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Impact of Income Source on Behavioral and Academic Adjustment of Children From Persistently Poor Families

par

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Abstract

A number of studies have suggested an impact of persistent poverty on child development. However, this research has not considered the heterogeneity of persistently-poor families in their ways of generating income. The objectives of this study were to: (1) examine the magnitude of prospective associations between parental income source within the context of persistent poverty (from ages 8 through 11) and children's disruptive classroom behavior and academic placement at age 12; and (2) to investigate whether associations were mediated by considering the value of parenting characteristics (at ages 10 and 11) as process variables. We addressed these goals using hierarchical regression analyses, controlling for child gender, early child behavior, maternal characteristics, and family structure. Using children as their own controls permitted to estimate the magnitude of direct and mediated associations without confounds of inherent child characteristics.

Data originate from the Quebec Longitudinal Study of Kindergarten Children, a province-wide randomized sample of French-speaking Canadian children and their families. Data on income level, parental involvement in the labor force, and welfare receipt were used to identify groups of persistently-poor families (income-to-needs ratio less than 1.50 times the poverty line averaged over the four year period) differing in their work and welfare patterns. Persistently-poor working (working-poor), welfare-dependent, and work-and-welfare-dependent families were distinguished from never-poor working families. Parental supervision and educational aspirations for the child were proposed as mediators of behavioral and academic outcomes, respectively. Family structure from ages 6 through 11 and maternal characteristics (education and age at first child-birth) assessed in kindergarten were employed as controls. Teacher-ratings of disruptive behavior were obtained at ages 6 and 12. Official records were used to confirm the child's classroom placement by age 12. Not being in a regular, age-appropriate classroom was indicative of academic failure.

Hierarchical linear regression analyses were used to test associations with behavior. Residing in a welfare-dependent family, relative to a never-poor family, was associated with an increase in disruptive behavior between ages 6 and 12, above and beyond the influence of child gender, early disruptiveness, maternal education, and family structure. No prospective associations were observed between growing up in either a working-poor or a work-and-welfare-dependent family and behavioral maladjustment. Contrary to our prediction, parental supervision did not explain the significant association between sole welfare dependence and behavioral maladjustment.

Turning to academic placement, hierarchical logistic regression analyses revealed that children in both welfare-dependent and working-poor families were at greater risk of academic failure while controlling for demographic characteristics and early inattentiveness. This was in comparison to their peers in never-poor families. As expected, the risk of academic failure for these children was explained, in part, by mothers' lower educational aspirations for their child.

The implications of these findings for both developmental research as well as for educational and global social policies are discussed.

Key words: children, economic hardship, income source, income poverty, welfare dependence, labor force attachment, disruptive behavior, academic failure, family demographics.

Résumé

La recherche sur la pauvreté démontre des liens significatifs entre la durée de la pauvreté et le développement de l'enfant. La recherche à ce jour, n'a pas tenu compte du fait que les familles qui vivent dans la pauvreté chronique ont des sources de revenu différents. Les buts de la présente étude sont : (1) d'examiner l'ampleur des associations prospectives entre la source du revenu parental dans le contexte de la pauvreté chronique (de 8 à 11 ans) et les problèmes de comportement (agressivité-turbulence) des enfants en classe ainsi que leur retard scolaire à l'âge de 12 ans; et (2) de vérifier si ces liens sont expliqués par les caractéristiques parentales (à l'âge de 10 et 11 ans) en tant que variables de processus. Pour évaluer ces objectifs, des analyses de régression hiérarchique ont été effectuées en contrôlant pour le sexe de l'enfant, le comportement de l'enfant à 6 ans, les caractéristiques de la mère et la structure familiale.

Les données proviennent d'un échantillon représentatif d'enfants et leur famille recrutés à la maternelle en 1986-1987 dans la province de Québec. Les données économiques suivantes ont été mesurées à partir de l'âge de 8 ans jusqu'à l'âge de 11 ans : le niveau de revenu de la famille; l'engagement du parent avec le marché du travail; et le recours au bien-être social de la famille. Ces mesures ont été utilisées pour identifier des groupes de familles toujours pauvres qui diffèrent dans leur patron de travail et de recours au bien-être social. Des familles vivant dans la pauvreté chronique tout en travaillant (working-poor), des familles pauvres et dépendantes du bien-être social (welfare-dependant) et des familles pauvres et dépendantes du bien-être social tout en travaillant (work-and-welfare-dependent) ont été comparées à des familles jamais pauvres (never-poor).

Nous avons proposé que la supervision parentale et les aspirations éducatives qu'ont les mères pour leur enfant joueront un rôle médiateur quant à la qualité du comportement et au retard scolaire, respectivement. L'âge de la mère à la naissance

de son premier enfant et les années de scolarisation complétées au moment où l'enfant ciblé dans l'étude fréquentait la maternelle ont été utilisés comme variables de contrôle dans tous les modèles. De plus, nous avons utilisé comme variable de contrôle la structure familiale de 6 à 11 ans. Les problèmes d'agressivité-turbulence ont été évalués par l'enseignant à l'âge de 6 et 12 ans. Les dossiers officiels ont été consultés pour confirmer le retard scolaire de l'enfant à l'âge de 12. Le fait de ne pas être dans une classe régulière correspondant à l'âge chronologique de l'enfant fut utilisé comme indicateur de l'échec scolaire.

Des analyses de régression linéaire hiérarchique ont indiqué une association significative entre le fait de provenir de familles pauvres qui reçoivent du bien-être social et l'agressivité-turbulence entre l'âge de 6 et 12 ans, comparativement à leurs pairs qui proviennent de familles jamais pauvres. Cette association a été démontrée au-delà de l'influence du sexe de l'enfant, des problèmes de comportement à 6 ans, l'éducation de la mère et la structure familiale. Aucune association prospective n'a été observée entre les comportements d'agressivité-turbulence et le fait d'être élevé dans une famille pauvre tout en travaillant ou dépendante du bien-être social tout en travaillant. Contrairement à notre prédiction, la supervision parentale n'a pas médiatisé l'association significative entre la dépendance au bien-être social et l'augmentation des problèmes d'agressivité-turbulence.

En ce qui concerne le retard scolaire, les résultats des analyses de régression logistique hiérarchique ont révélé un lien significatif entre le risque d'échec scolaire pour les enfants des familles dépendantes du bien-être social ainsi que les enfants de familles pauvres tout en travaillant en comparaison à leurs pairs de familles jamais pauvres. Ces liens ont été démontrés au-delà de l'influence des caractéristiques démographiques et le manque d'attention à l'âge de 6 ans. Tel que prévu, le risque d'échec scolaire parmi ces enfants a été expliqué en partie par les aspirations éducatives qu'avaient les mères pour leur enfant.

Il est important de garder à l'esprit que les résultats de cette étude doivent être interprétés en tenant compte des variables de contrôle sélectionnées. Il est à noter que les caractéristiques parentales non mesurées auraient pu influencer les circonstances financières de la famille ainsi que les différences des groupes observés. Finalement, nous avons présenté des contributions importantes de cette étude pour la recherche sur la pauvreté et le développement de l'enfant ainsi que pour des programmes sociaux.

Mots-clé : enfants, difficultés financières, source de revenu, pauvreté, bien-être social, attachment au marché du travail, agressivité-turbulence, échec scolaire, caractéristiques démographiques

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Dedicated to the memory of my brother.

Walter De Civita

whose love of adventure inspired this journey

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Introduction

This research project was motivated by the following concern: In spite of substantial economic wealth in North America, there remains widespread poverty, economic insecurity, and even despair. Since the last recession of the early 1990s, the gap between rich and poor has increased. This means that poor families today are struggling more than ever to get by on less income than a decade ago. A study conducted by Ross and Roberts (1999) shows that Canadian children (of ages between 4 and 11) living in families struggling financially are less physically healthy, display more psychosocial problems and developmental delays, as well as more academic problems in school. These findings parallel research conducted in the United States (Brooks-Gunn & Duncan, 1997). Unhealthy and troubled children may, in time, potentially affect the well-being of a country. Any reform in social policy that affects family income could therefore have implications for child development across many domains of competence.

Social policy initiatives that took place in North America during the 1990s focused on eliminating parental dependency as an indirect means to eradicate poverty. This approach may reduce parental dependence without necessarily diminishing poverty. For example, the most recent reform leading to the creation of a National Child Benefit System in Canada represents a renewed attempt to encourage low-income families to become self-reliant through their own earnings (Department of Finance Canada, 1997). However, families who rely solely on welfare do not receive supplementary income unless they engage in paid work. Advocates for the poor contend that an implicit assumption is that providing additional income to such families will be viewed as a disincentive to work (National Council of Welfare [NCW], 2000). Prior to this current system of redistributing income, however, there were welfare-dependent families engaged in paid work and other families who were self-reliant (i.e., not receiving welfare) remained poor (NCW, 1998, 2000a; Schellenberg & Ross, 1997).

In the United States, new legislation governing the social system (The Personal Responsibility and Work Opportunity Reconciliation Act of 1996) emphasizes a 'work first' ideology in spite of historical census data showing that many nonwelfare working families were poor (Knitzer & Aber, 1995; Levitan, Gallo, & Shapiro, 1993; National Center for Children in Poverty [NCCP], 1997, 1998). This new policy sets a time limit in the receipt of welfare throughout the person's life and urges parents to engage in paid work within two years of entering the system (Pavetti, 2000; Zuckerman, 2000). However, prior to this new legislation, many welfare-dependent families were participating in the labor force (Hershey & Pavetti, 1997; Knitzer & Aber, 1995; Salomon, Bassuk, & Brooks, 1996; Rainwater, Rein, & Schwartz, 1986).

To avoid implementing policies that may not benefit children, it would be important to examine child development outcomes in poor families according to parental income source. To be sure, a large number of studies have examined the impact of welfare receipt on child well-being (e.g., Coley & Chase-Lansdale, 2000; Duncan & Yeung, 1995; Furstenberg, Brooks-Gunn, & Morgan, 1987; Haveman, Wolfe, Spaulding, 1991; Offord, Boyle, & Jones, 1987; Yoshikawa, 1999); though this research has neither distinguished families solely dependent on welfare from those combining welfare and work nor has it distinguished nonwelfare working poor families from the working nonpoor. Fewer studies have compared the developmental outcomes of children from welfare-dependent and work-and-welfare-dependent families with their counterparts in working-poor families (e.g., Brooks-Gunn, Klebanov, Smith, & Lee, 2001; Guo, Brooks-Gunn, & Harris, 1996; Smith, Brooks-Gunn, Klebanov, & Lee, 2000). All three poor groups have yet to be compared with a never-poor working group from a longitudinal perspective. This oversight may have led to over-estimating the well-being of children from working-poor families.

The principle goals of this thesis were to: (a) examine the magnitude of prospective associations between parental income source within the context of

persistent poverty (from ages 8 through 11) and children's disruptive classroom behavior and academic placement at age 12; and (b) investigate whether such associations are mediated by parenting process variables (at ages 10/11). Data originate from the Quebec Longitudinal Study of Kindergarten Children, a province-wide randomized sample of French-speaking Canadian children and their families. Annual assessments comprised family income, parental involvement in the labor market, and receipt of welfare over a 4-year period from 1988 to 1992, prior to Canadian reforms in social and welfare policies.

Toward these goals, the thesis is divided into eight sections. The first section begins with a general overview of poverty in North America. Social programs targeting low-income families living in Canada are described, followed by a discussion on how poverty is measured, underscoring the dimensions and characteristics of poverty. The second section provides a review of the literature pertinent to this study. We begin with a general summary of what is known about the influence of persistent poverty on child development. Next, we highlight the importance of considering the heterogeneity of income source within poor populations from a developmental and a social policy perspective. In the absence of research which has directly compared all three persistently-poor groups to a never-poor group, we draw on several strands of research: (1) studies which examined the associations between long-term welfare receipt (versus no welfare dependence) and child outcomes; (2) those examining associations between long-term welfare coupled with work or not (versus work only) and child outcomes; and (3) those comparing cross-sectional outcomes of children from welfare-dependent and working-poor families with their peers from nonpoor families. The third section reviews evidence supporting parental supervision and educational aspirations for the child as potential mediators of behavioral and academic outcomes, respectively. In the fourth section, we discuss socio-demographic factors associated with income source, parenting characteristics, and child outcomes. Within this section, we also consider the influence of inherent child characteristics on later adjustment and parenting

characteristics. It is argued that adjusting child outcomes for pre-existing differences in family structure, maternal age at first child-birth and education as well as inherent child characteristics reduces the 'spuriousness' of associations. The fifth section summarizes the literature reviewed and presents the study objectives and hypotheses. The sixth section describes the study sample and the variables used in the analyses. The seventh section reports the results, with pertinent tables and figures. This thesis concludes with a discussion that considers the implications of the findings for developmental psychology as well as for educational and global social policies.

The North American Context

When one thinks of poverty, the image that most often comes to mind is that of a shoeless, disheveled, and malnourished child wandering about barren ground. In countries such as Canada and the United States, poverty takes on a different face. The type found in North America can reach extremes: individuals lining up at food banks and donation centers; living on the streets panhandling; as well as families moving from one substandard shelter to another; asking for government assistance; and at the very least going from paycheck to paycheck. These are some of the many Western faces of poverty.

Being poor is a relative economic phenomenon[1] in the sense that every society (in any given period) determines the income levels inadequate for contemporary living. Someone considered poor in North America, for example, may be considered nonpoor in Algeria, Nepal, or Somalia. This is because in North America, a family is poor when its total income is not sufficient to purchase basic needs (e.g., shelter, food, clothing, household appliances, and school supplies) and services (e.g., telephone, personal and child care, and transportation) deemed essential by contemporary society.

The Canadian Council on Social Development (CCSD, 2001)[2] estimated that one in three Canadian children (31%) experienced at least one year of poverty between 1993 and 1998, inclusively. In the United States, it is estimated that one third of all children will experience at least one year of poverty during their childhood or adolescence (Duncan & Rodgers, 1988)[3]. Historical census data reveal that child poverty in North America has risen and fallen in response to changing economic fortunes. Rates sharply increased during the first recession of 1981-1982, declined slowly during post-recession, and increased again during the second recession in 1990-1991. Unlike the first recession, the rate did not decline. Rather, it intensified and remained stubbornly high from 1993 to 1997, hovering around 20% in Canada (NCW, 2000a)[4] and 22% in the United States (NCCP, 1998, 1999)[5].

The latest available census data for both countries show that child poverty is slowly declining. In Canada, the rate dropped to 18.8% in 1998, down from 20.8% in 1993 (NCW, 2000a). In the U.S., it dropped to 18.7%, down from 22.5% in 1993 (NCCP, 2000, 2000a). However, in both countries, poverty among children remains significantly higher than a decade ago and income inequality is increasing. In the last two decades, families at the upper end of the income distribution became richer; whereas those in the lower end became poorer (CCSD 2000; White & Rogers, 2000). Thus, poor families are significantly poorer today than they were in 1989, and much poorer than in 1993.

The exceptional circumstances of single-parent families, particularly those headed by mothers must be emphasized. Rates among such families have historically been higher than for two-parent families (NCW, 2000a). In Canada, for instance, from 1980 to 1998, the rate fluctuated between 53% and 63% for single-mother families compared to 8.5% and 13% for two-parent families. Data on children by family type reveal that more children lived in single-mother families in 1998 (41%) than in 1980 (33%). American researchers have also noted a similar trend toward more children living in poor single-mother families during the last decade (White & Rogers, 2001).

Reasons for Income Disparity in North America

The reasons for income disparity in North America are not completely understood. Several contributing factors are linked to a changed market economy. In the last quarter of the past century, technological advancements, international trade, and globalization swept through institutions. Although such changes brought about more opportunities for some families, evidently they created a sharp division in the labor market and contributed to wage inequality. Wages of the less educated and skilled declined more sharply than the wages of the more educated. Families with less human capital (i.e., least educated and lowest skilled) were left to compete for low-skilled and low-waged jobs as the demands of the labor market rose to meet the changing nature of

the economy. Some families unable to compete in this new global economy were forced into unemployment or part-time work (Lee 2000; Levitan et al., 1993).

During this period of profound market change, families were hit hard. All levels of government reduced funding toward social programs. In the U.S., for example, cuts in food stamps, health care programs, and welfare benefits began in earnest during the 1980s (Blank & Blum, 1997; Huston, 1994). Since then, welfare recipients have faced further restrictions in eligibility and duration of support (Pavetti, 2000; Zuckerman, 2000). Most analysts would agree that the cushioning effect of Canada's income support to low-income families has also lessened over the last decade. Gradual down-sizing of federal spending toward welfare as well as other related income support programs (e.g., unemployment insurance) began during the early 1990s and continued well throughout the decade (Lee, 2000; Ross, Scott, & Smith, 2000). In response to cutbacks in social spending, provincial governments embarked on a series of welfare reforms that tightened eligibility requirements and reduced benefits. In both countries, welfare benefits have not risen to meet inflation, so the real value of such income has actually decreased considerably.

Growing income inequality may also be linked to an increase in single-parent families headed by women (Hernandez, 1994; Lindsey, 1995; McFate, 1995; Ross et al., 2000). Single-mother families are a growing proportion of all families and they are most likely to be poor. It is not difficult to discern the reasons for the high poverty rates among single mothers. Contributing factors include the lower wages of women overall, family responsibilities which keep many in part-time work (McFate, 1995), as well as fewer years of formal education and a weak work history (Bane & Ellwood, 1994).

Income Security Programs in Canada

What has been Canada's response to reducing income inequality? An answer to this question requires taking a closer look at the evolution of social programs in Canada. Canada's role in providing support to families with children dates back to the end of World War 1 when the first child tax exemption was introduced. Federally-funded family allowances followed-suit in 1945 and for the next 44 years all families with children under 18 years of age would receive monthly support (Department of Finance Canada, 1997). Social assistance, operated by provincial-territorial governments, was introduced in 1966 under the Canada Assistance Plan (NCW, 1987).

Today, more than ever, social assistance is considered a last resort income-tested program. Rules of eligibility, benefit levels, and earning exemptions vary across the country. To qualify, families undergo a "needs test" which takes into account their income, assets, and budgetary needs (NCW, 1987). In some provinces, like New Brunswick and Quebec, parents able to work are required to participate in job training/enhancement programs (NCW, 1997). Welfare payments are adjusted on a monthly basis, depending on family income and need[6]. Families receiving welfare may also qualify for special needs allowances, supplementary health and dental care, prescription drugs, and housing subsidies. In 1996, the Canada Assistance Plan was replaced by the Canada Health and Social Transfer that lumped cost-sharing for welfare together with contributions for health and education services (Lee, 2000). Provincial-territorial governments were no longer required to use a needs test to qualify for federal contributions to their welfare programs. To date, no province or territory has replaced its needs test (NCW, 2000).

The Family Allowance Plan ended in 1993 and the money saved was reinvested in creating a new expanded Child Tax Benefit for low-income and middle-income families (NCW, 1998a). The Child Tax Benefit included a Working Income Supplement which provided annual benefits to each working family, regardless of

family size (Department of Finance Canada, 1997). How ever well intentioned these changes were, they inadvertently created a welfare wall that made it difficult for families to enter the labor market. Moving off welfare meant: (a) losing assistance for special needs, supplementary health and dental care benefits, and prescription drugs; (b) incurring work-related expenses; (c) finding affordable child care; and (d) paying income taxes, employment insurance premiums, and contributing to pension plans. Parents were thus faced with an unpleasant predicament - that of leaving their children worse off if they engaged themselves in the labor force.

The challenge for governments at all levels was to create a program that worked better as a system to ensure adequate income support and services for children in all low-income families. In 1998, a National Child Benefit System was implemented which combined the Working Income Supplement with an enriched Child Tax Benefit (CCSD, 2000a). One of the official purposes of the National Child Benefit System is to encourage families to become financially self-reliant (Department of Finance Canada, 1997). However, families solely reliant on welfare receive only the base benefit because most provincial-territorial governments claw back the supplement by either reducing their welfare entitlement or other provincial/territorial benefits by the amount of the supplement (NCW, 1998a)[7]. Families who combine welfare with earned income can also lose their supplement in part or entirely[8]. In turn, provinces are free to spend the money they claw back on other child-centered programs/services designed and implemented by provinces (CCSD, 2001). Investing in programs for children, regardless of their economic background, is driven by a universality principle in social programming that stipulates all children must benefit. Still, advocates for the poor contend that an implicit assumption underlying the claw back practice is that providing additional income to families solely reliant on welfare might discourage parents from participating in the labor market (NCW, 2000). If there are any disincentives, it is to go from being 'welfare-poor' to 'working-poor'.

Summary

Despite renewed prosperity for some families, the gap between rich and poor has widened since the last recession. This means that families who are poor today are struggling more than ever to get by with less value for their money. The new income transfer program introduced in Canada mainly supports working-poor families. The current design fails to direct additional income to families who rely exclusively on welfare. As well, the value of welfare income continues to decline as the standard of living rises. More cut-backs in social spending by all levels of government will add financial hardship and perpetuate the marginalization of the poor.

Measuring Poverty in Canada

An absolute approach to measuring poverty involves determining the standard of living required to meet basic human needs in a given social and cultural context. A relative approach stretches beyond physical survival to incorporate psychological well-being and the notion of social inclusion and equity (Ross et al., 2000). Canada, unlike the U.S., has no official definition or measurement of poverty. Instead, two common methodologies for measuring poverty are a compromise between an absolute and a relative definition of economic deprivation (see NWC, 1998b for further discussion about poverty lines).

Low income cut-offs (LICOs). For over 30 years, Statistics Canada (1999) has been publishing pre-tax LICOs[9]. They are published yearly and are regarded as poverty lines by many individuals and organizations such as the National Council of Welfare and the Canadian Council on Social Development. These cut-offs are created by estimating the percentage of gross income spent by the average household on food, clothing, and shelter. This percentage is then marked up by 20 points. The final value corresponds, on average, to a given household income level and this level becomes the low income cut-off for that year.

Current LICOs are based on national family expenditure survey data from 1992[10]. In 1992, it was estimated that the average family spent 34.7% of their income on basic necessities. By adding 20 percentage points, families spending more than 54.7% of their income on basic necessities (e.g., food, shelter, and clothing) are considered to be poor. It should be noted that some organizations might still use the 1986 base[11]. LICOs are adjusted annually to compensate for changes in the consumer price index. They are differentiated by five different family sizes and by degree of urbanization. This results in 35 separate low-income cut-offs (Statistics Canada, 1999).

Low income measures (LIMs). In 1988, Statistics Canada began a review of the current method for defining low income by circulating a discussion paper and holding meetings with interested individuals and organizations (Wolfson & Evans, 1989). Several proposals were made which included adopting a more relative approach to measuring poverty, adjusting for family composition (number of adults and children per household), and discontinuing adjustment for community size. The introduction of pre-tax LIMs[12] was seen as a potentially viable alternative to the traditional LICOs for measuring poverty rates (Statistics Canada, 1999b).

