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Youth Early Employment and Behavior Problems:
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Abstract

With unemployment at a long-time high, youth employment opportunities are dire. This paper draws data from the Panel Study of Income Dynamics to examine the relationship between youth employment and behavior problems. We depict the employment patterns of American youth aged 12 through 18 and find significant differences in employment rates and job characteristics between black and white youth. Conflicting hypotheses about mediating mechanisms through which youth employment shape children's behavior are examined. We find that employment is associated with fewer behavior problems, but only when the jobs offer opportunities for human capital development and only when working moderate hours. Employment has a stronger impact on black than on white youth and the positive effect of work is mediated by positive peer influence. Findings support social and human capital theories and, more broadly, the social network/role model explanation for adolescent behavior. Implications in light of the current recession are discussed.

Keywords: Employment; Youth; Behavior Problem; Race/Ethnicity

Research has shown that early employment has long-lasting implications for human capital acquisition, later employment, and future earnings (Michael and Tuma 1984; Ruhm 1995; U.S. Department of Labor, Bureau of Labor Statistics 2000). Adolescent employment may also have significant implications along the path to adulthood. Mortimer suggests that adolescent work can be thought of as the “gateway to one of the most important of the adult roles” (Mortimer 1999:155). Thus, early employment could generate important inequalities in life chances in both early and later adulthood. Research on adolescent employment in the last few decades, however, has provided contradictory findings about its impact on youth behavior. It remains unclear whether there is a time when employment is too early to be beneficial for development and how youth employment affects behavior. To learn more about the process of transitioning to adulthood, this paper investigates what shapes a youth’s decision to work, how adolescent employment relates to youth behavior problems, and through what mechanisms.

The transition to adulthood is growing longer in the US and other developing countries (Furstenberg et al 2004; Furstenberg 2008) as young people today wait longer than before to marry and become parents. This extension may be particularly acute for youth who are unable to find employment, which can lead to social problems or a delay in attaining economic or residential independence, entering marital union, or parenthood. Early employment could enable experimentation with adult roles (Erikson 1950) and a structured path through adolescence. As this transition period extends into “emerging adulthood” (Arnett 2000, 2004; Kimmel 2008), youth employment may become increasingly important to a successful transition to adulthood.

The unemployment rate in the U.S. has long been the highest among youth compared to all other age groups (Blank 1995; Diebold, Neumark, and Polsky 1997). Young adults in

America have experienced increased economic inequality over the past few decades (Hill and Yeung, 1999). According to the Bureau of Labor Statistics (BLS)¹, the unemployment rate among youth ages 16-19 in the civilian labor force was 24.3% in 2009; this compares to an average unemployment rate of 14.7% for 20-24 year olds and 9.3% for everyone age 16 and over. These statistics indicate unemployment among those are looking for a job *in the labor force*, so the striking age differences do not simply reflect school attendance or remaining outside the labor force. Within this young age group, racial differences illustrate the particularly marginalized position of black youth. According to the BLS, 21.8% of 16-19 year old white youth in the civilian labor force were unemployed in 2009, compared to almost twice the unemployment rate for black youth (39.5%). In the current economic recession, with the unemployment rate at 9.6% as of September 2010², the opportunities for youth employment are likely to remain low. This pattern is not unique to America. Indeed, a report by the International Labor Office, backed with evidence of a global trend that young people today face increasing difficulties when entering the labor force, states that “The world is facing a growing youth employment crisis” (ILO, 2006: 1). Part of the concern about low youth employment stems from its implications for adult attainment. Research has shown that youth employment programs and job stability are significantly related to later employment, wages, and the transition to higher education, even when accounting for endogeneity (Neumark 2002; Neumark and Rothstein 2003).

Wilson’s (1987) *The Truly Disadvantaged* suggests joblessness among young black men may create social and economic conditions that foster a myriad of social problems in urban neighborhoods such as an increase in concentrated poverty and a decline in marriage rates among blacks. If Wilson’s arguments are correct, declining adolescent employment

¹ <http://www.bls.gov/cps/tables.htm>

² <http://www.bls.gov/news.release/pdf/empst.pdf>

could foster neighborhood problems and adolescent delinquency and hinder the transition to adulthood, particularly for the most disadvantaged groups. While Wilson focuses on employment among young men, earlier adolescent employment and its influence on behavior could be an important link in the chain of inequality, nudging youth from different backgrounds along divergent paths in the transition to adulthood. For example, lack of employment opportunities may further hinder social capital and skill development among low income black youth. If early employment encourages pro-social behavior through well-behaved friends, positive mentors, or skill development, the high unemployment rates among black adolescents could offer a policy lever to improve later life outcomes.

Understanding the relationship between youth employment and behavior also has important implications for assessing the impact of legislation such as minimum wages, school-to-work programs, or juvenile justice and delinquency prevention acts. The Fair Labor Standards Act (FLSA), which includes youth employment laws, was passed during the Depression (1938). The current recession and high adult unemployment rates may stimulate renewed policy attention to adolescent employment and evidence based on recent, nationally representative research can inform the debate.

Despite the importance of adolescent employment for status attainment, the transition to adulthood, racial neighborhood inequalities, and an array of policies, research on effects of adolescent employment since the 1970s supports contradictory theories and predictions about its effects on youth and society. Some argue that working at an early age promotes self-esteem, independence, positive skills, a strong work ethic, and stronger social networks that facilitate the transition to adulthood; others argue that work exposes youth prematurely to adult environments that are conducive to various behavior problems. Still other theories predict different effects depending on the intensity of youth employment (role incompatibility and

strain theory). Finally, some argue that the relationship between youth employment and behavior is spurious, due to selection bias and unobserved heterogeneity.

Extant empirical research to date also reports contradictory findings that limit our ability to generalize or to establish causality. Research by D'Amico (1984) and Elder (1974), for example, showed positive effects of work while Marsh (1991) reported negative effects on a variety of outcomes, including psychosocial development, school engagement and achievement, delinquency, and stress. More recently, Mortimer et al. (1996), Mihalic and Elliott (1997), Ruhm (1995), Mortimer and Johnson (1998), and Mortimer et al. (2002) find evidence for positive effects of work conditional on work hours or quality. Methodological limitations related to using cross-sectional data or local samples may have contributed to the mixed results in this body of research. Another reason for the mixed results may be differences in the age of analysis. Employment early in adolescence may have different effects than similar employment at a later age. Furthermore, youth employment experiences vary substantially. Widely different types of work may explain some of the contradictory findings of previous research. However, while effects of work intensity (hours per week) are frequently studied, Staff and Mortimer (2008) suggest the need to study the effects of job quality on the transition to adulthood and whether job quality affects youth from different social classes differently.

This paper contributes to our understanding of adolescent employment and the transition to adulthood in the following ways: 1) we base our analyses on current nationally representative panel data from the Panel Study of Income Dynamics Child Development Supplements (PSID-CDS) to investigate employment among early adolescents; 2) we examine both job quality and work hours, in conjunction with a variety of rich measures, to test multiple hypotheses about mechanisms which may mediate the relationship between early employment

and youth behavior; 3) we examine whether adolescent employment experience affects racial subgroups differently; 4) we address self-selection and unobserved heterogeneity issues using models to predict early employment, controlling for many prior characteristics of the adolescent and his/her family, and an instrumental variable approach; and 5) we incorporate geographic characteristics and area employment opportunities in the analysis, which Wilson and others predict are important. Results suggest that moderate work hours and high quality jobs are associated with lower adolescent behavior problems through increased association with positive peers. Thus, findings support human and social capital theory. Significant interaction effects of high quality work with race and positive peer influence yield further support for human and social capital theories.

YOUTH EMPLOYMENT AND BEHAVIOR PROBLEMS

Employment Reduces Problem Behavior

Social capital or social network theory predicts that youth employment promotes exposure to prosocial peers and positive behavior (Wright and Cullen 2004; Vazsonyi and Snider 2008). According to this theory, employment builds affective ties and positive social networks in institutions and communities, which encourage positive behavior (Sampson and Laub, 1993). Mechanisms include peer and neighborhood influence.

