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Does Policy Affect Outcomes for Young Children?

An Analysis with International Microdata

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by
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Abstract

This paper examines the hypothesis that outcomes for young children are influenced both by micro-level socioeconomic characteristics (e.g., family structure, age/gender of the child) and also by general macroeconomic conditions (e.g., the regional unemployment rate); social context (e.g., percentage of the population who are immigrants); and, centrally, by social policy (e.g., social spending per capita). In order to investigate this hypothesis, the study pools microdata from three countries (the Canadian National Longitudinal Survey of Children and Youth; the Mother-Child component of the United States National Survey of Youth and the Statistics Norway Health Survey), as well as exploiting variation which exists across regions within Canada and the U.S.

The three countries chosen for the analysis are similarly affluent, but have in place quite different programmes for children. For example, social spending is much higher in Norway than in Canada, though social spending is higher in Canada than in the U.S. A larger proportion of healthcare is publicly funded in Norway than in Canada, though a much higher proportion of healthcare is publicly funded in Canada than in the U.S. Unemployment rates are much the highest in Canada, as are levels of immigration. There is also significant variation in these measures across regions within Canada or the U.S. Results provide support for the hypothesis that policy matters for children in ways which cannot entirely be captured through standard micro-level variables. However, it is hard to pin down their associations.

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Executive Summary

This paper examines the hypothesis that outcomes for young children are influenced not only by micro-level socioeconomic characteristics (e.g., family structure, age/gender of the child), but also by general macroeconomic conditions (e.g., the regional unemployment rate), 'social context' (e.g., percentage of the population who are immigrants), and, centrally, by social policy (e.g., social spending per capita).

The analytic approach taken entails combining data from Canada, Norway and the U.S., countries with similar over-all levels of affluence, but with very different policies in place. For example, social spending per capita is much higher in Norway than in Canada; social spending per capita is higher in Canada than in the U.S. Student/teacher ratios are lower in Norway than in Canada or the U.S., and number of physicians per 100,000 population is higher. A larger proportion of healthcare is publicly funded in Norway than in Canada, while a much higher proportion of healthcare is publicly funded in Canada than in the U.S. Unemployment rates are much higher in Canada than in the other countries studied. Rates of immigration are higher in Canada. Social attitudes toward the poor are very different across the countries.

Results of the data analysis indicate that higher unemployment is usually associated with poorer outcomes for children, controlling for family income/poverty status. Higher average social spending in a region is usually associated with better outcomes. When social spending is disaggregated into the four components likely to be important for understanding the well-being of children, social transfers and percent of healthcare expenditures which are publicly funded appear to be more important than student/teacher ratios or number of physicians per 100,000 population.

Although many of the policy/context variables are observed to be statistically significant determinants of children's well-being, adding them does not alter the estimated impact of family-level characteristics. However, while there does appear to be support for the idea that policy matters for children in a way which cannot be captured through the 'standard' microeconomic variables, it is harder to pin down the effects of policy, context and macroeconomic climate than it is to identify the effects of micro-level characteristics. First, there is much less identifying variation, even though we have three countries as well as regional

variation. Second, averages across countries/regions in the macro/contextual/social policy variables are highly correlated with each other, and in many cases it is hard to isolate the effect of one variable when several others are included. For example, the percentage of respondents who feel that people live in need because they are lazy is statistically significant and with the 'right' sign for 5 of 6 outcomes studied if included with the micro variables but no other contextual variables. Overall, the results presented in this paper can at least be taken to indicate the potential importance for children's well-being of policy factors external to the child's family.

1. Introduction

This paper examines the role played by policy in shaping child outcomes. The central hypothesis is that child outcomes are influenced, not only by micro-level socioeconomic characteristics (e.g., family structure, age/gender of the child), but also by general macroeconomic conditions (e.g., the regional unemployment rate), 'social context' (e.g., percentage of the population who are immigrants; level of social cohesion), and, centrally for this paper, by social policy (e.g., social spending per capita).

Much of the excellent work which has already been done using the National Longitudinal Survey of Children and Youth (NLSCY) has focussed only upon the micro-level characteristics which are associated with child outcomes, for example, poverty status of the family, family structure (lone-parent versus two-parent family) or education level of the child's mother (see paper summaries on the HRDC web-site). Of course, both general macroeconomic policy and social policies (such as cash transfers for families with children), play a key role in determining, for example, family income, a micro-level characteristic. To the extent that this is true, studies which find a significant role for family income in determining child well-being, are also finding a significant role for policy, though this point is not always highlighted. Nor is this the central channel for policy effects studied here.[1]

In this paper, account is still taken of micro-level factors, but the emphasis is on expanding the usual set of explanatory variables to include macroeconomic, contextual and general policy variables. The basic methodology is to exploit variation in policies and variation in child outcomes which exist across Canada, Norway and the United States, and across regions within Canada and the U.S. The goal is simply to test generally whether or not an econometric link can be found between policy and outcomes, and not to establish specific links between particular policies (e.g., child benefits or social assistance) and child outcomes. Further, the goal is to establish whether or not a link can be found, not to estimate the magnitude of effects.

Within a single cross-section of data for a single country, there is limited variation in contextual variables, but very little variation in macroeconomic or policy variables. A fairly long panel of

[1] Arguably, the effects of policy on family income may be the most important channel of influence. But, since income is a well-understood determinant of child well-being, the effect of policy on family income and thus on child outcomes is not the focus of this study.

data would be required in order to obtain significant variation in the structure of basic social programmes, in levels of social spending, in macroeconomic conditions, or in general social context. Yet, these factors may be very significant determinants of outcomes for children. Better quality schools or hospitals, more social cohesion or less economic insecurity, either because of more extensive transfers or because of less unemployment, for example, might all be expected to increase the well-being of children, yet such factors are not captured in models which focus only upon the micro-level determinants of children's outcomes. The strategy proposed in this research is to combine relatively similar cross-sections of microdata from 3 countries with very different social policies in order to obtain variation in policy which can be used to test for links with child well-being. Policy and outcomes variations for regions within countries are also exploited.

In a precursor study to this research (Phipps, 1998d), an effort was made to categorize, in particular, quantitative aspects of the mix of policies available for children in the 3 countries again studied in this paper. The focus of the earlier work was upon tax and transfer provisions available, but childcare, healthcare and education were also discussed as was the values context of the programmes available, the macroeconomic environment and the sociodemographic history of each country.[2]

To summarize this work, children in Norway receive much more in the way of cash transfers than do children in Canada, or particularly, the U.S. For example, all Norwegian children receive generous child benefits, by Canadian standards, many Canadian children receive a child benefit, but no children in the U.S. receive such a benefit.[3] On the other hand, families with children in both Norway and the U.S. receive tax relief which is not available for families with children in Canada. Lone-mother families in Norway receive very generous transfers, including guaranteed child support payments and double the usual child benefit. Families with newborns benefit through paid maternity leaves in both Canada and Norway, though the Norwegian programme is much more extensive than the Canadian. No such benefit is available in the United States. Canada and Norway both provide 'universal' public health insurance, while such a programme is not offered in the U.S. Within countries, there is also considerable variation in

[2] See also Baker, 1995, Gauthier, 1996 or O'Hara, 1998. O'Hara, 1998 and Phipps, 1998d are complementary pieces of research conducted during the same period of time for CPRN and HRDC.

[3] However, children of 'working poor' parents can receive the 'earned income tax credit' in the U.S. (Kamerman and Kahn, 1997).

social policy. Within Canada, for example, many programmes which are of direct relevance to the well-being of children are matters of provincial jurisdiction (e.g., health, education and social services).

Section 2 elaborates upon the conceptual framework motivating this analysis. Section 3 of the paper provides a brief review of the literature on neighbourhood influences on children's well-being, the literature most closely linked conceptually to the analysis presented in this paper. Section 4 outlines the data sources used. Section 5 documents the extent of differences across countries and across regions for 6 child outcomes: incidence of asthma; experience of accidents/injuries; activity limitation; experience of anxiety/fear; restless/overly active behaviour; and disobedience at school. Section 6 presents national/regional differences in micro-level socioeconomic characteristics and asks whether national/regional differences remain after we control for key socioeconomic characteristics of the individual child/family in estimated probit equations for child outcomes. Section 7 introduces the macroeconomic, contextual and policy data and discusses national/regional differences in these variables. Probit regressions are re-run, adding this new information to the more standard micro-level controls, to provide a test of the hypothesis that policy matters for children's outcomes.

More specifically, we test a series of hypotheses. First, we add three very basic 'contextual' variables: the unemployment rate as an indicator of macroeconomic conditions; social spending per capita, as an indicator of over-all level of policy activity; percentage of heads of household who are immigrants as an indicator of 'social context' (i.e., homogeneity of population, in this case). Second, the social spending variable is replaced by 4 more disaggregated policy components likely to be important for the well-being of children: social transfers, student/teacher ratios, physicians per 100,000 population and percent of healthcare publicly funded. Third, an effort is made to control for the fact that social spending will be higher in regions experiencing economic hard times, even if the underlying structure of the transfer system, for example, is not especially generous. Finally, we also attempt to test whether the *structure* of the transfer system (e.g., more targeted versus more universal) plays a role in addition to the average *level* of benefits received. Section 8 concludes.

2. Conceptual Framework

Economics as a discipline is dominated by models in which individual agents make utility-maximizing choices. Hence, it is not surprising that the most influential economic model[4] of the determinants of children's well-being is one which focuses on how parental choices affect outcomes for children (see Becker and Tomes, 1986).[5] In this framework the family is viewed as a small factory, in which the parents are the 'bosses' who make decisions about how and what to produce. For example, they make decisions which will determine how much the family has in the way of economic resources by deciding how much time to spend working for pay (and they have previously decided upon how much education to pursue which will determine their rate of pay). Parents then decide about how economic resources will be used – for adult consumption, for asset accumulation or for investments in children, where investments in children are "expenditures on their skills, health, learning, motivation, 'credentials,' and many other characteristics" (Becker and Tomes, 1986, p. S5). Parents are also assumed to decide about the sort of neighbourhood in which the family will live, about how many siblings each child will have and about the family structure in which the child will grow up.[6] All of these choices are assumed to influence children's attainments.[7]

[4] In fact, I am not aware of a serious theoretical contender in the economics literature. It is worth noting, however, that the empirical economics literature is more developed in this area than the theoretical literature, and it is not necessarily true that all economists working on child well-being subscribe to the theoretical approach described below.

[5] As argued in Phipps 1998b, most of the focus of the economics literature is on the *eventual* attainments of children, once the children become adults. That is, an investment perspective is assumed. However, in this paper, we are considering the determinants of children's well-being while they are still young children (primarily aged 4 to 11 years).

[6] A great deal of choice is assumed here. Babies are not born by accident, and divorce is a optimizing choice.

[7] Non-economists have worked more extensively than economists on the subject of child development and offer several alternative theoretical perspectives, also surveyed by Haveman and Wolfe (1995). These include: a) the 'socialization/role model perspective' which focusses upon the important influences of parents, siblings and peers on the development of children's aspirations, values and behaviour (e.g., Seltzer, 1994; Jencks and Mayer, 1990); b) the 'ecological systems' approach favoured by many developmental psychologists which argues that development occurs throughout life, and that the timing and context of any significant life event (e.g., parental divorce) will modify its impact on that particular individual (e.g., Bronfenbrenner, 1989); c) stress theory and coping strategy perspectives argue that a particular stressful event (again, for example, parental divorce) may change a child's equilibrium path of development though the impact of such a stressful event can be mitigated, or not, depending upon parental coping capacities (e.g., Hamilton and McCubbin, 1980). As Haveman and Wolfe argue, these psychological and sociological perspectives emphasize environmental/cultural factors rather than the individual choices/characteristics upon which economists focus. Empirically, however, it may not always be easy to distinguish the various perspectives. For example, is it higher parental income as an input as economists might argue or better role models in the neighbourhood as sociologists might argue which is the key factor associated with better outcomes for children? Empirically, these two hypotheses would be very difficult to disentangle.

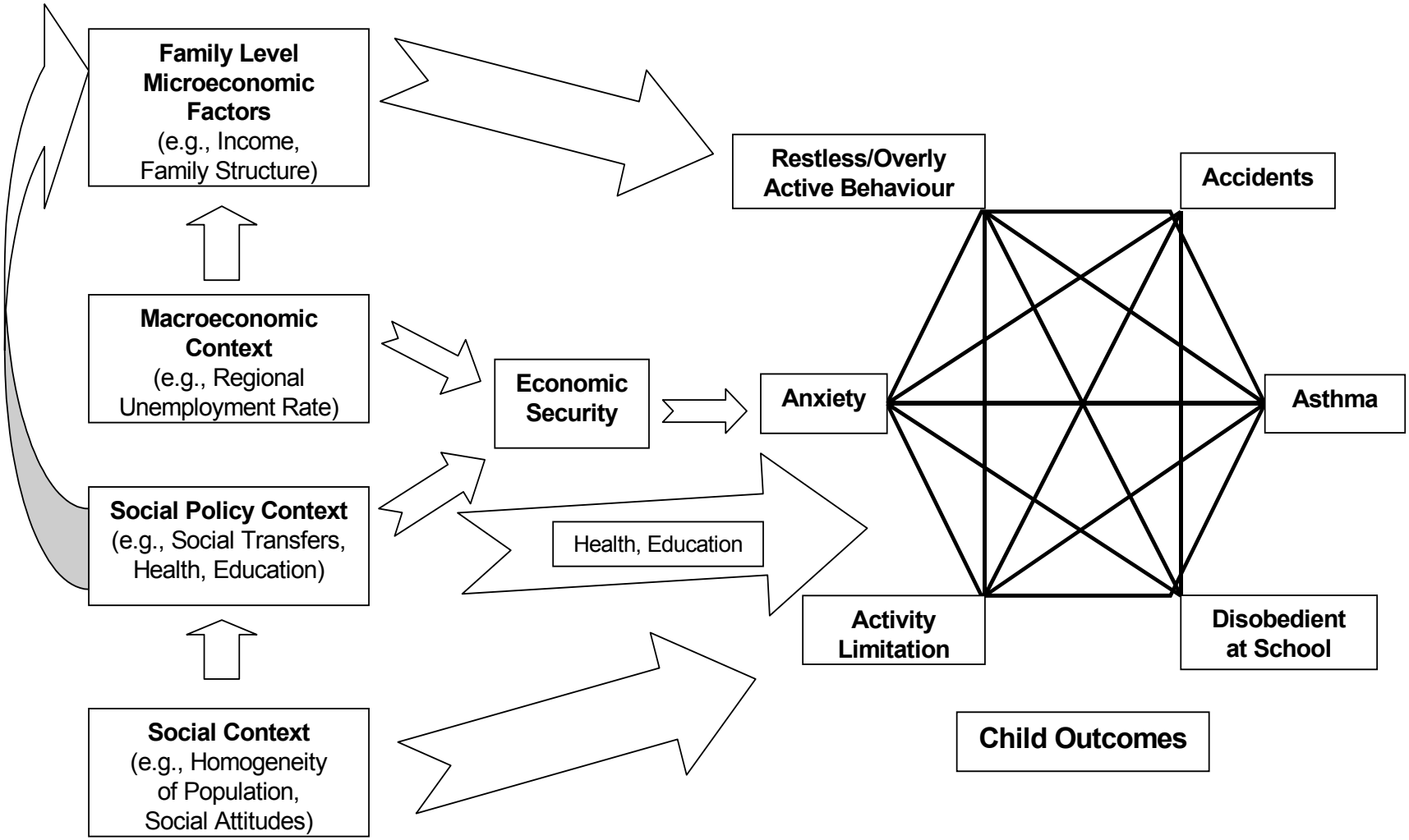
In the excellent survey by Haveman and Wolfe (1995), the basic economic framework is expanded to indicate that children's well-being will depend upon 3 primary factors: 1) the choices made by society which will determine the options available to either children or their parents – what Haveman and Wolfe call "the social investment"; 2) the choices made by the parents about both the quality and quantity of resources devoted to children – "the parental investment;" 3) the choices made by the children themselves, where this third component is argued to be most important for older children (e.g., those 13 to 15 who understand the relationship between behaviour and outcomes).

Yet, despite this expanded conceptual framework proposed by Haveman and Wolfe, most of the empirical research by economists directed toward understanding children's attainments has focussed upon family-level variables rather than upon broader societal factors. In part, this may be the result of the individual, choice-based framework which characterizes most economic research. In part, in may be the result of data availability – economists most often work with large micro-data surveys with excellent information about family-level characteristics, so this is a logical starting point for research. Moreover, within a single cross-section of data for a single country, there is unlikely to be much variation in broader social context (e.g., macroeconomic conditions, social policies or social cohesion). Yet, this does not mean that such variables are unimportant and it would be unfortunate if policy debates, informed by micro-oriented economics research, were to ignore the important role of general macroeconomic and social policy in influencing outcomes for children.

