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Education

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Introduction

This chapter offers an overview of key research in the social sciences regarding links between poverty and education. We begin by discussing conceptual definitions of poverty and education and the ways these concepts have been operationalized in the literature. We then review literatures related to two broad themes: how poverty shapes educational outcomes, and how education affects chances of living in poverty. Within each theme, wherever possible, we consider research at the national, sub-national, and household or individual level.

Key concepts

Poverty

Conceptualizing poverty in the poverty literature

In the poverty literature, poverty is typically measured by comparing resources to needs, and families or individuals are considered poor if they fall below some threshold (Foster 1998:335). Economists, and, to some degree, sociologists, interested in the economic and social welfare of populations and individuals have brought multiple conceptual approaches to the study of poverty, and proposed a variety of strategies to operationalize the concept (for a review, see Grusky and Kanbur 2006). Here, we introduce briefly some of the major approaches, organizing our discussion around three steps needed to quantify the scope of poverty (Foster 1998:335; World Bank 2011): selecting welfare measures, constructing thresholds, and tallying the resulting data.

The first step is to define the relevant welfare measure (World Bank 2011). Income is a common choice, the use of which may be justified on the grounds that income is essential in societies with market economies (Borgeraas and Dahl 2010). Consumption is another common choice, dictated by the same logic. A different approach, popularized by Sen and others, focuses on capabilities or endowments (Bourguignon 2006; Nussbaum 2006; Sen 1999, 2006). The capabilities approach suggests that poverty should be defined in terms of individuals’ capabilities to choose their own lives. This approach is associated with efforts to define poverty as failure to reach minimally acceptable levels in multiple dimensions—different monetary and non-monetary attributes necessary for functioning.

1 Additional approaches not discussed here include subjective poverty, or falling below a subjective perception of “the amount of income it takes to barely get by,” and asset poverty, defined as wealth minus debt (Yoshikawa, Aber, and Beardslee 2012:273).
(for example, see Bourguignon and Chakravarty 2003; Bourguignon 2006; for a critical discussion of child-focused multidimensional indicators of poverty, see Dercon 2012; Marlier and Atkinson 2010; and Nussbaum 2006; Thorbecke 2005).

Second, one has to select a poverty line—a threshold below which a given household or individual will be classified as poor (World Bank 2011). This line can be defined in absolute, relative, or subjective terms. One of the earliest conceptualizations of poverty was that of absolute poverty, commonly defined as lacking the income necessary to acquire sufficient material resources to satisfy basic physiological needs (Borgeraas and Dahl 2010:73). Often, absolute poverty thresholds are developed for some initial period based on the cost of a “nutritional basket” considered minimal for the healthy survival of a typical family, to which a provision is added for non-food needs (Foster 1998:336; World Bank 2011). The threshold is then carried forward, with adjustments for inflation. In low-income national settings where non-trivial shares of the population survive at the margins, much poverty estimation work continues to rely on an absolute definition (see also Brady 2003, in passing; World Bank 2011).

In contrast to poverty lines demarcating absolute deprivation, relative poverty lines are defined in relation to the overall distribution of income or consumption in a country (Brady 2003; World Bank 2011). The concept of relative poverty is grounded in the notion that basic needs are “more than physiology but also have psychological and social dimensions” (Borgeraas and Dahl 2010:73). In this framework, poverty is not just about absolute levels of deprivation, but about deprivation relative to prevailing norms of income or consumption (or, by extension, some other indicator). A relative poverty line begins with some notion of a standard of living, such as the mean, median, or some other quantile, of income or another economic welfare dimension, such as consumption (Foster 1998:336). Next, a poverty threshold is set at some percentage of this standard. For example, the poverty line could be set at 50 percent of the country’s mean or median income or consumption (World Bank 2011). The result is a poverty threshold that is defined at each point in relation to standard of living, such that an increase in the standard of living is matched by an increase in the threshold (Foster 1998:336).2 Finally, an alternative approach has been to conceptualize the cutoff subjectively, in terms of “the amount of income it takes to barely get by” or other related questions (Yoshikawa, Aber, and Beardslee 2012:273).

Third, one has to select a poverty indicator to be used in reporting for either a whole population or a subpopulation (World Bank 2011). A common choice is a trio of measures quantifying the incidence, depth, and severity of poverty developed by Foster, Greer, and Thorbecke (1984), referred to in a recent review as “the workhorse” of applied work on poverty across the world (Grusky and Kanbur 2006:5), but other measures have been proposed (for example, see Brady 2003 for a series of new measures of relative poverty targeting developed countries; for a discussion of conceptualizing poverty indicators in a social exclusion framework, see Marlier and Atkinson 2010).

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2 Some scholars have proposed a “hybrid” approach to setting poverty lines that is sensitive to changes in the general living standard, but less so than a purely relative approach (for a discussion, see Foster 1998:335).
Conceptualizing poverty in studies of education

Poverty has been a core concept of interest in research on educational inequality. However, the conceptualization of poverty in empirical educational research does not always, or even usually, conform to definitions and measures widely accepted in the poverty literature. To further muddy the waters, the educational literature subscribes to no uniform set of alternative conceptualizations. At the national level, measures of national economic development, such as per capita gross domestic product (GDP) or gross national product (GNP) are much more commonly used than direct measures of poverty in analyses of educational expansion or achievement. Economic inequality, typically in some form of national GINI coefficient, is another related concept that is also much more commonly found in comparative educational expansion or achievement studies than are direct measures of poverty.

