





**Applied Research Branch  
Strategic Policy  
Human Resources Development Canada**

**The Effect of Changes in Maternal Employment and  
Family Composition on Children's Behaviour**

**W-02-3-2E**

**by  
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May 2002**

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■  
Paper/Papier

ISBN: 0-662-32830-2

Cat. No./N° de cat.: MP32-28/02-3-2E

Internet

ISBN: 0-662-32831-0

Cat. No./N° de cat.: MP32-28/02-3-2E-IN



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## **Abstract**

Recent research suggests that changing maternal employment and family composition are associated with children's behavioural development. This report assesses whether, and if so to what extent, changes in these areas may affect the behavioural development of children, using information from the National Longitudinal Survey of Children and Youth (NLSCY). The study investigates how maternal employment, employment transitions, and spells of unemployment, are related to children's behavioural development from 1994 to 1998. The analysis focuses on the quality of maternal jobs using, for example, number of hours worked per week. As well, the report also investigates how changes in family composition such as becoming a lone parent family or entering into new two parent families, may affect children's behavioural development. Three behavioural scales are used in the paper as dependent variables: indirect aggression, emotional disorder-anxiety and conduct disorder-physical aggression.

Using cross-sectional and longitudinal analyses, evidence is found to support the existing literature, although it is relatively weak. Maternal employment, in particular the number of employment transitions (expressed as periods of unemployment), is found to be associated with higher levels of behaviour problems in children, particularly for indirect aggression behaviour. As well, stable family composition is associated with relatively better behaviour scores. Family composition which changes over time tends to be associated with relatively worse behaviour scores for children. More research and analysis of this area is necessary to uncover the complex interplay of the variables.



## **Acknowledgements**

The author has received a great amount of assistance preparing this paper. In particular he would like to thank Human Resources Canada (HRDC) for funding this research and providing access to the National Longitudinal Survey of Children and Youth. As well, he would like to acknowledge the assistance and patience of the staff at the Applied Research Branch of HRDC, particularly Satya Brink. He also wants to thank the staff at the Canadian Council on Social Development for their support and helpful comments with this report. The advice and comments provided by anonymous reviewers is particularly appreciated. As always, any errors or problems with the paper are solely the result of the author.





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## Foreword

The National Longitudinal Survey of Children and Youth (NLSCY) is a unique Canadian survey designed to follow a representative sample of children from birth to early adulthood. It is conducted in partnership by Human Resources Development Canada (HRDC) and Statistics Canada. Statistics Canada is responsible for data collection, while HRDC, the major funder, directs and disseminates research. Data collection began in 1994 and continues at two-year intervals.

The survey for the first time provides a single source of data for the examination of child development in context, including the diverse life paths of normal development. The survey and the research program were developed to support evidence-based policy, using a human development view of the early decades of life. This research paper is part of an ongoing series of papers emanating from a program of research that examines NLSCY data collected in the first three cycles (1994-95, 1996-97, 1998-99) of the survey.



## **1. Introduction**

The research presented here focuses on maternal employment and family composition to see whether, and if so to what extent, changes in these areas may affect the behavioural development of children. This is investigated by examining how maternal employment, employment transitions, and spells of unemployment, are related to children's behavioural development from 1994 to 1998. The analysis also focuses on the quality of maternal jobs using, for example, number of hours worked per week. As well, changes in how family composition, such as becoming a lone parent family or entering into new two parent families may affect children's behavioural development, are examined. Information from the National Longitudinal Survey of Children and Youth (NLSCY) is used to investigate the effects that family compositional change and maternal employment may have on children's behaviour.

The research work pursued here has several sources. The first is that these issues were raised at the "Investing in Children" conference in 1998. In Workshop 2 "Parenting and Work," it was pointed out that there was a need to investigate the effects that the quality of parental employment may have on children's outcomes (Applied Research Branch, 1999: 27). In particular, it was raised that there needs to be a focus on the longitudinal effects rather than simply on the cross-sectional relationship, between employment and children's outcomes.

A further source is the continuing debate regarding the effect that mother's labour force participation has on children's development, fuelled by the increasing proportion of children with mothers in the labour force. Additionally, research has suggested that changes in the realm of the economic circumstances of the family, and also of family composition, can have longer term effects on children's behavioural development which may last into adulthood – particularly for children of middle childhood age (from approximately 6 years to 12 years old) (Cooksey, Menaghan and Jekielek, 1997; Menaghan, Mott and Cooksey, 1997). These can include such outcomes as more aggressive behaviour in general, increased depression and suicide, and possible increases in criminal activity, such as assault or homicide. The possible link, whether causal or simply as a predictor, between childhood behavioural problems and later adult problems has consequences for social resources and will be of interest to policy makers.

The method and research design employed in this report to investigate the effects of maternal employment and family composition change on children's behaviour, uses some aspects of the work of Menaghan, Mott and Cooksey (1997). Their work comes from a large body of research focussing on the connection between children's behaviour and maternal employment being conducted by a group of researchers at the Ohio State University (Jekielek et al., 1998; Menaghan, Mott and Cooksey, 1997; Cooksey, Menaghan and Jekielek, 1997; Parcel and Menaghan, 1994a and 1994b). Evidence from this group of researchers suggests, for example, that improvements in a family's work and employment circumstances can affect children's well-being, particularly for middle childhood children aged between 6 and 7 years old (Cooksey, Menaghan and Jekielek, 1997). Data for this study comes from the National Longitudinal Survey of Youth (NLSY) in the USA, and observed three combined cohorts of children – each cohort was composed of children aged 6 to 7 years of age. As well, they specifically focus on the issue of children's behavioural development since it is contended that family and parental employment conditions can directly affect children's behavioural problems. Menaghan, Mott and Cooksey (1997) later extend this analysis by focusing on the effect of work and family composition changes over time on the behavioural well-being of children.

An understanding of the effect of maternal employment and family composition changes over time on children's behavioural development is an important step in constructing intervention initiatives and public policy. Furthermore, it provides a much better understanding of how changing dynamics in families and the labour force may contribute to children's well-being. Observing research performed using similar techniques but in different jurisdictions allows us to compare more closely the findings and conclusions.

The research presented here is divided into eight sections. Section two reviews the literature on the topic of family composition changes and the effect on children's behavioural well-being. As well, we review the literature on the possible consequences of maternal employment on children's behaviour. The second section ends with a review of the research questions. In the third section the methodology and selection of the dependent and independent variables is set forth. The fourth section considers the results of the bivariate and multivariate analyses of the relationship between maternal employment, family composition and children's behavioural development. Finally, some broader discussion and conclusions are contained in the fifth section.

## **2. Literature Review**

### **2.1 Family Composition Change and Children's Behavioural Well-being**

A large amount of research has investigated the effect that family structure and changes in family composition have upon the well-being of children (Clarke et al., 1998; Jekielek et al., 1998; McLanahan, 1997; Menaghan et al., 1997; and Thomson, 1994). A number of different family structures are considered in this research, including the effect of being in a lone-parent family (with either biological parent) and living in a step-family with one of the biological parents and their partner/spouse. Comparisons are then usually made to children in intact or stable two parent family situations.

Findings from these studies point to changes in the structure of the family as being associated with behaviour problems in children, particularly for young boys (Morrison et al., 1994; Thompson, 1994; Peterson and Zil, 1986). Problems which occur include impulsive/hyperactive behaviour and school behaviour troubles. Alterations to family composition seem to affect girls less, although girls are likely to experience problems when a parent remarries (Peterson and Zil, 1986). Nonetheless, for particular family composition types there may be longer lasting effects. For example, growing up with a divorced or never-married mother, for both boys and girls, is posited to lead to an overall reduction in behavioural and educational well-being (McLanahan, 1997). Further evidence suggests that marital conflict prior to a family disruption is not that important a predictor of behaviour problems. Rather, it is contended, the effect of the marital disruption or change itself is what affects children's behaviour (Morrison et al., 1994).

Research also points to changes in the composition and structure of children's families by divorce, separation or re-marriage, as having a quite profound effect on the economic circumstances of the family (Picot et al., 1999). Divorce or separation of low-income families in particular exposes their children to very high risks of entering poverty, while remarriage dramatically reduces the risk of a child being poor (Picot et al., 1999). Further research indicates that declines in the economic circumstances of children following divorce are linked to behaviour problems (Morrison and Cherlin, 1992). While parental resources (such as engaging and interacting with their children in activities) can help to offset the effect of some of these changes (Clarke et al., 1998), it is also the case that the emotional and economic difficulties

surrounding family composition changes can affect the ability of parents to provide support and aid to their children in the short term (Menaghan, Mott and Cooksey, 1997: 4).

## **2.2 Maternal Employment and Children's Behavioural Well-being**

Female participation rates in the Canadian labour market have been growing since the 1960s. Many families have come to rely on dual incomes for economic resources and still more for economic necessity. Much recent research has examined the role that participation in the paid work force by women with children may have on their children's development and well-being (Harvey, 1999; Cook and Willms, 1998; Lefebvre and Merrigan, 1998; Menaghan, Mott and Cooksey, 1997; Cooksey, Menaghan and Jekielek, 1997; Greenstein, 1995; Parcel and Menaghan, 1994; Vandell and Ramanan, 1992; Bayder and Brooks-Gunn, 1991; Belsky and Eggebeen, 1991; Desai et al., 1989).

The timing of a mother's return to employment after the birth of a child is an area of much debate. Vandell and Ramanan (1992), Parcel and Menaghan (1994), and Greenstein (1995) all find that early maternal employment has no adverse effect on children's Peabody Picture Vocabulary Test-Revised scores (PPVT-R) or behaviour problems. However, other researchers (Bayder and Brooks-Gunn, 1991; Belsky and Eggebeen, 1991; Desai et al., 1989) contend that early maternal employment is associated with negative effects on the child's PPVT-R scores and can affect the child's behavioural development. The conclusions of these studies do not provide any simple relationship between maternal employment and children's behavioural well-being – the findings of one study frequently are opposite to that of another, even when based on the same data from the National Longitudinal Survey of Youth (NLSY) in the United States.

Other research work focuses on the effects of maternal employment on older children. Cooksey, Menaghan and Jekielek (1997) investigate the effect on children's behaviour in middle-childhood (those aged from 6 to 11 years) of three aspects of maternal employment conditions: employment status, work stability and occupational complexity. Employment status measures whether a mother was employed or not, work stability measures the number of hours usually worked per week, and occupational complexity measures the content of the work including aptitude, direction, control and planning. They find that children whose mothers have greater



work stability and more complex occupational tasks generally experience fewer behavioural problems.

Cooksey, Menaghan and Jekielek (1997: 641) contend that the overall effects of maternal employment/ non-employment are dependent “on the quality and quantity of [parent’s] work.” Where the paid work of mothers is considered of higher complexity and quality, mothers are more likely to interact with their children warmly and be less concerned with behaviour conformity. When their employment is less desirable or stressful, they are not able to be as responsive to children or provide as stimulating environments. Adverse work and family circumstances, they posit, negatively affect the behavioural well-being of these children. As well, they observe that maternal resources, such as level of education, cognitive level, self-esteem and age, are important for behavioural development in children. These resources not only shape and influence the work conditions in a family, but also have significant direct effects on children’s behavioural problems.