Human capital or learning theory suggests that realistic contact with the adult world and the expectation of skills, responsibility, dependability, punctuality, diligence, and self-reliance promote positive behavior (President's Science Advisory Committee, Panel on Youth 1973; National Commission on Youth 1980; Ruhm 1995). But only high quality jobs promote the development of these characteristics. Time spent at work could detract from other forms of human capital development, particularly educational attainment (Ruhm 1995; Marsh 1991).

Low quality work may therefore have an overall negative effect on youth development.

However, jobs that develop skills, enable responsibility, or expose youth to positive role models and networks could have positive effects that outweigh any negative effect of time diverted from school to work. This mechanism depends heavily on individual perception of a job's characteristics – whether it provides learning opportunities, satisfaction, and responsibility.

Employment Increases Problem Behavior

The theory of differential association (Sutherland and Cressey 1974; Ploeger 1997) suggests employment exposes adolescents to a wider social network, including peers who expose them to delinquent behaviors. Differential association theory assumes peers at work have a negative influence on behavior, which may partly reflect the poor quality jobs available.

Agnew (1992) suggests that work could be a source of strain. Negative stimuli, such as degrading treatment from a boss, or a disconnect between aspirations and expectations, could encourage delinquency. For example, adolescents may adopt the goals of society, such as high income, but be unable to reach them with the jobs available. Youth may work more hours, in an attempt to achieve high income goals, only to become exhausted in balancing work and school and find that even intense work hours cannot meet their goals. This mismatch between the cultural norms and structural possibilities may cause psychological strain or depression and result in delinquent behavior. To illustrate further, customers or supervisors could treat a young employee with a low quality job poorly, generating anger and thereby delinquent behavior.

For strain theory, the key mechanism is stress. It predicts heterogeneous effects depending on the number of hours worked per week, as longer work hours increase stress.

Strain theory may also predict stronger effects for low quality work, because youth employed in these jobs may feel worse about their treatment and experience more strain and anger, increasing stress and problem behaviors.

Other theories – including social control, role incompatibility, and opportunity cost – predict a relationship between early employment and behavior, but through other mechanisms (e.g., parental monitoring, educational aspirations and expectations). We control for those hypothesized mechanisms here, to address concerns that other theories may explain any relationship found. In this paper, we synthesize theories on the relationship between adolescent employment and behavior and examine competing hypotheses about multiple mediating mechanisms with a national sample of American youth (discussed in the Methods section). In addition, these theories largely focus on individualistic or family factors with little attention to the opportunity contexts for youth employment (that is, they assume jobs are readily available to youth). However, as noted earlier, unemployment has been the highest among youth compared to all other age groups, particularly for young blacks. Youth employment patterns may reflect structural constraints or job opportunities as much as personal motivation or family circumstances. In this paper, we incorporate neighborhood employment opportunities in our conceptual framework to better understand the relationship between youth employment and behavior.

Spurious Relationship - Heterogeneity, Endogeneity, and Sample Selection Bias

Establishing a causal relationship between youth employment and behavior proves to be formidable. The contradictory findings of previous research could be due to heterogeneous effects of employment depending on youth background characteristics. For example, working black youth may experience racism at work and act out in response to this injustice.

Alternatively, work may provide a sense of control and autonomy not available elsewhere in the lives of black youth. Wilson's (1987) *The Truly Disadvantaged* suggests many problems of urban areas are due to young black male joblessness. Ethnographic accounts detail how urban employment experiences differ for black and white workers (e.g., Sullivan 1989 and Newman 1999). As such, we would expect jobs to have a stronger positive effect on behavior for black compared to white youth. Employment may also affect youth differently depending on their family income. For example, working youth from low income families may have stronger economic incentives to behave well. Staff and Mortimer (2008) suggest the need to study the effects of job quality on the transition to adulthood and whether job quality affects youth from different classes differently. Mihalic and Elliot (1997) (using National Youth Survey panel data) and Entwisle et al. (2000) (using panel data from Baltimore, MD) find differences by race and class, suggesting the consequences of employment may differ by these characteristics. Their findings show the importance of controlling for and investigating differences by race and SES.

A central debate in recent literature has been the issue of self-selection; namely, certain characteristics that encourage youth to take on employment early in life may also encourage problematic behavior. For example, those who choose to work may also have behavior problems and other factors such as disengagement from school, family poverty, or distant relationships with parents could be causing both employment and behavior problems (Entwisle et al. 2000; Bachman and Schulenberg 1993; Steinberg et al. 1993; Ploeger 1997; Paternoster et al. 2003). Alternatively, Mortimer et al. (2002) suggest the possibility of a reciprocal relationship between youth employment and social psychological factors such as the self-concept or emotional distress of the youth.

Paternoster et al. (2003) conduct a careful fixed effects study using NLSY 1997 data to address the self-selection issue. Using a sample born in 1980-84, they found no effect of youth employment on delinquency after controlling for selection. However, they only examine employment by work hours, not job quality (which Staff and Mortimer 2008 stress is vital) and they do not assess potentially heterogeneous effects of employment by race or SES. Rauscher (2011) uses an instrumental variable approach and recent American Community Survey data to address self-selection into employment among adolescent girls, finding that employment increases the likelihood of adolescent fertility. However, employment may have different effects on externalizing behavior problems.

Mihalic and Elliott (1997) found that controlling for pre-employment differences reduces the negative effects of work, but not completely. Although Mihalic and Elliot use nationally representative National Youth Survey panel data (collected in 1976-1978), they examine the effect of employment on school performance, not adolescent behavior. Similarly, Bachman and Schulenberg (1993) and Steinberg et al. (1993) find that self-selection based on school performance partly explains the negative effects of work, but that negative effects of (especially intense) work still exist by encouraging further disengagement from school, increasing drug use and delinquency, and reducing self-esteem. Bachman and Schulenberg (1993) use Monitoring the Future data from senior classes in 135 schools in 1985 and Steinberg et al. (1993) use data from 1,777 sophomores and juniors in Wisconsin and California schools. In sum, most of the previous work addressing this issue finds that controlling for self-selection reduces, but does not eliminate, the negative effects of work (e.g., Ploeger 1997; Mortimer et al. 1996).

Ruhm (1995) uses nationally representative NLSY 1979 data and finds a positive relationship - employment is associated with increased educational and economic attainment.

D'Amico and Baker (1984) also use NLSY 1979 data and find a positive relationship between early employment and later employment outcomes. The NLSY data, while excellent, follows a cohort of youth ages 14-22 in 1979. The effects of adolescent employment may have changed drastically in the intervening 25 years, particularly in light of major economic restructuring and the growth of service occupations. Analysis of more recent data is necessary to understand the contemporary transition to adulthood.

We address the challenges of endogeneity in several ways, including: 1) controlling for prior child characteristics and including prior behavior problems and family characteristics in all models; 2) analyzing and controlling for factors predicting work (as well as examining hours and quality of work); and 3) estimating the work-behavior relationship by using instrumental variable models. With these efforts, we find that despite significant self-selection, youth employment is still negatively associated with behavior problems.

Finally, apart from the issues of heterogeneity and self-selection, much previous research uses cross-sectional, local, or non-nationally representative samples. Elder's (1974) pioneering research, for example, examined the effects of youth employment in Oakland among those from a farming background during the depression. Mortimer and Johnson (1998) note that much previous research on adolescent employment is cross-sectional (e.g., Bachman and Schulenberg 1993; Greenberger and Steinberg 1986; Steinberg and Dornbusch 1991). As they also note, several longitudinal studies on the effects of adolescent employment have data problems including small sample sizes (Greenberger and Steinberg, 1986) or low retention rates (Steinberg et al., 1993). Mortimer and Johnson (1998) improve on these issues, but their Youth Development Study has limitations of its own. Their data, also used in several subsequent studies (e.g., Mortimer et al. 1996; Mortimer et al. 2002; Staff and Mortimer 2008), is a longitudinal community sample of 1,000 youth from the St. Paul, MN public school

district. While it has an excellent retention rate, it is a local sample, over-representing middle class, white youth from Minnesota. Thus the sample is not nationally representative and under-represents individuals of particular interest to many theories, particularly low SES and minority youth. Mortimer et al. (2002) study effects of work conditional on both work hours and quality, as we do. They find a positive association with mental health outcomes when working youth are satisfied with their wages, feel earnings enable going out with friends, and feel work does not interfere with academics. However, they use the local Youth Development Study data and look at effects of work on mental health rather than behavior.