At the community and family levels, researchers have employed a broad set of variables related to poverty, some detailed and some crude. Some have consisted of interval-level measures of the underlying welfare concepts used in the construction of poverty measures, and some have consisted of other proxies. For example, as indicators of community or household poverty, studies have employed measures such as community per-capita income, school percent poor or percent on free or reduced-price lunches, household income, wealth or consumption, and income-to-needs ratios.

At the family level, sociologists have employed the concepts of class and socioeconomic status (SES). The latest work on micro-classes has closely linked the approaches of class and SES (Weeden and Grusky 2005), the key difference being that the former is categorical, implying distinct boundaries, while the latter is gradational, or continuous. Notions of class have obvious parallels to the concept of impoverishment, but class identification can also carry other, sometimes controversial, connotations related to degree of structural marginalization, social milieu, and culture (Bourdieu 1973; Grusky and Kanbur 2006; Wilson 1987, 2006). SES indices, based on estimated interval scores at a detailed occupation level, have long been used in sociology (Duncan 1961; Hauser and Warren 1997). Such SES indices are intended to indicate a person’s position in a vertical social hierarchy, often measured by occupational prestige, which has been shown to be invariant over time and across societies (Treiman 1977). While scholars have generally not treated low values of the SES indices as proxies for poverty, the concept of household socioeconomic status—whether measured formally as a score or simply encompassing some combination of adult occupational, economic, and educational characteristics—is directly related to the concept of poverty, and is widely used in quantitative studies of educational attainment.

Finally, in the burgeoning comparative literature on educational opportunity and achievement, still different measures for studying economic welfare have been developed to overcome data limitations. For example, much of the available comparative data on educational access and attainment has come from demographic surveys or population censuses that lacked detailed income or expenditure data. Filmer and Pritchett (1999, 2001) developed a proxy for long-run wealth of the household from asset information, using principal components analysis.

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For a summary, see Ladd’s 2011 presidential address to the Association for Public Policy Studies and Management (Ladd 2012 [2011]).
In the comparative achievement literature, the fact that surveys are administered to students or children rather than parents or household heads poses further barriers to collecting data related to poverty. Researchers have developed proxies for household socioeconomic status and economic welfare that could be reliably reported by children themselves. One solution is a composite index of socioeconomic status that builds on questions children can answer. For example, the OECD has developed a comparable measure of “Economic, Social and Cultural Status” (ESCS), a composite of parental occupational status, parental education, and household possessions, for the Program for International Student Assessment (PISA) data (Ladd 2012). “Poverty” is defined as below the “low ESCS” line set at one standard deviation below the mean (Ladd 2012:2010).

Another approach, in dealing with the same problem, has been to use books in the home as a proxy for household income. Economists have argued that the number of books in the home is reliably related to household income (Schütz, Ursprung, and Woessmann 2008:287–288). Analyzing Progress in International Reading Literacy Study (PIRLS) data from six countries, Schütz, Ursprung, and Woessmann (2008:287–288) found that the relationship between household income and books at home did not vary significantly across countries. Schütz, Ursprung, and Woessmann (2008) and Hanushek and Woessmann (2011) argue that this finding constitutes evidence of the validity of using the books-at-home variable as a proxy for family background in cross-country comparisons.

As is evident from these examples, there persists a lack of agreement about how to operationalize household poverty for the study of children’s developmental, behavioral, and educational outcomes. There is also a lack of agreement about the set of controls that should be included in empirical studies of this relationship in order to determine the “true” or net effect of household poverty (Aber et al. 1997). These issues are unlikely to be resolved anytime soon, given an emerging conceptualization of poverty as encompassing an interrelated set of circumstances (Huston and Bentley 2010).

**Education**

In essence, education is the process of learning. Although education can and does take place outside of educational institutions, for our purposes in this chapter, we limit our discussion to formal education. Before we discuss further the relationship between poverty and education, let us first understand three important functions of education in almost every modern society: (1) imparting knowledge, (2) socializing children, and (3) transmitting family advantage or disadvantage.

There is near-consensus in the economics literature, under the rubric of “human capital theory,” that education imparts useful knowledge and makes a person receiving education more productive in the labor market (Becker 1964; Mincer 1974). According to this view, the secular increase in educational attainment over time is a major driving force behind technological advances and economic growth at the societal level (Goldin and Katz 2008). At the individual level, it is also rational for families to invest in children’s education, as this is likely to yield good economic returns (Becker and Tomes 1986). Indeed, a large literature has shown that education, particularly college education, yields high economic returns -- evidence consistent with but not necessarily supporting the interpretation that formal education makes workers more productive in their work (for a review, see Hout 2012).
One of the prominent features of the industrialization that began in the 18th century is the gradual relocation of daily activities, economic as well as non-economic, from families to formal institutions (Thornton, Axinn, and Xie 2007). Because students spend most of their waking hours in school, away from home and away from parents, they are strongly influenced by their educational experiences, as well as by the attitudes and behaviors of their peers. For example, the Stouffer hypothesis predicts that educated persons tend to hold more liberal views, and a secular increase of educational attainment would make a society more liberal over time (Davis 1980).

