Children's Community Context, Time Use, and Well-Being

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Introduction

This project uses residential histories from the Panel Study of Income Dynamics (PSID) and children's time diaries from the PSID Child Development Supplement (CDS) to explore two questions: 1) Do characteristics of neighborhoods influence children's health and academic related time use patterns? 2) Do neighborhood-based differences in time use influence children's health and academic success, thereby making time use a mediator in the neighborhood/well-being relationship? Researchers have shown that neighborhoods influence children's health and academic achievement, independent of other contexts, such as the family. In addition, studies using children's time diaries demonstrate that children's time use varies by family and socioeconomic environment. These two strains of research are often conducted separately, however, and raise several questions about non-family determinants of children's health and school-related time use, and about how and why neighborhoods matter for children's quality of life. We use neighborhood and time use data to test a prominent theory of neighborhood effects, using data from the PSID and its CDS. In the end, our goal is to begin to unravel the space in between the neighborhood structure/child well-being relationship by integrating two often separate literatures and considering time use as a mechanism through which neighborhoods influence children's health and academic performance.

Background

Neighborhoods and Child Well-Being

There is an abundant literature on the influence of neighborhood structure and composition on individual well-being, which has strong historical roots in sociology and has persisted in recent decades (Riis, 1890; Park and Burgess, 1925; Wilson, 1987; Jencks and Mayer, 1990; Massey et al., 1992; Furstenberg and Hughes, 1997; Small and Newman, 2001; Sampson et al. 2002; Pebley and Sastry, forthcoming). Limitations in data, conceptual frameworks and the use of advanced statistical methods often bias results and limit researchers' ability to draw meaningful conclusions about whether or not characteristics of neighborhoods "matter" for children's well-being. Nonetheless, while the magnitude of neighborhoods' effects is still contested, experimental and rigorous observational studies have demonstrated that neighborhoods do in fact matter for children's opportunities, activities and achievement (Goering and Feins, 2003; Harding, 2004). Living in socioeconomically disadvantaged neighborhoods is believed to negatively affect several aspects of children's quality of life, including cognitive development and educational achievement (e.g., Crane, 1991; Brooks-Gunn et al., 1993), propensity for risk-taking behaviors (Brooks-Gunn et al., 1997), rates of teenage childbearing (Brooks-Gunn et al., 1993; Sucoff and Upchurch, 1998), emotional and psychological well being (Aneshensel and Sucoff, 1996) and physical health (Morenoff, 2003).

More recently, researchers have begun to examine the mechanisms, or social pathways, through which neighborhoods matter. Differences in the quality and quantity of neighborhood services and institutions (Aber et al., 1997), systems of neighborhood social organization and norms (Wilson, 1987; Crane, 1991; Sampson et al., 1999; Sampson et al., 2002; Morenoff, 2003), exposure to dangerous pollutants (Boer et al., 1997), and access to labor markets and extra-local resources (Wilson, 1996; Mouw, 2000) are all believed to affect the decisions that parents and children make, and the opportunities available to them**.** Work on how neighborhood characteristics matter is still in its early stages and has been conducted mostly in relation to crime and behavioral outcomes. Less is known about the pathways through which neighborhoods affect health and children's cognitive development. Specifically, very little is known about how neighborhood disadvantage may affect the daily lifestyle choices parents and children make and how these behavioral responses to resource constraints within communities may affect children's health and cognitive outcomes.

Children's Time Use

In what has been a separate vein of research, recent studies using time diary data have examined how children's time use patterns are determined in part by family characteristics, such as maternal employment, family structure, and household income. Researchers have shown that

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children with more educated parents spend less time watching television and more time reading and studying (Timmers et al. 1985; Bianchi and Robinson, 1997, Hofferth and Sandberg, 2001), children of employed mothers spend less time watching television (Bianchi and Robinson, 1997; Yeung and Stafford, 2003), children from dual earner, intact families receive more involvement from their fathers (Sandberg and Hofferth, 2001, Yeung et al., 2001) and Black children receive significantly less involvement from their fathers than White or Latino children (Yeung et al., 2001). The literature on children's time use has almost exclusively focused on how family characteristics influence children's daily activities, raising questions about how other environments, such as community contexts, may place constraints and limitations on children's health and school-related time use.

