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From a Young Teen's Perspective: Income and the Happiness of Canadian 12 to 15
Year-Olds

Peter Burton and Shelley Phipps

For additional information please contact:

Name: Peter Burton
Affiliation: Department of Economics, Dalhousie University
Full mailing address: Halifax, Nova Scotia, Canada, B3H 3J5
Email address: peter.burton@dal.ca

Name: Shelley Phipps
Affiliation: Department of Economics, Dalhousie University and Canadian Institute for Advanced
Research
Full mailing address: Halifax, Nova Scotia, Canada, B3H 3J5
Email address: shelley.phipps@dal.ca

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Abstract

Much recent work by economists has studied the association between income and happiness for adults; children and youth have received considerably less attention in the economics ‘happiness’ literature. The Statistics Canada National Longitudinal Survey of Children and Youth (NLSCY) asks 12 to 15 year old children to assess their own happiness, while mothers report income and most basic demographic information. We use these data to conduct a multivariate analysis of the association between income and happiness from a young teen’s perspective. We find positive associations between family income and young teen happiness, especially when we use a long-run average measure of family income (and after controlling for mother’s report of child’s past happiness). Given own family income, we find similarly-sized but negative associations with median income in the neighbourhood, suggesting large negative consumption externalities for young teens as well as for adults.

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INTRODUCTION

Much recent work by economists has studied the association between income and happiness for adults (e.g., Clark and Oswald, 1996; D'Ambrosio and Frick, 2004 and 2007; di Tella et al., 2006; Easterlin, 2001; Ferrer-i-Carbonell, 2005; Luttmer, 2005). Children and youth have received considerably less attention in the economics 'happiness' literature, though understanding how income is associated with the well-being of children seems an important question, both in its own right, and as a potentially interesting avenue for understanding the development of adult patterns.

Associations between income and happiness may be rather different for children/youth than for adults. Differences could arise, for example, because children/youth typically have limited information about family finances; poor parents may attempt to shelter their children from financial hardship; rich parents may limit child consumption to avoid 'spoiling' children; income may be less a personal 'measure of success' for children/youth than for parents; on the other hand, children may be particularly vulnerable to marketing and peer pressure. Such considerations emphasize the need for separate study of associations between income and the happiness of children.

Using microdata from the Statistics Canada National Longitudinal Survey of Children and Youth (NLSCY), this paper conducts a multivariate analysis of the association between income and self-reported happiness for Canadian 12- to 15- year-olds. We focus first on relationships between young teen happiness and family income, asking several questions: Is there a relationship between family income and young teen self-assessed happiness? Does a 'long-term average' measure of the level of family income have a larger association than a measure of the current level? Given the level of

family income, are young teens whose family income is higher than long-run average happier? Again, given level, does having a history of income variability mean lower current levels of young teen happiness?

Consistent with research on this topic for adults, we then take up the issue of whether, given family income, *relative* socioeconomic status matters for young teen subjective well-being. Is there a ‘keeping up with the young Jones’ effect? Specifically, we add a measure of median neighbourhood income, using census data to calculate neighbourhood incomes. Throughout, we compare findings for boys and girls.

Section 2 of the paper offers a brief review of other relevant literature. Section 3 discusses the data. Section 4 outlines multivariate specifications, section 5 presents results and section 6 concludes.

II. RELEVANT LITERATURE

Income and Adult Happiness

Frey and Stutzer (2002) identify three aspects of the relationship between happiness and income that have been studied in the literature: 1) whether people living in rich countries are happier than those living in poor countries; 2) whether individuals with higher incomes are happier than individuals with lower incomes at a point in time, within the same country; 3) whether increases in income across time are associated with increases in happiness.

Evidence on the first point appears to be rather clear: happiness levels are, on average, higher in countries with higher reported incomes, though income matters more at lower levels of economic development (e.g., below the median for OECD countries –

Helliwell and Putnam, 2004). It is also the case that many scholars find, at any point in time, that adults with higher incomes are happier than those with lower incomes, within the same country. However, a paradox that has prompted considerable recent research attention is that though average incomes have increased over time in many countries, average levels of reported happiness have not (Easterlin, 2001).

One explanation for the ‘Easterlin paradox’ focuses on income changes. For example, it may be that aspirations/expectations quickly adapt to any new income level meaning we are on a ‘hedonic tread-mill’ (e.g., Di Tella et al., 2006; Easterlin, 2001). Another explanation is that what people really care about is their place in a hierarchy (i.e., their relative income) more than their absolute level of income (Clark and Oswald, 1996; D’Ambrosio and Frick, 2004 and 2007; Dusenberry, 1949; Ferrer-i-Carbonell, 2004; Frank, 1999; Luttmer, 2005).

A priori, it is not obvious whether we would expect to find stronger or weaker relative income associations for young teens than for adults. On the one hand, young teens may be less aware that they have a higher or lower income than others in their reference group, particularly if parents manage to provide opportunities/experiences for their children (e.g., nice clothes or participation in sports or music) by sacrificing some parental consumption. On the other hand, teens may be very sensitive both to marketing and to peer pressure, so relative income may have an even stronger relationship with happiness for this age group.

There has been less attention in the literature studying links between income and happiness to the question of whether ‘permanent income’ (i.e., multi-period average income) has larger associations with happiness than annual income, an issue that has been

the focus of many studies of the relationship between income and health (see, for example, Benzeval and Judge, 2001 or Phipps, 2003 for reviews). To the extent that permanent income is a better measure of family socioeconomic status (e.g., less subject to random shocks or measurement error), we might expect larger associations with young teen happiness.

Existing Literature on Children and Youth

There has been growing recent interest in the study of indicators of child well-being (e.g., Ben-Arieh and Goerge, 2006). However, the economics literature on the subjective well-being of children and youth is small relative to the body of work on adults.¹ The psychological literature is also fairly small (see Huebner, 2004 or Huebner, et al., 2004 for recent reviews), though research has demonstrated that child/youth self-assessments of their own quality of life are meaningful from about age eight (Huebner 2004). Self-assessed quality of life scales for children/youth are significantly correlated with but yet are distinct from other measures of mental health or well-being (Huebner, Funk and Gilman 2000; Hueber 2004). There is stability across time in how children/youth answer questions about their own well-being (Huebner, Funk and Gilman 2000). Parent and child assessments of the child's well-being correlate well (Gilman and Huebner 1997). Child/youth reports of own quality of life are predictive of important future outcomes (Huebner, Funk and Gilman 2000).