Finally, education serves to transmit social advantages or disadvantages from one generation to the next. While economists emphasize economic benefits as the main motivating factor behind education, sociologists have long recognized the social significance of education. In the United States, Lareau’s fieldwork among European-American and African American families in the mid-Atlantic region indicates that middle-class parents, for example, practice “concerted cultivation” parenting styles, as compared to “natural growth” parenting styles of the working class parents, the former being more conducive to education (Lareau 2011). Numerous sociological studies have found that a higher level of education is a cultural norm, rather than an economic investment, for high-SES parents (reviewed in Brand and Xie 2010). Sociologist Collins (1979) articulated this view most forcefully, arguing that education’s function is mainly to serve as a credential and thus allow the elite class to differentiate their children from those from working-class family backgrounds. We will return to this topic in discussing the dual roles of education in intergenerational mobility later.

Synthesis

Overall, there are many competing ideas in the poverty and education literatures about how best to conceptualize and measure poverty, and emerging research on poverty and child welfare suggests that poverty must necessarily be viewed as multidimensional in form. Lack of uniformity in conceptualization and measurement obviously poses challenges to building a knowledge base about how poverty affects educational outcomes. Moving forward, there is a clear need for further work to test and establish the dimensions of poverty most relevant to children’s education. It may be that different dimensions of poverty matter in different contexts, but this point, too, can be theorized and tested. In contrast, while scholars hold different interpretations of the meaning and significance of educational credentials, there is less disagreement on measurement. Despite recognition that quality of education probably varies tremendously across countries, school systems, and schools, scholars tend to default to measures of attainment, enrollment, and achievement.

Impact of poverty on education

Conceptually, poverty or its proxies at the national, community, or household level could shape educational chances for children. In this section, we consider the literature on how poverty operates at each level. However, few studies on global patterns of educational expansion and national differences in achievement have focused on national poverty or related indicators. Presumably, researchers have assumed that national-level poverty affects educational outcomes primarily through poverty at more detailed levels --
communities and families. For this reason, we discuss briefly the literature on national characteristics and educational outcomes before devoting most of our discussion to community and family poverty.

Poverty at the national level

Surprisingly, we did not find research that addressed explicitly the impact of national poverty on educational expansion or achievement. However, several strands of related work exist and deserve mention here. One strand of related work has emerged as part of the world society perspective, which focuses on the rise of global forces in shaping educational expansion. This literature has incorporated national measures of economic development, modernization, and position in the world system into analyses of the course of educational expansion across countries, but results have been mixed depending on indicators utilized and specifications (Meyer et al. 1977; Meyer, Ramirez, and Soysal 1992; Schofer and Meyer 2005). For example, Meyer et al. (1977:250) found that national economic development indicator per capita kilowatt-hours of energy use was related to subsequent tertiary educational expansion, net of controls for the “self-generating” process of educational expansion linked to prior population characteristics of schools and the population without education. However, per capita GNP was not related to tertiary expansion in this specification; both variables were marginally significant for secondary expansion; and neither variable significantly predicted primary expansion. Schofer and Meyer (2005:915) investigated the role of per capita GDP and a GINI coefficient for inequality, among many other factors, in shaping national patterns of higher educational expansion, but showed no effect net of other variables in their models in recent decades.

Another strand of work has linked national characteristics to individual enrollment and attainment by drawing on household surveys. Analyzing a combined sample of 222,853 children living in 340 districts in 30 countries from the Demographic and Health Surveys and the Pan Arab Project for Family Health of the League of Arab States, Huisman and Smits (2009) investigated whether or not children aged 8 to 11 were enrolled in school at the time of the interview. A bivariate analysis showed a significant relationship with per capita GDP, indicating higher enrollment probabilities in wealthier countries. This association was present only for boys in specifications including district and family-level socioeconomic, demographic, and educational characteristics.

A different body of research compares educational achievement across nations using comparative data such as the Program for International Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS), and the Progress in International Reading Literacy Study (PIRLS). National characteristics considered in much of this work have been institutional features of schools and education systems (for a review, see Hanushek and Woessmann 2011). As in the case of the educational expansion literature, we did not find studies of achievement that had focused on national poverty as an analytic concept, or had sought to make a strong causal argument about the effect of poverty on achievement. However, in this literature, many studies have employed concepts related to national poverty such as economic inequality, usually measured in the form of a GINI

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4 For example, models presented are not set up to show gross effects of inequality or per capita GDP, and then effects net of potential mechanisms of impact. Because these measures have been included as control variables with many other control variables, their substantive significance is difficult to ascertain.
coefficient, and development level, usually measured as GDP per capita. These variables have been employed as control variables and sometimes as focal variables.

For example, in a country-level analysis using PISA math data from 27 affluent countries, Condron (2011: Figures 1, 2, and 3) showed that national economic inequality (measured in the form of the GINI index) was negatively associated with average achievement and with percentage of students scoring above the highest math proficiency level, and positively related to the percentage of students scoring in the lowest math proficiency level. Consistent with these findings, a multi-level analysis of science achievement among 107,834 fifteen-year-olds in 41 countries using PISA data showed that students had higher science scores if they lived in wealthier countries and if they lived in countries with more equal distributions of household income (smaller GINI coefficients) (Chiu 2007:515). Chiu’s (2007) GDP per capita results were robust to specification; the wealth distribution results became insignificant in the most extensive specification that included proxies for prior achievement, country-level variables, family demographic structure, family socioeconomic status, family cultural possessions and communications, and various interactions between country-level and student-level variables. Chiu (2010) produced similar findings for GDP per capita and inequality in multi-level analyses of PISA math achievement among 107,975 15-year-olds in 41 countries, though the GINI coefficient becomes insignificant once measures of SES and other family background characteristics are included. In contrast, also using PISA math achievement data, Hanushek and Woessmann (2011) show a negative coefficient for GDP per capita, but these authors’ specifications included a large number of institutional variables that might be correlated with GDP per capita, as well as family background variables.