The PSID data used in this paper improve on previous research by providing rich, longitudinal, and current nationally representative data that can be generalized to youth of all family backgrounds.

METHODS

Conceptual Framework

This paper examines competing hypotheses about several mechanisms which may link adolescent employment and behavior. Figure 1 shows that we conceptualize youth employment as influenced by a set of individual characteristics, family circumstances, and area employment opportunities. It also depicts the main theoretical constructs and the mediating pathways through which employment may influence youth behavior as noted in the literature review, including differential association, human and social capital, and strain.

(Figure 1 about here)

Our main research questions are:

- What factors influence a youth's decision to hold a job during school?

- What is the relationship between youth employment and behavior problems? We test human and social capital, theories, which predict positive effects on behavior, and differential association and strain theories, which predict negative effects.
- What are the mechanisms through which employment influences youth behavior? We investigate various mechanisms that the theories predict should be important: peer effects, neighborhood quality, job quality, and emotional distress, while controlling for other potential mechanisms.
- Do the associations between youth employment and behavior differ by work hours and job quality? Unpacking work in this way allows us to further test the theories because in all cases effects should differ depending on quality and intensity of work.
- Do the associations between youth employment and behavior differ by race? Interaction terms between race, family income, and work allow us to investigate heterogeneous treatment effects. Different patterns may reflect varying experiences of work at the micro level and help explain differences in youth behavior by race and class.

Hypotheses

Based on the literature reviewed above, we test the following relationships between youth employment and behavior.

1. Youth employment is associated with greater exposure to delinquent peers/behavior/values, thus higher behavior problems. This hypothesis tests the differential association and precocious development theories and the mediating mechanism of peer influence.

2. High quality work develops human and social capital, which promotes positive behavior.

This hypothesis tests human capital and social capital theories. The mediating mechanisms tested are job quality and peer effects, respectively.

3. Intensive work is associated with higher emotional distress and behavior problems. This hypothesis tests strain theory and the mediating mechanism of emotional distress.

Data and Sample

We draw on data from the Panel Study of Income Dynamics Child Development Supplements (PSID-CDS). The PSID is a longitudinal study that began in 1968 with a nationally representative sample of about 5,000 American families, with an oversample of black, low-income families. For the past three decades, the study has collected annual data from these families and individuals about their demographic, economic, and employment behavior. In 1997, the PSID began collecting data on a random sample of the PSID families that have children under the age of 13 in a Child Development Supplement (CDS-I). Data were collected from up to two children per family. The CDS collects information on child development and family dynamics, including parent-child relationships, home environment, indicators of children's health, cognitive achievement, social-emotional development, and time use, among other variables. The entire CDS-I sample size in 1997 is approximately 3,500 children residing in 2,400 households. A follow-up study with these children and families was conducted in 2002 and 2003³ (CDS-II). These children were between the ages of 8-18 in 2003. No new children were added to the study due to budget constraints. The total sample size in CDS-II is 2,907 children (response rate=85% at the child level) residing in 2,019 families (response rate=91% at the family level). In CDS-II, a set of questions about youth employment

³ The majority of the children were interviewed in 2003 (61%) with a smaller proportion of children interviewed in 2002 (39%). For simplicity, we will refer to the CDS II year as 2003 in subsequent text.

was asked of youth aged 12-18 in an audio computer-assisted self administered interview (ACASI). This method has been shown to yield more reliable responses from youth, particularly on questions that are more sensitive or personal (Aquilino, 1994). The youth employment data are available only in CDS-II, not in CDS-I, when the respondents were younger. However, prior family and child characteristics and child behaviors were assessed in both CDS waves and, due to child labor laws, few youth work before age 13 (the maximum age of our sample in 1997). These data allow us to link youth employment to their behavior for a national sample of youth from all socioeconomic statuses while controlling for a wide set of prior and contemporaneous family and child characteristics.

The PSID provides rich panel data about family background and youth behavior. Our study sample includes only youth aged 12 through 18 in 2003 from all economic backgrounds. We excluded the 26 individuals not enrolled in school because they represented a very small group (3% of the sample) with potentially distinct life circumstances that shape the relationship between work and problem behavior. Due to these selection criteria, the final sample in this paper consists of 1,154 children. Longitudinal sampling weights developed by the PSID staff are used to help adjust for nonresponse and for the original selection probability. A more detailed discussion on sampling weights can be found in the technical report on the PSID-CDS website (<http://psidonline.isr.umich.edu/>).

Measures

Dependent Variable

The dependent variables are two measures of youth behavior. The measures are indices based on responses of the primary caregiver to various questions about the youth's behavior. The PSID-CDS measures behavior problems in both 1997 and 2003 using the Behavior

Problem Index (BPI), developed by Peterson and Zill (1986). We use the externalizing behavior index, which includes the following questions about how often (“often,” “sometimes,” or “never”) a child: “has sudden changes in mood or feeling”; “cheats or tells lies”; “argues too much”; “has difficulty concentrating”; “bullies or is cruel or mean to others”; “is disobedient”; “does not seem to feel sorry after misbehaves”; “has trouble getting along with other people (his/her) age”; “is impulsive”; “is restless or overly active”; “is stubborn, sullen, or irritable”; “breaks things on purpose”; “demands a lot of attention”; “hangs around with kids who get into trouble”; “is disobedient at school”; “has trouble getting along with teachers” (Cronbach’s $\alpha=.86$). For more details about this or other measures, see the PSID-CDS User Guide (<http://psidonline.isr.umich.edu/CDS/wavesdoc.html> Appendix p. 3).

Independent Variables

The main independent variable, youth employment, is measured by various characteristics of employment behavior. First, we use a simplistic characterization - a dummy variable indicating whether a youth currently holds a regularly paying job at the time of the interview. We also use categorical variables to capture job characteristics, distinguishing from the rest those that enable learning new skills, give responsibility, and provide higher satisfaction on the job. The qualitative job index is a sum of how the youth rates their job in terms of skill-building, responsibility, and satisfaction on a scale from 0 to 7; the median is 17 for those working. A high quality job includes those rating their job a 6 or above on all 3 questions. In addition, because previous literature emphasizes the importance of hours invested in work (e.g., Hansen and Jarvis, 2000; Bachman and Schulenberg, 1993), we distinguish working youth by hours worked per week. Steinberg and Dornbusch (1991: 304) suggest an emerging consensus that 20 hours is a key threshold point, and that intense work

(over 20 hours per week) has negative effects on youth (Hansen and Jarvis, 2000; Greenberger and Steinberg, 1986; Steinberg and Dornbusch, 1991; Steinberg et al., 1993). Therefore, following the convention of previous research (Steinberg, Fegley, and Dornbusch, 1993; Mortimer and Johnson, 1998), we create categorical variables for those who do not work, those who work moderate hours (20 or fewer hours a week), and those who work more intensively (over 20 hours a week).⁴

Mediators

To test differential association theory, which predicts that work exposes youth to delinquent peers and values, we use an index for peer influence. This index includes items that assess how many of a youth's friends: encourage you to do what your parents want, think schoolwork is very important, plan to go to college, (the following questions were flipped to reflect positive rather than negative peer influence) encourage you to disobey your parents, are in gangs, encourage you to do dangerous things, get in trouble in school, get in lots of fights with other kids, drink alcohol regularly (Cronbach's $\alpha=.70$). We then break this index into positive and negative peer influence to assess whether effects differed by the type of peer influence. Positive peer influence index includes how many of your friends: encourage you to do what your parents want, think schoolwork is very important, and plan to go to college ($\alpha=.61$). The negative peer influence index includes how many of your friends: encourage you to disobey your parents, are in gangs, encourage you to do dangerous things, get in trouble in school, get in lots of fights with other kids, and drink alcohol regularly ($\alpha=.72$).