Figure 1 illustrates how macroeconomic conditions, social policy and social context might influence children's well-being.[8] First, of course, these factors will influence the family-level variables most-typically studied. For example, macroeconomic conditions will affect the labour incomes available to families. Social transfers and taxes will affect the disposable incomes available for 'parental investments' in children. Societal attitudes might influence the choices made by parents about their children. To the extent that these channels of influence are significant (and surely unemployment, taxes and transfers will be vitally important for the

[8] Haveman and Wolfe (1995) provide only a brief sketch of their proposed expansion of the economic perspective on child development. What follows is thus my own interpretation/elaboration of their ideas, but I would not argue that anything substantive is added.

Figure 1 : Direct and Indirect Influences on Children's Well-Being



availability of family financial resources), then these factors are implicitly already included in the standard work. However, their influence is not typically highlighted.

But, social policy can also have important direct influences on children's well-being other than through family income. For example, health and education systems are directly experienced by children who go to school, visit the doctor/clinic or stay in a hospital. Social context might influence child well-being directly, if we think of environmental quality, or levels of crime, for example.

Social context is also likely to affect the social policies which are in place. For example, a more cohesive society might be more supportive of an excellent educational system or a stronger social safety net.

Finally, and very importantly, macroeconomic conditions in combination with the availability or lack of availability of a social safety net will influence the level of economic security perceived by parents and children. In an environment where parents are very worried about the risk of losing their jobs, perhaps both because rates of unemployment are high and because there would be few benefits available to them in this event, stress levels will be high. This may affect their parenting and thus children's well-being. Children may also be aware of parental stress and so feel anxious themselves. Notice that the effects noted here are possible for families with no actual experience of unemployment.

3. Review of the Literature

Recent work on the influence of 'neighbourhood quality' on children's well-being is probably the most closely connected both conceptually and methodologically with the research presented in this paper.[9] The basic idea in much of the 'neighbourhood' literature is that characteristics of the neighbourhood in which the child resides, as well as individual-level characteristics of the child's family, may be important determinants of the child's well-being, both now and in the future. Thus, this work adds 'social context' and in some cases, 'macroeconomic environment' as potential determinants of children's well-being. It is harder to add 'social policy' in that many social programmes do not vary across neighbourhoods.

Several recent Canadian papers each explore this idea by exploiting variations in neighbourhood quality which exist at the sub-provincial level (generally at the census tract level). That is, researchers control in the usual way for family-level correlates of child well-being such as family income, parental education, age/sex of child, but add as well measures of the 'quality' of the neighbourhood in which the child resides such as percentage of the population with low incomes, or percentage of lone-mother families. Methodologically, therefore, this work resembles the analysis presented in this paper, which exploits variations in macroeconomic conditions, social context and social policy which exist across regions and countries.

Boyle and Lipman (1998) use NLSCY data linked with census data from Census Enumerations Areas to study emotional, conduct and hyperactive disorders among children aged 4 to 11 years. In addition to individual-level controls, they include the proportion of one-parent families in the area, the proportion of poor families in the area, and a measure of neighbourhood socioeconomic disadvantage constructed from neighbourhood income, education and unemployment levels. While Boyle and Lipman conclude that family-level characteristics are more important than neighbourhood characteristics, they do find that the proportion of lone-parent families in the neighbourhood is consistently associated with worse outcomes for children.

[9] It is, to my knowledge, unique to have available reasonably comparable cross-sections of microdata from different countries containing information about children's well-being. I am thus unaware of any directly comparable study.

Kohen, Hertzman and Brooks-Gunn (1998) also combine NLSCY data with census data at the Enumeration Area level to study the impact of neighbourhood quality on school readiness in children aged less than 6. Key results again include the finding that outcomes for children (PPVT scores for 4 and 5 year olds; behavioural problems among younger children) are worse the higher the proportion of lone-parent families. Behavioural problems appear to be less likely for children living in neighbourhoods with a higher proportion of more affluent families (ie., those with incomes greater than $50,000).

Corak and Heisz (1998) study the impact of the quality of the neighbourhood in which individuals resided while teenagers on subsequent adult labour market outcomes. Yse is again made of census tract level data to obtain indices neighbourhood quality which in this case include: 1) 'economic conditions,' based on the over-all neighbourhood unemployment rate as well as the youth unemployment rate; 2) 'social capital,' based on education levels, proportion of the population who are affluent and average dwelling values for the neighbourhood; and 3) 'ethnic capital' based on the proportion of immigrants and the proportion speaking a language other than French or English. Individual-level data are drawn from administrative tax records. The key finding of this paper is that controlling for parental income level, the social capital and economic conditions which prevailed in a teenager's neighbourhood are positively correlated with his/her adult labour market outcomes.[10]

Of course, any research which attempts to assess the implications of particular programmes for children's well-being is thematically linked to the central question addressed in this paper – "how does policy affect the well-being of children." As pointed out earlier, this question has been relatively neglected by economists, presumably because, at least in Canada, we have had to work largely with single cross-sections of data, allowing for very little identifying variation in programmes.

A recent study by Hanratty (1996) exploits historical variation across provinces in dates of implementation of national health insurance in an effort to assess the impact of health insurance on infant health (as measured in terms of mortality rates and incidence of low-weight births),

[10] Curtis, *et al.*, 1999 also investigate the link between neighbourhood quality and child well-being, but the methodology employed is rather different, since parent and interviewer assessments of neighbourhood rather than census tract information. However, the conclusion is again, that 'better-quality' neighbourhoods are associated with better outcomes for children.

concluding that the implementation of health insurance was associated with improved infant health. Unfortunately, such 'natural experiments' in policy are relatively rare, leading to the strategy adopted in this paper of exploiting international variations in policy.

4. Data Sources

Canadian outcome estimates are derived from the National Longitudinal Survey of Children and Youth (NLSCY). The Statistics Norway Health Survey and the National Survey of Children for the U.S. are reasonably comparable microdata sets obtained to conduct cross-national comparisons (see Appendix Table 1 for details). In each case, the survey was conducted during a visit to the respondent's home. In locating data sets for the non-Canadian countries, a key condition was that the surveys contain reasonably similar information to that available in the NLSCY. For the U.S., this was not a problem, since content is similar, though with much less information about children's physical health. On the other hand, the Norwegian survey is basically focussed on health-related issues, since the child-related questions which we use were a subset of the 1995 Statistics Norway Health Survey, but there were no questions about problem behaviours, for example.

One difference across the surveys is whether or not the population of children in the country was the primary focus of the study. In Canada, children aged 0 to 11 years were the principal focus. The main component of the survey consists of children living in households who had recently been part of the Labour Force Survey (thus households living in the North, on Indian Reserves or in institutions are excluded). In Norway, the survey was designed with the population of principal interest being adults who, if they had children, were asked a limited set of questions about the health and happiness of their children. In this case, there was no restriction on the age of the child, though, of course, for comparability we restrict our attention to 0 to 11 year old children.

For the U.S., the parents were also the original focus of the survey, with the questions about the respondent's children added at a later stage. The child data we use for the U.S. are based on questions asked of the original NLSY respondents about their children. Unlike the Canadian NLSCY, the U.S. survey was not designed to obtain a nationally representative sample of children. Fortunately for the sake of making the international comparisons proposed for this paper, the key limitation of the survey is that given the current ages of the parents, the child sample is most representative of *younger* children (mothers in the U.S. would be between the ages of 30 and 38 in 1995). Estimates for the U.S. are considered fully representative of the national population of children for younger children, but not for teens or young adults.

Since the first wave of the Canadian NLSCY only contains information about children aged 0 to 11 years, and thus we only compare outcomes for children in this age range, the relative youthfulness of the U.S. parents is not a serious problem for this analysis. Moreover, while the range of parental age is greater for Canada and Norway than for the U.S., mean age of mother is nearly identical. We choose to focus on the full samples for Canada and Norway since this gives the best information about child outcomes in these countries.[11]

In the Canadian survey, the person answering the questions is the 'person most knowledgeable about the child' (PMK) – the mother in 97.7 percent of cases for the Child Questionnaire. For the U.S. survey, only female respondents with children were asked about their children. Thus, the child sample consists of all children born to NLSY female respondents who were living in their mother's household at the survey date (several surveys have been carried out – we use the 1995 survey). In Norway, the respondent to the health survey would answer the child-related questions, regardless of the sex of the respondent.

Since the public-use sample of the U.S. NLSY does not indicate region of residence, we obtained the geo-code file and merged this with the mother-child sample which we have used in previous work. This enables the regional identification which is essential for this paper.

For each data set, a small number of individuals did not answer particular questions about children's well-being. These observations are excluded as appropriate for the reporting of levels of child outcomes. Sample size is much the largest for Canadian children, with 21,045 observations for children aged 0 to 11. In contrast, we have only 3,961 observations for the U.S. and 1,644 observations for Norway (see Appendix Table 1). And, in fact, for anxiety/fear, asthma and restless/overly active behaviour, we focus on the sample of 4 to 11 year-old children, with even smaller sample sizes.

Of the 6 children's outcomes studied, 3 relate to physical health (asthma, activity limitation and injury), and 3 are behavioural outcomes (fear/anxiety, restless/overly active behaviour, and disobedience at school). Only 3 outcomes are available for all 3 countries (anxiety/fear; injury and activity limitation). These cases allow for the most variation in policy, macroeconomic conditions and contextual setting. Unfortunately, the Norwegian survey focuses on physical

[11] Also, we have performed sensitivity tests involving restricting the age of mothers in the Canadian sample to match the U.S. sample. Estimates in no case changed by more than 1 percentage point.

health while the U.S. survey provides very little information about physical health, thus limiting possibilities for 3-country comparisons. Information about the incidence of asthma is available only for Canada and Norway, while information about restless/overly active behaviour and disobedience at school are available only for Canada and the U.S.

These basic children's outcome data sets are also supplemented through the analysis with microdata from the Luxembourg Income Study, a set of comparable microdata files with better income information than any of the child outcome data sets, and with microdata from the World Values Study, which asks respondents in the 3 countries studied about attitudes/values. Finally, for the compilation of macroeconomic, policy and context data, we consult a variety of published sources, as documented in Appendix Table 2.

5. National and Regional Differences in Child Outcomes

Table 1 (a and b) presents national level differences in outcomes for all young children, as well as for the poorest 20 percent of children in each country. The strategy of looking for links between policies and outcomes only makes sense if variations across countries in outcomes experienced by children actually exist. Table 1 indicates that they do. Notice, first, that experience of accidents/injuries, activity limitation, asthma and experience of anxiety/fear are all significantly[12] lower for young children in Norway than for young children living in Canada. If we compare *all* young children in Canada and the U.S., there is no statistically significant difference in activity limitation or experience of accidents/injury; children are more likely to be restless/overly active; to experience fear/anxiety; they are less likely to be disobedient at school.[13]

TABLE 1a: Means of Child Outcomes (National Level)

	Asthma *Ages 4-11*	**Injured** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxious/ Fearful** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Canada	13.2 (0.298)	10.2 (0.209)	3.8 (0.132)	36.1 (0.423)	57.6 (0.435)	17.8 (0.392)
Norway	8.2* (0.830)	7.9* (0.666)	2.0* (0.344)	11.2* (0.953)	n/a	n/a
United States	n/a	10.7 (0.498)	3.5 (0.293)	31.6* (0.888)	40.9* (0.937)	20.7* (0.899)

Note: Standard errors are in parentheses. * indicates significantly different from Canada at 90% level of confidence.

If we compare outcomes for the poorest 20 percent of children in Canada and Norway, the pattern observed for all children holds: children in Norway are less likely to have accidents, to have asthma or to be anxious/fearful than children in Canada (there is now no statistically significant difference in activity limitation though the Norwegian point estimate is lower). However, if we compare outcomes for the poorest 20 percent of children in the U.S. and Canada, a slightly different pattern emerges than is true for all children. Low-income children in Canada are less likely to be limited in activity and less likely to be disobedient at school than children in

[12] Outcomes are labelled 'significantly different' if confidence intervals of two standard errors around the point estimates do not overlap.

[13] See also Phipps, 1998c and 1998d which focus on establishing benchmark comparisons of child outcomes across these 3 countries.

the U.S. Low-income children in Canada are more likely to be anxious/frightened and to be restless/overly active than low-income children living in the U.S. Thus, a statistical difference in activity limitation emerges between the two countries when we consider children at the bottom of the income distributions. To the extent that social programmes are particularly important for low-income children, this could well be a policy-driven difference.

TABLE 1b: Means of Child Outcomes (National Level)
(Bottom Quintile of Income Distribution)

	Asthma *Ages 4-11*	**Injured** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxious/ Fearful** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Canada	12.6 (0.611)	10.0 (0.433)	4.3 (0.292)	41.8 (0.910)	62.2 (0.894)	21.3 (0.893)
Norway	6.6* (1.77)	6.5 (1.43)	2.4 (0.889)	16.8* (1.99)	n/a	n/a
United States	n/a	11.0 (0.963)	6.3* (0.610)	34.8* (1.67)	49.9* (1.76)	27.4* (1.77)

Note: Standard errors are in parentheses. * indicates significantly different from Canada at 90% level of confidence.

Table 1 thus indicates that there are significant differences across countries in terms of important outcomes for children. The central goal of this paper is to examine the hypothesis that policy is at least part of the reason for these observed cross-country differences in outcomes.

Table 2 reports average child outcomes by region for Canada and the U.S. (We do not break Norway down by region.) The Canadian NLSCY data set is large enough to allow provincial-level de-composition. However, the U.S. data set is too small to allow for a state-level disaggregation. Instead, we have aggregated to 9 U.S. regions. (Details are provided in Appendix 3.) As is clear from Table 2, not only is there cross-country variation in child outcomes, but there is also significant variation in outcomes within countries. For example, the incidence of asthma varies across Canadian provinces from a high of 24 percent in PEI to a low of 10 percent in Saskatchewan (see Chart 1).

Chart 1
Percentage of Children Aged 0-11 Who Have Asthma

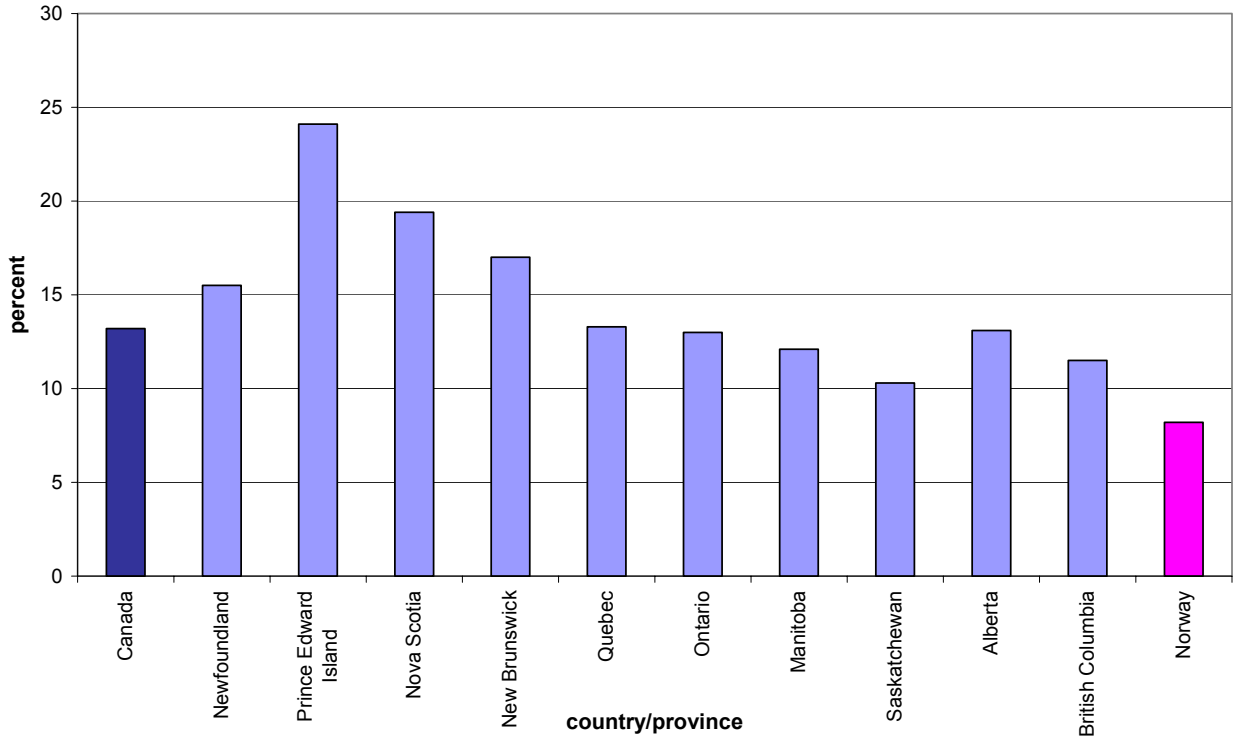


Chart 2 illustrates significant regional variation in the experience of accidents/injuries requiring medical attention. It is interesting that while the national average looks better for Norway, two regions (PEI and East-South Central U.S.) have fewer accidents than Norway (and New England looks about the same). This is also true for activity limitations which are illustrated in Chart 3. There is clearly wide variation across regions for this outcome measure. The experience of anxiety/fear by young children varies from a low of 33.8 percent in Alberta to a high of 38 percent in Ontario and Newfoundland. This within-country variation in outcomes for children is also apparent for the U.S.: the experience of anxiety/fear varies from a low of 25.9 percent in the Mid-Atlantic region to a high of 43.1 percent in the East-South Central region (see Chart 4). Chart 5 illustrates regional variation in reported restless/overly active behaviour. In this case, regional variation is perhaps not so great as for some of the other outcome measures. The clear pattern which is emphasized by the chart is that restlessness is more common among Canadian than U.S. children. Finally, regional variations in reported disobedience at school are illustrated in Chart 6. As for several other outcomes, the regional variation in disobedience at school is apparent in Canada, but is more marked in the U.S. These regional variations, together with

regional variation in policies, are exploited to learn more about links between policy and outcomes for children.[14]