In summary, some of the studies that contain measures of national development and inequality suggest, unsurprisingly, that opportunity and achievement tend to be better in wealthier, more equal countries, but these findings are sensitive to model specification. Few studies have treated development and inequality as core analytic variables, and we found no studies that directly addressed national rates or depth of poverty per se as factors affecting educational expansion or achievement. Disadvantage at the national level might simply signal aggregated economic disadvantages of households, communities, and school systems within countries, but poverty and underdevelopment at the national level may bring disadvantages that do not simply represent aggregations of impoverished households and communities. Problems disproportionately faced by the poorest countries—such as indebtedness, dependence on foreign aid and technical assistance, brain drain, violent conflict, and weak governance structures—may shape their capacity to invest in education and reap returns on educational investments. Additional work is needed to understand the attributes of poverty at the national level that might be associated with educational expansion and opportunity.

**Community and neighborhood poverty**

Unlike the case of poverty at the national level, there are well-established lines of research about community poverty effects on education. In the United States, there are longstanding traditions in sociology, economics, and psychology that investigate links between neighborhood conditions and various social welfare outcomes (for reviews, see Bradley and Corwyn 2002; Leventhal and Brooks-Gunn 2003; Sampson, Morenoff, and
Gannon-Rowley 2002; Sampson 2009). These studies often focus on urban settings, and have sought to investigate direct effects of concentrated poverty on outcomes, as well as mechanisms in the form of institutional resources; environmental contamination; disorder, crime and violence; norms and collective efficacy; routine activity, and social ties and interactions (Bradley and Corwyn 2002; Leventhal and Brooks-Gunn 2000, 2003; Sampson et al. 2002; Sampson 2009).

The literature pertaining to children and youth outcomes goes beyond education to include behavioral, physical health, and psychological welfare outcomes. Studies suggest that a wide range of child and adolescent outcomes is associated with concentrated disadvantage. These outcomes include infant mortality, low birth weight, teenage childbearing, dropping out of high school, child maltreatment, and adolescent delinquency (Leventhal and Brooks-Gunn 2003; for reviews, see Sampson et al. 2002). Based on extensive review of empirical studies, Leventhal and Brooks-Gunn (2000:330) indicate that for children and adolescents, residing in a low-SES neighborhood adversely affects behavioral and emotional well-being, especially externalizing behavior problems among young children and delinquency and problem behavior among adolescents. With regard to educational outcomes, a number of studies using longitudinal data and propensity-score methods have found that exposure, especially extended exposure, to poor neighborhoods in the United States leads to poor educational outcomes (David J. Harding 2003; Wodtke, Harding, and Elwert 2011). Analysis of experimental data from the Moving to Opportunity for Fair Housing Demonstration New York site showed that moving from high to low-poverty neighborhoods had positive effects on 11-18-year-old boys' achievement scores compared with those of their peers in high-poverty neighborhoods (Leventhal and Brooks-Gunn 2004).

Beyond the neighborhood effects literature focused on the United States and other developed countries, there has also been research on community effects on educational opportunity in developing countries. This literature has tended to focus on a different set of themes, and often on issues salient to rural communities. Conceptualization has not been very comprehensive or consistent. In the cross-national literature, most studies have few options in measuring community attributes related to education, and they tend to make use of survey data collected for other purposes to measure community attributes. Huisman and Smits’ (2009) 30-country analysis of enrollment among 8 to 11 year-olds highlights the average distance to school in rural areas and the district teacher-child ratio as consistently significant in their associations with enrollment. Community infrastructure has also been shown to be associated with enrollment. For example, in one study of rural Bangladesh, roads and rural electrification were associated with increased school participation for rural children (Khandker 1996). In rural China, odds of completing junior high school and transitioning to high school were lower in the poorest communities, isolated communities, and communities providing lower levels of community support for schooling (Cherng and Hannum 2013).

Scholars focusing on the United States have highlighted the importance of further research on why low SES neighborhoods matter for youth—research that goes beyond measures of low SES to directly assesses theoretically-driven, well-specified underlying processes (Leventhal and Brooks-Gunn 2003:30). Scholars have also indicated the importance of considering that neighborhood effects vary based on other contexts in which youth function. For example, Harding et al. (2010) suggest that youth educational
outcomes be viewed as a function of neighborhood context, neighborhood exposure, individual vulnerability to neighborhood effects, and non-neighborhood educational inputs. More work is needed to extend well-theorized neighborhood effects literature to rural communities, and more work is needed to theorize the community effects literature focused on rural communities in developing countries.

**Household poverty**

Cross-nationally, household poverty has been linked to poorer educational access and attainment in many studies. Using asset indices developed from Demographic and Health Surveys from 35 countries, Filmer and Pritchett (1999) constructed a ranking of households within each country, and defined "poor" as the bottom 40 percent. They then assessed the links between poverty and educational outcomes. They found a prominent pattern in many countries in which the bulk of the deficit from universal basic education came from the poor. Huisman and Smits (2009) used Filmer and Pritchett’s general approach for measuring wealth, but employed different cutoffs for designating poverty and analyzed enrollment at ages 8 to 11 in a combined sample of 222,853 in 30 countries from the Demographic and Health Surveys and the Pan Arab Project for Family Health of the League of Arab States. Huisman and Smits (2009) found that two indicators of socioeconomic status—parents’ education and household wealth—remain strongly predictive even in specifications controlling for other family background and structural effects, along with district educational, demographic and economic characteristics. From a different perspective, the effectiveness of conditional cash transfer programs in a variety of settings in Latin America for enrollment and attainment demonstrates the critical role played by economic deprivation in shaping educational opportunity for the poor (Valencia Lomelí 2008).

