

Three Essays Examining the Behavioral and Socioeconomic Transition to Adulthood in
the United States and South Africa: Evidence from Longitudinal Studies

by

Lloyd D. Grieger

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Doctoral Committee:

Professor Sheldon H. Danziger, Co-Chair
Professor Yu Xie, Co-Chair
Professor Mary E. Corcoran
Associate Professor David J. Harding

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To my family, mentors and friends.

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Abstract

This dissertation examines elements of adolescents' socioeconomic and behavioral transition to adulthood. It consists of three separate studies, each relying on a different large-scale panel study that follows the same set of young people over time. Two of the studies examine adolescents in the contemporary United States while the other examines adolescents in contemporary urban South Africa. In the second chapter, I examine whether or not changes in the structure of U.S. social welfare policies in the mid-1990s, specifically those that incentivized and tied social support to participation in the paid labor force, had any effect on rates of U.S. long-term child poverty. I find that long-term poverty dropped substantially for black and white children of the post-reform cohort, with about 1 in 5 black children and 3.6 percent of white children classified as long-term poor, compared to pre-reform rates of 1 in 3 black children and 5.8 percent of white children. In the third chapter, I examine the link between contextual disadvantage and the likelihood that an adolescent's relationship is "embedded" in common social contexts and peer groups. I find that adolescents form relationships with partners from various contexts and that neighborhood and school disadvantage help determine the social contexts from which adolescents know their partners. In the fourth chapter, I examine the link between paternal absence and sexual debut among adolescents in Cape Town, South Africa. I find that the absence of a father from a child's household, net of other observed factors, increases the likelihood of adolescent sexual debut by age 16,

although the effect differs by race and gender. In sum, the examination of race and gender differences inherent in each of these studies reminds social scientists that the social environment external to an individual interacts with the individual's personal characteristics, implying that there is heterogeneity in the "effects" of the family and social context on individual outcomes and that understanding these heterogeneous effects among adolescents is required for moving toward a more holistic, life-course understanding of the racial and gender differences observed in adult outcomes.

Chapter I

Introduction

This dissertation examines three aspects of adolescents' socioeconomic and behavioral transition to adulthood: exposure to long-term poverty, romantic relationship formation, and sexual debut. Each of these outcomes is analyzed in a separate chapter, each chapter utilizes data from a different large-scale panel study that follows the same set of young people over time. Two of the studies examine adolescents in the United States via nationally representative panel studies. One examines adolescents in urban South Africa. While focused in different settings, the studies are bound together by their interrogation of the effects of an adolescent's external characteristics – i.e. their family, neighborhood, school, and of the social policy environment – on specific socioeconomic and behavioral outcomes.

Adolescence is an increasingly studied period of the life course because experiences during this period have consequences for later life outcomes (Sewell & Hauser 1975; Hogan & Astone 1986; *see Shanahan (2000) for a review*). An individual's experiences during adolescence affects his or her later life experiences with:

- Socioeconomic outcomes like future poverty status, employment, educational attainment, occupational status, and criminality (i.e. Corcoran 2001; Duncan et al 1998; McLoyd 1998).

- Fertility and family formation outcomes like completed fertility, unplanned births, non-marital fertility, marriage, divorce, and cohabitation (i.e. Raley, Crissey, & Muller 2007; Thornton 1991; Thornton, Axinn & Teachman 1995).
- Sexual/behavioral outcomes like contraceptive use, frequency and number of sex partners (i.e. O'Donnell, O'Donnell & Stueve 2001).
- Health outcomes like exposure to STIs and HIV/AIDS, mental, and physical health (Finer et al. 1999; Ford & Lepkowski 2004).
- Future attitudes about sex, marriage, fertility, divorce, and cohabitation, which has consequences for actions and beliefs/behaviors of children (Thornton 1991; Axinn & Thornton 1996).

In the second chapter, I examine whether or not changes in the structure of U.S. social welfare policies in the mid-1990s, specifically those that incentivized and tied social support to participation in the paid labor force, had any effect on rates of long-term child poverty. Children and adolescents who experience poverty are at a much higher risk of reduced physical and mental health; reduced access to nutrition and medical care; reduced educational opportunities and resources; reduced school achievement and attainment; reduced cognitive development; and heightened criminality in adulthood, (Aber et al 1997; Brooks-Gunn & Duncan 1997; Duncan & Brooks-Gunn 2000; Korenman, Miller & Sjaastad 1995; McLoyd 1998) which have negative consequences for later-life chances with regard to health, socioeconomic status, and overall quality of life (Brooks-Gunn & Duncan 1997; Corcoran 2001).

Children and adolescents who experience *long-term* poverty, which is distinct from the short-term, annual poverty most of the poor experiences, are especially

vulnerable to these negative outcomes (Duncan & Brooks-Gunn 2000; Duncan et al 1998; Korenman et al. 1995; McLoyd 1998). While many studies have focused on the causes of fluctuations in annual poverty rates, few focus on long-term poverty *and* on children, and none (to my knowledge) study changes in long-term poverty as a result of changes in the broader social policy environment (Duncan & Rodgers 1991; Eggebeen & Lichter, 1991; Lichter, 1997). Thus, this study contributes to the understanding of the adolescent transition to adulthood by describing the structural factors (in terms of public policy) that influence young peoples' exposure to severe poverty.

In the third chapter, I examine the link between contextual disadvantage and the likelihood that an adolescent's relationship is "embedded" in common social contexts and peer groups in the U.S. The degree to which adolescents' intimate relationships are embedded in shared social contexts or shared social networks has implications for sexual behaviors, which, in turn, have consequences for the future life-chances of adolescents by exposing them to added risk of unplanned pregnancy and of contracting a sexually transmitted infection.

The chapter examines how neighborhoods and schools affect the embeddedness of adolescents' relationships. Understanding partner selection is important because most adolescents engage in intimate relationships (in my study, about 80% of adolescents reported a previous intimate relationship). While other studies have analyzed how adolescent intimate relationships contribute to social growth and development into adults (Coates 1999; Connolly & Goldberg 1999; Erikson 1968; Feiring 1999; Fischer et al. 1996; Leaper & Anderson 1997; Sullivan 1953), this study examines how contextual disadvantage influences the characteristics of adolescents' partners, which we know

influences behaviors in that relationship (Adamczyk & Felson 2006; Brown 1999; Coates 1999; Connolly & Johnson 1996; Harper et al. 2004; Miller & Benson 1999; O'Sullivan & Meyer-Bahlburg 2003), and which, in turn, have consequences for future life-chances.

In the fourth chapter, I examine the link between paternal absence and sexual debut among adolescents in Cape Town, South Africa. Understanding the factors that contribute to adolescent sexual debut is important because of the widely documented negative impacts on socioeconomic, health, and reproductive outcomes of early sexual initiation (Armour & Haynie 2007; Harvey & Springer 1995; Seidman 1994). Many studies have linked family structure and parental absence to earlier adolescent sexual debut; however, few studies focus specifically on fathers, and even fewer examine whether the effects of paternal orphanhood are more severe than those associated with paternal absence when the father is still living. Orphans may be at an added risk of early sexual debut because the death of a father causes emotional damage that could encourage the early onset of sex and can severely deplete a families' resources, especially as a result of HIV/AIDS, which often forces a child to leave protective environments like the school to earn money (Foster & Williamson 2000; Hutton et al 2004; Karim et al 2003; Magnani et al 2002; Makame et al 2002; Rau 2003; Williams & Latkin 2005).

This analysis is based on data from a panel study of adolescents in South Africa, a context characterized by high rates of paternal orphanhood and non-death absence from an adolescent home and mired by vast racial disparities in these and other characteristics. The high prevalence of paternal orphanhood and non-death paternal absence afford the opportunity to study the differing effects of a father's absence, whether or not the absence is due to death. Thus, this study contributes to the understanding of family influence on

early sexual debut, known to be associated with later-life outcomes. Understanding the factors that increase an adolescent's current and future exposure to risk of contracting an STI is particularly salient in the South African context, where prevalence of HIV/AIDS is extremely high.

In the final chapter, I discuss the contributions of each of the individual studies to social science research. I also discuss how each of the studies examines the interaction between the effect of an individual's personal characteristics (like race and gender) and the effect of social factors on outcomes important for later adult outcomes.

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Chapter II

From Welfare to Workfare: The Shift in U.S. Social Welfare Policy and Consequences for Long-Term Child Poverty

Introduction

The most recent research tracking trends in children's long-term poverty found that the percentage of children who were persistently poor remained stable at 34 percent of all Black children and just 5 percent of all white children from the late 1960s to the early 1980s (Duncan & Rodgers 1991; David J. Eggebeen & Daniel T. Lichter 1991; Lichter 1997). Duncan and Rodgers (1991) found that underlying the stability in long-term poverty were significant cross-cutting demographic and economic changes that occurred across this period.

Since the late 1980s, the U.S. social policy landscape has undergone a substantial shift from cash entitlements to wage-work subsidies. Among these policy changes include: the 1996 welfare reforms, increases in the minimum wage, and expansion of the Earned Income Tax Credit (EITC) – all intended to increase incentives for low-skilled, low-income parents to choose work over receiving cash welfare. Among these programs, the EITC is widely touted as the most successful in terms of poverty reduction.

The increased generosity of the EITC in the post-reform era lifts 4.4 million people out of poverty annually and reduced the child poverty rate by 25 percent (Holt 2006). Although annual child poverty rates dropped during the early post-reform years, it is not known how this social policy shift has impacted rates of long-term child poverty.

While the tight labor market of the mid- to late-1990s increased the availability of jobs for low-skilled parents, permanent changes to social policy that tied social support to participation in the paid labor market meant that fewer resources were available to those who did not work. As the long-term poor are likely to experience multiple barriers to work and periods of unemployment, these work-centered policy shifts could mean that the children of the long-term poor were made worse off by reform (Hays 2004; Seefeldt 2008; Turner, Danziger, & Seefeldt 2006). In this paper we analyze how a shift in the social policy landscape from cash entitlement to subsidized work affected long-term poverty for black and white children.

Background

The Effects of Poverty

While child poverty has fluctuated throughout the past half-century, it is well known that the rate of child poverty in the United States has been and remains substantial, particularly among African American children. Child poverty fell sharply in the 1960s, remained relatively unchanged in the 1970s and rose in the 1980s (D. J. Eggebeen & D. T. Lichter 1991). By 1990, the child poverty rate reached nearly 20 percent. It remained high and stable throughout the 1990s, peaking at 20.2 percent in 1995 (Seccombe 2000). In 2008, 19 percent of all US children were poor; as were a little more than one-third of

African-American children (National Poverty Center 2010). Childhood poverty is important as it has long-term effects on opportunities in adulthood and throughout the life-course.

The long-term, negative implications of childhood poverty include disparities relative to non-poor peers in physical and mental health, access to nutrition and medical care, educational opportunities and resources, school achievement and attainment, cognitive development, and heightened criminality in adulthood. Poor children are twice as likely to be in poor health, to die as infants, to have a learning disability, to be hospitalized, and 3.5 times as likely to suffer from lead poisoning. Poor children obtain less education, are twice as likely to repeat a grade or be expelled from school, are 1.4 times as likely to be diagnosed with a learning disability, and are 3 times as likely as non-poor children to drop out of school (Aber, Bennett, Conley, & Li 1997; Brooks-Gunn & Duncan 1997; Duncan & Brooks-Gunn 2000; Korenman, Miller, & Sjaastad 1995; McLoyd 1998). Poor girls are twice as likely to have a teen birth, while poor boys work fewer hours, have lower wages, and spend more time idle than the non-poor (Brooks-Gunn & Duncan 1997; Corcoran 2001). Children born and raised in poverty have rates of poverty in their twenties of 24 percent while those not born into poverty experience poverty rates of just 4 percent (Brooks-Gunn & Duncan 1997; Corcoran 2001).

Childhood poverty in the United States varies substantially between racial groups. White children are impoverished at a rate of 8.2 percent, while the same is true for 24.5 percent of African American children (National Poverty Center 2010). The black-white disparity in poverty is multi-causal and reflects both historical and contemporary factors (Bertrand & Mullainathan 2004; Lin & Harris 2008; Massey & Denton 1993; Pager

2003; Royster 2003; Wilson 1987). We also know that of children born in the lowest income stratum, movement out of this stratum is significantly less likely for blacks than whites (Hertz 2005).

Long-term Poverty

While a large body of research has tracked fluctuations in and correlates of the annual poverty rate of children, (Cancian & Reed 2001; D. J. Eggebeen & D. T. Lichter 1991; Iceland 2003; Lichter 1997; Smeeding, Rainwater, & Burtless 2001) less is known about the incidence and correlates of long-term poverty in children. While roughly one-third of children will be poor at some point during their childhood, for most, that poverty will be transitory. Analysts estimate that roughly one in twenty children will be poor for extended periods (Blank 1997; Corcoran 2001; Duncan & Rodgers 1991).

Long-term poverty is distinct from the short spells of poverty that most poor individuals experience because the effects of poverty are cumulative – those in multi-year poverty are more likely to experience the sustained hardship and accumulated disadvantage for which poverty is a proxy (Duncan & Brooks-Gunn 2000; Duncan, Yeung, Brooks-Gunn, & Smith 1998; Korenman et al. 1995; McLoyd 1998). The negative effects of persistent poverty have been found to be twice that of transient (yearly) poverty (Korenman et al. 1995). The depth of this poverty is also important for children's outcomes (Lichter 1997). Children in long-term poverty experience more negative outcomes in terms of physical health, school attainment, IQ, cognitive development, verbal skills, socio-emotional functioning and early career outcomes (Duncan, Brooks-Gunn, & Klebanov 1994; Furstenberg 2006; McLoyd 1998). Given the

accumulated disadvantage experienced by long-term poor children, a decline in its prevalence is likely to have important and lasting consequences.

The racial disparity present among the annually poor is only exaggerated among the long-term poor. The most recent research suggests that roughly 30 percent of African-American children but only slightly more than 3 percent of white children experienced persistent poverty. Further, almost 90 percent of children who were poor in 10 or more years over the 15-year period 1968-1982 were black (Duncan & Rodgers 1991).

Demographic Trends and Changes in Poverty

A number of demographic factors linked to child poverty have changed over the last few decades. Non-marital childbirth is one of the strongest correlates of childhood poverty and has risen substantially since the 1970s (Carlson, Garfinkel, McLanahan, Mincy, & Primus 2005; Primus 2006). Due in part to declining marital fertility, single-parent births now account for one-third of new births (Cancian & Reed 2001).

Black families are much more likely to be headed by a single parent than are white families. While the gap has narrowed, the percentage of black children in single-parent family arrangements was 51 percent in the mid-nineties, while the percentage for white children was 17 percent (Stoll 2005).¹

Conversely, increases in maternal education and decreases in family size put downward pressure on the childhood poverty rate. The American population as a whole

¹ Eggebeen and Lichter (1991) pose the important, and still unanswered, question: Is changing family structure a “cause” of poverty or a consequence of the deteriorating economic circumstances of individuals and families?

made great gains in high school and college completion, while blacks made substantial progress towards closing the racial gap in high school completion (Stoll 2005).

In addition, fertility rates have been declining since the 1970s, falling from 115.4 to 70.0 births per 1000 black women and 84.1 to 65.3 births per 1000 white women aged 15-44 in 2000 (Centers for Disease Control).

Changes within the labor force and to the public policy environment also affected child poverty. Women entered the workforce in increasing numbers, while men's wages, particularly those of workers with a high school degree or less, stagnated (U.S. Department of Health and Human Services 2003). In the late 1980s, the falling contribution of father's earnings was compensated for by an increased reliance on governmental support programs, both an increase in the proportion of income from public assistance and particularly Food Stamps (Duncan & Rodgers 1991) .

As mentioned previously, following the 1996 welfare reform, welfare usage declined sharply (Schoeni & Blank 2000). In response, the employment rate, annual earnings, and incomes of single mothers and low-skilled women rose. Several factors may explain this phenomenon: low-wage work was made more lucrative by the EITC, the labor market was strong and growing across this period, and the time limits and sanctions imposed by welfare reform drove many former welfare recipients into the labor force (Schoeni & Blank, 2000; Scholz & Levine 2001).

The rise in employment was dramatic for single mothers and for less educated black women (Blank 2002; Meyer & Rosenbaum 2001; Noonan, Smith, & Corcoran 2007). While income rose for many low-income, low-skill women and former welfare recipients during this period, research suggests that a significant minority of welfare

leavers have not been able to maintain consistent employment and were thus made worse off by welfare reform (Danziger et al. 2000; Seefeldt 2008; Turner et al. 2006).

A Shift in Social Policy: The Rise of the Earned Income Tax Credit (EITC)

Though Americans have long expressed ambivalent and even contradictory sentiments about welfare and poverty support programs, anti-welfare public opinion spiked in the early to mid-1990s culminating in President Clinton's welfare reform initiative, the *Personal Responsibility and Work Opportunity Reconciliation Act* (PRWORA). The Act replaced the entitlement program *Aid to Families with Dependent Children* (AFDC) with *Temporary Assistance to Needy Families* (TANF). Hallmarks of the TANF program include a five-year time limit on benefit receipt, mandatory employment preparation and participation for many receiving benefits, and sanctions for failure to adhere to these requirements (Grogger 2004; Scholz & Levine 2001). As noted, resultant from these and other changes, welfare caseloads have fallen dramatically (Pavetti 2001).

Mirroring the transformation in the welfare system, contemporary poverty support policy has largely shifted focus to subsidizing the *working* poor, particularly those with children.² While the shift to employment-support policies are numerous (from daycare subsidies to transportation within TANF), a substantial increase in the generosity of the EITC is the most substantial element characterizing this transition. The EITC is a refundable tax credit that increases in value with higher earnings, up to a limit. Because

² One notable exception would be food stamps, which is available to those with qualifying income, regardless of employment status.

it can only be received in conjunction with earnings from the paid labor market, the EITC creates an incentive for low-income earners to work.

The EITC was created in 1975 to off-set payroll taxes and increase after-tax income for low-income working families (Berlin 2007). It became a significant social policy tool upon expansion in 1986, 1990 and again in 1993 (Berlin 2000). By 1996 the EITC outpaced total federal expenditures on Aid to Families with Dependent Children (AFDC), and by 2003 the program expended \$34.4 billion to more than 20 million families (Holt 2006). The EITC is currently the largest cash program for the poor (Berlin 2007). Yet because the official poverty rate was defined in the 1960s prior to the passage of the EITC, these outlays are not reflected in the official census poverty rate.

The effect of EITC expenditure on annual rates of poverty has been substantial. Holt (2006) estimates that the EITC reduced annual poverty rates among children by one-fourth. This poverty alleviation can be attributed to fact that the EITC increased incentives for single parents to enter the workforce and/or increase their work hours, as well as the wage supplementation effect of the EITC (Berlin 2007). In addition, studies find that a high percentage of eligible workers required to file a tax return claim the EITC; recent estimates range from 83-94% (Holt 2006).

The Current Investigation

In this paper we examine two cohorts of black and white children: a *pre-welfare reform* cohort, which is comprised of children who grew up under the former social policy regime (characterized by cash entitlements but less generous work incentives); and a *post-welfare reform* cohort, which is comprised of children who grew up during the

current social policy regime (characterized by more generous work incentives but few cash entitlements). No research of which we are aware has examined differences in long-term child poverty between these periods.

We measure long-term poverty using post-tax income, a more accurate reflection of the resources available to families. In contrast, the traditional poverty calculation uses a family income measure that does not include non-cash benefits like Food Stamps or credits administered through the tax system such as the EITC (Burtless & Smeeding 2001). Using a more comprehensive measure of family income that includes federal taxes and credits, in our first research question we ask how a change in social policy, namely the increase in EITC generosity, impacts long-term child poverty and whether the impact differs for black and white children.