TABLE 2: Means of Child Outcomes (Regional Level)

	Asthma *Ages 4-11*	**Injured** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxious/ Fearful** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Newfoundland	15.5 (1.293)	10.1 (0.878)	3.4 (0.527)	38.0 (1.734)	62.6* (1.728)	8.7* (1.146)
Prince Edward Island	24.1* (1.982)	6.7* (0.925)	4.2 (0.743)	34.4 (2.201)	62.0 (2.248)	13.8 (1.875)
Nova Scotia	19.4* (1.319)	12.8* (0.882)	4.3 (0.532)	34.9 (1.591)	61.8* (1.620)	14.2 (1.359)
New Brunswick	17.0* (1.304)	9.5 (0.808)	4.4 (0.563)	35.5 (1.663)	56.6 (1.720)	15.1 (1.460)
Quebec	13.3 (0.718)	9.7 (0.480)	2.5 (0.251)	34.1 (1.001)	58.0 (1.042)	20.3 (0.993)
Ontario	13.0 (0.579)	9.8 (0.398)	4.0 (0.262)	38.2 (0.837)	55.9 (0.855)	18.1 (0.772)
Manitoba	12.1 (1.058)	8.9 (0.712)	3.5 (0.462)	34.1 (1.535)	60.6 (1.582)	17.6 (1.428)
Saskatchewan	10.3 (0.942)	11.2 (0.775)	4.0 (0.481)	34.7 (1.473)	63.1* (1.494)	18.3 (1.403)
Alberta	13.1 (0.963)	10.8 (0.705)	5.5 (0.517)	33.8 (1.353)	58.8 (1.406)	17.4 (1.257)
British Columbia	11.5 (0.971)	11.7 (0.772)	4.2 (0.483)	36.4 (1.469)	56.3 (1.514)	15.2 (1.282)
New England	n/a	8.1 (2.110)	2.987 (1.195)	33.8 (4.530)	43.1* (4.832)	20.1 (4.629)
Mid-Atlantic	n/a	12.8 (1.596)	3.7 (0.792)	25.9* (2.612)	38.1* (2.882)	17.9 (2.670)
East-North Central	n/a	9.4 (1.048)	3.5 (0.581)	33.9 (2.031)	39.3* (2.088)	20.0 (2.038)
West-North Central	n/a	11.7 (1.916)	2.9 (0.885)	29.8 (3.257)	35.5* (3.408)	13.8 (2.857)
South Atlantic	n/a	10.7 (1.089)	5.2 (0.669)	27.4* (1.807)	40.7* (1.981)	20.6 (1.915)
East-South Central	n/a	4.4* (1.567)	5.1 (1.346)	43.1 (4.343)	53.9 (4.354)	24.9 (4.202)
West-South Central	n/a	11.6 (1.512)	1.1* (0.418)	30.7* (2.607)	53.7 (2.809)	27.8* (2.898)
Mountain	n/a	12.7 (2.362)	3.3 (1.111)	36.5 (3.997)	43.4* (4.116)	31.1* (4.495)
Pacific	n/a	12.5 (1.397)	2.3 (0.540)	34.0 (2.354)	35.5* (2.38)	19.3 (2.223)
Coefficient of variation	1.188	0.468	0.31	0.438	1.968	1.438

Note: Standard Errors are in parentheses. * indicates significantly different from Ontario at 90% level of confidence.

[14] See Phipps, 1999 which focuses on provincial differences in child outcomes.

Chart 2
Percentage of Children Aged 0-11
Who Have Required Medical Attention in the Last 12 Months Due to an Injury

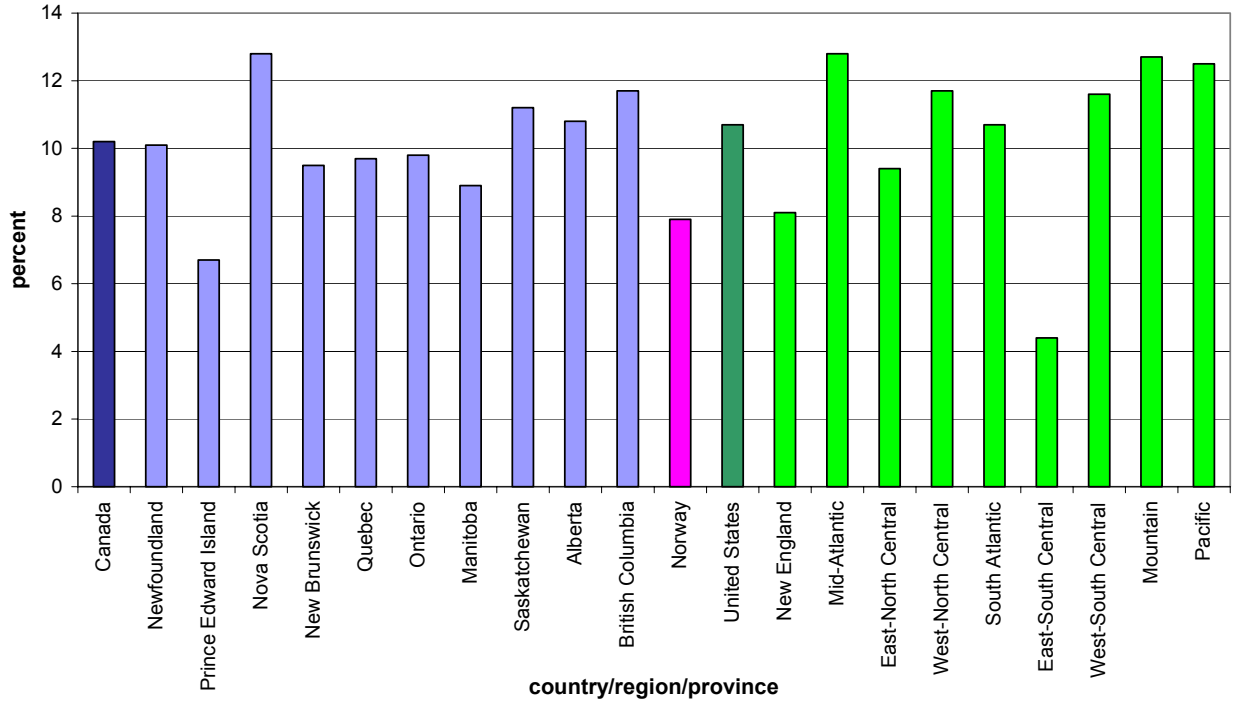


Chart 3
Percentage of Children Aged 0-11 Who are Limited in Activities

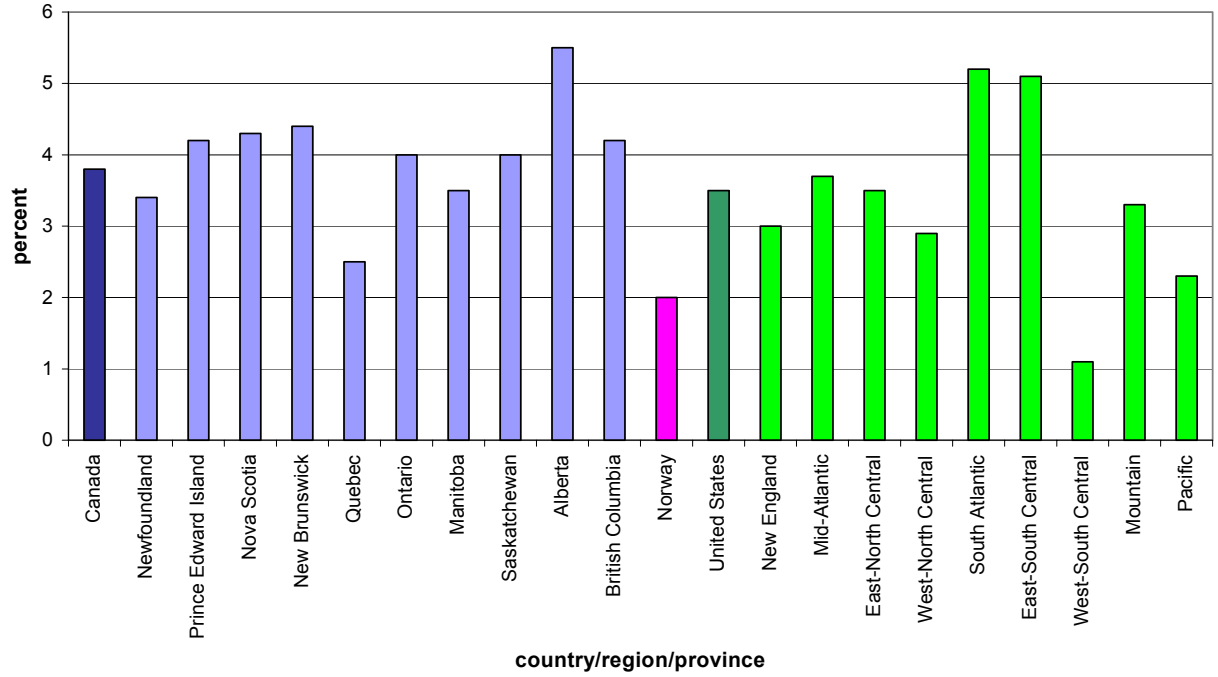


Chart 4
Percentage of Children Aged 4-11
Who are Described as Anxious or Fearful

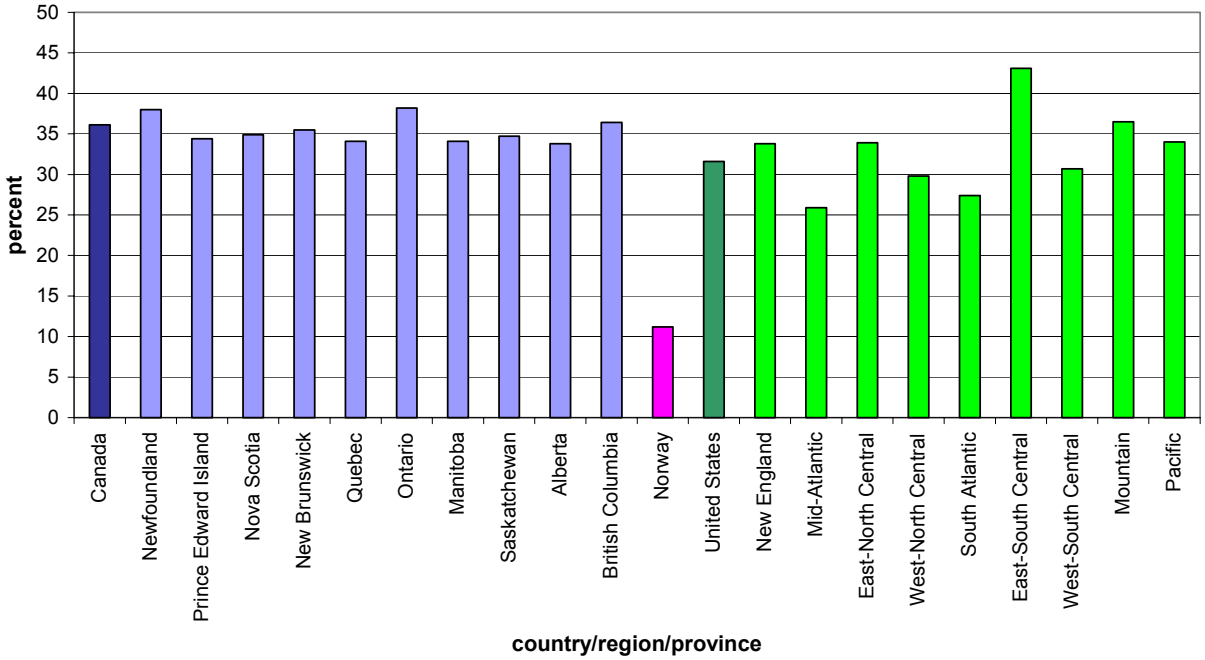


Chart 5
Percentage of Children Aged 4-11
Who are Described as Restless or Overly Active

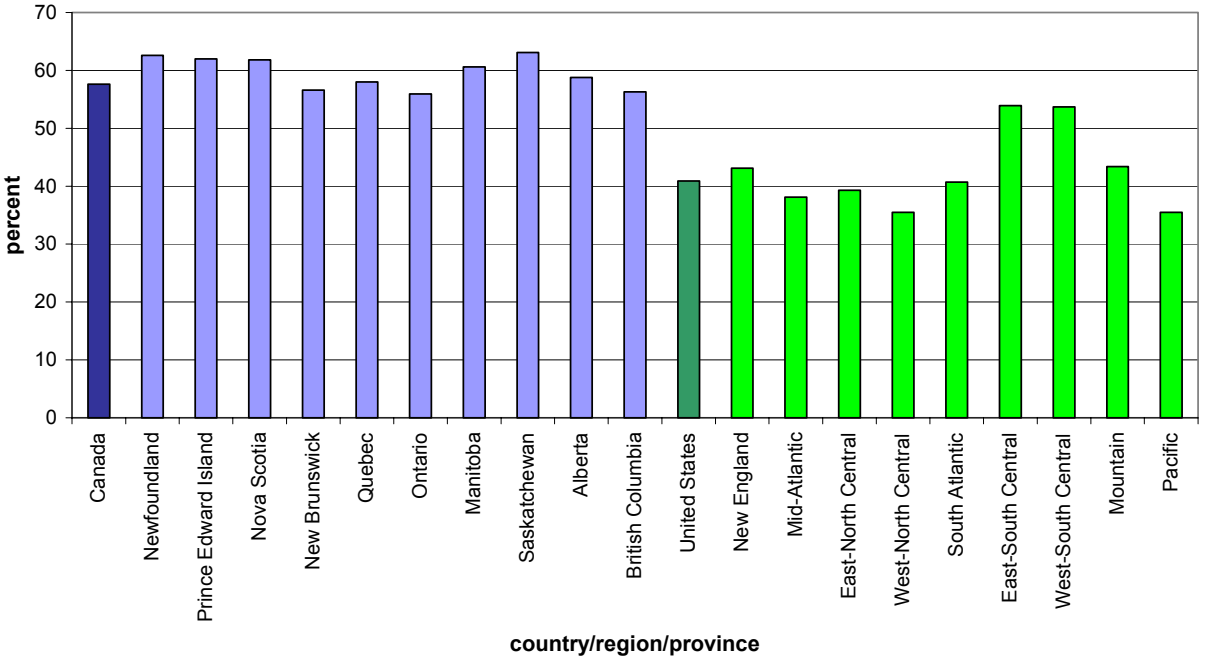
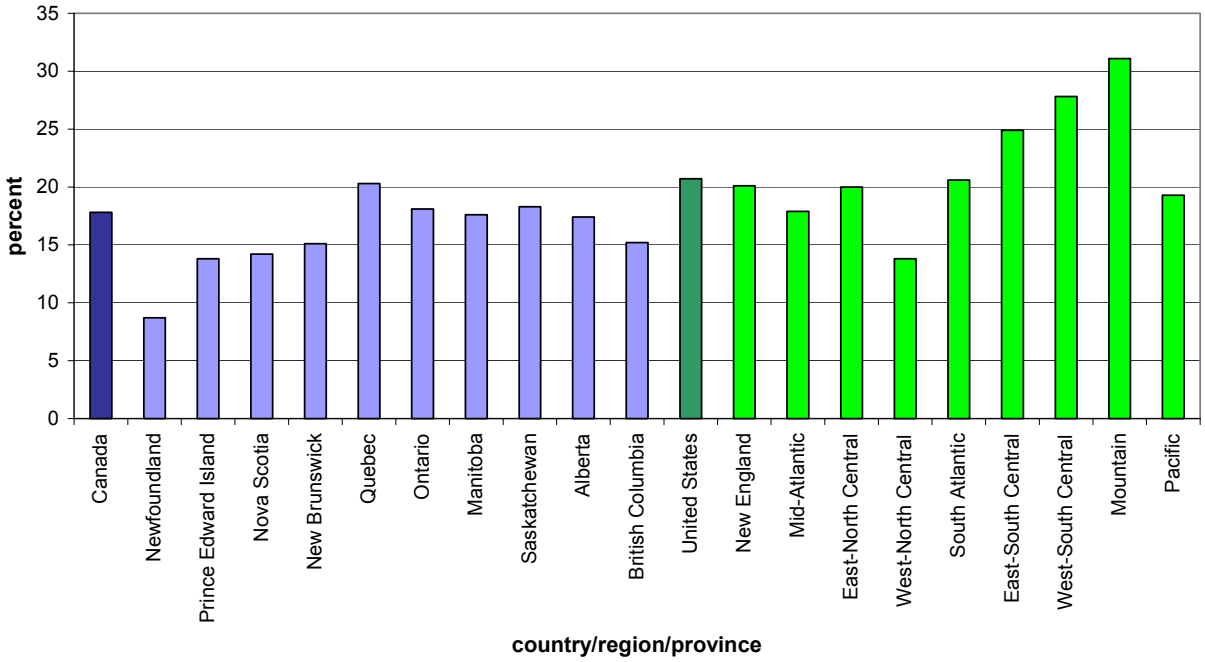


