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Stability of income and school attendance among NYC students of low-income families

Lisa A. Gennetian[a,*], Christopher Rodrigues[a], Heather D. Hill[b], Pamela A. Morris[a]

[a] New York University, Institute of Human Development and Social Change, Kimball Hall, 246 Greene Street, floor 5E, New York, NY 10003, United States
[b] University of Washington, Daniel J. Evans School of Public Policy and Governance, Parrington Hall, 4100 15th Ave NE, Seattle, WA 98195, United States

ABSTRACT

School attendance problems among low-income children present a considerable challenge to educators and may be associated with the economic circumstances of families. Using longitudinal administrative data from the Opportunity New York City-Family Rewards study (n = 2182) and child fixed-effects models, we examine the role of stability of household income on student level attendance of 4th, 7th and 9th graders as they transition through elementary, middle, and high school, respectively. Family income volatility varies across and within these developmental stages of children, even among this low-income sample. Consistent with prior research, higher income was associated with better school attendance in all grades. But, interestingly, high income *volatility* is associated with worse school attendance among 4th and 7th graders, relative to stable income or moderate levels of income volatility. This finding contributes to emerging studies seeking to identify whether income volatility has distinct influences on children's school-related outcomes.

1. Introduction

Chronic lack of attendance at school persists as a thorny challenge to educators and one that might be linked with family socioeconomic status. Attendance has been viewed as one of several indicators of school success (Bryk, 2010), is an accountability feature of policy in No Child Left Behind (Sheldon, 2007) and has been found to be associated with academic achievement (Gottfried, 2010) as well as with delinquency (Wang, Blomberg, & Li, 2005). Low rates of attendance, however, are not equally distributed across children of families at different points of the income distribution: children from income poor families and communities are four times more likely to miss 10% or more of eligible school days, defined as chronic absenteeism, than their higher income peers (Chang & Romero, 2008; Gottfried, 2015). These differences between socioeconomic groups, coupled with income differences in other measures of school behavior and outcomes such as suspensions and performance on achievement tests, fuel subsequent differences in economic security and mobility through adulthood (Allensworth, Gwynne, Moore, & De La Torre, 2014; Duncan, Brooks-Gunn, Yeung, & Smith, 1998; Duncan, Kalil, & Ziol-Guest, 2008; Herbers, Reynolds, & Chen, 2013). Explanations for low attendance and less favorable schooling outcomes among students living in poverty range from the quality of schools and neighborhoods to the variety of family and household circumstances associated with low income, such as family instability, material hardship, psychological distress, and chronic illness (Chang & Romero, 2008; Smith & Medalia, 2015). In this study, we specifically examine whether the *stability of household income* might have independent influences on student school attendance.

Analysis of monthly and yearly household income consistently suggests that low-income families have much more income volatility than do their higher income counterparts. In addition, the amount of income volatility experienced by the lowest income families has increased substantially since the 1970s (Bania & Leete, 2007, 2010; Gosselin & Zimmerman, 2008; Hardy & Ziliak, 2014; Morris, Hill, Gennetian, Rodrigues, & Wolf, 2015). The increase in income volatility is most likely related to increases in employment instability—both between and within jobs—(Kalleberg, 2009) and in family instability due to factors such as divorce and multiple-partner fertility (Teachman, Tedrow, & Crowder, 2000). Conditioned on employment, many U.S. safety net programs, such as TANF and the EITC, may also contribute to rising income volatility (Gosselin & Zimmerman, 2008; Hardy & Ziliak, 2014).

Whether triggered by job loss, inconsistent work hours, gaps in the safety net, or disruptions in family relationships, the effects of income volatility on family life may be consequential and distinct from those of persistently low-income. Compared to higher-income families, low-income families have limited savings or credit to buffer against income changes (Barr, 2012). With limited savings and minimal access to low

* Corresponding author.
E-mail addresses: lg1864@nyu.edu (L.A. Gennetian), cr1390@nyu.edu (C. Rodrigues), hdhill@uw.edu (H.D. Hill), pamela.morris@nyu.edu (P.A. Morris).

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cost alternative financial sources, fluctuating income can cause stress for parents and children, affect parenting, supervision and attention to children as well as generate inconsistent patterns of consumption and expenditures including basic needs, such as food (Hill, Morris, Gennetian, Wolf, & Tubbs, 2013). School attendance is one pathway through which the effects of income volatility on school outcomes may operate. Income volatility could affect attendance by disrupting family routines, creating higher risk for illness through stress or material hardships, affecting parents' ability to pay for basic materials and preparation for school, such as clothes, transportation, and after-school care, or, putting higher demands on children to contribute to household tasks or to family earnings at the possible risk of school attendance (Romero & Lee, 2008). Empirical investigations of income volatility's relation with family and child outcomes are hampered by the availability of data with frequent measurement of income coupled with information about family life or children's well-being. Recent efforts to specifically examine the influence of income volatility, independent from income level, on children find small adverse effects on outcomes (Gennetian, Wolf, Hill, & Morris, 2015; Hardy, 2014).