We examine this question by first comparing the long-term poverty rates by race across the two periods, second, by disaggregating the income composition of the long term poor in each of the periods, and third by drawing transition matrices to track movement out of long term poverty accounted for by the EITC.

In our second research question, we examine whether children in the post-welfare reform era are better off than their pre-reform counterparts at different levels of employment. To do this, we compare children's predicted probabilities of experiencing long-term poverty given low, moderate and full parental employment in each of the two periods while controlling for other observed factors.

Data and Methods

Data Source and Sample

To conduct our analyses, we use the Panel Study of Income Dynamics (PSID), a nationally representative study that regularly collects detailed information on sample members and their families. It consists of the self-weighting “Survey Research Center” (SRC) sample and the “Survey of Economic Opportunity” (SEO) over-sample of low-income and African American respondents, which together form the “core” sample. The first wave of the panel study, conducted in 1968, sampled 4,800 families, comprised of about 18,000 individuals. PSID staff sought to re-interview these individuals and their family members annually until 1997, with subsequent interviews conducted biennially. Because the PSID is a longitudinal survey, original core sample members age, form new households, have children, etc. To account for these dynamic processes, the children of PSID sample members inherit the “PSID gene” and become a part of the core sample. By 2007, the PSID included information on nearly 70,000 individuals.³ As of 1989 the children of the original 1968 PSID respondents had attrited at a rate of roughly 50%. This attrition was concentrated among those of the lowest socioeconomic stature. However, selection was moderated by reversion to the mean over time; therefore, attrition has not seriously distorted the representativeness of the PSID (Fitzgerald, Gottschalk, & Moffitt 1998a, 1998b).

We use the PSID to investigate long-term childhood poverty for two cohorts of children: a *pre-welfare reform cohort*, consisting of children aged 0-10 years old in 1987 who were observed in the PSID biennially beginning in 1987; and a *post-welfare reform cohort*, consisting of children aged 0-10 years old in 1997 who were observed biennially

³ For more information on the study design of the PSID, visit <http://psidonline.isr.umich.edu/Guide/Overview.html>.

beginning in 1997.⁴ We choose these cohorts to represent two different social policy regimes. The pre-reform cohort is characterized by a cash entitlement regime, in which cash safety nets, although meager, were available to those with eligible income. The post-reform context is characterized by a work subsidy regime, in which access to cash safety nets and wage subsidies is limited largely to those employed in the paid labor force and where low wage work is subsidized by a more generous EITC.

Long-term Poverty and Other Measures

To measure long-term poverty, we calculate the long-term income-to-needs ratio, which is a respondent's long-term family income divided by their long-term family "needs." We calculate long-term family income in two ways. First, to calculate the "pre-tax" long-term income, we sum together the annual family income across all five years in the observation period (after converting to constant dollars). We obtain the annual family income from the PSID data file. This variable includes wages, cash transfers, and income from social safety net programs like Food Stamps and cash welfare.

To construct a second measure, the "post-tax" long-term income, we add federal tax liability, which includes the refundable EITC, to the annual family income and sum

⁴ We choose these years because in 1997 the PSID went to biennial interviewing. For the sake of comparison, we use information from every other year beginning in 1987 for the pre-reform cohort. We conduct each analysis in duplicate to assure that our use of information from every other year does not produce biased estimates (analyses not shown but available from authors by request). Finally, respondents are eligible for our analytic sample only if they have non-missing values on our measures of interest, which are described below in greater detail.

across all five years in the observation period (after converting to constant dollars).⁵ We calculate federal tax liabilities/credits using the National Bureau of Economic Research Internet Taxsim version 8.0 software (Feenberg & Coutts 2007).

The official census poverty threshold determines a respondent's annual needs. To calculate long-term needs, we sum the respondent's official census poverty threshold across all five years in the observation period (after converting to constant dollars).⁶ A respondent is considered long-term poor if their ratio of long-term income to long-term needs is less than 1.0.

A respondent's demographic and socioeconomic characteristics are measured using information from the PSID. We measure race using a binary variable, which indicates whether a respondent is black or white.⁷ Unfortunately, small sample sizes prevent us from analyzing long-term poverty among non-black and non-white respondents.⁸

⁵ Although the value of the EITC received is not reported directly by respondents, previous research suggests that low-income families are knowledgeable about the credit and that take-up rates are substantial (Scholz 1994).

⁶ Income and poverty thresholds are converted to constant dollars using the CPI-U-RS prior to summing. The census poverty threshold for a family in a given year is determined by family size. Prior to 1980, the census poverty threshold was determined by family size, gender, age, and farm/non-farm status. After 1980, the poverty threshold was determined by family size, age, and farm/non-farm status. We simplify this determination by using the average weighted threshold by family size for non-farm families in all years. Annual poverty rates derived from the PSID using the Census Bureau poverty thresholds are consistent with the CPS, although PSID estimates of poverty are lower than the CPS because the PSID uses a broader measure of income (Grieger et. al. 2009).

⁷ Although a respondent's race is time-invariant, it is possible for the responses to vary from wave-to-wave depending on which household member responds to the survey, especially if the respondent is of mixed-race background. In cases where the reported race varies over time, we use the modal race category.

⁸ Until the 1990s, when an immigrant sub-sample was added, the PSID was only representative of the non-immigrant population. We do not include sub-sample members

Family structure is measured using a three-category variable that indicates the number of years a respondent lived in a two-parent household (all years, some years, and no years). Respondents were considered to be living in a two-parent household in a year if the household had a head and “spouse” present. In the PSID, a “spouse” could be a married or cohabiting partner of the household head. Education of the head of household is measured using a three-category variable that indicates the number of years a respondent lived with a household head who earned a high school degree (all years, some years, and no years).

We measure parental employment using a three-category variable that indicates the number of years a respondent lived with a household head/spouse who was employed during the five year observation period (0-2 years, 3-4 years, and all years). We count a head/spouse as employed if they reported positive income from wages during a given year.

Age of the household head is measured using the youngest age reported by the household head during the five-year observation period. The number of children in the household is measured using the average of the number of respondents under the age of 18 in a household over the five-year observation period.

Finally, we measure the respondent’s place of residence using a variable that divides the U.S. into four regions (Northeast, West, South, and Midwest). It is possible that a respondent may move from one region to another during the observation period, and in these cases, we assign the mode.

for whom data are available for only a few years. PSID documentation is available at: <http://www.psidonline.psc.isr.umich.edu>.

Hypotheses

We are specifically interested in analyzing how a shift in the social policy landscape from a cash entitlement to subsidized work approach affected long-term poverty for black and white children. Two major aspects of this shift, the welfare reforms of 1996 and the increased generosity of the EITC, were designed to incentivize participation in the labor force. These policy changes along with increased labor force participation could substantially affect the rate of long-term child poverty.

As federal tax structures and the EITC are more generous for members of the post-reform cohort, and because of the tight labor market of the mid- to late-1990s, *we anticipate that post-reform children will have a lower long-term poverty rate than members of the pre-reform cohort.*

Unlike cash welfare and Food Stamp income, which are usually included in the computation of family income, federal taxes/credits, including the EITC, often are not. Thus, we combine family income with tax credits/liabilities to measure the effect they have on the long-term child poverty rate. Because of the increases in the EITC, *we anticipate that the inclusion of federal taxes in the calculation of income will have a greater impact (in terms of reduction) on the long-term child poverty rate of post-reform cohort members.*

As we documented above, concurrent with changes in federal social policy were changes in the demographic characteristics of children's families. The substantial gains in employment during the economic boom of the mid- to late-1990s, especially for blacks, reduced annual poverty rates. With the increasing importance of employment as a factor for determining eligibility for social support in the post-reform era, *we anticipate that*

employment, net of other observed factors, will be a much stronger predictor of long-term poverty status for post-reformers than for pre-reformers.

Finally, because social support in the post-reform era is more strongly linked to participation in the paid labor force, *we expect that post-reform children who reside with parents employed in all years will experience the largest reduction in long-term poverty compared to pre-reform counterparts. Conversely, post-reformers whose parents are not fully employed (especially those with very low levels of employment) will be worse-off than similar pre-reformers because they have fewer resources to draw upon for financial support.*

Empirical Strategy

Because of the very different experiences of black and white respondents with respect to issues of poverty and employment (which we documented in the introduction), we conduct separate analyses for black and white children and compare the results.

To test our hypotheses, we first compute and compare the average long-term income-to-needs by race and cohort using pre- and post-tax income. These averages allow us to make three important comparisons: 1) black-white differences in pre- and post-tax income-to-needs within cohort, which we expect to be substantial, 2) cohort differences in pre- and post-tax income-to-needs by race, and 3) pre- and post-tax differences within race and cohort. We also examine the distribution of long-term income-to-needs using pre- and post-tax income separately by race and cohort. This allows us to go beyond the averages we just calculated by documenting the effect of

including tax liabilities and credits on the entire distribution of long-term income-to-needs.

Then, using post-tax long-term income-to-needs and the definition for long-term poverty we described above (long-term income-to-needs less than 1.0), we calculate the proportion of children who are long-term poor by race and cohort. Because we are interested in examining the resources that are actually available to a respondent's family, we use the post-tax long-term income-to-needs for this and the remainder of our analyses.

To better understand the sources from which long-term poor children's families obtain their income, we calculate the proportion of a respondent's long-term income that comes from wages, Food Stamps, cash welfare (ADFC or TANF, depending on cohort), and the EITC. For the purposes of comparison and because they are the most susceptible to experiencing long-term poverty, we also do this calculation for the long-term near-poor, which we define as having long-term income-to-needs between 1.0 and 1.5.

Next, we examine the effect of the EITC on long-term poverty status. We construct race- and cohort-specific transition matrices indicating the proportion of children long-term severely poor (long-term income-to-needs below 0.5), long-term poor, and non-poor before the EITC is included who subsequently move to another income category after the EITC is included.

Finally, we document how demographic and employment characteristics are associated with the likelihood of experiencing long-term child poverty using standard logistic regression techniques, stratified by race and cohort. To illustrate the impact of employment on the likelihood of experiencing long-term child poverty, we illustrate how

predicted probabilities change when varying parent's level of employment, holding other factors constant, separately by race and cohort.

In each of our analyses we correct for sample attrition and over-sampling of low-income and black respondents by using the individual core weights.⁹

Results

Table 2.1 shows the average long-term income-to-needs for each cohort using pre- and post-tax income, separately by race. Pre-tax income includes wages, Food Stamps, and welfare. Post-tax income adds tax liabilities and/or credits which lowers the income to needs ratio for most families. Table 2.1 also shows that the households of black children are not as affluent as the households of their white counterparts – white children live in households with about twice the income-to-needs as black children, on average.

[Table 2.1 here]

Examining only pre-tax income-to-needs, children from the post-reform cohort reside in households that are not as well off as their pre-reform counterparts. For example, the average pre-tax, long-term income-to-needs for pre-reform white children was 4.46 compared to 4.20 for post-reform counterparts; and 2.35 for pre-reform black children vs. 2.10 for post-reform black children.

⁹ Because each of our sample members is observed in all five years of the observation period, we use the core weight associated with the first year in the observation period for each cohort (the 1987 and 1997 core weights, depending on cohort membership). The core sample weights in the PSID reflect the addition of immigrants in the mid 1990s. There are no members of the immigrant sample in our analyses, since respondents must have been observed in all years during the observation period and immigrants didn't become a part of the sample until 1997. For more information on PSID sample weights, visit <http://psidonline.isr.umich.edu/Data/weights/>.

However, when considering post-tax income, post-reform children have *higher* average long-term income-to-needs than their pre-reform counterparts (3.17 vs. 3.61 for pre- and post-reform whites and 1.76 vs. 1.99 for pre- and post-reform blacks, respectively). This means that while the average income to needs ratio for all children appears to fall across cohorts, when tax credits are factored in, the average income to needs ratio for all children actually rose. This is due to changes in the tax structure that reduced the amount of tax owed by low-income families and to the increase in availability and generosity of the EITC.

Next, we examine how considering post-tax income changes the distribution or spread of long-term income-to-needs differentially for our categories of children (black and white, pre and post-reform). Figure 2.1 illustrates the long-term income-to-needs distributions for white children and Figure 2.2 does the same for black children. When we compare the distributions of pre- and post-tax income-to-needs within cohort, including federal taxes shifts the entire distribution toward zero for white and black children in the pre-reform cohorts. However, for children of the post-reform cohort, including federal taxes compresses the distribution toward the average. This means that income inequality is reduced by including federal taxes in the calculation of income to needs for our post-reform cohort. Lower federal tax rates for low-income households and increases in the generosity and eligibility of the EITC in the 1990s explain why this compression is not observed in the pre-reform cohort. This compression is most noticeable among the households of black children and is due to black children's much lower income-to-needs than that of their white counterparts, on average.

[Figure 2.1 here]

[Figure 2.2 here]

The pre- and post-tax comparisons demonstrate that it is important to consider federal taxes in a calculation of income because the refundable EITC is a substantial income supplement for the working poor. For example, Figure 2.2 demonstrates that among post-reformers, a portion of the middle 50% of black children fall below the long-term poverty line (income-to-needs equal to 1) before including taxes, but not after including them. Thus, for the remainder of our analyses we rely on the post-tax income measure.

In Figure 2.3, we show long-term poverty rates by race and cohort, calculated using post-tax income. Recall, we consider a child to be long-term poor if the long-term income-to-needs ratio falls below 1.0.

[Figure 2.3 here]

Most evidently, Figure 2.3 documents the overall lower long-term poverty rate among white children compared to black children. Black children have about six times the long-term poverty rate as white children of the same cohort. For example, about 1 in 3 pre-reform black children are long-term poor compared to just 5.8 percent of pre-reform white children. Further we find that long-term poverty drops substantially and proportionally for both black and white children of the post-reform cohort, with about 1 in 5 black children and 3.6 percent of white children classified as long-term poor. In other words, while 1/3 of black children were poor across all five years of the pre-reform period (1987-1995), this was true for 1/5 black children in the post-reform period (1997-2005). Although this number remains high, it represents a substantial decline in long-term child poverty. This decline coincides with the increase in employment in the late 1990s,

coupled with the increase in the generosity and eligibility of the EITC, both of which increased income for the average low-income household.

To show how the income packages of pre- and post-reform cohorts differ, Table 2.2 shows the components of post-tax income by race and cohort for long-term poor and near-poor children.

[Table 2.2 here]

Table 2.2 documents the differences between the household income packages of white and black children, between pre- and post-reform children, and between the long-term poor and near poor. We classify children as long-term near poor if their long-term income-to-needs is between 1.0 and 1.5. According to Table 2.2, pre-reform long-term poor white children lived in households that received most of their income from wages (59.3 percent). The rest of their household income was derived from a combination of Food Stamps (22.5 percent), welfare (14.7 percent), and a very small portion from the EITC (3.5 percent).

In comparison, post-reform white children lived in households that derived slightly less income from wages (54.1 percent vs. 59.3 percent) and welfare (12.6 percent vs. 14.7 percent) and slightly more income from Food Stamps (23.5 percent vs. 22.5 percent). White children of the post-reform cohort received almost three times as much income (proportionally) from the EITC as pre-reform counterparts (9.8 percent vs. 3.5 percent).

Pre-reform long-term poor black children lived in households with very different income packages than their white counterparts. These households derived most of their income from Food Stamps (39.7 percent – nearly twice as much as long-term poor whites

of the same cohort) rather than wages (32.9 percent) and also relied heavily on income from welfare (24.3 percent – about twice that of long-term poor whites of the same cohort). Similar to pre-reform white children, the EITC accounted for a very small portion of the household income of pre-reform blacks (3.1 percent).

In contrast, post-reform long-term poor blacks received much more of their income from wages (53.6 percent vs. 32.9 percent) and drew less income from Food Stamps (24.4 percent vs. 39.7 percent) and welfare (10.5 percent vs. 24.3 percent). Like long-term poor white children, post-reform long-term poor black children received substantially more income from EITC than their pre-reform counterparts (11.5 percent vs. 3.1 percent). So, we find that while pre-reform long-term poor whites and blacks lived in households with very different income packages, post-reform long-term poor whites and blacks had very similar income packages, on average.

For the purposes of comparison, Table 2.2 also decomposes the income packages of long-term near-poor children, or those with a long-term income-to-needs above 1.0 but less than 1.5. Long-term near-poor children, regardless of race and cohort, lived in households that received the majority of their income from wages and only small amounts from Food Stamps and welfare. Like their long-term poor counterparts, long-term near-poor children of the post-reform cohort received about 3-4 times more income (proportionally) from the EITC than pre-reform counterparts (8.8 vs. 2.2 percent for whites and 9.3 vs. 2.8 percent for blacks). Again, post-reform long-term near-poor black children lived in households with income packages similar to their white counterparts (although they relied slightly more on non-wage income).

Table 2.2 shows that the increases in the generosity and eligibility for the EITC made it a substantial part of post-reform long-term poor and near-poor children's household resources. This increased income from the EITC, especially in the post-reform cohort, could have the effect of moving children out of long-term poverty. Table 2.3 contains transition matrices showing how increased household income as a result of the EITC changed children's long-term poverty status by race and cohort.

[Table 2.3 here]

For pre-reform cohorts, additional income from the EITC moved a small portion of black and white children out of long-term poverty. Income from the EITC lifted about 4.1 percent of pre-reform black children and 10.6 percent of pre-reform white children who would have otherwise been long-term poor out of long-term poverty. The EITC moved 3.4 percent of otherwise severely long-term poor blacks and 18.8 percent of similar whites out of long-term severe poverty (defined as having a long-term income-to-needs less than 0.5). This large difference could be due to the income distribution of whites being higher than blacks, i.e. long-term poor black children are poorer than long-term poor white children on average. It could also be due to a race differential in employment, the critical factor in determining eligibility for the EITC.

For post-reform children, the affects of the EITC on long-term poverty status are much more pronounced compared to pre-reform children. For post-reform children, the EITC alone was responsible for moving about a quarter of otherwise long-term poor children out of long-term poverty – 28.8 percent of otherwise long-term poor blacks and 24.2 percent of similar whites moved out of long-term poverty because of increases to household income from the EITC. About 8 percent of otherwise long-term severely poor

black and white children moved out of severe long-term poverty because of income from the EITC. This portion is relatively small because the EITC is a wage supplement, and the severely long-term poor are more likely to be unemployed and, thus, ineligible for the credit.

In addition to considering how policy changes affected the incidence of LTP, it is also important to consider how changes in demographic factors affecting family income (number of children in household, single parenthood, education level of head) and changes in levels of employment independently affected poverty rates. Changing patterns of employment are crucial to consider as post-reform receipt of the EITC and welfare is contingent upon employment.

Table 2.4 shows descriptive statistics on demographic and employment variables for black and white children by cohort. The top portion of the figure shows descriptive statistics for all children and the bottom portion is dedicated to long-term poor children only.

[Table 2.4 here]

According to the top portion of Table 2.4, post-reform white children spent less time in two-parent households, had older household heads, and lived in households with fewer children under 18 than pre-reform counterparts, on average. Post-reform black children spent more time with a parent with a high school diploma, had older household heads, lived in households with fewer children under 18, and had parents that worked more than pre-reform cohorts, on average. With the exception of the reduced time post-reform white children spent in two-parent households, we expect all these cohort

differences to be associated with lower long-term child poverty rates for post-reform cohort members.

For the sake of comparison, the bottom portion of Table 2.4 documents the demographic and employment characteristics of long-term poor children's households. Overall, long-term poor children spent less time in households with two-parents, less time in households with a parent with a high school diploma, had younger household heads, lived in households with a greater number of children under 18, and had parents who spent less time in the labor force than the average child. These differences persist across cohort and racial group membership.