Chart 6
Percentage of Children Aged 4-11
Who are Described as Being Disobedient at School



6. National and Regional Differences in Socioeconomic Characteristics at the Micro Level

Table 3 reports means for each country of micro-level socioeconomic characteristics which, in earlier research, have been found to influence the well-being of children.[15] Since the focus of this project is not the association between family-level characteristics and child well-being,[16] yet it is of course necessary to control for the individual-level characteristics which other researchers have found to be important, the research strategy employed in this work is basically to adopt the specification employed by Dooley, *et al.* (1998) and then to add the macroeconomic, policy and social context variables which are of central interest in this paper. Since Dooley *et al.* also employ the NLSCY, it would obviously be possible to use exactly the same specification for the Canadian data. This is also possible for the U.S. data which are extremely similar to the Canadian, but unfortunately not for the Norwegian data which do not report mother's level of education. It is, of course, essential to have *exactly* the same information for each country in order to pool the three microdata sets and estimate one regression equation, thus we are forced to choose the 'lowest common denominator.' Fortunately, this requires very little change from the Dooley *et al.* (1998) specification. The only significant difference in terms of microeconomic variables included as regressors is that we cannot include education, but add smoking behaviour of the mother, which is highly correlated with education.

TABLE 3: Means - Micro Level Socioeconomic Characteristics (National Level)

	Mom smokes daily	Equivalent income ($Cdn-ppp)	Poor family	Lone mom	Mom < 25 at child's birth	Female child	Child aged 8-11	Only child
Canada	25.6 (0.302)	18,410 (89.57)	17.1 (0.259)	14.6 (0.243)	22.9 (0.291)	48.8 (0.344)	33.5 (0.325)	20.1 (0.276)
Norway	32.5* (1.254)	17,100 (369.84)	11.6* (0.789)	16.1 (0.907)	23.9 (1.070)	51.5 (1.232)	29.2* (1.121)	21.1 (1.006)
United States	25.7 (0.614)	22,149* (257.12)	21.2* (0.571)	23.8* (0.693)	23.1 (0.674)	48.9 (0.698)	34.7 (0.664)	15.8* (0.518)

Note: Standard errors are in parentheses. * indicates significantly different from Canada at 90% level of confidence.

[15] 'Micro-level' variables are known for each child in the outcomes data sets and enter the multivariate analysis as such. However, for the purposes of discussion here, we compare the average for all children within each country.
[16] See Phipps, 1998a which focusses upon exactly this issue, asking whether particular characteristics of the child's family, such as lone-parent status, have the same impact on child well-being in each country.

If micro-level characteristics differ substantially across the countries, this could be an important explanation for the observed differences in child outcomes. And, in fact, there are some very important differences: 1) significantly more mothers smoke daily in Norway (32.5 percent) than in Canada or the U.S. (25.6 and 25.7 percent, respectively); 2) equivalent[17] gross incomes, expressed in 1994 Canadian dollars, are significantly higher in the U.S. ($22,149) than in Canada ($18,410) or Norway ($17,100);[18] 3) significantly more young children live in poor families in the U.S. (21.2) than in Canada (17.1) while significantly fewer live in poverty in Norway (11.6);[19] 4) significantly more children live in lone-mother families in the U.S. (23.8 percent) than in Canada (14.6 percent) or Norway (16.1 percent); 5) children are slightly younger in Norway (only 29.2 percent of all children aged 0 to 11 years are in the 8 to 11 year category versus 33.5 percent in Canada and 34.7 percent in the U.S.); 6) more children are only children in Canada and Norway (20.1 percent and 21.1 percent) than in the U.S. (15.8 percent).

It is very important to note that some of these differences in micro-level characteristics across the countries may already largely be the result of differences in policy. Certainly, this is true for household poverty status which is highly dependant upon macroeconomic policy and the level of social transfers available. For example, a simple ordinary least squares regression of regional child poverty rate upon regional unemployment rate and average social transfers received by children in the region shows both unemployment and social transfers to be statistically significant predictors of poverty level.[20] For example, a 1 percentage point increase in unemployment is predicted to increase child poverty by 1.4 percentage points; a $500 increase in the average level of social transfers received per child is predicted to reduce child poverty by 2 percentage points, other things equal.

In addition, other micro-level variables may also be affected by policy. For example, smoking behaviour could be influenced by tax rates on cigarettes or 'anti-smoking' advertising

[17] 'Equivalent' income adjusts for family size using the OECD equivalence scale.

[18] Following Hanratty and Blank (1992), we convert all currencies to 1994 Canadian dollars, using the 1990 OECD estimate of purchasing power parity (PPP) for individual consumption by households (OECD, 1990, Table 1.5, pp. 30/31, line 1). We extrapolate PPP to the appropriate year using country-specific deflators for private final consumption (OECD,1996, pp. 102,104, 123).

[19] A child is deemed 'poor' if his or her family gross equivalent income is less than 50 percent of median equivalent income for that country. This procedure allows for comparability across countries, and within Canada, leads to estimates which are qualitatively very similar to those which would be obtained using the LICOs.

[20] Poverty = 36.35 + 1.41 Unemployment -0.004 Social Transfers
(9.62) (2.68) (-3.37)
where t-ratios are presented in parenthesis and the adjusted r-squared is 0.33.

campaigns; lone-parent status may be influenced by divorce laws, the enforcement of child support payments, etc. Thus, it is important to be clear that this paper is far from providing an exhaustive test of the influence of policy on outcomes for children. Rather, it is attempting to demonstrate a role for policy beyond the impact on the more frequently studied micro variables.

Past work (e.g., Dooley, *et al.*, 1998) has concluded that children's outcomes are worse if their mothers smoke, if family income is lower, particularly if the family lives with income less than poverty level, if the child lives with a lone mother, or has siblings (particularly many siblings). Thus, except insofar as average family income levels are higher in the U.S., a quick look at these micro variables would lead U.S. to expect outcomes for children to be worse in the U.S. than in Norway or Canada. It is not a priori obvious whether we would, on the basis of Table 3, expect outcomes for young children to be worse in Norway or Canada. Mean characteristics for children are rather similar in Norway and Canada, except that significantly more mothers smoke in Norway (a bad thing), but significantly fewer children live in poverty in Norway (a good thing).

Table 4 reports the results of probit analyses of the probability of young children experiencing each of the 6 negative outcomes discussed in Section 3. For these regressions, microdata files for the 3 countries are pooled together, and dummy variables are introduced to indicate country of residence (with Canada as the base). Estimated equations control for mother's smoking habits, family income status, including a dummy variable to indicate low-income status, mother's age at the time the child was born, child's age, gender and number of siblings. Results for these micro-level variables are consistent with the literature.[21] For example, children's outcomes are almost always worse if the mother smokes, if she was less than 25 years when the child was born or if she is a lone mother. Outcomes are generally worse if the household is poor.[22]

[21] See Phipps, 1998a for a detailed comparison of microdata results for the 3 countries.
[22] Although the regression results for various outcomes are presented in a single table to conserve space, it is not appropriate to compare magnitude of effects across equations which have different dependent variables.

TABLE 4: Probit Analysis of Alternative Child Outcomes Including National Level Dummy Variables

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Intercept	-0.960* (0.050)	-1.374* (0.035)	-1.775* (0.050)	-0.236* (0.038)	0.667* (0.039)	-0.73* (0.05)
Dummy=1 if mother smokes daily	0.094* (0.031)	0.099* (0.024)	0.086* (0.033)	0.009 (0.023)	0.228* (0.023)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.031 (0.062)	0.027 (0.045)	-0.072 (0.067)	0.007 (0.042)	-0.004 (0.043)	0.02 (0.06)
Dummy=1 if poor family	-0.090** (0.042)	-0.110* (0.032)	0.011 (0.042)	0.090* (0.029)	0.059** (0.030)	0.08** (0.04)
Dummy=1 if mother was less than 25 at child's birth	0.069** (0.032)	0.068* (0.025)	0.061*** (0.034)	0.071* (0.022)	0.042*** (0.023)	0.06** (0.03)
Dummy=1 if child is aged 8 - 11	0.034 (0.027)	0.133* (0.022)	0.247* (0.096)	0.085* (0.019)	-0.220* (0.019)	0.18* (0.03)
Dummy=1 if child has one sibling	-0.097** (0.040)	0.080* (0.029)	-0.107* (0.039)	-0.133* (0.030)	-0.180* (0.031)	-0.15* (0.04)
Dummy=1 if child has two siblings	-0.164* (0.045)	0.064** (0.033)	0.008 (0.044)	-0.226* (0.033)	-0.269* (0.034)	-0.19* (0.04)
Dummy=1 if child has three or more siblings	-0.361* (0.059)	0.116* (0.041)	-0.064 (0.056)	-0.398* (0.040)	-0.353* (0.040)	-0.26* (0.05)
Dummy=1 if lone mother	0.174* (0.039)	0.129* (0.030)	0.171* (0.039)	0.129* (0.028)	0.171* (0.028)	0.27* (0.04)
Dummy=1 if female child	-0.243* (0.027)	-0.171* (0.020)	-0.167* (0.029)	0.021 (0.019)	-0.359* (0.019)	-0.61* (0.03)
Equivalent gross family income (CN 94 $)	5.29E-7 (1.08E-6)	1.21E-6 (7.83E-7)	-1.87E-6 (1.28E-6)	-3.45E-6* (8.13E-7)	-4.91E-6* (7.97E-7)	-2.36E-6** (1.18E-6)
Dummy=1 if Norway	-0.328* (0.060)	-0.137** (0.048)	-0.301* (0.078)	-0.897* (0.054)	n/a	n/a
Dummy=1 if the United States	n/a	0.007 (0.025)	-0.082** (0.035)	-0.112* (0.0231)	-0.460* (0.023)	0.07** (0.03)

Note: Standard errors are in parentheses.
* indicates significance at the 99% level
** indicates significance at the 95% level
*** indicates significance at the 90% level

However, the central question addressed in Table 4 is: once we have controlled for relevant micro-level determinants of child well-being, are there still statistically significant differences across countries which might be due to other influences of policy? With respect to Norway, the answer to this question is unambiguous. For all outcomes for which we have comparable microdata, children in Norway are better off than children in Canada (i.e., they are less likely to experience negative outcomes) conditional on standard micro characteristics. Moreover, the magnitudes of these effects are very large – twice the size, for example, of 'lone-mother' effects (except in the case of injury). Note, again, that we are already controlling for household income and poverty status, variables which will reflect macroeconomic conditions such as the unemployment rate and which include contributions by the state to family income in the form of social transfers and thus incorporate a very important dimension of policy.

For Canada and the U.S., the patterns observed from a simple comparison of proportions basically hold for the multivariate comparisons. Children in the U.S. are less likely to be fearful/anxious or to be restless/overly active than children in Canada. They are also less likely to experience activity limitation, once we have controlled for other relevant factors (this is a change from the basic descriptive analysis presented earlier). There is again no statistically significant difference between Canada and the U.S. in the likelihood that a child will have an accident/be injured. Children in the U.S. are significantly more likely to be disobedient at school. While not so large as the Canada/Norway effects, the U.S. dummies, where significant, compare in magnitude with the effects of mother smoking, for example.

Table 5 illustrates the extent of regional variation in micro-level characteristics. For example, roughly 30 percent of mothers smoke daily in the Atlantic provinces and Quebec versus only 20.6 percent in BC. In Newfoundland, 30 percent of young children live in poor families versus only 14.9 percent in Alberta. Regional variation is, if anything, even larger in the U.S. For example, 34.9 percent of mothers smoke daily in the Mountain region versus only 15.9 percent in the Pacific. In the East-South-Central, 36.2 percent of children are poor in East-South-Central versus only 10.7 percent in New England.

And, Table 6 indicates that even after controlling for micro-level characteristics, region is a statistically significant predictor of child outcomes. That is, from one to two-thirds of the regional dummy variables are statistically different from the province of Ontario (the base case)

TABLE 5: Means - Micro Level Determinants (Regional Level)

	Mother smokes daily	Equivalent income ($Cdn-ppp)	Poor family	Lone mother	Mother < 25 at child's birth	Female child	Child aged 8-11	Only child
Newfoundland	30.5* (1.345)	14,901* (350.89)	30.0* (1.335)	13.8 (1.006)	37.0* (1.411)	49.1 (1.456)	37.2 (1.408)	23.2* (1.238)
Prince Edward Island	29.9* (1.697)	13,764* (328.54)	25.1* (1.594)	14.1 (1.278)	27.2* (1.650)	48.2 (1.838)	34.8 (1.751)	15.1* (1.340)
Nova Scotia	29.3* (1.205)	15,302* (249.13)	24.4* (1.133)	19.8* (1.051)	29.8* (1.210)	49.2 (1.318)	34.7 (1.255)	17.6 (1.009)
New Brunswick	31.1* (1.284)	14,885* (249.66)	21.4* (1.133)	13.3 (0.939)	30.1* (1.272)	49.4 (1.380)	35.0 (1.317)	19.6 (1.102)
Quebec	31.1* (0.754)	17,656* (182.77)	17.9 (0.620)	13.7 (0.558)	21.4 (0.668)	48.9 (0.810)	33.1 (0.762)	25.1 (7.035)
Ontario	22.6 (0.564)	19726 (186.02)	14.8 (0.476)	15.3 (0.482)	20.5 (0.544)	48.7 (0.669)	33.2 (0.630)	19.4 (0.531)
Manitoba	24.1 (1.063)	16,116* (275.69)	21.7* (1.018)	12.2* (0.806)	23.4 (1.053)	48.0 (1.233)	32.8 (1.116)	18.4 (0.961)
Saskatchewan	30.3* (1.113)	15,742* (275.66)	24.4* (1.035)	15.7 (0.876)	30.7* (1.112)	49.5 (1.204)	34.6 (1.146)	15.3* (0.872)
Alberta	25.1 (0.973)	19,466 (370.79)	14.9 (0.797)	11.9* (0.723)	26.7* (0.993)	48.7 (1.118)	34.0 (1.059)	16.7 (0.836)
British Columbia	20.6 (0.973)	18,606* (281.65)	15.5 (0.866)	16.1 (0.879)	21.9 (0.995)	48.7 (1.195)	33.8 (1.130)	17.7 (0.914)
New England	24.9 (3.064)	27,524* (1236.0)	11.7 (2.252)	16.5 (2.907)	10.7* (2.397)	50.0 (3.509)	27.0 (3.114)	16.1 (2.603)
Mid-Atlantic	27.1 (1.874)	26,837* (949.1)	18.2 (1.625)	24.1* (2.081)	18.9 (1.849)	48.8 (2.106)	28.1 (1.895)	16.0 (1.571)
East-North Central	25.6 (1.398)	21,412 (538.9)	18.1 (1.221)	21.8* (1.502)	20.9 (1.456)	49.3 (1.584)	34.2 (1.503)	13.3* (1.093)
West-North Central	31.6* (2.459)	18,257 (733.3)	23.6* (2.223)	23.1* (2.528)	22.7 (2.489)	44.1 (2.599)	38.6 (2.548)	13.4* (1.806)
South Atlantic	26.7 (1.336)	21,346* (528.9)	22.7* (1.260)	23.1* (1.486)	24.1 (1.492)	49.1 (1.502)	34.2 (1.425)	18.7 (1.195)
East-South Central	32.0* (2.870)	17,949 (1043.3)	31.0* (2.830)	28.7* (3.428)	36.2* (3.611)	48.4 (3.058)	43.8* (3.036)	25.5 (2.737)
West-South Central	21.6 (1.708)	21,931* (821.3)	26.0* (1.798)	26.1* (2.123)	29.6* (2.150)	50.6 (2.049)	37.4 (1.984)	14.2* (1.464)
Mountain	34.9* (2.973)	20,753 (1195.8)	27.6* (2.788)	28.1* (3.330)	29.5* (3.232)	44.0 (3.096)	44.1* (3.096)	16.0 (2.320)
Pacific	15.9* (1.327)	22,449* (647.7)	21.5* (1.480)	27.6* (1.892)	24.3 (1.797)	52.2 (1.801)	35.4 (1.723)	15.4* (1.319)

Note: Standard errors are in parentheses. * indicates significantly different from Ontario.