Unlike the LICOs, this measure is based on one-half of median gross pre-tax income, where median income is first adjusted for family size and composition. The adjustment is made to reflect the reality that a family's needs increase proportionally with each additional adult (16 years of age and older) or child. Fifty percent of the adjusted median income becomes the basic LIM for one person and adjustments are made upward according to family size and composition of household, resulting in 10 family types (Statistics Canada, 1999b). Families with adjusted income below 50% of the median family income for that year are considered to be poor. When compared to LICOs, the construction of LIMs is explicit. Taking one-half of the median income is self-explanatory with the median income itself dividing the population in half. Calculating LIMs does not involve the use of family expenditure and consumer price

index data. This avoids the problem of explaining periodic shifts in lines when new family expenditure data become available.

Summary

Poverty lines, albeit arbitrary, are important research tools for measuring material hardship of families. Both LICOs and LIMs provide for a level of income that accords with public opinion, which defines a family of four as being poor with less than $40,000 (Ekos Research Associates, 1999). In addition, they are supported by empirical research showing that negative psychosocial outcomes for children substantially diminish when income for a family of four is above $30,000 (Ross & Roberts, 1999). Compared to LICOs, LIMs take into account differences in family composition and do not require the use of family expenditure and consumer price index data.

Dimensions and Characteristics of Poverty

It is one thing to measure the rate of poverty and quite another to measure its severity. Rates do not show whether families are living in the abyss of poverty, just a few dollars below the poverty line or will fall into poverty with a small drop in their income. To obtain this sort of information, we need to measure the intensity or depth of poverty. Since rates are point-in-time data, it is not known how many families designed as poor in any given year will go on to experience many years of poverty and how many will experience only one year of poverty. To obtain information on the duration of poverty, we need to track family income over several years. Equally important, rates mask the heterogeneity of income source among the poor.

Intensity of poverty. The intensity or the depth of poverty for any given family is determined by computing the distance from the poverty line. This 'distance' represents the amount of income needed to move a family out of poverty. For example, the poverty line in 1998 for a family of four living in Canada was $32,706. [13] Suppose a

family of four reported an income half that amount, such a family would thus need an additional $16,353 to reach the poverty line.

Among all family types, single mothers tend to experience the greatest economic hardship. The National Council of Welfare (2000a) reports that single mothers had, on average, $9,230 less than the poverty line in 1998. Their situation marginally improved over the last decade (e.g., $10,549 below the poverty line in 1980). On the other hand, economic well-being among poor two-parent families deteriorated between 1980 and 1998. Such families had to manage with $8,772 less than the poverty line in 1998 compared to $8,692 less in 1980.

An alternative approach to capturing the intensity of poverty is to divide the total household income before taxes by its corresponding poverty line, adjusted for family size and composition. The resulting quotient, an income-to-needs ratio, denotes a family income at, below, or above the poverty line in that specific year (Duncan, Brooks-Gunn, & Klebanov, 1994; Huston, 1994). This approach is most often used in poverty research.

Measuring the intensity of poverty also allows researchers to determine the number of families who find themselves in a vulnerable economic position, but are not considered to be 'officially poor'. These are families who live near the poverty line (with incomes 100% to 185% of the poverty line or a ratio of 1.0 to 1.85) and struggle financially to make ends meet. Such families are represented as near-poor because they are eligible for a number of government programs for low-income families. What is more, they share the same concerns as families with incomes below the poverty line such as the need for affordable housing, higher wages, and lower fees for recreational activities. Near-poor families make up a large segment of the population. In 1998, for example, there were 600,000 Canadian families living with incomes between 100% and 125% of the poverty line. Including near-poor families in the calculation of family

poverty for that year would have resulted in a rate of 20.5% as opposed to 13.2% (not including near-poor; NCW, 2000a).

Duration of poverty. Tracking family income over several years permits researchers to distinguish between those who experience a short spell of poverty from those who go on to experience many years of poverty. Data from Statistics Canada's Survey of Labor and Income Dynamics (SLID, a longitudinal survey that tracks the same individuals over several years) reveal that between 1993 and 1996, the majority of single-parent families (57.5%) were poor for at least one year (36.2% were poor during all four years). In contrast, 16.2% of two-parent families experienced at least one year of poverty during that same period (7.3% were poor during three or four years; NCW, 1999). Recent analyses of the SLID data, which include two additional years, provide information on the duration of poverty among children. Between 1993 and 1998, 29% of children experienced at least one year of poverty, while 12% were poor for five or more years (CCSD, 2001).

Income source. Social welfare serves as an important security net for many Canadian families. In 1998, for instance, 69% of families who received welfare were single mothers. In that same year, only 35% of two-parent families received welfare (NCW, 2000a). For some of these families, welfare income may provide short-term income security; whereas for others it may become a long-term source of income (Bane & Ellwood, 1994).

While it is true that welfare-dependent families are poor, it is not necessarily true that all poor families rely exclusively on welfare. Census data 1998 on income source by family type show that among single mothers, 25% relied exclusively on earned income, 38% relied on welfare, and 25% combined welfare and earned income. Comparatively, 61% of two-parent families relied exclusively on earned income, 14% relied solely on welfare, and another 15% combined welfare and earned income (NCW, 2000a). Looking at historical census data from 1980 to 1998 reveal a trend toward

greater reliance on welfare (whether combined with earned income) among two-parent families. That is, only 6% relied exclusively on welfare in 1980 compared to 14% in 1998.

Summary

Measuring the intensity of poverty underscores important differences in economic deprivation among families, with some living in deep poverty (i.e., incomes half of the poverty line), others near poverty (e.g., incomes at or slightly above the poverty line), and still others living with incomes well above the poverty line. By tracking family income over several years, researchers are able to distinguish families who experience temporary economic hardship from those who experience chronic hardship. From a social policy perspective, such information enables policy-makers to evaluate the effectiveness of tax and transfer programs in redistributing income and in moving families permanently out of poverty. From a developmental perspective, measuring the intensity and duration of poverty allows researchers to compare the well-being of children in very poor and near-poor families to their peers in affluent families as well as to investigate the impact of persistent versus temporary poverty on development.

Looking at income composition among the poor provides a more precise understanding of their economic reality. It further dispels common misconceptions that all poor families rely on welfare and that welfare families do not participate in the labor market. The reality is that poor parents differ in their strategies of generating income to support their families. At any point in time, some families may rely solely on welfare while others may earn income as well. Still, other poor families may rely exclusively on earned income to care and provide for their children.

Literature Review

Income Poverty and Child Development

Broadening the Focus in Poverty Research: Heterogeneity of Income Source among Persistently-Poor Families

Empirical Research on Prospective Associations between Income Source and Child Development

Income Poverty and Child Development

In spite of recent progress in reducing poverty in North America, more than one million children live in families with incomes below the poverty line, and another million or more live in families struggling from paycheck to paycheck (incomes at 1.0 or 1.85 times the poverty line; CCSD, 2001; NCCP, 2000b). Relative to children from nonpoor families, those from poor families are more likely to be hospitalized and to develop chronic health problems during infancy (Davenport, 2001; Klerman, 1991). During childhood and adolescence, poverty has been linked to an array of adverse developmental outcomes, including heightened levels of psychological distress (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1993; Elder, Van Nguyen, Caspi, 1985; Lempers, Clark-Lempers, Simons, 1989), social maladjustment (Guerra, Huesmann, Tolan, Van Acker, & Eron, 1995; Offord & Lipman, 1996; Werner, 1989), health problems (Klerman, 1991; Ross & Roberts, 1999), as well as lower levels of cognitive/academic achievement (Hill & Sandfort, 1995; Patterson, Kupersmidt, & Vaden, 1990). The presence of psychosocial co-morbidity among poor children may significantly impede their future economic and social prospects in adulthood.

Economic hardship is not a static phenomenon. Longitudinal data available from the Panel Study of Income Dynamics (a survey of U.S. households launched in the 1960s) have allowed researchers to document the volatility of family income (Bane & Ellwood, 1994; Duncan, 1984, 1991; Stevens, 1994). While the majority of parents will experience economic hard times at some point in their lives, others will find that their economic misfortune lasts for many years. In keeping with this dynamic perspective of economic hardship, researchers have considered the timing and duration of poverty when examining children's development in social and academic domains.

We can discern three patterns of findings in poverty research. First, persistent poverty has more detrimental effects on cognitive/academic achievement and social functioning than does intermittent poverty (Brooks-Gunn & Duncan, 1997; Duncan & Brooks-Gunn, 1997; McLoyd, 1998). Second, during any stage of development, persistent poverty is a powerful and a consistent predictor of variations in children's cognitive/academic achievement, with associations being less strong and consistent when the outcome is behavioral adjustment (Duncan, et al., 1994; Korenman, Miller, & Sjaastad 1995; Pagani, Boulerice, & Tremblay, 1997; Pagani, Boulerice, Vitaro, & Tremblay, 1999). Third, when family income is assessed at various developmental stages, the experience of persistent poverty matters more when it occurs earlier than later in a child's life (Dubow & Ippolito, 1994; Duncan, Yeung, Brooks-Gunn, Smith, 1998). Such findings are independent of socio-demographic factors such as maternal age at first child-birth, education, and family structure known to distinguish families at the economic level and to influence child development.

Broadening the Focus in Poverty Research: Heterogeneity of Income Source among Persistently-Poor Families

Census data highlight a reality that is rarely addressed: Although poverty is often defined as a problem for nonworking families, the fact is that many families who are poor do work full- or part-time. What is more, many families relying on welfare are connected to the labor market. To ignore this fact is to deny the multidimensional experience of economic hardship in North America.

The low-wage poor or working-poor refer to families who are in the work force, but who do not earn enough to lift themselves out of poverty (Levitan et al., 1993). Among this group, some may choose to rely exclusively on their own earnings while others may choose to supplement their earnings with welfare. From a social policy perspective, the existence of poor families solely reliant on earned income casts serious doubts on the belief that work is a primary route out of poverty. The fact that

some poor families combine earned income with welfare also challenges misconceptions that welfare families lack a work ethic. From a developmental perspective, whether poor parents rely solely on welfare, exclusively on their earned income, or combine welfare and work may differentially affect children's behavioral and academic adjustment.

Parental Labor Market Participation and Child Development

Researchers have long recognized the role of parental work in socializing children (Bronfenbrenner, 1986; Hoffman, 1984; Wilson, 1987). Some theorists have argued that employment versus unemployment provides for different contextual influences within the home (McLanahan & Garfinkel, 1989; Wilson, 1987, 1991). Families who rely exclusively on welfare are by definition not in contact with the labor market, its contributors, and its culture. Being less connected to formal and informal socioeconomic networks reduces the possibility of knowing about employment opportunities/advancements. Without work experience, parents may not acquire the knowledge, values, and skills to socialize their children in the world of work once they reach adulthood. Consequently, weak attachments to the labor market may be damaging for both parent and child.

The benefits of parental engagement in the labor market may lie more in what it could represent to children's lifestyle, than what the extra cash could buy. For example, parental work may serve as a framework for daily behavior and family life, providing some necessary conditions for the development of social behavior (Wilson, 1987). Wilson (1991) explains that when children are raised in working families, they come to develop disciplined habits – habits reflected in the working behavior of their parents that may serve them well in later years. Other researchers (Parcel & Menaghan, 1994) suggest that when parents work, children have greater responsibility in the home, which may inadvertently prepare them to assume adult responsibility in the work of work. Furthermore, Guo et al. (1996) point out that parents involved in the labor market are better informed about the ways of obtaining

valued employment and how rewards are distributed in the work place. As such, they are better positioned to communicate to their children the connection between education and employment opportunities. In turn, children may more readily appreciate the value of their academic training. Accordingly, then, when children of working parents become adults they have a distinct advantage in the labor market (i.e., they developed the disciplined habits and obtained more schooling) compared to those who grew up without the presence of a working parent.

Social and Political Views about Parental Labor Market Participation

The importance of work in the lives of poor children can be understood from yet another perspective. Persistently-poor families, regardless of their income source, raise their children in a social and political climate where disputes about social contribution versus social dependence have raged on for decades. Work has always been highly valued in society. Engaging in work communicates responsibility, commitment, and pride in contributing to society. "Working poverty" for families, then, symbolizes independence. Programs to support working-poor families have traditionally been more readily accepted by the general public than those that provide cash assistance to nonworking poor families (Gilens, 1999; Ooms, 1992).

Social programs across North America, once designed to assist all low-income families, are now primarily geared to support those who work. For example, policies governing Canada's National Child Benefit System deny nonworking families additional income. In addition, some Canadian provinces have opted to increase earning exemptions as opposed to increasing welfare benefits to meet the cost of living (NCW, 1997). In the U.S., welfare recipients are required to find work within two years of entrance into the welfare program. Cash assistance is limited to a maximum of five years over an individual's lifetime (Pavetti, 2000; Zuckerman, 2000). Families unable to work thus face greater discrimination and isolation (Sidel, 1996).

Implicit in such practices is the assumption that long-term welfare receipt traps children in a cycle of dependency and poverty. It does so by altering parents' values, attitudes, and behaviors which, in turn, undermine their children's motivation to develop the social and academic skills necessary to achieve financial independence later in life (Mead, 1989, 1992). Other researchers (Anderson, 1978; Murray, 1984) claim instead that welfare traps both parents and children in poverty because it offers an alternative to work. Children may come to learn a way of life that does not correspond to the ethics of mainstream society which favors self-reliance and individual contribution to the economic system. Regardless of how the issue of social dependence is framed, proponents of such views believe that enhancing children's social and academic development depends primarily on changing the employment behavior of parents.

But as it turns out, social dependence like poverty, is not a unidimensional concept. Prior to changes in policies governing social programs for low-income families, many welfare-dependent families were participating in the workforce (Harris, 1996; Knitzer & Aber, 1995; Rainwater et al., 1986). The dichotomy between welfare and work is therefore not simple. For some poor families, welfare and work may be a complementary as opposed to a divergent strategy for generating income. A distinction would be needed to clarify the meaning of 'self-reliance' when both work and welfare activities are simultaneously considered. Total self-reliance among families should thus refer to a situation wherein work provides the sole source of income; whereas partial reliance should make reference to a situation wherein work is combined with welfare.

A Counter-Perspective on Total Self-Reliance in the Context of Persistent Poverty

Although persistently-poor families who rely exclusively on their earned income (hereafter referred to as the working-poor) may not experience the stigma faced by families who rely on welfare, they are disadvantaged in terms of their command and access to resources when compared to families not in a marginal economic situation (i.e., the never-poor who work). Working-poor families have less disposable income for recreational spending as well as for saving and investing in their children's education. In addition, they have fewer years of formal education, making them less skilled in helping their children master more demanding school curricula as they advance in grade.

Unlike their nonpoor counterparts, working-poor parents are economically vulnerable to slight variations in family need and income. Research has shown that economic insecurity can have detrimental effects on the lives of both parents and children (Elder & Caspi, 1988; Elder, Van Nguyen, & Caspi, 1985). Working-poor parents are often confined to low-complexity, low-wage jobs that offer little opportunity for advancement (Levitan et al., 1993; Riemer, 1997). When mostly manual or monotonous work brings few material rewards and security, parents may feel frustrated, tense, and demoralized (Chilman, 1991; Riemer, 1997). Their emotional state may impinge on their capacity to supervise, monitor, and discipline their children (McLoyd, 1990, 1998). The benefits of work may therefore be jeopardized by the persistence of poverty wages.

From yet another perspective, research suggests that children may perceive their destined place in the socioeconomic system as a result of their economic background (Weinger, 1998). That is, by observing their parents work hard at undesirable jobs and remain poor, children may come to believe that their own prospects of getting a well-paying high-status job are not good. McLoyd (1989) reasons that if children's work aspirations diminish, doing well in school might be seen as less important for future economic success. Consequently, academic performance may suffer. In terms of

social adjustment, strain theory postulates that deviant behavior develops when a youth perceives fewer opportunities in his or her environment to achieve educational and occupational success through conventional means (Cloward & Ohlin, 1960; Cohen, 1955). Hence, it would appear that children of working-poor parents might be at risk of displaying behavioral maladjustment and academic problems by virtue of their family's marginal economic position.

Combining Work and Welfare: The Case for Partial Self-Reliance

What about poor families who combine welfare and work (hereafter referred to as the work-and-welfare-dependent)? How would their children fare? Do they harbor the same risks as poor families who rely solely on welfare (i.e., welfare-dependent) or do they resemble the working-poor? On one hand, work-and-welfare-dependent families are attached to the labor market. Similar to children from working-poor families, their children may experience the organization and structure afforded by parental work. On the other hand, work-and-welfare-dependent families may be stigmatized by policies that aim to eliminate parental dependency as an indirect means to eradicate poverty (Bronfenbrenner & Weiss, 1983). As such, similar to children from welfare-dependent families, their children may be exposed to negative attitudes toward welfare recipients conveyed by agencies and by the general public. Similar to the welfare-dependent, but unlike the working-poor, children of work-and-welfare-dependent families may experience a sense of financial stability. If parents lose their job or experience a personal crisis, they can count on monthly welfare payments (albeit at very low levels) to sustain their family (cf. Coley & Chase-Lansdale, 2000). By contrast, working-poor families would lose their only source of income in the event of an economic or a personal crisis. Hence, children from work-and-welfare-dependent families may benefit from the income security provided for by welfare.

Empirical Research on Prospective Associations between Income Source and Child Development

There is a paucity of empirical research examining whether parental income source within the context of persistent poverty is prospectively associated with children's social and academic outcomes, and the possible pathways which may explain any differential associations. The most relevant studies are (1) those which have addressed the issue of associations between long-term welfare receipt (versus no welfare dependence) and child well-being; (2) those examining associations between income packaging (i.e., welfare-only, work-and-welfare compared to work-only) and child outcomes; and (3) those which have compared outcomes of children from welfare-dependent, working-poor, and nonpoor families using cross-sectional data. The studies selected for this review have controlled for a range of socio-demographic characteristics that tend to co-occur with poverty. For the most part, the data originate from national and representative community-based samples of moderate-to-large size.

One may argue that studies looking at the transition from welfare to low-wage work may provide some insights about the potential influence of parental work within the context of poverty on child development and family processes (Hofferth, Smith, McLoyd, & Finkelstein, 2000; Menaghan & Parcel, 1995; Moore & Driscoll 1997; Smith, Brooks-Gunn, Kohen, & McCarton; 2001; Zaslow, Moore, Morrison, & Coiro, 1995). It is important to note that this line of research focuses on the 'recent working-poor'. These families are in the process of adapting to their changed economic circumstances and children may react negatively to parental transition. Research has shown that children of parents who recently left welfare displayed more problem behavior than those whose parents had been off welfare for some time, never on welfare, or were currently on welfare (Hofferth et al., 2000). Investigators have also drawn attention to the significance of knowing whether former welfare families have moved out of poverty. Children whose parents left welfare but remained poor displayed developmental outcomes that were either comparable to

children from nonworking families (Moore & Driscoll, 1997), or worse than those in families who were never on welfare (Smith et al., 2001; Zaslow et al., 1995). In a study by Smith et al., mothers who left welfare and remained poor were more likely to use harsh parenting behavior than those who left both welfare and poverty. The transition from welfare to working-poor has also been associated with worsening home environments (Menaghan & Parcel, 1995). The influence on child well-being and parenting behavior when parents move from welfare to work (and whether they exit poverty) may be due to the voluntary nature of entry into work, changes in parent-child relationship, and child care arrangements (Zaslow & Emig, 1997; Wilson, Ellwood, Brooks-Gunn, 1995).

This thesis, by contrast, focuses on families who have endured specific economic circumstances, as defined by their income source and poverty status, for an extended period of time. This provides a context for comparing the influence of stable economic states (as opposed to transient states) on children's development in both behavioral and academic domains. Another important distinction to bear in mind is that it focuses on children and families prior to cutbacks in federal cost-sharing of social assistance as well as before the implementation of new policies for redistributing income which occurred in the late 1990s in Canada. It will be some time before the full impact of these recent changes in social programs on children are known. In the interim, however, we can become informed about the well-being of children from persistently-poor families differing in parental income source compared to those in never-poor working families. Such data may be pertinent to future research, since many families will find themselves working and remaining poor for several years, others will remain dependent on welfare, and still others may choose to combine welfare and work under new policies. With this in mind, we review research on the impact of stable economic circumstances on children's social and behavioral development.

Welfare Dependence and Child Well-Being

There is considerable research documenting the developmental outcomes of children from families receiving welfare for a long period of time, though the findings are inconsistent. The results tend to depend on how welfare receipt is defined, during what period of development it is measured, and what specific academic or behavioral outcome is considered. Results may also depend on what variables were implemented as controls.

No associations. Two independent studies using data from the National Longitudinal Survey of American Youth (NLSY) report no associations between long-term welfare receipt and children's cognitive and behavioral functioning. In Yoshikawa's (1999) study, for example, exposure to family welfare during the first five years of life was not associated with cognitive ability in children aged between 6 and 7, controlling for socio-demographic characteristics, family structure, and maternal cognitive ability[14]. Levine and Zimmerman (2000) also found no associations between welfare exposure, since the child's birth, and behavioral and cognitive functioning in children aged between 5 and 15, when controlling for variability between siblings, childhood behavioral characteristics, and socio-demographic factors. In other research using the National Longitudinal Surveys (NLY), Teachman, Paasch, Day, and Carver (1997) observed no significant associations between welfare receipt, measured over a two-year period in middle adolescence, and educational outcomes (high school graduation, years of completed schooling, and college attendance) when controlling for adolescents' general cognitive ability, parental education, and family structure.

Negative associations. Other American-based studies using the Panel Study of Income Dynamics (PSID) data find negative associations between long-term welfare reliance and educational attainment even when adjustments are made for a host of socio-demographic characteristics, including income, maternal age at first birth and education as well as family structure. For example, Duncan and Yeung (1995) found that parental welfare receipt during adolescence (ages 10 to 16) was associated with

less years of completed schooling[15]. In other research carried out with PSID data, Haveman, Wolfe, and Spaulding (1991) showed that growing up in a family that was persistently poor and reliant on welfare lowered the likelihood of high school graduation compared to growing up in a family that was never simultaneously poor and receiving welfare. This negative association was especially pronounced when the experience of poverty and welfare occurred in adolescence. Although it is not clear what was meant by a family being never simultaneously poor and receiving welfare, one may assume that the experience of persistent welfare dependence is more detrimental to academic achievement than the experience of persistent poverty and work (no dependence).

Negative associations between long-term welfare receipt and child development are also noted in research using data from the Baltimore Study, a multigenerational study of approximately 300 teenage mothers, mostly African American, that began in the mid 1960s (Brooks-Gunn & Furstenberg, 1987; Furstenberg et al., 1987). This project is perhaps among the fewest investigations tracing the life course of adolescent parents from first pregnancy to later adulthood, looking both at mothers and their offspring. Although the Baltimore sample was not selected to be a representative sample, the original group of teenage mothers was similar to youths who became mothers in Baltimore in the late 1960s. A most interesting feature of this project is the possibility of observing associations between welfare receipt and outcomes at various developmental stages. In early childhood, for example, welfare receipt was associated with lower cognitive scores at age 5. Mothers relying on welfare also tended to rate their children as being less cooperative and more disobedient at age 5. In adolescence, welfare continued to pose a risk to cognitive performance. Children whose families had relied on welfare from ages 10 to 15 were at greater risk of academic failure by age 15 than those whose families had not relied on welfare.