Long-term poor white children of the post-reform cohort spent less time in two-parent households (1.83 versus 2.67 years), less time in households with a parent with a high school degree (1.56 versus 2.31 years), and lived in households with a greater number of children under 18 than long-term poor white children of the pre-reform cohort (3.24 versus 2.83 children). Thus, the demographic profiles of white long-term poor children of the post reform cohort were worse than those of pre-reformers (in terms of the known correlates of annual poverty). This could potentially indicate that white children had to be living in households that were comparatively worse-off in order to classify as long-term poor in the post-reform era than in the pre-reform era.

Black long-term poor children of the post-reform cohort had parents who worked *more* years than parents of pre-reformers on average (3.43 versus 2.29 years). Thus, unlike whites, post-reform black long-term poor children lived in households that were comparatively better-off than pre-reformers (in terms of the correlates of annual poverty).

To test whether employment status became a more important predictor of long-term poverty status because of the social policy shift, we examine the unconditional long-term child poverty rate at differing levels of parental employment by cohort (Figure 2.4) and the predicted probability of being long-term poor at differing levels of parental employment while holding all other characteristics constant (Figure 2.5).

Figure 2.4 documents the proportion of children who experience long-term poverty at differing levels of parental employment, conditional only on race and cohort. As we would expect, Figure 2.4 shows that more years of parental employment is associated with lower long-term child poverty, regardless of race and cohort membership.

[Figure 2.4 here]

Overall, Figure 2.4 shows that post-reform children at lower levels of employment are better off than their pre-reform counterparts, but this advantage diminishes as parental employment increases. Although the advantage diminishes, long-term poverty among children with fully-employed parents is uncommon. This indicates that post-reformers are no worse than pre-reformers at high levels of parental employment but better off than pre-reformers at lower levels of parental employment, on average. This may suggest that post-reform changes in social policy, characterized by a shift from cash entitlements to subsidized work, were generally favorable for children in averting long-term poverty, at least given the robust economic climate of the late 20th and early 21st century. However, these conditional proportions do not adjust for other observed factors.

Figure 2.5 documents the predicted probability of being long-term poor by cohort and race as a function of parental employment controlling for other observed factors.

This analysis allows us to examine how long-term poverty would change for black pre-reform, black post-reform, white pre-reform, and white post-reform children under differing parental employment scenarios, adjusting for changes in the demographic profile from one cohort to the next. Predicted probabilities are derived using estimates from stratified logistic regressions by race and cohort of long-term poverty status on demographic and employment variables. Complete results can be viewed in the appendix.

[Figure 2.5 here]

As we would expect, Figure 2.5 shows that more years of parental employment is associated with a lower probability of being long-term poor, regardless of race and cohort membership. The figure also documents the generally lower probability post-reform children have of experiencing long-term poverty compared to similar pre-reform children regardless of race.

However, Figure 2.5 also documents important differences between white and black children in the predicted probabilities of experiencing long-term poverty. For white children, there is a large difference in pre- and post-reform predicted probabilities at low levels of employment. This indicates that the average post-reform white child with a parent who worked only 0-2 years during the five-year observation period fared better than similar pre-reform counterparts on average. The cohort difference narrows with increasing parental employment, with pre- and post-reform white children with a parent employed all five years having similarly low probabilities of experiencing long-term poverty.

For black children, there is no difference in pre- and post-reform predicted probabilities at the lowest levels of employment. However, this difference widens for

black children with parents who were employed 3 or 4 (of 5) years, with post-reform black children having a substantially lower probability of experiencing long-term poverty than their similar pre-reform counterparts. The difference in long-term poverty converges at full parental employment, with both pre- and post-reform children having similarly (low) probabilities of being long-term poor.

This could be due to an increase in wages (either directly or indirectly via the EITC) or because post-reformers of the same employment category worked longer than similar pre-reformers (i.e. there was less turnover and fewer employment gaps among post-reform parents in the 0-2 years category than pre-reform parents of the same employment category).

Discussion

In this paper, we examine several hypotheses related to the effect of shifting federal social policies on long-term child poverty in the U.S. at the turn of the twentieth century. This shift, characterized by a move away from cash entitlements toward subsidized work, was intended to create incentives for low-income parents to choose work over welfare. Our primary focus is understanding how increases in the generosity of the EITC, a wage subsidy for low-income earners touted as the major anti-poverty program of the post-welfare reform era, impacted long-term poverty rates, and whether this impact differed for black and white children. We are also interested in understanding whether the shift in social policy left post-reform children with parents who have low levels of employment at greater risk of experiencing long-term poverty than similar pre-reformers.

First, we hypothesized that post-reform children would have lower long-term poverty rates than their pre-reform counterparts. We also hypothesized that the inclusion of federal taxes in the calculation of income would reduce long-term poverty more for post-reform than pre-reform children. Although long-term child poverty (using pre-tax income) increased over time, when tax liabilities and credits were included, long-term poverty dropped, supporting both of our hypotheses.

The EITC played an important role in this poverty alleviation. Because of the large increase in EITC generosity, the EITC was more effective in moving post-reform children out of long-term poverty than was the case for pre-reform children. In addition, the substantial racial difference in the poverty alleviation effect of the EITC pre-reform disappeared post-reform. For pre-reform whites, the EITC was responsible for moving roughly 1 in 10 white children who would otherwise have been long-term poor out of poverty. For pre-reform black children, the EITC moved just under 5% of the long-term poor out of poverty. In contrast, in the post-reform era, the EITC moved the same proportion of long-term poor white and black children out of poverty.

The explanation for this racial difference lies in the distribution of long-term income-to-needs. On average, long-term poor white children had higher income-to-needs ratios than long-term poor black children. This means that long-term poor white children needed a smaller increase in income than did their black counterparts to escape long-term poverty. In the pre-reform era, the EITC was not as generous, and thus, disproportionately benefitted long-term poor white children who needed a smaller boost to escape poverty.

We also found that race differences in the long-term income packages of black and white children diminished substantially across the two periods. Unlike their pre-

reform counterparts, the long-term income packages of post-reform whites and blacks were very similar, each obtaining just over half their long-term income from wages and about 10 percent from the EITC. This can be attributed to the increase in generosity of the EITC along with the significant gains in employment experienced by the parents of post-reform of black children. Despite this encouraging finding, it is important to note that although the effects of the EITC are proportionally similar for whites and blacks, far more black children experience long-term poverty than do white children. Additionally, the EITC moved more whites than blacks out of long-term severe poverty, indicating either that the parents of severely poor black children are not as fully employed as similar whites, or that their household resources, on average, were much lower than similar whites. We believe that both of these factors likely play a role in explaining this race differential.

Second, we hypothesized that employment, net of other observed factors, would be a much stronger predictor of long-term poverty status for post-reformers than for pre-reformers. Our multivariate regression analysis does find some support for this hypothesis, but not necessarily in ways we expected. Rather, we found employment was as important for predicting long-term poverty status for children in the pre-reform cohort as for children in the post-reform cohort.

We hypothesized that post-reform children who reside with parents who are employed in all years would experience the largest reduction in long-term poverty over their pre-reform counterparts. Conversely, we hypothesized that post-reformers whose parents are not fully employed for all years in our observation period (especially those

with very low levels of employment) would be worse off than similar pre-reform counterparts.

We note that parents of post-reform long-term poor black children worked more years than similar pre-reformers on average – indicating that increased employment does not automatically guarantee mobility out of long-term poverty. However, we do not find that post-reform black children in low-employment households (parent employed for 0-2 years of the five year observation period) fare *worse* than their pre-reform counterparts, although they are not helped either. Post-reform black children in households with mid-levels of employment (parent employed for 3 or 4 years of the five year observation period), fare better than pre-reform counterparts on average and holding other observed factors constant.

Conversely, post-reform white children in low-employment households fare much better than pre-reform counterparts, though this benefit diminishes as parental employment increases. Children of both race groups and cohorts are very unlikely to experience long-term poverty if they have a parent who worked during all five years of the observation period. Thus, we do not find evidence that post-reform policies make children at various levels of parental employment worse off, rather, we find evidence that overall children are helped, although some children are helped less (or not at all).

We believe the racial disparity in the effect of employment on long-term poverty status can be explained by racial variation in the employment variable. For example, among parents with low levels of employment (0-2 years employed out of five), blacks may be sporadically employed throughout the year while whites are employed for the full year. Such an interpretation is supported by previous research documenting the

significant black-white gap in labor force participation (Bound & Freeman 1992; Bound & Holzer 1993; Browne 1999; Reid 2002)

Our findings indicating that children residing with fully employed parents face the same extremely low likelihood of experiencing long-term poverty regardless of race are encouraging. However, they should not obscure the fact that black children are more likely to live in households with parents who are not fully employed and thus, as a group, are less able to benefit from the EITC than whites.

Because black employment levels are more sensitive to shifts in the macro economy, and because blacks are more likely to experience low-levels of employment, as a group they benefit less from shifts in social policy that tie social support to work. This should be especially evident during times of economic contraction. The economic boom of the mid-to-late 1990s was crucial in narrowing the black-white gap in long-term poverty. However, it remains to be seen how children will fare under the current social policy regime given the job scarcity of a recessionary economy like that which characterized the first decade of the 21st century.

Figure 2.1: Distribution of long-term income-to-needs for white children. The end points of the distribution represent the bottom and top 1 percentile. The ends of the solid box in the center of the distribution represent the 25th and 75th percentile. The line in the middle of the solid box is the median. For each cohort, the distribution is shown separately by whether pre-tax or post-tax income was used in the calculation of long-term income-to-needs. Post-tax income includes federal tax liabilities and credits, such as the Earned Income Tax Credit.

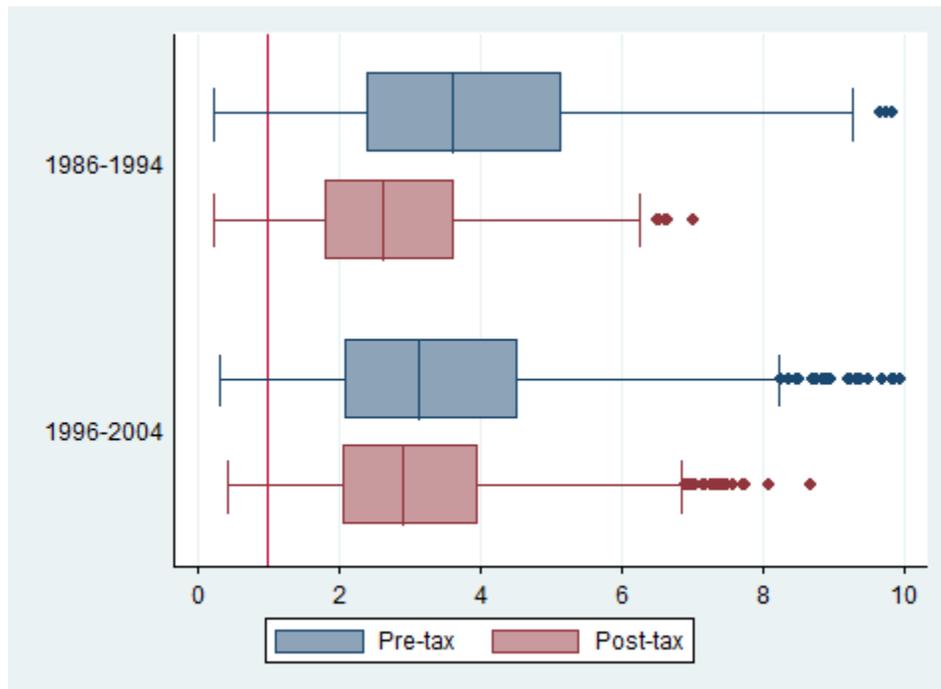


Figure 2.2: Distribution of long-term income-to-needs for black children. The end points of the distribution represent the bottom and top 1 percentile. The ends of the solid box in the center of the distribution represent the 25th and 75th percentile. The line in the middle of the solid box is the median. For each cohort, the distribution is shown separately by whether pre-tax or post-tax income was used in the calculation of long-term income-to-needs. Post-tax income includes federal tax liabilities and credits, such as the Earned Income Tax Credit.

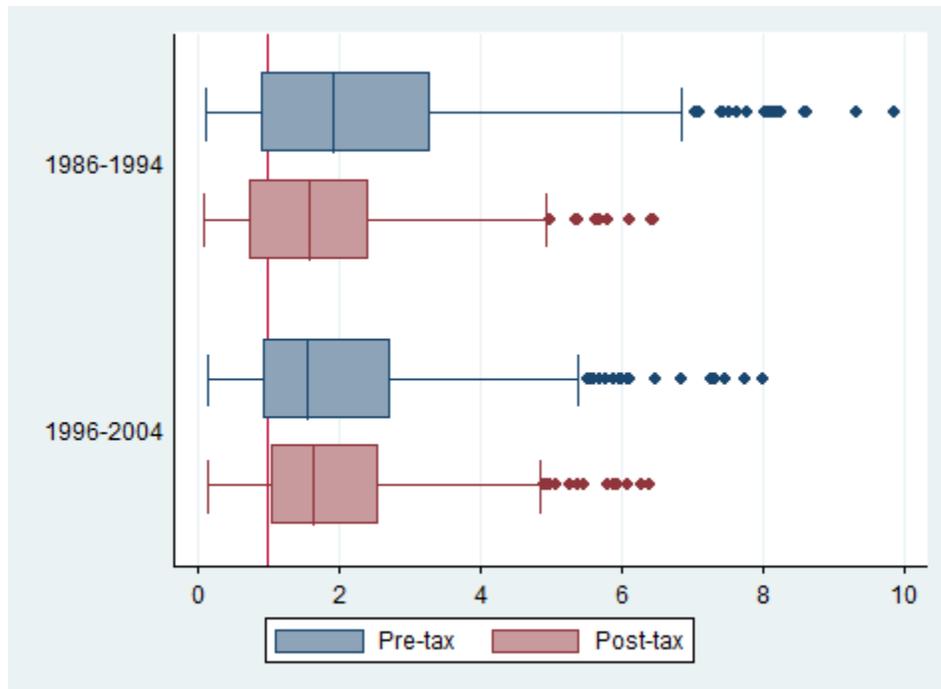


Figure 2.3: Long-term child poverty rates by race and cohort, calculated using post-tax income. The darkened columns represent the long-term child poverty rate for children of the pre-reform cohort and the lighter columns are for the children of the post-reform cohort. Cohort differences within race are statistically significant at the 95% level of confidence.

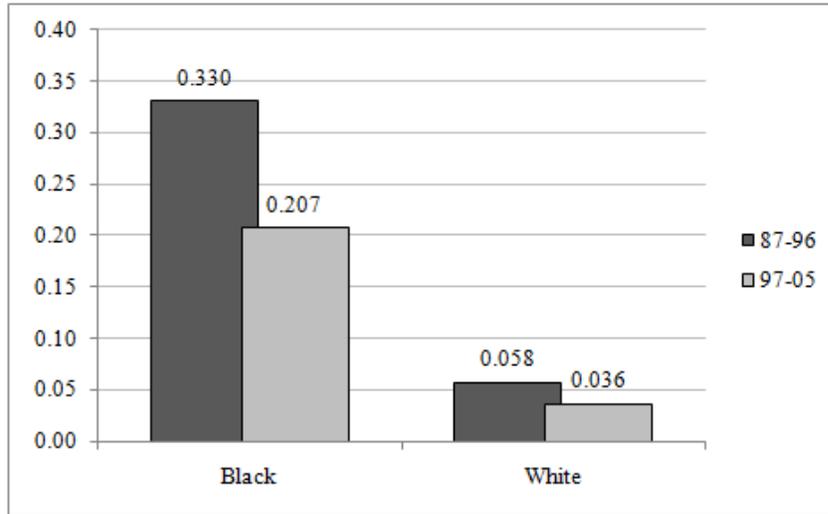


Figure 2.4: Long-term child poverty rate depending on parental employment by cohort and race. The darker lines represent the long-term poverty rates of black children and the lighter lines are for white children. Dotted lines represent pre-reform children, while solid lines represent post-reform children.

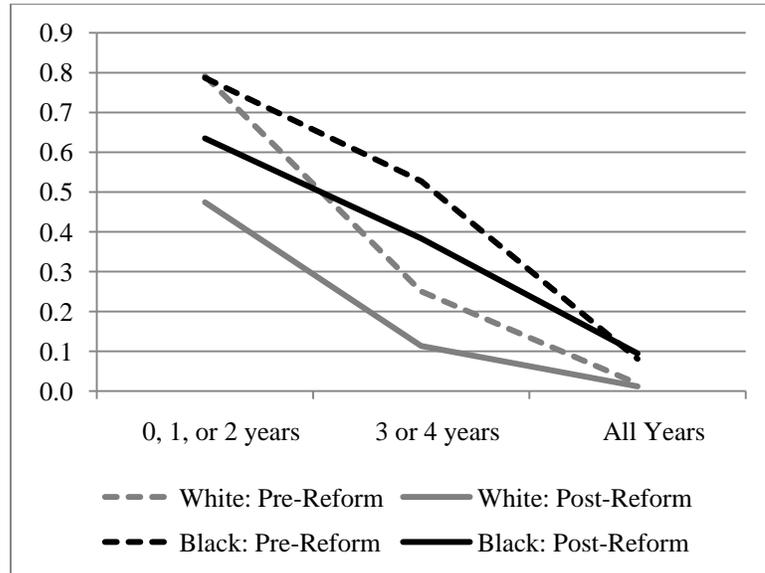


Figure 2.5: Predicted probability associated with experiencing long-term poverty as a function of parental employment, net of other observed characteristics and separate by race and cohort. The darker lines represent the long-term poverty rates of black children and the lighter lines are for white children. Dotted lines represent pre-reform children, while solid lines represent post-reform children.

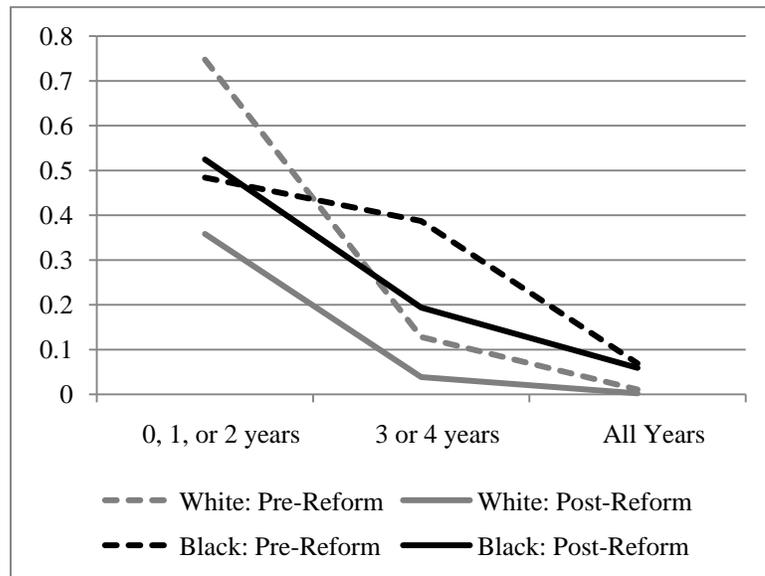


Table 2.1: Average Long-Term Income-to-Needs by Race and Cohort, PSID 1987-2005*

	White		Black	
	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform
Unweighted n	1740	1342	1286	1236
weighted %	81.96	80.29	18.04	19.71
Average Long-Term Income-to-Needs				
Pre-tax	4.46	4.20	2.35	2.10
Post-tax	3.17	3.61	1.76	1.99

*Note: Pre-tax income-to-needs includes wages, food stamps, and welfare. Post-tax income-to-needs adds tax liabilities and credits.