The Present Study: An Integrated Approach

While studies of children's neighborhoods and time use have separately exposed important causes of children's time use and quality of life, researchers have not considered neighborhoods and time use in conjunction with one another. To date, no research uses time diary data to consider how neighborhood characteristics affect children's health and academic achievement by determining children's time use in activities that promote or jeopardize positive outcomes in these areas. Our research extends previous work in a number of ways. First, we integrate studies of neighborhoods and children's time use by examining the extent to which neighborhood resources and disadvantage impose constraints on children's time use, net of family characteristics. Secondly, we consider time use as an intervening mechanism through which neighborhoods may affect children's health and cognitive development, in an attempt to focus on the processes in the neighborhood/well-being relationship. A consideration of children's time use is a useful addition to studies of neighborhood effects, since it provides concrete and direct measures of the behaviors hypothesized by neighborhood theories. Although many prior studies of neighborhood effects assume that neighborhood-level disparities create behavioral responses which, in turn, lead to disparities in health and cognitive achievement, there have been surprisingly few tests of this assumption. As a result, the routes through which neighborhood resources influence children's behaviors and outcomes are unclear. Very little is known about the daily activities children perform within their communities and whether or not systematic differences exist across communities.

One important theory about why neighborhoods should matter for children's well-being can be summed up as the "institutional/resource" model. According to this theory, poor neighborhoods should be less likely to have a sufficient number of high quality institutions and services for children and their families, both because residents lack the social and human capital to demand and acquire these services, and because there are not enough services to go around for all residents (Jencks and Mayer, 1990; Aber et al., 1997; Pebley and Sastry, forthcoming). As Pebley and Sastry (forthcoming: 4) describe, these services and institutions include schools, child care services, after-school activities, public parks and other social services. As the theory predicts, children in communities deprived of these resources should engage in different activities from children in resource-rich neighborhoods. That is, neighborhood-level disparities in the quality and quantity of community resources may affect children's health and school-related options and behaviors, thereby having an important influence on the type of activities that children engage in and their subsequent health and academic outcomes.

Leisure time provides a good example, as it is an important context within which children learn and develop outside of formal institutions such as schools or families. For young children, for example, play-time can help children develop motor skills, self-regulation, personal initiative and social skills (Larson and Verma, 1999). How children spend their leisure time is likely to be an important determinant of their physical health and lifestyle, both of which may persist into adulthood. Research shows that poor neighborhoods are less likely to have high quality nutrition and exercise-related resources (Morland et al, 2002). The children who live in these neighborhoods may subsequently be less likely to participate in physically active, outdoor activities and more likely to spend time engaged in sedentary indoor activities. Children who live in poor neighborhoods may also

attend schools with inferior nutrition and exercise resources, and children at these schools may spend more time in sedentary activities. These differences in time use may have important consequences for children's health. Physically inactive children have a higher risk of being overweight or obese, and of developing the many health problems associated with being overweight, including type II diabetes, respiratory problems, liver and orthopedic complications and psychological distress in the short term, and hypertension, cardiovascular disease and cancer in the long term (Dietz, 1998; Gortmaker et al, 1993). Similarly, children in socioeconomically disadvantaged neighborhoods may be less able to spend time in activities that promote cognitive development, such as structured after-school activities in schools, churches and youth groups, and more time in less academically beneficial forms of leisure. Since studies show that active, structured activities are correlated with higher academic achievement (Hofferth and Sandberg, 2001), this may have important consequences for children's success in school.

This study is organized into two sections. The first section provides the only analysis to date of the relationship between neighborhoods and time use, net of family characteristics. How does children's time use in activities that promote or jeopardize health and cognitive growth differ within and across neighborhood contexts? In the second section, we use regression and regression decomposition techniques to understand the effects of neighborhood characteristics and time use on children's health and cognitive development, as well as how much of the relationship between neighborhoods and child health/academic achievement is explained by differentials in time use versus other factors.

Data

We address the relationship between neighborhood structure, time use and children's health and cognitive development using several unique components of the PSID and its CDS. The PSID is a longitudinal study that has been following a nationally representative sample of U.S. individuals since 1968. By 1996 that sample had reached 8,500 people. In 1997, the PSID conducted the PSID-CDS to collect detailed information on children's communities, time use, schools, development, demographic and economic context and families. The 1997 CDS contains information on 2,394 PSID families and 3,563 children ages 0-12, with a response rate of 88%. In 2002 a follow-up wave conducted, providing information on 2,019 families and 2,907 children ages 5-18, with a response rate of 91% (PSID-CDS User Guide, 2002).