We include another index that proxies for the extent to which youth are likely to be exposed to delinquent behavior and values. Neighborhood quality is measured by two

⁴ An alternative threshold (fewer than 20 hours compared to 20 or more hours) yields the same results.

questions administered to the primary caregivers, who rated their neighborhood from 1 to 5 in terms of how good a place it is to raise kids and how safe it is at night.

To test human capital theory, we include a measure that assesses whether a job provides the opportunity to learn new skills and handle responsibilities (reported by youth themselves). These qualitative characteristics of a job are measured using an index of three questions in which individuals are asked to rate their job according to: how true is it that I can learn new skills at my job?; how true is it that I have a lot of responsibility; how satisfied are you with your present job? (Cronbach's $\alpha=.98$). We create a composite index with these 3 items, resulting in a 21-point scale (7-point scale). Individuals with scores of 18 or above (a score of at least 6 on all 3 items) were identified as having a high quality job and other workers as having a lower quality job.

To test strain theory, we include a measure that assesses youth's emotional distress – the Child Depression Inventory (CDI). The CDI is an index developed by Kovacs (1992) that asks about feelings in the two weeks before the interview, including the following questions: how often are you sad; do you think things will work out for you; do you do things okay or wrong; do you hate yourself; how often do you feel like crying; how often do things bother you; how do you feel about your looks; how often do you feel alone; do you have any friends; and does someone love you. The CDI is established in the field and has been copyrighted and validated. It is a good measure to test strain and role incompatibility theories because it captures stress, depression, and self-esteem, which Greenberg (1977) suggests are central to youth delinquency.

Control Variables

Family background variables including mother's education and average family income since birth in 2001 were collected from the PSID core surveys. These variables control for social background. We control for family structure measures, distinguishing two-biological parent families from other family types. Youth characteristics are also controlled. Race is reported by the primary caregiver, who was instructed to report one race for the child.

To rule out opportunity cost and social control explanations, we control for mechanisms which they suggest may link early employment and behavior problems. Two dummy variable measures of a youth's own educational expectations: 1) whether a youth expects to attend, graduate from, or get more education than a 4-year college degree, and 2) whether a youth has a college savings account. These variables should relate to opportunity cost theory because those expecting to attend a four-year college may have less vested in a high school job, making work less likely to change behavior. College saving should be a better test of opportunity cost theory than expectations alone, because it includes both expectations and actions; we refer to it as college intent. College saving gives a tangible, financial reason for good behavior.

We control for an index of "parental control/closeness to parents" to address social control theory as an explanation for any relationship between work and behavior. This index includes the following questions posed to youth: "do your parents know what you do during your free time?"; "do your parents know which friends you hang out with during your free time?"; "do your parents know what you spend your money on?"; "do you keep a lot of secrets from your parents about what you do during your free time?"; "do you hide a lot from your parents about what you do during nights and weekends?"; "if you are out at night, when you get home, do you tell your parents what you did that evening"? (Cronbach's alpha=.79). These questions were included in the PSID-CDS based on Stattin and Kerr's (2000) definition of

parental monitoring as the degree to which parents attend to and track their children's location and activities.

We also include a measure of parental psychological distress in 1997 as a control variable because previous research suggests parental psychological well-being is a strong predictor of children's behavior (McLoyd, 1998; Yeung et al., 2002). This index assesses the psychological distress of the primary caregiver in the four weeks prior to the interview; a score of 13 or above indicates nonspecific distress. This scale was developed to distinguish serious mental illness cases from the general population. Including it helps determine whether parental distress during childhood accounts for adolescent behavior problems. Finally, we include geographic characteristics that indicate whether urban residence, region, and the unemployment rate in the census tract that the family resided at the time of the CDS-II interview to capture the labor market opportunity and other differences in the neighborhood contexts.

Analytic Strategy

We first examine the extent and nature of youth employment. In asking why youth decide to work and to address self-selection, we use logistic models to predict whether youth have a regular paying job with a large set of factors that previous research suggests influence the decision to work. We examine various models including measures of prior child and family characteristics from the CDS-I 1997 interview such as self control, school performance and test scores, behavior problems, school behavior problems, self-concept, religiosity, relationship with parents, parental education expectations, parental warmth, and parental self-efficacy. We then add 2003 measures (variables that could mediate the relationship between work and behavior) to the model predicting youth employment in 2003 to see whether results

change. These measures include parental monitoring behavior, peer influence, psychological well-being, and educational expectations.

Next, we use OLS regressions to examine relationships between youth employment and indicators of behavior problems. We include a host of control variables and prior BPI score (from CDS-I) to control for previous behavior and address self-selection, reducing the chance that the relationship is spurious. First, we control for family and child characteristics. Then, we add the mediating variables to examine whether the relationship between employment and behavior problems is mediated by parental control, peer influence, neighborhood quality, educational expectations, and psychological well-being. We also assess whether the relationship differs by job quality and work hours, or by race. All of our models use Huber-White adjusted standard errors that allow for multiple children from the same family.

Finally, we use state minimum wage rates and youth employment certification laws as instrumental variables to estimate the relationship between employment and behavior after controlling for self-selection.

FINDINGS

Employment Patterns

(Table 1 about here)

Table 1 provides basic information about youth employment for all, black, and white youth. Unfortunately, the PSID-CDS does not have a large enough sample of other ethnic groups to allow separate analysis in this paper. We observe significant qualitative differences in the employment patterns of black and white youth. White youth are more likely to work and, if they do, they are more likely to work moderate hours and earn more. Of those in the sample, 18% were holding a regular paying job at the time of the interview. Twenty-two

percent of white teens, as compared to 15% of black teens, were holding a regular job. Bureau of Labor Statistics (BLS) data suggests these are valid measures.⁵

Of those who were holding regular jobs, about 30% were working for more than 20 hours a week (often defined as “intensive work” in the literature). A larger proportion of black than white youth were working intensively (40% compared to 28%), with an average of about 15 hours per week compared to 14 hours a week for white youth.

These results echo previous research, including early work by Coleman (1984), who studied school-to-work transitions among 1,589 black and white males in the US born between 1930 and 1939 based on retrospective life history data. Coleman (1984) found that white men started working earlier (during school) and finished school later than black men. Among those who worked during school, white men were much more often in clerical, sales, or kindred jobs than black men.

Regarding the types of work youth perform, the top 5 occupations are food service (31%), sales (29%), personal care and service (10%), cleaning and maintenance occupations (6%), and office and administrative support (6%). In terms of industry, the top 5 most common areas of employment are in accommodations and food services (33%), retail trade (18%), health care and social assistance (10%), other services except public administration (9.6%), and education tied for fifth with arts, entertainment, and recreation (6% in both categories).

Those who worked made an average of \$1,122 per month, although the distribution is highly skewed (skewness=7.3). A small minority (about 5% of those working) made more than \$1,100 per month. When we topcoded monthly earnings at \$1,100, of those working, the

⁵ According to the BLS, among youth aged 16-17, 27% were employed in 2003, 30% of white and 15% of black youth. These rates are close to those in our PSID sample; 23% of all 16-17 year olds were employed, 28% of white and 14% of black youth. http://www.bls.gov/cps/cps_aa2003.htm

mean (\$400) and median (\$390) earnings are about \$400 per month, with black youth making 91% of what white youth make on average (\$356 vs. \$400).