Table 2.2: Post-Tax Income Components by Race and Cohort, PSID 1987-2005

Component	White		Black	
	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform
	Long-Term Poor			
Wages	0.593	0.541	0.329	0.536
EITC	0.035	0.098	0.031	0.115
Food Stamps	0.225	0.235	0.397	0.244
Welfare	0.147	0.126	0.243	0.105
	Long-Term Near Poor			
Wages	0.916	0.844	0.821	0.794
EITC	0.022	0.088	0.028	0.093
Food Stamps	0.042	0.047	0.079	0.077
Welfare	0.020	0.022	0.072	0.036

Table 2.3: Changes in Long-Term Poverty Associated with EITC Receipt by Race and Cohort

Black Children						
Before EITC	Pre-Reform, After EITC			Post-Reform, After EITC		
	Not LTP	LTP	Severe LTP	Not LTP	LTP	Severe LTP
Not LTP	1.000	0.000	0.000	1.000	0.000	0.000
LTP	0.041	0.959	0.000	0.282	0.718	0.000
Severe LTP	0.000	0.034	0.966	0.000	0.082	0.918

White Children						
Before EITC	Pre-Reform, After EITC			Post-Reform, After EITC		
	Not LTP	LTP	Severe LTP	Not LTP	LTP	Severe LTP
Not LTP	1.000	0.000	0.000	1.000	0.000	0.000
LTP	0.106	0.894	0.000	0.242	0.758	0.000
Severe LTP	0.000	0.188	0.812	0.000	0.089	0.911

Table 2.4: Demographic and Employment Characteristics for Black and White Children by Cohort.*

Characteristic	All Children			
	White		Black	
	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform
Ave. # Years in a Two Parent Household	4.32	4.09	2.28	2.15
Ave. # Years residing with a HS Grad Parent	4.28	4.29	3.56	3.83
Ave. Age of Household Head	33.38	35.14	30.96	32.82
Ave. # Children Under 18 in HH	2.36	2.27	2.60	2.49
Ave. # Years any Parent was Employed	4.80	4.75	3.82	4.37
Characteristic	Long-Term Poor Children			
	White		Black	
	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform
Ave. # Years in a Two Parent Household	2.67	1.83	0.76	0.71
Ave. # Years residing with a HS Grad Parent	2.31	1.56	2.17	2.07
Ave. Age of Household Head	30.28	32.33	29.62	31.20
Ave. # Children Under 18 in HH	2.83	3.24	3.16	3.01
Ave. # Years any Parent was Employed	3.27	2.84	2.29	3.43

*Note: Bolded values indicate that pre- and post-reform differences are statistically significant at $p < 0.05$.

Appendix 2.A: Selected Coefficients from Logistic Regression on Long-Term Poverty Status for Black Children by Cohort, PSID: 1987-2005*

	White 1987-1995			White 1997-2005		
	est	std err	sig	est	std err	sig
Years in a Two Parent Household						
No Years	0.719	0.571		1.305	0.872	
Some Years	-0.166	0.453		-0.560	0.793	
All Years (omitted)						
Years Residing with a HS Grad Parent						
No Years	2.090	0.335	***	2.102	0.643	***
Some Years	1.496	0.654	*	1.641	0.642	*
All Years (omitted)						
Number of Years At Least One Parent was Employed						
0-2 Years	5.606	0.755	***	5.555	1.053	***
3-4 Years	2.601	0.389	***	2.917	0.517	***
All Years (omitted)						
Age of Household Head	-0.056	0.023	*	-0.106	0.052	*
Number of Children Under 18 in HH	0.699	0.149	***	1.117	0.251	***
Constant	-5.121	0.900	***	-4.933	1.520	***
p > chi-squared	0.000			0.000		
Pseudo R-Squared	0.476			0.570		

*Note: *** = p<0.001; ** = p<0.01; * = p<0.05; includes a control for region (not shown)

Appendix 2.B: Selected Coefficients from Logistic Regression on Long-Term Poverty Status for White Children by Cohort, PSID: 1987-2005*

	Black 1987-1995			Black 1997-2005		
	est	std err	sig	est	std err	sig
Years in a Two Parent Household						
No Years	3.442	0.484	***	1.313	0.601	*
Some Years	1.717	0.495	***	0.716	0.666	
All Years (omitted)						
Years Residing with a HS Grad Parent						
No Years	1.980	0.392	***	2.242	0.469	***
Some Years	-0.402	0.510		0.912	0.418	*
All Years (omitted)						
Number of Years At Least One Parent was Employed						
0-2 Years	2.538	0.447	***	2.863	0.715	***
3-4 Years	2.143	0.364	***	1.341	0.385	***
All Years (omitted)						
Age of Household Head	-0.068	0.019	***	-0.048	0.021	*
Number of Children Under 18 in HH	1.171	0.187	***	0.696	0.137	***
Constant	-6.402	1.041	***	-5.949	1.443	***
p > chi-squared	0.000			0.000		
Pseudo R-Squared	0.583			0.410		

*Note: *** = p<0.001; ** = p<0.01; * = p<0.05; includes a control for region (not shown)

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Chapter III

The Contextual and Social Embeddedness of Adolescents' Intimate Relationships: The Influence of School and Neighborhood Disadvantage

Introduction¹⁰

A growing body of literature shows that social contexts influence individuals' sexual and reproductive behaviors. For example, neighborhood characteristics are associated with sexual and contraceptive behaviors among adolescents and young adults and with the resulting increased risks of early childbearing and of contracting sexually transmitted infections (STIs). Sexual risk-taking behaviors, particularly early sexual activity, unprotected intercourse, and more sexual partners, are more common among adolescents and young adults from neighborhoods characterized by socioeconomic disadvantage (Billy, Brewster, & Grady 1994; Brewster 1994a; Brewster 1994b; Brewster, Billy, & Grady 1993; Browning, Burrington, Leventhal, & Brooks-Gunn 2008; Browning, Leventhal, & Brooks-Gunn 2004; Ramirez-Valles, Zimmerman, & Newcomb

¹⁰ This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris, and funded by a grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Development, with cooperative funding from 17 other agencies. Special acknowledgement is due to Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, 123 W. Franklin Street, Chapel Hill, NC 27516-2524 (addhealth@unc.edu). No direct support was received from grant P01-HD31921 for this analysis.

1998; Upchurch, Aneshensel, Mudgal, & McNeely 2001; Upchurch, Aneshensel, Sucoff, & Levy-Storms 1999). Young people's school environments also influence their sexual and contraceptive behaviors. For example, school characteristics such as racial composition, school type (public or private), and class size are associated with sexual risk-taking behaviors among adolescents (Day 1992; McNeely, Nonnemaker, & Blum 2002; Resnick et al. 1997; Teitler & Weiss 2000; Upchurch et al. 2004).

Despite the fact that sexual and contraceptive behaviors occur within the context of dyadic relationships, much of this contextual effects research has not incorporated the process of relationship formation into its motivating theoretical frameworks. Rather, researchers deploy theoretical frameworks in a way that implicitly assumes that relationship partners share the same social contexts, ignoring the fact that adolescents conduct their lives in multiple social contexts (Hofferth and Sandberg 2001; Larson 2001) and can therefore choose their relationship partners from these multiple contexts. For example, many studies of neighborhood effects are motivated by social organization theory, which argues that disadvantaged neighborhoods have weaker capacity to monitor the romantic and sexual behavior of young people due to low social cohesion among adults (Park & Burgess 1925; Shaw 1929; Shaw & McKay 1942). Yet how effective is neighborhood social control if relationship partners do not share the same neighborhood? Similarly, much research focuses on the effects of the cultural contexts of neighborhoods or schools on sexual or contraceptive behavior, arguing that local social norms affect individual decision-making. Yet what role does cultural context play in behaviors that occur within relationships if partners do not share those contexts? Because adolescents engage in different sexual risk-taking behaviors depending on the characteristics of their

partners and of their relationships with those partners (Amba et al 1998; Fortenberry et al 2002; Katz et al 2000; Ku, Sonenstein and Pleck 1994; Kusunoki and Upchurch 2008; Macaluso et al 2000; Manlove, Ryan and Franzetta 2003; Manning, Longmore and Giordano 2000; Ott et al 2002; Upchurch et al 1991), the process of relationship formation is critical to understanding the role of social contexts in sexual behavior.

In this study, we investigate how neighborhoods and schools, the two contexts in which adolescents typically spend most of their most time, play a role in relationship formation. We focus on the “embeddedness” of adolescent relationships, examining two types of embeddedness – *contextual embeddedness* (whether adolescents know their partner from the same school or neighborhood) and *social embeddedness* (whether adolescents were friends and shared a common friend with their partner at the beginning of the relationship). We analyze data from Waves I and II of the National Longitudinal Study of Adolescent Health (Add Health), which includes rich information on adolescents’ neighborhoods and schools and on their romantic and sexual relationship experiences.

Our findings show that adolescents form relationships with partners from various contexts and that many relationships are formed with partners from neither the school nor the neighborhood. Moreover, we find considerable variation across schools and to some extent across neighborhoods in the contextual and social embeddedness of adolescent romantic relationships. School disadvantage increases the likelihood that adolescents know their partners from the neighborhood compared to knowing them exclusively from school or from neither context. However, school disadvantage increases the chances that boys know their partners from both the school and the neighborhood compared to neither

context while it decreases the chances for girls. Neighborhood disadvantage has no association with the contextual embeddedness of girls' relationships, but increases the chances that boys' know their partners from neither context compared to both. Additionally, we find that adolescents who know their partners from the same school or neighborhood are more likely to have a socially embedded relationship than those who know their partners from neither context. Our results suggest that in order to fully account for the mechanisms by which contextual effects occur, theories of contextual effects on adolescent sexual and romantic behavior must contend with relationship partners from outside the focal context and with systematic differences by context in the probability of such extra-context relationships.

In the next section, we motivate our focus on adolescent relationship embeddedness and develop our hypotheses regarding neighborhood and school effects on contextual and social embeddedness. We then discuss our analytic approach, the Add Health data, and our analytic sample. We present our results in the following section and conclude with a discussion of the implications and limitations of our findings.

Background

Why Study Relationship Embeddedness?

Our concern with the embeddedness of adolescents' intimate relationships is motivated by social control theory. Social control theory focuses on the capacity of social groups to enforce norms and make social rules effective (Reiss 1957; Toby 1957; Hirschi 1969). Applied to intimate relationships, social control theory predicts that the embeddedness of an adolescent's relationship plays an important role in determining the

level of social control over the relationship by others, which, in turn, affects behaviors within the relationship (Laumann et al. 2004: 19-20).

We conceptualize relationship embeddedness using two distinct concepts: *contextual* and *social*. Contextual embeddedness refers to the common social contexts relationship partners share (e.g., partners know each other from living in the same neighborhood and/or from attending the same school). Social embeddedness refers to whether the partners are friends and share a common friend at the beginning of their relationship. We distinguish between contextual and social embeddedness because shared social contexts increase the potential for social interactions even when individuals are not also socially embedded (Feld 1981, 1997). Because individual adolescents have less control over which neighborhoods they live in and which schools they attend than they do over their friendship networks, contextual embeddedness is more stable than social embeddedness (Feld 1997).

Social control theory suggests that contextual embeddedness has an impact on the degree of social control a couple will experience. Adolescents who partner with someone they know from a shared context like school or the neighborhood are likely to experience a greater degree of social control over the conduct of their relationship because they are accountable to a shared set of rules, expectations, and authority figures. Even if individuals do not interact with each other, they are exposed to similar experiences and possible influences from others (Feld 1981, 1997) as the ties to others in a shared context, even if they are weak, are essential for the collection and transfer of information across separate more socially embedded networks (Granovetter 1973). Thus, partners who share

a social context experience stronger external influence from others in that context, which may, in turn, affect partners' actions and behaviors.

We conceptualize a similar link between social control theory and social embeddedness. The theory posits that adolescents with socially embedded partners are subject to a greater degree of social control because the couple would be accountable to the same group of peers, a group likely to have its own shared set of values, beliefs, rules, etc. In other words, socially embedded partners are accountable to their peer group and the actions and behaviors conducted within a relationship may be monitored and judged by the greater group of peers. Peers help construct a normative environment, determining what constitutes acceptable behavior and assigning meaning to group members' behaviors as well as to the roles and experiences they begin to acquire (Christopher 2001). Shared peer networks determine whether and with whom adolescents' form relationships, what types of behaviors occur in their relationships, and when these behaviors occur (Brown 1999; Coates 1999; Connolly & Johnson 1996; Harper et al. 2004; Miller & Benson 1999; O'Sullivan & Meyer-Bahlburg 2003).

Examining the Link between Contextual Disadvantage and Relationship Embeddedness

In the previous section we motivated our focus on relationship embeddedness by linking it to relationship behavior using social control theory. Next, we draw upon theories about the effect of contextual disadvantage on the resulting density and quantity of social ties in those contexts to formulate our hypotheses about how neighborhood and school disadvantage affect relationship embeddedness. Differing literatures separately predict a decrease or increase in the density and quantity of context-specific social ties in

response to disadvantage, thereby affecting the likelihood that an adolescent has an embedded relationship.

We consider the effects of school and neighborhood disadvantage separately because, unlike the neighborhood, within which an adolescent may choose to spend minimal time, the school is an institutional setting in which adolescents are required to spend a substantial amount of their time. This distinguishing characteristic makes it possible that the response to disadvantage is different depending on the context. As a result, we formulate separate hypotheses for the effects of school and neighborhood disadvantage on relationship embeddedness. Our hypotheses examine the associations between:

1. Neighborhood disadvantage and the likelihood an adolescent has a relationship that is contextually embedded in the neighborhood.
2. School disadvantage and the likelihood an adolescent has a relationship that is contextually embedded in the school.
3. Neighborhood/school disadvantage and the likelihood an adolescent has a relationship that is socially embedded.
4. A relationship's contextual and social embeddedness.

Neighborhood Disadvantage and Embeddedness

The central themes of social organization theory predict a decrease in the density and quantity of social ties in disadvantaged neighborhoods. Originally designed to explain the relationship between neighborhood environment and adolescent criminal

behavior, social organization theory focuses on the capacity of members within a neighborhood to regulate and monitor the behavior of young people. The theory explains that compositional characteristics of the neighborhood, such as low socioeconomic status, ethnic heterogeneity, and residential instability lead to weaker and fewer social ties, diminishing the capacity for informal social control that helps curtail criminal behavior (Park & Burgess 1925; Shaw 1929; Shaw & McKay 1942). In applying the theory to adolescent relationship formation, we focus on the relative scarcity of social ties in socioeconomically disadvantaged neighborhoods. The reduction in social ties decreases opportunities for an adolescent to form 1) a contextually embedded relationship with a partner from the same neighborhood and 2) a socially embedded relationship, leading us to:

Hypothesis NH-1a: Adolescents from disadvantaged neighborhoods are less likely to know their partners from their own neighborhood.

Hypothesis NH-2a: Adolescents from disadvantaged neighborhoods are less likely to consider their partners friends and share a friend with them at the beginning of their relationship.

Other research that focuses on social interactions in disadvantaged neighborhoods predicts that socioeconomic disadvantage increases the density and quantity of social ties among residents. In her ethnographic study of a neighborhood on the south side of Chicago, Patillo (2007) found that poorer families and those that do not own their homes use public space for social gatherings and community socializing more often than more affluent families. Crowded, low-quality dwellings prompt the poor to spend more time

outdoors, and this, coupled with limited geographic mobility, focuses social interaction on the neighborhood (Horowitz 1983). Social isolation theory suggests that neighborhood poverty contributes to the closed nature of social networks in very poor neighborhoods, implying that social interactions are focused (and limited) to a person's own neighborhood (Tigges, Browne and Green 1998; Rankin and Quane 2000). Denser and more numerous social ties as a result of neighborhood disadvantage increase opportunities for an adolescent to form 1) a contextually embedded relationship with a partner from the same neighborhood and 2) a socially embedded relationship, leading us to:

Hypothesis NH-1b: Adolescents from disadvantaged neighborhoods are more likely to know their partners from their own neighborhood.

Hypothesis NH-2b: Adolescents from disadvantaged neighborhoods are more likely to consider their partners friends and share a friend with them at the beginning of their relationship.

School Disadvantage and Embeddedness

There is less research on the effect of school disadvantage on social interactions, but existing evidence suggests differing scenarios in which a decrease or increase in the density and quantity of social ties with schoolmates would result. School attachment, or the degree to which an adolescent feels that they are an integrated part of the school community, is lower among adolescents from socioeconomically disadvantaged schools, leading to a decrease in the density of social ties with schoolmates (Johnson et. al. 2001; McNeely and Nonnemaker 2002). Johnson et. al. (2001) find that individual attachment

to school is lower in racially and ethnically diverse schools, which are more likely to be disadvantaged. McNeely and Nonnemaker (2002) find that negative classroom climates, non-participation in extracurricular activities, strict disciplinary policies, and large school settings – all features of disadvantaged schools – predict less individual attachment to school. Disadvantaged schools often lack the resources to provide extracurricular and co-curricular programs, which are important organizers of social interaction in schools (Larson 1994). Rhodes et. al. (2004) find that adolescents in disadvantaged schools are more prone to low self-esteem and poorer self-image, which may make them less likely to form social bonds at school. Schools serving more disadvantaged students are also likely to have higher truancy and dropout rates, again resulting in reduced opportunities to form or strengthen social ties (Gottfredson 2001; Henry and Huizinga 2007). Thus, the relatively sparse social ties that result from school disadvantage reduce opportunities for an adolescent to form 1) a contextually embedded relationship with someone from the same school and 2) a socially embedded relationship, leading us to:

Hypothesis S-1a: Adolescents from disadvantaged schools are less likely to know their partners from their own school.

Hypothesis S-2a: Adolescents from disadvantaged schools are less likely to consider their partners friends and share a friend with them at the beginning of their relationship.

Some studies suggest that school disadvantage increases social interaction in the school. For example, disadvantaged schools are characterized by lower teacher supervision, large size, a less-structured school day, and lower parental

involvement than advantaged schools (Hoover-Dempsey, Bassler, & Brissie 1987; Lee & Smith 1997; Pong 1998). These features reduce the functionality of school as a learning environment and enable students to spend more time socializing. Decreased capacity for supervision may increase the likelihood of violence in disadvantaged schools. Thus, the increased need for social protection and safety in disadvantaged schools may create an incentive for adolescents to form and strengthen social ties with school-based peers. Thus, the denser social ties that result from school disadvantage increase opportunities for an adolescent to form 1) a contextually embedded relationship with someone from the same school and 2) a socially embedded relationship, leading us to:

Hypothesis S-1b: Adolescents from disadvantaged schools are more likely to know their partners from their own school.

Hypothesis S-2b: Adolescents from disadvantaged schools are more likely to consider their partners friends and share a friend with them at the beginning of their relationship.

Contextual Embeddedness and its Relationship to Social Embeddedness

Finally, the context from which adolescents know their relationship partner may influence whether or not the relationship is socially embedded because certain settings, especially highly organized settings like the school, facilitate social interaction. This implies that contextual embeddedness is related to social embeddedness. Greater proximity and more frequent contact with certain individuals, or *propinquity*, increases

the likelihood of forming a social bond with those individuals (Baron and Byrne 1994; McPherson, Smith-Lovin and Cook 2001). Thus, we predict:

Hypothesis Soc-1: Relationships that are contextually embedded with partners from the same school and/or neighborhood are more likely to be socially embedded than relationships that contextually embedded in neither context.

Data and Methods

The Add Health Study Design

We test our hypotheses about the association between contextual disadvantage and adolescent relationship embeddedness using data from the National Longitudinal Study of Adolescent Health (Addhealth) (Harris et al. 2003). The original sampling frame consisted of 80 high schools, with “feeder schools” (e.g., junior high school) for each identified high school also being sampled. The student roster from each selected school constituted the student-level sampling frame. From that listing, a baseline sample was drawn consisting of a core sample and several oversamples. The core sample is a probability sample of size 12,105 that is nationally representative of students enrolled in grades 7-12 during the 1994-1995 academic year. With the oversamples, the Wave I sample size is 20,745; respondents were 11-21 years old.