Psychological research has not focused on the link between young teen well-being and income, though Ash and Huebner (2001) report finding a small positive association between youth subjective well-being and socioeconomic status (measured rather simply

¹ Dockery (2005) studies the self-assessed happiness of Australian youth during their late teen years (older than our sample), with a particular emphasis on the role of unemployment experienced during their initial phase of labour market participation.

as ‘being eligible for a school lunch programme’). There is, however, a very large literature addressing studying associations between family income and other child outcomes (especially health and educational outcomes – see, Case et al., 2002; Currie and Stabile, 2003; Dooley and Stewart, 2004; Mayer, 2002 of Phipps and Lethbridge, 2006 for recent examples).

III. DATA

The data set employed for this analysis is the National Longitudinal Survey of Children and Youth (NLSCY), a representative longitudinal survey of Canadian children and youth drawn from the Labour Force Survey sampling frame. The NLSCY currently spans the period 1994 through 2004, with surveys conducted every two years. The age range for the first year of the survey was 0 through 11 years; hence coverage by 2004 reaches youth of 21. For younger children, the ‘person most knowledgeable’ about the child, or ‘pmk,’ answers most questions (the pmk is almost always the mother). After the age of 10, children are given their own paper questionnaire which is completed privately (no parental observation allowed), sealed and returned to the Statistics Canada interviewer. Pmk’s also continue to provide some information about these older children.

We have chosen to study associations between income and the happiness of 12 to 15 years olds. There are several reasons for this choice. The happiness question is first asked at age 12. Though youth aged 16 and over also report happiness, many other covariates used in the analysis switch from a pmk to a teen report beyond the age of 15, significantly compromising the comparability of information provided. We also focus attention on the sub-sample of young teens who have always lived in the same two-parent

household.² We choose to further restrict the sample in this way because estimated effects of income and income change on young teen happiness are ‘cleaner’ for the sub-sample who did not also experience a change in family structure during the study period, given the extremely high correlation between divorce/re-marriage and income changes for Canadian children (e.g., Picot et al., 1999). Focussing on young teens in two-parent families also facilitates understanding associations between happiness and parental paid work hours, given income. The meaning of ‘40 hours of paid work’ is dramatically different, for example, if all supplied by a lone mother versus all supplied by one parent in a two-parent household.³

In order to maximize sample size, given these exclusions and given an interest in comparing findings for boys and girls, we pool three 4-year panels of young teens (1994-2000; 1996-2002; 1998-2004). Our requirement is that the teen is in the 12 to 15 age range in the last of the four years and has answered the ‘happiness’ question in that year. Critically, we also require the mother⁴ to have provided information about family income in the current year as well as in each of the past 3 cycles. To be clear, we do not have the youth self report of happiness in multiple years, but only the family income history. Some young teens (and/or siblings) do appear twice in the pooled data set; standard errors are adjusted to take account of the associated non-independence of these observations. Non-response to any other variable used in the analysis also leads to exclusion. Our final pooled sample consists of 5,579 young teens.

² We have also conducted our analyses for the full sample. Qualitatively, patterns are the same as reported here. Results are available on request.

³ We tried separate runs for a sub-sample of young teens who had always lived with the same lone mother but sample size was insufficient for analysis.

⁴ To avoid possible changes in answers due simply to change of reporter, we further select only those young teens for whom the mother was always the pmk (93.2 percent).

All analyses employ longitudinal sampling weights. Further, since the NLSCY uses a complex survey design, all reported standard errors are calculated using bootstrap weights provided by Statistics Canada (we use 1000 replicates).⁵

The subjective well-being question asked of young teens in the NLSCY relates to ‘remembered happiness’ (Helliwell, 2006), a measure of affect, rather than “over-all satisfaction with life,” a more cognitive measure also often employed in the literature: “In general, I am happy with how things are for me in my life now.” Responses can include: strongly disagree, disagree, agree, and strongly agree.⁶

As indicated in Table 1, the vast majority of young teens in our sample agree or strongly agree that they are ‘in general happy with how things are in life now’ with the most likely response being that they ‘agree’ rather than ‘strongly agree.’ For example, 55.5 percent of youth “agree” that they are generally happy; 36.3 percent “strongly agree;” 6.6 percent “disagree” and only 1.6 percent “strongly disagree.” Girls are somewhat less likely than boys to ‘strongly agree’ that they are generally happy (33.3 percent compared to 36.7 percent) and somewhat more likely to ‘disagree’ (7.1 percent compared to 5.7 percent).⁷

IV. MULTIVARIATE SPECIFICATION

(a) *Young Teen Happiness and Family Income*

This section of the paper studies connections between family income and the self-reported happiness of young teens. Are they happier when their families have higher

⁵ To preserve confidentiality, Statistics Canada does not provide cluster i.d.s.

⁶ According to Statistics Canada, 87.5 percent of youth responded to this question (Statistics Canada, 2007).

⁷ Unconditionally, the boy/girl happiness distributions are statistically different. In an ordered probit model in which ‘girl’ is the only explanatory variable it is strongly statistically significant.

incomes? Does ‘permanent’ (long-run average) income matter more or less than current income? Are young teens whose families currently have higher (or lower) incomes than their long-run average happier (or less happy)? Given any level of ‘permanent income,’ are young teens whose family income history has been more variable less happy?

To motivate our subsequent analyses, Figure 1 reports the percentage of young teens who either agree or strongly agree that they are ‘generally happy with life’ in the top and bottom quintiles of the 2004 Canadian equivalent income distribution.⁸ It is clear that, unconditionally, young teens are more likely to report themselves ‘happy’ (i.e., agree or strongly agree) when family income is higher in the Canadian distribution. For example, 96.7 percent of young teens in the top equivalent income quintile either agreed or strongly agree that they are generally happy compared to 83.1 percent in the bottom quintile.

To examine the association between income and happiness more formally, our research strategy is to estimate multivariate models in which the young teen’s self-assessed happiness is the dependent variable and family income is the key explanatory variable. We estimate 3-category ordered probit models, pooling ‘disagree’ and ‘strongly disagree’ (that ‘in general I am happy with how things are in life now’) but distinguishing ‘agree’ and ‘strongly agree.’ (It is necessary to combine the bottom two categories since less than 2 percent of young teens chose ‘strongly disagree.’)⁹

⁸ To match the population level income data, this motivational figure uses only young teens who were 12 to 15 and reported on their happiness in 2004 (rather than the pooled sample used for the multivariate analysis). Cut points for income quintiles were calculated using the most recent public use version of the Survey of Labour and Income Dynamics (SLID - 2003) and thus reflect the full Canadian equivalent income distribution. That is, for every individual in the SLID, family income is divided by the Luxembourg Income Study equivalence scale (calculated as the square root of family size). 2003 incomes are converted to 2004 using CPI.