Research using Canadian data also reports negative associations between welfare receipt and child well-being. Offord, Boyle, and Jones (1987) used data from the Ontario Child Health Study (OCHS) to investigate associations between welfare receipt in the previous 12 months and psychiatric disorders and school performance. The OCHS is a province-wide cross-sectional study of Ontario children aged sixteen and younger. They found that children between the ages of six and sixteen in welfare families were at significant risk of lower school performance and psychiatric disorders compared to their peers from nonwelfare families. The study by Lefebvre and Merrigan (1998) with data from the National Longitudinal Study of Canadian Youth also deserves mention. In that research, the goal was to determine whether parental work in the previous 12 months was significantly associated with child cognitive and social functioning when controlling for a host of demographic factors. They found that parental work was not associated with verbal performance among children aged between 4 and 5, and only weakly associated with behavioral maladjustment among children aged between 4 and 11. However, other control variables which included family welfare receipt in the previous 12 months were strongly associated with worse outcomes across both domains of competence. The findings from both Canadian studies are limited due to the cross-sectional nature of the data. It is not known whether associations between welfare receipt and child outcomes would remain in a population sample of Canadian families using a prospective approach to the analyses.

Positive associations. Albeit few and far between, a handful of studies find positive associations between welfare exposure and academic achievement when controlling for differences in income, maternal education and family structure. A study by Peters and Mullis (1997) using data from the National Longitudinal Survey of Labor Market Experience of Youth found associations between welfare receipt and educational attainment. That is, welfare receipt during a 3-year period in adolescence was associated with higher educational attainment for African Americans, but with lower attainment for Caucasians. In a study by Coley and Chase-Lansdale (2000) involving African-American adolescent girls growing up in poor neighborhoods,

welfare receipt since the child's birth was significantly associated with higher school grades. Coley and Chase-Lansdale offer three explanations for their finding. First, the receipt of welfare may provide a sense of economic security. Second, relying on welfare may translate into more time spent with children (especially for single mothers). Third, children living in families dependent on welfare may feel the need to better themselves, presumably through a negative modeling process. However, such conclusions are based on retrospective reports of welfare receipt, precluding the veracity of claims. Moreover, the findings are limited to the particular population under study - African American adolescent girls living in targeted impoverished areas in urban Chicago.

Caveats. Differences in measures, methods, and analytic plans across the welfare studies preclude making definitive statements about prospective associations between long-term welfare dependence and children's behavioral and academic development. None of the studies cited above, including those with available longitudinal data, distinguished families whose income source was welfare only from those who combined welfare and work over the study period. This distinction is important: Families who rely on both welfare and work have closer contact with the labor market, presumably providing for different contextual experiences of poverty. Children from work-and-welfare-dependent families may thus differ from their peers in families solely reliant on welfare.

Welfare-only, Work-and-Welfare, Work-only and Child Well-Being

Research that simultaneously considers work and welfare activities of poor families with children provide much needed information for public policy with regard to whether complete reliance on the welfare system is more detrimental to children than partial reliance (i.e., combining welfare and work). This type of research can also help clarify whether complete self-reliance (no exposure to welfare) is most beneficial to poor children. Studies in this area are limited. Only three studies have examined the influence of this work-welfare classification on children's development, controlling for

income, maternal characteristics (e.g., education), and family structure. The findings from this strand of research are consistent when the criterion is cognitive/academic functioning, regardless of when it is assessed.

In a study by Smith, Brooks-Gunn, Klebanov, and Lee (2000), data from the NLSY were used to identify groups of low-income families (incomes at or below 200% of the poverty line averaged over the first three years of the child's life) differing in their work and welfare patterns during the three-year period. Cognitive and behavioral outcomes were obtained when the children were between ages 5 and 6. Results revealed a negative association between sole welfare dependence during the first three years of life and cognitive functioning, but no significant association with behavioral maladjustment. Children whose families relied exclusively on welfare (i.e., no work engagement) had significantly lower reading achievement test scores than those whose families relied exclusively on their own earnings during the entire 3 years (i.e., working-poor). This finding remained even after additional controls for maternal aptitude and child race.

In other research by the same group of investigators, a similar conclusion was reached with regard to cognitive functioning in young children participating in the Infant Health and Development Program (Brooks-Gunn, et al., 2001). The families selected all had incomes below 200% of the official US poverty line when averaged over the first three years of the child's life. Cognitive and behavioral outcomes were assessed when the children were 3 years of age. Brooks-Gunn et al. found that family strategies of combining work and welfare were differentially related to variations in outcomes. Relying exclusively on welfare was negatively associated with children's cognitive test scores. The finding for the association between behavior and exclusive welfare reliance was in the expected direction, but was not significant at conventional levels. No significant differences in any outcome measure were found between children whose families combined work and welfare (i.e., work-and-welfare-dependent) and those in working-poor families.

The study by Guo, Brooks-Gunn, and Harris (1996) focusing on the risk of repeating a grade throughout primary and secondary school is worth noting. Data from the Baltimore Study were used to distinguish families on the basis of whether income was exclusively from work, exclusively from welfare, or from work and welfare since the child's birth and throughout the school years. They found that children from families who relied exclusively on welfare since birth were at greater risk of academic failure by grades 4 to 9. Persistent welfare dependence was not associated with grade retention in the earlier school years (i.e., grades 1 to 3). Children from work-and-welfare-dependent families showed rates of grade retention that were comparable to those from families relying exclusively on earned income. These findings remained even after differences in children's preschool verbal test scores were taken into account. In this study, income was measured only once when the children were about 5-years-old. There is no telling whether some families who derived income from work managed to escape poverty at some point in time.

Caveats. Those concerned about the negative influence of long-term welfare receipt in the absence of work might be encouraged by these findings suggesting that any contact with the labor market is beneficial for children living in poverty. Neither study, however, directly compared the outcomes of children from working families who remained poor with those from working families who were never poor. While the analytic strategy of controlling for income permits isolating the effects of sole welfare dependence as opposed to work engagement, it also carries with it the disadvantage of removing any benefit that might be associated with work as opposed to no work in the context of persistent poverty. A more convincing argument for the importance of parental self-reliance (partial or total) in the context of poverty would be to compare children from persistently-poor families relying exclusively on earned income (i.e., working-poor) as well as those from work-and-welfare-dependent families with their peers from never-poor working families.

Welfare-Dependent, Working-Poor, Nonpoor and Child Well-Being

The only relevant research which compared groups of poor children from working and welfare-dependent families to those from nonpoor families are cross-sectional in nature. Cross-sectional data only provide a snap-shot view of group differences. They do not permit determining the direction of associations or disentangling pre-existing differences in inherent child characteristics from differences due to income source. In addition, the cross-sectional studies reviewed below make no distinction between families solely dependent on welfare from those who combine work and welfare.

With data from two large national samples (the NLSY and the National Health Interview Survey on Child Health), Zill, Moore, Smith, Stief, and Coiro (1995) compared the outcomes of children whose families had received welfare in the previous year, those in poor families who had not received welfare (i.e., working-poor), and those in families who were neither poor nor welfare-dependent. Behavioral and academic outcomes were assessed when the children were between ages 17 and younger. They found that children from working-poor families showed a slightly better profile of adjustment compared to their peers from welfare-dependent families, though differences were insignificant. However, both groups of poor children were doing substantially worse when compared to their peers from nonpoor families. Controlling for socio-demographic factors (e.g., parental education and family structure) as well as for child gender, age, and ethnicity reduced group differences, but did not eliminate them entirely. For example, in terms of academic achievement, 22% and 26% of children from working-poor and welfare-dependent families, respectively, had repeated a grade compared to only 17% of the children from nonpoor families. Likewise, 30% and 36% of children from working-poor and welfare-dependent families, respectively, scored above the 90th percentile on the Behavior Problem Index, compared to only 19% of children from nonpoor families. These figures represent adjusted proportions.

In another study using a community-based sample of families, Kalil and Eccles (1998) compared the outcomes of children from families who had received welfare in the previous year, those in poor families who had not received welfare (i.e., working-poor), and those in nonpoor families. Behavioral and academic outcomes were assessed when children were between 11 and 15 years of age. They found no significant differences on any of the outcome measures when controlling for a number of socio-demographic factors (e.g., maternal education and family structure) as well as for ethnicity, economic strain, and neighborhood characteristics.

Caveats. One shortcoming of focusing on a single year is that it masks the possibility that some families may have fallen on hard times for a brief period (i.e., temporary poverty or welfare reliance); whereas others may have been living in persistent poverty or relying on welfare since the childhood years. These data show outcomes as a result of economic circumstances during one single year. It is not known whether differences in children's behavioral and academic outcomes would be found when a longitudinal approach to poverty intensity and income source is used.

Summary

Research suggests that children's conceptions of poverty, sensitivity to purchasing power, and notions of equity become increasingly sophisticated during middle childhood (Chafel, 1997), perhaps heightening their awareness of parents' economic standing as well as susceptibility to welfare stigma and role modeling. However, the findings from research focusing exclusively on the impact of exposure to welfare dependence during middle childhood or adolescence are inconsistent, with some reporting detrimental effects (Duncan & Yeung, 1995; Furstenberg et al., 1987; Haveman et al., 1991), others reporting seemingly benign impacts of welfare receipt (Coley & Chase-Lansdale, 2000; Peters & Mullis, 1997), and still others finding no effects (Teachman et al., 1997). None of the studies cited above have distinguished families whose income source was exclusively from welfare from those who combined welfare with work. As well, they did not clearly define their reference group.

Some nonwelfare families, for example, are poor. The few studies that distinguished welfare families on the basis of work activity suggest that sole welfare-dependence is most detrimental to children, regardless of when outcomes are assessed (e.g., Smith et al., 2000; Brooks-Gunn et al., 2001; Guo et al., 1996). However, in that research, the comparison group consisted of nonwelfare poor families (or the working-poor). There is no telling whether children of working-poor families are developing on a par with those of never-poor working families.

When the research goal is to compare the developmental risks associated with growing up in welfare-dependent, working-poor, and work-and-welfare-dependent families, adjusting child outcomes for income differences could remove any benefit that work might confer onto poor children (e.g., self-reliance and contextual experiences). By using a family's poverty status as a grouping variable, we are able to examine how children from persistently-poor families differing in income source are performing in comparison to their peers from never-poor working families. This analytic strategy enables to determine whether (a) welfare-dependence, in the absence of any work, is associated with worse developmental outcomes, and (b) work, in the absence of welfare, is associated with better outcomes. It also provides some clarification as to the influence of parental work in the context of persistent poverty on children's behavioral and academic functioning.

A number of possible pathways through which family economic circumstances may affect children's behavioral and academic adjustment have been suggested in the poverty literature (Brooks-Gunn & Duncan, 1997; Duncan & Brooks-Gunn, 2000; McLoyd, 1998). In the next section, we review research supporting parenting behavior and educational aspirations for the child as family process variables.

Pathways by which Economic Circumstances Influence Child Development

Parenting Behavior and Parental Aspirations in the Context of Persistent Poverty

Pathways by which Economic Circumstances Influence Child Development

Parenting is said to be a cornerstone of social development. Although schools and the larger community are involved in the process of socializing children, promoting civic behavior remains a fundamental task of parents (Basic Behavioral Science Task Force of the National Advisory Mental Health Council, 1996). Research suggests that childhood deviance is reduced when children are raised in homes where parents are warm, supportive, involved, and monitor their whereabouts (Bradely, Whiteside, Mundfrom, Casey, Kelleher, & Pope, 1994; Hanson, McLanahan, & Thomson, 1997; Maccoby & Martin, 1983; Loeber & Stouthamer-Loeber, 1986; Pettit, Bates, & Dodge, 1997; Steinberg, Elmen, & Mounts, 1989; Wyman, Cowen, Work, Hoyt-Meyers, Magnus, & Fagen, 1999). In particular, cross-sectional and longitudinal studies have shown that higher levels of parental supervision are associated with lower levels of behavioral maladjustment throughout childhood and adolescence (Haapasalo & Tremblay, 1994; Pagani et al., 1999; Patterson & Stouthamer-Loeber, 1984; Loeber & Stouthamer-Loeber, 1986; Patterson, DeBaryshe, & Ramsey, 1989; Sampson & Laub, 1994; Weintraub & Gold, 1991; Wilson, 1980).

Aside from promoting adaptive social behavior, parents play an important role in influencing their children's achievement-related behavior. Parents who hold high educational expectations/aspirations for their child, for example, are likely to have children who value school as being important for their future (Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001). Several studies have reported a significant association between parents' educational expectations/aspirations for their child and children's actual school performance (Barber & Eccles, 1991; Entwisle & Baker, 1983; Gill, 1997; Halle, Kurtz-Costes & Mahoney, 1997; Reynolds & Gill, 1994; Seginer, 1983, 1986). Parents' educational aspirations/expectations may represent long-term socialization of goals and values they hope to transmit to their children (Barber & Eccles, 1992).

Parenting Behavior and Parental Aspirations in the Context of Persistent Poverty

Parenting behavior and parental educational aspirations for child are linked with the broader social and economic context (Bronfenbrenner, 1986). When family economic circumstances are strained, for example, the capacity of parents to use effective disciplinary strategies or to remain vigilant of their children's activities and affiliations may be compromised (Dodge, Pettit, & Bates, 1994; Patterson, DeBaryshe, & Ramsey, 1989). Put differently, rewarding good behavior, negotiating activities, rules, and regulations, as well as supervising their whereabouts require time, energy, and concentration - parenting resources that are in short supply when parents are preoccupied with economic worries (McLoyd, 1990).

Financial hardship or economic insecurity may also render parents pessimistic about their lives and the economic future of their children (Galambos & Silbereisen, 1987). Poor parents tend to feel less confident that they will have the material resources to support their children through school (Galper, Wigfield, & Seefeldt, 1997; Stevenson, Chen, & Uttal, 1990). Without abandoning the values placed on success such as obtaining a solid education, parents living in poverty may adapt their aspirations for their children's future education in terms of what is realistically possible given their limited resources, making lower educational degrees desirable and acceptable (see Seigner, 1983).

Parenting Behavior Pathway to Behavioral Maladjustment

Financial hardship has been associated with behavioral maladjustment by reducing parental warmth, responsiveness, supervision, and the use of effective disciplinary strategies. This mediating process has been established at different developmental stages in studies of families experiencing drastic income loss (Conger et al., 1992, 1993; Elder & Caspi, 1988; Elder et al., 1985; Lempers et al., 1989), past work interruptions or current unemployment (McLoyd, Jayaratne, Ceballo, &

Borquez, 1994), and low-wage work (Jackson, Brooks-Gunn, Huang, & Glassman, 2000).

Evidence of a parenting pathway toward behavioral maladjustment in studies involving families living in persistent economic hardship is less consistent. Bolger, Patterson, Thompson, and Kupersmidt (1995) tested this mediational model using data from the Charlottesville Longitudinal Study. They found that associations between persistent poverty and children's behavioral problems, popularity, and self-esteem during primary and secondary school were partially mediated by teacher-ratings of maternal involvement in the child's schooling. In that research, poverty was operationally defined as children's participation in a subsidized school lunch program over a three-year period beginning in middle childhood. Whether the mediational model would have been supported with controls for possible correlates of poverty remains an issue.

Reanalyzing data from the Glueck's (Glueck & Glueck, 1950, 1968) original study of juvenile delinquency, Sampson and Laub (1994) found that ineffective parenting practices (erratic/harsh discipline, low supervision, weak attachment bond) mediated the association between chronic poverty and delinquency in boys aged between 10 and 17. Ineffective parenting continued to explain a significant variance in adolescent delinquency even when controlling for socio-demographic factors and antisocial characteristics of both parent and child. A caveat of this study, however, was the use of retrospective data which are open to report bias.

Other research using a prospective design and controlling for correlates of poverty (e.g., maternal education and family structure) reports no evidence for the mediating role of parenting behaviors. A study by McLeod and Shanahan (1993) using data from the NLSY found that lower levels of maternal responsiveness and the frequent use of punishment did not explain the significant association between persistent poverty (defined as family income below the poverty line since the child's

birth) and behavioral maladjustment in children of ages four and eight. Research by Pagani, Boulerice, Vitaro, and Tremblay (1999) involving boys living in poor urban neighborhood also found no support for the parenting pathway toward maladjustment. The significant association between persistent poverty (defined as an income-to-needs ratio less than 1.0 from ages 10 to 16) and delinquency at age 16 was not explained by lower levels of parental supervision at age 12. Analyses controlled for early child disruptiveness.

In considering the results above, it is important to bear in mind that the studies did not distinguish between income source within their poor sample of families. Parenting behaviors may vary within groups of poor families. For example, in the study by Kalil and Eccles (1998), children from welfare-dependent families experienced fewer effective parenting management practices (e.g., discipline, parental supervision) than their counterparts in working-poor families. In Zill et al.'s study (1995), differences in home environments (in terms of warmth, supportiveness, and cognitive stimulation) between children from working-poor and welfare-dependent families were relatively small compared to the larger differences observed between these two disadvantaged groups and those from nonpoor families. Whether the parental supervision pathway toward disruptive behavior would be supported in longitudinal research involving persistently-poor families differing in income source warrants study.

Parental Educational Aspirations Pathway to Academic Underachievement

In comparison to the volume of studies on parenting behaviors as process variables, very little is known about the role of parents' aspirations for their child's educational future. Although research has yet to determine whether parents' educational aspirations for their child would mediate the impact of poverty on academic failure, the findings available seem to support such a role. In their review of the literature pertaining to family influences on academic achievement, Hess and

Holloway (1984) identified several factors linking socioeconomic variables to children's school performance, which included cognitive stimulation, reading to children, and parents' expectations/aspirations for the child educational attainment. In a cross-sectional study focusing on family poverty, Lee and Croninger (1994) found that family support variables for achievement such as parental involvement, literacy resources in the home, and expectations for the child's educational future significantly reduced the association between poverty and lower reading achievement among eighth graders.

Whether parents' educational aspirations for their child would mediate associations between income source within persistent poverty and academic failure is not known. One may speculate that persistently-poor parents attached to the labor force may readily see the connection between higher education and valued employment, thereby expressing higher aspirations for their child. Still, their aspirations may not be comparable to those of parents who are not living in economically strained circumstances. There is some suggestion that differences in parental aspirations may indeed exist between and within economic groups. Parents with greater market earnings (e.g., never-poor working) tend to define educational success at higher levels than parents with lesser earnings (e.g., the working-poor) or families dependent on welfare (see McLoyd, 1998).

Summary

Parental supervision of children's whereabouts during the vulnerable period of preadolescence may reduce behavioral maladjustment, while parents' educational aspirations for their child may motivate children to do well in school. When economic circumstances are strained, however, the capacity of parents to remain vigilant of their children's whereabouts may be compromised. As well, living in persistent poverty may reduce parents' educational aspirations for their child. Whether

these parenting characteristics account, in part, for prospective associations between income source within persistent poverty and child outcomes has yet to be determined.

Any developmental study involving persistently-poor families differing in income source would need to account for factors that may explain observed direct and mediated associations. Factors that distinguish families at the economic level as well as affect parenting characteristics and child development are numerous. In the next section, we consider some factors generally controlled for in poverty research.

Factors Associated with Economic Circumstances, Parenting Characteristics, and Child Development

Inherent Child Characteristics

Factors Associated with Economic Circumstances, Parenting Characteristics, and Child Development

Research involving economically diverse populations would need to rule out the possibility that some third or co-occurring variable, or a constellation of such variables actually explain the observed differences in children's developmental outcomes, even when the main predictor (e.g., economic circumstances) precedes the outcome. Contemporary researchers investigating the influence of poverty on child development statistically control for a number of sociodemographic characteristics such as parental education, maternal age at first child-birth, and family structure known to distinguish group membership at the economic level, as well as to influence children's behavioral and academic development. Consequently, these variables should be controlled when evaluating the true developmental risks associated with growing up in a persistently-poor working, welfare-dependent, and work-and-welfare-dependent family.

Sociodemographics and family economic circumstances. Research has shown that children from one-parent families are more likely to live in poverty than children from two-parent families (Betson & Michael, 1997; Duncan & Rodgers, 1988; McLanahan & Sandefur, 1994; Stevens, 1994). Families dependent on welfare tend to be disproportionately comprised of single mothers; whereas working-poor families usually consist of two parents (Bane & Ellwood, 1994; Levitan et al., 1993). In addition, fewer years of formal schooling severely limit employment opportunities and increase welfare dependence and poverty (Corcoran, 1995; Parcel & Menaghan, 1997). Having a child in adolescence or early adulthood has also been shown to increase the likelihood of unemployment and welfare dependence (Bane & Ellwood, 1994; Coley & Chase-Lansdale, 1998; Hardy, Astone, Brooks-Gunn, Shapiro, & Miller, 1998; Monroe & Tiller, 2001).

Sociodemographics and child outcomes. A number of developmental studies have identified maternal education as an important demographic resource for children. Higher levels of maternal education were associated with higher cognitive/academic achievement (Galper et al., 1997; Kalil & Eccles, 1998; Luster, Bates, Fitzgerald, Vandenbelt, & Key, 2000; Yoshikawa, 1999), a lower risk of grade retention in both early and later schooling (Furstenberg et al., 1987; Guo et al., 1996; Pagani et al., 1999), and fewer behavioral problems (Duncan et al., 1994; Pianta, Egeland, & Sroufe, 1990). Other studies have reported on the significant association between family status and child development. Having spent time in a single-parent family was associated with lower academic achievement and higher behavioral problems (Demo & Acock, 1996; Pagani et al., 1997; McLanahan & Sandefur, 1994). In other studies, maternal age at first birth was associated with developmental outcomes, with children of older mothers exhibiting fewer socioemotional and academic problems (Dubow & Luster, 1990; Eamon & Zuehl, 2001; Furstenberg et al., 1987; Levine, Pollack, & Comfort, 2001; Wakschlag, Gordon, Lahey, Loeber, Green, & Leventhal, 2000).

Sociodemographics and parenting characteristics. Maternal education has been associated with a higher quality of home environments in terms of warmth, responsiveness, support for learning, parent-child communication, and supervision (Brooks-Gunn, Klebanov, & Liaw, 1995; Furstenberg et al., 1987; Kalil & Eccles, 1998; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998). Other research has shown maternal age at first birth to be associated with variations in parenting practices (Eamon & Zuehl, 2001; McGroder, 2000). There is also evidence highlighting the influence of family structure on parenting behaviors. Single-parent families, for example, tend to supervise their children less than two-parent families (Demo & Acock, 1996; McLanahan & Sandefur, 1994).