Among those who are working (N=211), the qualitative index, assessing skill-building, responsibility, and satisfaction available in a job, shows differences by race: 16.2 overall, 14.9 for black, 16.5 for white youth. The qualitative job index has a median of 17 for those working. Dummy variables for high (those rating their job a 6 or above on all 3 questions) and low quality jobs show that black youth are less likely to hold jobs in which they feel satisfied, can learn new skills, and have responsibility. In proportional terms, 34% of black youth who are currently working, compared to 46% of white youth, hold a good quality job. In short, like Coleman (1984) and Entwisle et al. (2000), we find that minority youth are less likely to work and, if they do, we find they earn less and are less likely to have a high quality job or work moderate as opposed to intensive hours.

(Table 2 about here)

Table 2 shows descriptive statistics of the measures we use in multivariate analysis. Data indicate that blacks have significantly higher behavior problems (measured with an index ranging from 0-17), with a mean of 6.2 for blacks and 5.3 for whites. Consistent with previous literature, white youth tend to have parents with higher education and much higher income; live in two-parent families; and live in better neighborhoods. Black parents, on average, are more emotionally distressed, though black youth have lower distress levels than whites.

Who Works?

To address self-selection and understand why teens work, we examine the relationship between work and an extensive list of prior and contemporaneous child and family characteristics, including those identified by the research discussed above as affecting selection

into work. We examine the relationship between working and contemporaneous measures of peer influence, neighborhood quality, emotional distress, closeness to parents, educational expectations and intent, and self-concept. In addition, we include geographic characteristics such as urban residence, region, and the unemployment rate in the census tract that the family resided at the time of the CDS-II interview. We also examine the relationship between work and many baseline measures (from 1997 CDS-I, 5 years prior to the CDS-II data), including parental distress, parental monitoring, cognitive stimulation in the home, emotional support from parents, parental warmth, low test scores, school behavior problems, behavior problems (BPI), and self-concept. We also include other background variables as controls, including age, race, gender, family income since birth, mother's education, and family structure. Conventional wisdom suggests low income youth would be more likely to work – to help support the family, for example. This is not the case. While Herman (2000) and Besen (2006) find high SES youth are more likely to work, we find family income is not associated with the propensity to work.

(Table 3 about here)

Table 3 presents these results. Due to space constraints, coefficients for some control variables are not shown in the table. Contrary to the literature discussed above, logistic regressions predicting youth employment indicate that by far the most important factors affecting adolescent employment are neighborhood characteristics such as whether an adolescent is living in an SMSA (an urban area) and the local job availability. According to the final model in table 3, an increase from a county unemployment rate of 7% to 8% is associated with approximately a 6% drop in the odds of youth employment.⁶ Those who live in a city,

⁶ This is calculated using the following equation: $((\exp(-6.57 \cdot .08) - \exp(-6.57 \cdot .07)) / \exp(-6.57 \cdot .07)) \cdot 100 = -6.3588254$.

another indicator of job availability, are 1.8 times more likely to have a regular job than their non-urban counterparts. Prior characteristics (self-concept, test scores, and BPI in 1997) have no significant effect on employment. Parental monitoring in 1997 has no effect, but parental distress in 1997 makes one slightly more likely to work.

Current characteristics are also generally insignificant. However, contrary to arguments about emotional strain, emotional distress is associated with a *lower* likelihood of employment. It is important to note that youth characteristics measured in 2003 are potentially endogenous, so readers should interpret these results cautiously.

We also examined factors associated with the different levels of quality and intensity of employment studied here. We found similar results as those for holding a regular paying job. However, the following differences exist: self-concept in 1997 is associated with low quality work; Northeast residence is associated with high quality and moderate hours of work; and low test scores in 1997 and college savings are **slightly** associated with intense work. Based on these findings, we control for these factors in later regressions.

The abundance of non-significant coefficients suggests the selection bias is not severe. However, we are keenly aware of the potential endogeneity problem here in that measures of youth's relationship with their parents and peers, their psychological well-being, and educational expectations could be endogenous and these factors, as well as others, could still affect their decisions about whether they hold a regular job or not. As data on youth employment are only available in the second wave of the CDS, we are unable to disentangle the potential reverse causality relationship satisfactorily.

Youth Employment and Behavior Problems

Results show that holding a job is associated with lower behavior problems. This negative relationship is robust when using all three different ways of characterizing youth employment. (Results with the independent variable that indicates whether a youth is working or not are not shown here in the interest of space.) A more careful examination reveals that only high quality jobs or jobs worked for moderate hours (not more than 20 hours per week) are associated with fewer externalizing behavior problems, while jobs that extend to long hours (20+ per week) or do not offer human capital development opportunities are not.

(Table 4 about here)

Table 4 presents results for the relationship between job quality and the Externalizing Behavior Problem Index score. Model 1 shows that high quality work is associated with lower BPI scores although most of the hypothesized mediating covariates do not reduce the relationship. We find that positive peer influence, rather than negative influence, is the dominant mediating factor. We also find that current self-concept is not significant in any models and does not mediate the effect of work (we do not include it in the models shown because it is correlated with self-concept in 1997, which is significant in all models). This contradicts the social psychological argument (e.g., Mortimer et al., 1996; Mortimer et al., 2002) that working affects youth outcomes through self-concept and self-esteem. However, positive peer influence is associated with lower externalizing BPI and emotional distress with higher BPI.

Model 2 tests for an interaction between race and quality of work. Results show that there is a marginally significant interaction between race and having a high quality job such that there is a stronger association between high quality work and fewer behavior problems for blacks than for whites. A high quality job is related to 1.5 fewer points on the BPI score among white youth, but 3.5 fewer points among otherwise similar black youth.

Model 3 shows that positive peer influence slightly mediates this interaction effect, but does not change its significance, and moderately increases the main effect of holding a high quality job. This suggests that quality employment at an early age may be more important for a black youth's successful transitioning to adulthood by providing positive role models or social networks. To further investigate this mediating effect of social networks, adding an interaction effect for positive peers and high quality work in Model 4 makes employment coefficients non-significant. Thus, the association between high quality work and behavior appears to be mediated by positive peer influence. This mediating effect of positive peer influence and positive peer influence interacted with high quality work supports social and human capital theories.

Overall, results in Table 4 suggest high quality jobs are associated with lower BPI scores, particularly among black youth, and that positive peers may mediate this relationship. .Positive peers interacted with high quality work mediates the effects for all youth, which suggests the apparently different effects by race may be related to different peers encountered at work in high quality jobs. Compared to similar white youth, black youth working in high quality jobs may be exposed to more positive peer influence and role models than they would otherwise encounter.

(Table 5 about here)

Table 5 shows the relationship between work intensity and BPI scores. Results show that moderate work hours are associated with lower BPI scores, but high work hours have no significant effect. As in Table 3, positive peers and emotional distress have significant effects, while other individual characteristics do not. Higher neighborhood quality is also associated with lower BPI scores, echoing the importance of peers for behavior.

Again, positive peer influence seems to explain the positive effect of moderate work hours. When we include an interaction term between positive peers and moderate hours the main effect of work becomes insignificant. According to the interaction term, working moderate hours amplifies the positive effect of positive peer influence on BPI. This relationship between positive peer effects, moderate work hours, and BPI holds for both black and white youth.

To summarize, we find no evidence in support of differential association theory (hypothesis 1). Results (not shown) contradict hypothesis 3, because an interaction term between work hours and emotional distress is associated with fewer behavior problems. Evidence confirms hypothesis 2, supporting human and social capital theories. High quality jobs are related to fewer behavior problems. The significant interaction effect of high quality work for black youth supports human capital theory, suggesting high quality jobs offer important opportunities for black youth to build human capital. However, peer influence is consistently the main mechanism explaining the positive effects of both moderate work hours and high quality jobs, which supports social network theory more than human capital theory. Differential association theory does not predict the positive relationship between work and behavior (it predicts negative rather than positive peer influence from working), but it does accurately stress the role of peer influence.

Instrumental Variable Approach

Finally, we use an instrumental variable (IV) approach in an attempt to address the endogeneity of early work. We use state minimum wage rates and youth employment certification laws to instrument youth employment. State minimum wage rates are related to adolescent employment (Turner and Demiralp, 2000) and some states require age certification

for employment (a “work permit”) until age 18 (as opposed to age 16 or not at all⁷), which is associated with lower youth employment. For both instruments, a state is coded one if it has a minimum wage rate higher than the federal level or requires a work permit (employment certification) until age 18. Differences in work permit laws apply only to youth at least age 16 and less than 18, so analyses using this instrument exclude other age groups.

