LOW INCOME MOTHER’S PURSUIT OF HIGHER EDUCATION AND THEIR CHILDREN’S COGNITIVE AND NON-COGNITIVE SKILL DEVELOPMENT

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Project Abstract: Project Overview and Relevance to Policy

The goal of this project is to investigate whether low-income women’s pursuit of higher education after the transition to motherhood can improve their children’s prospects for upward socioeconomic mobility by increasing children’s cognitive and non-cognitive skills. Cognitive and non-cognitive skills, which are primarily formed in childhood, have been linked to adult labor force productivity and increase with parents’ educational attainment [1-4]. Thus, increased higher education for low-income mothers has the potential to reduce inequality and the risk of poverty for the next generation. Yet we know very little about whether such intergenerational returns accrue to children when their mothers receive such education after they are born. This is a timely issue, as many U.S. women now enter parenthood before completing school, especially disadvantaged women [5-6]. For example, estimates from one source of national data on lower-income families found that over 40 percent of women returned to school within five years of giving birth [6]. It also has high policy relevance. Welfare reform, which penalized women in many states for enrolling in school [7], and rising tuition costs make it difficult for low-income mothers to return to school. Qualitative studies, however, reveal that many low-income women aspire to do so [8-9]. This study, therefore, has the potential to strengthen the evidence base in support of policies that aim to improve low-income mothers’ access to higher education.
Background and Prior Research

Education is a primary channel by which parents’ socioeconomic position is reproduced in their children. The basic argument for this intergenerational process is that education conveys economic, psychological, and social resources which parents draw on to promote their children’s development, leading their children toward more prosperous adulthoods [10-12]. The empirical evidence for this process is also robust and goes beyond correlational conclusions [13-15]. Thus, both research and theory underscore how low-income mothers’ entry into the higher education system has the potential to reduce socioeconomic inequality for children. Yet it remains unclear whether additional maternal education will improve the trajectories of children’s development.

One reason that post-childbearing education may yield fewer benefits to children is that the characteristics of women who have children before completing their education are different from those who completed degrees before having children. For example, findings from my own research revealed that mothers who earned a college degree after having children grew up in far more disadvantaged circumstances than mothers who completed a college degree before having children [6]. Other research finds that college students from disadvantaged backgrounds are less prepared to engage in rigorous coursework, have less family support to draw on, and have less access to the peer networks which provide academic support and cultivate social capital [16-18]. These challenges faced by lower SES students may be even greater for mothers, who have often been out of the educational system for many years [6] and must balance the additional demands of motherhood. Thus, their children may not experience many of the well-documented psychosocial returns to their higher education. Mothers may also gain fewer returns to a college degree after it is completed. For example, they may encounter greater barriers to employment because they lack the experience expected of someone their same age and education. Thus, their children may experience fewer of the economic advantages associated with a college degree as well.
In spite of such possibilities, a handful of studies provide support for the expectation that additional maternal education can improve children’s outcomes [19-24]. These studies also share various shortcomings that limit their power to inform social policy. First, they draw on samples that are not generalizable to contemporary low-income mothers. They rely on more advantaged samples [21], subsamples of mothers who were young [20] or participating in special programs [21-22], or samples of mothers who returned to school decades ago [24]. Second, they focused on the effects of additional maternal education on pre-school aged children and, thus, did not consider the impact of additional education on children beyond the early childhood period, or whether the effects observed among younger children were sustained over time. Third, they only examined the associations between additional maternal education and children’s cognitive skills. The one exception was a study which found a negative association between additional maternal education and young children’s problem behavior. As such, more research is needed to assess the short- and longer-term implications of additional education for children’s non-cognitive skills. Fourth, they did not consider whether the impact of additional maternal education on children’s outcomes was conditional on attaining a degree and degree type. Most looked only at additional years of schooling. Lastly, only two [23-24] used methods that were robust to causal inference.

Proposed Study

My project will build on the limitations of prior research by tackling the following questions:

(1) Do the associations between mothers’ additional post-childbearing higher education (vs. none) and young children’s cognitive skills extend to children’s non-cognitive skills?