⁹ We have also estimated 2 dichotomous probit models. The first distinguishes ‘happy’ from ‘sad’ youth (i.e., those who ‘agree’ or ‘strongly agree’ that they are happy versus those who ‘disagree’ or ‘strongly

Alternative Specifications for Family Income

The measure of family income available in the NLSCY is pre-tax annual income from all sources, including government transfers.¹⁰ It is particularly important that the mother rather than the young teen reports family income, given that many 12 to 15 year olds will lack detailed knowledge of family income. Since the standard of living associated with any level of income will vary with family size, in this section of the paper we use ‘equivalent’ family income, where ‘equivalent income’ is actual dollar income divided by an appropriate equivalence scale.¹¹ Following the happiness literature for adults, and to allow income to matter more at lower income levels, we always use the log rather than the level of family equivalent income.

We estimate the association between income and youth happiness in 2004 using four alternative specifications of income: 1) current income (i.e., from the same year as young teen happiness¹²); long-run average equivalent income (i.e., using 4 cycles of data, spanning the past 7 years, for example, 1998, 2000, 2002, 2004); difference between current income and long-run average income¹³; 4) long-run average income and the coefficient of variation of income over the four cycles. Means for these variables are reported in Table 2.

disagree’). The second probit model distinguishes those who ‘strongly agree’ that they are generally happy from everyone else. Results are reported in the appendix to the paper.

¹⁰ Pmk’s are asked “What is your best estimate of your total household income from all sources in the past 12 months, that is the total income from all household members, before taxes and deductions?”

¹¹ We use the Luxembourg Income Study, or LIS, equivalence scale equal to the square root of family size. Thus, for a family of four with dollar income of \$50,000, ‘equivalent’ income is \$25,000.

¹² However, since we’ve pooled several years of data, current income is always reported in real 2004 dollars.

¹³ Specifically, we include both log of long-run average income and the log of current income less the log of long-run average income.

b) Young Teen Happiness and Neighbourhood Income

To look for a possible relative income effect for young teens, we add a measure of neighbourhood income. We argue that ‘neighbourhood’ is an appropriate reference group for young teens, rather than, say, average incomes for parents of the same age or education level (since young teens may not be entirely aware of whether their parents earn more or less than other adults with similar credentials/experience, but will be aware of living standards of friends and neighbours).¹⁴ The measure of neighbourhood income we have available is real median income for all households whose postal code has the same first three digits (the ‘forward sortation area’) using the 2001 Canadian census; 1591 ‘forward sortation areas’ were reported by census respondents (Statistics Canada, 2001). To get an idea of the size of ‘neighbourhood’ captured, note that, for example, Halifax, with a population in 2001 of about 360,000 had 27 forward sortation areas; Kentville, with a population of about 5,000 had 2 (Canada Post, 2001). We merge the census data with the NLSCY using the young teen’s 2004 postal code.¹⁵ Since we do not have a measure of ‘equivalent income’ by forward sortation area, in these regressions we replace household equivalent income with dollar income and add a control for household size.

¹⁴ We investigated the possibility of using ‘school’ as perhaps an even more relevant reference category for young teens. Unfortunately, we had insufficient observations per school in the NLSCY to make this feasible. Choice of the appropriate reference group is critical to analyses of relative income and happiness. Other options that appear in the literature include: national average income, regional average income, average income for others with the same level of education (D’Ambrosio and Frick, 2007); individuals with the same age group, in the same region and with similar education (Ferrer-i-Carbonell). Luttmer (2005) also uses a neighbourhood income reference group constructed from U.S. census data.

¹⁵ A caveat would thus be that relative incomes of neighbourhoods may have changed somewhat in the three years since the last census.

Control Variables for Multivariate Analyses

In addition to the family and neighbourhood income variables, we include a fairly basic set of covariates in all estimated models. All covariates are constructed using mother-provided information. Since the young teens assess their own happiness, methodologically, this is an important difference between our work and much of the literature on adult happiness where the same person reports left-hand side and right-hand side variables and helps us avoid potential ‘spurious correlation’ between the youth self reports of happiness and explanatory variables of interest (e.g., an individual with a cheery disposition reports himself/herself to be very happy and to have very good health). It of course remains true that there may be some other unobservable factor that both leads to a higher family income and a happier young teen. For example, a parent’s pleasant personality might both help make the child happy and help the parent get ahead at work. Although concerns about endogeneity of this type would presumably be more serious if we were studying associations between income and parent’s happiness, we also estimate all models with and without the mother’s report of child’s happiness taken from the first year of the four-cycle panel (e.g., from 1994 for young teens for whom we have self-assessed happiness in 2000) as an additional control. Specifically, we construct a dummy variable equal to one if the mother answers that the child (aged six through nine years at this time) was ‘never unhappy’ in the previous week. In our sample, mothers reported that 66.5 percent of girls aged 6 to 9 and 70.0 percent of boys had ‘never been unhappy’ in the week before the survey. Note that this is a different question than is later asked of the children themselves – it refers specifically to ‘last week’ and is phrased ‘negatively.’

From the perspective of a young teen, having a higher family income increases material resources, but potentially at the expense of hours of parental time available. Thus, a first key control variable in all models is parental hours of paid work. We use the sum of mother's and father's usual weekly paid hours and total hours squared.¹⁶ On average, in these two-parent families, mothers and fathers together supplied 73.1 hours per week to the paid labour market (with mothers on average doing 29.9 paid hours and fathers 43.9 – see Table 2).¹⁷

In addition to the income and parental paid work variables, we control for a set of young teen characteristics reflective of models estimated in the adult happiness literature. The necessary information is reported by the mother. Young teen characteristics include: age at the time of the survey (mean of 13.5), gender (49.0 percent are female), whether he or she is an only child (22.2 percent), is non-white (7.2 percent), has a chronic condition (29.8 percent).¹⁸ Means and/or frequencies for all explanatory variables are also reported in Table 2.

A second set of covariates describe the mother, father or general family context, again as reported by the mother. These include: mother's education level (a dummy variable equal to one if she has high school education or less – 39.2 percent); parents' immigrant status (a dummy equal to one if either parent is an immigrant – 21.6 percent);

¹⁶ Labour market variables for both parents are reported by the mother.