TABLE 6: Probit Analysis of the Probability of Alternative Child Outcomes Including Regional Level Dummy Variables

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Intercept	-0.972* (0.054)	-1.387* (0.039)	-1.727* (0.055)	-0.157* (0.041)	0.639* (0.042)	0.64* (0.04)
Dummy=1 if mother smokes daily	0.091* (0.031)	0.104* (0.024)	0.091* (0.033)	0.014 (0.023)	0.228* (0.023)	0.23* (0.02)
Dummy=1 if mother smokes occasionally	-0.030 (0.062)	0.035 (0.045)	-0.080 (0.068)	-0.019 (0.043)	-0.008 (0.043)	-0.01 (0.04)
Dummy=1 if poor family	-0.099** (0.043)	-0.113* (0.032)	0.016 (0.043)	0.094* (0.029)	0.049*** (0.030)	0.05*** (0.03)
Dummy=1 if mother was less than 25 at child's birth	0.064** (0.032)	0.065** (0.025)	0.052 (0.034)	0.070* (0.023)	0.033 (0.023)	0.03 (0.02)
Dummy=1 if child is aged 8 - 11	0.033 (0.027)	0.139* (0.022)	0.251* (0.030)	0.087* (0.019)	-0.222* (0.019)	-0.22* (0.02)
Dummy=1 if child has one sibling	-0.094** (0.040)	0.073** (0.029)	-0.123* (0.040)	-0.143* (0.030)	-0.178* (0.031)	-0.18* (0.03)
Dummy=1 if child has two siblings	-0.160* (0.045)	0.063*** (0.033)	-0.005 (0.044)	-0.238* (0.033)	-0.272* (0.034)	-0.27* (0.03)
Dummy=1 if child has three or more siblings	-0.351* (0.059)	0.104** (0.041)	-0.093 (0.057)	-0.413* (0.040)	-0.349* (0.040)	-0.35* (0.04)
Dummy=1 if lone mother	0.181* (0.039)	0.123* (0.030)	0.172* (0.039)	0.127* (0.028)	0.176* (0.029)	0.18* (0.03)
Dummy=1 if female child	-0.244* (0.027)	-0.173* (0.020)	-0.169* (0.029)	0.020 (0.019)	-0.361* (0.019)	-0.36* (0.02)
Equivalent income	7.08E-7 (1.08E-6)	9.69E-7 (7.91E-7)	-2.26E-6*** (1.30E6)	-3.66E-6* (8.23E-7)	-4.86E-6* (8.02E-7)	-4.86E-6* (8.02E-7)
Dummy=1 if Norway	-0.319* (0.062)	-0.116** (0.051)	-0.331* (0.080)	-0.962* (0.056)	n/a	n/a
Dummy=1 if Newfoundland	0.085 (0.094)	0.024 (0.088)	-0.106 (0.124)	-0.084 (0.079)	0.111 (0.080)	0.11 (0.08)
Dummy=1 if Prince Edward Island	0.459* (0.167)	-0.196 (0.192)	0.006 (0.224)	-0.107 (0.157)	0.127 (0.156)	0.13 (0.16)
Dummy=1 if New Brunswick	0.175** (0.083)	-0.017 (0.079)	0.022 (0.102)	-0.104 (0.071)	-0.021 (0.070)	-0.02 (0.07)
Dummy=1 if Nova Scotia	0.264* (0.072)	0.155** (0.066)	0.002 (0.092)	-0.129** (0.064)	0.112*** (0.064)	0.11*** (0.06)
Dummy=1 if Quebec	0.0004 (0.036)	-0.008 (0.032)	-0.229* (0.047)	-0.139* (0.029)	0.019 (0.029)	0.02 (0.03)
Dummy=1 if Manitoba	-0.031 (0.075)	-0.034 (0.066)	-0.065 (0.089)	-0.121** (0.060)	0.105*** (0.059)	0.10*** (0.06)

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Dummy=1 if Alberta	0.013 (0.048)	0.058 (0.041)	0.155* (0.052)	-0.102* (0.039)	0.091** (0.039)	0.09** (0.04)
Dummy=1 if Saskatchewan	-0.114 (0.079)	0.070 (0.064)	-0.033 (0.089)	-0.088 (-0.060)	0.183* (0.060)	0.18* (0.06)
Dummy=1 if British Columbia	-0.057 (0.046)	0.091** (0.038)	0.028 (0.052)	-0.052 (0.036)	0.003 (0.036)	0.00 (0.04)
Dummy=1 if New England	n/a	-0.155 (0.103)	-0.073 (0.139)	-0.083 (0.091)	-0.355* (0.090)	-0.36* (0.09)
Dummy=1 if Mid-Atlantic	n/a	0.159* (0.059)	-0.051 (0.088)	-0.315* (0.063)	-0.500* (0.060)	-0.50* (0.06)
Dummy=1 if East-North Central	n/a	-0.047 (0.049)	-0.107 (0.068)	-0.095** (0.043)	-0.458* (0.043)	-0.46* (0.04)
Dummy=1 if West-North Central	n/a	0.090 (0.072)	-0.283** (0.119)	-0.240* (0.070)	-0.566* (0.069)	-0.57* (0.07)
Dummy=1 if South Atlantic	n/a	0.038 (0.052)	0.105 (0.066)	-0.318* (0.049)	-0.463* (0.047)	-0.46* (0.05)
Dummy=1 if East-South Central	n/a	-0.427* (0.132)	0.019 (0.129)	0.060 (0.089)	-0.154*** (0.090)	-0.15*** (0.09)
Dummy=1 if West-South Central	n/a	0.069 (0.075)	-0.606* (0.164)	-0.221* (0.072)	-0.061 (0.069)	-0.06 (0.07)
Dummy=1 if Mountain	n/a	0.038 (0.103)	-0.256 (0.163)	-0.179*** (0.094)	-0.412* (0.093)	-0.41* (0.09)
Dummy=1 if Pacific	n/a	0.127** (0.062)	-0.296* (0.106)	-0.098*** (0.058)	-0.541* (0.058)	-0.54* (0.06)

Note: Standard errors are in parentheses.
* indicates significance at the 99% level
** indicates significance at the 95% level
*** indicates significance at the 90% level

for all outcomes.[23] Specific regional patterns are not the focus of this paper (see Phipps, 1999 for a discussion of provincial differences in child outcomes). The key message of Table 6 is again that standard micro-level determinants do not tell the whole story about child outcomes.

[23] Given the Canadian focus of this project, a Canadian province seemed a sensible choice for the base case, and Ontario is the most populous province. However, it is important to note that there is nothing definitive about saying that another province or U.S. region has outcomes which are statistically different from Ontario. That is, it is entirely possible that two regions which are not statistically different from Ontario are nonetheless statistically different from one another.

7. National and Regional Differences in Policy, Macroeconomic Conditions and Social Context

7.1 Basic Specification

In an attempt to test the hypothesis that policy can affect the well-being of children even after we have controlled for the influence of family-level characteristics, we pool microdata on outcomes and standard socioeconomic indicators for children from Canada, the U.S. and Norway and add to this information very general regional/national level policy indicators. We have also compiled and include in the analysis indicators of macroeconomic conditions and of social context. Tables 7 and 8 report means for supplementary information on policy, aggregated to the national and to the regional level, respectively, while Tables 9 and 10 record supplementary information on macroeconomic conditions and 'context.'[24]

TABLE 7: Means - Policy Variables (National Level)

	Social spending per capita	Average social transfers per child*	Students per teachers	Physicians per 100,000	Percentage of health care publically funded	Percentage of children in top quintile receiving social transfers*
Canada	939	6,133	16.2	186.7	72.1	67.9
Norway	1682	7,162	15	309	96.6	99.5
United States	653	3,482	17.3	225	44.6	14.5

Note: Dollar values are in 1994 Canadian dollars, using purchasing power parity conversion factors.

PPP Sources: OECD, 1998. *National Accounts. Main Aggregates. Volume 1. 1960-1996.*
OECD, 1990. *Purchasing Power Parities and Real Expenditures. EKS Results. Volume 1.*

* Source: Author's calculations using the Luxembourg Income Study

[24] We have collected and tested a number of other macro and context variables: poverty in the region, percent of lone mothers, percent of mothers in the labour force, gender wage ratio, unemployment history, level of trust in the region. Some of these variables were too highly correlated with almost everything else (e.g., poverty in the region; percent of lone mothers). Others were neither statistically significant nor central to our story, hence they are not discussed further.

TABLE 8: Means - Policy Variables (Regional Level)

	Social spending per capita	Average social transfers per child*	Students per teachers	Physicians per 100,000	Percentage of health care publically funded	Percentage of children in top quintile receiving social transfers*
Newfoundland	991	8,337	14.7	167.5	76.2	73
Prince Edward Island	604	8,994	17.4	131.2	69.5	82.5
Nova Scotia	1,059	6,281	17.4	189.8	71.5	63.7
New Brunswick	892	7,045	17.3	141.6	71	66.4
Quebec	1,182	6,987	14.7	205.3	73.2	90.5
Ontario	812	6,156	15.9	186.9	70	60.2
Manitoba	1,021	5,814	15.2	174.8	75.3	74.6
Saskatchewan	814	5,338	17.4	152.4	75.2	75.5
Alberta	888	4,337	18.5	166.9	71.6	45.9
British Columbia	911	5,854	17.3	194.9	74	46.9
New England	n/a	3,007	14.6	269	44.6	11.3
Mid-Atlantic	n/a	4,109	15.5	284	44.6	13.7
East-North Central	n/a	2,762	15.9	188	44.6	18.5
West-North Central	n/a	4,083	17.6	200	44.6	10.8
South Atlantic	n/a	3,109	16.9	264	44.6	11.5
East-South Central	n/a	3,479	17.7	173	44.6	15
West-South Central	n/a	3,966	16	173	44.6	17.2
Mountain	n/a	2,768	19.1	172	44.6	13.5
Pacific	n/a	4,540	22.9	211	44.6	19.4

Note: Dollar values are in 1994 Canadian dollars, using purchasing power parity conversion factors.

PPP Sources: OECD, 1998. *National Accounts. Main Aggregates. Volume 1. 1960-1996.*
OECD, 1990. *Purchasing Power Parities and Real Expenditures. EKS Results. Volume 1.*

* Source: Author's calculations using the Luxembourg Income Study

TABLE 9: Means - Macro/Context Variables (National Level)

	Unemployment rate	GDP per capita	Percent who believe social inequality is due to laziness	Percent of immigrants
Canada	10.4	22,409	31	19.1
Norway	4.9	23,165	10.8	4.8
United States	6.1	29,655	37.5	10.6

Note: Dollar values are in 1994 Canadian dollars, using purchasing power parity conversion factors.

PPP Sources: OECD, 1998. *National Accounts. Main Aggregates. Volume 1. 1960-1996.*
OECD, 1990. *Purchasing Power Parities and Real Expenditures. EKS Results. Volume 1.*

TABLE 10: Means - Macro/Context Variables (Regional Level)

	Unemployment rate	GDP per Capita	Percent who believe social inequality is due to laziness	Percent of immigrants
Newfoundland	20.4	14,647	32.3	1.7
Prince Edward Island	17.2	15,872	62.5	3.6
Nova Scotia	13.3	16,982	27.2	5.9
New Brunswick	12.5	17,650	20	3.4
Quebec	12.2	20,173	24.7	11.3
Ontario	9.6	23,795	35	27.4
Manitoba	9.2	19,514	31.3	14.8
Saskatchewan	7	20,018	45.4	7.3
Alberta	8.6	27,812	32.8	17.4
British Columbia	9.4	23,674	25.6	24.4
New England	5.9	31,198	30.1	11
Mid-Atlantic	6.7	30,951	37.9	14.6
East-North Central	4.3	26,030	39.4	3.2
West-North Central	5.5	26,399	33.3	5.2
South Atlantic	5.7	25,863	40.7	8.4
East-South Central	5.6	22,530	43	1.4
West-South Central	6.5	25,982	38.7	10.1
Mountain	5.3	23,727	40	8.7
Pacific	8	30,016	31.7	22.8

Note: Dollar values are in 1994 Canadian dollars, using purchasing power parity conversion factors.

PPP Sources: OECD, 1998. *National Accounts. Main Aggregates. Volume 1. 1960-1996.*
OECD, 1990. *Purchasing Power Parities and Real Expenditures. EKS Results. Volume 1.*

The most general indicator of policy we use is 'social spending per capita,' reported in 1994 Canadian dollars for all countries (social spending includes health, but not national defence).[25] Norway spends by far the most, at $1,682 per person (1994 Canadian dollars, converted via PPP's) while Canada spends $939 (56 percent of what Norway spends per person) and the U.S. spends only $653 (39 percent of the Norwegian equivalent).[26] However, even within Canada, there is significant variation in social spending, from a high of $1,182 per capita in Quebec, to a low of $604 per person in PEI (PEI spending is thus only 51 percent of Quebec's spending per person).

Our most basic indicator of macroeconomic conditions is the unemployment rate which is much the highest in Canada (10.4 percent) and much the lowest in Norway (4.9 percent). Here again, there is significant variation across regions, within countries, especially for Canada. For example, Saskatchewan's unemployment rate (7.0 percent) is only 34 percent of Newfoundland's unemployment rate (20.4 percent).

Finally, our most basic indicator of social context is the percentage of heads of household who are immigrants. If it is easier to solve social problems in a country/region with an extremely homogeneous population, then variation across the countries studied here (and across regions within the countries) will be an important contextual factor in explaining children's well-being. Notice that this is different from controlling for whether or not the child is from a family with this or that ethnic background. The point is that if society is more ethnically mixed, it may have an impact on social attitudes/social policy. While we do not have data allowing U.S. to control for ethnicity, we were able to obtain information about immigrant status of head (using the Luxembourg Income Study). Immigrant status and ethnicity are obviously not the same thing, though there is presumably a correlation between the concepts. From Tables 9 and 10 it is clear that Norway has far fewer immigrants (4.9 percent) than the U.S. (10.6 percent), or especially Canada (19.1). On the other hand, some regions within Canada or the U.S. have lower rates of immigration than Norway (e.g., Newfoundland, PEI and New Brunswick).

[25] Ideally, we should use a measure of 'social spending on children' but such a measure is not available (and is not even easy to conceptualize since some fraction of spending on general infrastructure, such as highways or street lights, is for the benefit of children as well as adults). Later specifications consider average levels of social transfers received by families with children.

[26] While we have social spending per capita by Canadian provinces, this is not available for U.S. regions. Thus, the cross-country data is supplemented with regional variation only for Canada.

Table 11 reports the results of a regression analysis which adds these three variables to the basic specification discussed earlier (with regional dummy variables removed).[27] The first point to notice is that higher social spending per capita is associated with better outcomes for children in 4 of 6 cases. The exceptions are restless/overly active behaviour and disobedience at school which appear to increase as social spending increases. Notice that since social spending per capita includes spending on social transfers which is also included in family gross income, a micro-level variable, the finding of a statistically significant effect of the average level of social spending in the region on children's well-being means that we are 'double counting' this aspect of government spending.[28] If anything, this should reduce the role we find for either variable, yet we still find support for the hypothesis that higher levels of social spending are associated with better child outcomes.

