“Child benefits, maternal employment, and children’s health: Evidence from Canadian child benefit expansions”

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Child benefits, maternal employment, and children’s health: Evidence from Canadian child benefit expansions

By: Kevin Milligan and Mark Stabile*

Industrial countries typically provide income transfers to families with young children. Traditionally, these family benefit programs were motivated by distributional concerns—families with children faced higher expenditure needs than other families, and a concern for horizontal equity led to transfers. Through the 1990s, however, many countries introduced benefits aimed at improving labor market incentives for mothers with young children. In the United States, the Earned Income Tax Credit (EITC) has played this role, but similar programs exist in Europe, Canada, and elsewhere.1

Much effort has been expended on evaluating the labor market impact of child benefits. However, less work has examined the impact of these programs on broader outcomes such as the mental and physical health of both the children and the parents; outcomes that follow from the traditional equity motivation for child benefits. In this paper, we review and extend some recent results studying the expansion of family benefits in Canada. In particular, we exploit a change that occurred in the province of Manitoba to highlight the effects of child benefits on both labor supply and family outcomes.

I. Child Benefits in Canada

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Since a reform in 1993, Canada has paid income-tested child benefits through the Canada Child Tax Benefit, delivered as a refundable tax credit. In 2008, these benefits amount to $109 monthly per child, but are phased out with family income over $37,885 at rates of 2 to 4 percent. Starting in 1998, the core Canada Child Tax Benefit was augmented with a new program called the National Child Benefit. Under the National Child Benefit program, the federal government provided a cash benefit called the National Child Benefit Supplement (NCBS). Provinces, at their choice, could subtract the dollar value of this benefit from provincial welfare checks going out to families. Several provinces also introduced affiliated child benefits, some of which were earned income supplements, while others were income-tested but paid regardless of the presence of earned income. By 2008, the NCBS reached monthly rates of $169 for a first child, $149 for a second, and $148 for subsequent children. More details on these reforms can be found in Kevin Milligan and Mark Stabile (2007, 2008). In short, there was a wide variety of legislative variation depending on province of residence, year, and family size.

What impact would one predict these benefits to have? For families receiving welfare, the NCBS effectively allowed a family to carry part of its welfare check with them into the labor force. Milligan and Stabile (2007) show that this provides a strong incentive for welfare recipients to join the labor market, and estimate that the introduction of the NCBS had a very large impact on welfare uptake and work among single mothers. For the Canada Child Tax Benefit and the provincial supplements unrelated to earned income, the family’s budget constraint is moved out. This might allow for more expenditures on the children, and more time at home rather than at work by parents. These things can be thought of as investments in the children. In addition to investments, W. Jean Yeung, Miriam R. Linver, and Jeanne Brooks-Gunn (2002) describe a ‘family process’ channel through which extra family income could
influence outcomes. Lack of adequate resources generates stress for the parents, leading to changes in the interactions with their children. Milligan and Stabile (2008) examine several outcomes related to this hypothesis, finding evidence that higher child benefits are associated with decreased maternal depression and improved behavioral scores for the children.

II. Manitoba Policy Change

In 2001, the province of Manitoba changed its approach to the NCBS. Previous to 2001, Manitoba was one of the provinces that reduced welfare checks when a family received the NCBS, dollar for dollar. However, starting in 2001, Manitoba ended this ‘clawback’ for children aged zero to five. Furthermore, in 2003, the clawback exemption was extended to all children aged zero to eleven.

This change should have two effects on families in Manitoba. First, the end of the clawback means that families receiving welfare no longer had as strong an incentive to join the work force, since they receive the same NCBS check whether they worked or not. Second, families on welfare should experience an increase in their family income, holding labor supply constant, because they now receive both their full welfare check and the NCBS. If family income leads to better emotional and development outcomes through the ‘family process’ channel, then we would predict better outcomes. However, this prediction is made more complicated when one allows for changes in labor supply. If parents choose to work less and collect welfare, total family income may recede. Moreover, if parents spend more time at home, the increased potential investment of time by parents in their children could underlie any observed changes in family outcomes. For this reason, it is important to interpret any observed
changes in the context of all of the induced changes of the policy reform, and not solely as an impact of increased family income.

III. Data

We examine the impact of the Manitoba policy change on labor supply and family income using the Survey of Labour and Income Dynamics (SLID), which is a large annual survey of Canadian families that contains detailed data on labor supply and incomes. The income data is based on administrative tax records, when available. We employ the public-use cross-sectional files, merging the person and census family files for the years 1999 to 2005. For evidence on the family process channel, we use data from the National Longitudinal Survey of Children and Youth, which is a bi-annual survey of approximately 20,000 children. This survey contains detailed information reported by parents on their children’s education, health, emotional makeup, behavior, and development. Using well-established methods, these responses are aggregated into scores that have been rigorously tested in the child development literature.