¹⁷ We also tried a generalized quadratic specification with mother and father paid hours. Likelihood ratio tests could not reject simply summing parental hours. We tried, as well, controlling for whether mother and/or father do shift or week-end work since non-standard working schedules, given total hours, may not fit together well with 12 to 15 year old lifestyles, which will in almost all cases follow Monday to Friday school-day schedules. However, this variable was never statistically significant and so we do not include it in our final specifications.

¹⁸ The chronic condition flag is derived from mother's responses to a series of questions about health conditions diagnosed by a health professional and having lasted or being expected to last at least 6 months. These include both very serious chronic conditions (e.g., epilepsy, cerebral palsy) and relatively minor conditions (eczema, mild asthma).

family's region of residence (7.5 percent in Atlantic Canada; 23.6 percent in Quebec, 39.4 percent in Ontario and 29.5 percent in the West) and an indicator that the family resides in a rural area (13.8 percent).

We also include a dummy variable indicating that mother or father attends religious services at least once a week (25.0 percent). In the literature on adult subjective well-being, having a strong religious faith has been found to correlate with higher levels of happiness (e.g., Helliwell and Putnam, 2004). Although we have the mother's report of child's frequency of religious attendance, it seems harder to equate attendance with belief for 12 to 15 year olds, some of whom may be dragged to services by their parents while others are genuinely devout. Thus, we feel that parent's frequency of attendance may be the better variable to include, as an indicator of general family milieu.

Finally, since changing residence may be very stressful for a young teen, potentially breaking ties with friends and/or extended family, we include a dummy variable indicating that the family moved in the last year (7.2 percent).

In earlier work (Burton and Phipps, 2008), we also included a set of child-reported information (e.g., about friends, teachers, and parents). These variables had strong correlations with child self-reported happiness. We do not include them here only because they are certainly subject to the criticism of spurious correlation with the dependent variable.

V. MULTIVARIATE RESULTS

a) *Young Teen Happiness and Family Income*

Specification A in Table 3a uses current (log of) family equivalent income, which we find to have a positive and statistically significant relationship with self-assessed

young-teen happiness. However, we find that (the log of) long-run average income (see Specification B) has a larger and more precisely estimated relationship with young teen happiness. This is perhaps not surprising since long-run average income is likely to be a better measure of family's 'true' socioeconomic status (e.g., income data from any one year may reflect measurement error or even true year-to-year fluctuations in family income that don't necessarily change family life-style).¹⁹ Finding a larger association between child well-being and family 'permanent income' is consistent with results in the literature on socioeconomic determinants of child health, where longer-term measures of income also have the largest and strongest associations (see Benzeval and Judge, 2001 or Phipps, 2003 for reviews).

D'Ambrosio and Frick (2007) study the possibility, for adults, that 'getting ahead' relative to one's own past level of income may be important for self-assessed happiness.²⁰ Specification C addresses this question for young teens by adding a measure of the difference between current income and long-run average income.²¹ In contrast to the conclusions reported by D'Ambrosio and Frick for adults, we do not find that young teens whose current family income has surpassed their own long-run average are happier (or vice versa). Rather, it appears to be the over-all *level* of family socioeconomic status which is more important (the size and significance level of long-run average income are

¹⁹ For example young teens whose parents are university professors can experience significant reductions in income during a sabbatical year. Note also that 'long-run average' family income is arguably less endogenous to current unhappiness of child. For example, current income could be lower if the mother, say, dropped out of paid work because the child became seriously depressed.

²⁰ However, we are unable to study 'getting ahead relative to neighbours' as D'Ambrosio and Frick also do, since we only have neighbourhood income for one period.

²¹ The 'difference from long-run average income' variable is constructed as the log of real equivalent income in the 'current year' minus the log of long-run average income. A concern might be that changes in family composition could be responsible for a change in family equivalent income, however less than 10 percent of real income changes are associated with a change in family size.

unchanged when the ‘difference from long-run average’ variable is added).²² There are several potential reasons that we do not find a link between family income growth (or loss) for young teens. Note, first, that young teens who are 12 to 15 in the current year will have been only 6 to 9 years old in the first year for which we are measuring their family income. Such young children may have less awareness of family incomes, provided basic needs are met. Moreover, young teens may not remember much from what to them would be nearly half a life-time ago. Finally, children currently aged 12 through 15 are likely to have changed rather dramatically in terms of their consumption aspirations (e.g., from lego to ipods). Developmental changes in consumption aspirations may make it harder for them to discern whether family standard of living has increased.

Specification D investigates the possibility that, given the same long-run average level of family income, a young teen may be less happy if the income stream has been more variable. For example, he or she may feel less economically secure. (Recall that we have selected only children who have always lived with the same parents, so income instability would not reflect divorce/separation or re-marriage). As indicated in Table 3a, however, a coefficient of variation calculated over the past four cycles of family equivalent income (spanning 7 years) does not have a statistically significant relationship with young teen happiness (though our measure of past ‘income variability’ is admittedly limited by the number of income observations available to us and further research along these lines would clearly be warranted.)

²² We also estimated models with current income and a ‘recent change in income’ variable. The same general finding was apparent. That is, the level of income remained statistically significant while the ‘change’ variable was insignificant. Or, in other words, we do not seem to find a ‘hedonic treadmill’ for young teens. These results are available upon request from the authors.

Given lack of significance for the income difference and income variability variables, we do not report these specifications in the remainder of the paper (though models were in all cases estimated and these variables in all cases remained statistically insignificant).²³ Although we continue to report ‘current income’ results, in part for comparison with much of the adult literature in this area, we emphasize results for the long-run average measure of family ‘permanent income.’²⁴

Table 3b reports ordered probit models for current and long-run average income estimated for boys and girls separately. Estimated associations between happiness and family income are very similar for boys and girls. Both current family income and long-run average family income are positively related to young teen happiness, with long-run average income having the larger and more strongly significant association. Long-run average income appears to have a particularly large association with the happiness of young teen girls (though this difference is not statistically significant).²⁵

²³ A number of studies have found that expenditures on children increase when mother’s share of income increases (e.g., Lundberg, Pollak and Wales, 1997 or Phipps and Burton, 1998). However, we do not find, controlling paid work hours, that mother’s income has a larger association with child happiness than father’s income when we enter parents’ incomes separately, in a generalized quadratic specification; nor is ‘mother’s share of income’ significantly associated with young teen happiness, controlling level of family income. This conclusion holds whether we use current incomes or long-run average incomes (with their corresponding mother’s share); it also hold for both boys and girls.