However, the manner in which household poverty relates to educational opportunity and attainment manifests very differently across contexts. For example, Filmer and Pritchett (1999:93) report four different regional educational attainment profiles of the poor: low ever-enrollment and high dropout in Western and Central Africa; low ever-enrollment and low dropout in South Asia; high ever-enrollment and high early dropout in Latin America and the Caribbean; high ever-enrollment and late dropout in Eastern and Southern Africa or very late dropout in East Asia and the Pacific and Middle East, North Africa, and Central Asia. Echoing the importance of context at the community level, Huisman and Smits (2009) report significant interaction effects in their models indicating that the effects of many household-level variables varied across districts with different educational facilities, and between urban and rural areas.

Constructs related to poverty have also been linked to academic achievement. Using PISA reading score data from 15 year-olds in the United States and the 13 OECD countries that scored higher than the United States, Ladd (2012:209) showed that reading achievement was strongly correlated with the Economic, Social and Cultural Status (ESCS) socioeconomic index in all 14 countries. Using books in the home as a proxy for household economic status, Hanushek and Woessmann (2011) concluded that the association of

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5 However, Valencia Lomelí (2008) also notes that the effectiveness of conditional cash transfer programs for promoting learning is largely unknown: there is little evidence about whether or not conditional cash transfer programs succeed in improving the academic achievement of the poor students who experience them.
achievement with this indicator of economic status was robust across the board in countries analyzed in the TIMSS-95 and TIMSS-Repeat, net of controls for age, gender, family status, immigration and parent immigration status, and test cycle (Hanushek and Woessmann 2011:118, Figure 2.2). Chiu’s (Chiu 2007:515) analysis of science achievement in the PISA data also showed a significant coefficient for books. In the United States, the education gap between rich and poor is increasingly pronounced: Reardon (2011) compiled achievement data over 50 years and showed a dramatic rise in the achievement gap between children at the 10th and 90th percentiles of the income distribution.

Why are children in poor households disadvantaged? In the United States and in low and middle income countries, household poverty, variously measured, is a well-established risk-factor for many outcomes for children that could help or hinder capacity to function in school, including physical health and language and cognitive development, though specific causal processes are not yet well established (Engle and Black 2008; Grantham-McGregor et al. 2007; Walker et al. 2011; Yoshikawa et al. 2012:273). For example, in a study conducted among rural children in an impoverished region of Northwest China, the poorest children were at elevated risk of being chronically undernourished, living in food insecure households, and lacking access to vision correction (Hannum, Liu, and Frongillo 2012; Hannum and Zhang 2012; Yu and Hannum 2007). Naudeau et al. (2011) found, via a literature review and in an empirical analysis of data from Cambodia and Mozambique, that children’s cognitive development delays are common in poor countries; that these delays are associated with socioeconomic status; and that socioeconomic gradients remain even after accounting for mediating factors such as nutrition and parenting. The poorest children may also be at risk for exposure to environmental toxins that impede development (for a review, see Walker et al. 2011). Moreover, multiple developmental risks associated with poverty are likely to co-occur (Grantham-McGregor et al. 2007; Walker et al. 2011).

The “toxic stress”—or experiences of severe, uncontrollable, and chronic adversity—associated with child poverty in many contexts can strain children’s capacity for behavioral functioning (de Walque 2011). For example, in the United States, Gershoff and her colleagues (2007) analyzed a national sample of 21,255 kindergarteners from the Early Childhood Longitudinal Study, and as income increased, parental investments and resources for the child increased, which enhanced academic skills. At the same time, higher income was associated with reduced material hardship and stress, and fewer child behavior problems. Using data from a sample of rural adolescents in 100 villages in northwest China, Davidson and Adams (Forthcoming) linked a cumulative adversity index measuring stressful life events to elevated scores on an internalizing problems scale.

The timing of impoverishment may also be important for children (Boyden and Cooper 2007), with evidence suggesting that earlier poverty experiences can be more damaging than later ones for children’s developmental outcomes (Alderman 2011; Bird 2007; Engle 2012). Assessing literature for the United States available through the middle of the 1990s, Brooks-Gunn and Duncan (1997) concluded that children who experience poverty during their preschool and early school years have lower rates of school completion than children and adolescents who experience poverty only in later years. Guo’s (1998) analysis using National Longitudinal Survey of Youth data from the United States distinguished development tests from achievements, showed that long-term poverty had substantial influences on both, but with different time patterns. The younger ages
were a more crucial period for the development of cognitive ability than early adolescence, but poverty experienced in adolescence appeared more influential to adolescent achievement than poverty experienced earlier in life.

Moreover, poor children are likely to learn in schools and classrooms with fewer resources. For example, in the United States, children living in poverty tend to be concentrated in schools with inadequate resources and poorly skilled teachers (Murnane 2007:162). State educational spending has long been correlated positively with state per capita income, though the association has weakened over the last 50 years (Cascio and Reber 2013). Per pupil expenditures vary tremendously. Considering per pupil current expenditures for public elementary and secondary education in fiscal year 2008, instruction expenditures ranged from $3,886 in Utah to $11,572 in New York (Zhou and Johnson 2010). Even within districts, variation may be high. For example, a study of 89 public elementary schools in a large, North Central, urban district in the United States indicates considerable disparities in per pupil spending (Condron and Roscigno 2003).