To study the impact of the Manitoba policy change, we choose all children age 0 to 5 between the years 1999 and 2005. We code those years from 2001 on as being after the policy change. For the NLSCY, we use the waves 3 to 6, encompassing the years 1998-99 to 2004-05 and code waves 5 and 6 (2002-03 and 2004-05) as the ‘post’ period. Using these data, we estimate basic difference in differences models using observations from the rest of Canada as a comparison group. The policy variable of interest is a simple interaction dummy variable between years after the reform and a Manitoba dummy variable. We also include controls for the province of residence, the education level of the parents, the marital status of the parents, the age of the parents, the size of urban area, and the number of children. We exclude from the
comparison group observations from the province of Quebec, owing to a large-scale public childcare program expanded through this period.

The main estimating equation takes the form

\[
Outcome_{ipt} = \beta_0 + \beta_1 Post_t \times Manitoba_p + \beta_2 Year_t + \beta_3 X_{ipt} + \epsilon_{ipt},
\]

where \(i, p,\) and \(t,\) index families, provinces, and years respectively. \(Outcome_{ipt}\) is one of the labor supply/income or family process outcomes for the family, \(Manitoba_p\) is a dummy variable for residents of Manitoba, \(Post_t\) is a dummy variable for years from 2001 onward, and \(X_{ipt}\) is a vector of observable family characteristics. We also try incorporating other age groups as controls, using a difference in difference in differences framework:

\[
Outcome_{iapt} = \beta_0 + \beta_1 Treat_{iapt} + \beta_2 Post_t \times Manitoba_p + \beta_3 Year_t + \beta_4 Age_a + \beta_5 X_{iapt} + \epsilon_{iapt},
\]

Here, age is indexed as \(a.\) We code treatment (‘\(Treat’\)) as one for ages zero to five for 2001 and 2002, then ages zero to eleven for 2003 to 2005. We also include ages 12 to 17 in the regression as a further control, since those children do not receive treatment in any year. We include all main effects for age, province, and year, as well as second-order interactions, which are contained in \(X_{iapt}.\) For the triple difference estimates we are restricted to examining labor market outcomes as the variables capturing child outcomes are age-range specific, foiling the use of older children as a comparison group.

IV. Results

We display the results in two tables, looking first at the labor supply and income results from the SLID and then proceeding to the family process variables in the NLSCY. In Table 1 we list the dependent variables and show the regression coefficient on the \(Post-Manitoba\) policy variable in two different samples. The first sample contains all families with children age 0 to 5.
The second sample restricts inclusion to families with low education. Low education is assigned to those with a high school diploma or less for the responding parent. Because the low education sample is much more likely to be a recipient of both the income-tested child benefits and of welfare, we expect stronger results in the low education subsample.

The first panel in Table 1 studies the impact of allowing child benefit recipients to keep their full welfare check for children age 0 to 5, using the sample containing all families. There is no significant impact on any of the measures of labor supply or income, except for social assistance income, which increases by $319 per thousand dollars of child benefits. The second panel repeats the results for a sample containing only low education families. Here, the impact is significant for each of the five measures in the table. Social Assistance uptake increases by 8.7 percentage points, while earned income receipt goes down by 4.9 percentage points. This is consistent with the incentives to discontinue work. Social Assistance income increases by $1138 per thousand dollars of child benefits, which is quite close to the dollar-for-dollar increase that is predicted by the change in policy. Finally, we find that total income increased by $4138, which is an odd result. This increase was driven by an increase in earned income—which suggests that those who did continue to work earned more.

We check these results in a triple difference specification in the third panel of Table 1. We now have the ability to control for any Manitoba-specific shock that hit before vs. after 2001 through the second-order interaction terms. The first three results look very similar to the results from the second column. However, the increase in total income is cut nearly in half and is no longer statistically significant, suggesting that the result in the second column may be due to a Manitoba earnings shock coincident with the policy change rather than a response to policy.
Table 1: Impact of Manitoba Benefit Increase on Labor Supply and Incomes

<table>
<thead>
<tr>
<th></th>
<th>All families</th>
<th>Low education families</th>
<th>Low education DDD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ages</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ages 0 to 5</td>
<td>0 to 5</td>
<td>0 to 5</td>
<td>0 to 17</td>
</tr>
<tr>
<td><strong>Number of observations</strong></td>
<td>19,590</td>
<td>19,590</td>
<td>5,451</td>
</tr>
<tr>
<td><strong>Means</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Assistance &gt; 0</td>
<td>0.115</td>
<td>0.010</td>
<td>0.087***</td>
</tr>
<tr>
<td></td>
<td>(0.319)</td>
<td>(0.012)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>Earned Income &gt; 0</td>
<td>0.940</td>
<td>-0.011</td>
<td>-0.049***</td>
</tr>
<tr>
<td></td>
<td>(0.237)</td>
<td>(0.007)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>712</td>
<td>319***</td>
<td>1138***</td>
</tr>
<tr>
<td>Income</td>
<td>(2462)</td>
<td>(69)</td>
<td>(251)</td>
</tr>
<tr>
<td>Total Income</td>
<td>48,619</td>
<td>1,400</td>
<td>4165***</td>
</tr>
<tr>
<td></td>
<td>(28,177)</td>
<td>(1,216)</td>
<td>(989)</td>
</tr>
</tbody>
</table>