There were three major data components of the Add Health study: school, home, and neighborhood context (Chantala & Tabor, 1999; Harris et al., 2003). The school component consisted of an in-school questionnaire and a school administrator questionnaire conducted in 1994. All students in grades 7 through 12 were asked to

complete the in-school questionnaire; a total of 90,118 students completed this self-administered questionnaire. In addition, administrators from the participating schools completed the school administrator questionnaire. The Wave I home component included both an in-home and a parent questionnaire (approximately 17,000 of the total Wave I sample of respondents had a parent who completed the parent questionnaire). The Add Health data also included a contextual component, which includes measures from the 1990 U.S. Census of Population and Housing. Wave II data collection commenced in 1996 and included a follow-up in-home interview for respondents who were not in 12th grade at Wave I and a follow-up interview for school administrators. About 15,000 adolescents were interviewed at Wave II.

The sources of data for the current study are from Waves I and II. We utilize the in-school and school administrator data from Wave I to create our measure of school disadvantage. We also utilize the census tract data from the contextual database, which includes community contextual variables derived from Wave I addresses, to develop the measure of neighborhood disadvantage. We obtain information on relationships from the Wave I and Wave II in-home survey sections on romantic and non-romantic relationships. We draw on individual and family data collected during the Wave I in-home and parent surveys to measure individual socio-demographic characteristics and family background. Our analytic sample includes all Wave I respondents with a sample weight, with relationship experience (i.e., those who identified at least one romantic or non-romantic sexual relationship in Wave I and/or Wave II), and with non-missing values on all the covariates we mention below.

Dependent Variables

During the relationship section of the Wave I and Wave II in-home interview, respondents were asked to identify up to six previous or current relationship partners. Respondents were first asked to identify partners with whom they had been involved in a special romantic relationship in the past 18 months; respondents could identify up to three such partners. Respondents who did not identify any romantic partners, were asked a series of questions about whether they held hands with, kissed, or told someone they liked or loved them in the past 18 months; if all three of these behaviors occurred with the same person, this relationship was considered romantic. All respondents (regardless of whether they identified a romantic relationship) were then asked whether they had sexual activity with people who were not romantic partners; up to three such non-romantic sexual relationships could be identified. Detailed questions were asked for each of these up to six relationships (up to three of each type, romantic and non-romantic). Thus, respondents could have reported information on up to 12 unique relationships over the course of two waves of data collection.¹¹

Several questions asked in the relationship section were used to develop our measures of embeddedness. Respondents were first asked whether their partner went to the same school when the relationship began. Second, they were asked where their partner lived when the relationship began with the options “in your neighborhood” and

¹¹ Because respondents were asked to report on three relationships in the last 18 months at Wave II, it is possible that some relationships reported in Wave I are reported in duplicate in Wave II. For example, a respondent may be in a relationship with the same partner at the time of the Wave I and Wave II interviews, making it incorrect to count these as two distinct relationships. To ensure we do not incorrectly over count relationships, we compare the characteristics of each of the respondent’s relationship partners. We assume that any partners with an identical match on grade, race, and relationship starting date represent the same partner in a single relationship.

“not in your neighborhood” as possible responses. Then, respondents were asked a series of questions about how they knew their partner before the relationship began. The response categories included: 1) went to same school, 2) went to same church, synagogue, or place of worship, 3) were neighbors, 4) were casual acquaintances, 5) were friends, 6) friend of a friend, 7) some other way. Multiple responses were allowed.

Our measure of contextual embeddedness is based on the responses to the first two questions about the partner attending the same school or living in the same neighborhood; responses to the third set of questions (went to same school and were neighbors) were also used. The final contextual embeddedness variable divides respondents into four mutually exclusive categories: those who knew their partners exclusively from the same school, exclusively from the same neighborhood, from both the same school and neighborhood, and from neither context.¹²

Our measure of social embeddedness is based on the responses to the third set of questions about being casual acquaintances, friends, friend of a friend, or knowing a partner in some other way at the time the relationship began¹³. Our social embeddedness measure is a binary variable, indicating whether or not a respondent considered his or her relationship partner a “friend” *and* “friend of a friend.”

Independent Variables

¹² We did not include “church” as a response category because the proportion of relationships begun with someone from church was insufficiently large for conducting meaningful statistical analyses.

¹³ Add Health also includes data on a respondent’s friend network; however, we do not use this data to construct our measure of social embeddedness because it is limited only to a respondent’s school-based friend network and does not allow us to measure social embeddedness for relationships with partners from contexts outside of school.

We measure neighborhood disadvantage with an index that combines several census-tract characteristics obtained from the contextual database (Cronbach's $\alpha = 0.893$). These tract-level characteristics include: the proportion of families with income below the poverty level in 1989, the proportion of individuals age 25+ without a high school diploma, the proportion of males age 16+ in the civilian labor force (reversed polarity), the proportion of households with children over 18 that are female-headed, the proportion of households that receive public assistance income, the proportion of families with income over \$75,000 (reversed polarity), the proportion of employed adults who are in professional or managerial occupations (reversed polarity), and the proportion of people age 25+ who have a college degree (reversed polarity).

We measure school disadvantage with an index that combines several school characteristics (Cronbach's $\alpha = 0.869$). We obtain school characteristics from the school administrator survey and from the aggregated responses of students within the same school. These school characteristics include: whether a school is eligible for Title I funding, the proportion of students who receive free lunch, the proportion of students with a parent who graduated from high school (reversed polarity), the proportion of students with an employed parent (reversed polarity), the proportion of students with a parent who has a college degree (reversed polarity), and the proportion of students with a parent in a professional occupation (reversed polarity). Other school characteristics are included as controls: whether the school is public or private; whether the school is located in an urban, suburban, or rural area; whether the school is a neighborhood school or not (i.e. the school gets the majority of its students from within a specific geographical

boundary); and whether the school is a traditional grade 9-12 high school or some other type of high school (e.g., K-12, 7-12).

Our analyses include individual and family characteristics as controls such as: race/ethnic group (white, black, Hispanic, or other), family structure (two-parent or not), highest educational attainment by a parent (less than high school, high school degree, more than high school), family income, age, and gender. In order to maintain a large sample, we impute missing values for each of these variables.¹⁴ In addition we also include a relationship-level control for relationship type, which indicates whether the intimate relationship was considered a romantic or non-romantic.

Analytic Sample

We restrict our sample to include only adolescents age 14 and older who reported having at least one intimate relationship, who attended a co-educational school with a twelfth grade, and who have non-missing values on all variables of interest after imputation. This restriction eliminates cross-classification issues (individuals in the same neighborhood feeding into multiple schools) while also assuring that all the adolescents in our sample are exposed to high school-aged peers in the school setting.¹⁵

¹⁴ Missing values for individual variables were imputed in Stata using the “ice” command, which employs a chained regression approach. We divided the sample into four different groups depending on family structure and imputed missing values for the following variables: family income, parental education, and parental occupation, along with a set of controls. The family income variables accounted for the majority of missing data. For more information on the ice command, see Royston (2005).

¹⁵ For example, there are some respondents who fall into our target age range but who attend a “feeder” school, such as a school with grades 6-8 or grades 7-9. Feeder schools were excluded to avoid cross-classification issues and to ensure all respondents were “exposed” to a similar “risk” of being in a relationship.

To examine whether our analytic sample of “experienced” adolescents is similar to adolescents with no relationship experience, we calculate and compare descriptive statistics by relationship experience for all adolescents who would otherwise be eligible for our sample (listed in Table 3.1).

[Table 3.1 here]

According to the Table 3.1, the large majority of females (81.5%) and males (79.0%) reported having at least one intimate relationship. Males and females with relationship experience are older, attend more disadvantaged schools, are more likely to attend a traditional 9-12 high school as opposed to a “combination” school (e.g. K-12, 7-12), and are more likely to live with high school educated parents and in two-parent families than their counterparts without any previous relationship experience. In addition, females with relationship experience are more likely to be white, less likely to be Hispanic, are less likely to attend urban schools as opposed to rural schools, and are more likely to attend a neighborhood school compared to females with no relationship experience. Males with relationship experience live in less disadvantaged neighborhoods, are more likely to be black, and are less likely to be Hispanic compared to males with no relationship experience. In sum, the observed characteristics of our analytic sample members do not depart from those of adolescents with no relationship experience in ways that would lead to predictable selection bias in our analyses. Relationship experience is very common among adolescents, and aside from being older, adolescents with relationship experience come from varied backgrounds.

Analytic Strategy

Using our analytic sample of adolescents with relationship experience, we employ multilevel, multinomial logistic regression techniques to examine associations between our embeddedness outcomes and relationship-level, individual/family-level, neighborhood-level, and school-level covariates. These regressions have a four-level nesting structure, with relationship as the unit of analysis nested in individuals, nested in neighborhoods, nested in schools. These regression models tell us how an adolescent relationship's contextual and social embeddedness is associated with neighborhood and school disadvantage, net of other observed characteristics and also accounting for the non-independence of our nested data.

We examine the coefficients for neighborhood and school disadvantage in order to assess the validity of our hypotheses concerning the effects of contextual disadvantage on embeddedness (Hypotheses NH-1a/b and NH-2a/b for the effects of neighborhood disadvantage and hypotheses S-1a/b and S-2a/b for the effects of school disadvantage). In the regressions with social embeddedness as the outcome, we add contextual embeddedness as a covariate in the model, which allows us to assess our hypotheses about the relationship between contextual and social embeddedness (Hypotheses Struc-1).

We stratify each of our analyses by gender because evidence suggests that girls and boys of the same age often have fundamentally different types of relationships. Bruckner and Bearman (2003) find that adolescent girls' relationship partners are often older than same-aged males. There is also research that suggests that girls and boys respond differently to school and neighborhood disadvantage. For example, Johnson, Crosnoe and Elder (2001) find that the effect of school disadvantage on school attachment is stronger for boys than for girls and Clampit-Lundquist et al. (2010) find

that neighborhood disadvantage is associated with engaging in unsafe behaviors and poor mental health for girls but not for boys.

Descriptive statistics are calculated using the Stata statistical computing package, version 10.1. Multinomial regression models are estimated using aML Multiprocess Multilevel Modeling software, version 2.0 (Lillard & Panis, 2003). All estimates are computed using the sample weights provided by Addhealth. We account for complex survey design whenever made possible by statistical software.¹⁶

Results

We provide distributions of relationships by contextual and social embeddedness and gender along with associated means of neighborhood and school disadvantage indices in Table 3.2. We begin by analyzing the descriptive statistics for contextual embeddedness, located in the upper portion of the table for each gender. According to the first column of Table 3.2, most adolescent relationships are contextually embedded in neither the same neighborhood nor the same school (53.4% for girls and 49.1% for boys). Relationships that are contextually embedded in the same school exclusively are the second most common (29.3% for girls and 35% for boys), followed by relationships that are contextually embedded in both the same school and neighborhood (14.4% for girls and 13.0% for boys). Relationships that are contextually embedded in the same neighborhood exclusively are the least common (3.0% for girls and 2.9% for boys).

¹⁶ We employed the “svy” suite of commands to account for complex survey design in all analyses conducting using the Stata statistical software package. Since AML does not allow for complex survey design adjustments, we use only the weights in these models. Note, however, that the primary sampling unit, the high school, is included as a level in these models.

[Table 3.2 here]

According to the second and third columns of Table 3.2, adolescents in relationships that are contextually embedded in the neighborhood exclusively live in the most disadvantaged neighborhoods and attend the most disadvantaged schools compared to adolescents who know their partners from other contexts. Adolescents in relationships that are contextually embedded in the same school exclusively live in the least disadvantaged neighborhoods and attend the least disadvantaged schools compared to adolescents who know their partners from other contexts.

The fourth column of Table 3.2 documents the proportion of socially embedded relationships by contextual embeddedness and gender. Relationships that are contextually embedded in the same neighborhood exclusively are most likely to also be socially embedded (29% for girls and 20% for boys), followed by relationships that are contextually embedded in both the same neighborhood and school (28% for girls and 19% for boys), and in the same school exclusively (20% for girls and 11% for boys). Relationships that are contextually embedded in neither the same neighborhood nor school are least likely to also be socially embedded (13% for girls and 8% for boys). Overall, these descriptive statistics suggest that neighborhood and school disadvantage are associated with contextual embeddedness and that contextual embeddedness is associated with social embeddedness.

Next, we discuss the descriptive statistics for social embeddedness by gender, located in the lower portion of Table 3.2. According to the first column, the large majority of adolescent relationships are not socially embedded (19.6% socially embedded for females, 13.2% for males). For females, neither neighborhood nor school

disadvantage is associated with the social embeddedness of their relationships. However, males in socially embedded relationships live in less disadvantaged neighborhoods and attend less disadvantaged schools than males in relationships that are not socially embedded.

Tables 3.3 and 3.4 contain the coefficients and associated standard errors for multinomial logistic regressions with contextual embeddedness as the outcome. In a typical multinomial logit regression, a response category of the outcome variable is omitted as a reference category and the coefficients are interpretable as the “marginal effect” of a covariate on the log-likelihood of being in each non-omitted response category versus the omitted category, yielding $k-1$ comparisons where k is the number of categories that comprise the outcome variable. For ease in interpreting our results, we present all possible comparisons of the categories that comprise the contextual embeddedness outcome by shifting the omitted category. The results are all derived from the same multinomial logistic regression model.

To test hypothesis NH-1a/b (the effect of neighborhood disadvantage on the likelihood an adolescent’s relationship is contextually embedded in the neighborhood), we examine the coefficients for neighborhood disadvantage in models 1, 2, 3, and 6. To test hypothesis S-1a/b (the effect of school disadvantage on the likelihood an adolescent’s relationship is contextually embedded in the school), we examine the coefficients for school disadvantage in models 3, 4, 5, and 6. Although not a part of our formal hypotheses, we also examine the effects of neighborhood disadvantage on the likelihood that an adolescent’s relationship is contextually embedded in the school and the effects of

school disadvantage on the likelihood that an adolescent's relationship is contextually embedded in the neighborhood.

The results of the multinomial logistic regression of contextual embeddedness for females are shown in Table 3.3. According to the neighborhood disadvantage coefficients in models 1, 2, 3, and 6, neighborhood disadvantage is not significantly related to the contextual embeddedness of females' relationships. Thus, we find support for neither NH-1a nor NH-1b.

The school disadvantage coefficients from models 3, 4, 5, and 6 of Table 3.3 indicate that school disadvantage decreases the likelihood that a female's relationship is contextually embedded in the school exclusively versus the neighborhood exclusively (model 3) or both contexts (model 4). School disadvantage also increases the likelihood that a female's relationship is contextually embedded in neither the neighborhood nor school versus both contexts (model 6). Overall, these results suggest that school disadvantage decreases the likelihood a female knows her partner from her same school and indicate support for S-1a vs. S-1b.

[Table 3.3 here]

The results of the multinomial logistic regression of contextual embeddedness for males are shown in Table 3.4. According to the neighborhood disadvantage coefficients in models 1, 2, and 3, neighborhood disadvantage is not significantly related to the likelihood that a male's relationship is contextually embedded in the neighborhood exclusively versus other contexts. However, model 6 shows that neighborhood disadvantage increases the likelihood a male's relationship is contextually embedded in

neither the neighborhood nor school versus both contexts. These results indicate support for NH-1a vs. NH-1b.

The school disadvantage coefficients from models 3, 4, and 5 of Table 3.4 indicate that school disadvantage decreases the likelihood that a male's relationship is contextually embedded in the school exclusively versus the neighborhood exclusively (model 3) or neither context (model 5), supporting Hypothesis S-2a vs. S-2b. However, unlike for females, school disadvantage increases the likelihood that a male's relationship is contextually embedded in both the neighborhood and school compared to neither context (model 6).

[Table 3.4 here]

The results for the logistic regression models of social embeddedness are shown in Table 3.5. First, we examine whether neighborhood and school disadvantage are associated with the social embeddedness of females' and males' relationships. After controlling for all observed characteristics including the contextual embeddedness of the relationship (model 2), neighborhood disadvantage is not significantly associated with a relationship's social embeddedness, lending support to neither NH-2a nor NH-2b. School disadvantage increases the likelihood a female's relationship is socially embedded, but is not associated with the social embeddedness of males' relationships. Thus, we find support for hypothesis S-2b vs. S-2a, but only for females.

[Table 3.5 here]

Finally, we examine the coefficients for contextual embeddedness in model 2 of Table 3.5. According to the table, relationships that are contextually embedded in both the same neighborhood and school, the neighborhood exclusively, and the school

exclusively are more likely to be socially embedded than relationships that are contextually embedded in neither context. This indicates support for Hypothesis Stuc-1.

Discussion

In this paper we examine the link between neighborhood and school disadvantage and the contextual and social embeddedness of adolescents' relationships. We also examine whether the contextual embeddedness of a relationship is related to its social embeddedness.

In our examination of contextual embeddedness we find that nearly half of all relationships are formed with a partner from neither the same school nor the same neighborhood. By itself, this finding illustrates the trouble with the assumption implied by many contextual effects studies that adolescents form relationships with partners from the same context.

We find considerable variation across schools and (to a lesser extent) across neighborhoods in the contextual and social embeddedness of adolescent romantic relationships. We provide a summary of our findings in Table 3.6. As shown in the top portion of Table 3.6, neighborhood disadvantage has no association with the contextual embeddedness of girls' relationships, but increases the chances that boys know their partners from neither the same school nor neighborhood compared to both contexts, potentially indicating that neighborhood disadvantage focuses boys' social interactions to contexts outside the neighborhood.

[Table 3.6 here]

School disadvantage, as shown in the center of Table 3.6, increases the likelihood adolescents know their partners from the neighborhood compared to knowing them exclusively from school or from neither context. This indicates that school disadvantage focuses adolescents' social interactions to their neighborhood. However, school disadvantage increases the chances that boys know their partners from both the school and the neighborhood compared to neither context while it decreases the chances for girls. Because of the nested nature of neighborhoods within schools – over 80% of adolescents who knew their relationship partners from their own neighborhood knew them from their own school – an adolescent's partner who is from the neighborhood and who is his or her same age is likely to also attend the same school. The fact that girls' partners are more likely than boys' to be older than them (Bruckner and Bearman 2003) means that girls' partners are more likely not to be school-aged and are therefore less likely to attend the same school even if they live in the same neighborhood.

The gender difference in the effect of school disadvantage, which increases the likelihood a male knows his relationship partner from the neighborhood and school versus neither context but decreases the likelihood for females, clarifies that school disadvantage focuses boys' social interactions to the neighborhood and girls' social interactions to contexts outside school, including the neighborhood. Outside the school, adolescents are exposed to partners who are older than them, and relationships with older partners increase the chances of engaging in risky sexual behaviors (Abma et al. 1998; Bruckner and Bearman 2003; Gowen et al 2004; Kusunoki & Upchurch 2008; Manning, Longmore, & Giordano 2000).

As shown in the bottom portion of Table 3.6, we find that relationships with partners from the same school or neighborhood are more likely to be socially embedded than those with partners from neither context. Moreover, we find that relationships that are contextually embedded in the school (either exclusively or also in the neighborhood) were the *most* likely to be socially embedded. This is not surprising given the large degree of age homophily that characterizes adolescent friendships and peer groupings (Feld 1982; McPherson, Smith-Lovin and Cook 2001) and the fact that the school presents the biggest opportunity for most adolescents to interact with peers of the same age group.

