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Assets, economic opportunity and toxic stress: A framework for understanding child and educational outcomes

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ABSTRACT

A large body of evidence indicates that socioeconomic status (SES) is a strong predictor of school achievement, college graduation and child outcomes in general. Better developmental and health outcomes are strongly associated with family assets, income and education. We introduce a model incorporating a range of theoretical and empirical literature about the relationships between a household's socio-economic position, household interactions, and child educational outcomes. The intention is to illustrate how these frequently cited factors are exacerbated and aligned by stress or difficult environments which cause long-term challenges for children in high-risk circumstances. Finally, we modify the model to illustrate the dynamic nature of these relationships, highlighting how the developmental trajectory of a child who lives with toxic stress might differ from a comparable child with social supports in a situation of low or tolerable stress.

1. Introduction

A large body of evidence indicates that socioeconomic status (SES) is a strong predictor of school achievement, college graduation, and child outcomes in general. Better developmental and health outcomes are strongly associated with family assets, including greater wealth, more income, more years of education, steady professions, or residency in neighborhoods rich with services and supportive networks. Child health, educational attainment, and family socioeconomic status are inextricably linked. We introduce a model that ties together research drawn from the fields of economics, education, psychology, sociology, medicine, epidemiology, neuroscience, public health, and biostatistics. Organized around an integrated conceptual paradigm of environmental, economic, familial and psychosocial pathways, we demonstrate various ways SES alters the performance of biological systems, thereby affecting family interaction, stress, school success, and child outcomes.

In the United States, where there are high levels of child poverty and a limited safety net, the benefits of economic security can be monumental while the consequences of economic distress can be devastating. Detailed assessments illustrate how childhood poverty influences developmental outcomes (Brooks-Gunn & Duncan, 1997a, 1997b; Evans, 2004; McLoyd, 1998). Nobel laureate Heckman (2006) even argues that investing in disadvantaged children "is a rare public policy initiative that promotes fairness and social justice and at the same time promotes productivity in the economy and in society at large (p. 1902)." He recommends investing more in the early years where there is the highest payoff, although these early outlays must still be followed by ongoing investment to maximize value (Heckman, 2006).

Our paper contributes to this literature in two ways. First, we summarize how asset poverty contributes to child outcomes rather than just emphasizing income poverty. We then go on to describe the dynamic interaction

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between assets, income, and education as a more complete picture of household SES. Wealth disparities are one of the most important barriers facing U.S. families today and assets may be the more appropriate marker for economic opportunity across childhood – which also highlights the prominent influence of continued racial gaps in wealth. Second, we show how assets and overall economic opportunity combined contribute to an environment of either tolerable stress or toxic stress. By introducing emerging research on toxic stress, it is possible to demonstrate how persistent economic insecurity leads to biological shifts in brain functioning that have long-term consequences on a child's ability to thrive and attain appropriate cognitive, social-emotional, and health outcomes.

Four core concepts provide a foundation for this work. *There are multiple pathways by which SES may affect developmental outcomes*. Potential pathways include access to and quality of education and social supports, health care and health-related behaviors, individual psychosocial processes, and physical and social environments. The initial physical and social environmental determinants, the resulting mediating role of the psychosocial processes, and the balance between resources and demands in each stage of development, are all shaped by socioeconomic forces (Bronfenbrenner, 1979). For example, poverty, environmental degradation, and vulnerability are interrelated. Poverty impacts health and education because it defines how many resources poor people have for basic needs thereby influencing the amount of environmental risks they will be exposed to in their immediate surroundings (Olden, 1998). Educational attainment among adults is linked inextricably with children's health as well (Eide & Showalter, 2011). Beginning early in life, babies of more-educated mothers are less likely to die before their first birthdays and children of more educated parents experience better health (Low, Low, Baumler, & Huynh, 2005; Ross & Mirowsky, 1999).

Child development is a dynamic process that unfolds from birth to early adulthood (Bronfenbrenner, 1979; Bruer, 1999; Furstenberg, Kennedy, McCloyd, Rumbaut, & Settersten, 2003; National Institute of Mental Health, 2001; National Research Council & Institute of Medicine, 2000; Sameroff, 2010; Thompson, 2004). Social-emotional, cognitive functioning, and health status are highly interrelated (National Research Council & Institute of Medicine, 2009a, 2009b). Their basic foundation is formed early, even prenatally. The architecture of the brain is intricate; higher-level abilities are built upon the layers of neural circuits developed initially. MRI's, biopsychology, and cognitive neuroscience demonstrate that adverse circumstances interrupt healthy brain and physical development. Although the early childhood years (birth to 5) are very important, it is still possible for adaptive interventions to take place later in life (Arnett, 2000; Casey, Getz, & Galvan, 2008; Dahl, 2004). Remedial interventions, however, often require greater effort to overcome initial delays, and typically at greater expense (Heckman, 2006). Yet, nurturing environments for all children (those that are safe, stable, stimulating, and responsive) strengthen developmental trajectories across all phases of child and adolescent development.

Families and communities play the central role (and bear most of the costs) in providing the supportive relationships and positive experiences that young children need for healthy development (Bronfenbrenner, 1979). Interacting factors including household assets and social supports provided by neighborhood and community of residence, along with responsible care-giving, are perhaps the most salient indicators of optimal child development (Bronfenbrenner, 1979; National Research Council & Institute of Medicine, 2000, 2004). Unfortunately, one's street address or neighborhood can also be a primary indicator of disadvantage. The physical environment and neighborhood of residence is an important source of how SES influences child outcomes (Evans, 2006). Where you live affects your health, your options, and your opportunities (Leventhal & Brooks-Gunn, 2000; Rubinowitz & Rosenbaum, 2000; Sampson, Raudenbush, & Earls, 1997). Numerous researchers are investigating child outcomes through an ecological lens (Brooks-Gunn, Duncan, & Aber, 1997a, 1997b; Ludwig, Duncan, & Hirschfield, 2001; Morris, Jones, & Smith, 2003). It is clear that place matters. Additionally, health impact assessments (HIA) point to numerous disparities among low income populations and communities of color (Bullard, Johnson, & Torres, 2011).

Household level variables mediated by social support are critical elements in the mix. *Loving and nurturing relationships in a household environment provide the context for a child to learn, grow, and thrive* (Bronfenbrenner, 1979). These are typically initiated at birth and the most sustained interactions that a child has early in life. Multiple transactional theories outline how a parent (or caregiver) and child interact with one another and their environment over time (Sameroff, 2009). In general, if the parent or child has a difficulty that compromises positive interactions, dysfunctional patterns can emerge (Sameroff & MacKenzie, 2003). Depression and mental health issues are an underlying concern in more than 25% of US households, affecting millions of children and families. Furthermore, households with few socio-economic resources are frequently situated in disadvantaged neighborhoods with overcrowded and/or questionable educational and child welfare systems, environmental and other toxins, and inadequate social safety nets – exacerbating negative effects (Wilson, 1987). Thus, ensuring adequate social support in the most difficult circumstances is a real challenge.

1.1. Stress

A central concept in our thesis is the role of stress in the life of the child and family. The positive, tolerable, and toxic stress framework has been extensively developed by Jack Shonkoff and his colleagues at the Center for the Developing Child at Harvard University (http://developingchild.harvard.edu/). There are several key implications that come from this work. Recent scientific advances in the biological and neurological sciences emphasize evolving evidence that illustrates the physiological disruptions caused by excessive adversity early in life – and their