The general macroeconomic climate, as proxied by the unemployment rate, might also be expected to influence child well-being insofar as it increases economic insecurity for families. And, we do find that higher rates of unemployment are associated with higher levels of anxiety among young children, in a higher incidence of asthma and in more restless/overly active behaviour (3 of 6 outcomes in this specification). Notice that the regression is not measuring whether or not the child's family experienced unemployment. As argued above, a higher rate of unemployment in the region, at any given level of family income, could increase the stress experienced by families who have not yet experienced any unemployment insofar as it increases their economic insecurity and thus have negative implications for child well-being. [Experience of accidents/injury[29] or activity limitations are not significantly affected by the regional unemployment rate in this specification. Disobedience at school, surprisingly, falls as unemployment increases.]

Finally, we find that children who live in regions/countries with a higher percentage of immigrants are more likely to be anxious/fearful, to experience activity limitations and to be restless/overly active.

[27] All results reported in this paper employ sampling weights. We have also run all specifications without using weights and find basically the same story. Note is made of important exceptions.
[28] None of the child outcome data sets contains particularly good measures of income, hence we cannot use, for example, pre-transfer income.
[29] The coefficient on accidents/injuries is positive and significant in the unweighted regression.

TABLE 11: Probit Analysis of the Probability of Alternative Child Outcomes Including Basic Macro, Policy and Context Variables

	Asthma *Ages 4-11*	***Injury*** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 6-11*
Intercept	-0.84* (0.17)	-1.35* (0.07)	-1.66* (0.09)	-0.19* (0.07)	-0.23* (0.07)	-0.73* (0.10)
Dummy=1 if mother smokes daily	0.09* (0.03)	0.10* (0.02)	0.09* (0.03)	0.01 (0.02)	0.23* (0.02)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.03 (0.06)	0.03 (0.05)	-0.08 (0.07)	-0.02 (0.04)	-0.01 (0.04)	0.02 (0.06)
Dummy=1 if poor family	-0.10** (0.04)	-0.11* (0.03)	0.01 (0.04)	0.09* (0.03)	0.05 (0.03)	0.09** (0.04)
Dummy=1 if mother was less than 25 at child's birth	0.06** (0.03)	0.07* (0.03)	0.06*** (0.03)	0.06* (0.02)	0.04 (0.02)	0.07** (0.03)
Dummy=1 if child is aged 8 - 11	0.03 (0.03)	0.14* (0.02)	0.25* (0.03)	0.09* (0.02)	-0.22* (0.02)	0.18* (0.03)
Dummy=1 if child has one sibling	-0.09** (0.04)	0.08* (0.03)	-0.12* (0.04)	-0.14* (0.03)	-0.17* (0.03)	-0.15* (0.04)
Dummy=1 if child has two siblings	-0.16* (0.04)	0.07** (0.03)	-0.01 (0.04)	-0.24* (0.03)	-0.26* (0.03)	-0.19* (0.05)
Dummy=1 if child has three or more siblings	-0.35* (0.06)	0.12* (0.04)	-0.09 (0.06)	-0.41* (0.04)	-0.34* (0.04)	-0.26* (0.05)
Dummy=1 if lone mother	0.18* (0.04)	0.13* (0.03)	0.15* (0.04)	0.12* (0.03)	0.15* (0.03)	0.27* (0.04)
Dummy=1 if female child	-0.24* (0.03)	-0.17* (0.02)	-0.17* (0.03)	0.02 (0.02)	-0.36* (0.02)	-0.61* (0.03)
Equivalent income	7.47E-7 (1.06E-6)	1.14E-6 (7.83E-7)	-2.67E-6** (1.30E-6)	-3.86E-6* (8.15E-7)	-5.43E-6* (8.00E-7)	-2.36E-6** (1.19E-6)
Unemployment	0.02* (0.01)	0.01 (0.00)	0.00 (0.01)	0.04* (0.00)	0.02* (0.01)	-0.04* (0.01)
Social spending per capita	-3.2E-4* (0.9E-4)	-1.0E-4** (4.6E-5)	-2.4E-4* (0.7E-4)	-5.6E-4* (4.5E-5)	5.27E-4* (8.4E-5)	3.7E-4* (1.2E-4)
% of immigrants as heads of households	-0.00 (0.00)	0.00 (0.00)	4.48E-3* (1.66E-3)	5.57E-3* (1.11E-3)	7.71E-3* (1.10E-3)	0.00 (0.00)

Note: Standard errors are in parentheses.
* indicates significance at the 99% level
** indicates significance at the 95% level
*** indicates significance at the 90% level

7.2 Unpacking Social Spending – Health, Education and Social Transfers

It is possible to disaggregate 'social spending' somewhat into policy components which may be particularly relevant for children's well-being.[30] Tables 7 and 8 report the average level of social transfers received by families with children aged 0 to 11,[31] student/teacher ratios, physicians per 100,000 population and the percentage of health care expenditures which are public.

First, average social transfers per child (averaging in those who receive and those who do not) are much higher in Norway ($7,162) than in Canada ($6,133) or the U.S. ($3,482). Yet, the difference in levels of spending on social transfers is smaller than the difference in levels of social spending over-all. For example, average per child social transfers in Canada are 86 percent of the Norwegian level, while average per capita social spending in Canada is only 55 percent of the Norwegian level. Average per child social transfers in the U.S. are 49 percent of the Norwegian equivalent while overall U.S. social spending per capita is only 39 percent of the Norwegian value.

There is also substantial variation within countries in average levels of social transfers (see Table 8). For example, average per child transfers received in Alberta ($4,012) are only 63 percent of what is received in Quebec ($6,332) or 47 percent of what is received in PEI ($8,470). Also, once we look at averages for regions, it is clear that transfer levels for some provinces are higher than for Norway (e.g., Newfoundland and PEI). And, average transfers for some provinces are lower than for some U.S. states (in fact, average transfers received in Alberta are lower than in any U.S. state). Of course, much of the difference in transfer receipts reflects differences in economic conditions in these regions.[32]

Thus, there is substantial variation across countries and regions in terms of spending on social transfers. However, this is less than the variation observed in over-all social spending. Other forms of government expenditure must therefore partially account for observed differences. One possibility which is important for children is that countries differ in terms of investment in

[30] This research is exploratory in nature. Hence, we choose not to push this too far, and so look only for very broad policy indicators.
[31] This is calculated for all children aged 0 to 11, regardless of whether or not a transfer was received. Thus, it is a measure which reflects both the percentage of the population receiving transfers and the level of transfers received. It is basically an average per child expenditure figure.
[32] Table 15, discussed later in this section, reports our efforts to 'purge' the effects of unemployment from transfer receipt using multivariate work with the LIS data.

education (though this would presumably only affect school-aged children).[33] Tables 7 and 8 report student to teacher ratios (for elementary and secondary schools). Norway has the smallest number of students to teachers (15) while the U.S. has the largest number (17.3). And, there is variation across regions within Canada and the U.S. However, there is much less variation in these ratios than is apparent in terms, for example, of social transfers.

Investment in health care is another form of social spending which might be expected to influence the well-being of children. Tables 7 and 8 report physicians per 100,000 population. In terms of this measure, Norway yet again dominates Canada or the U.S., with 309 physicians per 100,000 population. The U.S. ranks second according to this measure (225) and Canada ranks third (187). However, there is, once again, significant variation across regions (e.g., from 205 in Quebec to 152 in Saskatchewan or from 172 in Mountain to 284 in Mid-Atlantic), so that some Canadian provinces have more physicians per 100,000 population than some U.S. regions. However, no Canadian provinces or U.S. region can match the number of physicians per 100,000 population of Norway.

Physicians per 100,000 population can be viewed as a measure of the over-all *level* of spending on health care. But, it might also matter *how* dollars are spent. Another dimension of health care policy which differs among these 3 countries is the extent to which health care is publicly provided. Tables 7 and 8 indicate that while 96.6 percent of healthcare is public in Norway, only 44.6 percent is public in the U.S.[34] Canada is, as usual, in between these extremes at 72.1 percent and public provision differs somewhat across provinces (e.g., from 75 percent in Manitoba or Saskatchewan to 70 percent in Ontario).

Table 12 reports probit results for the 6 child outcomes with social spending per capita replaced by the 4 somewhat disaggregated policy variables (social transfers per child, student to teacher ratios, physicians per 100,000 population and percent of health care publicly funded). Before discussing results for these variables, notice that results for unemployment have changed slightly. Higher rates of unemployment are now associated with more accidents, more activity limitation, more fear/anxiety, and more restless/overly active behaviour (4 of 6 outcomes).

[33] We have also estimated all equations using only the sample of 6 to 11 year-olds, for whom student/teacher ratios are presumably most relevant. Significant differences are noted as appropriate through the text, though the basic qualitative story is much the same.

[34] Once again, we have only national level data on this measure for the U.S.

(Asthma is no longer significantly associated with unemployment, the unexpected result for disobedience at school has disappeared.[35])

TABLE 12: Probit Analysis of the Probability of Alternative Child Outcomes Including Additional Policy, Macro and Context Variables

	Asthma *Age 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Intercept	-0.87 (0.60)	-1.86* (0.18)	-1.91* (0.27)	0.85* (0.17)	0.29 (0.23)	0.24 (0.41)
Dummy=1 if mother smokes daily	0.09* (0.03)	0.10* (0.02)	0.09* (0.03)	0.01 (0.02)	0.23* (0.02)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.03 (0.06)	0.03 (0.05)	-0.08 (0.07)	-0.02* (0.04)	-0.01 (0.04)	0.02 (0.06)
Dummy=1 if poor family	-0.10** (0.04)	-0.11* (0.03)	0.02 (0.04)	0.09* (0.03)	0.06*** (0.03)	0.08** (0.04)
Dummy=1 if mother was less than 25 at child's birth	0.06** (0.03)	0.07* (0.03)	0.05 (0.03)	0.07* (0.02)	0.04*** (0.02)	0.06** (0.03)
Dummy=1 if child is aged 8 - 11	0.03 (0.03)	0.14* (0.02)	0.25* (0.03)	0.09* (0.02)	-0.22* (0.02)	0.18* (0.03)
Dummy=1 if child has one sibling	-0.09** (0.04)	0.07* (0.03)	-0.12* (0.04)	-0.14* (0.03)	-0.18* (0.03)	-0.15* (0.04)
Dummy=1 if child has two siblings	-0.16* (0.04)	0.07** (0.03)	-0.00 (0.04)	-0.24* (0.03)	-0.27* (0.03)	-0.20* (0.05)
Dummy=1 if child has three or more siblings	-0.35* (0.06)	0.11* (0.04)	-0.09*** (0.06)	-0.41* (0.04)	-0.35* (0.04)	-0.27* (0.05)
Dummy=1 if lone mother	0.18* (0.04)	0.12* (0.03)	0.16* (0.04)	0.12* (0.03)	0.18* (0.03)	0.27* (0.04)
Dummy=1 if female child	-0.24* (0.03)	-0.17* (0.02)	-0.17* (0.03)	0.02 (0.02)	-0.36* (0.02)	-0.61* (0.03)
Equivalent income	7.16E-7 (1.08E-6)	1.01E-6 (7.88E-7)	-2.46E-6*** (1.30E-6)	-3.68 E-6* (8.18 E-7)	-4.82E-6* (8.00E-7)	-2.52E-6** (1.19E-6)
Unemployment	0.008 (0.01)	0.02** (0.01)	0.04* (0.01)	0.03* (0.01)	0.02*** (0.01)	0.00 (0.01)
Average social transfers	5.4E-5 (3.8E-5)	-3.0E-5** (2.2E-5)	-1.7E-4* (3.0E-5)	-4.0E-5*** (2.0E-5)	-5.0E-5** (2.4E-5)	-0.00 (0.00)
Student/Teacher ratio	0.05** (0.02)	0.02* (0.01)	-0.00 (0.01)	-0.02* (0.01)	-0.02** (0.01)	-0.03** (0.01)
Physicians per 100,000	0.001 (0.001)	5.84E-4 (3.57E-4)	0.00 (0.00)	-0.003* (0.000)	-1.8E-3* (4.4E-4)	-0.00 (0.00)
% of public expenditures on health care	-0.02* (0.01)	-0.00 (0.00)	9.41E-3* (2.1E-3)	-0.01* (0.00)	0.02* (1.75E-3)	-0.00 (0.00)
% of immigrants as heads of households	-0.005 *** (0.003)	0.002 (0.001)	7.72E-3* (1.79E-3)	0.01* (0.00)	0.00 (0.00)	0.00 (0.00)

Note: Standard errors are in parentheses.
* significant at the 99% level
** significant at the 95% level
*** significant at the 90% level

[35] In both the unweighted regressions and the regressions with 6 to 11 year-olds only, restless/overly active behaviour is not statistically affected by unemployment and the negative sign on disobedience at school remains.

What of the social policy variables? Higher average social transfers per child are associated with fewer accidents, less activity limitation, less fear/anxiety and less restless/overly active behaviour[36] (4 of 6 outcomes). A higher student to teacher ratio is associated with more accidents and more asthma (though there is no relationship for the 6 to 11 year old sample). Unexpectedly, higher student to teacher ratios are associated with less anxiety/fear, less restless behaviour and less disobedience at school (though the disobedience at school result disappears for the 6 to 11 year old sample). These results for student/teacher ratios are very mixed. Perhaps there is a better measure of 'social investment' in schooling. It also seems likely that cognitive measures would be more strongly influenced by investments in education, but none were available on a comparable basis for all 3 countries.

More physicians per 100,000 population are associated only with less anxiety/fear and less restless behaviour. Percentage of health care publicly funded is statistically significant more often (for 4 of 6 outcomes) – a higher proportion of public funding is associated with less asthma, fewer activity limitations, less anxiety/fear and, surprisingly, more restless behaviour. In general, these signs meet with prior expectations. A general point is that the percentage of healthcare funding which is private is a more important determinant of child well-being than the over-all level of healthcare quality, at least as proxied by the physicians per 100,000 variable.

7.3 Removing the Effects of Unemployment from Average Social Transfer Receipt

A concern raised in the preceding section is that average social transfer levels will be higher in regions experiencing difficult economic times. Thus, for example, although a descriptive survey of programmes available in Norway gives the impression that a much more generous system of transfers is available in that country than in Canada, the average level of social transfers received by children in Newfoundland is actually higher than the average level of transfers received in Norway. Given that the unemployment rate in Newfoundland is 20.4 while the unemployment rate in Norway is 4.9 percent, there is almost certainly a link and it may be leading us to conclude that transfers are less important this is really the case.[37] The dilemma is to find a

[36] Average social transfers are not significant in the average social transfers probit in the unweighted regressions and for the 6 to 11 year-old sample.

[37] That is, if transfers are high because of economic hard times, and if economic hard times are bad for child outcomes, then we will be associating high levels of transfers with low levels of child outcomes and concluding that the transfers don't matter as much as may actually be true.

measure of the generosity of the social transfer structure which is distinct from current *use* of the system.

We have two approaches to solving this problem. The first involves using microdata from the Luxembourg Income Study to predict social transfer receipt for children, conditional upon family unemployment status. The second involves the substitution of a proxy measure – societal attitudes toward those who live in need derived from the World Values Study.

Table 13 reports OLS estimates of the level of social transfers received in each of the 3 countries, where the estimating sample includes all children, regardless of whether or not they received a transfer. This is consistent with the approach used to calculate average expenditures on social transfers per child in the previous section. Again, it is a blend of the probability of receipt and the level of receipt in the event of a positive transfer.[38] Control variables for this estimation include child's age, mother's age, family market income, a dummy indicating lone mother status, a dummy indicating that either the head or spouse of head experienced unemployment during the survey year[39] and regional dummies (for Canada and the U.S.).

Notice that the intercept term for the Canadian equation is $3,972 (Cdn) versus $5,544 (Cdn) for Norway. The U.S. intercept is not statistically different from zero. Children living in lone-mother families in Canada receive $2,577 more than others, $3,609 more than others in Norway and $1,939 more in the U.S. Transfers increase more quickly with additional siblings in Norway than in Canada or the U.S. Having someone in the household who is unemployed increases social transfers by a larger amount in Canada than in the other countries. (Unfortunately, we are unable to control for duration of unemployment, so this result is probably reflecting longer durations in Canada, where unemployment rates are much higher.)

While interesting in themselves, these regressions are used here only in an attempt to 'purge' unemployment effects from average social transfers. To do this, we predict, for each region,

[38] In Tables 4 and 5 we report estimates, for Canada and the U.S., of a two-stage estimation procedure in which we first estimate the probability of receiving a transfer and then estimate the level of transfer for those who receive. However, we do not use these estimates in the procedure which follows for two reasons: 1) it is not possible to estimate a probability of benefit receipt for Norwegian children, since all Norwegian children receive benefits; 2) we want a measure which is comparable to that used in the previous section which reflects spending per child. The two-stage results are simply reported to demonstrate that they basically tell the same story, and thus to reassure economists who are more accustomed to the two-stage procedure.