²⁴ Several recent papers studying the link between income and the happiness of adults employ fixed-effects estimation (e.g., di Tella et al., 2007; D’Ambrosio and Frick, 2004 or 2007; Ferrer-i-Carbonell, 2005; Luttmer, 2005). However, it is more difficult (less appropriate?) to estimate standard fixed effects models for our sample of young teens. Although we have longitudinal data available, we do not have child self-reported happiness for pre-teen years (younger children do not answer questionnaires). Indeed, developmental changes mean that it is not really appropriate to ask the same questions over time; many co-variates change (or change reporter) for younger or older children. Note also that our finding that long-run average income has the stronger association with teen happiness further limits options for estimating fixed effects models.

²⁵ That is, if we add an interaction between gender and long-run income, the interaction term is not statistically significant.

Probit Models of the Probability of ‘Strongly Agreeing’ or ‘Disagreeing’

Appendix Table 1 reports results of probit models of the probability that the young teen ‘strongly agrees’ that he or she is generally happy. Results with respect to family income are qualitatively almost identical to those obtained in the ordered probit models. That is, level of income appears to have the more important relationship with young teen happiness than differences from long-run average or variability of income; the longer-term measure of income has the larger (and more precisely estimated) association (though in the interests of space we do not report the results for differences relative to own long-run average income or for variability in income).

Appendix Table 1 also reports results for probit models of the probability of ‘not disagreeing’ that the young teen is generally happy (i.e., not being in the bottom of the happiness distribution). In this case, it is *not* true that long-run average income has a larger association than current income -- the size of association is very similar for the two measures. This may suggest that current levels of family resources have a particularly strong association with the probability of being at the bottom of the young teen happiness distribution (see Burton and Phipps, 2008 which focuses on the different correlates of the ‘top’ and ‘bottom’ of the young teen happiness distribution).

b) Young Teen Happiness and Neighbourhood Income

Specifications that include neighbourhood income are reported in Tables 4a and 4b. Recall that since we do not have a measure of neighbourhood ‘equivalent income,’ we correspondingly use ‘unequalized’ measures of family income, adding a control for family size to recognize that the same dollar income will not provide the same material

standard of living when there are more ‘mouths to feed.’ Results concerning the association between happiness and family income reported in the previous section are robust to these changes (see Table 4a). That is, both current and long-run average measures of incomes have positive and statistically significant relationships with young teen well-being in the ordered probit models; long-run average income again has the larger association.

However, the important new point made in Table 4a is that, given family income, youth are less happy the higher is (the log of) the median income in the neighbourhood in which they live. And, the size of the relative income association is as large (and negative) as the positive association with own family income. In fact, the neighbourhood income association is actually very slightly *larger* than the current family income association (though not larger than the permanent income measure).

Table 4b reports separate estimates of neighbourhood income associations for young teen boys and girls. Basically, much the same story is apparent in either case, though there is some suggestion that the negative association with median neighbourhood income is larger for boys than for girls (neighbourhood income is not actually statistically significant for girls).²⁶

It could, of course, be the case that neighbourhoods vary in unobservable ways that are correlated with average income and which generate happiness for young teens (e.g., quality of schools, availability of recreational facilities), but as Luttmer (2005) points out, one would then expect the opposite sign on estimated neighbourhood income. Another potential criticism levied against similar regressions estimated for adult

²⁶ Again, however, if we interact gender with the two income variables, the interactions are not statistically significant.

happiness (see Luttmer, 2005) is that individuals self select into neighbourhoods, but 12 to 15 year olds presumably rarely choose the neighbourhood in which they live.

c) Controlling for Mother's Report of Child's Happiness, Six Years Earlier

Although we do not have young teen self-reported happiness in all cycles, we do have an earlier report by the mother about her perception of the child's happiness. When this variable is added to the estimation models, it is reassuring that results are essentially unchanged (see Table 4a, Specification C for boys and girls combined and Table 4b, Specification B for boys and girls separately).

Other Covariates

Results for control variables are not sensitive to which measure of family income is used, or to whether or not neighbourhood income is included in the model. Briefly, we find, for example, that controlling for family income in the ordered probit models, there is no statistically significant association between parental paid work hours and self-assessed youth happiness (though this may be different for younger children). A mother's report that the youth has a chronic condition (one which has lasted or is expected to last at least six months) is always large, negative and statistically significant. We find that reported happiness consistently falls with the child's age (despite the fact that we are studying only children who are aged 12 through 15 – see also Casas et al., 2007). We also find, in the boy/girl pooled models, that girls report themselves to be significantly less happy than boys. This contrasts with some earlier findings for adults, in which women reported higher levels of happiness than men (Frey and Stutzer, 2002),

though this difference is apparently disappearing in studies with more recent data (Helliwell, 2006). We find no association between being an only child, being a non-white child or having an immigrant parent and young teen happiness. Region of residence and rural residence are also always statistically insignificant; the same is true for frequency of mother's attendance at religious services and mother's level of education.

In terms of boy/girl differences in estimated links between subjective well-being and other covariates, "having moved within the last year" has a larger negative association with the happiness of young teen boys; on the other hand, having a chronic condition has a larger negative association with the well-being of young teen girls.

VI. CONCLUSIONS

The link between income and adult happiness has received considerable recent attention; the novelty of this paper is to ask whether 'money buys happiness' for young teens. Specifically, we study Canadian 12 to 15 year olds using the Statistics Canada National Longitudinal Survey of Children and Youth. The young teens assess their own happiness; mothers provide the information used to construct other explanatory variables.

Our results indicate a positive association between the level of family income and young teen self-reported happiness, particularly when we use a long-term average measure of income. We do not, however, find any evidence that having a current income higher than long-term average income is associated with higher current young-teen happiness; recent changes in income, given level, are insignificant, arguing against a 'hedonic tread-mill' for Canadian youth such as is apparent for adults. Variations in

income over the past four cycles of data (spanning the past 7 years of the child's life) is also statistically insignificant. In terms of family income, it is the long-term *level* of income that really seems to count.

Our results also indicate that, given family income, young Canadian teens are *less* happy the higher is the median income in the neighbourhood in which they live. Relative income effects may be especially important for the teen boys (who are also more negatively affected by family moves than girls). The size of the neighbourhood income association with young teen self-assessed happiness is roughly the same size (though negative) as the positive association with family income, suggesting very large negative consumption externalities (i.e., 'keeping up with the Jones') for young teens as well as for their parents.