Overall, we find that school disadvantage is more influential than neighborhood disadvantage for structuring of adolescents' relationship embeddedness. This is not surprising given the large amount of time adolescents spend in school (Hofferth and Sandberg 2001; Larson 2001). The fact that disadvantage in the school affects the likelihood of forming relationships with partners from an adolescents' neighborhood provides further proof that contextual effects studies should not ignore the multiple contexts in which adolescents live their lives.

Our results suggest that in order to fully account for the mechanisms by which contextual effects occur, theories of contextual effects on adolescent sexual and romantic behavior must contend with relationship partners from outside the focal context and with systematic differences in the probability of such extra-context relationships.

Our results also suggest that the contexts from which adolescents know their partners affect whether these relationships are socially embedded. This is important since shared peer networks determine whether and with whom adolescents' form relationships,

what types of behaviors occur in their relationships, and when these behaviors occur (Brown 1999; Coates 1999; Connolly & Johnson 1996; Harper et al. 2004; Miller & Benson 1999; O'Sullivan & Meyer-Bahlburg 2003).

This study is subject to a number of limitations. First, the sampling mechanism by which relationships were identified may have introduced bias if individuals' subjective interpretations of "romantic or special relationship" lead them to differently identify relationships in a non-random way. Our measures of relationship embeddedness could suffer from measurement error if adolescents did not carefully follow the survey instructions (which often allow respondents to check multiple options for a single answer), if they did not understand terminology used in the survey (i.e. they did not know the difference between a "friend" and an "acquaintance"), or if they had differing conceptions of what constitutes their "neighborhood." Finally, our measures of neighborhood and school disadvantage are based on aggregate measures of a variety of socioeconomic and other compositional variables. Although we followed the typical conventions for measuring neighborhood and school disadvantage, our measures cannot possibly capture the full extent of contextual disadvantage and how it is manifested across numerous separate dimensions of social life within the context.

Table 3.1: Descriptive Statistics by Relationship Experience and Gender.

	Female		Male	
	No Relationships	Any Relationships	No Relationships	Any Relationships
Weighted Proportion	18.5%	81.5%	21.0%	79.0%
Total Relationships		13446		13616
Romantic Relationships		88.8%		84.2%
Race/Ethnicity				
White	55.9%	68.1%	65.3%	67.0%
Black	18.0%	16.1%	12.7%	15.9%
Hispanic	15.5%	11.3%	12.0%	12.1%
Other	10.7%	4.6%	10.1%	5.0%
Age at Wave I				
14 years old	13.0%	6.7%	11.8%	6.3%
15 years old	24.6%	22.5%	21.6%	18.8%
16 years old	25.9%	25.6%	23.0%	24.1%
17 years old	18.0%	25.1%	19.0%	26.5%
18+ years old	18.4%	20.2%	24.6%	24.3%
Two-Parent Family Structure	70.0%	62.6%	73.0%	65.5%
Parent Education				
Less Than High School	17.5%	12.6%	13.7%	11.9%
High School Graduate	49.7%	56.4%	51.1%	54.6%
More than High School	32.8%	31.0%	35.3%	33.5%
Parent in Professional Occupation	30.0%	31.5%	29.9%	33.6%
Average Family Income (\$)	43313	45866	46178	47560
Neighborhood Disadvantage	-0.03	-0.02	-0.07	-0.03
School Disadvantage	-0.02	-0.11	-0.06	-0.12
School Location				
Rural	16.5%	19.3%	16.8%	18.7%
Suburban	54.2%	56.0%	56.2%	56.0%
Urban	29.2%	24.8%	27.0%	25.3%
Public School	92.9%	93.8%	91.4%	91.2%
Traditional HS	67.2%	76.8%	65.1%	74.5%
Neighborhood School	63.1%	72.5%	66.5%	68.7%

Estimates are calculated using Add Health weights and account for complex survey design.

Bolded values indicate that the difference between no relationship and any relationship is statistically significant at the 95% level.

Table 3.2: Frequencies and Associated Mean Neighborhood and School Disadvantage Indices by Relationship Embeddedness Type and Gender.

	Females			
	% Relationships	Mean Neighborhood Disadvantage	Mean School Disadvantage	Proportion Socially Embedded*
<u>Contextual Embeddedness</u>				
School Only	29.3%	-0.11 ^{b, c, d}	-0.23 ^{b, c, d}	0.20 ^d
Neighborhood Only	3.0%	0.15 ^{a, c, d}	0.07 ^{a, c, d}	0.29 ^{a, d}
Both School and NH	14.4%	-0.01 ^{a, b}	-0.09 ^{a, b}	0.28 ^{b, d}
Neither	53.4%	-0.01 ^{a, b}	-0.12 ^{a, b}	0.13 ^c
All	100.0%	-0.04	-0.14	0.20
<u>Social Embeddedness</u>				
Yes*	19.6%	-0.04	-0.13	--
No	80.4%	-0.03	-0.14	--
All	100.0%	-0.04	-0.14	--
	Males			
	% Relationships	Mean Neighborhood Disadvantage	Mean School Disadvantage	Proportion Socially Embedded*
<u>Contextual Embeddedness</u>				
School Only	35.0%	-0.07 ^{b, c, d}	-0.17 ^{b, d}	0.11 ^{a, b}
Neighborhood Only	2.9%	0.19 ^{a, c, d}	0.23 ^{a, c, d}	0.20 ^{a, d}
Both School and NH	13.0%	0.01 ^{a, b}	-0.13 ^b	0.19 ^d
Neither	49.1%	-0.01 ^{b, c}	-0.08 ^{a, b}	0.08 ^{b, c}
All	100.0%	-0.02	-0.11	0.13
<u>Social Embeddedness</u>				
Yes*	13.2%	-0.08 ^e	-0.18 ^e	--
No	86.8%	-0.01	-0.10	--
All	100.0%	-0.02	-0.11	--

Estimates are calculated using Add Health weights and account for complex survey design.

^aEstimate is statistically different from "School Only" at the 95% level.

^bEstimate is statistically different from "Neighborhood Only" at the 95% level.

^cEstimate is statistically different from "Both" at the 95% level.

^dEstimate is statistically different from "Neither" at the 95% level.

^eEstimate is statistically different from "No" at the 95% level.

*Adolescent considers a partner a "friend" and a "friend of a friend."

Table 3.3: Multinomial Logistic Regressions of Relationship Contextual Embeddedness for Females.

Covariates	1. NH vs. Both		2. NH vs. Neither		3. School vs. NH		4. School vs. Both		5. School vs. Neither		6. Both vs. Neither	
	Coef	SE	Coef	SE	Coef	SE	Coef	SE	Coef	SE	Coef	SE
<i>Relationship Level</i>												
Romantic vs. Non-Romantic Sexual	-1.94	0.22	-0.09	0.17	0.56	0.14	0.16	0.07	1.16	0.07	-1.17	0.08
<i>Individual Level</i>												
Race/Ethnicity (Ref: White)												
Black	0.94	0.20	0.49	0.19	-0.14	0.16	0.68	0.12	0.28	0.10	0.58	0.14
Hispanic	1.08	0.21	0.81	0.20	-0.77	0.18	0.17	0.14	-0.05	0.12	0.30	0.17
Other	0.00	0.38	0.21	0.38	-0.08	0.32	-0.18	0.18	0.12	0.17	-0.39	0.20
Age at Wave I (Ref: 14)												
15	0.79	0.35	0.37	0.35	-0.83	0.32	-0.03	0.16	-0.47	0.15	0.59	0.19
16	0.90	0.34	0.55	0.34	-1.19	0.31	-0.26	0.16	-0.64	0.15	0.48	0.19
17	1.00	0.35	0.43	0.35	-1.21	0.31	-0.19	0.16	-0.80	0.15	0.76	0.19
18+	1.22	0.35	0.64	0.35	-1.61	0.32	-0.35	0.17	-0.94	0.16	0.75	0.20
Two-Parent Family Structure	0.08	0.15	0.12	0.14	0.26	0.13	0.32	0.09	0.36	0.08	0.01	0.10
Parent Education (Ref: < HS Diploma)												
High School Graduate	-0.82	0.19	-0.65	0.18	0.69	0.17	0.01	0.13	0.11	0.11	-0.13	0.15
More than High School	-1.14	0.26	-0.96	0.25	1.17	0.22	0.20	0.15	0.35	0.13	-0.16	0.18
Parent in Professional Occupation	0.18	0.18	0.23	0.18	0.14	0.16	0.27	0.09	0.34	0.08	-0.06	0.11
Log of Average Family Income (\$)	-0.23	0.09	-0.17	0.09	0.27	0.08	0.07	0.05	0.13	0.04	-0.08	0.06
<i>Neighborhood Level</i>												
Neighborhood Disadvantage	0.15	0.15	0.10	0.15	-0.22	0.13	-0.06	0.08	-0.11	0.07	0.03	0.10
<i>School Level</i>												
School Disadvantage	-0.02	0.14	0.28	0.13	-0.40	0.12	-0.43	0.09	-0.14	0.08	-0.40	0.10
School Location (Ref: Urban)												
Suburban	0.17	0.18	0.44	0.17	-0.51	0.15	-0.28	0.10	-0.10	0.09	-0.28	0.12
Rural	-0.31	0.23	0.35	0.22	0.16	0.20	-0.15	0.13	0.46	0.11	-0.85	0.15
Public vs. Private School	-0.40	0.36	-0.62	0.34	0.13	0.30	-0.16	0.20	-0.40	0.17	0.09	0.27
Traditional HS vs. Combo School	-0.50	0.17	-0.65	0.16	0.96	0.14	0.51	0.10	0.34	0.09	0.22	0.12
Neighborhood School	-0.26	0.17	-0.13	0.17	0.30	0.15	0.07	0.10	0.23	0.09	-0.17	0.12
Constant	0.40	0.59	-2.52	0.56	0.39	0.48	-0.33	0.30	-1.63	0.26	2.31	0.38

Estimates are calculated using Add Health weights and account for complex survey design.

Bolded values indicate that the coefficient is statistically significant at the 95% level.

Table 3.4: Multinomial Logistic Regressions of Relationship Contextual Embeddedness for Males.

Covariates	1. NH vs. Both		2. NH vs. Neither		3. School vs. NH		4. School vs. Both		5. School vs. Neither		6. Both vs. Neither	
	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>
<i>Relationship Level</i>												
Romantic vs. Non-Romantic Sexual	-2.06	0.17	-0.51	0.13	0.67	0.18	0.08	0.08	1.09	0.07	-1.16	0.09
<i>Individual Level</i>												
Race/Ethnicity (Ref: White)												
Black	0.48	0.18	0.44	0.16	-0.25	0.15	0.27	0.11	0.21	0.09	0.04	0.13
Hispanic	-0.11	0.22	0.11	0.21	-0.10	0.20	-0.23	0.12	0.02	0.10	-0.34	0.14
Other	-0.45	0.37	-0.51	0.37	0.15	0.34	-0.29	0.18	-0.36	0.14	0.05	0.20
Age at Wave I (Ref: 14)												
15	0.10	0.36	-0.01	0.34	-0.37	0.33	-0.17	0.17	-0.29	0.15	0.21	0.20
16	0.30	0.34	0.01	0.33	-0.60	0.32	-0.15	0.16	-0.48	0.14	0.45	0.19
17	0.09	0.35	-0.32	0.33	-0.33	0.32	-0.07	0.16	-0.52	0.14	0.58	0.19
18+	0.11	0.36	-0.21	0.34	-0.58	0.33	-0.27	0.17	-0.63	0.14	0.41	0.19
Two-Parent Family Structure												
Parent Education (Ref: < HS Diploma)	0.31	0.16	0.17	0.16	0.17	0.14	0.27	0.08	0.21	0.07	0.10	0.10
High School Graduate	-0.44	0.20	-0.32	0.18	0.06	0.17	-0.35	0.12	-0.25	0.10	-0.08	0.14
More than High School	-0.57	0.25	-0.37	0.24	0.26	0.22	-0.24	0.14	-0.09	0.12	-0.08	0.17
Parent in Professional Occupation	0.30	0.17	0.23	0.16	-0.06	0.15	0.25	0.09	0.18	0.07	0.11	0.11
Log of Average Family Income (\$)	-0.27	0.09	-0.17	0.08	0.18	0.07	-0.05	0.05	0.04	0.04	-0.10	0.06
<i>Neighborhood Level</i>												
Neighborhood Disadvantage	-0.14	0.13	0.04	0.12	-0.10	0.11	-0.24	0.07	-0.07	0.06	-0.20	0.09
<i>School Level</i>												
School Disadvantage	0.66	0.14	0.43	0.13	-0.66	0.11	-0.04	0.08	-0.26	0.06	0.25	0.09
School Location (Ref: Urban)												
Suburban	0.25	0.18	0.11	0.17	-0.18	0.15	0.08	0.10	-0.06	0.08	0.11	0.12
Rural	-0.43	0.23	0.03	0.23	0.24	0.20	-0.14	0.12	0.30	0.11	-0.42	0.14
Public vs. Private School	-0.94	0.31	-0.50	0.29	0.80	0.27	-0.03	0.18	0.37	0.14	-0.56	0.22
Traditional HS vs. Combo School	0.46	0.20	0.49	0.19	-0.15	0.17	0.29	0.09	0.29	0.08	0.11	0.11
Neighborhood School	-0.78	0.17	-0.40	0.16	0.74	0.14	0.00	0.10	0.39	0.08	-0.45	0.11
Constant	1.48	0.55	-2.13	0.51	0.89	0.46	0.95	0.28	-1.27	0.23	2.98	0.33

Estimates are calculated using Add Health weights and account for complex survey design.

Bolded values indicate that the coefficient is statistically significant at the 95% level.

Table 3.5: Logistic Regression of Social Embeddedness (Partner is a Friend *and* a Friend of a Friend) by Gender.

Covariates	Females				Males			
	Model 1		Model 2		Model 1		Model 2	
<u>Relationship Level</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>	<u>Coef</u>	<u>SE</u>
Romantic vs. Non-Romantic Sexual	-0.13	0.08	-0.25	0.08	0.46	0.10	0.33	0.10
Contextual Embeddedness (Ref: Neither)								
School Only			1.28	0.08 ^b			1.24	0.09 ^b
Neighborhood Only			0.72	0.08 ^{a, c}			0.61	0.10 ^{a, c}
Both			1.21	0.18 ^b			1.15	0.21 ^b
<u>Individual Level</u>								
Race/Ethnicity (Ref: White)								
Black	-0.33	0.11	-0.30	0.11	-0.44	0.13	-0.48	0.13
Hispanic	-0.11	0.13	-0.08	0.13	-0.17	0.14	-0.21	0.14
Other	-0.26	0.18	-0.30	0.18	0.19	0.18	0.26	0.18
Age in 1994 (Ref: 14)								
15	-0.09	0.15	0.03	0.15	-0.14	0.18	-0.08	0.18
16	-0.15	0.15	-0.03	0.15	-0.40	0.18	-0.30	0.18
17	-0.49	0.15	-0.32	0.15	-0.58	0.18	-0.48	0.18
18	-0.62	0.16	-0.42	0.16	-0.89	0.19	-0.76	0.19
Two-Parent Family Structure	0.15	0.08	0.11	0.08	-0.21	0.09	-0.22	0.10
Parent Education (Ref: > HS Diploma)								
High School Graduate	0.30	0.13	0.27	0.13	0.36	0.15	0.39	0.15
More than High School	0.13	0.15	0.08	0.15	0.55	0.17	0.54	0.17
Parent in Professional Occupation	0.03	0.09	-0.03	0.09	0.31	0.09	0.29	0.10
Log of Average Family Income (\$)	0.00	0.05	-0.02	0.05	0.05	0.05	0.04	0.06
<u>Neighborhood Level</u>								
Neighborhood Disadvantage	-0.14	0.08	-0.11	0.08	0.16	0.08	0.16	0.08
<u>School Level</u>								
School Disadvantage	0.19	0.08	0.17	0.08	-0.22	0.09	-0.16	0.09
School Location (Ref: urban)								
Suburban	0.27	0.10	0.27	0.10	-0.09	0.11	-0.09	0.11
Rural	0.52	0.12	0.39	0.12	0.07	0.14	0.00	0.15
Public vs. Private School	-0.17	0.18	-0.09	0.18	0.41	0.20	0.29	0.20
High School vs. Combo School	0.05	0.09	0.02	0.09	0.27	0.11	0.25	0.11
Neighborhood School	0.07	0.09	0.01	0.09	-0.03	0.11	-0.13	0.11
Constant	-1.97	0.29	-1.20	0.30	-3.55	0.33	-2.72	0.35

Estimates are calculated using Add Health weights and account for complex survey design.

Bolded values indicate that the coefficient is statistically significant at the 95% level.

^aEstimate is statistically different from "School Only" at the 95% level.

^bEstimate is statistically different from "Neighborhood Only" at the 95% level.

^cEstimate is statistically different from "Both" at the 95% level.

Table 3.6: The Effect of (1) Neighborhood and (2) School Disadvantage on the Likelihood a Relationship is Contextually Embedded in One Context vs. Another and (3) Whether a Relationship that is Contextually Embedded in One Context vs. Another is More or Less Likely to be Socially Embedded by Gender.

(1) Effect of Neighborhood Disadvantage on Contextual Embeddedness						
<i>Contextual Embeddedness</i>	School		Both		Neither	
	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>
Neighborhood vs.	NR	NR	NR	NR	NR	NR
School vs.	--	--	NR	Less Likely	NR	NR
Both vs.	--	--	--	--	NR	Less Likely

(2) Effect of School Disadvantage on Contextual Embeddedness						
<i>Contextual Embeddedness</i>	School		Both		Neither	
	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>
Neighborhood vs.	More Likely	More Likely	NR	More Likely	More Likely	More Likely
School vs.	--	--	Less Likely	NR	NR	Less Likely
Both vs.	--	--	--	--	Less Likely	More Likely

(3) Effect of Contextual Embeddedness on Social Embeddedness						
<i>Contextual Embeddedness</i>	School		Both		Neither	
	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>
Neighborhood vs.	Less Likely	Less Likely	Less Likely	Less Likely	More Likely	More Likely
School vs.	--	--	NR	NR	More Likely	More Likely
Both vs.	--	--	--	--	More Likely	More Likely

"NR" = No statistically significant association.

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Chapter IV

The Influence of Father Absence and Paternal Orphanhood on Children's Sexual Debut: Evidence from an Urban, Highly Stratified, Developing Context

Introduction¹⁷

Understanding the factors that contribute to early adolescent sexual debut is important because of the widely-documented negative impacts on socioeconomic, health, and reproductive outcomes of adolescents who initiate sex early. Early sexual debut is associated with an increased number of lifetime sexual partners, more frequent intercourse, and lower intent to use condoms (O'Donnell, O'Donnell & Stueve 2001; Cerwonka, Isbell & Hansen 2000). These behaviors increase adolescents' risk of unwanted pregnancy and of contracting a sexually transmitted infection, cervical cancer, and pelvic inflammatory disease. (Seidman 1994; Harvey & Springer 1995). Also, adolescents who debut at early ages are more likely to participate in delinquent behaviors (Armour & Haynie 2007).

¹⁷ This study uses data from the Cape Area Panel Study. The Cape Area Panel Study Waves 1-2-3 were collected between 2002 and 2005 by the University of Cape Town and the University of Michigan, with funding provided by the US National Institute for Child Health and Human Development (NICHD) and the Andrew W. Mellon Foundation. Wave 4 was collected in 2006 by the University of Cape Town, University of Michigan and Princeton University. Major funding for Wave 4 was provided by the National Institute on Aging through a grant to Princeton University, in addition to funding provided by NICHD through the University of Michigan.