A review of much of the literature on maternal employment and children’s outcomes by Harvey (1999) endeavours to reconcile many of the conflicting results. The differences in findings for many of the studies are due, Harvey maintains, to differing methodologies even when using the same data sources. In fact, Harvey’s own analysis, using recent NLSY data, finds that correlations among the early parental employment variables and child outcome variables show mothers’ working early in the child’s life is generally associated with more positive child outcomes. More intense maternal employment (working more hours), however, is associated with less positive child outcomes.

After the application of control variables, Harvey finds few simple effects of early parental employment. Among mothers who were employed during the first 3 years of a child’s life, the only significant effects were found for those mothers regarding the timing of their return to employment and whether they experienced any breaks in employment during this three year period. Returning to work later and greater continuity of employment in the three year period by the mothers, were both associated with somewhat higher compliance in 3 to 4-year-old children, although this effect was small. Among mothers who were employed during the first 3 years of their child’s life, working more hours was associated with significantly lower receptive language

abilities – again, however, the effect was small. There are no significant main effects of early maternal employment status. Harvey's results do though, provide partial support for the hypothesis that early parental employment has a positive effect on children's development by increasing family resources, which is found to positively affect children's behaviour problems.

Recent Canadian research on maternal employment, using data from the NLSCY yields results that are similar to those found in the USA. Lefebvre and Merrigan (1998) find that maternal employment and non-employment are not associated with children's cognitive development (using the PPVT for 4 and 5-year-olds). However, maternal full-time work does affect the probability of negative behaviour outcomes for children aged 4 to 11 years. Other effects on children's behaviour such as female family head or step-family characteristics, are found to be relatively more important than maternal employment.

As well, Cook and Willms (1998), using the NLSCY, find that maternal employment status is a factor affecting the amount of time parents have to spend with their children (what they refer to as "engagement"). They find that higher levels of engagement with children are associated with lower levels of negative behaviour disorders and more pro-social behaviours in children. Cook and Willms note, however, that the age of the child is more closely related to the level of parental engagement than maternal employment status. Cook and Willms call for policies that reinforce the role of the family as care provider, including a high level of engagement, while maintaining the family's income level.

In general the studies reviewed have found that a relationship exists between mother's employment and labour market variables, a family's economic circumstances and children's behavioural outcomes. Mothers' employment is associated with an increased likelihood of older children experiencing behavioural problems, but the evidence is less convincing for younger children. The pattern, stability and complexity of maternal employment are found to be important factors affecting the likelihood of behaviour problems in children. As well, children in families under economic pressure find that they face additional problems.

The research work presented here will analyse these general conclusions using data from the NLSCY. As well, information from the longitudinal research work of Menaghan, Mott and Cooksey (1997) will also be considered. These authors contend that maternal characteristics such as level of education, are relatively stable over time and have their strongest effects on children's initial level of behaviour problems, and stabilise the behaviour of children over time. This will be investigated in the multivariate analysis. It is also claimed that social stressors such as changes in employment and family composition, affect the quality of parenting provided to children – through decreasing the amount of time available for parenting and also increasing the stress and decreasing the emotional well-being of mothers. The analysis in this study will investigate, therefore, whether children in family situations where there is an increase in social stressors, through frequent employment transitions or changes in family composition, experience greater behavioural problems. Menaghan, Mott and Cooksey (1997) also claim that mother's employment is beneficial for children's behaviour problems, but that unstable maternal employment (as a social stressor) will diminish these benefits. The analysis here will examine whether relatively stable maternal employment is beneficial for children's behavioural development and if highly unstable employment is relatively worse. Similarly, changes in family composition can be seen to have benefits for family and parental resources and spending time with children, thus diminishing behavioural problems. However, family composition changes can also alter home environments negatively with subsequent problems for children's behaviour. Again, cross-sectional and multivariate analyses in this study will examine whether or not more stable family composition leads to fewer behavioural problems for children.

### 3. Methodology and Hypotheses

#### 3.1 Sample Population

For this research data from the sharefile of the NLSCY are used. The NLSCY is a longitudinal survey gathering information on a nationally representative sample of children started in 1994-95 and continuing to collect information every two years with the most recent information available collected in 1998-99. The unit of analysis in the survey is the child, thus all information and analyses must be interpreted from the standpoint of the child rather than that of the family or parent.

The present study focuses on the sharefile cohort of middle childhood children ranging in age from 6 to 7 years in 1994 and following them until 1998, aged 10 to 11 years. Excluding children with missing information from one or more of the cycles and the relevant variables used in the research, yields a final study sample of 1333 children. One reason for choosing these particular children was to reflect a sample of middle childhood children who have distinct issues and problems, following the work of Menaghan, Mott and Cooksey (1997). Equally important, it was necessary to be able to collect consistent information on children from all three available cycles of the NLSCY.

Taking these considerations into account meant that children younger than 6 to 7 years old in 1994 were excluded as they did not meet the middle childhood requirement. As well, an older cohort of children was not followed because appropriate dependent variable information (i.e., behavioural scale information from the Person Most Knowledgeable [PMK]) did not exist or was not compatible<sup>1</sup>. For example, it would have been desirable to have further represented middle childhood by following a cohort of children ages 8 to 9 years in 1994. Unfortunately, the behavioural scale information that is used as dependent variables in this study is only collected in the NLSCY for children up to the age of 11 years, and these children would have been between 12 and 13 years of age by 1998. The analysis, therefore, concentrated on children aged 6 to 7 years in 1994.

Longitudinal and cross-sectional weights, which are provided with the NLSCY database, are used where appropriate to obtain the results and estimates<sup>2</sup>. Statistics Canada release guidelines for data quality have been followed for this analysis.

### **3.2 Children's Behaviour Problems**

A great deal of the work focusing on potential employment and middle childhood behavioural problems conducted in the USA uses behavioural information and indices derived from the National Longitudinal Survey of Youth (NLSY) (Jekielek, 1998, Cooksey, Menaghan and Jekielek, 1997; and Menaghan, Mott and Cooksey, 1997). The main source for this information is the Behaviour Problems Index (BPI) which is a 31-item checklist administered to children aged 4 years and over, used in the NLSY, and that measures a variety of child behaviour problems (Jekielek, 1998). In the work of Cooksey, Menaghan and Jekielek (1997) items from the BPI scale are used to capture two differing, though connected, dimensions of middle childhood emotional well-being and social competence – children's oppositional action and negative emotions. Oppositional action is conceptualised as “the idea of outward acts of behaviour that often have an antisocial element to them, for example, bullying and having trouble getting along with peers and teachers” (Cooksey, Menaghan and Jekielek, 1997: 645). Negative emotions consist of a selected number of items from the BPI anxious/depressed subscale and “items that tap into more internal aspects of dependency and withdrawal” (1997: 645).

The oppositional action scale constructed by Cooksey, Menaghan and Jekielek (1997) consists of 15 items that cover a range of children's behaviours such as whether they cheat or tell lies, argue too much, are cruel or mean to others, have trouble getting along with others, are not liked by other children, break things deliberately, are disobedient (at home and at school), are stubborn sullen and irritable, have a strong temper or lose it easily, are impulsive – act without thinking, have difficulty concentrating or paying attention, are restless or overly active, have trouble getting along with teachers, or do not feel sorry after they misbehave. The negative emotions scale contains 10 items including whether a child has sudden changes in mood or feeling, is high strung, tense or nervous, has obsessions, is unhappy, sad or depressed, is fearful or anxious, is easily confused, cries too much, feels that no one loves them, feels worthless or inferior, or is withdrawn and not involved with others (Cooksey, Menaghan and Jekielek, 1997).

Interesting for the purposes of this research is the fact that the oppositional action behavioural scale scores are used by Menaghan, Mott and Cooksey (1997) to study the effects of work and family patterns over time on the well-being of middle childhood children. Unfortunately neither the BPI nor the questions used to compose the oppositional action or negative emotions scales exist on the NLSCY. However, many questions of a very similar nature focusing on children's

emotional well-being and social competence do exist on the NLSCY, which have been used to construct several behavioural scale scores. Specifically, many of the questions used in constructing the Emotional disorder-anxiety scale, Conduct disorder-physical aggression scale and the Indirect aggression scale are comparable to those used in the oppositional action scale and the negative emotions scale (Table 1). These three behavioural scales are found on each of the three available cycles of the NLSCY and cover the appropriate age group of middle childhood, 6 to 7 years in 1994 and 10 to 11 years in 1998. Given the close similarity between the questions of the three NLSCY behavioural scales and those used in the oppositional and negative emotion scales in the work of Menaghan, Mott and Cooksey (1997), it was decided to use these three behaviour scales from the NLSCY as our dependent variables.

**Table 1 NLSCY Behavioural Scale Variables: Questions Composing the Scales**

<p><b>Emotional disorder-anxiety</b></p> <p>How often would you say that your child:</p> <ul style="list-style-type: none"> <li>⇒ Has trouble enjoying themselves?</li> <li>⇒ Is nervous, high strung or tense?</li> <li>⇒ Appears miserable, unhappy, tearful, or distressed?</li> <li>⇒ Cries a lot?</li> <li>⇒ Is worried?</li> <li>⇒ Is too fearful or anxious?</li> <li>⇒ Is not as happy as other children?</li> <li>⇒ Seems to be unhappy, sad or depressed?</li> </ul>
<p><b>Conduct disorder-physical aggression</b></p> <p>How often would you say that your child:</p> <ul style="list-style-type: none"> <li>⇒ Kicks, bites, hits other children?</li> <li>⇒ Is cruel bullies or is mean to others?</li> <li>⇒ Threatens people?</li> <li>⇒ Physically attacks people?</li> <li>⇒ When other children accidentally hurts them (such as bumping into them), assumes that the other child meant to do it, and then reacts with anger and fighting?</li> <li>⇒ Gets into many fights?</li> </ul>
<p><b>Indirect aggression</b></p> <p>How often would you say that your child:</p> <ul style="list-style-type: none"> <li>⇒ When mad at someone, tells the other one’s secrets to a third person?</li> <li>⇒ When mad, says to others: let’s not be with him/her?</li> <li>⇒ When mad at someone, says bad things behind the other’s back?</li> <li>⇒ When mad at someone, becomes friends with another as revenge?</li> <li>⇒ When mad at someone, tries to get others to dislike that person?</li> </ul>

Cross-sectional comparisons are made using the behaviour scales from 1994 and 1998. Scores which are higher on each of the three behavioural variables indicate children with a higher propensity toward behaviours associated with the relevant variable. To measure the effects over time, if any, that changing family employment and changing family composition may have on children, three new variables of behaviour scale change were created, one for each of the behavioural scales. This is done simply by subtracting the relevant scale score for each child in 1998 from that which they received on the same variable in 1994. Children with negative scores on these three new behaviour variables, are those children who have had a worsening of their behaviour score from 1994 to 1998. Scores which are zero indicate no change in children's scale score or behaviour over the period. Children who have positive scores on the three behavioural change variables have had an improvement in their behaviour score over the 1994 to 1998 period.