The project uses two unique features of the PSID-CDS. First, we exploit its rich time diary data. Time diaries focus on capturing the chronology of events over a short period of time. Data collected using this approach have been shown to be reliable and valid, and less subject to social desirability bias than data collected from other methodologies, including traditional, survey-based questions that ask individuals how much time they spend performing specific activities (Juster and Stafford, 1985; PSID-CDS User Guide, 1997). In the PSID-CDS, detailed information on children's time use is available for up to two children within a family. In order to make daily diaries more representative of children's time use over the course of a full week, diaries were collected for a random weekday and weekend for each child. Our sample consists of 2,818 children aged 0-12 in 1997, which represents 79% of the original sample of children who completed both weekend and weekday time diaries.

Secondly, we use data from the PSID Geocode Match Files, which provide longitudinal data on PSID respondents' neighborhoods at the level of the census tract. Data on children's neighborhoods can be obtained by linking children with their primary caregivers. The residential histories allow us to track children's residences over their whole lifetime, or since their caregiver's inclusion in the sample. The Geocode Match Files can also be linked to data from the U.S. Census that provides information on specific social and demographic characteristics of neighborhoods, such as poverty rate, racial/ethnic composition, median household income and proportion of foreign born.

In addition, the CDS measures other characteristics of neighborhoods related to safety and community institutions.

Methods and Approach

The first step of the project is to analyze the relationship between characteristics of children's neighborhoods and their time use, net of family background, parental childrearing practices and sociodemographic characteristics. Do children living in poorer, less safe communities spend less time in active, outdoor activities than children from more affluent, safer communities? Do children in economically disadvantaged and physically unsafe communities spend less time in organized leisure activities, such as youth organizations, church-based activities, and organized sports, and more time in unstructured, leisure activities such as "hanging out with friends," watching television and playing videogames? The institutional/resource model would answer yes to both of these questions. We use multilevel logistic regression models to examine these questions.

Next, we examine the effects of children's time use on their health and cognitive development. There are several analyses in this part. First, does time use act as a mediator in the neighborhood/well-being relationship? To answer this question we use multilevel linear and logistic regression models, depending on the outcome. Secondly, to provide estimates of the effects of time use that are less biased by the selection of families into neighborhoods, we estimate community fixed-effects models. Finally, we conduct a formal regression decomposition to understand how much of neighborhood-level differences in physical health and cognitive development can be explained by time use (relative to family characteristics, demographic characteristics, and unexplained factors). Similar methods have been used to understand discrimination and racial differences in marital disruption (Jones and Kelley, 1984; Phillips and Sweeney, forthcoming). This method allows us to see how much of the neighborhood-level health and cognitive gap between children is actually being explained with our measures.

We focus on two key aspects of child well-being: physical health and cognitive development. The CDS includes measures of children weight and body mass index (BMI), as well as other health indicators related to physical activity and lifestyle, such as asthma and other respiratory problems, type II diabetes, and high blood pressure. To measure cognitive development, we use children's scores on the Woodcock Johnson achievement test, which measures children's intellectual development, reading and math skills. We use the applied problems and letter-word assessments.

To measure children's time use, we categorize the activities children perform according to the level of physical activity and level of engagement necessary to perform each activity. We distinguish between three types of health-related leisure in both neighborhoods and schools: high-energy (active leisure), low-energy, and passive leisure. High-energy, active leisure includes activities such active recess, playing sports, hiking, jogging, dance lessons and high energy outdoor activities. Low-energy, active leisure includes arts and crafts, playing musical instruments and playing games. Passive leisure includes watching television, socializing and reading. To measure time use related to children's cognitive development, we use the framework first introduced by Hofferth and Sandberg (2001). This framework includes four categories of children's learning-related daily activities: 1) school and day-care time 2) discretionary time in free play versus organized activities 3) time in outside-of-school learning activities, and 4) time spent in family activities.

Finally, as measures of children's neighborhoods, we use both Census-based and survey-based indicators. At the Census level, we use social and demographic measures of neighborhoods, including poverty rate, racial/ethnic composition and median household income. At the CDS level, we use more detailed information on residents' perceived safety and basic information on religious and youth organizations in the neighborhood. Neighborhoods are defined as census tracts, as that is the lowest level of aggregation possible in these data.

Conclusions

In this project we delve into the "black box" of neighborhood effects by explicitly measuring the behavioral routes through which structural characteristics of communities influence children's physical health and cognitive development. Integrating the separate research areas on children's neighborhoods and time use allows us to document any neighborhood-level differences in children's time use, to comprehensively examine time use as a behavioral route through which neighborhoods matter might matter for children, and to assess the relative importance of time use and other characteristics in explaining neighborhood-level disparities in children's quality of life.

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