A large literature links parental absence to early adolescent sexual debut and documents that children who reside in households without both biological parents are more likely to debut early (Afxentiou & Hawley 1997; Brewster, 1994; Brewster, Billy & Grady 1993; Billy, Brewster & Grady 1994; Day 1992; Kirby 1999; Wu & Thompson 2001)¹⁸. Despite recognition that the role a father plays in the household is unique and that father absence has unique effects on children's attitudes and other behaviors (Arditti & Madden-Derdich 1993; Gerson 1993; Hochschild 1989; La Rossa 1988), only a few studies have focused on whether father absence affects the timing of children's sexual debut (Cooksey, Mott & Neubauer 2002; Day 1992; Devine, Long & Forehand 1993; Ellis et al 2003; Kiernan & Hobcraft 1997; Miller et al 1997; Newcomer & Udry 1987; Upchurch et al 1999).

Even fewer studies distinguish between father absence due to the death of the father compared to his living elsewhere, in part because parental death is relatively uncommon in more developed social contexts. A few studies suggest that orphans are at heightened risk of depression, are more likely to leave school, and are more likely to engage in behaviors that put them at higher risk of early sexual debut (Foster & Williamson 2000; Guma & Hendra 2004; Hutton et al 2004; Makame et al 2002; Rau 2003; Williams & Latkin 2005) and that they initiate sex earlier than non-orphans (Forster & Williamson 2000; Thurman et al 2006), but only one study (limited to Zimbabwe) distinguishes between maternal and paternal orphanhood (Gregson et al 2005).

¹⁸ See Sturgeon (2008) for a review of studies that rely upon major longitudinal surveys to analyze the association between family structure and adolescent sexual debut.

In this paper, I use data from four waves of the Cape Area Panel Study (CAPS), a longitudinal study that followed 4,752 children aged 14-22 in Cape Town, South Africa from 2002 until 2006, to examine the extent to which living-father absence and paternal orphanhood are associated with early sexual debut.

Cape Town is an ideal site for this study. Research on the effects of orphanhood is limited in developed contexts because of relatively low prevalence; however, in South Africa, paternal orphanhood is relatively common, especially in non-white subpopulations (Brookes, Shisana & Richter 2004; Thurman et al 2006; UNAIDS, UNICEF & USAID 2004). Because of the extremely high prevalence rate of HIV/AIDS, South African youth are at a particularly acute risk for contracting the disease. Thus, understanding the factors known to contribute to early sexual debut, a known correlate of heightened HIV/AIDS risk is especially important. The city's socioeconomic hypersegregation, formed largely on the basis of race, affords the opportunity to study the effects of father absence and paternal orphanhood among three subpopulations characterized by vastly differing socioeconomic realities.

I find that the absence of a father from a child's household, net of other observed factors, increases the likelihood of adolescent sexual debut by age 16, although the effect differs somewhat by race and gender. For black respondents, I find that an absent father does increase the chances of early sexual debut for males and females, but only if this absence is due to paternal orphanhood. For coloured respondents, I find that an absent father increases the chances of early sexual debut, but only for males and only if the absent father is living. For white respondents, I find that an absent father increases the chances of early sexual debut, but only for females and only if the absence is due to

paternal orphanhood. In sum, these findings suggest that father absence increases children's risk of early sexual debut, but in differing ways for boys and girls of differing race groups.

Background

Factors Affecting Sexual Debut and the Importance of Parental Presence

Many studies examine the correlates of early adolescent sexual debut and find that biological factors such as gender, age, pubertal timing, and testosterone levels are associated with the timing of sexual debut (Tucker et al 1994). Social factors such as exposure to poverty, violence, and negative peer pressure increase the likelihood of initiating sex early. Family and parental factors like lack of parental connectedness, low parental education, teen's negative perceptions of parental rules, substance abuse in the home, and physical abuse in the home are also associated with early sexual debut. At the individual level, permissive attitudes and beliefs about sex, low self-esteem and self-efficacy, and hopelessness lead to early sexual debut (Santelli & Beilenson 1992; Hofferth 1987; Rosebaum & Kandel 1990; Jessor 1991; Orr et al 1989; Mott & Haurin 1988; Moore et al 1995; Brewster et al 1993; Ohamesian & Crockett 1993; Mott et al 1996; Paikoff 1995; Jessor et al 1993); while religiosity, school attendance, and better school performance predict delayed sexual debut (Karim et al 2003; Magnani et al 2002).

A substantial literature documents that family disruption and living with one biological parent versus two biological parents are linked to early sexual debut after controlling for individual, family, and, in some studies, neighborhood characteristics (Afexentiou & Hawley 1997; Brewster 1994; Brewster, Billy & Grady 1993; Brewster et

al 1998; Billy, Brewster & Grady 1994; Day 1992; Forste & Heaton 1988; Forste & Haas 2002; Rosenbaum & Kandel 1990; Wu & Thompson 2001).

Other work focuses on the ways in which parental absence may affect the timing of children's sexual debut, leading to a few different and not necessarily competing theoretical perspectives. The "reduction in supervision" perspective predicts that two parent families are better able to control the behaviors of adolescents than one-parent families, thus adolescents from the latter are more likely to debut early (Hogan & Kitigawa 1985; Inazu & Fox 1980; Jessor & Jessor 1975; Miller et al 1986; Small & Luster 1994). The "reduction in resources" perspective predicts that family transitions – and the accompanying disruption in resources, living arrangements, and relationships – are associated with earlier sexual initiation (Acock & Demo 1994; King 1994; McLanahan & Sandefur 1994; Wu & Thompson 2001). The "modeling effects" perspective suggests that children in non-intact families will model their sexual behavior after their parents by having sex out of marriage and potentially early in adolescence (Gagnon & Simon 1973; Inazu & Fox 1980; Thornton & Camburn 1987; Haurin & Mott 1990; Hogan & Kitigawa 1985; Billy et al 1994; Brewster 1994). For example, parents who have children out of wedlock or who separate at a later date have more permissive attitudes toward sexuality – and these views are transmitted to children leading to their earlier sexual debut (Newcomer & Udry 1984; Thornton & Camburn 1987; Weinstein & Thornton 1989).

Absent Fathers and Early Sexual Debut

A specific focus on father absence is important because of the unique roles of fathers in the family and because the causes and consequences of absent mothers versus absent fathers are different because of gendered access to employment and other resources (Arditti & Madden-Derdich 1993; Gerson 1993; Hochschild 1989; LaRossa 1988). The absence of a father from a child's household has specific repercussions for the household's resources, as fathers are often the main breadwinners in the family (McLanahan & Sandefur 1994). Studies find that fathers police sexual behavior differently than mothers, and that adolescents prefer to communicate with their mothers and fathers about different aspects of their sex lives (DiIorio, Kelly & Hockenberry-Eaton 1999).

Despite the large literature on the factors associated with adolescent sexual debut and the recognition of the unique role fathers play in the lives of their children, only a few studies have examined the link between father absence and children's early sexual debut. These studies generally find a positive association between father absence and early sexual debut, or no effect at all (Cooksey, Mott & Neubauer 2002; Day 1992; Devine, Long & Forehand 1993; Ellis et al 2003; Kiernan & Hobcraft 1997; Miller et al 1997; Newcomer & Udry 1987; Upchurch et al 1999).

Father Absence Due to Death and the Paternal Orphans they Leave Behind

Most studies on the effects of parental absence on children's sexual debut ignore whether or not the absent parent is deceased. The few studies that do examine the association between orphan status and sexual debut find that, like living-father absence, orphanhood is associated with early sexual debut (Foster & Williamson 2000; Gregson

2005; Thurman et al 2006); however, none of these studies explicitly compare both types of father absence.

There are many reasons to expect the positive relationship between orphan status and early sexual debut. High levels of depressive symptoms are found among orphans, making them more susceptible to risky behaviors, including early sexual debut (Hutton et al 2004; Makame et al 2002; Williams & Latkin 2005). The death of a parent, especially when resulting from HIV/AIDS, severely depletes family resources, putting orphans at increased risk of negative behaviors and forcing many to leave school (Foster & Williamson 2000; Rau 2003), which is a protective factor against early adolescent sex (Karim et al 2003; Magnani et al 2002). The early sexual initiation that may result from orphanhood has the potential to explain why orphans are more likely to be vulnerable to HIV/AIDS infection (UNICEF 2005; WHO 2005). Collectively, these findings may suggest that orphans are exposed to risks of early sexual debut beyond those that children with absent living fathers face.

While most of the already limited research on orphanhood does not distinguish between whether it is the child's mother or father who has died, one study found that maternal and not paternal orphans were more likely to initiate sex early, but this study was limited to a small, relatively homogeneous sample of youths from Zimbabwe (Gregson 2005).

The Realities of Modern Day South Africa

Over the past few decades, South African youth have experienced a downward trend in the age at first sexual debut similar to that experienced in western countries

(Shinsana & Simbayi 2002). About half of all South African youth are sexually active by age 16 (Eaton et al 2003). For South African youngsters, the repercussions of early sexual debut are particularly severe because it is a known correlate of HIV/AIDS infection (Gregson et al 2005; Pettifor et al 2004) and of risky behaviors known to increase exposure to HIV/AIDS infection (Cerwonka, Isbell & Hansen 2000; Harvey & Springer 1995; O'Donnell, O'Donnell & Stueve 2001; Seidman 1994). In South Africa, HIV/AIDS prevalence was 29.5% of all women visiting antenatal clinics and 16.1% among teenagers (Department of Health 2005). Aside from contracting HIV/AIDS, teens who debut early face heightened risk of pregnancy. In the late 1990s, an estimated 30-40% of South African women had a child in their teen years, about 90% of which were unplanned (Central Statistics Service 1997; Department of Health 1999; Richter 1996).

Biological parent absence is quite common among South African youth with about 22% of all households headed by a single parent. However, it is concentrated mainly among the country's black and coloured subpopulations (Ziehl 2005). Orphanhood is also quite common, with one study finding that 24.8% of South Africans age 15-18 lost one or both parents (Brookes, Shisana & Richter 2004) and another finding that 31% of 18 year old black South Africans were orphans (Thurman et al 2006).

The city of Cape Town, South Africa, the setting for the present study, is characterized by an immense degree of hypersegregation, which is based primarily on membership in one of three racial subgroups: white, black, or coloured. Although based on race, this segmentation is very heavily correlated with socioeconomic status. According to the 2001 Census, blacks comprised 31% of the population in Cape Town. The average neighborhood setting for blacks is characterized by extreme poverty, high

unemployment, and residence in low-quality, informal housing. In this setting, high family disruption (lots of single parents, typically mothers), early sexual initiation, high teen pregnancy, and high HIV/AIDS prevalence, is very common. Coloured people comprised 38% of the city's population. Coloured communities are characterized by moderate rates of poverty, residence in formal and informal housing, low incidence of HIV/AIDS and relatively stable family configuration (two parent families).

Unemployment is high, and workers are likely to be a part of the unskilled or informal workforce. Whites comprise 19% of the population and the average white community is affluent with formal, modern housing the norm. Parents in these communities are typically educated and at least one parent, usually the father, is employed in the formal labor force. Family structure is relatively stable, and rates of teenage pregnancy and HIV/AIDS are very low (Statistics South Africa 2001).

The Present Study

In this paper, I use retrospective and prospective data from four waves of the Cape Area Panel Study (CAPS), a longitudinal study that followed 4,752 children aged 14-22 in Cape Town, South Africa from 2002 until 2006, to examine whether living-father absence and paternal orphanhood are associated with children's early sexual debut. The CAPS data are ideal for this analysis because they include detailed retrospective and prospective information about the timing of sexual debut, parental absences from the home, and whether these absences were due to parental death or not.

The statistical analysis I employ, which is described in detail in the following section, is designed to assess four hypotheses about the relationship between living-father

absence/paternal orphanhood and timing of sexual debut up to the age of 16, which is the average age for sexual debut (Eaton et al 2003). Based on the review of literature above,

I hypothesize that:

1. Adolescents whose biological fathers are absent from the household will be at higher risk of early sexual debut than adolescents whose biological fathers are present in the household.
2. Adolescents who are paternal orphans (whose fathers are absent from the household because they have died) will be at higher risk of early sexual debut than adolescents whose biological fathers are absent from the household but still alive.

Several studies document why one would expect a gender difference in the effect of parental absence, particularly father absence, on timing of sexual debut. It is widely recognized that males and females experience sexual initiation differently (Guggino & Ponzetti 1997; Martin 1996) and fathers may allocate resources and supervision differently based on the gender of the child (Cooksey & Fondell 1996; Harris & Morgan 1991). Thus, I predict that:

3. The effect of living-father absence and paternal orphanhood will be different for daughters than for sons.

Finally, the vastly differing social realities for black, coloured, and white individuals that pervade contemporary Cape Town may lead to differing effects of father absence depending on race. For blacks (and coloured respondents, to a lesser extent), early sexual debut is common as is father absence and paternal orphanhood. For whites, early sexual debut and father absence are uncommon, and paternal orphanhood is rare.

As previously mentioned, the race-based segmentation of Cape Town is very heavily correlated with socioeconomic status. Because of differing social norms and socioeconomic realities in each of these race groups, I predict that:

4. The effect of father absence and paternal orphanhood will vary by race.

Data and Methods

The Cape Area Panel Study

The Cape Area Panel Study (CAPS) is a longitudinal study of young adults living in metropolitan Cape Town, South Africa. The first wave collected information from 4,752 young people aged 14-22 and was conducted during the last half of 2002. About one-third of the sample was interviewed in 2003 for wave 2a, and the remaining two-thirds were interviewed in 2004 as a part of wave 2b. The full sample was re-interviewed in 2005 for wave 3, and again in 2006 for wave 4. The same core questions on household composition, parental characteristics, education, work, sexual behavior, and childbearing are asked in waves 1, 3, and 4. Data for this analysis come from several different components of the CAPS data including: CAPS waves 1-2-3-4 integrated data, CAPS waves 1-2-3-4 derived data, CAPS wave 1 calendar data, and CAPS waves 1 and 2 household data. These data are publically accessible at <http://www.caps.uct.ac.za/data.html>. For more information on the study design, see Lam et al (2008).

Measures

The key dependent variable, age at sexual debut, is derived using information from waves 1, 3, and 4. In each wave, respondents were asked whether they had ever had sexual intercourse and the age at which this intercourse occurred. Respondents with missing data in one wave had values imputed from reports in subsequent waves. In cases of disagreement across waves, the reports from earlier waves were favored. From this information, I create person-year level variables indicating whether or not a respondent sexually debuted (1=had sex this year or earlier; 0=virgin this year).

The first key independent variable for this analysis broadly measures father absence in the household. To construct this measure, I utilize retrospective information on whether or not a respondent co-resided with his or her biological father from the wave 1 calendar, which documents the presence or absence of a biological father from respondents' households for every year of their life prior to the wave 1 interview. At subsequent waves 3 and 4, respondents were asked whether their biological fathers were present in their households. Information about biological mother and father presence for the period covered by wave 2 was taken from the wave 2 household roster. From this information, a person-year level variable is created, indicating father presence for every year of the respondent's life (1=father present this year; 0=father absent this year).

The second key independent variable is a four-category person-year level variable that measures whether or not a father is present or absent from the household in a given year, and whether the absence is due to parental death or not (0=father present; 1=father absent and alive; 2=father absent and dead; 3=father absent, but it is unknown if he is alive). Information used to construct this variable is taken from waves 1, 3, and 4. In each wave, respondents were asked whether their father was a member of the household

and, if not, whether the father was deceased. Respondents with missing data in one wave had values imputed from subsequent waves. In cases of disagreement across waves, reports from earlier waves were favored.

Finally, based on the vast literature on the determinants of early sexual debut, several time-invariant and time-varying measures were constructed for inclusion as controls in the analysis. Time-invariant characteristics include race (black, coloured, white), gender (male, female), religious affiliation (1=identifies as religious; 0=does not), birth location (1=urban born; 0=rural born), education of the mother and father (1=primary school; 2=some secondary school; 3=matric (secondary school diploma or more); 4=don't know), and an index for whether the respondent grew up in a negative home setting (described below). Time-variant controls include mother presence in a given year (1=mother present this year; 0=mother absent this year), puberty status in a given year (1=reached puberty this year or earlier; 0=did not reach puberty this year), and school enrollment in a given year (1=enrolled in school this year, 0=not enrolled this year).

Information about race and gender were taken from waves 1, 3, and 4. Religious affiliation and birth location were only collected in wave 1. Education of the mother and father and age at puberty were collected in waves 1 and 3. In all applicable cases, missing data from one wave were imputed from a subsequent wave and conflicts were resolved by favoring information from earlier waves. Mother presence was constructed in a similar manner as father presence using data from the wave 1 calendar, the wave 2 household roster, and from waves 1, 3, and 4.

The index measuring negative home setting was created by combining information from six questions in wave 1, each asking respondents how often (never, once or twice, sometimes, often, or very often) a parent or adult 1) swore, insulted, or “put them down,” 2) acted in a way that made them afraid they might be physically hurt, 3) pushed, grabbed, slapped, or threw something at them, 4) hit them so hard they had marks or were injured, 5) was a problem drinker or alcoholic, and 6) used street drugs (Cronbach’s alpha = 0.70).

Sample and Analytic Strategy

The sample consists of respondents with non-missing values on all our variables of interest and respondents contribute information to the analysis for every year from age 12 until they are no longer at risk of experiencing our outcome of sexual debut by age 16 (that is, they are censored when they reach the age at which they debut or age 16, whichever is earlier). The analysis commences at age 12 because sexual debut before this age is very uncommon (Department of Health 1998; Kelly & Ntlabati 2002; Rutenberg et al 2001; Shisana & Simbayi 2002). The analysis is limited to age 16 because this is the average age for sexual debut (Eaton et al 2003). Respondents who were married before age 16 were omitted from the analysis. In sum, 4,338 respondents were included in the analytic sample, contributing a total of 17,173 person-years of information to the analysis.

I begin by presenting descriptive statistics of the analytic sample, followed by bivariate analyses of the relationship between father absence and age at sexual debut for the pooled sample and separately by racial subgroup. Then, I employ standard Cox

proportional hazard models to examine the effect of living-father absence and paternal orphanhood on the hazard of sexual debut by age 16 (Box-Steffensmeier & Jones 2004; Xie & Powers 2000).¹⁹

Two separate models are estimated for each race and gender: one using the binary variable for father presence (1=father present; 0=father absent) and one using the more detailed variable for father presence (0=father present; 1=father absent and alive; 2=father absent and dead; 3=father absent, but it is unknown if he is alive).

Results

Table 4.1 documents descriptive statistics for the 4,338 respondents who comprise the analytic sample, pooled and separately by race. About half of the sample (47%) is male and the large majority report religious membership (90%) and being urban born (86%), although black South Africans are less likely than coloured and white counterparts to report either. There is wide variation in parental education by race with most black and coloured respondents living with a parent who has some secondary education (48% and 50%, respectively) compared to white respondents, most who live with a parent who has a high school education (matric) or more (87%). Coloured respondents lived in households with slightly higher negative homelife indices (1.13 vs. 1.04 for blacks and 0.94 for whites). About one-quarter (26%) of respondents' mothers were absent from the household for at least one year before age 16, but this mother absence was mostly concentrated among black respondents (43% versus 23% for coloured and 9% for white respondents). Over half the respondents (51%) lived without

¹⁹ In these regression models, mother and father absence are entered as lagged variables.

their biological father for at least one year by age 16, again concentrated mostly among black respondents (72% versus 48% for coloured and 27% for white respondents). About one-fifth of these absences (representing 11% of all respondents) were because the father died. Again, black respondents make up the largest share of paternal orphans (19% versus 10% of coloured and 3% of white respondents). Overall, 35% of respondents had sex by age 16 with wide variation by racial subgroup (60% of black respondents, compared to 30% of coloured and 13% of white respondents had sex by age 16). The age by which most of the respondents had sex was 16.6 years. Black respondents debut on average at 15.9 years, coloured respondents at 16.9 years, and white respondents at 17.7 years.