### **3.3 Family Composition Patterns**

Changing family composition patterns, such as divorce, separation or remarriage, as mentioned previously, are posited to have an effect on children's behaviour. The exact nature and manner in which children will be affected varies by the particular study and variables used. Nevertheless, it seems clear that even without the presence of conflict either before or following a change in family composition, the actual change in a family's composition can affect children's behaviour. Middle childhood is thought to be a time when children can be particularly affected by changes in the family's composition following a divorce or a remarriage – especially as these changes affect their behaviour (Cooksey, Menaghan and Jekielek, 1997; Morrison et al., 1994).

Increasing or decreasing the presence of adults in a family is thought to affect the family's provision of resources in the household including economic, social and human capital (Cooksey, Menaghan and Jekielek, 1997).

The present study divides family composition into cross-sectional and longitudinal situations. In the case of cross-sectional comparisons we observe whether the family is composed of both biological parents present, biological mother and a step-father, biological father but not the biological mother present, other two parent situations that may or may not include a biological parent, lone mother parental situations, and finally a category for other family compositions.

This categorisation follows quite closely those used by Menaghan, Mott and Cooksey (1997). Cooksey, Menaghan and Jekielek (1997) observe that the key distinction when studying family compositional change is between the presence or absence of a child's biological father. As well, they include a separate category for stepfathers so as to assess the effect this particular family composition has on children's lives. Family composition variables are included in the present research as a category to assess the impact of stepfathers.

Longitudinal family composition is assessed by dividing the families into patterns indicating whether the composition remained stable from 1994 to 1998, or whether the family composition changed over the period. It is important to note that the NLSCY does not collect information on families in the periods between cycles. Therefore, there are no survey questions which can be used to fill in the data gaps regarding family composition in the years 1995 and 1997. Any changes that occur during these years will not be tracked in the analysis with the possibility that the degree of change in family composition during the period from 1994 to 1998 may be under- or over-estimated.

For family composition, this research traces whether the composition remained stable for families with both biological parents present, lone biological mothers, biological mothers and step-father, and a category for other family compositions. Where the family composition changed over time we concentrate on particular patterns of change: families where the biological father was present in 1994 but in 1998 a step-father was present; families where there were two parents in 1994 but there is a lone mother in 1998; families where there was a lone mother in 1994 but there is a two parent situation in 1998; families where the composition varied between single mother and other adults present from 1994 to 1998 – for example, this includes those situations where the family was a lone mother in 1994 but became two parent in 1996 but was again a lone mother in 1998; families which experienced one change in composition (other than those categorised above) over the period from 1994 to 1998; and finally those families who experienced two or more changes in composition from 1994 to 1998. As above, these longitudinal categories follow closely those used by Menaghan, Mott and Cooksey (1997).



### **3.4 Patterns of Employment**

A review of the literature suggests that parental work situations may affect children's well-being. Maternal employment is found in many studies to be particularly important and the focus of much of the research to date, particularly in relation to the effect of occupational changes and transitions and precarious employment. As with family composition, employment conditions are divided into two sections – cross-sectional conditions which are assessed for 1994, 1996 and 1998, and longitudinal conditions assessing change from 1994 to 1998. In the cross-sectional tabular analysis four measures of maternal employment conditions are included: whether the mother was employed at the time of the interview; whether the mother had been employed at any time in the 12 months prior to the interview; for those mothers who were employed, the average number of weeks they had been employed over the previous 12 months; and lastly, the number of periods of unemployed over the previous 12 months that had lasted at least 4 weeks.

In the cross-sectional regression analysis, again using categories similar to those of Menaghan, Mott and Cooksey (1997), we classify whether the mother was currently employed and the hours of work the mother performs. However, those authors use a measure of occupational complexity that cannot be replicated using the NLSCY. Their scale of occupational complexity is based on the U.S. census category of current occupation and the Dictionary of Occupational Titles codes of occupational quality and refers to the substantive complexity of a job, “describing content in terms of direction, control and planning; influencing people; complexity of working with data and people; numerical and verbal aptitudes required; and extent of repetitive or continuous processes” (Cooksey, Menaghan and Jekielek, 1997: 647).

While the occupational complexity variable cannot be replicated, this study attempts to capture to some degree the differences in social perceptions and also the skill level of occupations for parental employment by using the Pineo socio-economic classification scale from the NLSCY – recoded for each year. Taking the mean Pineo score for the respondents who were employed that year, and subtracting the respondent's scores from the mean, we create a new variable. This variable represents the extent to which the respondent's main employment in a particular year was above, equal to, or below the average Pineo scale score for that year. Mothers who did not work were assigned the mean value of zero. Higher scores on the recoded Pineo scale represent more highly regarded occupational categories. This variable will differentiate, to some degree,

between those who are able to have some control over their work or over that of others, but it does not cover many of the aspects which the occupational complexity variable allows. Also included in the current analysis are three spousal employment variables similar in construct to those for mothers, as controls in the cross-sectional regression.

The longitudinal investigation relies upon information collected from each of the three cycles observed. As discussed above regarding family composition, a major problem for researchers wishing to perform research on employment using the NLSCY is that it does not collect information for the intervening time periods between cycles. Therefore, we do not know what the employment variables would be for the years 1995 and 1997, with the consequent possibility that the constructed variables may misrepresent the employment situations of the children's parents because they do not capture the full variation in employment changes. This problem is unavoidable.

As with the analysis of Menaghan, Mott and Cooksey (1997), a number of longitudinal maternal employment measures are constructed. The longitudinal employment measures include: tracing the number of spells of unemployment of 4 weeks or more over the period; for those mothers with any employment we observe the total weeks employed, average weeks worked and average Pineo deviation from mean scale score for the three years; and lastly we combine the variable regarding whether the mother is employed or not, with the number of stretches of unemployment, to obtain new employment transition variables coded as dummy variables for our regression analysis.

### **3.5 Other Control Variables**

Previous studies have pointed to a number of variables that are important to consider when analysing changing employment and family composition characteristics. These are included in the analysis where possible. Mother's education is an important measure of socio-economic background and human capital. In this study mother's education is divided into three areas: less than high school, high school and education beyond high school. Health of the child is also included; specifically, whether the child was in excellent to very good health or not, following the work of Menaghan, Mott and Cooksey (1997) who use children's health as a control. Following Lefebvre and Merrigan (1998) information on whether the mother was an immigrant

is also included. However, for the present research this variable is dichotomised into whether the mother was or was not an immigrant. As well, age of mother is included as an additional control variable. Spousal employment information as well as the gender of the child are also included as controls for the cross-sectional regression.

Some controls used in other studies are not used here either because the information is not available in the NLSCY or not applicable to the selected sample. For example, early deviance and the cognitive skills of the mother are used by Menaghan, Mott and Cooksey (1997) but are not used here because this information is not collected. Similarly, information regarding whether the mother smoked during pregnancy is used as a control in the work of Cooksey, Menaghan, and Jekielek (1997) and Menaghan, Mott and Cooksey (1997). While such information is available with the NLSCY it only applies to the younger children in the sample (those 5 years or younger in 1998), not the older sample of children (10 to 11 years in 1998) in the current research. This information will, however, be available for use in further analyses as the panel of children ages.

## **4. Results**

Results of the analysis are divided into two sections. First an analysis is made of the maternal work experiences and family composition changes over the period 1994 to 1998 using the three cycles of the NLSCY available (Tables 2 to 9). The analysis uses OLS regression to assess the combined effect of these employment and family composition variables on children's behaviour cross-sectionally in 1994 and 1998 (Tables 10 and 11). Secondly, the analysis assesses the longitudinal effect of employment and composition changes on children's behaviour in 1994 and 1998, and changes in behaviour over the period (Tables 12 and 13). The behaviour scales used here are coded such that children with lower scores on the behavioural scales are considered to have better behaviour. Those children with relatively higher scores on the behavioural scales are considered to have worse behaviour. In order to aid in comparing results across the different behaviour scales, since each scale has a different upper limit, the three behaviour variables (Emotional disorder-anxiety, Conduct Disorder-Physical Aggression, Indirect Aggression) are rescaled to have a minimum of zero and a maximum of one.

### **4.1 Bivariate Results**

Over the period from 1994 to 1998 in the NLSCY an increasing proportion of children's mothers were employed at the time of the interview (Table 2). From 64.3 per cent in 1994 the proportion of mothers employed at the time of the NLSCY interview increased to 69.8 per cent in 1996 and 78.1 per cent in 1998. A similar trend is observed for the proportion of children's mothers who were employed at any time in the 12 months prior to the NLSCY interview: from 71.8 per cent in 1994, to 76.0 per cent in 1996, and ultimately 82.9 per cent by 1998. The increases from one cycle to the next may be due to the fact that the collection period for the NLSCY coincided with the recovery period following the recession earlier in the decade. The changing number of employed mothers may simply have been mothers who had lost their jobs earlier in the decade but who were now regaining entry into the labour market. Another explanation is that the trend reflects an increasingly older cohort of mothers with children of school age (6 to 7 years in 1994) who may be re-entering the labour market after caring for these children while they were younger.

Table 2 **Cross-sectional Comparisons of Maternal Work Experience  
(1994, 1996 & 1998)**

<b>Selected Maternal Work Variables</b>	<b>1994</b>	<b>1996</b>	<b>1998</b>
Employed at the time of annual interview (%)	64.3	69.8	78.1
Employed at any time in the last 12 months (%)	71.8	76.0	82.9
Employed in the last 12 months - average weeks worked	46.2	44.3	45.5
Average Number of hours worked per week	19.8	23.8	27.3

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998

The average number of weeks worked, for those mothers who had been employed in the previous 12 months, did not change much over the period from 1994 to 1998 (Table 2). In fact most of those mothers who had been employed in the 12 months prior to the interview had been employed for most of the year. For those mothers who were employed in 1994 there was a slight decrease from 46.2 weeks of employment on average to 44.3 weeks in 1996, before rising again in 1998 to 45.5 weeks. However, the average number of hours worked each week for this cohort of mothers increased from 19.8 hours per week on average in 1994 to 27.3 hours per week by 1998. Again, this may be due in part, to the better economic environment in 1998 or to a greater number of these mothers entering the workforce due to their children being older and attending school, or some combination of the two.

Mothers who were employed in each of the three cycles of the NLSCY tended to have more highly ranked occupations (using the Pineo index) (Table 3). Mothers who were employed only in one or two of the cycles had relatively lower than average Pineo scores. The Pineo scores for those employed over three years increased from 1994 to 1998, while the scores for those employed for only one or two of the years decreased. Those mothers who were employed in each of the three cycles of the NLSCY tended to have relatively higher occupations (in terms of responsibilities and skills) on average, than mothers who were not.

Table 3 **Maternal Average Pineo Difference Score by Number of Years  
Employed (1994, 1996 & 1998)**

<b>Number of Years Mother Employed (Period Covering 1994, 1996 &amp; 1998)</b>	<b>Average Pineo Difference Scores<sup>1</sup></b>		
	<b>1994</b>	<b>1996</b>	<b>1998</b>
None	0.00	0.00	0.00
One	-0.39	-0.30	-1.21
Two	-0.45	-1.80	-1.38
Three	0.13	0.58	0.60

1 – Scores are average deviations from mean Pineo score for each year.

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Approximately 17.5 per cent of mothers in the labour force, experienced one or more periods of unemployment of more than 4 weeks in the 12 months prior to the interview in 1994 (Table 4). This figure increases somewhat to 19 per cent in 1996, before falling quite dramatically to 11.0 per cent in 1998. The decline in the proportion of mothers experiencing periods of unemployment may, again, be an indication of improving labour market opportunities later in the period analysed. A small proportion of mothers experienced multiple periods of unemployment over the period (less than 3 per cent in each NLSCY cycle).