However, many studies have debated the seemingly straightforward, logical link between school resources and achievement, ever since the publication of the Coleman Report (Coleman et al. 1966), whose result that between-school resource variation mattered little for explaining variation among individual students remains “the seminal finding in U.S. sociology of education” (Gamoran and Long 2007:23). This result has stimulated much debate about whether and how school resources matter in the United States (Greenwald, Hedges, and Laine 1996; Hanushek 1994, 1996; Hedges, Laine, and Greenwald 1994a, 1994b; for example, see Murnane 1991; Wenglinsky 1997) and in other countries, both developing and industrialized (Baker, Goesling, and Letendre 2002; Gamoran and Long 2007; Heyneman and Loxley 1982; Heyneman 1975), with some evidence suggesting that school resources may explain more variation in student achievement in poor countries than in rich countries.

Yet, even in developing country settings where school resources are thought to matter more for student outcomes, it has been difficult for researchers to pin down specific resources that matter. Drawing on a systematic review of studies published between 1990 and 2010 in the education and economics literatures, Glewwe et al. (2011) sought to investigate which specific school and teacher characteristics appeared to have strong positive impacts on learning and time in school. The authors concluded, “The estimated impacts on time in school and learning of most school and teacher characteristics are statistically insignificant, especially when the evidence is limited to the ‘high quality’ studies. The few variables that do have significant effects – e.g. availability of desks, teacher knowledge of the subjects they teach, and teacher absence – are not particularly surprising and thus provide little guidance for future policies and programs.”

Gamoran and Long (2007) have argued that it is critical to understand pathways of within-school inequality, and others have suggested that the organization or culture of schools or classrooms may be critical in shaping the experiences of poor children. Part of the story may be the different capacities and strategies available to poor and non-poor families to support their children’s schooling. For example, qualitative research in the United States has indicated that the evaluative standards of school systems favor the non-poor, meaning that school systems tend to engage with and evaluate favorably the intervention and childrearing strategies of the middle class and the learning styles of their children (Lareau and Weininger 2003; Lareau 1987, 2000, 2011).
However, given the high degree of variability in achievement that occurs within schools and the difficulty of identifying specific resource variables in schools that can explain poverty effects on student achievement, it is not surprising that many studies have emerged that highlight the importance of deprivations in children’s lives outside of schools as a key contributor to socioeconomic achievement disparities. Ladd (2012:206–208) showed results from bivariate regressions suggesting that fully 40 percent of the state variation in reading scores and 46 percent of the state variation in math scores in the United States is associated with variation in child poverty rates. Ladd also presented results of state fixed-effect panel regressions, which account for long-standing state differences, and which show associations between changes in state child poverty rates and changes in test scores, especially for math. Reardon’s (2011) work in the United States has also highlighted the importance of non-school factors in the income gap in achievement: the national achievement gap was large when children entered kindergarten and did not appear to increase or decrease materially as children progressed through school. Another line of influential research in this vein is the “summer setback” literature, which showed that socioeconomic differences in learning tended to emerge in the summer, rather than during the school year (Downey, von Hippel, and Broh 2004; Entwisle and Alexander 1992; Heyns 1978).

In summary, unsurprisingly, household economic disadvantage, variously conceptualized and measured, is associated with poorer access to schools, poorer performance in schools, and poorer attainment. The patterns by which this relationship manifests itself vary by context, and the mechanisms—both within and outside of schools—remain an active topic of research. Important directions for research include future work investigating the family-school relations and within-school practices and environments that lead to disparate outcomes within schools. There is also a need for research to further investigate the contextual factors experienced by poor children—constraints to physical health and psychological well-being—that make it difficult for them to receive full access to education.

Impact of education on poverty

Education is widely viewed as an effective weapon against poverty. This may occur at both national and individual levels. At the national level, under the right institutional conditions, an increase in overall levels of educational attainment can serve as an engine promoting economic growth (Goldin and Katz 2008). At the individual level, education functions as a channel of mobility that breaks the inter-generational influences of parental advantages or disadvantages (Yamaguchi 1983). Most of the research on the topic focuses on the impact of education on outcomes at the individual level, such labor outcomes as

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Cross-country growth regressions have tended to find a significant positive association between quantitative measures of schooling and economic growth, but while there is a clear positive association between years of schooling and growth in the latest available data, the relationship is sensitive to model specification (Hanushek and Woessmann 2008:629, 632, for a review, see 2011 Table 2.13, Studies on Cognitive Skills and Macroeconomic Growth). Moreover, the development impact of education has varied widely across countries (Pritchett 2001). Scholars have suggested that the institutional framework matters in shaping the relationship between education and growth (Hanushek and Woessmann 2008; Pritchett 2001).
employment, occupational attainment, and income, and the odds of avoiding poverty in adulthood. We thus limit our review to the impact at the individual level.