The assumptions of an IV analysis are that the instrument: 1) significantly influences the likelihood of treatment (employment); 2) has a monotonous effect (that is, only pushes employment tendencies in one direction); and 3) is only indirectly related to the outcome (behavior problems) through youth employment.

(Table 6 about here)

Assumption #1 can be tested directly. Models 1 and 2 in Table 6 show that if 16- or 17-year-old youth live in a state that requires a work permit until age 18, they are significantly less likely to have a regular paying job – even controlling for a variety of contextual factors (all of the variables included in our previous models predicting youth employment, shown in Table 3).⁸ Previous research has shown that work permit laws also satisfy assumptions #2 and 3 above (Rauscher, 2011). Thus, at the individual level, state work permit laws provide an exogenous shock on individual adolescent employment, which allows estimation of the causal effects of employment, net of self-selection.⁹

⁷ States which require employment certification (a “work permit”) beyond age 16 include: Alabama, Alaska, California, Delaware, Washington DC, Georgia, Indiana, Louisiana, Maryland, Michigan, New Jersey, New York, North Carolina, Pennsylvania, Washington, and Wisconsin. All of these states require a permit until age 18, except Alaska, where the requirement ends at age 17.

⁸ Living in a state with a high minimum wage rate had no significant effect on employment (i.e., is a weak instrument).

⁹ As we only have one strong instrument available, the most reliable IV analysis examines only the effect of holding a regular paying job. In supplementary IV models, we instrument the two categorical covariates that indicate the intensity of work (work hours) or the quality of work using both the work permit laws and minimum wage rate, but the estimates are less reliable because one of the IVs is weak.

As seen in models 3 and 4 in Table 6, IV results echo OLS results, suggesting youth employment reduces BPI score, but the effect is only marginally significant due to the large standard errors. These results are robust when we estimate alternative models, varying the controls included. An IV approach demands a larger sample size than our data provide. Consequently, we do not take these results as conclusive; further investigation is needed. However, overall results consistently suggest that working is related to a lower incidence of behavior problems.

Instrumenting both moderate and intense work hours or high and low quality work (using both instrumental variables) yields consistent results; that is, in most specifications moderate work is associated with lower behavior problems (results not shown due to space constraints). With the same controls as in Model 3 in Table 6, moderate work hours marginally reduce BPI score, while intense work has no effect. But this relationship disappears in the full model (with the same controls as Model 4). This could reflect limited power given the sample size or a non-causal relationship between work hours and BPI. Low and high quality work both show a negative relationship with behavior problems. These results are insignificant and the minimum wage does not significantly influence employment (i.e., it is a weak instrument), which suggests the results should be interpreted with caution. Nevertheless, they support the OLS results.

To summarize findings from the IV approach, the relationship found in OLS models holds, even when controlling for self-selection into work. Despite the small sample size, work marginally reduces behavior problems, particularly for youth who work for moderate hours, as opposed to working 20 or more hours a week.

Discussion

Our results based on the PSID data are in general agreement with Mortimer and colleagues' findings that employment has a positive impact on youth outcomes conditional on hours and quality of work. Working moderate hours and working in a job that offers opportunities to learn new skills and responsibilities at an early age are associated with fewer externalizing behavior problems; this relationship is mediated by positive socialization and peer influence. We find that high quality work has a particularly strong association with fewer behavior problems for black youth. High quality jobs may filter youth with low behavior problems, exposing those hired or retained to particularly positive peer influence. Alternatively, high quality or moderate work could enhance human capital and socialize youth to positive behaviors. Peers gained through work may then police each other and support positive behavior. Further research should investigate youth experiences on the job to understand precisely how work-related peer effects could reduce behavior problems. Research should also address how youth find and keep jobs, looking particularly at how and why some youth work moderate hours or in high quality jobs.

These findings lend support to human capital/learning and social capital theories and contradict differential association theory, which predicts that early work leads to more behavior problems. Instrumental variable analyses address self-selection into employment and find consistent results. The causal relationships, however, warrant further investigation.

We find that the main determining factors for youth employment are not poor academic performance or behavior or a lack of parental supervision, but rather the availability of jobs in the neighborhood. The importance of job availability highlights the role of structural forces which, intersecting with individual characteristics, shape the transition to adulthood. To adequately understand how employment successfully shuttles youth into adult behavior, youth employment needs to be seen as part of the stratified social capital shaping the life chances of

youth from different racial and socioeconomic backgrounds. Compared to their black counterparts, white youth have more employment opportunities and, if employed, are more likely to acquire a job providing learning opportunities and higher pay. Black youth, when employed, are more likely to work intensive hours. In short, our results lend some support to the view suggested by other scholars (e.g., Wilson, 1987) that many social problems of urban areas are due to black joblessness and lack of quality jobs for youth. Contributing to this line of research, we focus on early employment. Our results suggest that even as early as adolescence, employment opportunities yield behavioral differences with important consequences for later life.

As the transition to adulthood lengthens, it is important to understand the effects of adolescent employment, a key transition to adulthood. Our findings suggest that the curtailed employment opportunities for youth during the current economic downturn may increase externalizing behavior problems among adolescents, particularly black youth in neighborhoods with high unemployment rates. More effort should be devoted to overcome barriers that impinge on youth access to the labor market.

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Figure 1: Conceptual Framework for Youth Early Employment and Behavior Problems