There is some research which suggests that demographic characteristics may influence parents' involvement in the child's schooling as well as their aspirations

for the child's educational attainment. For example, mothers with more years of formal education are more familiar with the school context and may value and feel more confident in helping their children through school. These characteristics may increase their involvement in school activities (Brody & Flor, 1998; Brody, Stoneman, & Flor, 1995; Stevenson & Baker, 1987) as well as their educational expectations/aspirations for children (Gill, 1996). Single parents tend to have less time to devote to children's schooling due to limited resources and support. Consequently, they may adjust their aspirations downward to reflect what they consider to be attainable educational goals by their child (Barber & Eccles, 1991; Thompson, Alexander, & Entwisle, 1988). At present, the influence of maternal age at first birth on parents' educational aspirations is not known.

Inherent Child Characteristics

Even when these aforementioned sociodemographic factors are statistically controlled, there remains the possibility that children's inherent characteristics might be driving the observed differences in later adjustment. There is considerable evidence suggesting that the manifestation of social difficulties during the elementary school years may merely reflect the continuation of difficulties that began during earlier years (Aguilar, Sroufe, Egeland, & Carlson, 2000; Moffitt, 1990, 1993; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Nagin & Tremblay, 1999; Tremblay, Pihl, Vitaro, & Dobkin, 1994). Other studies suggest that early inattentiveness may negatively affect academic progress through elementary school (Pagani et al., 1999; Tremblay & Zhou, 1991).

Change model approach. Although randomized experimental studies would provide the most compelling evidence that family economic circumstances are causally related to later child outcomes, the change model approach represents a useful alternative for studies with repeated measures of child behavior (Duncan et al.,

1994). Basically, this approach estimates the influence of family economic circumstances on changes in adjustment by having children serve as their own controls. It is suggested that controlling for early child adjustment in a longitudinal analysis represents a practical method to account for the influence of biologically based characteristics (Huston, McLoyd, & Garcia-Coll, 1997; McLoyd, 1998). A few examples from the literature highlight the importance of controlling for children's initial level of adjustment when predicting later adjustment.

Duncan et al. (1994) used a change model approach to assess the impact of family income on cognitive and behavioral development between ages 3 and 5. They found a strong and significant association between income and IQ at age 5 even after age 3 assessment of IQ was controlled. The finding for the estimated association between income and behavioral adjustment at age 5 was in the expected direction (i.e., higher income associated with a decrease in behavioral maladjustment controlling for age 3 behavior), but was not significant at conventional levels. A study by Dubow and Ippolito (1994) also showed that persistent poverty during early childhood was significantly related to an increase in antisocial behavior and a decrease in academic performance in children of ages between 9 and 12, controlling for initial adjustment scores. In a Canadian-based study, Pagani et al. (1999) estimated the impact of persistent poverty on academic failure, while controlling for kindergarten inattentive behavior. They found that persistent poverty from ages 10 to 16 remained a significant predictor of academic failure by age 15. A final example is the study by Guo et al. (1996) in which persistent welfare dependence since the child's birth increased the risk of academic failure by grade 4 even when controlling for preschool verbal scores.

Controlling for early childhood behavioral characteristics may serve a second purpose when investigating the mediating role of parenting characteristics (e.g., parental supervision and educational aspirations). In terms of academic performance, it is conceivable that parents who have better-performing or more attentive children

become more involved in their schooling and hold higher aspirations for their children's educational future (Seigner, 1983). In terms of behavioral development, Lytton's (1990) control systems theory and Patterson's (1980, 1992) coercion theory posit that different children elicit different parenting responses, which in turn reinforce child behaviors. It is well recognized that a bidirectional process influences behavioral development, whereby children affect and are affected by parenting behaviors (Anderson, Lytton, & Romney, 1986; Belsky, 1984, Campbell, Pierce, Moore, Marakovitz, & Newby, 1996; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Donenberg & Baker, 1993; Patterson & Dishion, 1988). Controlling for initial child behavior may account for such 'child effects' in parental supervision and in parents' aspirations for their child's educational future.

Summary

If families were matched on various socio-demographics and then randomly assigned to different poverty groups and followed over a period of time, that would provide the most convincing demonstration for inferring that income source within the context of poverty is 'causally' related to parenting characteristics and child development. In the absence of a randomized experimental design, the most one can hope for is to reduce the 'spuriousness' of associations. Maternal age at first birth and education as well as family structure, separately or in combination, may account for some of the impact of growing up in persistently-poor working, welfare-dependent, and work-and-welfare-dependent families on later academic and behavioral adjustment. Early childhood behavior may also explain observed prospective links. Controlling for these demographics and early behavior would reduce, to some degree, the possibility of spurious findings. However, it is important to note that any remaining influence on children's outcomes must be interpreted within the context of factors that were statistically controlled.

Summary and Study Objectives

Growing up in poverty is associated with an array of developmental risks, net of co-occurring socio-demographic factors. Several longitudinal studies using different developmental data sets report strong and consistent associations between persistent poverty and children's cognitive/academic achievement; whereas associations with behavioral adjustment are less pronounced and consistent (Duncan & Brooks-Gunn, 1997; McLoyd, 1998). Parenting characteristics appear to be key mediators of the association between persistent poverty and children's developmental outcomes.

Persistently-poor families are a heterogeneous group with respect to their ways of generating income, with some choosing to work as opposed to relying solely on welfare, and still others combining work and welfare as an alternative strategy. From a social policy point of view, work is better than no work. It is believed that improving poor children's social and academic development begins by altering parental employment behavior. From a developmental point of view, several theorists argue that parental work in the context of poverty, as opposed to the absence of work, adds structure and organization to daily behavior and family life (e.g., parents know children's whereabouts, consistency in household rules/regulations), providing some necessary protective conditions for development (McLanahan & Garfinkel, 1989; Wilson, 1987, 1991). The presence of a breadwinner in the family also communicates to children the importance of attachments to conventional institutions, presumably strengthening their commitment to education (Guo et al., 1996). It therefore appears that dissecting persistently-poor families on the basis of income source may provide an understanding of qualitative differences in children's experience of poverty and lifestyle.

Associations between parental income source within persistent poverty and children's behavioral and academic adjustment have yet to be examined using a longitudinal design and controlling for important socio-demographic and individual child characteristics. There are studies which have examined associations between

welfare receipt and children's outcomes (e.g., Duncan & Yeung, 1995; Furstenberg et al., 1987; Haveman et al, 1991; Offord et al., 1987; Yoshikawa, 1999). In that research, however, a distinction is not made between families who relied solely on welfare and those who received welfare while working. Studies examining the work and welfare patterns of low-income families suggest that parental work combined with welfare is not linked to developmental risk. Children from families solely reliant on welfare show higher developmental risk compared to their peers from working-poor families even after controlling for income (e.g., Brooks-Gun et al., 2001; Guo et al., 1996; Smith et al., 2000). The findings from this research support the assumption that parental work (i.e., self-reliance) in the presence of poverty is better than no work (i.e., dependence).

Comparisons have yet to be made with children from never-poor working families. Policy efforts are geared at reducing parental dependency as an indirect means to eradicate poverty. Such efforts may reduce parental dependency without diminishing poverty. It is therefore important that we ask ourselves "Are children from working nonwelfare families that remain poor developing on a par with children from never-poor working families?" On one hand, if children from persistently-poor families relying exclusively on their own earnings perform on a par with children from never-poor working families, it would provide strong support for the argument that parents' total self-reliance within the context of poverty encourages academic achievement and positive social behavior. On the other hand, if such children perform worse, it would suggest that parents' total self-reliance does not render children resistant to the risks associated with persistent financial hardship. Should this be the case, then, the use of persistently-poor working families as comparison underestimates the difficulties experienced by children from families solely dependent on welfare.

Study Objectives

Using a change model approach, the objectives of this thesis were to: (a) examine the magnitude of prospective associations between parental income source within the context of persistent poverty and children's disruptive classroom behavior and academic placement at age 12; and (b) investigate whether such associations are mediated by parenting process variables.

Data on income level, parental involvement in the labor market, and welfare receipt were obtained over a 4-year middle childhood period beginning at age 8. Parental supervision and educational aspirations for the child, proposed as mediators (of behavioral and academic outcomes, respectively) were measured when the children were ages 10 and 11. To reduce the possibility of spurious findings, maternal age at first child-birth and education, as well as family structure were employed as control variables in all models. Consistent with the use of a change model approach, disruptive behavior at age 6 was controlled when the criterion was disruptive behavior at age 12; whereas inattentive behavior at age 6 was employed as control when the criterion variable was academic failure.

Disruptive behavior at age 12, as defined in this study, comprises forms of social misconduct such as oppositional, hyperactive, and physically aggressive behaviors. Academic placement by age 12 was determined from official school records, indicating whether the child was in a regular, age-appropriate classroom. Given the mainstreaming movement in the education system, not being in a regular classroom or grade for age represents an absolute indicator of serious academic failure (Pagani, Tremblay, Vitaro, Boulerice, & McDuff, 2001).

We focus on these outcome domains because of their known links to future economic and social well-being. There is considerable research indicating prospective associations between behavioral difficulties in childhood and adolescence and lower educational attainment (Cairns, Cairns, & Neckerman, 1989; Fergusson & Horwood, 1998), adult social maladjustment (Huesmann, Eron, Lefkowitz, & Walder, 1984; Patterson et al., 1989; Stattin & Magnusson, 1996), as well as low occupational status and chronic unemployment in later years (Caspi, Elder, & Bem, 1987; Kokko & Pulkkinen, 2000). The experience of academic failure may increase the likelihood of dropping out of high school (Brooks-Gunn, Guo, & Furstenberg, 1993). Early school termination may, in turn, place the individual on a negative economic trajectory, marked by poverty, underemployment, and welfare dependence (Bane & Ellwood, 1994; Harris, 1996).

Study Hypotheses

In the absence of longitudinal research distinguishing persistently-poor families on the basis of work and welfare and including never-poor working families as the contrast group, we relied on the poverty literature to formulate the following hypotheses:

(1) Residing in welfare-dependent, working-poor, and work-and-welfare-dependent families would be prospectively associated with an increase in disruptive behavior and a greater risk of academic failure at age 12 compared to residing in a never-poor working family when controlling for maternal characteristics, family structure, child gender, and early childhood behavior.

(2) It was expected that prospective associations would be most pronounced for children in welfare-dependent families.

(3) Parental supervision would mediate, in part, prospective associations between residing in a persistently-poor family (i.e., welfare-dependent, working-poor, and work-and-welfare-dependent) and disruptive behavior.

(4) Parental educational aspirations for their child would mediate, in part, prospective associations between residing in a persistently-poor family and academic failure.

Method and Procedure

Method

Data Source

This study was approved by the Ethics Committee of the Université de Montréal and by all participating school board administrators. Data were drawn from the Québec Longitudinal Study of Kindergarten Children (QLS) directed by Richard E. Tremblay and his research group. The QLS project examines the behavioral development of a population-based sample of French-speaking children from the province of Québec, Canada.

In the spring of 1986 and 1987, a random sample of 6397 children enrolled in kindergarten was selected from small, medium, and large French public schools in all 11 administrative regions of the province of Québec. This strategy was used to obtain a representative sample of children from urban and rural settings across all regions of Québec. At the outset, teachers and parents were asked to complete the Social Behavior Questionnaire (SBQ, Tremblay, Loeber, Gagnon, Charlebois, Larivée, & LeBlanc, 1991) for each child when they were, on average, 6 years of age.

From this initial sampling procedure, 4659 (52% boys) children had complete teacher and parent data. These children were found not to differ significantly from those with missing data in terms of geographic location or the size of school board (Zoccolillo, Tremblay, & Vitaro, 1996). From this pool of subjects, two groups of children were selected for yearly follow-up assessments. The first group consisted of 2000 children (50% boys) selected at random. The second group was composed of all children who, in kindergarten, had scored more than one standard deviation above the mean on the disruptive component of the kindergarten (parent or teacher) assessment. This second group (n = 1017) was selected for the purpose of obtaining a large number of children at high risk for maladjustment and to counter any self-selection bias on the part of low-risk families who are more likely to participate over the long term.

This subsample of 3017 children was representative of the larger sample from which it was drawn in terms of socioeconomic status. Children were predominantly Caucasian (97%) and French-speaking (95%). They came from highly urban settings such as Montreal and Quebec city, smaller communities, and sparsely populated rural areas across the province of Quebec. When first assessed in kindergarten, 81.8% percent of the children were living with both biological parents. Mothers had, on average, 11.71 years of formal education (SD = 2.63). The average age of mothers at the birth of their first child was 24 years (SD = 3.93). Mothers comprised 97.8% of respondents.

Participating Children

Of the 3017 potential subjects, 1112 children (503 boys and 609 girls) were retained in the current study. Children were followed from kindergarten (mean age 5.99, SD = .29) through grade 6 (mean age 11.99, SD = .29). One hundred percent of parental respondents were mothers.

Several criteria were used for inclusion in the present study. First, to measure the persistence and intensity of financial hardship, data on household income had to be available from ages 8 through 11 (n = 400 subjects not retained). In the province of Quebec, welfare-dependent families live on incomes that are, on average, less than 60% of the poverty line (NCW, 2000). As such, nine families who reported relying exclusively on welfare for three or more years during those ages were retained even though they did not report their income in each year. Second, to identify income packaging, families were grouped as relying exclusively on welfare, exclusively on their own earnings, or combining work and welfare during the 4-year childhood period. Data on family work activity and receipt of welfare had to be available in the same year for three years or more from ages 8 through 11 (n = 1227 subjects not retained due to missing data on both or one of the two variables in more than one year during those ages). Studies have shown that the majority of families use welfare to help them

through an immediate personal or economic crisis and leave welfare in less than two years. In the present study, families who relied on welfare for a minimum period of three years were more likely to have been on welfare for a longer period of time (Bane & Ellwood, 1994; Harris, 1996; NCW, 1998; Rainwater et al., 1986; Withorn, 1998). Third, teacher-rated disruptive and inattentive classroom behavior had to be available at age 6 (no subjects were excluded). Fourth, data on maternal age at first childbirth and years of formal education had to be available at age 6 (n = 24 and n = 25 not retained, respectively). Fifth, children could not have more than two missing data points for family structure from ages 6 through 11 (n = 11 subjects not retained). Sixth, data on parental supervision and educational aspirations for the child had to be available at ages 10 and 11 or could be missing in one year (no subjects were excluded and n = 23 subjects not retained, respectively). Seventh, teacher-rated disruptive classroom behavior had to be available at age 12 (n = 172 subjects were excluded). Finally, information on classroom placement at age 12 could not be missing. This last criterion resulted in a loss of 23 subjects. The timing of assessment for each variable is reported in Table 1.

Sample attrition. To determine whether subject attrition occurred at random, we compared the 1112 retained children to those who were not retained due to incomplete data. Comparing children in the retained group to those in the nonretained group, significant differences in terms of unequal group variance emerged for early disruptive and inattentive classroom behavior, maternal education, and history of family configuration. As reported in Table 2, children who had spent time in a single-parent family were more likely to have been lost to attrition. Nonretained children had higher scores on disruptive and inattentive behavior at age 6. Nonretained mothers had acquired less years of formal education by the kindergarten assessment than those in the retained group. No significant differences in terms of unequal group variance were found for maternal age at first birth and the intensity of financial hardship when averaged over the 4-year period (from ages 8 to 11; see details in section on measurement).

Measures (see Table 3): Controls[16]

Early childhood behavior. Teachers completed the Social Behavior Questionnaire (SBQ) at the end of kindergarten (age 6). The SBQ is a 38-item socio-behavioral assessment consisting of the main factor items from two instruments which have shown good psychometric properties: (a) The Preschool Behavior Questionnaire (Behar & Stringfield, 1974); and (b) The Prosocial Behavior Questionnaire (Weir & Duveen, 1981).

The disruptive and inattentive factors from the SBQ were retained for this study. The disruptive factor comprised of the following 13-items pertaining to: physical aggression (fights; kicks-bites-hits; and bullies children); hyperactive behavior (restless and squirmy); oppositional behavior (does not share, irritable, disobedient, blames others, inconsiderate); and antisocial behavior (destroys property, unpopular, tells lies). The inattentive factor comprised of the following 4 items: poor concentration; easily distracted; gives up easily; and daydreams. Teachers respond to each item on the SBQ using the following statements: never (0); sometimes (1); or often (2). For each child, individual item scores are summed to obtain raw scores. Higher scores indicate greater disruptiveness and inattentiveness.

The reliability and validity of these dimensions have been reported in numerous studies with kindergarten and elementary school-aged children (Tremblay et al., 1991; Tremblay, Pagani-Kurtz, Masse, Vitaro, & Pihl, 1995; Tremblay, Vitaro, Gagnon, Piché, & Royer, 1992; Vitaro, Tremblay, & Gagnon, 1995). The kindergarten assessments have been found to be reliable predictors of social adjustment in later childhood (Tremblay et al., 1994) and adolescence (Haapasalo & Tremblay, 1994; Pagani et al., 1999). In this study, the alpha reliabilities were .90 and .84 for disruptiveness and inattentiveness, respectively. The correlation between these two behavior scales was .46 ($p < .0001$).

Maternal age at first child-birth and education. Mothers were asked to indicate the date of birth of each child as well as their own date of birth. Using this information, a value corresponding to the mother's age at the time of her first childbirth was obtained. Mothers were also asked to report how many years of formal education they had achieved by the time the target child was in kindergarten. In this study, 9% of mothers were less than 20 years of age at the time of their first birth. Approximately, 18.5% reported having less than 11 years of formal schooling.

Family structure. Each year beginning in kindergarten through Grade 5 (ages 6 to 11), mothers were asked to report whether they were living alone or with a partner in the same household. A dummy-coded variable for family structure was created based on whether the child had spent one to six years between ages 6 to 11 in a single-parent family versus always being in a two-parent family between those ages.

Predictor: Family Economic Circumstances

The predictor is a dummy-coded variable representing four specific family economic circumstances during a 4-year childhood period (ages 8 through 11). It was created by using data on financial hardship, work activity, and receipt of welfare.

Mothers were asked to provide an estimate of the total family income in a series of categories beginning at age 8 (Grade 2) through age 11 (Grade 5). The categories, in thousands of Canadian dollars were: less than 5; 5-9; 10-14.9; 15-19.9; 20-24.9; 25-29.9; 30-34.9; 35-39.9; 40-44.9; 45-49.9; 50-54.9; 55-59.9; and greater than 60. Categories were then converted into a continuous measure by assigning the midpoint of the range to each interval. For example, a value of five was assigned to the first category (less than $5,000); a value of 7.5 to the second category ($5,000-$9,000); a value of 12.5 to the third category ($10,000-$14,999), and so on. The last category (greater than $60, 000) was assigned a value of 70.

Family income levels were then used to determine the intensity of financial hardship for each year by computing the distance from the poverty threshold. This was achieved by dividing the reported income by the corresponding income-needs value of that year as determined by Statistics Canada's (1999b) low income measures (LIMs). The resulting quotient, an income-to-needs ratio, denotes a family income at, below, or above the poverty line in that specific year. For example, in 1988 when the children were 8-years-old, the poverty line for a Canadian family of four was set at $21,072. A family of four with an annual family income totaling $10,536 in that year would have had an income-to-needs ratio of 0.5 (= $10,536/$21,072). In that same year, such a family with an annual income totaling $31,608 would have had an income-to-needs ratio of 1.50 (= $31,608/$21,072). This approach to measuring the intensity of poverty or affluence is often a better predictor of child outcomes than family income per se (Huston, McLoyd, & Garcia-Coll, 1994).

In this study, the measurement of persistent financial hardship was based on the ratio of a family's income-to-needs averaged over the 4-year middle childhood period. Families were considered to be persistently poor when their average income-to-needs ratio was below 1.50 times the poverty line. Approximately, 39.1% were classified as residing in persistently-poor families, and 60.9% were classified as never-poor. Among the persistently-poor group, 16.2% had average incomes below 1.0; 11.6 % had an average income between 1.0 and 1.25 times the poverty line; and another 11.3% were living with average income above 1.25, but below 1.50.

The use of a 4-year average income-to-needs as a measure of financial hardship smoothes annual fluctuations in income that might be due to measurement error or to transitory fluctuations in economic standing from one year to the next (Korenman et al., 1995; Rodgers, 1995). It therefore represents the average economic standing of the family during middle childhood. In addition, setting the 4-year average income-to-needs at less than 1.50 times the poverty line concurs with a study by Ross and Roberts (1999), involving a national sample of Canadian two-parent families with children.

According to their findings, families need an income that goes beyond the amount needed for the provision of basic essentials to maximize children's developmental outcomes, especially in the context of reduction in government transfers and subsidies for education and health care since the early 1990s. An appropriate poverty line for a family of four would therefore lie within the $30,000 to $40,0000 range. Lastly, our definition of poverty captures not only families with incomes below the poverty line (i.e., defined to be officially poor), but also those living just above it (i.e., defined to be the near poor).

Family participation in the workforce and receipt of welfare were assessed annually at the end of Grade 2 through Grade 5 (corresponds to ages 8 to 11). A family's participation in the workforce was determined by asking mothers whether one of the parents living in the household had engaged in full- or part-time work in the previous 12 months. A family's receipt of welfare was determined by asking mothers whether one of the parents living in the household had received welfare under the Canada Assistance Plan in the previous 12 months. In Canada, low-income families with children under 18 years of age were equally entitled to monthly cash supplements under the Family Allowance provision. Families in this study were therefore recipients of Family Allowance payments from kindergarten through the first half of Grade 6. In 1993 when Family Allowance ended, they became eligible for the Child Tax Benefit and the Working Income Supplement.

Three preliminary categories were formed, indicating whether the family's income source for three years or more during the 4-year period was from: (1) welfare-only; (2) work-and-welfare; or (3) work-only. Thirty-nine families were considered to be completely dependent on welfare. Such families had no contact with the workforce while receiving welfare. A small group of families (n = 21) combined welfare with earned income. In contrast to the first group, these families were working while on welfare. The large majority of families (n = 1052) were completely dependent on

income from employment. Such families reported not receiving welfare while working.

Mediators

Parental supervision. Parental supervision (two items) was assessed at ages 10 and 11 by asking mothers: (1) Do you know your child's whereabouts when she/he is not home? and (2) Do you know with whom your child is spending time when she/he is not home? The scale ranged from never (1) to always (4). In each year, a total score was computed as a mean of the two items and, then, means were averaged over time to create the supervision scores used in this study. Higher scores indicate greater supervision. Ninety-two percent of subjects had data at ages 10 and 11. When data was not available in both years, one year was used. This scale has been used in previous studies (Haapasalo & Tremblay, 1994; Pagani et al., 1999), with good Cronbach alphas. In the present study, alpha reliabilities were .78 and .81 at ages 10 and 11, respectively. The correlation between the supervision scores at ages 10 and 11 was .60, $p < .0001$.

Parental educational aspirations. Parental educational aspirations (single item) was determined at ages 10 and 11 by asking mothers: "What level of education do you want your child to complete?" Response categories include completion of: (1) Grade 9; (2) Grade 10; (3) Grade 11; (4) College; and (5) University. Responses were averaged across both assessment periods to create the parental aspiration scores used in this study. Higher scores indicate higher educational aspirations for child. Sixty-nine percent of subjects had data at both ages. When data was not available in both years, one year was used. Although there is no way to assess the reliability of this single-item indicator, it does have considerable face validity as a measure of parents' educational aspirations for the child.