[Table 4.1 about here]

Table 4.2 documents the proportion of males and females who reached sexual debut by age 16 for each father presence category (father always present, father absent but alive, father absent and dead) by race group. According to the top portion of the table (for black respondents), a significantly larger share of black males who were paternal orphans had sex by age 16 (75.4%) than did black males whose fathers were present (65.2%). The results are similar for females; with a larger share of black females who were paternal orphans having sex by age 16 (57.4%) than black females with present fathers (48.9%). According to the center portion of the table, a significantly larger share of coloured males with absent living fathers had sex by age 16 (48.3%) than did coloured males whose fathers were present (33.8%) or deceased (33.4%). A larger share of coloured females with absent fathers (24.7% of those with absent and living fathers, 29.2% with deceased fathers) had sex by age 16 than did coloured females with present fathers

(17.9%). According to the bottom portion of the table, a larger share of white males with absent fathers (21.4%) had sex by age 16 than did white males with present fathers (11.5%). Unfortunately, the sample of white males included too few paternal orphans to conduct separate statistical analyses. A larger share of white females with absent fathers had sex by age 16 than did white females with present fathers, but the differences were not statistically significant. Thus, these descriptive statistics indicate that early sexual debut is more common among individuals whose fathers were absent at some point during their adolescence.

[Table 4.2 about here]

Tables 4.3, 4.4, and 4.5 document the results from Cox proportional hazards models estimating the hazard of initiating sex by age 16 as a function of covariates, stratified by gender for black, coloured, and white respondents. In Model 1 a simple version of the father presence variable is used (1=father present this year, 1=father absent this year). In Model 2 the more detailed version of father presence is used with the omitted category set to “Father Present.” I shift the reference category to “Father Absent – Alive” (not shown) to determine whether respondents who are paternal orphans are statistically different in terms of sexual debut from respondents with fathers who are absent and alive.

[Table 4.3 about here]

Table 4.3 documents the results of Cox proportional hazard models for the subsample of black respondents, stratified by gender. According to Model 1, there is no statistically significant association between father presence and sexual debut by age 16 for black males or females, although the results are in the expected direction (black males

and females with present fathers are 7% and 10% less likely than those with absent fathers to initiate sex by age 16, respectively). However, model 2 shows that males and females who are paternal orphans are more likely (20% for males and 23% for females) to debut early than those with present fathers. For males, the effect of paternal orphanhood is statistically different from the effect of living father absence, implying that the effects of paternal orphanhood compared to living father absence are stronger for males but not for females. This could indicate that for black respondents father absence alone is unassociated with sexual debut, except in cases in which the father has died.

[Table 4.4 about here]

Table 4.4 documents the results of Cox proportional hazard models for the subsample of coloured respondents. According to Model 1, there is no statistically significant association between father presence and sexual debut by age 16 for coloured males or females, although the results are in the expected direction (coloured males and females with present fathers are 15% and 14% less likely than those with absent fathers to initiate sex by age 16, respectively). However, model 2 shows that males whose fathers are absent and alive are 25% more likely to debut early than those with present fathers, while paternal orphans are no more likely than those with present fathers to debut early. For females, there is no significant difference in the likelihood of early sexual debut depending on whether a father is present, absent and alive, or deceased.

[Table 4.5 about here]

Finally, Table 4.5 documents the results of Cox proportional hazard models for the subset of white respondents. According to Model 1, there is no statistically significant association between father presence and sexual debut by age 16 for white

males, but white females with present fathers are 54% less likely than white females with absent fathers to sexually debut early. Unfortunately, there is not adequate variation in father absence to estimate model 2 for males. However, model 2 shows that females who are paternal orphans are 4.5 times more likely to debut early than those with present fathers, indicating that most of the positive effect of father absence on early sexual debut for white girls is due to paternal orphanhood.

Discussion

In this paper, I examine four hypotheses related to paternal absence from an adolescent's household, the reason for this absence (death or non-death), and the resulting relationship with children's early sexual debut, which I have defined as sex by age 16. Overall, the findings of this study challenge common assertions that "fathers do not matter," by demonstrating that fathers who co-reside with their children decrease their children's chances of early sexual debut, which is consequential for a multitude of important health, fertility, and sexual outcomes.

For black respondents, I find that an absent father does increase the chances of early sexual debut for males and females, but only if this absence is due to paternal orphanhood. For coloured respondents, I find that an absent father increases the chances of early sexual debut, but only for males and only if the absent father is living. For white respondents, I find that an absent father increases the chances of early sexual debut, but only for females. Unfortunately, I am not able to examine my hypothesis about paternal orphanhood among white males due to lack of variation among the relatively small subsample, but for females, paternal orphanhood is strongly associated with sexual debut.

Thus, I find support for my hypotheses which link father absence to early sexual debut and predict a gender difference, but not necessarily for my hypothesis that links paternal orphanhood to early sexual debut.

Overall, I find significant differences in the effect of father absence on early sexual debut by race, which supports my hypothesis anticipating this difference. Because of the lack of statistical power associated with the small sample of whites, I limit my discussion of racial differences below to black and coloured respondents.

The race difference observed between black and coloured respondents is likely driven by the vastly different social realities in which black and coloured South African adolescents live. For example, early sexual debut and absent fathers are normative facets of black adolescence. Sexual debut by age 16 is quite common among black respondents (60%) as is living father absence (72%). Thus, father absence may be too common to have an effect on an already normative behavior in the complicated social milieu in which black adolescents live. However, while it is common for a father to be absent from a black adolescent's household, it is much less common for him to have died before the adolescent reaches 16. The death of a father, especially as a result of HIV/AIDS, severely depletes the resources of the household and puts children at added risk of negative outcomes (Foster & Williamson 2000; Rau 2003). Thus, because HIV/AIDS is bounded largely within the black community in Cape Town, the relationship between paternal orphanhood and early sexual debut among blacks would be more pronounced, as my findings indicate.

The gender differences in the effect of father absence (or lack thereof) also require explanation. The fact that black female and male paternal orphans experience the

same increased risk of early sexual debut is surprising given other evidence which suggests that the penalties of orphanhood are more substantial for girls than for boys (Hulton, Cullen & Khalokho 2000; Luke 2001; Vundule et al 2001). However, much of this research focuses on girls' increased risk of leaving school as a result of paternal orphanhood, a known protective factor against early sexual debut (Karim et al 2003; Magnani et al 2002). I control for school enrollment and in doing so explain the gender difference that existed prior to its inclusion in models (not shown).

The source of the gender difference observed among coloured respondents is more difficult to explain. Paternal orphanhood has no effect on early sexual debut compared to having a father present. However, coloured boys with absent living fathers are more likely to debut early. According to qualitative research, gender roles in coloured families are strongly adhered to, and fathers often convey differing messages about sexuality to their children depending on gender (Bakalina & Esau 2003; Moses 2005). The fact that only coloured boys are affected by the absence of a father could indicate that the "modeling effects" function of fatherhood, which suggests that children in non-intact families will model their sexual behavior after their parents by having sex out of marriage and potentially early in adolescence (Gagnon & Simon 1973; Inazu & Fox 1980; Thornton & Camburn 1987; Haurin & Mott 1990; Hogan & Kitigawa 1985; Billy et al 1994; Brewster 1994) is the mechanism that explains the observed gender difference if boys are more likely to model their behaviors after their fathers than daughters.

There are a number of limitations to this study. First, although I find a strong association between father presence and delayed sexual debut, the analysis does not

uncover the specific mechanisms by which fathers influence their children. There is still an unsettled argument between whether the reduction in resources or supervision that co-occurs with the loss of a father are the factors responsible for children's earlier sexual debut. Unfortunately, because most of the data for this analysis are taken retrospectively, there is no way to include important factors like father's income and the level of father involvement at early points in a respondent's life. Also, there is no way to control for individual attitudes toward sex at varying points in a respondent's life from the retrospective data that are available.

Second, this study does not consider the role of step-fathers or the presence of other important household members (like siblings). Unfortunately, it is not possible to ascertain whether a step-father or other "father substitute" is present in the household using the available retrospective data. However, omission of step-fathers may not be problematic since many studies find that step-fathers are not as influential on the sexual decision making of children (Abma et al 2004; Abma & Sonenstein 2001; Baumer & South 2001; Dorious, Heaton & Steffen 1993). The reason for this may be because the roles of step-parents are not fully legitimized, reducing the supervisory control even with two parents present (Thornton 1991).

Finally, the results for white respondents could suffer from bias because of relatively small sample sizes and low variation on key variables (especially paternal death). Still, the effects of paternal orphanhood are strong for females, although this effect is driven by the experiences of a very small group of girls whose fathers' passed away before age 16.

The findings of this study have important implications, both in general and with specific regard to the local South African context. First, this research illustrates that, in terms of delayed sexual debut, a present father is better than an absent father and, in most cases, a living absent father is better than a deceased absent father (particularly true for black children). This may be because absent fathers who are alive can still be involved (and often are involved) in the financial and supervisory aspects of their children's upbringing, and these contributions may delay sexual debut. Among black communities, which are especially ravaged by the HIV/AIDS epidemic, much of the HIV/AIDS prevention efforts are targeted toward women in the hopes of preventing mother-child transmission. However, as this research shows, extending fathers' lives is particularly important in terms of delaying children's sexual debut, which other research shows reduces their exposure to HIV/AIDS risk. Thus, fathers (and men in general) should not be ignored in HIV/AIDS prevention efforts.

Table 4.1: Descriptive Statistics for Analytic Sample.

	Pooled	Black	Coloured	White
Unweighted n	4338	1914	1884	540
% Male	0.47	0.42	0.48	0.47
% Religious	0.90	0.79	0.96	0.91
% Urban Born	0.86	0.58	0.98	0.95
Completed Education of Parent				
% < Secondary	0.18	0.26	0.20	0.00
% Some Secondary	0.42	0.48	0.50	0.11
% Matric	0.33	0.16	0.23	0.87
% Missing	0.07	0.10	0.07	0.02
Ave. Negative Homelife Index	1.07	1.04	1.13	0.94
% Mother Ever Absent by Age 16	0.26	0.43	0.23	0.09
% Father Ever Absent by Age 16	0.51	0.72	0.48	0.27
% Father Deceased by Age 16	0.11	0.19	0.10	0.03
% Had Sex by Age 16	0.35	0.60	0.30	0.13
Average Age of Sexual Debut*	16.6	15.9	16.9	17.7

*Average age of sexual debut is calculated for respondents who had sex at age 18 or earlier.

Table 4.2: Proportion of respondents who reached sexual debut by age 16 by father presence, race group, and gender.

<i>Father Presence</i>	Black	
	Males	Females
% Always Present	0.652 ^b	0.489 ^b
% Absent but Alive	0.717	0.521
% Absent and Dead	0.754 ^a	0.574 ^a
<i>Father Presence</i>	Coloured	
	Males	Females
% Always Present	0.338	0.179 ^b
% Absent but Alive	0.483 ^{a,b}	0.247 ^a
% Absent and Dead	0.334	0.292 ^a
<i>Father Presence</i>	White	
	Males	Females
% Always Present	0.115	0.101
% Absent but Alive	0.214 ^a	0.172
% Absent and Dead	--	0.265

^aThe estimate is significantly different from "Father Always Present" at the 95% level.

^bThe estimate is significantly different from "Father Absent and Dead" at the 95% level.

-- = Not enough variation

Table 4.3: Results from Cox proportional hazard model of sexual debut on covariates for black respondents by gender.

<i>Covariates</i>	Males		Females	
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>
Reached Puberty	1.65 ***	1.64 ***	3.31 ***	3.29 ***
Religious	0.86 **	0.86 **	0.99	0.98
Urban Born	1.04	1.03	0.99	0.99
Enrolled in School	0.90	0.89	0.69 ***	0.70 ***
Completed Education of Parent < Secondary (Omitted)				
Some Secondary	1.10	1.12	0.83 **	0.83 **
Matric	1.16	1.18	0.55 ***	0.56 ***
Missing	1.22 *	1.21	0.82	0.81
Negative Homelife Index	1.08	1.08 *	1.16 *	1.17 *
Mother Present	1.15 *	1.13	0.93	0.91
Simple Father Presence	0.93		0.90	
Detailed Father Presence				
Father Present (omitted)				
Father Absent - Alive		1.03		1.07
Father Absent - Dead		1.20 *** [^]		1.23 **
Father Absent - Unsure if Alive		1.05		0.83
Number of Respondents	793	793	1121	1121
Number of Person Years	3130	3130	4434	4434

*=p<.10, **=p<.05, ***=p<.01

[^]Estimate is significantly differs from "Father Absent - Alive" at the 95% level of significance.

Table 4.4: Results from Cox proportional hazard model of sexual debut on covariates for coloured respondents by gender.

<i>Covariates</i>	Males				Females			
	Model 1		Model 2		Model 1		Model 2	
Reached Puberty	0.43	***	2.13	***	5.31	***	5.33	***
Religious	0.67	**	0.66	**	0.55	**	0.54	**
Urban Born	1.11		1.13		0.62		0.59	
Enrolled in School	0.72	**	0.72	**	0.57	***	0.58	***
Completed Education of Parent < Secondary (Omitted)								
Some Secondary	0.92		0.91		0.57	***	0.58	***
Matric	0.68	**	0.67	**	0.33	***	0.34	***
Missing	0.95		0.98		0.97		0.93	
Negative Homelife Index	1.22	**	1.21	**	1.51	***	1.50	***
Mother Present	0.92		0.94		1.30		1.30	
Simple Father Presence	0.85				0.86			
Detailed Father Presence								
Father Present (omitted)								
Father Absent - Alive			1.25	**			1.09	
Father Absent - Dead			0.90				1.25	
Father Absent - Unsure if Alive			1.33				1.74	
Number of Respondents	860		860		1024		1024	
Number of Person Years	3424		3424		4072		4072	

*=p<.10, **=p<.05, ***=p<.01

Table 4.5: Results from Cox proportional hazard model of sexual debut on covariates for white respondents by gender.

<i>Covariates</i>	Males		Females	
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 1</u>	<u>Model 2</u>
Reached Puberty	6.01 *	6.14 *	8.00 ***	8.59 ***
Religious	0.46 *	0.49 *	0.47 *	0.45 *
Urban Born	--	--	0.71	0.74
Enrolled in School	--	--	--	--
Completed Education of Parent				
Some Secondary (omitted)				
Matric	0.18 ***	0.18 ***	0.66	0.75
Missing	--	--	2.47	2.56
Negative Homelife Index	1.08	0.93	1.98 **	2.13 **
Mother Present	--	--	1.39	1.69
Simple Father Presence	0.91		0.46 **	
Detailed Father Presence				
Father Present (omitted)				
Father Absent - Alive		1.35		1.74
Father Absent - Dead		--		4.54 **
Father Absent - Unsure if				
Alive		--		2.91
Number of Respondents	251	251	289	289
Number of Person Years	979	979	1134	1134

*=p<.10, **=p<.05, ***=p<.01

-- = Not enough variation in covariate

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Chapter V

Conclusion

The three previous chapters examine adolescent behavioral and socioeconomic outcomes that are known to be influence aspects of the transition to adulthood, such as exposure to long-term poverty, intimate relationship formation, and early sexual behavior. These studies recognize that adolescent experiences influence later life consequences. Each chapter focuses on a different facet of an adolescents' external environment, contributing to the vast sociological literature which explains that social factors, net of individual factors, have an exogenous influence on individual outcomes.

Although each chapter focuses on a key element of an adolescents' external environment (such as their family, neighborhood, school, or the greater public policy context), each also examines the interaction of these external factors with individual characteristics like race and gender. Whether it is an examination of race differences in long-term child poverty, gender differences in relationship embeddedness, or race and gender differences in sexual debut, the group differences documented here imply that contemporary adolescents are still very much influenced by individual factors that are beyond their control. Each study recognizes the differing life-experiences

of boys and girls and/or individuals of different racial groups, and as a result, has the potential to help “unpack” the complex ways in which race and gender shape adolescents’ later-life outcomes.

In the second chapter, I discover that although the effects of social policy shifts in the 1990s reduced long-term poverty proportionately for black and white children, black children of the post-welfare reform cohort were still at a much higher risk of experiencing long-term poverty than white counterparts. My findings further note that the reductions in long-term poverty among post-reform children were lower for black children whose parents were not-fully employed compared to similar white children. Because blacks are more sensitive to shifts in unemployment than white counterparts, they are more likely to live with parents who are not fully employed, and are at a higher risk of experiencing long-term poverty (Bound & Freeman 1992; Bound & Holzer 1993; Browne 1999; Reid 2002). Because we know that adolescent poverty has consequences for later life outcomes (Corcoran 2001; Duncan et al 1998; McLoyd 1998), these findings suggest that the obstacles black children face from an early age (like exposure to long-term poverty) have the potential to explain racial differences observed in a variety of adult outcomes related to socioeconomic status, health and wellbeing, fertility and family formation, attitudes, and more.

A large body of research recognizes that contextual disadvantage structures the social lives of individuals in those contexts (*for neighborhood, see: Park & Burgess 1925; Patillo 2007; Horowitz 1983; Shaw 1929; Shaw & McKay 1942; for school, see: Johnson et al 2001; McNeely & Nonnemaker 2002*). My findings add to this literature by uncovering a gendered consequence of contextual disadvantage. In the third chapter, I

discover that although school disadvantage increases the likelihood adolescents know their romantic relationship partners from their own neighborhood, boys from disadvantaged neighborhoods are also more likely to know these partners from their own schools while girls are not. These findings suggest that neighborhood disadvantage focuses social interaction to the neighborhood, where girls and boys are exposed to an older and more diverse set of partners. Given other research indicating that boys are more likely to date partners their own age than girls (Bruckner & Bearman 2003), my findings may suggest that school disadvantage increases the likelihood that girls date older neighborhood-based partners and boys date same-aged partners from the neighborhood who are likely to attend the same school. Because adolescents who date partners who are older than them are at higher risk of engaging in risky sexual behaviors (Abma et al 1998; Bruckner & Bearman 2003; Gowen et al 2004; Kusunoki & Upchurch 2008), and because engaging in these behaviors has consequences later in life, this finding has the potential to explain the origin of gender differences in later-life outcomes related to completed fertility, family formation, health and wellness, attitudes, and socioeconomic status.

In the final study, I discover that the absence of a father from a South African child's household increases the likelihood of early sexual debut, as does paternal orphanhood, but with diverse effects that depend on race and gender. For black respondents, an absent father increases the chances of early sexual debut for males and females, but only if this absence is due to paternal orphanhood. For coloured respondents, an absent father increases the chances of early sexual debut, but only for males and only if the absent father is living. For white respondents, an absent father increases the

chances of early sexual debut, but only for females and only if the absence is due to paternal orphanhood.

That paternal orphanhood is a significant predictor of early sexual debut for black and respondents indicates that the loss of a father due to death is unique in the black community. This may be because HIV/AIDS prevalence is very high among the black subpopulation and because the death of a father, especially due to HIV/AIDS depletes family resources (Foster & Williamson 2000; Karim et al 2003; Magnani et al 2002; Rau 2003). That living father absence was only predictive of early sexual debut among coloured boys and not girls suggests that the role of fathers is different depending on gender. Because early sexual debut is associated with many other negative outcomes, understanding the racialized and gendered consequences of father absence could be important for understanding the origins of race and gender differences in later-life outcomes related to reproductive health, socioeconomic status, family formation, and fertility that result from early sexual debut.

In sum, each of these studies documents that the social environment external to an individual interacts with the individual's personal characteristics, implying that there is heterogeneity in the "effects" of the family and social contexts on individual outcomes. Understanding these heterogeneous effects among adolescents is required for moving toward a more holistic, life-course understanding of the racial and gender differences observed in adult outcomes.

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