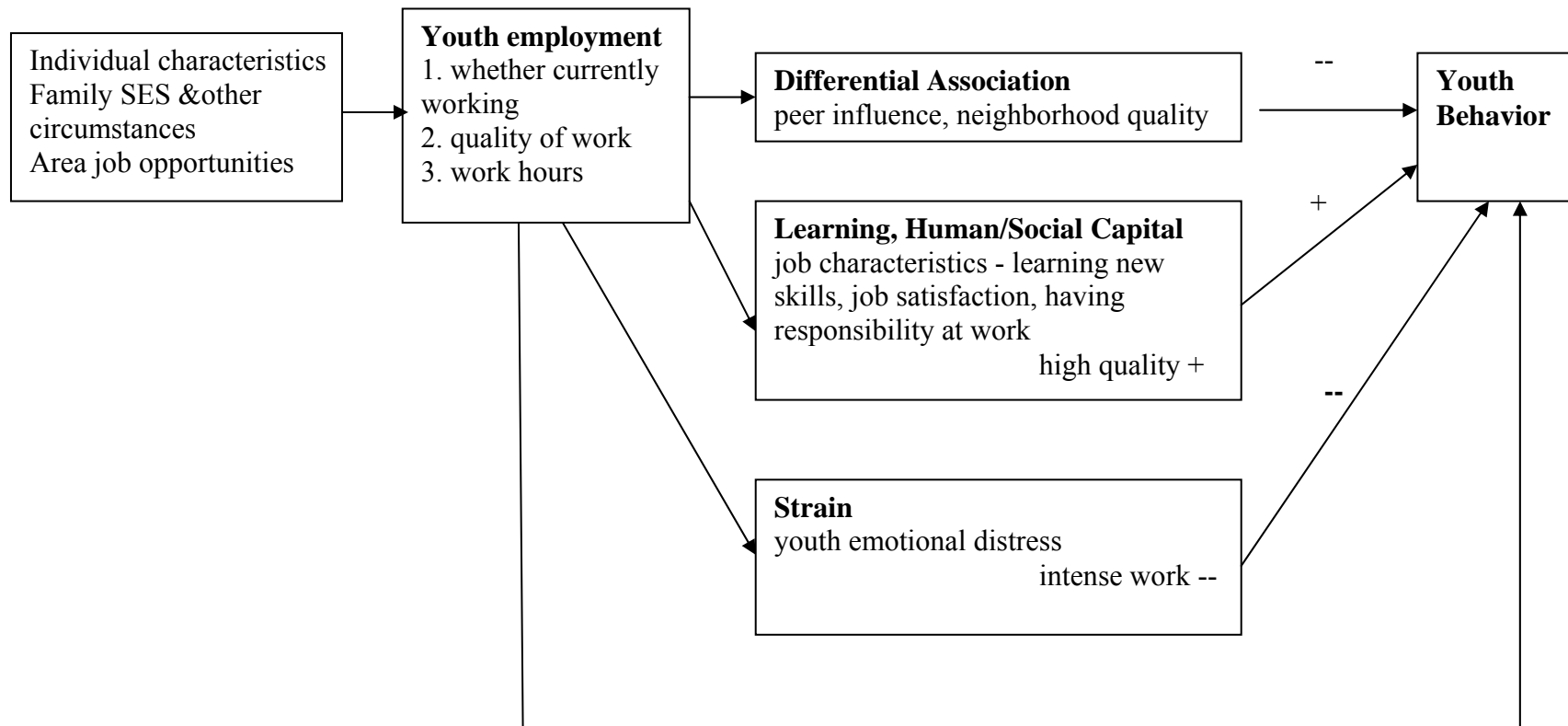


Table 1: Patterns of Early Youth Employment, by Race

	ALL (N=1154)		BLACK (N=497)		WHITE (N= 512)	
	Mean	Std.	Mean	Std.	Mean	Std.
% currently holding a regular job*	18%	(.39)	15%	(.36)	22%	(.42)
<u>OF THOSE WORKING</u>	(N=211)		(N=79)		(N=118)	
Average weekly work hours*	13.8	(8.8)	15.1	(10.8)	14.0	(8.3)
% moderate work (<20 hours/week)*	70%	(.46)	60%	(.49)	72%	(.45)
% intensive work (20+ hours/week)*	30%	(.46)	40%	(.49)	28%	(.45)
Quality of job scale (0-21)	16.2	(3.7)	14.9	(4.3)	16.5	(3.6)
% in low quality (<18)	59%	(.49)	66%	(.48)	54%	(.50)
% in high quality (≥18)	41%	(.49)	34%	(.48)	46%	(.50)
Earnings/month (topcoded)						
Earn <\$275 per month	36%	(.48)	43%	(.50)	35%	(.48)
Earn \$275 to <\$525 per month	33%	(.47)	30%	(.46)	34%	(.48)
Earn ≥\$525 per month	31%	(.47)	27%	(.45)	31%	(.46)
Median	\$390	(270)	\$356	(286)	\$400	(268)
Type of work/Occupation						
food service	31%	(.47)	31%	(.46)	33%	(.47)
sales	29%	(.45)	40%	(.49)	24%	(.43)
personal care service	10%	(.30)	8%	(.27)	12%	(.32)
cleaning and maintenance	6%	(.24)	3%	(.16)	5%	(.22)
office and administrative support	4%	(.20)	4%	(.20)	5%	(.22)
education	4%	(.20)	5%	(.22)	3%	(.16)
others	19%	(.39)	15%	(.36)	21%	(.41)
arts and entertainment*	3.8%	(.19)	0	(0)	5.2%	(.22)
health	3.1%	(.17)	1.5%	(.12)	3.9%	(.19)
agriculture	2.1%	(.14)	0	(0)	2.8%	(.17)
installation and repair	1.5%	(.12)	1.5%	(.12)	1.7%	(.13)
transportation	1.4%	(.12)	4.8%	(.22)	1.0%	(.10)
construction	1.0%	(.10)	0.7%	(.08)	1.2%	(.11)
protective services	0.8%	(.09)	0	(0)	0.9%	(.09)
architecture and engineering	0.5%	(.07)	0	(0)	0.7%	(.08)
military	0.3%	(.06)	0	(0)	0.5%	(.07)
production	0.1%	(.04)	0.9%	(.09)	0	(0)

Note: Includes only those with work-related data.

* denotes that the means are statistically different by race at 0.05 level

Table 2: Descriptive Statistics of Main Measures

	All			Black			White		
	Mean	St Dev	N	Mean	St Dev	N	Mean	St Dev	N
Dependent variable									
Behavior problems*	5.49	4.30	1151	6.15	4.81	496	5.30	4.09	510
Individual Covariates									
Age of child	15.5	1.77	1154	15.7	1.76	497	15.6	1.69	512
Black	0.18	0.38	1151	1	0	497	0	0	512
Other race/ethnicity	0.22	0.41	1151	0	0	497	0	0	512
Male	0.51	0.50	1154	0.56	0.50	497	0.50	0.50	512
Family Covariates									
Family inc since birth (\$10k)*	5.53	4.40	1087	3.30	2.37	472	6.70	4.72	477
Mother's education*	12.9	2.85	1074	12.32	1.82	471	13.67	2.08	475
2-biol parent household*	0.65	0.48	1087	0.32	0.47	472	0.71	0.45	477
Geographic/Area Contexts									
Urban area*	0.55	0.50	1138	0.65	0.48	495	0.44	0.50	504
Northeast*	0.18	0.38	1138	0.17	0.37	497	0.21	0.41	512
North Central*	0.24	0.42	1154	0.19	0.39	497	0.29	0.45	512
South*	0.32	0.47	1154	0.55	0.50	497	0.28	0.45	512
West*	0.26	0.44	1154	0.09	0.29	497	0.21	0.40	512
Area unemployment rate*	0.07	0.06	1146	0.10	0.06	495	0.05	0.03	508
Potential Mediating Mechanisms									
Peer influence*	4.21	0.57	1124	4.22	0.67	484	4.19	0.55	499
Positive peer influence*	3.33	0.87	1134	3.49	0.89	491	3.30	0.85	502
Negative peer influence	1.59	0.59	1135	1.63	0.71	488	1.59	0.56	504
Neighborhood quality*	3.46	0.79	1144	3.12	0.88	489	3.70	0.63	510
Educational expectations*	0.72	0.45	1125	0.62	0.49	485	0.78	0.41	497
Has a college savings acct*	0.41	0.49	1130	0.25	0.43	486	0.52	0.50	501
Emotional distress 2003*	3.95	3.31	892	3.40	2.58	377	3.13	3.47	512
Close to parents*	22.8	5.02	1078	21.68	4.90	456	23.40	4.76	585
Self-concept 2003*	3.99	0.65	1145	4.16	0.58	495	3.99	0.64	506
Socio-Emotional Context									
Parental distress index 1997	3.54	3.42	735	3.90	4.18	278	3.29	3.13	373
Parental monitoring 1997*	4.05	0.68	1143	3.69	0.79	493	4.20	0.51	511
Cognitive stimulation 1997*	10.0	1.86	1154	9.23	1.89	497	10.60	1.67	512
Emotional support 1997*	9.18	1.15	1154	9.00	1.29	497	9.34	1.05	512
Parental warmth 97*	4.32	0.58	1150	4.21	0.70	497	4.40	0.50	511
Low test scores 97*	0.14	0.35	817	0.30	0.46	377	0.09	0.29	403
School behavior problems 97*	1.19	0.39	1137	1.32	0.47	495	1.16	0.35	502
Expelled 1997*	0.06	0.24	1104	0.26	0.44	472	0.02	0.13	495
Self-concept 1997*	5.65	0.83	788	5.54	0.88	344	5.74	0.79	371
Externalizing BPI score 1997	5.37	3.76	1131	5.60	3.92	490	5.26	3.83	501

Note: Includes only those with work-related data.