Outcomes

Disruptive behavior. Teachers completed the disruptive behavior scale of the Social Behavior Questionnaire (SBQ) again at age 12. Higher scores indicate greater disruptiveness. In this study, disruptive behavior from ages 6 and 12 was significantly stable ($r = .43$, $p < .0001$). The alpha reliability for this scale was .86.

Academic failure. Data on classroom placement were obtained from the Ministry of Education. At age 12, children should be in Grade 6, the last year of elementary school in the province of Québec. Having experienced grade retention (not in Grade 6 by age 12) or placement in a special education setting represents an absolute indicator of academic failure (Pagani et al., 2001).

Design and Procedure

Children were assessed from the end of kindergarten (age 6) through to age 12. Parental consent was obtained on an annual basis. Parents were informed that the objective of the study was to generate knowledge on the evolution of child behavior in the home and in the school environment. At the first assessment and each year thereafter, mothers completed a series of demographic questions pertaining to family income, work status, welfare receipt, and marital status. Assessment of parental supervision and educational aspirations took place when children were ages 10 and 11, which corresponded to Grades 4 and 5. Teachers provided ratings of children's disruptive and inattentive behavior at the end of kindergarten and, again of disruptive behavior at age 12.

Identification of family economic circumstances. The families' financial hardship (persistently-poor or never-poor) and income source during the 4-year middle childhood period classified them as belonging to one of four economic groups: (1) Welfare-dependent families ($n = 39$, 3.5%) designated as persistently-poor and relying

exclusively on welfare for three or more years during the 4-year period; (2) Work-and-welfare-dependent families (n = 21, 1.9%) designated as persistently-poor and receiving welfare while working during three or more years; (3) Working-poor families (n = 375, 33.7%) designated as persistently-poor and relying exclusively on earned income for three years or more; and (4) Never-poor working families (n = 677, 60.9%) designated as never poor and relying exclusively on earned income for three or more during the 4-year period.

Although the distribution of families across the groups was uneven, there were sufficient numbers in each group to allow analysis. In multivariate regression analyses, tests of effects are adjusted for unequal sample sizes by using a hierarchical approach (Tabachnick & Fidell, 1996). Whether the sizes of these groups approximate true differences in the Canadian population is difficult to discern given that most available statistics do not consider income source within the context of persistent poverty. National data on the prevalence of poverty reveal that 8% of Canadians were living in low-income families for four years or more between 1993 and 1998. Approximately, 76% had no experience of low income during that same period (Statistics Canada, 2001).

Statistical Analyses

Descriptive statistics were used to characterize the study sample. Pearson correlation coefficients were computed to determine the presence of multicollinearity and singularity. A series of multivariate regression equations were estimated to test for prospective direct and mediated associations. The hypothesized model shown in Figure 1 was tested twice, once for disruptive behavior and a second time for academic failure. Hierarchical linear regression was conducted when the criterion variable was disruptive behavior and parental supervision was the mediator variable. Hierarchical logistic regression was conducted when academic failure was the criterion variable, with

parental educational aspirations for child as the mediator variable. Never-poor working families served as the reference group in all regression analyses.

Both linear and logistic regressions allow testing for direct and mediated associations. Although Baron and Kenny (1986) contend that there is no need for a hierarchical approach when testing mediation, an important contribution of this study is control for pre-existing differences in inherent behavioral characteristics, maternal characteristics, and family structure prior to estimating the magnitude of hypothesized associations. Accordingly, child gender, early childhood behavior, maternal age at first birth and education, as well as family structure were systematically entered in Step 1 on an a priori basis in all multivariate models regardless of statistical significance. In Step 2, the adjusted outcome variable (where 'adjusted' means that differences in outcome associated with control variables were accounted) was regressed on the dummy-coded variable representing family economic circumstances. Mediation testing followed the criteria set forth by Baron and Kenny.

Continuous predictors were standardized before computing the regression equations. This permitted comparing the relative strength of continuous predictors of differing magnitude and dispersions within each model. In all multivariate analyses, we chose .10 and .15 as the criterion for inclusion and exclusion of a variable in the model, respectively. This choice is based on Hosmer and Lemeshow's (1989) recommendation that a cut-off value of .05 for inclusion is too stringent and that any value in the range of .15 or .20 is appropriate to ensure that variables with coefficients different from zero are entered in the model. Statistical analyses were conducted with SPSS-X for mainframe.

Results

The results of this study are organized in three sections: (1) descriptive statistics for the full sample and by individual economic groups; (2) tests of assumptions underlying multivariate analyses; and (3) tests of direct and mediated associations for each criterion variable.

Descriptive Statistics

Table 4 presents the means and standard deviations of continuous variables and percentages of dummy-coded variables for the full sample and by individual economic groups. The mean years of formal schooling for the entire sample of mothers was 12.28. Mothers were, on average, 25-years-old at the time of their first birth. Mothers in the welfare-dependent group had the fewest years of education, followed by mothers in the working-poor group. It is interesting to note that the mean scores on maternal age at first birth increased proportionately from the welfare-dependent group (before age 22) to the never-poor working group (before age 26).

The majority of children were living in two-parent families (86.1%) during their elementary school years. As is clear in Table 4, most of the children in welfare-dependent (66.7%) and work-and-welfare-dependent (90.5%) families had spent time in a single-parent family. The vast majority of parents (when children were ages 10/11) wanted their child to attend post-secondary education scoring, on average, 4 (completion of college), on the educational aspiration item. Here too, we noted that mothers in the welfare-dependent group expressed the lowest aspirations for their child; whereas those in never-poor working families expressed the highest aspirations (i.e., for the child to go to university). It is interesting to note that mothers in working-poor and work-and-welfare-dependent families reported similar levels of educational aspirations. For the most part, the value on parental supervision indicated high levels of supervision at ages 10/11. Mothers reported, on average, that they "often" to "always" knew their child's whereabouts and with whom their child was when she/he was not

home. Mothers in the work-and-welfare-dependent group reported the lowest levels of supervision, followed by mothers in the welfare-dependent group.

Visual examination of early and later disruptive behavior mean scores indicates that, in general, children showed more disruptive behavior at age 6 than age 12. At both time periods, children in welfare-dependent families had the highest levels of disruptiveness. Children in never-poor working families showed the lowest levels at age 6, while those in work-and-welfare-dependent families showed the lowest levels at age 12. Levels of early inattentive behavior at age 6 were similar for children in welfare-dependent and work-and-welfare-dependent families. Fewer than 15% of children in this sample were not in a regular, age-appropriate classroom by age 12. Here again, the largest proportion of children who experienced academic failure resided in welfare-dependent families. Interestingly, an equal proportion of children in work-and-welfare-dependent and working-poor families were not in a regular, age-appropriate classroom by age 12.

Tests of Assumptions

The appropriate use of multivariate analyses to estimate the model coefficients requires that the following assumptions are met: (1) predictors and criterion variables must be measured without error and linearly related (assumption of linearity); (2) for any single equation, the residuals (errors of prediction) must be normally distributed about each predicted outcome score (assumption of normality); (3) residuals must be random and not correlated with any predictor variable (assumption of independence); (4) the variance of residuals must remain constant for each value of predicted outcome score (assumption of homoscedasticity); and (5) multicollinearity and singularity must be absent in the data (Tabachnick & Fidell, 1996).

In general, the data met these assumptions. The satisfactory alpha levels for the behavior and supervision scales may provide some assurance against measurement

error for these variables. As well, variables presumed to operate as mediators were created using the average scores of two consecutive time periods. Academic placement by age 12 was determined from official school records. As such, it represents an accurate and absolute indicator of having experienced academic failure. As well, every attempt was made to ensure that questions on demographics, family economic circumstances, and educational aspirations were understood by parents. Each questionnaire package returned was verified by research coordinators and data were entered twice and cross-verified.

Visual inspection of residual scatterplots indicates that assumptions of linearity, normality, and homoscedasticity were satisfactory. The Durbin-Watson statistic indicates that errors of prediction were independent of one another. Inspection of the correlation matrix for the data (Tables 5 and 6) confirms the absence of singularity and multicollinearity in any one model. The highest correlations among predictors were between the dummy-coded variable representing family economic circumstances with maternal education ($r = .35$, $p < .0001$), maternal age at first birth ($r = .27$, $p < .0001$), and parental educational aspirations ($r = .29$, $p < .0001$). Correlations were moderate between maternal education and age at first birth ($r = .25$, $p < .0001$) and between maternal education and parental educational aspirations ($r = .26$, $p < .0001$). Consistent with our prediction, the dummy-coded variable representing family economic circumstances was significantly correlated with both outcomes and mediators. Correlations among mediators and outcomes were also statistically significant, and in the expected direction.

It should be noted that the use of hierarchical logistic regression to estimate the model coefficients for academic failure does not require that the predictors be normally distributed or linearly related. However, multivariate normality and linearity among the predictors may enhance power given that a linear combination of predictor variables is used to form the equation. In addition, logistic regression is sensitive to extremely high correlations among predictors. It also requires that no more than 20% of the cells [i.e.,

cross-classification of family economic types (4 groups) by academic failure (2 groups)] have expected frequencies of less than 5 (Tabachnick & Fidell, 1996). In the present study, all criteria for logistic regression were met.

Testing for Prospective Direct and Mediated Associations

According to Baron and Kenny (1986), mediation is established when four conditions are met: (1) a significant association must exist between the predictor variable and the outcome variable (Figure 1, path A); (2) a significant association must exist between the predictor variable and the mediator variable (path B); (3) a significant association must exist between the mediator variable and the outcome variable (path C) when the predictor variable is controlled; and (4) the previously significant association between the predictor variable and the outcome variable (path A) is reduced when the mediator variable is included in the equation.

The first two conditions are demonstrated in separate regression equations. That is, Equation 1 tests path A and Equation 2 tests path B. The third and fourth conditions are demonstrated in one regression equation (Equation 3 tests paths A and C). It should be noted that the significance of direct associations between each persistently-poor group (i.e., welfare-dependent, working-poor, and work-and-welfare-dependent groups) and child outcomes are tested in Equation 1.

To recapitulate, mediation is established when there is a significant reduction in the coefficients corresponding to each dummy-coded predictor variable from Equation 1 to Equation 3. According to Baron and Kenny (1986) the degree of this reduction is the basis for distinguishing between full and partial mediation. Full mediation is indicated when the association between the predictor and the outcome is reduced to zero (i.e., coefficient for predictor = 0 and p-value no longer significant) when the mediator is considered (Equation 3, fourth condition). If the existing association between the predictor variable and the outcome variable is attenuated, but not reduced

to zero (i.e., coefficient for predictor does not = 0 and may remain statistically significant), this indicates partial mediation. We infer that this attenuation is significant when the indirect influence of the predictor on the outcome via the mediator is statistically significant. The significance of this indirect influence is tested using the procedure developed by Sobel (1982) and described by Baron and Kenny (1986). Sobel's test for indirect associations is also illustrated in McLoyd, Jayaratne, Ceballo, and Borquez (1994).

Sobel (1982) provides a formula for calculating the standard error for the indirect influence of the predictor variable on outcomes via the mediator variable. The standard error serves as the denominator in a t ratio of the indirect association to its standard error. The formula is:

$$\frac{bc}{\sqrt{c^2 S_b^2 + b^2 S_c^2 + S_b^2 S_c^2}}$$

where b = coefficient estimate for path B in Figure 1; S_b = standard error for b; c = coefficient estimate for path C in Figure 1; S_c = standard error for c. The numerator represents the indirect influence of the predictor on outcome via the mediator, while the denominator represents the standard error of the indirect influence. In this study, a t ratio of 2.57 or larger would indicate that the indirect influence is significant at a p-value of .01 for a two-tailed test.

Hierarchical Linear Regressions Predicting Disruptive Behavior at Age 12

It was expected that residing in welfare-dependent, working-poor, and work-and-welfare-dependent families compared to never-poor working families would be associated with an increase in disruptive behavior at age 12, above and beyond the contribution of child gender, early disruptive behavior, maternal characteristics, and family structure. It was further hypothesized that the prospective association would be most pronounced for children in welfare-dependent families. As well, it was

predicted that direct associations would be mediated, in part, by parental supervision at ages 10/11.

The hypothesized model predicting disruptive behavior includes the dummy-coded variable representing family economic circumstances (with the never-poor working group as reference) and one mediator, parental supervision. Following Baron and Kenny's (1986) procedure, three separate multiple regression equations were estimated:

Equation 1: disruptive behavior regressed on the dummy-coded variable representing family economic circumstances (hereafter referred to as family economic circumstances).

Equation 2: parental supervision regressed on family economic circumstances.

Equation 3: disruptive behavior regressed on both family economic circumstances and parental supervision.

Equation 1 provides a baseline estimate of prospective associations between welfare-dependent, working-poor, and work-and-welfare-dependent groups with disruptive behavior, above and beyond the influence of sociodemographic and child characteristics. Equation 2 evaluates the second condition for mediation, whether the association between family economic circumstances and parental supervision is significant above and beyond control variables. Equation 3 evaluates the third and fourth condition for mediation. That is, whether parental supervision is significantly associated with disruptive behavior when the influence of family economic circumstances is held constant and whether the significant association between family economic circumstances and disruptive behavior is either reduced to zero or attenuated with parental supervision in the equation.

In each equation, partial regression coefficients are used to interpret the influence of each persistently-poor group. This coefficient represents the amount of

change in estimated outcome when residing in working-poor, welfare-dependent, and work-and-welfare-dependent families relative to never-poor working families (the reference group). The change is computed from the value of the outcome score when all predictors are zero. In the case of dummy-coded regression, this simply means the value of the outcome when all dummy variables are 0. Because the reference group receives a zero on the dummy variable, the intercept is the average outcome score for this group. The partial coefficient associated with each persistently-poor group is essentially the difference from the adjusted mean of the outcome for the never-poor working group (intercept). Conceptually, partial coefficients test the significance of the distinction between the reference group and each of the persistently-poor groups when predicting the outcome of interest (Cohen & Cohen, 1975). Because all continuous predictors were first standardized prior to computing the equations, partial coefficients can be used to interpret the magnitude of their influence on disruptive behavior at age 12.

The results of Equation 1 and 2 are reported in Table 7, using partial coefficients (B) and associated standard errors, as well as adjusted R^2, R^2-change, and p values. In the first equation, sociodemographics and child characteristics entered in Step 1 made a significant contribution to the model, $F(5,1106) = 65.22$, $p < .0001$. This block accounted for 22% of the variance in predicting disruptive behavior at age 12. Within this block, child gender, early disruptiveness, maternal education, and family structure were significant predictors, each controlling for the influence of the other. Relative to girls, boys showed an increase of 1.38 points on the disruptive behavior scale between ages 6 and 12 ($t = 6.60$, $p < .0001$). Maternal education played a protective role, with higher levels of schooling associated with lower levels of disruptiveness ($t = -2.91$, $p < .01$). Children who had spent time in a single-parent family from ages 6 through 11 experienced a small, albeit significant increase in their disruptive behavior compared to those who always lived in a two-parent family between those ages ($t = 3.24$, $p < .001$). The pronounced association between early

and later disruptiveness reflects the stability of behavioral maladjustment throughout elementary school ($t = 13.73$, $p < .0001$).

In Step 2, family economic circumstances contributed small (1%), albeit significant additional variance to predicting disruptive behavior at age 12. Despite the strong stability in problem behavior, the dummy variable for the welfare-dependent group was significant at a p value of .001. Children in welfare-dependent families showed an increase of 2.23 points on the disruptive behavior scale compared to children in never-poor working families. Growing up in a working-poor and a work-and-welfare-dependent family was not significantly associated with an increase in disruptive behavior. In this last step, child gender ($t = 6.54$, $p < .0001$), early disruptive behavior ($t = 13.64$, $p < .0001$), maternal education ($t = -2.15$, $p < .05$), and family structure ($t = 2.32$, $p < .01$) remained statistically significant in the presence of family economic circumstances.

Having established a significant association between the welfare-dependent group and disruptive behavior, we examined whether this prospective association would be mediated, in part, by parental supervision. In the second equation (testing for condition 2 of mediation), the block of control variables made a significant contribution to the model, $F(5,1106) = 13.40$, $p < .0001$. Within this block, child gender and early disruptiveness were significantly associated with parental supervision. Compared to girls, boys received less supervision ($t = -6.51$, $p < 0001$). Higher levels of early disruptiveness were significantly associated with lower levels of parental supervision ($t = -2.53$, $p < 01$). A trend association was observed for family structure, with children having spent time in single-parent families receiving less supervision than those in always two-parent families ($t = -1.74$, $p = .08$). In Step 2, family economic circumstances failed to add incremental variance in predicting parental supervision, above and beyond the contribution of significant controls. As a result, no test of its potential mediating role was possible. Figures 2A and 2B summarize these results.

Hierarchical Logistic Regressions Predicting Academic Failure by Age 12

It was expected that growing up in welfare-dependent, working-poor, and work-and-welfare dependent families compared to never-poor working families would be associated with a greater risk of academic failure, above and beyond the contribution of child gender, early inattentive behavior[17], maternal characteristics, and family structure. It was further hypothesized that academic risk would be most pronounced for children in welfare-dependent families. As well, it was predicted that direct associations would be mediated, in part, by parental educational aspirations for child at ages 10/11.

The hypothesized model predicting academic failure by age 12 includes the dummy-coded variable representing family economic circumstances (with never-poor working serving as the reference group) and one mediator, parental educational aspirations for child. Testing for prospective direct and mediated associations follows the steps outlined in the previous section. Briefly, Equation 1 provides the estimated risk of academic failure associated with specific family economic circumstances. Equation 2 tests associations between parental educational aspirations and family economic circumstances. Equation 3 tests whether (a) parental educational aspirations are significantly associated with academic failure when the influence of family economic circumstances is held constant; and (b) significant associations between family economic circumstances and academic risk are either reduced to zero or attenuated when parental aspirations are considered.

Because the criterion of interest is academic failure, a dichotomous indicator, hierarchical logistic regression was employed to estimate Equations 1 and 3. The interpretation of standardized coefficients from logistic regression is not as straightforward as that of partial regression coefficients from linear regression. To ease interpretation, logistic coefficients are converted to odds ratios. The odds of an

event occurring are defined as the ratio of the probability that the event will occur to the probability that it will not. A positive coefficient (which results in a factor over 1) means that the odds of academic failure are increased: whereas a negative coefficient (a factor less than 1) indicates that the odds of academic failure are decreased. When the coefficient is 0 (a factor equal to 1), the odds remain unchanged.

The logistic coefficients corresponding to the dummy-coded economic variable for welfare-dependent, work-and-welfare-dependent, and working-poor groups entered in Equations 1 and 3 are interpreted as a change in factor or odds of academic failure as a result of residing in one of these persistently-poor families in comparison to never-poor working families. If there is no change in risk, the coefficient is 0, and the odds are equal to 1. In other words, there are no differences in academic risk between children from a persistently-poor group compared to those in the never-poor working group. Full mediation is evidenced when the inclusion of parental educational aspirations (Equation 3) reduces the previously significant coefficient associated with any of the persistently-poor groups to 0 and the odds of the event occurring are 1. Partial mediation is suggested when the previously significant coefficient for any of the persistently-poor groups is attenuated, but not reduced to 0, and the odds of the event occurring are above 1 and may remain significant.

The results of the first equation are reported in Table 8, using standardized logistic coefficients (*B*), associated standard errors and odds ratios, model and improvement chi-square values, and p values. The improvement chi-square tests the null hypothesis that the coefficients corresponding to the dummy-coded family economic circumstances added in Step 2 are equal to 0. The reported improvement chi-square is comparable to the F-change statistic in linear regression (Tabachnick & Fidell, 1996).

In the first condition, child gender, early inattentive behavior, and maternal education significantly predicted academic failure. Boys were 1.47 times more likely than girls to have experienced academic failure (Wald Test (1) = 3.91, $p < .05$). Higher levels of early inattentiveness also doubled the risk of academic failure (Wald Test (1) = 107.37, $p < .0001$). Maternal education was the only control variable that emerged as a protective predictor, decreasing the risk by approximately 41% (Odds Ratio = .59) for each additional year of formal schooling (Wald Test (1) = 24.23, $p < .0001$).

In Step 2, the dummy-coded family economic variable significantly improved the model. Welfare-dependent and working-poor groups emerged as significant predictors of academic failure. Relative to their peers in never-poor working families, children in welfare-dependent and working-poor families were at greater risk of being placed out of a regular age-appropriate classroom by age 12, above and beyond the influence of control variables. The odds for children in welfare-dependent and working-poor families for academic failure were 3.28 and 1.59 times that of children in never-poor working families [Wald Test (1) = 6.85, $p < .01$; Wald Test (1) = 4.60, $p < .05$, respectively]. In this last step, child gender (Wald Test (1) = 3.80, $p < .05$), early inattentive behavior (Wald Test (1) = 104.81, $p < .0001$), and maternal education (Wald Test (1) = 14.28, $p < .0001$) remained significantly associated with academic risk in the presence of family economic circumstances.

Having established prospective associations between welfare-dependent and working-poor groups with academic failure, we proceeded to test whether these associations would be mediated, in part, by parental educational aspirations for child. Hierarchical linear regression was employed to estimate the Equation 2 where the mediator is the outcome. These results are also presented in Table 8. Clearly, the second condition for testing mediation was met. At Step 1, control variables made a significant contribution to the model $F(5,1106) = 34.28$, $p < .0001$. Within this block, early inattentive behavior, maternal age at first birth and education were significantly

associated with parental aspirations in the expected direction. Higher levels of early inattentiveness were significantly associated with lower parental aspirations ($t = -7.56$, $p < .0001$). Being older at the time of the first birth ($t = 4.85$, $p < .0001$) and having more years of formal education ($t = 6.62$, $p < .0001$) were associated with higher educational aspirations.

In Step 2, the introduction of the dummy-coded family economic variable contributed a modest (3%), albeit significant additional variance in predicting parental aspirations, above and beyond significant controls. Mothers in welfare-dependent ($t = -3.12$, $p < .001$) and working-poor ($t = -6.25$, $p < .0001$) families expressed significantly lower educational aspirations for their child compared to those in never-poor working families. A trend association was also observed for the dummy variable for work-and-welfare-dependent. Mothers in these families expressed lower aspirations for their child compared to those in never-poor working families ($t = -1.74$, $p < .08$). In this last step, early inattentiveness ($t = -7.40$, $p < .0001$), maternal age at first birth ($t = 3.54$, $p < .001$), and education ($t = 4.48$, $p < .0001$) retained their statistically independent associations. Figures 3A and 3B summarize these results.