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Figure 1: Self Reported Happiness of Canadian 12 to 15 Years Olds by Family Income Quintile¹

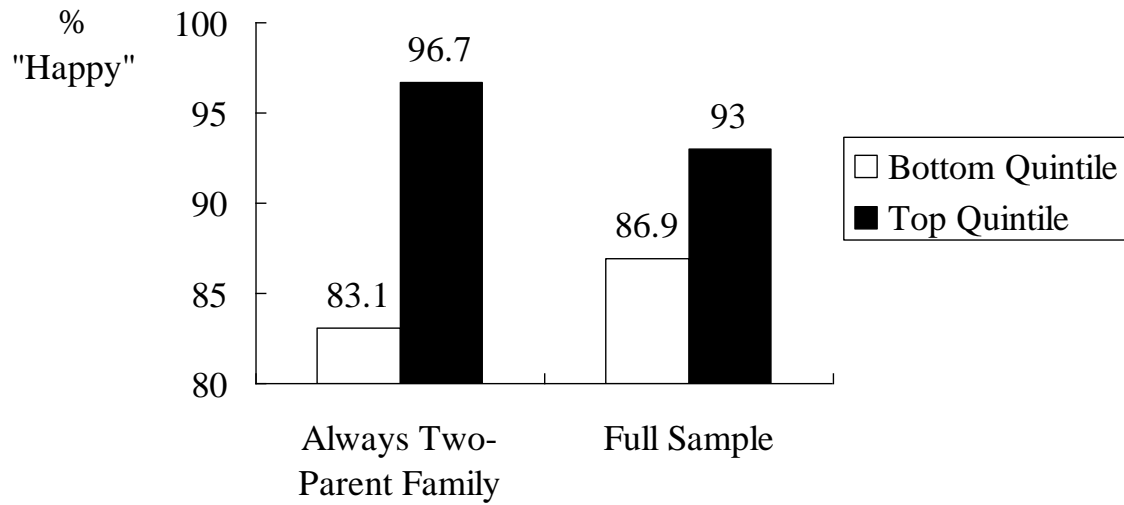


Table 1: Self-Reported Happiness of Canadian 12 to 15 Year Olds

“In general, I am happy with how things are for me in my life now.”	Full Sample (%)	Boys (%)	Girls (%)
Strongly Disagree	1.6	1.2	1.6
Disagree	6.6	5.7	7.1
Agree	55.5	56.5	58.0
Strongly Agree	36.3	36.7	33.3
Number of Observations	5579	2799	2780

Table 2: Means/Frequencies of Explanatory Variables

	Full Sample	Boys	Girls
Current Family Equivalent Income ¹	43379	44094	42634
Long-run Average Family Equivalent Income	39999	40315	39671
Current Family Income (Non-equivalized)	90923	92131	89667
Long-run Average Family Income (Non-equivalized)			
Coefficient of Variation of Family Equivalent Income	0.2	0.2	0.2
Difference Between Current and Long-Run Average Real Equivalent Income	3380	3780	2964
Median Neighbourhood Income			
Total Parental Paid Hours	73.1	73.1	73.0
Additional PMK Reported Variables			
Child Age	13.5	13.5	13.5
Child Female (%)	49.0	0.0	100.0
Only Child (%)	22.2	21.8	22.6
Child Non-white (%)	7.2	7.6	6.7
Child Chronic Condition (%)	29.8	32.3	27.2
Region			
Atlantic (%)	7.5	7.7	7.4
Quebec (%)	23.6	23.0	24.2
Ontario (%)	39.4	40.6	38.2
West (%)	29.5	28.8	30.3
Rural (%)	13.8	15.0	12.6
Mother has High School Education or Less (%)	39.2	38.9	39.5
Mother or Father Attends Religious Services At Least Once a Week (%)	25.0	23.8	26.3
Either Parent An Immigrant (%)	21.6	21.8	21.4
Family Moved Last Year	7.2	7.2	7.1
Number of Observations	5579	2799	2780

¹“Equivalent income” is family income from all sources, before tax, divided by the LIS equivalence scale (square root of family size). All incomes are expressed in 2004 dollars.

Table 3a: Ordered Probit Estimates of the Association Between Family Income & the Self-Assessed Happiness of Canadian 12 to 15 Year Olds¹

	A	B	C	D
Current Family Equivalent Income	0.158** (0.067)			
Long-Run Average Equivalent Income		0.213*** (0.065)	0.211*** (0.066)	0.212*** (0.065)
Current Difference From Long-Run Average Equivalent Income			-0.014 (0.136)	
Coefficient of Variation in Family Equivalent Income				0.043 (0.170)
Total Parental Paid Hours in 2004	0.004 (0.006)	0.004 (0.006)	0.004 (0.006)	0.004 (0.006)
Total Parental Paid Hours Squared	-0.00003 (0.00005)	-0.00003 (0.00005)	-0.00003 (0.00005)	-0.00003 (0.00005)
Additional Mother-Reported Variables				
Child Age	- 0.083*** (0.021)	- 0.082*** (0.021)	- 0.082*** (0.021)	- 0.082*** (0.021)
Child Female	-0.107** (0.046)	-0.108** (0.046)	-0.108** (0.046)	-0.108** (0.046)
Only Child	-0.085 (0.062)	-0.093 (0.062)	-0.093 (0.062)	-0.093 (0.062)
Child Non-white	0.045 (0.126)	0.060 (0.127)	0.060 (0.127)	0.059 (0.128)
Child Chronic Condition	- 0.149*** (0.051)	- 0.153*** (0.051)	- 0.153*** (0.051)	- 0.153*** (0.051)
Region				
Atlantic	0.075 (0.071)	0.093 (0.069)	0.094 (0.068)	0.093 (0.069)
Quebec	0.048 (0.079)	0.057 (0.077)	0.057 (0.077)	0.057 (0.077)
West	-0.026 (0.062)	-0.021 (0.061)	-0.020 (0.061)	-0.021 (0.061)
Rural	0.049 (0.063)	0.059 (0.062)	0.059 (0.063)	0.057 (0.063)
Mother has High School Education or Less	-0.043 (0.054)	-0.030 (0.051)	-0.030 (0.052)	-0.030 (0.052)
Mother or Father Attends Religious Services At Least Once a Week	0.027 (0.055)	0.034 (0.054)	0.034 (0.054)	0.034 (0.054)
Either Parent An Immigrant	-0.071 (0.073)	-0.068 (0.072)	-0.068 (0.072)	-0.069 (0.073)
Family Moved Last Year	0.214** (0.095)	-0.212** (0.095)	-0.212** (0.095)	-0.214** (0.095)
Year 2000	-0.136** (0.057)	-0.120** (0.058)	-0.118** (0.059)	-0.120** (0.058)
Year 2002	-0.083 (0.053)	-0.076 (0.053)	-0.076 (0.054)	-0.076 (0.053)
Cut Point 1	-1.029	-0.448	-0.458	-0.443

	(0.755)	(0.752)	(0.760)	(0.756)
Cut Point 2	0.812 (0.756)	1.395* (0.751)	1.385* (0.759)	1.401* (0.755)
Number of Observations	5579	5579	5579	5579

* 10% significance level

** 5% significance level

*** 1% significance level

¹The dependent variable is a dummy = 1 if the child “strongly disagreed” or “disagreed”, = 2 if the child “agreed”, = 3 if the child “strongly agreed” with the statement “In general, I am happy with how things are for me in my life now.”