* denotes that the means are statistically different by race at 0.05 level

Table 3: Odds Ratios for Factors Predicting Early Youth Employment

VARIABLES	(1)	(2)	(3)	(4)
Having a Regular Paying Job				
Individual Background Factors				
Age	1.759** (0.133)	1.754** (0.133)	1.740** (0.145)	1.708** (0.146)
Male	1.222 (0.268)	1.178 (0.260)	1.305 (0.306)	1.352 (0.363)
Black	0.442* (0.155)	0.555 (0.204)	0.822 (0.284)	0.665 (0.257)
Avg fam income birth to 2001, in \$10,000	0.997 (0.025)	0.990 (0.025)	0.991 (0.027)	0.990 (0.028)
Whether live in SMSA 2003		1.434 (0.331)	1.683* (0.392)	1.771* (0.433)
% unemployed in 2000 census tract		0.004* (0.011)	0.001** (0.003)	0.001* (0.004)
Socio-Emotional Context				
Self-concept 97			1.258 (0.231)	1.173 (0.228)
Low test scores 97			0.579 (0.248)	0.541 (0.247)
BPI 97			1.026 (0.035)	1.030 (0.036)
Parental monitoring 97			1.424 (0.299)	1.308 (0.296)
Parental distress 97			1.117* (0.060)	1.121* (0.061)
Potential Mediating Mechanisms				
Has a college savings acct 03				1.710* (0.426)
Positive peers 03				0.994 (0.159)
Close to parents index 03				0.991 (0.030)
Youth emotional distress 03				0.910* (0.040)
Constant	3.23e-05** (4.42e-05)	6.24e-05** (8.74e-05)	2.76e-06** (6.25e-06)	1.55e-05** (3.54e-05)
Observations	1057	1052	1015	926
Log likelihood	-429.3	-424.4	-391.8	-364.3

Robust standard errors in parentheses

** p<0.01, * p<0.05

The following covariates are included in the model but are insignificant and not shown in the table: Other race; Region; Mother's years of education; Family structure (whether live with 2 biological parents); Perceived neighborhood quality.

Table 4: OLS Estimates – Effect of Job Quality and Covariates on BPI Externalizing Score

VARIABLES	(1)	(2)	(3)	(4)
BPI Externalizing Score				
Job Quality				
(reference group is nonworkers)				
Low quality	-1.217 (0.822)	-1.134 (0.831)	-1.199 (0.817)	-1.225 (0.812)
High quality	-1.781* (0.804)	-1.461+ (0.863)	-1.503+ (0.846)	0.860 (1.908)
Individual Characteristics				
Black	0.720 (0.484)	0.834+ (0.498)	1.004* (0.492)	0.990* (0.493)
Male	-0.249 (0.318)	-0.240 (0.317)	-0.424 (0.310)	-0.376 (0.310)
Black*high quality job		-1.998+ (1.032)	-1.832+ (1.006)	-1.205 (1.008)
Potential Mediating Mechanisms				
Close to parents index	-0.092** (0.033)	-0.091** (0.033)	-0.058 (0.036)	-0.057 (0.035)
Positive peers			-0.595** (0.209)	-0.533* (0.221)
Positive peers*high quality job				-0.752 (0.485)
Perceived neighborhood quality	-0.414+ (0.246)	-0.422+ (0.245)	-0.448+ (0.243)	-0.453+ (0.242)
Has a college savings acct 03	0.223 (0.314)	0.206 (0.315)	0.347 (0.313)	0.364 (0.313)
Emotional distress 03 @	0.136* (0.057)	0.137* (0.057)	0.121* (0.056)	0.121* (0.056)
Constant	4.403 (2.914)	4.646 (2.918)	6.331* (3.002)	6.238* (2.979)
Observations	923	923	923	923
R-squared	0.401	0.402	0.412	0.413

** p<0.01, * p<0.05, + p<.10; @ Includes missing cases
Robust standard errors in parentheses

The following covariates are included in all models but are insignificant and not shown in the table: Age; Other race other than white; Average family income from birth to 2001; Average family income*work; Lives in SMSA 2003; Region; Mother's years of education; Does not live with 2 biological parents; % unemployed in the census tract in 2000; Low test scores 97@; Parental monitoring 97; Parental distress 97@. (Self-concept 97@, and BPI 97 are included and significant across all models, but are not shown.)

Table 5: OLS Estimates – Effect of Work Intensity and Covariates on BPI Externalizing Score

VARIABLES	(1) BPI external	(2) BPI external	(3) BPI external
Work Intensity			
Moderate (<20 hrs per week)	-1.789* (0.875)	-1.711* (0.844)	1.436 (1.872)
High (20 or more hrs per week)	-0.935 (0.778)	-1.039 (0.824)	-1.083 (0.813)
Potential Mediating Mechanisms			
Close to parents index		-0.058 (0.036)	-0.054 (0.035)
Positive peers		-0.598** (0.209)	-0.469* (0.220)
Positive peers*moderate hours per week			-0.966* (0.473)
Perceived neighborhood quality		-0.449 (0.243)	-0.486* (0.243)
Has a college savings acct 03		0.352 (0.312)	0.353 (0.310)
Emotional distress 03 @		0.120* (0.056)	0.127* (0.056)
Constant	6.237** (1.977)	6.159* (2.993)	5.823* (2.955)
Observations	922	922	922
R-squared	0.349	0.411	0.415

** p<0.01, * p<0.05; @ Includes missing cases
Robust standard errors in parentheses

The following covariates are included but are generally insignificant and not shown:

Model 1: Male; Age; Black; Other race other than white; Average family income from birth to 2001; Average family income*work; Lives in SMSA 2003; North East; West; Mother's years of education; Does not live with 2 biological parents; % unemployed in 2000 census tract. (North Central 03 and BPI 97 are included and significant across all models, but are not shown.)

Model 2-3: those in Model 1 + Low test scores 97@; Parental monitoring 97; Parental distress 97@; Self-concept 97@ (the latter is significant in all 3 models).

Table 6: Instrumental Variable Analysis

	(1)	(2)	(3)	(4)
	Odds Ratios		IV Regressions	
VARIABLES	Has a Regular Paying Job		BPI Externalizing Score	
Work Permit Required >Age 16	0.411*	0.295**		
	(0.159)	(0.130)		
Regular paying job			-7.794+	-4.362+
			(4.719)	(2.613)
Individual Background Factors				
Age	1.556	1.446	1.387+	0.605
	(0.488)	(0.504)	(0.763)	(0.478)
Male	1.301	1.337	-0.365	-1.167*
	(0.455)	(0.586)	(0.830)	(0.544)
Black	0.266**	0.379+	-1.766	0.111
	(0.130)	(0.207)	(1.646)	(0.808)
Socio-Emotional Context				
Self-concept 97		1.506		1.206**
		(0.409)		(0.422)
Low test scores 97		0.641		1.370
		(0.495)		(0.861)
BPI 97		1.071		0.683**
		(0.058)		(0.071)
Parental monitoring 97		1.297		0.694+
		(0.434)		(0.394)
Parental distress 97		1.066		0.005
		(0.066)		(0.097)
Potential Mediating Mechanisms				
Close to parents index 03		1.021		-0.090
		(0.047)		(0.065)
Positive peers 03		0.779		-0.728+
		(0.206)		(0.376)
Perceived neighborhood quality		1.218		-0.614
		(0.422)		(0.445)
Has college savings acct 03		3.565**		1.218
		(1.753)		(0.808)
Youth emotional distress 03		0.921		-0.106
		(0.058)		(0.089)
Constant	0.004	0.000	-12.88	-9.253
	(0.023)	(0.001)	(11.47)	(8.924)
Observations	312	282	312	282
Log likelihood	-142.8	-112.4		
R-squared			-0.539	0.342
F statistic ^a			5.921□	7.875♦
Endogeneity test ^b			4.327*	2.067

Robust standard errors in parentheses ** p<0.01, * p<0.05, + p<0.1

The following covariates are included in all models but are insignificant and not shown: Other race; Average family income from birth to 2001; Whether live in SMSA 2003; % unemployed in 2000 census tract; Region; Mother's years of education; and Family structure (whether lives with 2 biological parents).

^a Test of IV strength is above Stock-Yogo (2005) critical values: § = 15%; ♦ = 20%; □ = 25%

^b Significant endogeneity test indicates whether employment is endogenous. It represents the difference between two Sargan-Hansen statistics, robust to heteroskedasticity (similar to a Hausman test, but for clustered data).