With conditions 1 and 2 met, the third and fourth conditions for mediation were tested. Equation 3 (which tests for conditions 3 and 4) was estimated via hierarchical logistic regression. Control variables were entered in Step 1 (see Table 8 where coefficients corresponding to each control variable are presented). The dummy-coded variable representing family economic circumstances and the parental aspirations variable were entered simultaneously in Step 2. The coefficients corresponding to specific family economic circumstances and parental educational aspirations from this last step are shown in Figure 4. When parents' aspirations were considered, the odds of academic failure for children in welfare-dependent and working-poor families were markedly reduced. The odds for children in working-poor families were significantly reduced from 1.59 ($p < .05$) to 1.20 ($p = .42$), but not

to 1. Similarly, the odds of academic failure for children in welfare-dependent families were significantly reduced, but not to 1 (Odds Ratio = 3.28, $p < .01$ vs. 2.55, $p < .06$). In this last step, early inattentiveness (Wald Test (1) = 75.46, $p < .0001$) and maternal education (Wald Test (1) = 7.67, $p < .01$) remained statistically associated with academic risk in the presence of family economic circumstances and parental educational aspirations.

To confirm the presence of partial mediation, the Sobel (1982) procedure was applied. The Sobel test indicates a significant indirect influence of residing in a welfare-dependent and a working-poor family on academic failure through parental educational aspirations ($t = 2.76$, $p < .01$[18]; $t = 3.78$, $p < .001$[19], respectively), confirming partial mediation. These results will be interpreted in the context of variables selected as controls.

Discussion

The goals of this study were two-fold: (1) to examine the magnitude of prospective associations between parental income source within the context of persistent poverty (from ages 8 through 11) and children's disruptive behavior in school and academic placement at age 12; and (2) to investigate whether such associations were mediated by parenting process variables (at ages 10/11).

This discussion is divided into eight subsections. The first two present the study findings, drawing both comparisons and contrasts with previous studies across different literatures. Next, we highlight the importance of socio-demographic characteristics on both outcomes. In the fourth section, we draw attention to some interesting patterns in the findings. In the fifth section, we discuss the strengths as well as the limitations of the present study. We then consider the possible implications for educational and global social policies. Throughout, we offer suggestions for future research involving persistently-poor families. We end the discussion by underscoring the historical period of the study sample.

Parental Income Source and Children's Disruptive Behavior

Prospective Associations

We expected to find that growing up in welfare-dependent, working-poor, and work-and-welfare-dependent families would be associated with an increase in disruptive behavior at age 12 compared to growing up in never-poor families. We also predicted that the association with disruptiveness would be most pronounced for children from welfare-dependent families. The only significant prospective association observed was for sole welfare dependence.

Relative to never-poor families, growing up in a welfare-dependent family was associated with an increase in disruptive behavior between ages 6 and 12, above and beyond the influence of child gender, early disruptiveness, maternal education, and family structure. The findings support previous suggestions reporting greater behavioral maladjustment among children from families relying on welfare (Furstenberg et al., 1987). It further extends Canadian-based cross-sectional studies (e.g., Lefebvre & Merrigan, 1998; Offord et al., 1987) reporting a link between welfare receipt and behavioral maladjustment. Our results clarify the magnitude of behavioral difficulties experienced by children in welfare-dependent families by comparing them to those in families who were never poor during the 4-year childhood period. It appears that sole welfare dependence and not the combination of work and welfare is associated with behavioral maladjustment. To the extent that this finding emerged above and beyond important correlates of poverty and inherent child characteristics underscores the primacy of sole welfare dependence during middle childhood in influencing behavioral development.

Researchers have suggested that parental work in the context of poverty promotes disciplined behavior in children, presumably through the consistency in family life afforded by parental work (McLanahan & Garfinkel, 1989; Wilson, 1987, 1991). No prospective association was observed between growing up in a working-poor family and behavioral adjustment. It appears that children from persistently-poor families relying solely on earned income do not differ from their peers in never-poor families, net of maternal characteristics, family structure, child gender, and early childhood disruptiveness.

The Lack of Support for the Role of Parental Supervision in Disruptive Behavior

Our hypothesis regarding the parental supervision-mediation-model could not be tested. Family economic circumstances were not associated with parental supervision of children's whereabouts and affiliations. As such, the prospective

association between sole welfare dependence and behavioral maladjustment could not be attributed to lower levels of maternal supervision. This finding is at odds with research suggesting that parental supervision is problematic among persistently-poor populations (McLoyd, 1990; Sampson & Laub, 1994). In other research, differences in parenting behavior and home environments were noted within poor groups (Kalil & Eccles, 1998; Zill et al., 1995), with welfare-dependent families scoring lower on measures of parenting behavior and the home environment. In that research, however, conclusions were based on cross-sectional samples.

Parental supervision may have been influenced by the ecology surrounding the family rather than parental income source per se. That is, although supervision levels did not differ between poor and nonpoor, neighborhood conditions may have elicited different parental motivations to supervise children's whereabouts and affiliations. Poor parents are constrained in their choice of residence, which is often in high-risk neighborhoods (McLoyd, 1990, 1998). It is possible that mothers in the poverty groups were engaged in supervision in attempts to avoid neighborhood risks (Jarrett, 1995). In contrast, mothers in never-poor families may have been employing the same degree of supervision of their children's whereabouts (in less dangerous surroundings) as part of an effective child management strategy. The possibility of neighborhood influences on parenting behaviors is worthy of investigation. Equally plausible, the statistically significant association between welfare-dependence and disruptive behavior may have been mediated by other process variables not assessed in this study. These would include parent-child involvement and communication, as well as family management practices (consistency/predictability in family routine activities, household rules, regulations, responsibilities) and parent-child conflict over financial matters; data that were not available at ages 10/11.

Parental Income Source and Children's Academic Placement

Prospective Associations

Turning to academic placement by age 12, we predicted that all three persistently-poor groups would be at greater risk of not being in an age-appropriate regular classroom compared to their peers from never-poor families. We also expected to find that differences in levels of academic risk would be more pronounced for children in welfare-dependent families. Our results showed a prospective link for children in working-poor and welfare-dependent families, but not for those in work-and-welfare-dependent families. Growing up in a welfare-dependent and a working-poor family increased the risk of academic failure by 228% and 59% respectively, than growing up in a never-poor family. The magnitude of differences in academic risk was indeed greatest for children from welfare-dependent families.

The finding that both children in welfare-dependent and working-poor families were at greater risk of academic failure builds upon previous poverty research that considers income source. For example, a cross-sectional study by Zill et al. (1995) found a greater proportion of academic failure in both groups of poor children compared to their nonpoor families. By design, however, the possibility remained that associations were confounded by pre-existing differences in inherent child characteristics. Using a longitudinal design, Guo et al. (1996) found a higher risk of grade retention in children from families solely dependent on welfare, above and beyond differences in early cognitive ability. However, in that research, the higher rates of retention were in comparison to children whose parents derived income from work alone. It remained unclear whether children of working-poor

parents were performing on a par with their middle-class peers. In this study, we found that children in working-poor families do not fare as well in school as their never-poor counterparts. The higher academic risk associated with growing up in persistently-poor working families could not be accounted by maternal characteristics or early childhood inattentiveness.

The Role of Parental Educational Aspirations in Academic Failure

A consistent finding in the poverty literature is that children in persistently-poor families show lower cognitive/academic achievement and higher rates of academic failure than their peers in never-poor families (Brooks-Gunn & Duncan, 1997; Duncan & Brooks-Gunn, 1997; Pagani et al., 1999; McLoyd, 1998). A number of studies outside the realm of poverty research suggest parental educational aspirations as a key influence in children's academic achievement (Barber & Eccles, 1991; Entwisle & Baker, 1983; Gill, 1997; Halle, Kurtz-Costes & Mahoney, 1997; Lee et al., 1993; Reynolds & Gill, 1994; Seginer, 1983, 1986). We reasoned that parents' educational aspirations for their child might explain why income source within the context of poverty would be associated with academic failure. In accord with this prediction, the risk of academic failure among children of working-poor and welfare-dependent families was explained, in part, by mothers' lower educational aspirations for their child. Not only do the current findings draw attention to parents' aspirations for their child's educational attainment as one possible pathway through which welfare dependence and working poverty may affect academic development, they also suggest that parental aspirations may serve a protective function. That is, our results revealed that higher levels of maternal aspirations lowered the likelihood of academic failure by 48%, independent of family economic circumstances and co-factors as well as early inattentiveness. This finding contributes an important dimension to poverty research. Our data, however, do not permit exploring how maternal aspirations were transmitted or communicated to children to affect their academic progress. What is it that parents actually do to support their aspirations?

This question is of value for future research.

Influence of Maternal Characteristics, Family Structure, and Early Child Behavior on Outcomes

The pattern of associations between demographic characteristics and child outcomes observed in this study need mentioning. The contribution of each control variable was explored when accounting for the influence of the other as well as for family economic circumstances. Maternal education was a consistent predictor of both child outcomes. Higher levels of maternal education were associated with a decrease in disruptive behavior and a lower risk of academic failure. These findings concur with many studies that underscore the positive influence of maternal education on behavioral and academic development (Duncan et al., 1994; Furstenberg et al., 1987; Galper et al., 1997; Guo et al., 1996; Kalil & Eccles, 1998; Luster et al, 2000; Pagani et al., 1999; Pianta et al., 1990; Yoshikawa, 1999). The nature of our data set does not allow us to probe the various ways in which maternal education may have influenced these outcomes. It is possible, for example, that mothers with more years of formal schooling may have felt more sensitive to and competent at managing social misbehavior. They may have been more apt to help their children manage more demanding curricula as they advanced in grade. As well, educated mothers are more familiar with the school context (Brody & Flor, 1998; Brody et al., 1995; Stevenson & Baker, 1987), which may have increased their involvement in children's school activities.

Several studies have demonstrated a robust association between maternal age at first birth and developmental outcomes in both social and academic domains of competence (Brooks-Gunn & Furstenberg, 1987; Dubow & Luster, 1990; Eamon & Zuehl, 2001; Furstenberg et al., 1987; Hardy et al., 1998, Wakschlag et al., 2000). In this study, maternal age at first birth had no influence, whether positive or negative on behavioral maladjustment. Although it was weakly correlated with academic

failure in the expected direction, it was no longer a significant predictor in multivariate analyses. The potential influence was likely explained by its association with maternal education. Previous studies have also reported no statistical association between maternal age at first birth and the probability of grade retention when controlling for other maternal characteristics such as education (Pagani et al., 1999) or cognitive ability (Levine et al., 2001).

Family status has been linked to children's development in various domains of competence (Demo & Acock, 1996; Hanson et al., 1997; Lipman & Offord, 1997; McLanahan & Sandefur, 1994). In this study, having spent time in a single-parent family from ages 6 through 11 was associated with an increase in disruptive behavior compared to always being in a two-parent family. Family structure made no significant contribution in predicting academic failure. The interpretation of such findings is limited given that we did not distinguish always single-parent families from those who experienced a family transition during the study period (Barber & Eccles, 1992; McLanahan & Sandefur, 1994).

The importance of early child behavior is also worth noting. As expected early disruptiveness was strongly associated with later behavior, supporting previous research demonstrating relative stability in levels of behavior during childhood and adolescence (e.g., Aguilar et al., 2000; Moffitt, 1990, 1993; Nagin & Tremblay, 2000). The significant association between early inattentiveness and later academic placement concurs with previous studies (Pagani et al., 1999; Tremblay & Zhou, 1991). Also, both early child behaviors were significantly associated with parenting process variables. Although the inclusion of early behaviors may have accounted for persistent inherent characteristics and for child effects, there is no telling at this point how much of the variance in outcomes is unique to inherent characteristics and to early parenting practices.

Summarizing the Study Findings: Contribution to Developmental Research

In summarizing the study findings, we draw attention to some interesting patterns in the data. Parental income source within the context of persistent poverty was not related to developmental outcomes in any uniform fashion. While sole welfare dependence was associated with adverse academic and behavioral outcomes, combining welfare and work was not associated to any outcome. Relying exclusively on earned income was associated with academic risk, but not with behavioral maladjustment. Such results support the notion of heterogeneity in developmental risk among the persistently poor.

Given the comparison with never-poor families, sole welfare dependence seems to generate the most risks for child development. This finding clarifies the inconsistent results we have seen in the poverty literature with regard to the poverty-behavior relationship. Our findings also suggest that total self-reliance in the context of persistent poverty may not necessarily confer general immunity to developmental risk. Children growing up in working-poor families, like their peers in welfare-dependent families, were more likely to have experienced grade retention by age 12 compared to their peers in never-poor families. Although working-poor parents resembled never-poor parents in terms of being self-reliant, they remained persistently poor and raised their children under economically vulnerable circumstances.

The quality of children's early home environment in terms of cognitive stimulation (literacy materials, books, educational toys, and so forth) provides the primary context where learning takes place. Poverty has been associated with less stimulating home environments, accounting for some of its negative influence on development (Bradley et al., 1994; Duncan et al., 1994; Dubow & Ippolito, 1994; Klebanov et al., 1998; Korenman et al., 1995; McLoyd, 1998). It is plausible that

children in both working-poor and welfare-dependent families experienced a less optimal early home environment, in terms of cognitive stimulation. Should this have been the case, they would be less cognitively prepared to compete in a school environment wherein the curriculum is laden with middle-class values and expectations (Cohen, 1955; Hoffman, 1994). Although maternal education may have accounted for some of the influence on the early home environment, given its association with the promotion of learning opportunities (Brooks-Gunn et al., 1995), direct assessments of this variable would have generated a better understanding of its role in development.

It could also be argued that the transition to school is an important life event of considerable significance in the lives of poor children because of the challenge to self-perception of achievement (Slaughter-Defoe, 1995). The time period in which economic circumstances were observed (ages 8 to 11) corresponds to a period in development wherein children's awareness of societal perceptions of poverty and sensitivity to parents' purchasing power is heightened (Chafel, 1997). As they begin to understand their families' marginal position in access to wealth and buying power, they may come to believe that their own prospects of economic and social well-being are limited (Gottfredson, 1981; Weinger, 1998). McLoyd (1989) reasons that if children's work aspirations diminish, doing well in school might be seen as less important for future economic success. Consequently, they may disengage from the school environment, which may result in academic failure. Our findings suggest that mothers' educational aspirations for their child play a role in explaining the influence of economic background on academic development. Further research is warranted to clarify the mechanisms through which parents' aspirations exert their influence on academic failure.

The null findings for work-and-welfare-dependence are intriguing. A conservative explanation is the inadequacy in statistical power due to small sample size. Having said that, these children showed the lowest levels of disruptiveness at

age 12 (i.e., adjusted mean scores) than children in the other poverty groups and the never-poor families. In terms of academic placement, the proportion of children in these families who were retained in grade was similar to the proportion observed for children in working-poor families. It would appear that this strategy of generating income might carry both developmental benefit and risk depending on the outcome observed. This particular group of persistently-poor families deserves closer attention in future research.

Our results could be interpreted as support for research showing that children living in very poor families (e.g., incomes below the poverty line) fare worse on developmental measures than those in families with incomes near the poverty line (e.g., incomes between 1.0 and 1.50 times the poverty line), with both groups of children experiencing either intensity of poverty performing worse than children in families with incomes well above the poverty line (McLoyd, 1998). In this study, both welfare-dependent and work-and-welfare-dependent families were living in deep poverty (4-year average needs ratio less than .70 of the poverty line); whereas working-poor families were living with incomes at the poverty line. Never-poor families reported, on average, incomes twice or more than the poverty line. The magnitude of differences in child outcomes between the poverty groups and the never-poor group could thus be attributed to the greater intensity of material hardship experienced by children in welfare-dependent families (Duncan et al., 1998).

However, within the working-poor group, 32.5% were living with average incomes below the poverty line and 14% of the work-and-welfare-dependent families were living with incomes above the poverty line, which do not make for homogeneous income levels. Moreover, we did not observe consistent trends in associations that would support income effects. That is, sole welfare dependence was associated with adverse developmental outcomes in both domains of competence: whereas combining welfare and work was not associated with any outcome. Relying exclusively on earned income was associated with academic risk, but not with

behavioral maladjustment. Distinguishing persistently-poor families on the basis of income source appears to tap into contextual experiences (e.g., what parents actually gain from attachments to conventional institutions) and the notion of self-reliance. These unmeasured characteristics may have influenced self-selection into the different poverty groups and may also have explained the pattern of observed findings. Future research ought to operationalize self-reliance and prospectively examine its relationship to child development.

Study Strengths and Limitations

In terms of study strengths, we were able to show that children from persistently-poor families are not a homogeneous group with respect to their level and extent of developmental risks. By using a change model approach we were able to disentangle differences due to inherent child characteristics from those attributed to income source within the context of persistent poverty, with some confidence. Controlling for competing demographic factors such as maternal education and family structure further reduced the possibility of spurious associations.

The use of teacher ratings of disruptive behavior generated a reliable data source given that teachers differ from year to year in elementary school. This means that behavioral ratings at age 12 were not affected by teachers' earlier experiences with the target child. Teachers also compared children to their classroom peers. The use of mothers' ratings of child behavior would have introduced a bias because mothers tend to compare their children to siblings or to other children they see in their social network (c.f. Demo & Acock, 1996). For instance, mothers in the welfare-dependent group may compare their children to those in welfare-dependent families; whereas those in the working-poor group may compare their children to those in working-poor families. In addition, mothers' reports of child behavior may be affected by their own mental health (Duncan et al., 1994). Distressed parents may perceive their children to be more maladjusted (Fergusson, Lynskey, & Horwood,

1993; Field, 1992; Zaslow, 1989). The use of teacher ratings, therefore, further reduced the possibility that prospective associations observed were due to a spurious reflection of differences in reference groups or mothers' emotional well-being.

Our sample being predominantly Caucasian children from similar ethnic backgrounds (i.e., French-speaking Canadians born in Québec) is viewed as another strength. That is, we were able to address our goals without confounds of race and ethnicity. Nevertheless, replication will be needed with an ethnic and racially diverse sample of Canadian children to verify the extent to which the results observed can be generalized.

The stringent criteria used to differentiate families on the basis of their income source and persistence of financial hardship (i.e., data on income had to be available in each of the four years and data on family work activity and welfare receipt had to be simultaneously available in at least three of the four years) led to a significant loss of subjects. The inclusion of such controls further reduced the sample size, with the remaining sample ceasing to be representative of the original sample. Subjects who were not retained were from the most at-risk categories (i.e., more inattentive and disruptive in kindergarten, having spent time in a single-parent family, lower maternal education, and poorer). The under representation of the most problematic group compromised the external validity of the study.

The overriding concern that arises in connection with sample attrition is the nature of 'missingness' and whether the results are biased in one direction or another. This certainly seems to be a question that arises in any longitudinal studies involving poor families as those most at risk are likely to drop out over time (as shown in this study). Had the data revealed no association between income source and child outcomes, the bias would have been in favor of the argument that economic hardship during middle childhood does not matter. The observation of significant associations, however, biases the data in favor of the study hypotheses. We showed that those not

retained in the study were the most deviant, reducing the study variance. It is therefore likely that the magnitude of associations was underestimated, as those most affected were lost to follow-up. As well, systematic differences between the retained and nonretained groups were statistically controlled, accounting for what may have predicted dropout. Nevertheless, the findings from this study should be interpreted with caution. Future research with a representative sample is necessary before such data can be generalized.

In spite of efforts to reduce the spuriousness of findings, there remains the concern that other unmeasured parental characteristics may have influenced both family economic circumstances and child specific outcomes. For example, parents' personal characteristics such as susceptibility toward depression or antisociality may have played a role in determining family economic conditions and child well-being. Research by Patterson and Capaldi (1991) has shown that parents with antisocial characteristics are more likely to experience unemployment and to live in poverty. They also found that children with antisocial parents were more likely to demonstrate problematic behavior. In addition to antisocial personality attributes, associations between impaired occupational functioning and other forms of parental psychopathology such as depression have been explored. Researchers have noted a higher prevalence of emotional distress (Salomon et al., 1996) and major depressive disorder (Siefert, Bowman, Heflin, Danziger, & Williams, 2000) among welfare recipients than nonwelfare recipients. Other investigators have reported on a link between persistent economic hardship and increased parental emotional distress (Conger et al., 1993; Elder, Eccles, Ardelt, Lord, 1995; McLoyd et al., 1994). Developmental studies have documented associations between maternal depression and socioemotional maladjustment in children (Cicchetti & Toth, 1998; Hops, Sherman, & Biglan, 1990; Leadbeater & Bishop, 1994). Although the inclusion of early childhood behavior may have controlled for some of the influence of parents' predisposition toward antisociality or depression up to age 6, behavioral assessment

of parents' mental health would have allowed better control of its presumed influence on children's development.

In an effort to control for this variable-omission effect, researchers have estimated models that included later economic conditions, that is, welfare receipt (Duncan & Yeung, 1995; Gottschalk, 1992) or income level (Mayer, 1997) after the assessment of the outcomes of interest. The rationale is that later economic conditions (i.e., welfare receipt, income level) could not have caused prior outcome and, therefore, can be used as an adjustment for unmeasured parental characteristics. However, prior and later economic conditions are likely to be highly correlated, especially in populations where income poverty and welfare receipt are persistent. Therefore, the assumption that child outcomes are independent of future economic conditions is not tenable. Debate among researchers regarding the most appropriate strategy in dealing with the influence of unmeasured parental characteristics in the absence of randomized experimental trials can be expected to continue (McLoyd, 1998).

Although the longitudinal design of the study reduced to some extent bias from persistent unmeasured differences across families and children, it still leaves room for bias from transitory factors. Stated differently, how families ended up with the income packages they have may be due to a number of factors, some of which are attributed to parental participation in work-enhancing programs and others to familial circumstances that limited parental employment mobility. An explicit focus on determinants of income packaging among low-income families may contribute to a better understanding of later child behavior.

The focus in this study was on persistent economic circumstances and its role in predicting long-term developmental risks. Accordingly, we were able to address implicit assumptions such that sole welfare-dependence is most detrimental to children's development across social and academic domains; whereas stable parental

work in spite of poverty is most beneficial. However, a life-course perspective forces researchers to think about the importance of how or why family economic circumstances change and whether such changes alter developmental trajectories (Elder & Caspi, 1988). Moving from welfare to work, for example, may be conceived as an important turning point in a family's history, since both parents and children must adapt to changes brought on by work responsibilities. This change may be beneficial for both when it is accompanied by movement out of poverty (Smith et al., 2001; Zaslow et al., 1995).

Alternatively, family economic circumstances may worsen as a result of job loss and having to resort to welfare. Elder and Caspi (1988) argue that a transition to greater disadvantage is more stressful than the actual hardship state itself. Drastic economic loss disrupts family routine. As well, parents have less overall resources with which to meet family and individual needs. How parents adapt to the decline in economic state may influence child well-being (Elder et al., 1985; Lempers et al., 1989; McLoyd, 1989). In their research, Pagani et al. (1999) found that transitory poverty as opposed to persistent poverty was associated with extreme delinquency at age 16. The authors concluded that the experience of "pleasure and ease of having and then not having at times" (p. 1217) might have contributed to frustration in the boys. Taking a prospective approach which begins with a group of persistently-poor families differing in their source of income and following such families over time offers an opportunity to examine how favorable (moving from welfare to stable work and out of poverty) and unfavorable (moving from stable work to welfare and poverty) changes in economic circumstances may influence child development.