**Education and individual economic outcomes**

As we discussed earlier, poverty is commonly defined as a categorical status derived from measures of interval-measured economic well-being, using either an absolute or a relative threshold. Thus, determinants of economic well-being are also determinants of poverty. A large literature in economics and sociology has well documented the strong role of education in determining earnings and other measures of economic well-being (i.e., (Brand and Xie 2010; Goldin and Katz 2008; Hout 2012; Krueger and Lindahl 2001; Mincer 1974; Psacharopoulos 1981). However, the actual rate of return to education may differ substantially by context. In a study of international comparisons, Psacharopoulos (1981:330) found the rate of return to one year of education to vary between 5.9% (for Canada) and 22.8% (for Malaysia). China had a very low return in the early years of its economic reform (at 2% in 1988), and it was almost doubled to 4% in 1995 (Hauser and Xie 2005). Overall, the rate of return tends to be higher in less developed countries than in more economically advanced countries (Psacharopoulos 1981), and is a positive function of the rate of economic growth (Chiswick 1971:28).

As recognized by Fischer and Hout (2006), education has become the single most important determinant for a whole host of social outcomes in a modern society. It affects not only earnings but also other important social outcomes such as marriage (Thornton et al. 2007), health (Link et al. 1998), subjective well-being (Dolan, Peasgood, and White 2008)), and a host of other outcomes (Fischer and Hout 2006; for a review, see Hannum and Buchmann 2005). It is thus likely that education exerts, in addition to its direct effects, indirect effects reducing poverty through many other pathways. For example, analyzing US Current Population Survey data, Diprete and Buchmann (2006) find that the returns to higher education for women and men go beyond returns in the labor market, to include a higher standard of living and insurance against poverty.

**Educational interventions**

Beyond studies drawing on observational data from surveys or censuses that investigate the links between years of education and various economic outcomes are a number of studies that have undertaken experiments to determine the impact of particular educational interventions. Prominent in recent years are studies of early childhood education interventions, driven by the concept of an early critical period in life for development, from which patterns of advantage and disadvantage accumulate. For example, Alderman and Vegas (2011:178) suggest that early childhood education programs can be viewed as a component of poverty reduction and social protection strategies (see also Engle et al. 2011 for a similar argument).

This argument can be made on the basis of many studies showing the short-term impact of interventions on development or educational performance, coupled with the cumulative nature of education and its role in shaping employment and income opportunities. For example, Engle and her colleagues (Engle et al. 2007, 2011) have conducted systematic reviews of early childhood intervention programs. The 2007 review considered 35 studies of programs implemented in developing countries since 1990, of
which 20 met inclusion criteria for rigor and showed evidence that early interventions promote child development outcomes (Engle et al. 2007). The 2011 review considered effectiveness trials and program assessments of parenting support and education, pre-primary or preschool centers, conditional cash transfer programs, educational media for children, and interventions for children at high risk. Results showed that parenting education and support can improve children’s cognitive and psychosocial development, and that center-based early learning programs usually improve children’s cognitive functioning, readiness for school, and school performance (Engle et al. 2011). In both kinds of interventions, Engle et al. report that effects are larger for children in more disadvantaged circumstances.

Given the challenge associated with obtaining long-term follow-up, there are fewer studies that have investigated directly the longer term educational or poverty impact of such programs. In a review of the literature that evaluated the effects of the Perry Preschool Program, a program combining half-day preschool intervention for four-year-olds with weekly home visits by preschool teachers Yoshikawa and his colleagues (2012:280) found that the program resulted in higher earnings among program children as adults and reduced their likelihood of receiving welfare. Heckman and his colleagues (Forthcoming) recently re-analyzed the data from the Perry Preschool Program and concluded that the treatment benefits of the program came mainly from enhancing children’s non-cognitive skills instead of their cognitive skills.

Walker (2011: Table 4.1) summarizes U.S. early childhood intervention programs, including the Perry Preschool Program; the Abecedarian Project, in which 111 high-risk infants were randomly assigned to experimental or control groups and 104 were measured at age 21; the Chicago Child Parent Centre Project, a matched comparison of children attending intervention preschools and kindergarten with alternative kindergarten (no preschool), and with 1,389 of 1,539 followed up at age 24; the Nurse Home Visitation Program, in which 400 pregnant women enrolled and were randomly assigned to comparison, visits in pregnancy, or visits in pregnancy and up to age 2, and in which 310 were followed up at age 19; and the Infant Health and Development Program, in which 985 low birth weight preterm infants in eight sites were randomized to intervention or follow-up only, and in which 636 were measured at age 18. Among these, all measured some form of educational attainment outcome, and the first three showed significant educational benefits. All but the last measured some form of income and employment, but only the Perry Preschool project showed consistent, direct economic welfare effects.

In short, scholars have argued that the short-term impacts of early interventions, coupled with the cumulative nature of education, suggest that early interventions could be viewed as a tool for addressing intergenerational poverty transmission. More studies are needed to revisit sites of early childhood intervention, to collect direct evidence of the long-term impact of early education on economic outcomes.

**Synthesis: dual roles of education in modern society**

In summary, education is extremely important in modern society, both to the individual and to the society. For intergenerational transmission of economic advantages or disadvantages, including family poverty, education has dual roles. On the one hand, education is an agent of social stratification in that family economic background, such as
poverty status, has a strong effect on a child’s educational attainment. That is, the
distribution of educational outcomes is unevenly distributed by family SES, severely
disadvantaging children who grow up in poor families. On the other hand, education also
serves as a social equalizer, as it provides a universalistic credential that is recognized and
rewarded by a modern society. There is a substantial income payoff to investments in
education; evidence suggests that the payoff is especially strong for those who traditionally
complete low levels of schooling (Krueger and Lindahl 2001:1130). That is, even though
persons from poor families face more difficulties in obtaining higher levels of education,
they reap economic rewards when they do (Brand and Xie 2010). In other words,
education is an effective way to avoid or to transition out of poverty. This dual role of
education was succinctly summarized by Hauser (1971:144), in reference to the United
States:

[E]ducational attainment serves both to transmit the advantages or disadvantages of
status of origin and to weaken the relationship between it and subsequent
achievement. On the one hand, the most important way in which families influence
the adult achievement of their offspring is by their effect on their children’s
educational attainment. On the other hand, privileged birth is no guarantee of high
educational attainment: the rewards of education go to those who are educated, and
for many persons of lowly origin educational attainment is the high road to success.