**Table 4      Periods of Maternal Unemployment of more than 4 weeks  
(1994, 1996 & 1998)**

<b>Periods of Maternal Unemployment of more than 4 weeks within a year (%)</b>	<b>1994</b>	<b>1996</b>	<b>1998</b>
None	82.5	80.9	89.0
One	14.7	15.6	8.6
Two	2.7	2.0	1.5
Three	0.1 <sup>u</sup>	1.4 <sup>u</sup>	0.9 <sup>u</sup>
<b>Total</b>	100.0	100.0	100.0

<sup>u</sup> - these data do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid.

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

This situation alters somewhat when observing the number of periods of unemployment over time for the whole of the interval rather than in each discrete year. Over one-third of children’s mothers experienced at least one episode of unemployment of 4 weeks or more from 1994 to 1998 (Table 5). Just over 13 per cent of the mothers (13.09 per cent) had two or more periods of unemployment, and 6.2 per cent experienced three or more periods of unemployment from 1994 to 1998. We see, therefore, that a considerable proportion of mothers encountered changes in their employment situation over the period. Many mothers only experienced a single period of unemployment in any one year, but these did not seem to be isolated events. A large proportion of mothers have experienced continual periods of unemployment with any attendant effects that these might have on the family as a whole and most particularly on their children.

Table 5 **Periods of Maternal Unemployment of more than 4 weeks over time (1994 to 1998)**

Periods of Maternal Unemployment of more than 4 weeks (1994 to 1998) (%)	
None	63.92
One	22.99
Two	6.90
Three	4.59
Four	1.19*
Five or more	0.40 <sup>u</sup>
<b>Total</b>	<b>100.00*</b>

<sup>u</sup> – these data do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid.

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

For those mothers who were employed at any time during the years 1994, 1996 or 1998, the average number of weeks worked (34.7 weeks) was considerably lower than the cross-sectional results (Table 6). Observing the total number of weeks worked on average over the period (104.1 weeks) suggests a large number of mothers have a strong attachment to the labour market, at least with regard to the number of weeks they work during the period. In fact, the majority of the mothers (63.0 per cent) were employed in each of the years 1994, 1996 and 1998, while approximately 12 per cent (11.8 per cent) had not been employed in any of these years (Table 7). As well, there is a trend of an increasing average number of weeks worked as the number of years employed increases. Those mothers who worked in each of the three cycles were employed for the majority of the year – 47.3 weeks on average.

Table 6 **Longitudinal Comparisons of Maternal Work Experience (1994, 1996 & 1996)**

Mothers with any Employment 1994 to 1998	Mean	S.D.
Total Weeks Employed	104.1	57.8
Average weeks worked in years employed	34.7	19.3

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Table 7 **Maternal Number of Years Employed and Average Weeks Employed (1994, 1996 & 1998)**

Maternal Number of Years Employed (1994, 1996 & 1998)	Percent	Average Weeks worked in years employed
None	11.8	n/a
One	9.8	10.0
Two	15.4	25.8
Three	63.0	47.3
<b>Total</b>	100.0	34.7

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Family composition patterns over the same time period show quite interesting results (Table 8). Over four-fifths (82.22 per cent) of the children were in biological mother and father families in 1994. By 1998 this figure was slightly lower, but still very high, at 78.08 per cent. As the proportion of children in biological mother/father families decreased over the period from 1994 to 1998, the proportion in biological mother and step-father families rose from 2.71 to 5.56 per cent, while the proportion in lone mother families stayed relatively stable – 13.08 to 13.15 per cent.

Table 8 **Cross-sectional Family Composition (Children aged 6 to 7 years in 1994)**

Cross-sectional Family Composition	1994 (6-7 years)	1996 (8-9 years)	1998 (10-11 years)
Biological mother and father present	82.22	80.67	78.08
Biological mother and step-father	2.71	3.84	5.56
Biological father but no biological mother	0.66 <sup>u</sup>	1.33 <sup>u</sup>	2.22
Two parents (exclusive of categories above)	1.25 <sup>u</sup>	1.08 <sup>u</sup>	0.92 <sup>u</sup>
Lone Parent Mother	13.08	13.03	13.15
Other	0.08 <sup>u</sup>	0.04 <sup>u</sup>	0.07 <sup>u</sup>
<b>Total</b>	100.00	100.00	100.00

<sup>u</sup> – these data do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid.

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

As observed above, there were relatively small but nonetheless important shifts in family composition when comparing cross-sectional changes over the period from 1994 to 1998. However, what is most interesting is the extent to which the same children's family composition remained stable or changed over the time interval. Around nine in ten (88.9 per cent) children lived in the same family situation in 1998 as they did in 1994 (Table 9). Approximately eight in



ten (77.91 per cent) children remained in family situations where both biological parents were present in 1994 and 1998. Almost one in twelve children (7.69 per cent) remained in lone mother families, 2.09 per cent remained in families with a biological mother and step-father, and 1.21 per cent remained in some other stable family composition from 1994 to 1998.

**Table 9 Family Composition Over Time (1994 to 1998)**

	Per cent of total
<b>Stable</b>	
Both biological parents present	77.91
Lone Parent Mother and no Father	7.69
Biological mother and step-father	2.09
Other adults present	1.21 <sup>u</sup>
<b>Change</b>	
Biological father year 1, step-father year 5	0.15 <sup>u</sup>
Enter Lone Parent Mother	3.95
Exit Lone Parent Mother	3.54
Varies between single mother and other adults	0.99 <sup>u</sup>
One other change	2.30
Two or more changes	0.15 <sup>u</sup>
<b>Total</b>	100.00

<sup>u</sup> – these data do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid.

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Of the approximately 11.0 per cent of children who experienced some form of change in their family situation, the largest proportion lived in families that went from a two parent to a lone mother situation (3.95 per cent). An almost equal proportion of children (3.54 per cent) lived in families that changed from a single mother situation to a two parent situation. Quite a large proportion of children living in other family situations experienced changes in their family structure – about 2.45 per cent experienced one, or even two or more changes in family composition over the period from 1994 to 1998. It should be noted that these changes only capture the compositional changes which are detailed by the data collection of the NLSCY. Changes which took place in 1995 and 1997 are not necessarily reflected in these data.

## **4.2 Multivariate Models**

### **4.2.1 Contemporaneous Effects**

As observed, there were some changes in the employment situations of children's mothers over the period from 1994 to 1998, and also some changes in the family composition of a small proportion of children. What is needed is to assess to what degree the changes in mother's employment and family composition have occurred together, as well as an assessment of the effect of these changes on children's behaviour. That is, we want to investigate the consequence for children's behaviour scores if we simultaneously control for maternal employment and family composition variables. Using regression analysis we investigate the effect of maternal employment and family composition on our three behavioural scales – emotional disorder-anxiety, conduct disorder-physical aggression, and indirect aggression – for 1994 and 1998 (Table 10 contains the descriptive statistics, and Table 11 the regression coefficients). The analysis uses two sets of equations. First variables are entered which related to our two conceptual areas of interest, namely a number of variables relating to mother's employment and family composition, with controls for the gender and health status of the child. For the second equation further controls are added relating to important parental characteristics identified in our literature review such as mother's education, age and immigration status, and information relating to spousal employment.

Table 10 **Cross-sectional Multivariate Regression Descriptive Statistics,  
Children aged 6-7 in 1994.**

	1994		1998	
	Mean	S.D.	Mean	S.D.
<b>Maternal Employment Characteristics</b>				
Pineo score	0.00	3.85	0.00	4.09
Mother employed	0.64	0.48	0.78	0.41
Number of hours worked per week	19.85	18.73	27.27	17.42
<b>Family Composition Patterns</b>				
Two Biological Parent (reference)	0.84	0.37	0.79	0.41
Biological mother and step-father family	0.03	0.16	0.06	0.23
Lone Mother family	0.13	0.34	0.13	0.34
Other families	0.02	0.14	0.03	0.18
Gender of the Child (0=Male)	0.48	0.50	0.48	0.50
Children with Health Problems (0=Very Good to Excellent health)	0.12	0.32	0.10	0.31
<b>Mother's Education</b>				
Less than High School	0.14	0.35	0.11	0.31
High School (reference)	0.21	0.41	0.21	0.40
More than High School	0.65	0.48	0.68	0.46
Immigrant Status of Mother (0=non-immigrant)	0.15	0.36	0.14	0.35
Mother's Age	35.13	5.12	39.00	5.24
<b>Spousal Employment Patterns</b>				
Pineo Score	0.58	0.49	0.68	0.47
Spouse Employed	0.00	3.69	0.00	3.72
Number of hours worked per week	16.68	18.50	23.52	18.67
<b>Dependent Variables</b>				
Emotional-Disorder Anxiety	0.15	0.14	0.16	0.15
Conduct Disorder-Physical Aggression	0.11	0.15	0.10	0.13
Indirect Aggression	0.11	0.17	0.11	0.17

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Mother's employment is measured using variables measuring whether the mother is currently employed, their Pineo socio-economic classification (as mentioned above, this is a Pineo difference score variable), and the number of hours per week they are employed. Family composition is calculated using four dummy variables. Comparisons are made to the reference category, that is, families with both biological parents present. The other variables include a measure of lone mother families, families with the biological mother and step-father present, and lastly all other family situations. Mother's education is determined by three dummy variables

measuring education in three groups: less than high school, high school graduation (the reference category), and education beyond high school.

Results from the first regression equations for 1994 and 1998 (see Equation 1 in Table 11) show that children with mothers who have higher scores on the Pineo socio-economic classification tend to have better (i.e. lower) behavioural scores; statistically significantly so for each behavioural scale in 1994. Children in families where the mother is currently employed tended to have worse (i.e. higher) scores for behaviours associated with conduct disorder-physical aggression and indirect aggression in 1994 and 1998. Higher number of hours per week worked by mothers is associated with higher emotional disorder-anxiety behaviour scale scores in 1994 and higher indirect aggression scores in 1998, but with lower behaviour scale scores for conduct disorder-physical aggression in 1994. These results differ somewhat from those found by Menaghan, Mott and Cooksey (1997). Maternal employment characteristics in their study were associated with lower behavioural scores for children's oppositional action (1997).

The results for family composition for 1994 show that children who are not in two biological parent situations tend to have higher scores on the behavioural scales, although this changes somewhat for 1998. In particular, children living in lone mother situations in 1994 had significantly higher emotional disorder-anxiety scores than children in two biological parent family situations (Equation 1). Children in biological mother and step-father families, and those in other parental situations, also obtain higher scores on average for emotional disorder-anxiety, as well as conduct disorder-physical aggression. The most interesting results are for indirect aggression where children in non-two biological parent situations in 1994 were statistically significantly more likely to have higher scores. Results for 1998 are similar to those found for 1994, with some important differences. The results for indirect aggression are now only significant for biological mother and step-father families. Children in lone mother families tend to now experience better (i.e. lower) behavioural scores than two biological parent families for emotional disorder-anxiety and conduct disorder-physical aggression, significantly so for conduct disorder-physical aggression. Our results for family composition are in the same general direction and somewhat similar to those found by Menaghan, Mott and Cooksey (1997).