The focus of this study was on academic failure and disruptive behavior as separate outcomes. This dichotomization of two related outcomes may be viewed as a limitation of the study (Pagani et al., 2001). Associations between academic underachievement/failure and behavior problems have long been noted (Hinshaw, 1992). In this study, it is possible that some children may have experienced academic

failure without the presence of disruptiveness; whereas others may have shown problems in both areas of functioning. In their review of the literature on antisocial behavior in childhood and adolescence, Stattin and Magnusson (1996) contend that it is the cumulative influence of adjustment problems in various domains of competence that is most important in determining future social adjustment. Unless a multiple domain approach to assessing child well-being is employed, only a partial picture of developmental maladjustment would be achieved.

While this study underscores the heterogeneous nature of persistent poverty, it nonetheless used a variable-oriented discrete approach in addressing its objectives. That is, welfare-dependent, working-poor, and work-and-welfare-dependent groups were compared with the never-poor group on parenting process variables and child outcomes. As such, it disguised the existence of differential associations between predictor variables and outcomes within each family economic group. The large standard deviations associated with disruptive behavior also point to within-group variability. As well, the majority of children in each persistently-poor group were in an age-appropriate regular classroom. Thus, in every poor economic constellation there was evidence of child resilience.

Finally, although the data set is among the largest available during the elementary school years with repeated measures on an annual basis, it remains somewhat challenged by sample size. Ideally with a larger sample of children in each economic group, it would have been possible to study the nature of interactions between family economic circumstances and child gender as well as between family economic circumstances and family status categories.

Educational Policy Implications

The results of the study underscore that children growing up in welfare-dependent families are most vulnerable to behavioral maladjustment. School-based

intervention programs that aim to deflect the development of behavioral problems may be beneficial to children in school districts that have a high rate of poverty and welfare dependence. It is well recognized that to improve social adjustment, interventions must focus on modifying different sources of influence (Conduct Problem Prevention Research Group [CPPRG], 1992; see Vitaro, De Civita, & Pagani, 1995 for a review). From this perspective, a multimodal approach, one which integrates parent-focused and child-focused programs is essential to prevent further escalation of disruptive behavior.

The Fast Track Program represents one such multi-modal program aimed at preventing severe forms of childhood deviance (CPPRG, 1992). The program, based in the U.S., targets children from various socioeconomic and ethnic backgrounds upon kindergarten entry. It comprises five components: (1) parent-training sessions on an array of topics that deal with improving parent management skills, the quality of parent-child relationship, and family-school relationship; (2) home-based visits addressing parental competence in managing family conflict and in providing a supportive home environment; (3) social-skills training, problem-solving strategies and anger-management for children; (4) academic tutoring; and (5) teacher-based training on effective classroom management. This program was implemented on a period of two years, beginning when the children were in the first grade and continuing through the end of the second grade. The data on the long-term effectiveness of the full FAST Track program are not yet available (Frick, 2001). However, data is available on the effectiveness of the initial intensive intervention (CCPRG, 1999a, 1999b). Specifically, after the first year of intervention, children in the treatment group (compared to the control group) showed improvement in their social, emotional, and academic skills. The intervention group also evidenced improvement in peer relations. Parents in the intervention condition, relative to the control condition, demonstrated more warmth and positive school involvement, and more appropriate and consistent discipline. As well, the intervention program also

improved classroom processes, with reductions in aggression and increases in self-control and on-task behavior. Most effect sizes were moderate.

The Montreal Longitudinal-Experimental Study tested a bimodal intervention program (Tremblay, Pagani, Masse, Vitaro, & Pihl, 1995) designed to modify the precursors of behavioral maladjustment in boys living in disadvantaged school districts in Montreal. This intervention program was nested within a longitudinal study, permitting the assessment of long-term effects of treatment. From the original sample, a subgroup identified as disruptive in kindergarten was selected to test the effectiveness of the intervention program. At the start the program, boys were 7-years-old. The duration of the program was two years. Children were then followed throughout adolescence.

The program consisted of a parent-training component and a child-based social-skills training component. During the first year, parents were taught family-management crisis skills and how to effectively monitor their children's behavior, provide positive reinforcement for prosocial behavior, and discipline without the used of abusive punishment. Parents received as many sessions as necessary to master the skills. Children received two types of social-skills training. A prosocial skills training curriculum was implemented in the first year, consisting of nine sessions. In the second year, sessions were given to enhance children's problem-solving and self-control in conflict situations.

Several studies have reported beneficial effects of the Montreal-based prevention program. In particular, the program was shown to have a significant long-term impact on behavioral and academic development. Children who received the intervention remained in an age-appropriate regular classroom up to the end of elementary school and showed less delinquent behavior at yearly assessments from ages 10 through 15 compared to controls (Tremblay et al., 1995). Vitaro and Tremblay (1994) also found that the program improved children's social

relationships. A reduction in disruptive behavior in treatment boys led to association with less deviant friends by age 10. In more recent work, Vitaro, Brendgen, and Tremblay (2001) showed that increases in parental supervision at age 11 and association with less deviant peers by age 12 were part of a chain of events that was found to mediate the effect of the intervention program on delinquent behavior during adolescence. These findings suggest that an intensive intervention with disruptive behavior during childhood can have positive results over the long term.

Although grade school interventions have been effective, perhaps we ought to intervene during the critical period of childhood. Our results regarding academic failure also dictate better preparation in the precursors of Grade 1 curricular content. This would mean targeting children living in poverty before they enter kindergarten. The Head Start movement inspired by the war against poverty in the U.S. was designed to improve the academic competencies of children living in poverty. The Head Start curricula, however, remains heavily focused on verbal enrichment and IQ remains a measure of success (personal communication between Linda Pagani and Edward Zigler, September 12, 2001). For example, in a study by Pagani et al. (2001), half of the children who were retained between Grades 1 and 6 had failed arithmetic. As such, early childhood programs should focus on the requisite skills for early arithmetic, basic concepts in number knowledge such as shapes, colors, dimensions, fractions, and generating sets. A promising step toward this vision of early intervention is Quebec's initiative (under la Nouvelle Politique Familiale) in mandating that all day-care centers include an educational program as part of the curricula (Miville-Deschenes, 1997).

Global Social Policy Implications

The discussion on educational policies finds its way in global social policy in that child-focused programs are part of a bi-generational approach to ending poverty. This approach entails delivering community-based services that aim to build human

capital in parents (by promoting parental education and better working wages) and psychosocial competence in children (Brooks-Gunn, 1995; Smith & Zaslow, 1995). Our findings underscore the importance of improving maternal education and family economic well-being.

A great deal of knowledge about the effectiveness of a bi-generational approach to ending poverty has come from the United States. For example, the Even Start Family Literacy Program (developed in 1965 and evaluated in 1990) is one such program, which aims to develop literary skills in parents (St-Pierre & Swartz, 1995). The approach is based on the notion that improving parents' education will make them more apt at supporting their child's educational success. The program combines three essential services: (1) early childhood education to meet the needs of children from birth to 8 years of age; (2) adult education to develop the basic literacy skills; and (2) parent-child education to enhance the parent-child relationship and assist parents in supporting their child's development.

Another program which aims to build human capital in both parents and children is the Avance Parent-Child Educational Program (Walker, Rodriguez, Johnson, & Cortez, 1995). Avance is a community-based program (developed in 1973 and evaluated in 1987) that provides support and educational services to poor families with young children (birth to age 3). Parents are offered parenting education classes in the first year into the program and then are provided with the opportunity to further their own educational training. Additional services offered to program participants include monthly home visits, child care, transportation, information and referral, and advocacy. Walker et al. reported that the program was successful in getting parents involved in their child's development. Parents in the program provided more safe home environments and felt more capable at stimulating their child's cognitive abilities. The program was also successful at motivating mothers to pursue their educational goals, thus increasing their employability.

The benefits of increasing parental education are two-fold. First parents gain child-based knowledge on how to provide cognitive stimulation and manage problem behavior. Second, they improve their opportunities for stable and gainful employment. Nevertheless, programs would need to do more to ensure that poor parents become financially secure. Evidently, job training/enhancement is key to acquiring the skills that are compatible with the demands of the labor market. As well, job training enables young parents to build a work history (Bane & Ellwood, 1994). The New Chance program (implemented in 1989) represents one such initiative designed to improve the life prospects of families headed by young welfare mothers (Quint & Egeland, 1995). The program offers a wide range of services including education, occupational skill training, off-site work internships, parenting services, child and health care, as well as personal counseling services. Increased employability, better parenting skills, and a more financially secure life for mothers themselves and their children are some of the intended outcomes of the program. The evaluation of this program is currently underway as part of the Next Generation Project, a large initiative by the Manpower Demonstration Research Corporation (MDRC, 2002).

In Canada, the Community Action Program for Children implemented with support of Health Canada (2001) may be considered a bi-generational approach to improving the lives of both parents and children. The program is a component of the child development initiative launched by the government of Canada in May 1992. It funds community groups in establishing and delivering services that address the developmental needs of young children (from birth to 6-years) born to teenage parents, living in poverty, as well as those experiencing developmental delays, socio-emotional problems. The Community Action program is jointly managed by both federal and provincial governments. Its purpose is to enable communities to development a continuum of integrated services to promote the health and social development of both parents and children. The program offers parent/family services, child development centers, parenting education, and infant stimulation. To our

knowledge, the effectiveness of the program at both the individual and family level of analysis has yet to be evaluated.

Social policies that aim to increase the education of poor parents (especially for mothers since they are the primary caregivers), provide job training/enhancement programs, and child-based services (access to day-care, preschool, parenting classes) are expected to benefit both parent and child. However, beneficial effects of any bi-generational program are short-lived unless efforts are made to provide families with ongoing care and support (Ramey & Ramey, 1998). An unexpected personal or economic crisis may move families back into poverty. As children make important developmental transitions, parents may need support in adapting their parenting management strategies according to emerging developmental needs (Ebata, Peterson, & Conger, 1990). If we are to break the cycle of social and financial disadvantage, remedial services must be secured in place for both parents and children over an extended period of time.

Historical Period of the Sample

What could we expect to find with children today? The study sample consisted of children growing up during the mid-1980s. Social policies in Canada during that period were quite different than they are today. All poor families were receiving family allowances, albeit at very small amounts. This was also a time of relative economic prosperity. Nevertheless, those wishing to move off welfare often encountered a 'welfare wall' - drop in benefits, loss of subsidized child care and extended health benefits. Being part of the working-poor often meant finding no support for child care.

The early 1990s ushered in a second recession and changes in social programs. The Family Allowance Plan ended in 1993 and the money saved was reinvested in creating a new expanded Child Tax Benefit for low-income and middle-income families. Cut-backs in social spending translated into tighter eligibility

requirements and lower welfare benefits. Welfare families were still finding it hard to participate in the labor market.

Increasing income for poor families and promoting involvement in the labor market were part of the goals behind the National Child System implemented in 1998. This new system, however, only supplements the income of working-poor families. Welfare-dependent families do not fully benefit from the system. As well, their welfare income has not increased to meet the cost of living.

It is not yet known whether increases in the income of working-poor parents translates into improved child well-being. Unless efforts are made to help parents achieve a level of economic well-being that goes beyond the bare minimum, that is, an income that can address the needs of developing children (Ross & Roberts, 1999), we are doubtful that any significant improvements may be observed. It would also appear that children in welfare-dependent families may continue to show the most developmental risks.

Conclusion

This study extends research involving persistently-poor families in four respects. First, it highlights the heterogeneous nature of economic hardship. Second, the comparative inclusion of never-poor families clarifies the magnitude of developmental difficulties experienced by groups of children living in persistent poverty. Third, it suggests that the relative influence of specific family economic circumstances on child well-being depends on the domain of competence being measured. Last, it indicates that maternal educational aspirations for the child operate as partial mediators of the link between persistent poverty and children's academic development.

The patterns of associations between parental income source (within the context of persistent poverty) and child outcomes were observed above and beyond the influence of significant socio-demographic factors and inherent child characteristics. In particular, controlling for early childhood behavior indirectly accounted for environmental influences up to the kindergarten assessment (Huston et al., 1997), making the findings regarding sole welfare dependence and working poverty, independent of earlier economic conditions. With this in mind, then, what do the findings tell us about parental dependency and parental self-reliance within the context of persistent poverty during middle childhood?

On one hand, the findings regarding the significant associations between welfare-dependence and both child outcomes suggest that parental dependency in the absence of any work carries the most developmental risk. On the other hand, parental self-reliance in the absence of any welfare does not render children resistant to the risks associated with persistent financial hardship. Although children in working-poor families showed levels of disruptive behavior comparable to those in never-poor families, they were at increased risk of academic failure by age 12. Had our sample for the work-and-welfare-dependent group been larger, we might have found the strategy of combining work and welfare (partial self-reliance) to be statistically associated with a reduction in disruptive behavior during elementary school.

Children in these families resembled their counterparts in working-poor families in terms of academic achievement. Partial self-reliance might have been associated with an increase in academic failure.

In thinking about our findings in relation to welfare-to-work programs, it is important to bear in mind that we focused on families who had endured specific economic circumstances, as defined by their income source and poverty status, for an extended period of time. This provided a context for comparing the influence of stable economic states (as opposed to transient states) on children's behavioral and academic development. Having said this, the findings do shed some light as to what might be expected when families move from welfare into the labor market and, become part of the working-poor population for some time. The possibility remains, however, that unmeasured parental characteristics may have accounted for the pattern of findings observed. Using a life course perspective, future research that follows children as their parents make important economic transitions toward and away from the labor market will validate and extend the findings of this study.

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Footnotes

[1]Another aspect of poverty is the subjective experience of being poor, which is not dealt with in this thesis. Readers interested in knowing how subjective poverty is measured should consult work by Rand Conger (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1993) and Vonnie McLoyd (McLoyd, Jayaratne, Ceballo, & Borquez, 1994).

[2]Estimates were obtained from Statistics Canada's Survey of Labor and Income Dynamics, a longitudinal survey of family income begun in 1993.

[3]Estimates were obtained from the Panel Study of Income Dynamics, a panel survey of U.S. households begun in 1968 through the early 1980s by the Survey Research Center of the University of Michigan.

[4]The National Council of Welfare obtains census data from Statistics Canada. Each year, Statistics Canada conducts a household survey known as the Survey of Consumer Finances to obtain information on family income. In 1993, Statistics Canada introduced a new survey – Survey of Labor and Income Dynamics.

[5]The National Center for Children in Poverty analyzes annual income data from the Current Population Survey conducted by the U.S. Census Bureau.

[6]In some provinces and territories, family entitlement varies with the age of each child in the family (NCW, 2000).

[7]Newfoundland and New Brunswick have refused to exercise this option (NCW, 2000). Manitoba began phasing out the claw back practice in August 2000 (National Anti-Poverty Organization [NAPO], 2000).

[8]In some jurisdictions, parents can lose a dollar of welfare for every dollar they earn beyond a fixed amount (NCW, 1999a).

[9]Statistics Canada (1999a) introduced after-tax LICOs. Post-tax LICOs are calculated in the same way as pre-tax LICOs, but expenditure on essentials is calculated as a proportion of income after taxes have been paid. This change reduces the rate of poverty since relatively affluent families pay more in taxes than do low-income families, thereby reducing the income gap between them. The post-tax LICOs adjust incomes for federal and provincial income taxes which account for only 38% of total government taxes. The remaining 62% is collected through more regressive taxes such as unemployment insurance and pension plan premiums, federal and provincial sales taxes, property taxes and so forth (CCSD, 2000b; Ross et al., 2000). Regressive taxes such as unemployment insurance and pension premiums are levied as a percentage of wages only up to a threshold level. They take more from low-income earners as opposed to very high earners. In addition, the after-tax measure hides the impact of user fees for public services, which also has an unfair effect on poor families. If all taxes were included in the after-tax measure, poverty rates would likely be very similar to the pre-tax LICOs (NAPO, 2000).

[10]The Family Expenditure Survey was replaced in 1997 by the annual Survey of Household Spending (Ross et al., 2000).

[11]In 1986, the average Canadian family spent 36.2% of gross income on food, shelter, and clothing. Therefore families spending more than 56.2% of their income on basic necessities were regarded as poor. Child poverty rates for Canada reported on page 8 (in section entitled, The North American Context) are based on the 1986-base LICOs.

[12]Statistics Canada (1999a) has introduced after-tax LIMs. Post-tax LIMs are calculated in the same manner as pre-tax LIM except that 50% of the adjusted

median after tax becomes the basic LIM for one person and adjustments are then made upward according to family size and composition.

[13]Determined using the 1986-base LICOs for a family of four living in a city with a population of 500,000 and more (Statistics Canada, 1999).

[14]Yoshikawa (1999) also investigated associations between proportion of time on welfare while working across the first five years of life and child cognitive outcomes between ages 6 and 7. No significant associations were found.

[15]In Duncan and Yeung's (1995) study, welfare receipt was defined as the proportion of total family income from welfare. In their study, even small amounts of receipt negatively affected schooling among Caucasians.

[16]Child gender was employed as a control variable in all analyses based on research suggesting that, in general, boys tend to be at greater developmental risk (Loeber & Stouthamer-Loeber, 1998; Rutter, 1987). Although associations between family economic hardship and adjustment may depend on child gender (see Bolger et al., 1995), this possibility was not explored.

[17]Research suggests that childhood deviance may affect academic achievement (Hinshaw, 1992). We reran our analyses predicting academic failure with the addition of disruptive behavior at age 6 as a control variable. The pattern of findings reported did not change. Early disruptive behavior entered in Step 1 (Equation 1, testing the first condition for mediation) was not statistically associated with academic failure (B = -11, SE = .10, p = .23). As well, early disruptiveness entered in Step 1 (Equation 2, testing the second condition for mediation) was not statistically associated with parental educational aspirations at conventional levels (B = .04, SE = .02, p = .06).

[18]Sobel's test for the indirect association of the welfare-dependent group

$$\frac{bc}{\sqrt{c^2 S_b^2 + b^2 S_c^2 + S_b^2 S_c^2}}$$

where b = coefficient for dummy-coded welfare-dependent variable in Equation 2 predicting parental educational aspirations; c = coefficient for parental educational aspirations in Equation 3 predicting academic failure; S_b = standard error for b; S_c = standard error for c.

$$= \frac{(-.34)(-.65)}{\sqrt{(-.65)^2(.1104)^2 + (-34)^2(.094)^2 + (.1104)^2(.094)^2}}$$

$$= \frac{.221}{\sqrt{(0.423)(0.012) + (0.116)(0.009) + (0.012)(0.009)}}$$

$$= \frac{.221}{\sqrt{0.0051 + 0.0010 + 0.0001}}$$

$$= \frac{.221}{\sqrt{0.0062}}$$

$$= \frac{.221}{0.08}$$

$$= 2.76$$

[19]Sobel's test for the indirect association of the working-poor group

$$\frac{bc}{\sqrt{c^2 S_b^2 + b^2 S_c^2 + S_b^2 S_c^2}}$$

where b = coefficient for the dummy-coded working-poor variable in Equation 2 predicting parental educational aspirations; c = coefficient for parental educational aspirations in Equation 3 predicting academic failure; S_b = standard error for b; S_c = standard error for c.

$$= \frac{(-.26)(-.65)}{\sqrt{(-.65)^2(.042)^2 + (-26)^2(.094)^2 + (.042)^2(.094)^2}}$$

$$= \frac{.169}{\sqrt{(0.423)(0.002) + (0.068)(0.009) + (0.002)(0.009)}}$$

$$= \frac{.169}{\sqrt{0.001 + 0.001 + 0.000}}$$

$$= \frac{.169}{\sqrt{0.002}}$$

$$= \frac{.169}{0.045}$$

$$= 3.78$$

Tables

Table 1

Time Line of Data Collection

	Child Age Year	6 1986-1987	7 1987-1988	8 1988-1989	9 1989-1990	10 1990-1991	11 1991-1992	12 1992-1993
Variable								
Controls:								
Child Gender		X						
Early Childhood Behavior[1]		X						
Maternal Age at First Child-Birth		X						
Maternal Years of Education		X						
Family Structure		X	X	X	X	X	X	

Note: [1]Teacher-ratings of disruptive and inattentive classroom behavior on the Social Behavior Questionnaire.

Table 1

Time Line of Data Collection (continued)

Child Age Year	6 1986-1987	7 1987-1988	8 1988-1989	9 1989-1990	10 1990-1991	11 1991-1992	12 1992-1993
Variable							
Predictor:							
Family Economic Circumstances			X	X	X	X	
Mediators:							
Parental Supervision					X	X	
Parental Educational Aspirations					X	X	

Table 1

Time Line of Data Collection (continued)

	Child Age Year	6 1986-1987	7 1987-1988	8 1988-1989	9 1989-1990	10 1990-1991	11 1991-1992	12 1992-1993
Variable								
Outcomes:								
Disruptive Behavior[1]								X
Academic Failure[2]								X

Note: [1]Teacher-ratings of disruptive classroom behavior on the Social Behavior Questionnaire; [2]Confirmed through official school records.

Table 2

Comparison of Retained and Nonretained Children on Demographic Characteristics and Early Childhood Behavior

Variable	Retained Children % or M(SD)	Nonretained Children % or M(SD)	Significance Test
Disruptive Behavior at Age 6	3.99 (5.13)	5.09 (5.82)	$t = 5.40$**** Levene's test $p < .0001$
Inattentive Behavior at Age 6	1.81 (2.21)	2.26 (2.33)	$t = 5.24$**** Levene's test $p < .001$
Maternal Age at First Child-Birth	24.78 (3.85)	23.96 (3.95)	$t = -5.28$**** Levene's test $p = .28$
Maternal Years of Education	12.28 (2.51)	11.36 (2.64)	$t = -9.47$**** Levene's test $p < .05$
% Spent Time in a Single-Parent Family between Ages 6 and 11	13.9	25.6	Pearson χ^2 (1) = 47.68**** $p < .0001$
Intensity of Financial Hardship averaged over a 4-Year Period	1.83 (.83)	1.55 (.83)	$t = -6.19$**** Levene's test $p = .92$

****$p < .0001$

Table 3

Operational Definition of Variables used in the Study

Variable	Description	Comments
Controls:		
Child Gender	Coded as (1) for boys; (0) for girls.	
Early Childhood Behavior	Teacher-ratings on the Social Behavior Questionnaire, a 38-item measure of child behavior. Two factors were retained: Disruptive (13-items) and Inattentive (4-items). Scores are continuous, with higher scores indicating greater disruptiveness and inattentiveness.	Obtained at age 6. Disruptive classroom behavior at age 6 used as control when criterion variable was disruptive classroom behavior at age 12. Inattentive behavior at age 6 used as control when criterion variable was academic failure by age 12.
Maternal Age at First Child-Birth	Continuous.	Obtained at age 6.