Although Hauser’s statement was in reference to social stratification in the contemporary
U.S., we believe that it is applicable to most modern societies with a market economy.

Discussion and conclusions

This chapter has reviewed literature linking poverty to education, and education to
poverty, with the intention of synthesizing key findings and highlighting promising
directions for future research. Focusing first at the macro level, we found surprisingly little
theoretical or empirical literature linking national poverty rates or trends to educational
expansion, opportunity or achievement. The lack of attention to whether and how national
poverty inhibits educational expansion, and whether and what kinds of educational
expansion protect against national poverty are surprising omissions in the literature, given
the robust interest in the impact of other dimensions of national context and world system
position on educational expansion, and given the degree of attention that has been paid to
education for economic growth and other aspects of social development (Hannum and
Buchmann 2005). The reasons for this lack of attention probably have to do with the
complexity of teasing out cause and effect at the national level versus community/family
levels. However, from both the perspective of theory-building about education for
development and from the perspective of informing educational development policy, it is
important to understand whether and how depth of national impoverishment matters.
National poverty may simply signal aggregated economic disadvantages of households,
communities, and school systems within countries. However, poverty and
underdevelopment at the national level might imply disadvantages that do not simply
represent aggregations of impoverished households and communities. Problems such as
indebtedness, dependence on foreign aid and technical assistance, brain drain, violent
conflict, and weak governance structures may shape both the capacity to invest in education and to reap returns on educational investments. The links in both directions between national poverty rates and educational provision are theoretically significant and policy-relevant, and deserve further research.

At the mezzo level, literature on neighborhood poverty suggests the importance of investigating both direct effects of concentrated poverty on outcomes, and mechanisms in the form of institutional resources; disorder, crime and violence; norms and collective efficacy; routine activity, and social ties and interactions; and environmental contamination (Bradley and Corwyn 2002; Leventhal and Brooks-Gunn 2000, 2003; Sampson et al. 2002; Sampson 2009). Frameworks linking community, household, and school contexts in the US neighborhood effects literature exist, but these frameworks do not mesh well with the circumstances of rural community poverty that remain significant from a global perspective. The existing literature on community effects in developing countries does tend to focus on rural poverty, and this work has suggested the potential importance of community infrastructure, isolation and distance to schools, school district teacher-pupil ratios, and community support for schooling (Cherng and Hannum 2013; Huisman and Smits 2009; Khandker 1996). However, this line of work remains fairly descriptive, compared to the highly-theorized urban neighborhood effects literature. Our understanding of community poverty would benefit from attention to theorizing community effects in ways that can accommodate both urbanized and rural settings in which poor children are educated around the world.

Moving to a household perspective, while there is agreement that household poverty or low socio-economic status is linked to poorer educational outcomes across many studies, there is a continuing lack of agreement over the best approaches for defining and operationalizing childhood poverty in a manner that is parsimonious, feasible, and takes into account the multidimensional nature of poverty-related risk. However, lack of agreement about conceptualization and measurement of childhood poverty makes a synthesis of findings difficult, and serves as a significant barrier to knowledge accumulation. Moreover, existing cross-national work on educational outcomes that does use common definitions of household poverty suggests that specific risks associated with household poverty vary across contexts; research also suggests that the impact of poverty on children may differ for children at different ages. Importantly, multiple developmental risks associated with poverty are likely to co-occur, and their impact could be additive or interactive (Grantham-McGregor et al. 2007; Walker et al. 2011). For example, impact of household poverty may also differ depending on community context, and vice versa. In addition, the poorest children may also be at risk for exposure to environmental toxins that impede development, with likely implications for educational readiness, performance, and behaviors (Walker et al. 2011); these exposures remain largely unexplored in the social science literature on childhood poverty. In short, a complicated task lies ahead in teasing out the impact of household poverty on children’s education. In the words of Boyden and Cooper (2007:6), the “long-cherished premise that poverty can be ascertained according to uni-dimensional measures is increasingly contested and countered. Multidimensional definitions of poverty are now being advocated and accepted, thereby gradually moving away from definitions resting solely on income or consumption shortfall.”

Finally, moving to the level of the child, a substantial subset of the exciting literature on the impact of early childhood interventions for poverty alleviation has focused on short-
term effects on children’s education, development, or behaviors, with the expectation that these effects should cumulate as children age. While such expectations are logical and plausible, there would be great value to additional studies that revisit participants in earlier interventions to directly observe their long-term economic impact.

Overall, to address the limitations described above and move forward theoretically, a multi-level framework for understanding the impact of poverty on children’s education is needed. The framework needs to specify the underlying dimensions of poverty that might matter, in both households and communities, and their potential interactions. The framework needs to accommodate the possibility that impacts differ for children at different ages. Finally, it needs to accommodate the elements of national context that might buffer or exacerbate community and household poverty effects.

References cited