[39] For Norway, we are forced to proxy this with someone in the household received unemployment insurance.

what the level of social transfers would be for a child living with two parents,[40] and all other characteristics at the mean level for Ontario (i.e., child's age, mother's age, market income, number of siblings and household unemployment). The thought experiment conducted is: suppose we took a 'representative child,' with the same family characteristics, including probability of unemployment, how much more or less would he/she receive in the form of social transfers if living in Texas or California or Norway than he/she currently receives in Ontario? Across regions within Canada, the difference in predicted transfers will be entirely due to the intercept shift estimated for the benefit receipt equation. Across countries, predicted social transfers will differ both as a result of different intercept terms and different coefficients associated with any particular characteristic.

'Purged' social transfers means are less correlated with regional unemployment (+0.58) than are actual social transfer means (+0.70). However, as a comparison of Tables 12 and 14 indicates, there is relatively little impact on the final probit regression results if we replace actual transfers with 'purged' transfers. Results are certainly not 'improved.' We lose statistical significance for anxiety/fear, social transfers become statistically significant for disobedience at school (though with an unexpected negative sign), there is a sign change in the accidents/injuries equation (though this is not true for the unweighted regressions). Certainly, when we use estimated equations to predict 'purged' transfers, rather than using actual transfers received, information is lost (adjusted r-squared from the estimated equations are not particularly high). Perhaps this loss of information explains the relatively poor results obtained with this procedure.

[40] We have also done this for children living with single mothers. Results are not much different. We choose the two-parent results because more children live with two parents.

TABLE 13: Ordinary Least Squares Level of Social Transfers				
	Canada	**Norway**	**United States**	
Variable	*All Children*	*All Children*	*All Children*	**Variable**
Intercept	3,972.15* (249.34)	5,544.94* (469.02)	-148.92 (298.40)	*Intercept*
Child's age	-234.47* (14.25)	26.21 (25.53)	-55.78* (18.12)	*Child's age*
Mother's age	128.98* (7.31)	21.66 (15.42)	181.53* (6.37)	*Mother's age*
Market income	-0.08* (0.00)	-0.06* (0.00)	-0.05* (0.00)	*Market income*
Dummy=1 if lone mother	2,577.09* (138.01)	3,609.90* (232.95)	1,939.65* (133.08)	*Dummy=1 if lone mother*
Number of siblings	1,579.69* (43.78)	1,907.52* (81.35)	1,149.56* (43.32)	*Number of siblings*
Dummy=1 if a person in the household is unemployed	3,811.44* (102.88)	3,149.52* (185.46)	1,025.45* (141.62)	*Dummy=1 if a person in the household is unemployed*
Newfoundland	367.52 (330.83)	-	-6.81 (355.53)	*New England*
Prince Edward Island	155.39 (624.78)	-	205.43 (218.84)	*East North Central*
Nova Scotia	-1,142.56* (263.79)	-	-1,615.55* (291.53)	*West North Central*
New Brunswick	-644.63** (292.96)	-	-1,519.37* (220.75)	*South Atlantic*
Quebec	74.35 (115.59)	-	-1,493.88* (281.16)	*East South Central*
Manitoba	-1,667.80* (235.76)	-	-1,216.61* (230.11)	*West South Central*
Saskatchewan	-2,152.32* (236.42)	-	-2,348.02* (292.72)	*Mountain*
Alberta	-2,577.38* (157.85)	-	-54.05 (212.40)	*Pacific*
British Columbia	-783.63* (149.19)	-	-	
Adjusted R^2	0.3338	0.3572	0.1483	*Adjusted R^2*
Number of observations	16,976	3,838	28,096	*Number of observations*

Our second attempt to find a measure of social transfer generosity which does not depend upon current economic conditions, involves the use of an attitudinal proxy. While it is not *necessarily* true that social attitudes influence the social transfer system which is in place, it seems reasonable that there would be a connection between the two. The World Values Study asks respondents in many countries the question: "Why do you think people live in need?" Table 14 also reports means by country and by region of the percentage of people who answered this questions 'because they are lazy.' It seems likely that regions in which a relatively high percentage of the population believe that people live in need because they are lazy, rather than because, for example, of social injustice (another possible response), would be less willing to support generous social support systems.

It is clear from Table 9 that there are striking differences across countries and regions in the percentage of the population who believe that economic need is the results of laziness.[41] For example, 31 percent of Canadian respondents, 37.5 percent of U.S. respondents, but only 11 percent of Norwegian respondents answered that economic need is the result of laziness. Within countries, there is also substantial variation: 35 percent of people in Ontario believe laziness is the problem versus only 25 percent in Quebec or BC.

TABLE 14: Probit Analysis of the Probability of Alternative Child Outcomes Including 'Purged' Transfers for Couples

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Intercept	-0.81 (0.61)	-1.73* (0.19)	-1.53* (0.28)	0.89* (0.18)	0.67** (0.27)	-0.55 (0.37)
Dummy=1 if mother smokes daily	0.09* (0.03)	0.10* (0.02)	0.09* (0.03)	0.01 (0.02)	0.23* (0.02)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.03 (0.06)	0.03 (0.05)	-0.08 (0.07)	-0.02 (0.04)	-0.01 (0.04)	0.02 (0.06)
Dummy=1 if poor family	-0.10** (0.04)	-0.11* (0.03)	0.01 (0.04)	0.09* (0.03)	0.05*** (0.03)	0.09** (0.04)

[41] The relatively small sample size of the World Values Survey necessitated aggregation of some Canadian provinces (Newfoundland, PEI, Nova Scotia and New Brunswick were aggregated; Manitoba and Saskatchewan were aggregated).

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Dummy=1 if Mother was less than 25 at child's birth	0.06** (0.03)	0.06* (0.03)	0.05 (0.03)	0.07* (0.02)	0.04 (0.02)	0.07** (0.03)
Dummy=1 if child is aged 8 - 11	0.03 (0.03)	0.14* (0.02)	0.25* (0.03)	0.09* (0.02)	-0.22* (0.02)	0.18* (0.03)
Dummy=1 if child has one sibling	-0.09** (0.04)	0.07* (0.03)	-0.12* (0.04)	-0.14* (0.03)	-0.18* (0.03)	-0.15* (0.04)
Dummy=1 if child has two siblings	-0.16* (0.05)	0.07** (0.03)	-0.01 (0.04)	-0.24* (0.03)	-0.27* (0.03)	-0.19* (0.05)
Dummy=1 if child has three or more siblings	-0.35* (0.06)	0.11* (0.04)	-0.09 (0.06)	-0.41* (0.04)	-0.35* (0.04)	-0.26* (0.05)
Dummy=1 if single mother	0.18* (0.04)	0.13* (0.03)	0.16* (0.04)	0.12* (0.03)	0.18* (0.03)	0.27* (0.04)
Dummy=1 if Female child	-0.24* (0.03)	-0.17* (0.02)	-0.17* (0.03)	0.02 (0.02)	-0.36* (0.02)	-0.61* (0.03)
Equivalent income	6.84E-7 (1.08E-6)	1.00E-6 (7.88E-7)	-2.38E-6*** (1.30E-6)	-3.66E-6* (8.18E-7)	4.78E-6* (7.99E-7)	-2.45E-6** (1.19E-6)
Unemployment	0.01 (0.01)	0.02* (0.01)	0.02*** (0.01)	0.02* (0.01)	0.02** (0.01)	-0.03* (0.01)
Purged social transfers	3.7E-5 (3.9E-5)	5.0E-5* (2.0E-5)	-1.3E-4* (2.8E-5)	-6.82E-6 (1.90E-5)	-8.0E-5* (2.3E-5)	5.5E-5*** (3.1E-5)
Student teacher Ratio	0.05** (0.02)	0.01 (0.01)	-0.02 (0.01)	-0.02** (0.01)	-0.04* (0.01)	9.02E-4 (0.01)
Physicians per 100,000	7.18E-4 (1.20E-3)	6.14E-4*** (3.42E-4)	-3.5E-4 (4.9E-4)	-3.34E-3* (3.27E-4)	-2.12E-3* (4.59E-3)	1.9E-5 (6.22E-4)
% of immigrants as heads of households	-5.81E-3*** (3.28E-3)	3.71E-3** (1.50E-3)	0.01* (0.00)	9.92E-3* (1.41E-3)	4.85E-3** (2.00E-3)	-2.55E-3 (2.72E-3)
% of public expenditures on health care	-0.02** (0.01)	9.89E-4 (1.35E-3)	6.35E-3* (1.88E-3)	-7.05E-3* (1.27E-3)	0.02* (0.00)	-1.61E-3 (2.31E-3)

Note: Standard error s are in parenthesis.
* significant at the 99% level
** significant at the 95% level
*** significant at the 90% level

When the 'lazy' variable is substituted for the social transfer variable, Table 15 again indicates that it is not a very helpful proxy.[42] In this specification, only 2 of the 6 children's outcomes studied are significantly affected: activity limitation and restless/overly active behaviour both increase with an increase in the percentage of the population responding that economic need is the result of laziness. [However, it is interesting to note that if the 'lazy' variable is the only one added to the traditional set of micro-determinants, then it is statistically significant, and has the expected sign, for 5 of the 6 outcomes studied.]

To conclude this section, it seems preferable *not* to replace the measure of actual transfers received with either of the proxies considered here. As argued above, it seems likely that, if anything, the unemployment 'contamination' would mean that we are *under-stating* the true impact of social transfers on children's well-being. Since we find actual transfers to play a larger role than either of the proxies, there is little point in replacing it.

TABLE 15: Probit Analysis of the Probability of Alternative Child Outcomes Including '% Who Believe Social Inequality is Due to Laziness'

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Intercept	-0.81 (0.63)	-1.86* (0.28)	-2.85* (0.38)	0.87* (0.26)	-0.27 (0.28)	-0.02 (0.38)
Dummy=1 if mother smokes daily	0.09* (0.03)	0.10* (0.02)	0.09* (0.03)	0.01 (0.02)	0.23* (0.02)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.03 (0.06)	0.03 (0.05)	-0.08 (0.07)	-0.02 (0.04)	-3.89E-3 (0.04)	0.02 (0.06)
Dummy=1 if poor family	-0.10** (0.04)	-0.11* (0.03)	0.01 (0.04)	0.09* (0.03)	0.05*** (0.03)	0.09** (0.04)
Dummy=1 if mother was less than 25 at child's birth	0.06** (0.03)	0.07* (0.03)	0.05 (0.03)	0.07* (0.02)	0.04*** (0.02)	0.07** (0.03)
Dummy=1 if child is Aged 8 - 11	0.03 (0.03)	0.14* (0.02)	0.25* (0.03)	0.09* (0.02)	-0.22* (0.02)	0.18* (0.03)

[42] In this section, we are treating the 'lazy' variable as a potential proxy for the underlying generosity of the social safety net. However, it could also be interpreted as an important indicator of social context.

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Dummy=1 if child has one sibling	-0.09** (0.04)	0.08* (0.03)	-0.12* (0.04)	-0.14* (0.03)	-0.18* (0.03)	-0.15* (0.04)
Dummy=1 if child has two siblings	-0.16* (0.04)	0.07** (0.03)	-4.94E-3 (0.04)	-0.24* (0.03)	-0.27* (0.03)	-0.20* (0.05)
Dummy=1 if child has three or more siblings	-0.35* (0.06)	0.11* (0.04)	-0.09 (0.06)	-0.41* (0.04)	-0.35* (0.04)	-0.26* (0.05)
Dummy=1 if single mom	0.18* (0.04)	0.12* (0.03)	0.16* (0.04)	0.12* (0.03)	0.18* (0.03)	0.27* (0.04)
Dummy=1 if Female child	-0.24* (0.03)	-0.17* (0.02)	-0.17* (0.03)	0.02 (0.02)	-0.36* (0.02)	-0.61* (0.03)
Equivalent income	6.47E-7 (1.08E-6)	1.04E-6 (7.88E-7)	-2.3E-6*** (1.29E-6)	-3.65E-6* (8.18E-7)	-4.73E-6* (7.99E-7)	-2.46E-6** (1.19E-6)
Unemployment	0.02** (0.01)	0.01** (0.00)	1.5E-4 (6.62E-3)	0.02* (0.00)	1.63E-3 (5.77E-3)	-0.02** (7.95E-3)
% who believe social inequality is due to laziness	2.28E-3 (3.18E-3)	3.01E-4 (2.26E-3)	0.01* (2.99E-3)	3.6E-5 (2.09E-3)	4.74E-3** (2.09E-3)	-1.94E-3 (2.86E-3)
Student teacher ratio	0.04** (0.02)	0.02* (7.26E-3)	0.02** (0.01)	-0.02* (0.01)	-8.07E-3 (6.99E-3)	-0.02*** (9.44E-3)
Physicians per 100,000	1.71E-3 (1.39E-3)	4.23E-4 (3.95E-4)	9.6E-5 (5.63E-4)	-3.37E-3* (3.77E-4)	-1.29E-3* (4.74E-4)	-4.3E-4 (6.38E-4)
% of immigrants as heads of households	-4.91E-3*** (2.97E-3)	1.53E-3 (1.26E-3)	3.61E-3** (1.70E-3)	9.61E-3* (1.17E-3)	-1.0E-3 (1.36E-3)	1.31E-3 (1.85E-3)
% of public expenditures on health care	-0.02** (0.01)	-1.30E-3 (1.24E-3)	3.92E-3** (1.70E-3)	-7.35E-3* (1.19E-3)	0.02* (1.82E-3)	-1.97E-3 (2.45E-3)

Note: Standard error are in parenthesis.
* significant at the 99% level
** significant at the 95% level
*** significant at the 90% level

7.4 What about the Structure as Opposed to the Level of Benefits?

Not only are average *levels* of spending on social transfers very different across the countries, but so are the *structures* of social transfer systems. For example, in Norway, every child receives social transfers. In the U.S., 55 percent receive transfers while in Canada, 73 percent receive

transfers. This difference in structure is further illustrated by comparing social transfer receipt for children with family income in different quintiles of the income distribution (see Table 16). In Norway, basically 100 percent of children in the top quintile receive benefits, whereas in the U.S., fewer than 20 percent do. In Canada, a majority of children still receive some transfers, even in the top quintile of the income distribution. In all 3 countries, virtually all children with family incomes in the bottom income quintile receive transfers but already in the second quintile, the proportion receiving transfers drops in the U.S. In Canada, on the other hand, almost all children receive at least some transfer income until we reach children with family incomes in the top quintile. Over-all, we can characterize the Norwegian social transfer system as the most universal/least targeted and the U.S. system as the least universal/most targeted.

TABLE 16: Percentage of Children Receiving Transfers by Income Quintile

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Canada	99.9	99.9	99.9	95.6	66.3
Norway	98.9	100	100	100	99.5
United States	97.7	87.1	50.8	27	14.4
Newfoundland	100	100	100	100	73
Prince Edward Island	100	100	100	100	82.5
Nova Scotia	100	100	100	98.2	63.7
New Brunswick	100	100	100	100	66.4
Quebec	100	100	100	99.9	90.5
Ontario	100	100	100	91.5	60.2
Manitoba	100	100	100	100	74.6
Saskatchewan	99.7	100	100	100	75.5
Alberta	100	99.4	100	97.6	45.9
British Columbia	99.7	100	99.5	94.9	46.9
New England	98.2	64.9	36.4	13.6	11.3
Middle Atlantic	96.7	84	46.8	27.4	13.7
East-North Central	99.6	87.3	47.3	24.5	18.5
West-North Central	97.7	83.7	38.3	27	10.8
South Atlantic	97.4	84.6	49.1	21.2	11.5
East-South Central	98.5	93.2	64.6	28.8	15
West-South Central	99	97.1	67.9	35.5	17.2
Mountain	98.6	82.1	49.6	23.4	13.5
Pacific	98	97	59.7	33.6	19.4

Source: Luxembourg Income Study

Norway, the country with the least targeted/most universal transfer system, has the best outcomes for children. Of course, it is also true that Norway offers the highest level of benefits. Thus, it is not clear which is the more important factor. When entered in a probit specification which includes all the other 'macro/policy/context' variables, the percentage of children in the top quintile of the income distribution who receive transfers is not a particularly important predictor of children's outcomes in comparison with the level of social transfers (see Table 17). Perhaps the most important role of a universal system of transfers is in ensuring continued support for high levels of transfers through good times and bad by avoiding an 'us and them' mentality. A simple regression of the average level of transfers received in each region on the percentage of the top quintile receiving benefits in that region shows that regions with more universal benefits (i.e., higher percentages of the top quintile receiving benefits) have higher average levels of benefits.[43]

TABLE 17: Probit Analysis of the Probability of Alternative Child Outcomes, Adding Structure of Transfers

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Intercept	0.35 (2.34)	-1.84* (0.22)	-1.58* (0.32)	1.05* (0.21)	0.40 (0.30)	0.44 (0.41)
Dummy=1 if mother smokes daily	0.09* (0.03)	0.10* (0.02)	0.10* (0.03)	0.02 (0.02)	0.23* (0.02)	0.16* (0.03)
Dummy=1 if mother smokes occasionally	-0.03 (0.06)	0.03 (0.05)	-0.08 (0.07)	-0.01 (0.04)	-6.84E-3 (0.04)	0.03 (0.06)
Dummy=1 if poor family	-0.10** (0.04)	-0.11* (0.03)	0.02 (0.04)	0.09* (0.03)	0.06*** (0.03)	0.09** (0.04)
Dummy=1 if mother was less than 25 at child's birth	0.06** (0.03)	0.07* (0.03)	0.05 (0.03)	0.07* (0.02)	0.04*** (0.02)	0.07** (0.03)
Dummy=1 if child is aged 8 - 11	0.03 (0.03)	0.14* (0.02)	0.25* (0.03)	0.09* (0.02)	-0.22* (0.02)	0.18* (0.03)
Dummy=1 if child has one sibling	-0.09** (0.04)	0.07* (0.03)	-0.12* (0.04)	-0.14* (0.03)	-0.18* (0.03)	-0.14* (0.04)

[43] Average Social Transfers = 2808 + 52.73 % Top Quintile.
(7.58) (7.78)
Adjusted R-squared = 0.75. T-ratios are in parenthesis.