(2) Do these associations endure, or do they fade out?

(3) Are such associations between increased maternal education and children’s outcomes observed when mothers acquire their education when children are in middle childhood?
(4) Do the associations observed in Aims 1-3 vary by type of degree (e.g., 4-year, technical)?

(5) Are the associations observed in Aims 1-4 robust to methods of causal inference which control for unobserved selection into additional post-childbearing education?

**Study Design**

**Data.** Data for the project will come from the Fragile Families and Child Wellbeing Study (FFCW), a national birth cohort survey designed to study the development of children in unmarried families. Data collection began in 2000, when a random sample of 3,712 unmarried and 1,186 married mothers who met the sampling criteria were chosen from hospitals in 20 cities soon after giving birth. With appropriate weighting, the sample is representative of all births in large U.S. cities in 2000. Amongst existing sources of secondary data, it is the best fit for the project for several reasons. It captures the project’s population of interest, low-income mothers. The sample is contemporary, with mothers returning to school in early 2000s (vs earlier decades, like mothers participating in the NLSY79). It includes detailed data on changes in mothers’ higher education and myriad high quality measures of children’s cognitive and non-cognitive outcomes assessed at multiple waves across both early and middle childhood (ages 3, 5, 9), with age 15 data to be released in a few years that will allow me to extend my analysis to adolescence. Lastly, it includes geographic identifiers amenable to an instrumental variable analysis and a rich set of background measures amenable to the use of propensity score techniques.

**Measures.** At each wave (baseline, child age 1, 3, 5, 9) data was collected on whether the mother completed additional higher education since the last interview and the type, (2- or 4-year college degree, a vocational/technical degree, some college). This information will be used to create time varying measures of mothers’ highest degree and changes in education between waves. Child cognitive skills were assessed by the Peabody Picture Vocabulary Test-Revised, a
test of verbal ability given to children at age 3, 5, and 9, and at age 9, the Welcher Intelligence Scale for Children, Digit Span subtest, and subtests of the Woodcock-Johnson, which tap other cognitive skills including memory, attention, and problem solving. For non-cognitive skills, measures include several scales based on mother reports of children’s behaviors taken from the Behavioral Problems Index and prosocial behavior from the Adaptive Social Behavior Inventory (ages 3, 5, 9), and age 9 child reports of their externalizing/internalizing problems, delinquent behaviors, and task completion, and teacher reports of children’s social problems and prosocial skills. I will also include fixed (e.g., child gender) and time-varying covariates (family structure).

**Analysis Plan.** The first step of the analysis will be to estimate the contemporaneous association between increased maternal education between waves and child outcomes at ages 3 and 5 using linear regression. For example, increased education between child ages 1 and 3 will be regressed on the age 3 outcomes. Models for different child outcomes will be estimated separately. To address the problems of selection into additional education, I will begin by using propensity score weighting techniques, using an array of variables taken from interviews prior to mothers’ school reentry to tap the probability of selection into the treatment [23]. I will follow up this analysis by taking an instrumental variables approach, using several variables that introduce geographic and temporal sources of exogenous variability in the predictor (e.g., proportion of women enrolled in college in a given year and city; annual student loan rates, yearly construction of new 2- and 4-year colleges) as instruments. If I identify a sufficiently strong instrument using various criteria [24], I will proceed with this approach. Otherwise, I will use propensity score weighting. I will then determine whether any effects of additional maternal education endure to child age 9 by predicting age 9 child outcomes by the measures of additional education between ages 1-3 and 3-5. Next, I will assess whether additional maternal education is associated with
child outcomes when it is obtained at older child ages by regressing a measure of additional education between child ages 5 and 9 on age 9 child outcomes. Lastly, to determine whether associations vary by the type of higher education mothers earned, I will interact the measure of additional education with a measure for highest degree taken from the same wave as the child outcome. All models will employ appropriate methods of dealing with missing data, include relevant covariates, and make appropriate sampling selections.
References