For the remaining variables in Equation 1, children with poorer health were more likely than children with better health to have significantly higher scores on each of emotional disorder-anxiety and conduct disorder-physical aggression in both 1994 and 1998. However, children with poorer health had slightly lower scores for indirect aggression in 1994 but significantly higher scores in 1998, compared to children with very good to excellent health. Girls were more likely to have statistically significantly lower conduct disorder-physical aggression behavioural scale scores than boys in both 1994 and 1998, but significantly higher indirect aggression scores in 1998.

Overall, we see that maternal employment, family composition and other variables accounted for some, but relatively little, of the variation in children's behavioural scale scores in 1994 and 1998, with the exception of indirect aggression. The initial Equation 1 model in Table 11 accounted for approximately 7.5 per cent of the variation (adjusted) in 1994 and 5 per cent (adjusted) in 1998 in the variation of children's indirect aggression scores. Aspects of family composition and maternal employment are observed in Equation 1 to be associated with changes in children's indirect aggression, and to a lesser degree emotional disorder-anxiety, and conduct disorder-physical aggression.

The addition of further controls in Equation 2 (Table 11) for each behavioural scale somewhat changes the results observed above. Mother's occupational characteristics measured with the Pineo socio-economic classification remain negatively associated with children's behavioural scale scores in 1994, significantly so for conduct disorder-physical aggression and indirect aggression. However, in 1998 there is no association between mother's Pineo difference score and children's behavioural scores. The children of mothers who are currently employed no longer have statistically significantly higher (i.e. worse) conduct disorder-physical aggression or indirect aggression scores in 1994. Similarly, the number of hours that mothers work is no longer significantly related with children's behavioural outcomes in 1994 or 1998.

Table 11 **Cross-sectional Multivariate Regression of Behavioural Scale Scores at ages 6-7 (1994) and 10-11 (1998), predicted from Contemporaneous Work and Family Circumstances**

1994	Emotional-Disorder Anxiety		Conduct Disorder-Physical Aggression		Indirect Aggression	
	Equation 1	Equation 2	Equation 1	Equation 2	Equation 1	Equation 2
<b>Maternal Employment Characteristics</b>						
Pineo score	-0.002 <sup>c</sup>	-0.002	-0.004 <sup>a</sup>	-0.003 <sup>b</sup>	-0.004 <sup>b</sup>	-0.003 <sup>c</sup>
Mother employed	-0.021	-0.031	0.027 <sup>c</sup>	-0.004	0.031 <sup>c</sup>	0.035
Number of hours worked per week	0.001 <sup>b</sup>	0.001	-0.001 <sup>c</sup>	0.000	-0.001	0.000
<b>Family Composition Patterns</b>						
Two Biological Parent (reference)	--	--	--	--	--	--
Lone Mother Family	0.046 <sup>c</sup>	0.044	0.001	0.005	0.080 <sup>b</sup>	0.086 <sup>b</sup>
Biological mother and step-father family	0.008	0.015	0.023	0.020	0.035 <sup>b</sup>	0.013
Other families	0.003	0.004	0.055	0.048	0.065 <sup>c</sup>	0.072 <sup>c</sup>
Gender of the Child (0=Male)	-0.004	-0.003	-0.061 <sup>a</sup>	-0.061 <sup>a</sup>	0.006	0.006
Children with Health Problems (0=V.Good to Excellent health)	0.024 <sup>c</sup>	0.020	0.029 <sup>c</sup>	0.024	-0.005	-0.002
<b>Mother's Education</b>						
Less than High School		0.002		0.022		0.045 <sup>b</sup>
High School (reference)		--		--		--
More than High School		0.017		0.018		0.019
Immigrant Status of Mother (0=non-immigrant)		0.012		-0.033 <sup>b</sup>		0.010
Mother's Age (1998)		-0.002 <sup>b</sup>		-0.002 <sup>c</sup>		0.000
<b>Spousal Employment Patterns</b>						
Pineo Score		0.019		0.043 <sup>b</sup>		0.002
Spouse Employed		-0.002		-0.001		-0.002
Number of hours worked per week		0.000		-0.001		-0.001
R2	0.014	0.064	0.023	0.026	0.085	0.034
R2 (adjusted)	0.008	0.059	0.018	0.015	0.075	0.024

<sup>a</sup> = p<0.001, <sup>b</sup> = p<0.01, <sup>c</sup> = p<0.05, two-tailed tests  
N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Table 11 (cont'd)

1998	Emotional-Disorder Anxiety		Conduct Disorder- Physical Aggression		Indirect Aggression	
	Equation 1	Equation 2	Equation 1	Equation 2	Equation 1	Equation 2
<b>Maternal Employment Characteristics</b>						
Pineo score	-0.001	0.000	-0.001	0.000	-0.001	0.000
Mother employed	-0.011	0.043	0.013	0.005	0.011	0.044
Number of hours worked per week	0.000	0.000	0.000	-0.001	0.001 <sup>c</sup>	-0.001
<b>Family Composition Patterns</b>						
Two Biological Parent (reference)	--	--	--	--	--	--
Lone Mother Family	-0.016	-0.014	-0.024 <sup>c</sup>	-0.035 <sup>b</sup>	0.008	0.000
Biological mother and step-father family	0.017	-0.032	0.016 <sup>c</sup>	0.036 <sup>c</sup>	0.023 <sup>c</sup>	0.038
Other families	0.031	0.026	0.019	0.016	0.020	0.007
Gender of the Child (0=Male)	0.008	0.005	-0.041 <sup>a</sup>	-0.041 <sup>a</sup>	0.035 <sup>a</sup>	0.034 <sup>a</sup>
Children with Health Problems (0=V.Good to Excellent health)	0.065 <sup>a</sup>	0.066 <sup>a</sup>	0.048 <sup>a</sup>	0.049 <sup>a</sup>	0.037 <sup>a</sup>	0.043 <sup>a</sup>
<b>Mother's Education</b>						
Less than High School		0.024 <sup>c</sup>		0.016		0.004
High School (reference)		--		--		--
More than High School		0.002		0.024 <sup>a</sup>		-0.013
Immigrant Status of Mother (0=non-immigrant)		-0.015		-0.008		-0.049 <sup>a</sup>
Mother's Age (1998)		-0.001		-0.002 <sup>a</sup>		-0.004 <sup>a</sup>
<b>Spousal Employment Patterns</b>						
Pineo Score		-0.056 <sup>c</sup>		0.011		-0.031
Spouse Employed		-0.002 <sup>c</sup>		-0.001		0.002
Number of hours worked per week		0.000		0.001		0.001 <sup>c</sup>
R2	0.028	0.041	0.029	0.037	0.056	0.058
R2 (adjusted)	0.025	0.038	0.025	0.031	0.050	0.052

<sup>a</sup> = p<0.001, <sup>b</sup> = p<0.01, <sup>c</sup> = p<0.05, two-tailed tests

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Family composition figures for Equation 2 are consistent with those for Equation 1, although in some cases they are no longer significantly related to children's behaviour. Children living in either lone mother, biological mother and step-father, or in other family situations, have higher (i.e. worse) scores on average for each of the three dependent behavioural variables than children in two biological parent families in 1994. In particular, children in lone mother or in other family situations, have statistically significantly worse indirect aggression scores than children in two biological parent families in 1994. Family composition is still a significant factor affecting conduct disorder-physical aggression in 1998 – children in lone mother families are significantly

more likely to have better scores, and those in biological mother and step-father families are significantly more likely to have worse scores.

Girls still tended to have significantly better (i.e., lower) conduct disorder-physical aggression behaviour scores than boys after the application of further controls in both 1994 and 1998.

However, girls continued to have significantly worse (i.e. higher) scores than boys on indirect aggression in 1998. Children's health is not significantly related to emotional disorder-anxiety or to conduct disorder-physical aggression in 1994 after the application of further controls. This is not the case in 1998, where children's health is still statistically significantly related with worse scores (i.e. higher scores) on each of the behaviour scales.

The control variables for Equation 2 form some interesting relationships with our dependent variables. Mother's highest level of education had a significant impact on children's indirect aggression in 1994, and emotional disorder-anxiety and conduct disorder-physical aggression in 1998. Children of mothers with less than high school education scored significantly worse on indirect aggression (1994) and on emotional disorder-anxiety (1998), while children of mothers with more than a high school education scored significantly worse on conduct disorder-physical aggression (1998). Children of immigrant mothers had significantly lower conduct disorder-physical aggression scores in 1994, and also significantly lower indirect aggression scores in 1998. The age of a child's mother is seen to be negatively associated with children's behavioural scores, but only significantly so for emotional disorder-anxiety and conduct disorder-physical aggression in 1994, and conduct disorder-physical aggression and indirect aggression in 1998. The spousal employment variables are significantly negatively related to emotional disorder-anxiety in 1998. But here it is the fact that a spouse is employed in a higher socio-economic classification score occupation, rather than the number of hours worked or the fact that they are employed, which affects children's behaviour to a greater extent. However, the higher the Pineo difference score the more likely children are to experience worse conduct disorder-physical aggression scores (in 1994) and the greater the number of hours worked by the spouse the more likely the child will have higher indirect aggression scores (in 1998).



The application of the control variables has tended to increase, quite substantially in one case, the proportion of variation which the independent variables explain in the dependent behavioural variables, but lowers it in another (Table 11). The regression models now explain approximately 6 per cent of the variation in emotional disorder-anxiety in 1994, and 4 per cent in 1998. The proportion of variation in conduct disorder-physical aggression is still very low in 1994 (less than 2 per cent) but is slightly higher in 1998 (approximately 3 per cent). The amount of variation explained for indirect aggression in 1998 remained stable at approximately 5 per cent. The largest change in explained variation is the drop in the proportion of indirect aggression, by about 5 percentage points (from 7.5 per cent in 1994 to 2.4 per cent in 1998).

#### **4.2.2 Longitudinal Effects**

For the longitudinal analysis two major sets of variables were constructed to measure change in maternal employment and family composition from 1994 to 1998. As mentioned above, the dependent variables in the longitudinal analyses include the children's 1998 behavioural variable scores as well as a measure of behavioural change for each scale – measured as the difference in their scale score between 1994 and 1998. The children's scale score in 1994 for the relevant behavioural variable are included as a control when investigating the change in behaviour from 1994 to 1998<sup>3</sup>. The descriptive statistics of this analysis are presented in Table 12 and the coefficients in Table 13.

