48)**	-25.41 **(44.36)**	-71.08 **(65.77)**	2050.80** **(272.75)**
Year – 2000	2752.59** **(276.88)**	-42.04 **(44.56)**	-137.97* **(63.05)**	3249.95** **(288.14)**
Year – 2001	3480.39** **(290.05)**	-36.22 **(43.40)**	-252.99** **(62.87)**	4174.42** **(301.81)**
1 child [53]	2678.50** **(998.64)**	754.32* **(328.43)**	-1044.25* **(516.97)**	5877.70** **(934.16)**
2 children	5639.61** **(1924.21)**	1045.65 **(655.51)**	-1640.21 **(1039.56)**	10855.22** **(1795.01)**
3 or more children	13402.43** **(3248.89)**	-25.45 **(1143.43)**	-3348.59* **(1708.78)**	19202.44** **(3028.92)**
Constant	-135.64 **(742.59)**	2820.86** **(188.91)**	3980.98** **(211.50)**	-1254.38* **(723.41)**

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

[53] The base case for number of children is no children.

Appendix D: Results for Couples

Basic Results

The study examined only a limited set of outcome variables for Couples – those outcomes related to social assistance receipt and household poverty. These should be regarded as "reduced form" estimates in the sense that no attempt was made to explicitly model the labour supply or other behavioral responses that led to the outcomes. Because the social assistance and poverty results are of interest in their own right we report them here. Attempts at modeling earnings (not reported) were generally unsuccessful and the large variation shown between the IV and DID estimates for some of the outcomes that were examined remain largely unexplained.

Tables D-1 and D-2 illustrate the basic results for couples. The estimates in the tables should be interpreted in the same ways as were those for singles -- that is, they show the estimate of the effect of a $1,000 increase in NCB Supplement amounts.

Table D-1: Basic Results for Couples (IV Estimates)

Outcome Variable	*Estimated NCB Effect*[1]	Standard
Probability of Social Assistance Receipt	-11.30 %**	2.42
Total Social Assistance (dollars)	-$738**	273
Probability of Low Income	-29.4 %**	2.57
LICO Gap (dollars)	-$1,170**	417

[1] *Effect per $1,000 of NCB benefits. Estimates for binary outcomes (percentages) are evaluated at 1.65 standard deviations below the mean of the probit index.*

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

Table D-2: Basic Results for Couples (DID Estimates)

Outcome Variable	*Estimated NCB Effect*	Standard
Probability of Social Assistance Receipt	-2.18 %	2.78
Total Social Assistance (dollars)	-$571**	260
Probability of Low Income	-7.61 %*	3.94
LICO Gap (dollars)	-$1,290**	452

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

Most of the other estimated outcomes for couples were reasonably consistent with expectations, although there was somewhat more disagreement between the IV and DID results than is desirable. For example, both the IV and DID results showed relatively similar estimates for reduced social assistance receipts ($738 for the IV approach; $571 with the DID approach) and for reductions in the LICO gap ($1,170 versus $1,290). But estimates for the binary outcomes showed much larger variations. The DID estimate showed only a modest 2.2 percentage point decline in social assistance receipt whereas the IV-estimated reduction was much larger (11.3 percentage points). Similarly, the DID results showed a 7.6 percentage point reduction in the incidence of low income whereas the IV estimate was dramatically larger (29 percentage points).

On the basis of these results, two general conclusions can be drawn from the estimates of the NCB Supplement impact on couples: (1) there was clear evidence that the NCB initiative reduced social assistance receipts; and (2) the NCB supplement improved the income status of low income couples. Again, therefore, it seems that the program is meeting one of its primary goals of reducing childhood poverty while at the same time providing some savings on social assistance expenditures.

Offset Estimates for Couples

Table D-3 reports the estimates for couples from the limited set of outcome variables examined. Again, developing an appropriate model for the estimation of labour supply effects of the offset provisions on couples proved difficult. Hence only outcomes related to social assistance receipt and the incidence of low incomes are reported. There was some evidence from these results that receipt of the NCB supplement did reduce social assistance receipt and that such reductions did not adversely affect the incidence of low incomes in this group. Such results do not seem to have been affected by the specific offset procedures used, however. But determining why such results occurred must await the development of better models of labour supply for this set of recipients.

Table D-3: Offset Estimates for Couples (IV Estimates)

Outcome Variable	*No Offset*[1]	100% Offset[1]	*Integrated Child Benefit with/without Adjustment*[1]
Probability of Social Assistance Receipt	-27.2 %*	-11.0 %	-13.9 %
Total Social Assistance (dollars)	-$447	-$926	-$618
Probability of Low Income	-66.7 %**	-44.4 %	-16.4 %++
LICO Gap (dollars)	-$1,292	-$1,390	-$976

[1] *Effect per $1,000 of NCB benefits. Estimates for binary outcomes (percentages) are evaluated at 1.65 standard deviations below the mean of the probit index.*

* Estimate significantly different from zero at the .05 level (one tail test).
** Estimate significantly different from zero at the .01 level (one tail test).

\+ Effect significantly different from no offset at .05 level (one tail test)
++ Effect significantly different from no offset at .01 level (one tail test)