Table 3b: Ordered Probit Estimates of the Association Between Family Income & the Self-Assessed Happiness of Canadian 12 to 15 Year Olds. Boys Compared to Girls.

	Boys		Girls	
	A	B	A	B
Current Family Equivalent Income	0.158* (0.083)		0.155* (0.087)	
Long-Run Average Equivalent Income		0.198** (0.088)		0.224** (0.094)
Total Current Parental Paid Hours	0.006 (0.008)	0.006 (0.008)	0.002 (0.011)	0.002 (0.011)
Total Current Parental Paid Hours Squared	-0.0001 (0.0001)	-0.0001 (0.0001)	-8.47e-06 (0.0001)	-6.85e-06 (0.0001)
Additional Mother-Reported Variables				
Child Age	-0.070** (0.034)	-0.071** (0.034)	-0.097*** (0.028)	-0.096*** (0.028)
Only Child	-0.082 (0.091)	-0.084 (0.092)	-0.097 (0.080)	-0.112 (0.081)
Child Non-white	0.041 (0.174)	0.046 (0.174)	0.069 (0.210)	0.095 (0.214)
Child Chronic Condition	-0.118 (0.077)	-0.121 (0.075)	-0.194*** (0.071)	-0.197*** (0.071)
Region				
Atlantic	0.095 (0.097)	0.108 (0.095)	0.053 (0.096)	0.077 (0.097)
Quebec	0.129 (0.107)	0.131 (0.106)	-0.035 (0.102)	-0.018 (0.102)
West	-0.018 (0.088)	-0.015 (0.087)	-0.046 (0.078)	-0.039 (0.078)
Rural	-0.008 (0.087)	-0.005 (0.085)	0.112 (0.085)	0.130 (0.086)
Mother has High School Education or Less	0.004 (0.074)	0.014 (0.073)	-0.085 (0.069)	-0.069 (0.068)
Mother or Father Attends Religious Services At Least Once a Week	-0.044 (0.076)	-0.039 (0.076)	0.095 (0.083)	0.104 (0.083)
Either Parent An Immigrant	-0.055 (0.115)	-0.046 (0.114)	-0.088 (0.096)	-0.091 (0.096)
Family Moved Last Year	-0.262** (0.124)	-0.258** (0.125)	-0.181 (0.135)	-0.181 (0.135)
Year 2000	-0.130 (0.086)	-0.112 (0.087)	-0.144* (0.084)	-0.132 (0.085)
Year 2002	-0.148* (0.079)	-0.138* (0.079)	-0.013 (0.072)	-0.009 (0.073)
Cut Point 1	-0.866 (0.964)	-0.444 (1.030)	-1.159 (0.978)	-0.425 (1.069)
Cut Point 2	0.996 (0.963)	1.419 (1.023)	0.674 (0.980)	1.411 (1.076)
Number of Observations	2799	2799	2780	2780

*10% significance level; **5% significance level; ***1% significance level

Table 4a: Ordered Probit Estimates of the Association Between Neighbourhood Income and the Self-Assessed Happiness of Canadian 12 to 15 Year Olds¹

	A	B	C
Current Family Income (Non-equivalized)	0.176*** (0.069)		
Long-Run Average Family Income (Non-equivalized)		0.250*** (0.069)	0.240*** (0.069)
Median Neighbourhood Income	-0.190* (0.107)	-0.234** (0.109)	-0.227** (0.110)
Household Size	-0.038 (0.026)	-0.038 (0.026)	-0.037 (0.026)
Total Parental Paid Hours in 2004	0.003 (0.006)	0.003 (0.006)	0.003 (0.006)
Total Parental Paid Hours Squared	-0.00003 (0.00005)	-0.00003 (0.00005)	-0.00003 (0.00005)
Additional Mother-Reported Variables			
Child Age	-0.083*** (0.022)	-0.082*** (0.022)	-0.077*** (0.022)
Child Female	-0.109** (0.046)	-0.111** (0.046)	-0.108** (0.047)
Only Child	-0.117* (0.068)	-0.118* (0.066)	-0.127** (0.065)
Child Non-white	0.057 (0.129)	0.074 (0.131)	0.088 (0.128)
Child Chronic Condition	-0.156*** (0.052)	-0.159*** (0.052)	-0.155*** (0.052)
Region			
Atlantic	0.015 (0.078)	0.027 (0.076)	0.023 (0.076)
Quebec	0.011 (0.084)	0.015 (0.082)	0.014 (0.082)
West	-0.047 (0.064)	-0.045 (0.064)	-0.039 (0.064)
Rural	0.021 (0.065)	0.027 (0.063)	0.018 (0.063)
Mother has High School Education or Less	-0.044 (0.054)	-0.027 (0.052)	-0.025 (0.052)
Mother or Father Attends Religious Services At Least Once a Week	0.038 (0.058)	0.044 (0.058)	0.046 (0.058)
Either Parent An Immigrant	-0.067 (0.074)	-0.060 (0.073)	-0.075 (0.073)
Family Moved Last Year	-0.220** (0.094)	-0.217** (0.094)	-0.205** (0.091)
Child Never Seemed Unhappy			0.087* (0.051)
Year 2000	-0.125** (0.058)	-0.106* (0.059)	-0.107* (0.058)
Year 2002	-0.073	-0.063	-0.068

	(0.053)	(0.054)	(0.053)
Cut Point 1	-3.022** (1.314)	-2.670** (1.281)	-2.556** (1.285)
Cut Point 2	-1.176 (1.309)	-0.822 (1.275)	-0.708 (1.280)
Number of Observations	5497	5497	5469

* 10% significance level

** 5% significance level

*** 1% significance level

¹The dependent variable is a dummy = 1 if the child “strongly disagreed” or “disagreed”, = 2 if the child “agreed”, = 3 if the child “strongly agreed” with the statement “In general, I am happy with how things are for me in my life now.”