Note: The first column reports means, with standard deviations in parentheses. The next three columns report regression coefficients from the interaction of the Manitoba dummy and the Post dummy from a regression using the indicated outcome as a dependent variable. The data come from the Survey of Labour and Income Dynamics 1999-2005. Three asterisks indicate significance at the one percent level, two asterisks at the five percent level, and one asterisk at the ten percent level of confidence.
In Table 2, we look for the impact of the policy change on several measures of child and parent health and welfare. More detail on these scores can be found in Milligan and Stabile (2008). All mental health and behavioral scores are standardized to a mean of zero and a standard deviation of one so that coefficients estimates reflect the proportion of a standard deviation resulting from the policy change. We focus here on just the low education families, as defined above, as well as splitting the sample by the sex of the child. In the first panel of Table 2 we report the sample sizes and means (means are reported for the non-standardized outcome variables only) as well as the coefficient on the Post-Manitoba policy variable. Here we see that an increase in the child benefit kept by parents leads to an improvement in the health of the mother of 2.5 percentage points off a mean of 31 percent. While we do not observe any significant improvements in the physical health of the child, we do observe improvements in the development and mental health of children following an increase in benefit income. The coefficient on motor and social skills development at ages 0 to 3 is positive and significant. The coefficients on the physical aggression scores and anxiety scores for children ages 4 and 5 are negative and significant (suggesting a decline in the score, which is an improvement).

The results in the second panel of Table 2 suggest that there are some key differences in the effects on boys versus girls. The decline in aggression and anxiety scores found in the full sample is concentrated among girls, with a larger coefficient for the girls only sample, and an insignificant coefficient for boys. This mirrors findings in Milligan and Stabile (2008). We also find a decline in parental-reported health of the child for girls that we do not see for boys. On the other hand we observe a decline in the separation anxiety score for boys ages 4 and 5 that we do not see for girls. Note again that our results for Table 1 suggest that the effects observed in Table 2 may be a combination of both an income effect and an increase in time spent at home.
Table 2: Impact of Manitoba Benefit Increase on Family Health and Development

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>All Low Education Families</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sample size</td>
<td>Means</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Mother in excellent health,</td>
<td>15,003</td>
<td>0.309</td>
<td>0.025*</td>
</tr>
<tr>
<td>Child age 0-5</td>
<td>(0.462)</td>
<td>(0.013)</td>
<td>(0.047)</td>
</tr>
<tr>
<td>Child in good, fair, or poor health, age 0-5</td>
<td>15,078</td>
<td>0.113</td>
<td>-0.006</td>
</tr>
<tr>
<td>Motor and Social Development Score, Age 0-3</td>
<td>8,487</td>
<td>0.187***</td>
<td>0.181**</td>
</tr>
<tr>
<td>Physical aggression score, Age 4-5</td>
<td>6,025</td>
<td>-0.208***</td>
<td>-0.245***</td>
</tr>
<tr>
<td>Separation anxiety score, Age 4-5</td>
<td>4,523</td>
<td>-0.138</td>
<td>0.042</td>
</tr>
<tr>
<td>Indirect aggression score, Age 4-5</td>
<td>5,849</td>
<td>-0.145</td>
<td>-0.241**</td>
</tr>
<tr>
<td>Anxiety score, Age 4-5</td>
<td>6,009</td>
<td>-0.204*</td>
<td>-0.351**</td>
</tr>
</tbody>
</table>

Note: The first and second columns report sample sizes and means for the full low education sample, with standard deviations in parentheses. The next three columns report regression
coefficients from the interaction of the Manitoba dummy and the Post dummy from a regression using the indicated outcome as a dependent variable. Standard errors are in parentheses below. The data come from the National Longitudinal Study of Children and Youth. Three asterisks indicate significance at the one percent level, two asterisks at the five percent level, and one asterisk at the ten percent level of confidence.

V. Discussion

The results are consistent with an impact of child benefit changes on labor supply choices that is consistent with theory. Prior to 2001, families in Manitoba on welfare only received the value of their National Child Benefit Supplement payments if they left welfare. When this was changed, fewer families had earned income and more families took up welfare. This finding is consistent with our previous work in Milligan and Stabile (2007). We also found that child and family outcomes improved after the policy change in Manitoba, which is consistent with some combination of increased parental time and family income having an impact on child development. This provides some support for the ‘family process’ channel, suggesting that the extra income provided by child benefits may improve long-run outcomes not only through direct investments but also by improving the emotional environment in which the children grow. We also find interesting differences in the effects of child benefits on children by gender. This evidence is further supported by our work in Milligan and Stabile (2008) which provides more detailed evidence on the family process channel using more extensive sources of policy variation.
REFERENCES