	Asthma *Ages 4-11*	**Injury** *Ages 0-11*	**Limited in activity** *Ages 0-11*	**Anxiety/ Fear** *Ages 4-11*	**Restless/ Overly active** *Ages 4-11*	**Disobedient at school** *Ages 4-11*
Dummy=1 if child has two siblings	-0.16* (0.04)	0.07** (0.03)	-4.72E-3 (0.04)	-0.24* (0.03)	-0.27* (0.03)	-0.19* (0.05)
Dummy=1 if child has three or more siblings	-0.35* (0.06)	0.11* (0.04)	-0.09 (0.06)	-0.41* (0.04)	-0.35* (0.04)	-0.025* (0.05)
Dummy=1 if single mother	0.18* (0.04)	0.12* (0.03)	0.16* (0.04)	0.13* (0.03)	0.18* (0.03)	0.27* (0.04)
Dummy=1 if female child	-0.24* (0.03)	-0.17* (0.02)	-0.17* (0.03)	0.02 (0.02)	-0.36* (0.02)	-0.61* (0.03)
Equivalent income	7.43E-7 (1.08E-6)	1.02E-6 (7.89E-7)	-2.32E-6*** (1.30E-6)	-3.66E-6* (8.20E-7)	-4.79E-6* (8.0E-7)	-2.57E-6** (1.19E-6)
Unemployment	-2.92E-3 (2.6E-3)	0.02** (0.01)	0.04* (0.01)	0.03* (0.01)	0.02*** (0.01)	1.43E-3 (0.02)
Average social transfers	5.5E-5 (6.1E-5)	-2.0E-5 (2.9E-5)	-1.6E-4* (4.2E-5)	-8.0E-5* (2.7E-5)	-7.0E-5** (3.4E-5)	-1.3E-4* (4.8E-5)
Student teacher ratio	0.02 (0.07)	0.02** (0.01)	-7.50E-3 (0.01)	-0.01*** (0.01)	-0.02** (0.01)	4.13E-3 (0.01)
Physicians per 100,000	1.70E-3 (1.36E-3)	5.49E-4 (4.44E-4)	4.33E-4 (6.27E-4)	-2.65E-3* (4.15E-3)	-1.76E-3* (4.69E-4)	-3.2E-4 (6.44E-4)
% of immigrants as heads of households	-9.44E-3 (1.27E-3)	1.58E-3 (1.88E-3)	8.75E-3* (2.71E-3)	0.01* (0.00)	2.48E-3 (2.44E-3)	0.01* (3.35E-3)
% of public expenditures on health Care	-0.03*** (0.01)	1.16E-3 (1.87E-3)	0.01* (2.68E-3)	-6.86E-3* (1.78E-3)	0.01* (2.37E-3)	-0.01* (3.24E-3)
GDP per capita	-4.56E-6 (1.3E-5)	-8.77E-7 (7.23E-6)	-2.0E-5*** (9.81E-6)	-1.0E-5*** (6.83E-6)	3.1E-6 (7.0E-6)	-1.0E-5 (9.54E-6)
% of children receiving transfers in the top income quintile	-3.29E-3 (6.89E-3)	-1.06E-3 (1.30E-3)	-3.79E-3** (1.87E-3)	1.85E-3 (1.21E-3)	6.73E-4 (1.30E-3)	0.01* (1.81E-3)

Note: Standard errors are in parentheses.
* significant at the 99% level
** significant at the 95% level
*** significant at the 90% level

8. Conclusions

This paper explores ways in which social and macroeconomic policy as well as other broad contextual characteristics of a region may influence the well-being of children, in addition to their impact on the micro-level characteristics of the child's family. The motivation for this study is that by focussing on the characteristics of the child's family in understanding his/her well-being, other studies have not sufficiently emphasized the important role which can be played by policy.

Since variations in policy and macroeconomic conditions will be limited if we study only a single country in a single year, the approach taken here is to combine data from three countries, Canada, Norway and the U.S., with similar over-all levels of affluence, but with very different policies in place. For example, social spending per capita is much higher in Norway than in Canada; social spending per capita is higher in Canada than in the U.S. Student/teacher ratios are lower in Norway than in Canada or the U.S., and number of physicians per 100,000 population is higher. A larger proportion of healthcare is publicly funded in Norway than in Canada, while a much higher proportion of healthcare is publicly funded in Canada than in the U.S. Unemployment rates are much higher in Canada than in the other countries studied. Rates of immigration are higher in Canada. Social attitudes toward the poor are very different across the countries. The question addressed in this paper is: how do such differences affect children's well-being, controlling for the impact of family characteristics.

An important qualification to the work reported here is that family characteristics will themselves be affected by policy differences across the countries. For example, poverty status will be highly dependent upon both general macroeconomic conditions and upon the availability of social transfers. This paper is looking for *additional* impacts of unemployment and social transfers on children's well-being. For example, higher unemployment and less adequate social transfers may reduce the economic security of families who have not actually experienced unemployment or needed to rely upon social transfers. The results presented here are thus not intended to be complete/exhaustive estimates of the influence of policy on children's well-being.

Results indicate that higher unemployment[44] is usually associated with poorer outcomes for children, controlling for family income/poverty status. Higher average social spending in a region is usually associated with better outcomes. If we disaggregate social spending into four components likely to be important for understanding the well-being of children, social transfers and percent of healthcare expenditures which are publicly funded appear to be more important that student/teacher ratios or number of physicians per 100,000 population, though this may be in part due to the particular children's outcomes studied (asthma, anxiety, activity limitation, accidents/injuries, restless/overly active behaviour, disobedience at school). Presumably, if we had comparable data across the countries on cognitive measures of well-being, student/teacher ratios might be more important.

Although many of the policy/context variables are statistically significant when added to regression models of the potential determinants of children's well-being, adding them in almost no case alters the estimated impact of the more frequently studied family-level characteristics. Thus, conclusions about the importance of particular family-level characteristics (e.g., lone-parent status) derived from research which does not include the policy/context variables (e.g., Dooley, *et al.*, 1998) are only provided further support by the analysis presented in this paper.

However, while there does appear to be support for the idea that policy matters for children in a way which cannot be captured through the 'standard' microeconomic variables, it is harder to pin down the effects of policy, context and macroeconomic climate than it is to identify the effects of micro-level characteristics. First, there is much less identifying variation, even though we have 3 countries as well as regional variation. Second, means across countries/regions in the macro/contextual/social policy variables are highly correlated with each other, and in many cases it is hard to isolate the effect of one variable when several others are included. For example, the percentage of respondents who feel that people live in need because they are lazy is statistically significant and with the 'right' sign for 5 of 6 outcomes studied if included with the micro variables but no other contextual variables. However, it is only statistically significant in two cases when included in a set of variables.

[44] It is worth noting that in a 'step-wise' regression procedure using all of the macro/policy/context variables discussed in this paper, unemployment is included and has the 'correct' sign in 5 of 6 cases. While almost all variables appear in at least one specification, unemployment is the most consistent.

It is perhaps not surprising that it is harder to pin down the effects of 'regional means' on individual children than it is to isolate the effects of family-level characteristics. For any particular child, the regional mean may or may not reflect his/her actual circumstances. For example, he/she may live in a neighbourhood where student/teacher ratios are very different from the provincial average. What would be ideal for the purposes of this work would be to have internationally comparable information about more narrowly defined neighbourhoods. However, acquiring such information would be an enormous under-taking. Meanwhile, the results presented here can at least be taken to indicate the potential importance for children's well-being of policy factors external to the child's family.

Appendix Tables

Appendix Table 1
Sources of Data Used for Health Outcomes

Country	Source	Sample Size (children)	Population Represented
Canada	Statistics Canada. *National Longitudinal Survey of Children and Youth*. Cycle 1, Release 2. 1994-95	22,831	All children aged 0-11
Norway	Statistics Norway *Health Survey*, 1995	1,646	All children aged 0-11
United States	Bureau of Labor Statistics, US Department of Labor. *The National Survey of Children*, 1994	3,961	Children of women who were 29-36 on January 1, 1994

Appendix Table 2
Sources of Policy/Macro/Context Variables

Variables	Source		
	Canada	Norway	United States
Unemployment Rate -1994 -10 yr. History, average (1984-1993)	Statistics Canada, Cansim Statistical Database	Eurostat Yearbook, 1997	US Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, Annual
Gross Domestic Product 1994 -converted to Cdn$ using Purchasing Power Parity conversion factors	Statistics Canada, Cansim Statistical Database, Matrix Label # D21266	Eurostat Yearbook, 1997	US Bureau of Economic Analysis, Survey of Current Business, August 1995.
Population	Statistics Canada, Cansim Statistical Database	Eurostat Yearbook, 1997	US Bureau of the Census, 1990 Census of Population and Housing, Population and Unit Counts, (CPH-2) Current Population Reports, (P25-1106)
Poverty indcidence	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Poverty depth	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Percentage of immigrants	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set

Variables	Source		
	Canada	**Norway**	**United States**
Social spending -including health care -excluding national defence -converted to Cdn$ using Purchasing Power Parity conversion factors	HRDC (http://www.hrdc-drhc.gc.ca/hrdc/corp/stratpol/socpol/stats/tab1_e.html)	Eurostat Yearbook, 1997	The American Almanac: the US Book of Facts, Statistics and Information, 1996.
Average social transfers -converted to Cdn$ using Purchasing Power Parity conversion factors	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Ratio of the average number of students per teacher In public elementary and secondary schools, Fall, 1994.	Statistics Canada. Education Quarterly Review Vol. 5 No. 1	Eurostat Yearbook, 1997	US Department of Education, Office of Research and Improvement. National Center for Education Statistics, Digest of Education Statistics 1997.
Physicians per 100,000 civilian population	Canadian Medical Association Homepage	Eurostat Yearbook, 1997	American Medical Association, Chicago IL, Physician Characteristics and Distribution in the US, Annual
Percentage of health care publically funded	http://www.cihi.ca/medrls/4nov19.htm	Best Mix Report	http://www.hcfa.gov/stats/nhe-oact/tables/t11.htm
Percentage of quintiles receiving transfers	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Median wages/salaries -Males -Females	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Percentage of mothers with positive wages	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set	Luxemboug Income Study Data Set
Weeks of maternal and parental benefits	Social Security Programs Throughout the World 1993 & 1995.		

Appendix Table 3
States Included in Each of the United States Regions

United States Regions	New England	Middle Atlantic	East-North Central	West-North Central	South Atlantic
Breakdown of states within above region	Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	New York New Jersey Pennsylvania	Ohio Indiana Illinois Michigan Wisconsin	Minnesota Iowa Missouri North Dakota South Dakota Nebraska Kansas	Delaware Maryland District of Columbia Virginia West Virginia North Carolina South Carolina Georgia Florida
United States regions	**East-South Central**	**West-South Central**	**Mountain**	**Pacific**	
Breakdown of states within above region	Kentucky Tennessee Alabama Mississippi	Arkansas Louisiana Oklahoma Texas	Montana Idaho Wyoming Colorado New Mexico Arizona Utah Nevada	Washington Oregon California Alaska Hawaii	

Note: Regions used are the same as those used by the U.S. Bureau of Economic Analysis, 1994.

Appendix Table 4
Probit Estimates of the Probability of Receiving Social Transfers*

Variable	Canada	United States	Variable
Intercept	2.45* (0.12)	0.05 (0.05)	*Intercept*
Child's age	-0.07* (0.01)	-0.01* (0.00)	*Child's age*
Mom's age	0.01** (0.00)	0.02* (0.00)	*Mom's age*
Market income	-2.00E-5* (6.74E-7)	-2.00E-5* (3.53E-7)	*Market income*
Dummy=1 if lone mom	1.14* (0.21)	0.91* (0.03)	*Dummy=1 if lone mom*
Number of siblings	0.60* (0.03)	0.16* (0.01)	*Number of siblings*
Dummy=1 if a person in the household is unemployed	0.91* (0.08)	1.01* (0.03)	*Dummy=1 if a person in the household is unemployed*
Newfoundland	-0.06 (0.12)	-0.08 (0.05)	*New England*
Prince Edward Island	-0.17 (0.34)	-0.01 (0.03)	*East North Central*
Nova Scotia	-0.27** (0.11)	-0.12* (0.04)	*West North Central*
New Brunswick	-0.25*** (0.13)	-0.12* (0.03)	*South Atlantic*
Quebec	0.84* (0.07)	0.07 (0.05)	*East South Central*
Manitoba	0.04 (0.11)	0.17* (0.04)	*West South Central*
Saskatchewan	0.01 (0.12)	-0.05 (0.04)	*Mountain*
Alberta	-0.37* (0.06)	0.17* (0.03)	*Pacific*
British Columbia	-0.24* (0.06)	-	
Count *1* *0*	157461231	1535412743	*Count* *1* *0*

Note: We do not estimate this equation for Norway, since all children in Norway receive transfer.

Appendix Table 5
Ordinary Least Squares All Children with Positive Social Transfers

	Canada	Norway	United States	
Variable	*All Children with Positive Transfers*	*All Children with Positive Transfers*	*All Children with Positive Transfers*	**Variable**
Intercept	4,356.54* (240.59)	5,544.94* (469.02)	-5,759.85* (368.96)	*Intercept*
Child's age	-301.54* (13.87)	26.21 (25.53)	-95.64* (17.84)	*Child's age*
Mom's age	135.89* (7.05)	21.66 (15.42)	250.74* (6.83)	*Mom's age*
Market income	-0.13* (0.00)	-0.06* (0.00)	-0.17* (0.01)	*Market income*
Dummy=1 if lone mum	2,233.83* (133.39)	3,609.90* (232.95)	4,300.30* (161.15)	*Dummy=1 if lone mum*
Number of siblings	2,040.70* (44.24)	1,907.52* (81.35)	1,581.94* (45.86)	*Number of siblings*
Dummy=1 if a person in the household is unemployed	4,244.77* (99.95)	3,149.52* (185.46)	4,193.75* (188.14)	*Dummy=1 if a person in the household is unemployed*
Newfoundland	281.22 (318.89)	-	-320.32 (348.76)	*New England*
Prince Edward Island	10.25 (602.23)	-	245.03 (214.54)	*East-North Central*
Nova Scotia	-,1276.65* (254.29)	-	-1,987.75* (286.18)	*West-North Central*
New Brunswick	-781.45* (282.45)	-	-1,918.53* (217.00)	*South Atlantic*
Quebec	839.07* (113.58)	-	-1,320.28* (275.71)	*East-South Central*
Manitoba	-1,509.80* (227.29)	-	-598.43* (266.94)	*West-South Central*
Saskatchewan	-1,965.98* (227.95)	-	-2,389.76* (286.97)	*Mountain*
Alberta	-2,826.11* (152.31)	-	602.44* (209.88)	*Pacific*
British Columbia	-1,015.61* (143.96)	-	-	
Inverse Mills Ratio	10,641* (306.92)	-	9,793.66* (392.46)	*Inverse Mills Ratio*
Adjusted R^2	0.381	0.3572	0.1815	*Adjusted R^2*
Number of observations	15,745	3,838	15,353	*Number of observations*

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