Table 3

Operational Definition of Variables used in the Study (continued)

Variable	Description	Comments
Controls: (continued)		
Maternal Years of Education	Continuous.	Obtained at age 6.
Family Structure	Dichotomous variable: Coded as (1) for time spent in a single-parent family between ages 6 and 11; (0) for always in a two-parent family during those ages.	
Predictor:		
Family Economic Circumstances	Dummy-coded variable representing specific family economic circumstances as defined by persistence of financial hardship and income source during a 4-year childhood period :	Persistent financial hardship was determined by averaging the ratio of a family's income-to-needs over the 4-year childhood period.
	(1) Welfare-Dependent (2) Working-Poor (3) Work-and-Welfare-Dependent (4) Never-Poor Working	Persistent income source was determined by information on work engagement and whether receipt of welfare was coupled with work or not during the 4-year period.

Table 3

Operational Definition of Variables used in the Study (continued)

Variable	Description	Comments
Mediators:		
Parental Supervision	Assessed using a two-item scale. Scores are continuous, with higher scores indicating greater parental supervision.	(1) Do you know your child's whereabouts when she/he is not home? and (2) Do you know with whom your child is spending time when she/he is not home?
Parental Educational Aspirations	Assessed using a single item. This variable is treated as a continuous predictor. A change from one category to another represents a quantitative change (increasing parental aspirations for child).	(1) What level of education do you want your child to complete?

Table 3

Operational Definition of Variables used in the Study (continued)

Variable	Description	Comments
Outcomes:		
Disruptive Behavior	Assessed using teacher-ratings on the disruptive scale (13-items) of the Social Behavior Questionnaire. Scores are continuous with higher scores indicating greater disruptiveness.	
Academic Failure	Official records obtained from the Ministry of Education were used to confirm a child's classroom placement Dichotomous variable: Coded as (1) for not currently in a regular, age-appropriate classroom; (0) for currently in a regular and appropriate classroom for age.	Not being in a regular, age-appropriate classroom was indicative of academic failure.

Table 4

Sample Characteristics: Percentages, Means, and Standard Deviations

Variable	Family Economic Circumstances				Full Sample
	Welfare-Dependent	Work-and-Welfare-Dependent	Working-Poor	Never-Poor Working	
Controls:					
Gender (% boys)	53.8	38.1	45.3	44.9	45.2
Disruptive Behavior at Age 6	6.44 (6.33)	4.90 (5.79)	4.21 (5.16)	3.71 (4.98)	3.99 (5.13)
Inattentive Behavior at Age 6	2.67 (2.42)	2.67 (2.37)	2.02 (2.30)	1.62 (2.11)	1.82 (2.21)
Maternal Age at First Child-Birth	21.98 (4.97)	22.03 (3.14)	23.72 (3.68)	25.61 (3.63)	24.78 (3.85)
Maternal Years of Education	10.03 (3.14)	11.43 (1.83)	11.33 (2.19)	12.96 (2.40)	12.28 (2.51)
% Time in Single-Parent Family	66.7	90.5	16	7.4	13.9
Mediators:					
Parental Supervision	7.47 (.84)	7.43 (.69)	7.51 (.78)	7.60 (.67)	7.56 (.72)
Parental Educational Aspirations	4.13 (1.11)	4.29 (.66)	4.29 (.73)	4.67 (.54)	4.51 (.66)
Outcomes:					
Disruptive Behavior	6.00 (5.79)	2.10 (4.24)	2.73 (3.94)	2.21 (3.54)	2.52 (3.85)
% Academic Failure	41	19	19.5	9.8	14.3

Note. Standard deviations in parentheses.

Table 5

Correlations Among Predictor Variables and Disruptive Behavior at Age 12

Variable	Variable						
	1	2	3	4	5	6	7
1. Disruptive Behavior at Age 12	---						
2. Child Gender[a]	.26***						
3. Disruptive Behavior at Age 6	.43***	.20***					
4. Maternal Age at First Child-Birth	-.03	.00	-.03				
5. Maternal Years of Education	-.11***	-.00	-.07**	.25***			
6. Family Structure[b]	.15***	.04	.15***	-.07**	-.03		
7. Family Economic Circumstances[c]	-13***	-.02	-.08**	.27***	.35***	-.24***	
8. Parental Supervision	-.17***	-.21***	-.13***	.04	.05*	-.07**	.06*

Note. [a]Girl = 0; [b]Always two-parent family = 0; [c]Dummy-coded variable. *p <.05; **p < .01; *** p < .0001.

Table 6

Correlations Among Predictor Variables and Academic Failure by Age 12

Variable	Variable						
	1	2	3	4	5	6	7
1. Academic Failure by Age 12[a]	---						
2. Child Gender[b]	.11***						
3. Inattentive Behavior at Age 6	.38***	.15***					
4. Maternal Age at First Child-Birth	-.09***	.00	-.08**				
5. Maternal Years of Education	-.19***	-.00	-.14***	.25***			
6. Family Structure[c]	.07**	.04	.08**	-.07**	-.03		
7. Family Economic Circumstances[d]	-.18***	-.02	-.11***	.27***	.35***	-.24***	
8. Parental Educational Aspirations	-.36***	-.03	-.26***	.21***	.26***	-.04	.29***

Note. [a]Academic Failure = 1; [b]Girl = 0; [c]Always two-parent family = 0; [b]Dummy-coded variable: *p <.05; **p < .01; ***p < .0001.

Table 7

Hierarchical Linear Regression Analyses Testing Conditions 1 and 2 for Mediation Model Predicting Disruptive Behavior at Age 12

	Equation 1: Predicting Disruptive Behavior		Equation 2: Predicting Parental Supervision	
Variable	B	SE B	B	SE B
Step 1. Controls	Adjusted R^2 = .22***		Adjusted R^2 = .05***	
Child Gender[a]	1.38***	.21	-.28***	.04
Disruptive Behavior at Age 6	1.44***	.11	-.05*	.02
Maternal Age at First Child-Birth	.01	.11	.02	.02
Maternal Years of Education	-.31*	.11	.03	.02
Family Structure[b]	.96**	.30	-.11[t]	.06
Step 2. Family Economic Circumstances[c]	Adjusted R^2 = .23 R^2_{change} = .01***		Adjusted R^2 = .05 R^2_{change} = .00 n.s.	
Welfare-Dependent	2.23**	.61	.03	.13
Work-and-Welfare-Dependent	-1.09	.80	-.06	.17
Working-Poor	.18	.23	-.04	.05

Note. [a]Girl = 0; [b]Always two-parent family = 0; [c]Never-poor working family = 0
n.s. = not significant; [t]p = .08; *p <.01; **p <.001; ***p < .0001.

Table 8

Hierarchical Logistic and Linear Regression Analyses Testing Conditions 1 and 2, Respectively for Mediation Model Predicting Academic Failure by Age 12

	Equation 1: Predicting Academic Failure		Equation 2: Predicting Parental Aspirations	
	Hierarchical Logistic		Hierarchical Linear	
Variable	B (SE B)	Odds Ratio	B	SE B
Step 1. Controls	Model $\chi^2(5)$ =179.07****		Adjusted R^2 = .13****	
Child Gender[a]	.38 (.19)	1.47*	.00	.04
Inattentive Behavior at Age 6	.89 (.09)	2.45****	-.14****	.02
Maternal Age at First Child-Birth	-.14 (.10)	.87	.09****	.02
Maternal Years of Education	-.53 (.11)	.59****	.13****	.02
Family Structure[b]	.25 (.25)	1.29	-.02	.05
Step 2. Family Economic Circumstances[c]	Improvement χ^2 (3) = 8.77*		Adjusted R^2 = .16 R^2_{change} = .03****	
Welfare-Dependent	1.19 (.45)	3.28**	-.34***	.11
Work-and-Welfare-Dependent	.23 (.67)	1.26	-.25[t]	.15
Working-Poor	.46 (.22)	1.59*	-.26****	.04

Note. [a]Girl = 0; [b]Always two-parent family = 0; [c]Never-poor working family = 0
[t]p = .08; *p < .05; **p < .01; ***p < .001; ****p < .0001

Figures

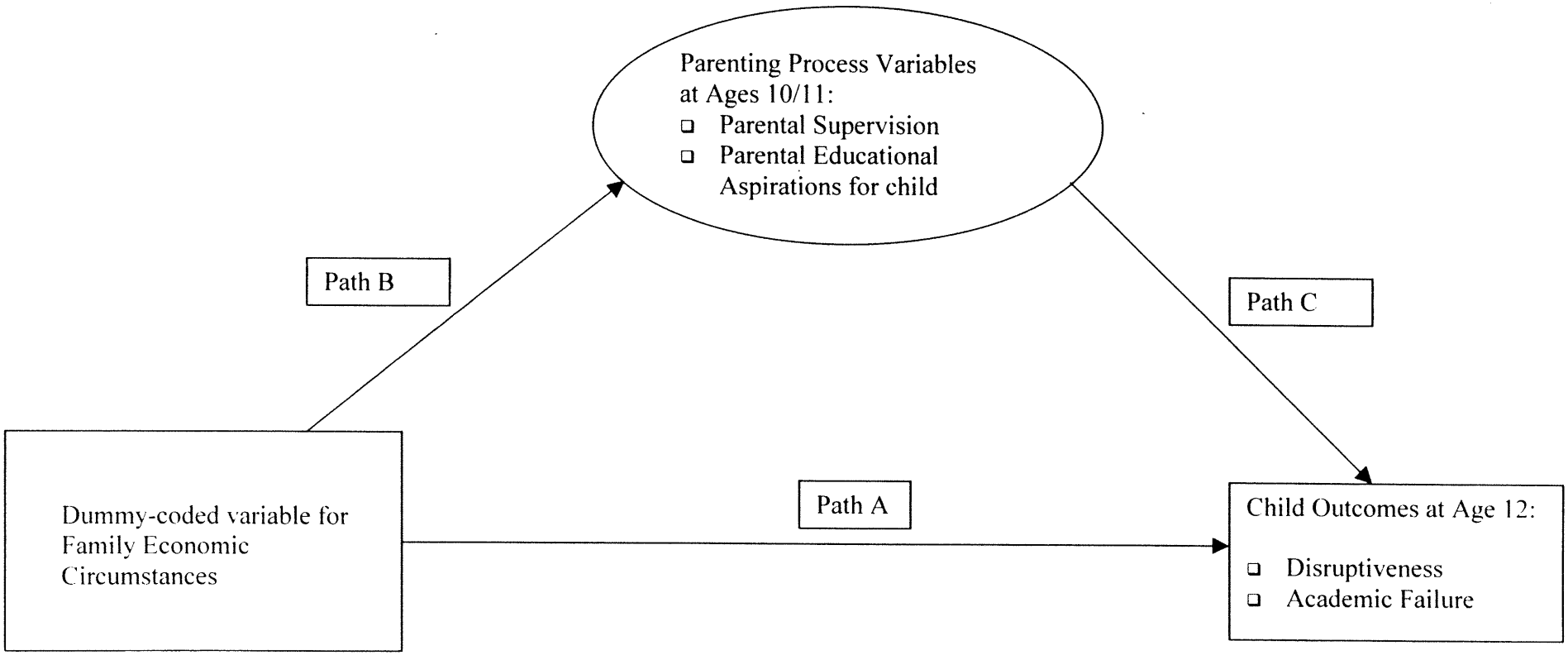
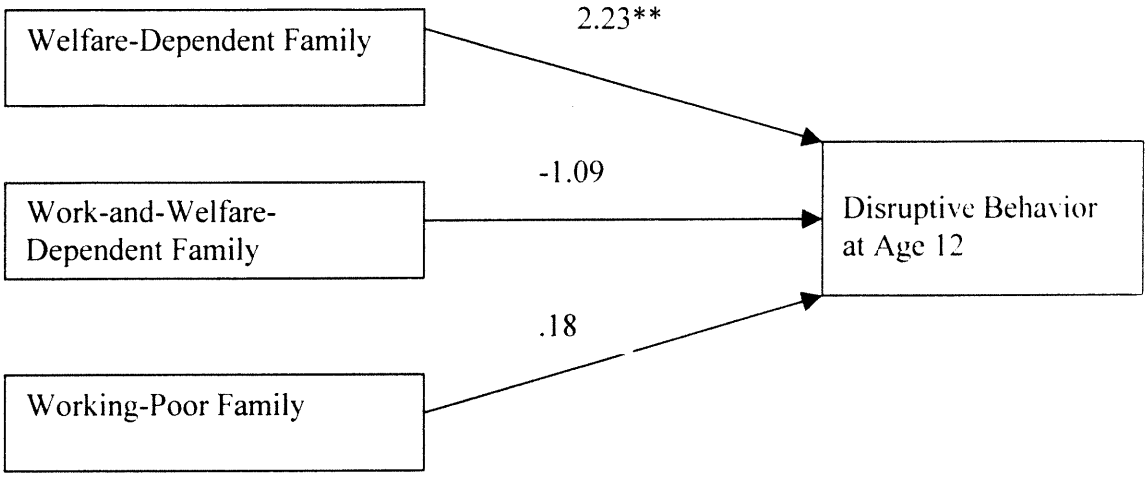


Figure 1. Hypothetical model of how the association between family economic circumstances is mediated, in part, by parenting process variables. In this and subsequent diagrams, family economic circumstances and child outcomes at age 12 are shown in rectangles and the mediator variables are shown in oval.

A. Equation 1: Predicting Disruptive Behavior at Age 12



B. Equation 2: Predicting Parental Supervision at Ages 10/11

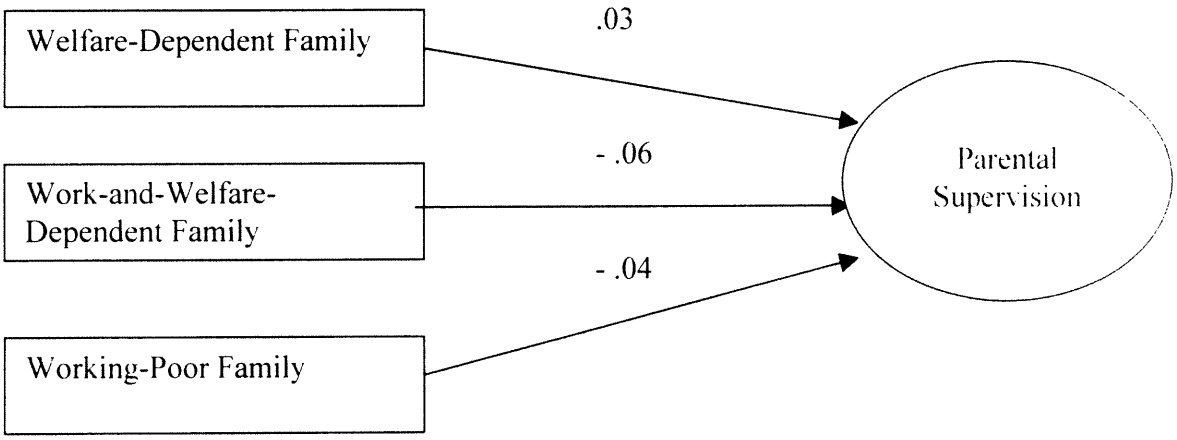
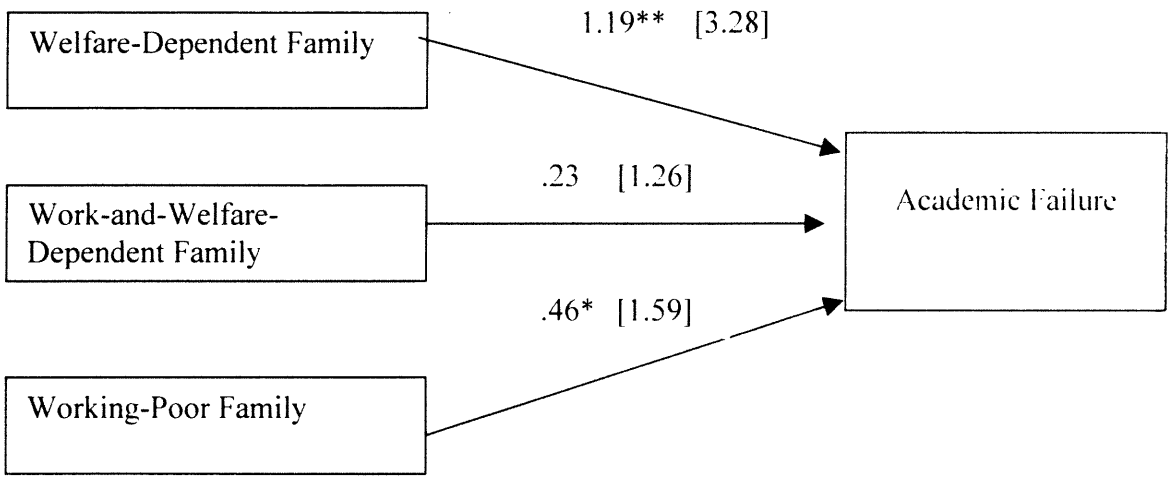


Figure 2. The direct associations between specific family economic circumstances with disruptive behavior and parental supervision. Partial coefficients reported on each path and associated p-values; **p < .001. The second condition for mediation was not met.

A. Equation 1: Predicting Academic Failure by Age 12



B. Equation 2: Predicting Parental Educational Aspirations at Ages 10/11

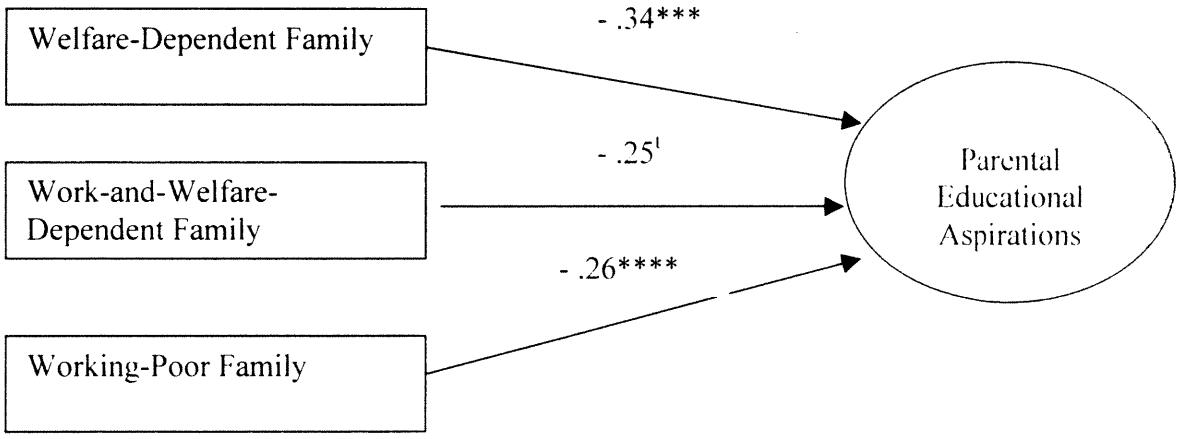


Figure 3. The direct associations between specific family economic circumstances with academic failure and parental education aspirations for child. Partial coefficients reported on each path and associated p-values; [b]Odds ratios presented in [ ].
[t]p < .08; *p < .05; **p < .01; ***p < .001; ****p < .0001. The conditions for mediation were met.

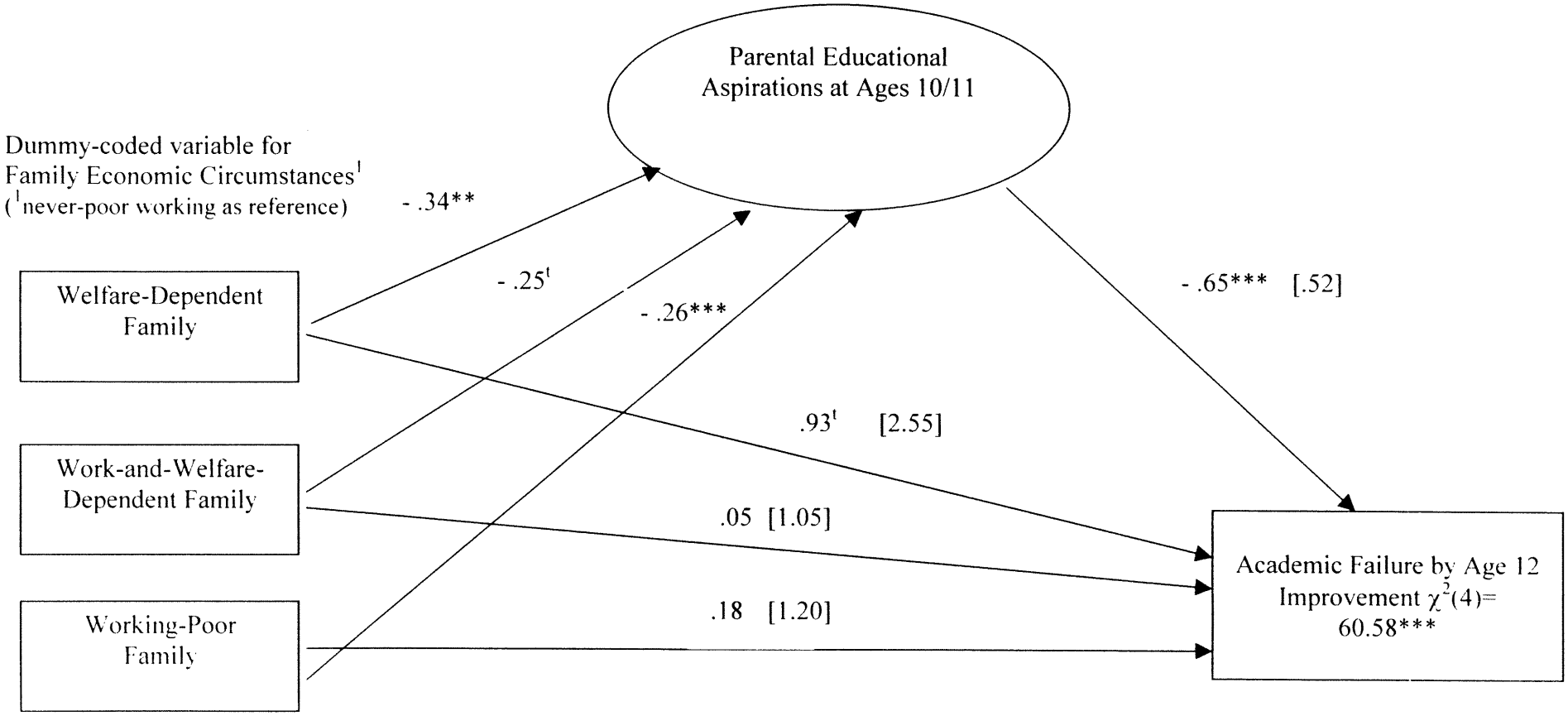


Figure 4. Parental educational aspirations for child mediated, in part, the associations between growing up in a welfare-dependent and a working-poor family and academic failure. Coefficients reported on each path and associated p-values: Odds ratios presented in [ ]. [t]p < .10; **p < .001; ***p < .0001.