Table 12 **Longitudinal Multivariate Regression Descriptive Statistics,  
Children aged 6-7 in 1994.**

	Mean	S.D.
<b>Maternal Employment Patterns</b>		
Change in Pineo Score 1994-1998	0.22	3.05
<i>For those employed in 1998</i>		
No transitions in employment status	0.53	0.50
Some transitions in employment status	0.24	0.43
High transitions in employment status	0.06	0.24
<i>For those not employed in 1998</i>		
No transitions in employment status (reference)	0.11	0.31
Some to High transitions in employment status	0.06	0.24
<b>Family Composition Patterns</b>		
<i>Stable</i>		
Two Biological Parent (reference)	0.78	0.41
Lone Parent Mother	0.08	0.27
Biological Mother, step-father	0.02	0.14
Other family	0.01	0.11
<i>Change</i>		
Two Biological Parent to biological mother and step-father	0.001	0.04
Enter Lone Parent Mother	0.04	0.20
Exit Lone Parent Mother	0.04	0.19
Varies between Lone Parent Mother and Two Parent	0.01	0.10
One other change	0.02	0.15
Two other changes	0.00	0.04
Gender of the child (0=Male)	0.48	0.50
Children with Health Problems (0=Very Good to Excellent health)	0.10	0.30
<i>Mother's Education</i>		
Less than High School	0.11	0.31
High School (reference)	0.21	0.40
More than High School	0.68	0.46
Immigrant Status of Mother (0=non-immigrant)	0.14	0.35
Mother's Age (1998)	39.00	5.24
<b>Dependent Variables</b>		
Change in Emotional-Disorder Anxiety 1994-1998	0.02	0.16
Change in Conduct Disorder-Physical Aggression to 1994-1998	-0.02	0.14
Change in Indirect Aggression 1994-1998	0.00	0.18

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998

Table 13 **Multivariate Regression of Behavioural Scale Scores at ages 10-11 (1988) and Change from 1994, Predicted from Long-Term Patterns of Maternal Employment and family Composition**

Emotional-Disorder Anxiety			
	Equation 1	Equation 2	Equation 3 Change (94-98)
<b>Maternal Employment Patterns</b>			
Change in Pineo Score 1994-1998	-0.003 <sup>b</sup>	-0.003 <sup>b</sup>	-0.004 <sup>a</sup>
<i>For those employed in 1998</i>			
No transitions in employment status	0.007	0.016	0.010
Some transitions in employment status	0.011	0.020	0.009
High transitions in employment status	0.059 <sup>a</sup>	0.062 <sup>a</sup>	0.041 <sup>b</sup>
<i>For those not employed in 1998</i>			
No transitions in employment status (reference)	--	--	--
Some to High transitions in employment status	0.026	0.041 <sup>b</sup>	0.012
<b>Family Composition Patterns</b>			
<i>Stable</i>			
Two Biological Parent (reference)	--	--	--
Lone Parent Mother	0.006	-0.008	-0.019 <sup>c</sup>
Biological Mother, step-father	-0.037	-0.043 <sup>c</sup>	-0.052 <sup>b</sup>
Other family	0.036	0.035	0.010
<i>Change</i>			
Two Biological Parent to biological mother and step-father	-0.003	0.002	-0.005
Enter Lone Parent Mother	0.060 <sup>a</sup>	0.050 <sup>a</sup>	0.048 <sup>a</sup>
Exit Lone Parent Mother	-0.002	-0.011	0.002
Varies between Lone Parent Mother and Two Parent	0.013	0.015	0.016
One or more other changes	0.033	0.025	0.018
Gender of the child (0=Male)		0.005	0.003
Children with Health Problems (0=Very Good to Excellent health)		0.0071 <sup>a</sup>	0.062 <sup>a</sup>
<i>Mother's Education</i>			
Less than High School		0.030 <sup>b</sup>	0.023 <sup>c</sup>
High School (reference)		--	--
More than High School		0.002	-0.007
Immigrant Status of Mother (0=non-immigrant)		-0.007	-0.013
Mother's Age (1998)		-0.001	0.000
1994 Behaviour Score			-0.584 <sup>a</sup>
R2	0.043	0.078	0.253
R2 (adjusted)	0.031	0.061	0.239

<sup>a</sup> = p<0.001, <sup>b</sup> = p<0.01, <sup>c</sup> = p<0.05, two-tailed tests

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Table 13 (cont'd)

<b>Conduct Disorder-Physical Aggression</b>			
	<b>Equation 1</b>	<b>Equation 2</b>	<b>Equation 3 Change (94-98)</b>
<b>Maternal Employment Patterns</b>			
Change in Pineo Score 1994-1998	0.002 <sup>b</sup>	0.002 <sup>c</sup>	-0.001
<i>For those employed in 1998</i>			
No transitions in employment status	0.008	0.016	0.014 <sup>c</sup>
Some transitions in employment status	0.035 <sup>a</sup>	0.034 <sup>a</sup>	0.020 <sup>c</sup>
High transitions in employment status	0.000	0.003	0.002
<i>For those not employed in 1998</i>			
No transitions in employment status (reference)	--	--	--
Some to High transitions in employment status	0.046 <sup>a</sup>	0.055 <sup>a</sup>	0.048 <sup>a</sup>
<b>Family Composition Patterns</b>			
<i>Stable</i>			
Two Biological Parent (reference)	--	--	--
Lone Parent Mother	0.004	-0.007	-0.016
Biological Mother, step-father	-0.033	-0.037 <sup>c</sup>	-0.030 <sup>c</sup>
Other family	0.063	0.050 <sup>c</sup>	-0.008
<i>Change</i>			
Two Biological Parent to biological mother and step-father	0.000	-0.011	-0.007
Enter Lone Parent Mother	0.042 <sup>b</sup>	0.043 <sup>b</sup>	0.030 <sup>b</sup>
Exit Lone Parent Mother	-0.017	-0.029 <sup>c</sup>	-0.011
Varies between Lone Parent Mother and Two Parent	-0.020	-0.034	-0.015
One or more other changes	-0.010	-0.003	-0.020
Gender of the child (0=Male)		-0.040 <sup>a</sup>	-0.011 <sup>c</sup>
Children with Health Problems (0=Very Good to Excellent health)		0.055 <sup>a</sup>	0.032 <sup>a</sup>
<i>Mother's Education</i>			
Less than High School		0.023 <sup>b</sup>	0.018 <sup>c</sup>
High School (reference)		--	--
More than High School		0.026 <sup>a</sup>	0.015 <sup>b</sup>
Immigrant Status of Mother (0=non-immigrant)		-0.010	-0.001
Mother's Age (1998)		-0.002 <sup>a</sup>	-0.001 <sup>c</sup>
1994 Behaviour Score			-0.555 <sup>a</sup>
R2	0.034	0.071	0.335
R2 (adjusted)	0.022	0.053	0.322

<sup>a</sup> = p<0.001, <sup>b</sup> = p<0.01, <sup>c</sup> = p<0.05, two-tailed tests

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Table 13 (cont'd)

Indirect Aggression			
	Equation 1	Equation 2	Equation 3 Change (94-98)
<b>Maternal Employment Patterns</b>			
Change in Pineo Score 1994-1998	0.002	0.001	-0.001
<i>For those employed in 1998</i>			
No transitions in employment status	0.027 <sup>c</sup>	0.036 <sup>a</sup>	0.026 <sup>b</sup>
Some transitions in employment status	0.046 <sup>a</sup>	0.054 <sup>a</sup>	0.037 <sup>a</sup>
High transitions in employment status	0.045 <sup>b</sup>	0.040 <sup>c</sup>	0.039 <sup>b</sup>
<i>For those not employed in 1998</i>			
No transitions in employment status (reference)	--	--	--
Some to High transitions in employment status	-0.001	0.026	-0.001
<b>Family Composition Patterns</b>			
<i>Stable</i>			
Two Biological Parent (reference)	--	--	--
Lone Parent Mother	0.007	-0.004	-0.023 <sup>c</sup>
Biological Mother, step-father	-0.045 <sup>c</sup>	-0.062 <sup>b</sup>	-0.084 <sup>a</sup>
Other family	0.131	0.125	0.072 <sup>b</sup>
<i>Change</i>			
Two Biological Parent to biological mother and step-father	0.077	0.070	0.094
Enter Lone Parent Mother	0.062 <sup>a</sup>	0.045 <sup>b</sup>	0.034 <sup>c</sup>
Exit Lone Parent Mother	0.060 <sup>b</sup>	0.036 <sup>c</sup>	0.057 <sup>a</sup>
Varies between Lone Parent Mother and Two Parent	-0.008	-0.005	-0.020
One or more other changes	-0.036	-0.054 <sup>c</sup>	-0.053 <sup>b</sup>
Gender of the child (0=Male)		0.040 <sup>a</sup>	0.036 <sup>a</sup>
Children with Health Problems (0=Very Good to Excellent health)		0.048 <sup>a</sup>	0.042 <sup>a</sup>
<i>Mother's Education</i>			
Less than High School		0.010	0.000
High School (reference)		--	--
More than High School		-0.004	-0.016
Immigrant Status of Mother (0=non-immigrant)		-0.053 <sup>a</sup>	-0.058 <sup>a</sup>
Mother's Age (1998)		-0.004 <sup>a</sup>	-0.003 <sup>a</sup>
1994 Behaviour Score			-0.560 <sup>a</sup>
R2	0.027	0.028	0.314
R2 (adjusted)	0.016	0.014	0.300

<sup>a</sup> = p<0.001, <sup>b</sup> = p<0.01, <sup>c</sup> = p<0.05, two-tailed tests

N=1333

Source: National Longitudinal Survey of Children and Youth, 1994 to 1998.

Information presented in Table 13 consists of three equations. In the first equation for each of the dependent behavioural variables measured in 1998, the relationship between mother's

employment change and family composition change and the dependent behaviour scales is observed, without any controls for significant mother and child characteristics. In the second equation controls are included for important mother and child characteristics, including child's health status, gender of child, mother's age, and highest level of education and immigrant status, but still using the three dependent variables as measured in 1998. The third and final equation includes all of the previous controls as well as the time 1 (i.e. 1994) behaviour scores as a control to observe the relationship between mother's changing employment situations and changing family composition, to changes in children's behavioural outcomes. The dependent variable is simply the difference or change between children's 1994 behavioural scale score and their score on the corresponding behavioural scale in 1998.

To capture change in mother's occupation and skill level their Pineo difference score in 1994 is subtracted from that in 1998. Changes in mother's employment are divided into two broad areas, those employed (defined as one or more weeks of work) and those not employed in 1998.

Conceptually it would have been preferable to have divided each of these two areas into three groups: those who experienced no change in employment status from 1994 to 1998, those who experienced a low number of transitions (one or two stretches of looking for employment), and finally those who experienced many transitions (three or more stretches of looking for employment). However, due to sample size problems it was necessary to combine the categories of mothers who experience some and those who experience high levels of transition in employment status but who were not employed in 1998. This yields five categories for the regression model. The reference category for the analysis is those mothers with no employment and no transitions over the period from 1994 to 1998.

Family composition is divided into two broad groups – stable and changed (see Table 9). Stable family composition includes: both biological parents present – the reference category; lone parent mothers; two parent families where the biological mother is present; and other families where at least one or more adults are present. Changed family composition is conceptually divided into six categories (see Table 9) but again sample size problems have lead to the creation of five categories: families that included two biological parents in 1994 but became biological mother and a step-father in 1998; families which became single biological mother from 1994 to 1998; families that started as single mother in 1994 but which by 1998 had exited this situation;

families which varied between single mother and other adults present (such as two parent families) over the period from 1994 to 1998; other family composition change situations not listed above which changed one or more times over the period from 1994 to 1998.