Table 4b: Ordered Probit Estimates of the Association Between Neighbourhood Income & the Self-Assessed Happiness of Canadian 12 to 15 Year Olds. Boys Compared to Girls.¹

	Boys		Girls	
	A	B	A	B
Long-Run Average Family Income	0.233*** (0.093)	0.219** (0.093)	0.268*** (0.097)	0.259*** (0.096)
Median Neighbourhood Income	-0.290* (0.169)	-0.292* (0.172)	-0.201 (0.134)	-0.185 (0.135)
Household Size	-0.074* (0.039)	-0.076* (0.040)	-0.010 (0.038)	-0.007 (0.038)
Total Parental Paid Hours in 2004	0.003 (0.009)	0.003 (0.009)	0.001 (0.011)	0.003 (0.011)
Total Parental Paid Hours Squared	-0.00004 (0.0001)	-0.00004 (0.00007)	-8.73e-06 (0.0001)	-0.00002 (0.0001)
Additional Mother-Reported Variables				
Child Age	-0.071** (0.034)	-0.066* (0.034)	-0.098*** (0.028)	-0.092*** (0.028)
Only Child	-0.139 (0.099)	-0.151 (0.098)	-0.112 (0.082)	-0.119 (0.082)
Child Non-white	0.088 (0.179)	0.068 (0.179)	0.091 (0.218)	0.146 (0.211)
Child Chronic Condition	-0.124 (0.077)	-0.111 (0.077)	-0.205*** (0.073)	-0.206*** (0.073)
Region				
Atlantic	0.032 (0.109)	0.029 (0.109)	0.016 (0.108)	0.012 (0.109)
Quebec	0.079 (0.114)	0.084 (0.116)	-0.052 (0.105)	-0.056 (0.104)
West	-0.036 (0.092)	-0.035 (0.093)	-0.066 (0.082)	-0.055 (0.081)
Rural	-0.040 (0.089)	-0.054 (0.089)	0.098 (0.089)	0.090 (0.089)
Mother has High School Education or Less	0.024 (0.073)	0.028 (0.074)	-0.071 (0.069)	-0.068 (0.068)
Mother or Father Attends Religious Services At Least Once a Week	-0.006 (0.078)	-0.008 (0.079)	0.099 (0.088)	0.109 (0.088)
Either Parent An Immigrant	-0.044 (0.117)	-0.049 (0.118)	-0.081 (0.096)	-0.105 (0.095)
Family Moved Last Year	-0.242** (0.124)	-0.247** (0.124)	-0.205 (0.134)	-0.174 (0.128)
Child Never Seemed Unhappy		0.102 (0.078)		0.091 (0.072)
Year 2000	-0.105 (0.088)	-0.115 (0.088)	-0.115 (0.085)	-0.109 (0.085)
Year 2002	-0.133* (0.080)	-0.143* (0.081)	0.010 (0.073)	0.010 (0.072)
Cut Point 1	-3.519* (2.015)	-3.571* (2.025)	-2.071 (1.697)	-1.798 (1.685)

Cut Point 2	-1.653 (2.004)	-1.707 (2.015)	-0.226 (1.698)	0.050 (1.688)
Number of Observations	2755	2738	2742	2731

* 10% significance level; ** 5% significance level; *** 1% significance level

¹The dependent variable is a dummy = 1 if the child “strongly disagreed” or “disagreed”, = 2 if the child “agreed”, = 3 if the child “strongly agreed” with the statement “In general, I am happy with how things are for me in my life now.”

Appendix Table 1: Probit Estimates of the Association Between Family Income & the Self-Assessed Happiness of Canadian 12 to 15 Year Olds. Top versus Bottom.

	Strongly Happy ¹		Happy ²	
	A	B	A	B
Current Family Equivalent Income	0.136* (0.074)		0.214** (0.094)	
Long-Run Average Equivalent Income		0.211*** (0.073)		0.221** (0.099)
Current Parental Paid Hours	-0.002 (0.007)	-0.003 (0.007)	0.014* (0.008)	0.015* (0.008)
Total Parental Paid Hours Squared	7.31e-06 (0.0001)	0.00001 (0.00005)	-0.0001* (0.0001)	-0.0001* (0.0001)
Additional PMK Reported Variables				
Child Age	- 0.070*** (0.025)	-0.070*** (0.025)	-0.114*** (0.032)	-0.114*** (0.032)
Child Female	-0.093* (0.053)	-0.094* (0.054)	-0.141* (0.075)	-0.142* (0.075)
Only Child	-0.111 (0.072)	-0.121* (0.072)	-0.030 (0.089)	-0.030 (0.089)
Child Non-white	0.008 (0.167)	0.027 (0.169)	0.219 (0.204)	0.224 (0.206)
Child Chronic Condition	-0.097* (0.059)	-0.101* (0.059)	-0.257*** (0.073)	-0.259*** (0.073)
Region				
Atlantic	0.111 (0.079)	0.134* (0.077)	-0.031 (0.103)	-0.020 (0.104)
Quebec	0.081 (0.090)	0.093 (0.087)	-0.041 (0.106)	-0.038 (0.106)
West	-0.016 (0.072)	-0.009 (0.071)	-0.066 (0.096)	-0.063 (0.095)
Rural	0.045 (0.071)	0.061 (0.069)	0.048 (0.094)	0.047 (0.093)
PMK High School Education or Less	-0.086 (0.065)	-0.068 (0.062)	0.070 (0.073)	0.072 (0.072)
PMK or Spouse Attends Religious Services At Least Once a Week	-0.005 (0.065)	0.004 (0.065)	0.129 (0.086)	0.131 (0.086)
Either Parent An Immigrant	-0.121 (0.088)	-0.116 (0.087)	0.047 (0.133)	0.048 (0.132)
Moved Last Year	-0.130 (0.099)	-0.126 (0.100)	-0.352*** (0.126)	-0.352*** (0.127)
Year 2000	-0.096 (0.066)	-0.081 (0.067)	-0.239*** (0.075)	-0.217*** (0.077)
Year 2002	-0.098 (0.062)	-0.093 (0.062)	-0.064 (0.081)	-0.053 (0.082)
Constant	-0.557 (0.835)	-1.337 (0.841)	0.580 (1.084)	0.467 (1.141)
Number of Observations	5579	5579	5579	5579

* 10% significance level; ** 5% significance level; *** 1% significance level

¹“Strongly Happy” is a dummy = 1 if the child if the child “strongly agreed” with the statement “In general, I am happy with how things are for me in my life now.” ²“Happy” is a dummy = 1 if the child “strongly agreed”, or “agreed.”