We take advantage of longitudinal administrative data from the Opportunity New York City-Family Rewards (ONYC-FR) study to examine the relation of income volatility to student level attendance of 4th, 7th and 9th graders. Both the income and student attendance measures are taken from administrative files, reducing the likelihood of some sources of self-report measurement error. Importantly, these data allow us to align the income measures precisely with the academic year and to examine three different age groups of children over the course of developmentally significant milestones: 4th graders as they transition to middle school, 7th graders as they transition through middle school to high school entry; and, 9th graders as they transition through high school. Finally, although it is well established that income volatility is generally higher among low- as compared to higher-income families, less is understood about variation within low-income populations. These data offer a rare opportunity to examine such variation.

2. Background

While a large and established literature points to unfavorable influences of poverty—measured at a point-in-time or averaged across years—on children's developmental outcomes (Brooks-Gunn & Duncan, 1997; Cancian & Danziger, 2009; Conger & Conger, 2002; Elder, 1974; Gennetian, Castells, & Morris, 2010), recent companion research is beginning to uncover the dynamic and multi-dimensional complexity of family economic circumstances that may be as significant to family life as low income per se (Hannagan & Morduch, 2015; Hardy, 2014; Hardy & Ziliak, 2014). Income and family poverty status fluctuate year to year and within year, contributing to movement in and out of public assistance eligibility and receipt (Bane & Ellwood, 1986, 1996; Duncan, Hill, & Hoffman, 1988; Stevens, 1994). Levels of material hardship also vary, even among families with similar income levels (Gershoff, Aber, Raver, & Lennon, 2007; Mayer & Jencks, 1989). Income volatility may be a contributing factor to income inequality: Analyses of data from the Survey of Income and Program Participation (SIPP) show that families in the bottom income quintile experience 1.5 to 2.5 times more intra-year income volatility than families in the top quintile (Morris et al., 2015).

The consequences of income volatility are potentially distinct from those of stably low-resourced environments (Hill et al., 2013; Sandstrom & Huerta, 2013). Regularly changing income levels, particularly if unpredictable, may be as or more detrimental to human development than chronically low-income. Income volatility may introduce chaos into home environments, disrupting the regularity of proximal processes and daily activities that are critical to child development, such as parent-child interactions and sleep (Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999; Bronfenbrenner & Morris, 2006; Wachs & Evans, 2010). In addition, if parents are repeatedly challenged to manage family finances, interact with bureaucratic systems, or make difficult decisions about spending on children, they may feel more stressed and have less energy to consistently interact with their children or take pro-active steps to plan investments in their children's future (Mullainathan & Shafir, 2013). Getting to school each morning might be one aspect of children's (and families') lives that could be vulnerable to these kinds of daily economic insults and resulting daily stresses on families.

Researchers have long recognized the role of families in supporting or exacerbating student attendance. Indeed, while some interventions have focused on characteristics of schools, such as their size or link to the business community, others have directly targeted family and community involvement to address the challenge of student attendance (Epstein & Sheldon, 2002). As a proximal outcome to the daily experiences of children, school success may be especially vulnerable to family income volatility, where children are taxed differentially from one day to the next by their parents' changing economic circumstances. Indeed, while empirical work on the causal chain of influence is scant at best, we posit that one of the first aspects of children's academic lives to be affected by chronic changes in family income might be whether they can get to school each day with later implications for their learning and achievement test scores.

A number of studies have demonstrated associations between student attendance and subsequent school success. Lower attendance in elementary school and middle school are unfavorably associated with reading and math scores using data from the National Assessment for Educational Progress (NAEP; Ginsburg, Jordan, & Chang, 2014). The effects are so pronounced that 4th grade absentee students scored more than a full grade level lower in reading compared to students who missed no days of school (Ginsburg et al., 2014). While much of the work linking attendance and achievement is non-causal, analytic strategies that allow for stronger causal inference have also demonstrated positive relationships between attendance and achievement (Gottfried, 2010). Poor attendance during the first month of the academic year predicts chronic absenteeism for the entire year (Olson, 2014); and, the effects may carry over into adulthood, as absenteeism in 6th grade is a predictor for later high school dropout and college incompletion (Balfanz, Herzog, & Mac Iver, 2007; Ginsburg et al., 2014). Not only does school absence result in less learning of the foundational material children need to succeed in school (as demonstrated by the positive relation between math class attendance and math achievement, for example; Balfanz & Byrnes, 2006), but absenteeism has also been found to be associated with other behavioral outcomes that undermine academic success, such as increased alienation from school (Newmann, 1981) and greater substance use (Wang et al., 2005).

Life course theories suggest that the effects of income volatility and the consequences for school attendance are likely to depend on the timing of income change relative to a child's age or developmental stage. Children may be particularly vulnerable to income volatility when it occurs during key developmental transition periods (Graber, Brooks-Gunn, & Petersen, 1996). Adolescence is a period of rapid development that includes dramatic physical and physiological changes, cognitive advances, and formation of identities separate from peers and family (Allen, Aber, & Leadbeater, 1990; Steinberg & Morris, 2001). Such physical and psychological disruptions timed concurrently with developmental transitions (Graber et al., 1996) or transitions between contexts (e.g., from smaller, middle to larger, sometimes less personal high schools; Seidman, Allen, Aber, Mitchell, & Feinman, 1994) may further magnify the detrimental effects of household economic strain, or very low income, on adolescent academic trajectories.

Children's characteristics, including gender and predisposition, are also likely to interact with the family context to produce heterogeneity in the effects of income volatility. A child's response to stress can affect a caregiver's reactions and, in turn, how the situation influences development (Rutter, 1987). This hypothesis is consistent with the finding