Considering the results from the data (Table 13) before the controls and after their application (Equations 1 and 2 only) we see that the children of mothers who increased their Pineo socio-economic classification between 1994 and 1998 were significantly more likely to have lower emotional disorder-anxiety and conduct disorder-physical aggression behavioural scores in 1998 than children of mothers who had decreased Pineo scores. Even after controlling for mother's and children's characteristics the relationship is still significant. However, an increasing Pineo socio-economic classification from 1994 to 1998 is associated with statistically significant higher conduct disorder-physical aggression behavioural scores, both before and after the application of controls. This result is interesting given that Menaghan, Mott and Cooksey (1997) have found that mother's increasing occupational complexity over time is negatively associated with children's oppositional action behaviour.

The changing employment status of mothers over the period from 1994 to 1998 has a somewhat different effect on children's behavioural scale scores. Children's mothers who were employed in 1998 and who experienced a high number of transitions in employment status from 1994 to 1998, scored significantly higher (worse) emotional disorder-anxiety scores than children of mothers who were not employed in 1998 and who had experienced no employment transition (i.e. they were outside the labour force for each of 1994 and 1998) – even after the application of controls (Table 13). Both children of mothers who were employed in 1998 and experienced some transitions in employment status from 1994 to 1998, as well as children of mothers not employed in 1998 but who experienced some or a high number of transitions between 1994 and 1998 in employment status, obtained statistically significant higher conduct disorder-physical aggression scores (both before and after applying controls) than children of mothers who were not employed in 1998 and who had experienced no employment transition. Turning to indirect aggression behaviour, we see that children of mothers in each of the three categories of those employed in 1998 (No, Some and High Transitions) had statistically significant higher (worse) scores before and after applying control variables, compared to children whose mothers did not work in 1998 and had experienced no employment status transitions from 1994 to 1998.

These results suggest that mother's employment status may be a factor in affecting children's behavioural outcomes. When compared to children of mothers who are not employed and experience no transitions – children of mothers who experience a high degree of transition in employment may have worse emotional disorder-anxiety and indirect aggression scores, and children of mothers that experience some changes in employment status and are currently employed, or who are not currently employed but have experienced some transitions in employment status, tend to have relatively worse conduct disorder-physical aggression scores. This result differs from that of Menaghan, Mott and Cooksey (1997) where mother's employment was seen to reduce children's oppositional action behaviour compared to mothers that were not employed.

A possible reason for why our results differ from the existing literature is that the behaviour scales we use, while similar in many ways to those employed in the USA, such as children's oppositional action as used by Menaghan, Mott and Cooksey (1997), they are not identical. Mothers who are employed and experiencing many employment status changes may not be able to respond to the children's emotional and anxiety behaviours to the same degree due to time and other employment pressures – particularly if they are in a more constant state of transition seeking employment.

Turning to changes in family composition, similarly mixed results are observed. Children in stable lone biological mother and step-father families had significantly lower (better) emotional disorder-anxiety scores than children in stable two biological parent families but only after applying control variables (Equation 2, Table 13). However, children in families that became lone parent mother families had significantly worse emotional disorder-anxiety scores both before and after applying controls compared to children in stable two biological parent families.

After applying control variables, children in stable biological mother and step-father families, and those in families that exited from lone female parent families scored statistically significantly lower (better) than children in stable two biological parent families on the conduct disorder-physical aggression scale. Children in families that entered lone parent mother situations also scored significantly worse conduct disorder-physical aggression scores, both



before and after applying controls compared to children in stable two biological parent families, while children in stable other family situations also scored significantly worse.

Children in stable biological mother and step-father families have significantly better (lower) indirect aggression scores than children in stable two biological parent families. However, children in families which change, either exiting or entering lone parent mother families, are observed to have worse indirect aggression scores compared to children in stable two biological parent families. Family composition seems to be important for affecting children's behavioural scale scores, particularly stable biological mother and step-father, as well as lone parent mother families.

Regarding the control variables in Table 13, gender is a factor in that girls are more likely to have better conduct disorder-physical aggression scores, but worse indirect aggression scores than boys. Children with lower health are observed to have significantly worse behavioural scale scores for each of the three dependent variables compared to children with very good or excellent health. Children of mothers with less than a high school education score significantly worse on emotional disorder-anxiety and conduct disorder-physical aggression compared to children of mothers with just a high school education. However, children of mothers with more than a high school education score worse on the conduct disorder-physical aggression scale when compared to children of mothers with just a high school education. If the child's mother was an immigrant to Canada they are significantly more likely to have lower (better) indirect aggression. As well, children of mothers who are older are significantly more likely to have lower conduct disorder-physical aggression and indirect aggression scores (in 1998) compared to children of younger mothers.

Observing the proportion of variation which our regressions explained, we see that applying controls increases the proportion for two of our dependent variables (Table 13). Emotional disorder-anxiety explained variation increases from 3.1 per cent to 6.1 per cent, conduct disorder-physical aggression increases from 2.2 per cent to 5.3 per cent, while the proportion of explained variation for indirect aggression remains relatively steady dropping slightly from 1.6 per cent to 1.4 per cent. Nonetheless, despite these increases the explained variation for each regression is still quite low.

The analysis to this point has relied upon comparisons between mother's employment change and family composition change with children's behaviour in discrete years. Yet, what if the children in 1998 who experienced relatively higher behaviour scores, did not do so in 1994? The results discussed so far have not captured whether and if so how, children's behavioural change may vary with changes in mother's employment status and family composition change. To measure the extent of change in behaviour it makes sense to have as the dependent variable a measure of this change covering the period from 1994 to 1998. As discussed above, children's behaviour scores from 1994 are included as a control of unmeasured variables on the new dependent behavioural change variable (see endnote 3). Results for the variables which measure change over time in children's behaviour are observed for each behaviour scale in Equation 3 (Table 13).

Results show that for most of the relationships which had been significant after the application of control variables in Equation 2, there still are many which are significantly related to the dependent behavioural variables in the form of behaviour changes over time in Equation 3. For example, as shown, the Pineo difference scores are significantly negatively related to emotional disorder-anxiety in 1998. The result for the Pineo difference scores and changes in emotional disorder-anxiety from 1994 to 1998 in Equation 3 is also significantly and negatively related. This means that children of mothers with higher Pineo difference scores are more likely to experience a decrease in their emotional disorder-anxiety score than children of mothers with lower Pineo difference scores.

Mother's employment transition relationships identified in Equation 2 remained significantly related to the dependent behavioural variables in Equation 3, when compared to mothers not employed in 1998 and experiencing no transitions from 1994 to 1998. Children of mothers who were employed in 1998 and experienced high transitions in employment status remained positively and significantly related to changes in emotional disorder-anxiety, while children of employed mothers in 1998 with some transitions remained positively and significantly related to conduct disorder-physical aggression changes from 1994 to 1998. All mothers employed in 1998, whether experiencing no, some or high transitions in employment status from 1994 to 1998, were also still positively and significantly related to changes in indirect aggression. As well, the relationship between mothers not employed in 1998, but who experienced some or high

transition in employment status from 1994 to 1998, and conduct disorder-physical aggression also remained positive and significant.

However, in two cases the original relationship in Equation 2 was no longer significant in Equation 3: change in Pineo difference scores is no longer significantly related to change in conduct disorder-physical aggression, and mothers not employed in 1998 and having some or high transitions in employment status are no longer significantly related to emotional disorder-anxiety. This suggests that in these instances the scores for these particular children were already high in 1994. That is, these children likely already had high scale scores on the behavioural variables before the change in maternal employment. In the case of the relationships which remained significant, the stability in the significance suggests that the changes in mothers employment may very well have contributed to changes in children's behaviour scores.

Turning to family composition we see that stable family situations of biological mother and step-father are still significantly related to lower (better) scores for emotional disorder-anxiety, conduct disorder-physical aggression, and indirect aggression. Additionally, stable other family situations is no longer significantly related to higher (worse) scores on conduct disorder-physical aggression, but is now significantly related to higher scores on indirect aggression. Stable lone parent mother situations for emotional disorder-anxiety and indirect aggression which were not significant in Equations 1 or 2, are now significantly and negatively related to changes in these two variables. That is, children in stable lone parent mother families experience a much greater lowering of their behaviour scale scores from 1994 to 1998 than children of stable two parent families.

Children in family situations where there is an entry into a lone parent mother family are still positively significantly related to changes in each of the three behavioural variables. As well, children in families which exit from a lone parent mother situation are positively and significantly related to indirect aggression, but are no longer significantly related to conduct disorder-physical aggression. Children in families that experience one or more changes in the composition of the family are also still negatively significantly related to changes in indirect aggression.

The relationships for the control variables which were significant in Equation 2 remain significant in Equation 3 and in the same direction, for child's gender, health, mother's education, mother's age and mother's immigration status (Table 13). The shift to a regression that captures change over the period of time from 1994 to 1998 shows that except for a few cases, most of the relationships that had been identified in Equation 2 as significant remained so in Equation 3. Change in the magnitude of some coefficients, such as maternal education, have been thought to indicate that their influence on children's behavioural development rests in the children's early years (less than 6 years old), with diminishing importance afterward (Menaghan, Mott and Cooksey, 1997). Our results, at least for maternal education lend some support to this since all of the regression coefficients from Equation 2 to Equation 3 become smaller, although only the relationships for conduct disorder-physical aggression and emotional disorder-anxiety are significant. Since Equation 3 explicitly looks at the changes in behaviour over time, it may mean that most of the effect of maternal attributes is being applied earlier than the period under investigation, and is relatively smaller over the period we observe.

## **5. Discussion and Conclusion**

Revisiting the research problems and discussion from the literature review, we see now that the relationship between children's behaviour, maternal employment and family composition, is not uncomplicated. The evidence in Tables 2 to 7 shows that over the period in question (1994 to 1998) it was common for children's mothers to be employed and to be so for a majority of the year. However, for many mothers it is also quite common to experience periods of unemployment interspersed with periods of employment, or not to have experienced any employment at all. Similarly, most of the children were in stable family situations over the period from 1994 to 1998 (Tables 8 and 9). However, a moderate proportion of children did experience changes in the family composition during the same period.

Analysis of the cross-sectional relationship between maternal employment, family composition and children's behavioural scale scores yields some evidence to suggest that two biological parent family structures are associated with significantly lower behavioural scale scores in both 1994 and 1998 (Table 11). However, there are important exceptions to this. Children in lone parent mother families, for example, had significantly lower conduct disorder-physical aggression scale scores in 1998 compared to children in two biological parent families (see Table 11).

The evidence from 1994 and 1998 shows that maternal employment variables in 1994 tended to be more strongly related to children's behavioural scale scores, while family composition in 1998 appeared to be much more important for affecting children's behaviour scale scores (Table 11). In 1994 many of the associations between maternal employment and behaviour scale scores were significant, but had disappeared in 1998. For example, in 1994 there were nine significant associations between various measures of maternal employment and the three behavioural outcomes, but only one relationship was statistically significant in 1998. Similarly, many family composition associations that were significant in 1998 were not significant in 1994. This occurred quite often in the cross-sectional analysis. Many relationships did remain significant after applying control variables, but in some cases relationships became non-significant after the control variables were applied.

What the cross-sectional evidence does not provide is an answer as to whether changes in family composition or in maternal employment over time are associated with changes in children's behavioural scale scores. Social stressors, including changes and transitions in employment and family composition, as mentioned previously, have been implicated in affecting children's behaviour. They do so by reducing parenting time and also increasing the amount of stress on parents as they seek employment. We find in the cross-sectional results some evidence to support the contention that social stressors adversely affect children's behaviour. However, it is not possible to know what happened to children's mothers or families over the period from 1994 to 1998 using the data in Table 11. Instead it is necessary to observe how changes in maternal employment and family composition are associated with children's behaviour.

Evidence of change in maternal employment and family composition was observed in Table 13. It was found that children of mothers who were employed compared to children of mothers who were not employed, seemed to have significantly higher indirect aggression scores and in some circumstances higher conduct disorder-physical aggression, and emotional disorder-anxiety. Being a currently employed mother may be an important factor affecting children's behavioural outcomes, but the evidence also suggests that any experience of employment transition may itself affect children's behavioural outcomes. That is, many of the mothers that were not employed in 1998 had still experienced some employment transition over the period from 1994 to 1998. This might explain why we observed that mothers who were not employed in 1998 but had "some" to "high" employment transition experiences, still had significantly worse conduct disorder-physical aggression scores than mothers not employed and with no transition experience. Such evidence provides support for the view that social stress from less stable maternal employment, in the form of higher levels of transitions in employment (particularly if it is more frequent unemployment) can affect children's propensity for poorer behavioural outcomes. However, mother's occupational prestige (as measured by the Pineo scale) can attenuate some of the poor behavioural outcomes for children's emotional disorder-anxiety scores, since children of mothers with occupations rated higher on the Pineo scale tended to have lower emotional disorder-anxiety scale scores.

Changes in family composition have also been identified by Menaghan, Mott and Cooksey (1997) as increasing the social stress of families, which can affect children's behavioural

outcomes. Compared to children living in stable two biological parent families, children living in biological mother and step-father families had relatively lower scores for each of the three behavioural scales, while those in stable lone parent mother families had relatively lower scores for emotional disorder-anxiety and indirect aggression. In contrast, children living in families which entered lone parent mother situations had higher scores on each of the three behavioural scales. Where the relationship was significantly related with our behavioural outcomes, children living in families that experienced changes in composition over the period 1994 to 1998 tended to have significantly poorer behavioural outcomes than children in stable family compositional situations.

The employment results observed here differ somewhat from those found by Menaghan, Mott and Cooksey (1997). Maternal employment characteristics in their study were associated with lower behavioural scores for children's oppositional action. Family composition results in this analysis, though, are much more similar to those observed in their study in that the specific form of stable family composition or change would seem to be important when looking at children's behavioural scores.

Despite observing quite large changes in maternal employment patterns and the high proportion of mothers who experienced a number of spells of unemployment in our descriptive data, the effect of these on children's behavioural outcomes from 1994 to 1998 as measured in the regression analysis is statistically significant but substantively relatively weak. Similarly, the literature on family composition and change indicates the deleterious effect for children's behaviour of family changes. The results here support this notion when observing selected information from the cross-sectional regression findings, and are particularly supportive when observing the longitudinal analysis (Table 13). Nevertheless, these results are still relatively weak when attempting to connect family composition, and changes in the composition, with poorer child behavioural outcomes.

The children as well as their families in the research cohort were being exposed to a number of experiences from 1994 to 1998, such as new school experiences and challenges, an improving economy and many other social processes. As detailed in the analysis above, these affected many children in terms of changing family composition and maternal employment. What effect did all

of these changes have, particularly with respect to family composition and maternal employment, on children's behaviour? Results show that there does not seem to be any one condition of employment or family circumstance that can confer absolutely better behavioural outcomes for children. Nonetheless, some final comments can be put forward.

The results of the analysis here cannot provide any perfect avenue for bettering the behavioural development for middle childhood children and their families. Certainly we see that many of the variables considered here affect children's indirect aggression, most particularly the maternal employment variables. The fact that mothers are employed (whether they experience any transitions or not) seems most important for children's indirect aggression. However, the level of maternal employment transitions (that is, high levels) seems important for affecting children's emotional disorder-anxiety, while the mother's experience of some employment transitions (whether they are currently employed or not) seems most important for affecting children's conduct disorder-physical aggression behaviour. Stable family situations can aid children in receiving relatively better behavioural variable scores when compared to children in families experiencing a change in composition. In particular, children in families experiencing an entry into a lone parent mother situations seem prone to worse behavioural outcomes.

Cross-sectional and multivariate results indicate that children in families with high maternal labour market transitions have relatively poorer behavioural development. That is, children in these situations have a relatively higher propensity for child behavioural problems. At a policy level, therefore, it would seem prudent to investigate families with high maternal transition rates into and out of the labour force, since stability seems to confer benefits for children's behavioural development. Also, evidence suggests that the type of occupation and socio-economic prestige of the occupation (as seen from the Pineo scale) of the mother can act to decrease behavioural problems, and should also be investigated. Another potential avenue of investigation is to research family compositional change. This might include looking at broader legal policies involving areas where laws may be affecting family's circumstances including divorce and custody arrangements. It is also necessary to pursue research that would investigate children who are prone to particular behavioural problems. The research presented here observed that the behavioural effects may differ by child's gender as well as the health of the children involved. A propensity for behavioural problems in children is also associated with particular



characteristics of mothers, including mother's age and level of education. We have seen in particular that indirect aggression and conduct disorder-physical aggression are affected by these characteristics.

If we want to be able to aid in providing children with a good start to life it makes sense to investigate how they are affected by changes in the early part of their lives. Changes in children's lives including those attached to maternal employment and new family compositions have been identified by researchers as possible social stressors for children and their parents. These changes can affect the relationship and time parents have for children with a consequent effect on the children's behavioural well-being and development. Continuing to track and understand the effect of these changes on children's development and the longer term consequences for their later life is important.

## **Endnotes**

1 - There is behavioural information available for older children in 1998 but it is self-reported information and not collected from the PMK, whereas behavioural information for younger children (age 11 or younger) is based on PMK evaluations of the children's behaviour.

2 - Where any tests of significance were necessary we constructed a new "sample" weighting variable for the sample population of children. The new sample weighting variables are constructed by dividing each respondent's existing cross-sectional or longitudinal weight by the mean of the relevant overall cross-sectional or longitudinal weight. The resulting new sample weights each have means of 1, but they avoid over-estimations for tests of significance while maintaining the relative positioning or distribution of the original variables being tested.

3 - Menaghan, Mott and Cooksey (1997) use the same technique to investigate changes over time in family composition and maternal employment. They argue that by controlling for a behavioural variable in year 1 researchers are able to ascertain the extent to which children's higher behavioural scores in a later year were in fact already present at the earlier point in time. This will be observed as a reduction or elimination of the effects in the coefficients. Menaghan, Mott and Cooksey (1997) base their method on the work of Kessler and Greenberg (1981). Kessler and Greenberg (1981: 7-20) contend that in the absence of measurement error of some variable ( $X$ ), the inclusion of a measure in time 1 ( $X_1$ ) to predict a measure in time 2 ( $X_2$ ) permits researchers to interpret the regression coefficients as measuring the effect on the amount of change in the dependent variable (in this case  $X_2$ ).

## Bibliography

- Applied Research Branch (1999). *Investing in Children: Ideas for Action – Report from the National Research Conference held October 27-29, 1998*, Human Resources Development Canada.
- Bayder, N. and Brooks-Gunn, J. (1991). "Effects of maternal employment and child-care arrangements on preschoolers' cognitive and behavioral outcomes: Evidence from the children of the National Longitudinal Survey of Youth," *Developmental Psychology*, 27, 932-945.
- Belsky, J. and Eggebeen, D. (1991). "Early and extensive maternal employment and young children's socioemotional development: Children of the National Longitudinal Survey of Youth", *Journal of Marriage and the Family*, 53, 1083-1110.
- Cook, Cynthia D. and J. Douglas Willms. (1998). *Myths of balancing work and family*, W-98-31Es, Working Paper for: "Investing in Children: A National Research Conference, 1998", Applied Research Branch, Human Resources Development Canada.
- Cooksey, Elizabeth C., Elizabeth G. Menaghan, and Susan M. Jekielek. (1997) "Life-course effects of work and family circumstances on children." *Social Forces*, 76 (2): 637-67.
- Desai, S., Chase-Landsdale, P.L. and Michael, R. T. (1989). "Mother of market? Effects of maternal employment on the intellectual ability of 4-year old children." *Demography*, 26: 545-561.
- Greenstein, T.N. (1995). "Are the 'most advantaged' children truly disadvantaged by early maternal employment?" *Journal of Family Issues*, 16, 149-169.
- Harvey, Elizabeth. (1999). "Short-Term and long-term effects of early parental employment on children of the National Longitudinal Survey of Youth," *Developmental Psychology*, 35 (2): 445-459.
- Jekielek, S.M., Mott, F. L., Menaghan, E.G., & Cooksey, E.C. (1998). "Changes in family, children's home environments, and child well-being." Columbus, OH: Dept. of Sociology and Centre for Human Resource Research. The Ohio State University. (Presentation at the Annual Meetings of the Population Association of America)
- Kessler, Ronald C., and David F. Greenberg. (1981). "Linear Panel Analysis: Models of Quantitative Change." Toronto: Academic Press.

- Lefebvre, Pierre and Philip Merrigan. (1998). *Family background, family income, maternal work and child development*. No. W-98-12E. Applied Research Branch, Human Resources Development Canada.
- McLanahan, Sara (1997). *Parent absence or poverty: which matters more?* pp. 35-48 in Duncan, G. and J. Brooks-Gunn, eds. *Consequences of Growing Up Poor*. New York: Russell Sage Foundation.
- Menaghan, Elizabeth G., Frank L. Mott, and Elizabeth C. Cooksey. (1997). *Work and family patterns and child well-being: tracing consequences over time*. Paper presented at the American Sociological Association Meetings, Toronto, August 1997.
- Morrison, Donna Ruane, Mary Jo Coiro, and Connie Blumental. (1994). *Marital disruption, conflict, and the well-being of children*. Paper presented at the Annual meetings of the Population Association of America, May 1994, Miami, Florida.
- Morrison, Donna Ruane and Andrew J. Cherlin. (1992). *The divorce process and young children's well-being: a prospective analysis*. Paper presented at the Annual Meetings of the Population Association of America, Denver, Colorado, May 1, 1992.
- Parcel, T.L., and Menaghan, E.G. (1994a). "Early parental work, family social capital, and early childhood outcomes," *American Journal of Sociology*, 99, 972-1009.
- Parcel, T.L., and Menaghan, E.G. (1994b). "Parents' Jobs and Children's Lives," New York: Aldine De Gruyter.
- Peterson, James L. and Nicholas Zil. (1986). Marital disruption, parent-child relationships, and behavior problems in children, *Journal of Marriage and the Family*, 48 (May, 1986): 295-307.
- Picot, G., M. Zyblock and W. Pyper (1999). "Why Do Children Move into and out of Low Income: Changing Labour Market Conditions or Marriage and Divorce?" Ottawa: Analytical Studies Branch, Statistics Canada, Research Paper Series, No. 132.
- Thomson, Elizabeth, Thomas Hanson, and Sara S. McLanahan (1994) Family structure and child well-being: economic resources vs. parental behaviors. *Social Forces* 73(1), 221-42.
- Vandell, D. and Ramanan, J. (1992). "Effects of early and recent maternal employment on children from low-income families," *Child Development*, 63, 938-949.



