

**Youth Early Employment and Behavior Problems:**  
Human Capital and Social Network Pathways to Adulthood  
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Research shows that youth employment has long-lasting implications for later employment, future earnings, and the transition to higher education, even when accounting for endogeneity (Michael and Tuma 1984; Neumark 2002; Neumark and Rothstein 2003; Ruhm 1995; U.S. Department of Labor, Bureau of Labor Statistics 2000). 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), paving the way for a more structured path to adulthood. In the past few decades, the transition to adulthood has taken longer in the U.S. and other countries as young people spend more time in schools and take longer to attain economic independence (Furstenberg et al 2004; Furstenberg 2008; Arnett 2000, 2004; Kimmel 2008). This extension may be particularly acute for youth who are unable to find employment. Thus, youth employment may become increasingly important to a successful transition to adulthood, particularly if it provides opportunities for youth to acquire human capital including technical, organizational, and social skills (e.g., responsibility, punctuality, diligence, and independence). Early employment can also expose youth to adult role models and social networks that can ease their integration into the adult world. However, these benefits may only occur if the job is of high quality and if the work connects youth to positive role models. Lacking such quality, early employment could potentially connect youth to delinquent social networks and lead to problem behaviors. In addition, too much time spent at work could detract from school work, which is critical for youth’s human capital building, and generate additional emotional strain for the adolescents.

Over the last few decades, research on adolescent employment has yielded contradictory findings about its impact on youth behavior. Theories about effects of adolescent employment

developed since the 1970s offer contradictory predictions about its effects on youth and society. Similarly, extant empirical research reports contradictory findings. 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. Methodological limitations related to using cross-sectional data or selective samples (such as examining youth in a local community) may have contributed to the mixed results in this body of research.

Wide variation in youth employment experiences, however, offers another potential explanation for contradictory results. For example, Mortimer et al. (1996), Mihalic and Elliott (1997), Ruhm (1995), and Mortimer and Johnson (1998) find evidence for positive effects of work conditional on work hours. While research has frequently examined effects of work intensity (hours per week), less work has investigated effects by job quality (e.g., Mortimer et al. (2002). 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 population subgroups differently.

How early youth employment experiences – particularly work quality and intensity – affect black and white children differently has received little attention in the literature. Youth have historically experienced higher unemployment rates than any other age group in the U.S. (Blank 1995; Diebold, Neumark, and Polsky 1997), but this age inequality has been increasing over the past few decades (Hill and Yeung, 1999).<sup>1</sup> Racial unemployment differences within this age group illustrate the particularly marginalized position of black youth. According to the Bureau of Labor Statistics (BLS), 21.8% of 16-19 year old white youth in the labor force were unemployed in 2009, compared to almost twice the unemployment rate for black youth (39.5%). Early youth

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<sup>1</sup> According to the Bureau of Labor Statistics 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 the percent of youth *looking for a job* in the labor force but unable to find one, so the striking age differences do not simply reflect school attendance or remaining outside the labor force. [www.bls.gov/cps/tables.htm](http://www.bls.gov/cps/tables.htm)

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. These effects, however, may differ by work quality or intensity. For example, lack of quality employment opportunities may further hinder social capital and skill development among low-income black youth. If high quality early employment encourages pro-social behavior through well-behaved friends, positive mentors, or skill development, good job opportunities among black adolescents could offer a policy lever to improve later life outcomes.

In this paper, we investigate whether youth employment effects on behavior problems vary by work quality, work intensity, or race. Our main research questions are: 1) What factors predict youth employment? 2) How is youth employment related to behavior problems? 3) Do the associations between youth employment and behavior differ by work hours and job quality? and, 4) Do these aspects of early youth employment affect black and white youth differently?

Our main contributions to the understanding of early youth employment include (1) examining 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; and (2) examining whether adolescent employment experience affects racial subgroups differently. We take the following methodological steps to achieve these goals: (1) 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; (2) we base our analyses on more recent nationally representative panel data from the Panel Study of Income Dynamics Child Development Supplements (PSID-CDS) to investigate employment among early adolescents; and (3) we incorporate geographic characteristics and area employment opportunities in the analysis, which Wilson (1987) and others predict are important. Taken together, we advance the theoretical

understanding of the role of early employment in reducing or fostering problem behavior for black and white youth with the social and human capital framework.

## **YOUTH EMPLOYMENT AND BEHAVIOR PROBLEMS**

### **Early Employment, Human Capital, Social Networks, and Problem Behavior**

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. Since time spent at work could detract from other forms of human capital development, particularly educational attainment (Ruhm 1995; Marsh 1991), holding a low quality job may have an overall negative effect on youth development. This mechanism depends heavily on individual perception of a job's characteristics – whether it provides learning opportunities, satisfaction, and responsibility. Based on these theories, hypothesis 1 predicts that high quality work will develop human capital, which is likely to reduce behavior problems.

Social capital or social network theory predicts that youth employment promotes exposure to pro-social 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; Buonanno et al. 2009). Mechanisms include social control and social integration at the peer and neighborhood level.

The theory of differential association (Sutherland and Cressey 1974; Ploeger 1997) stresses the negative side of social capital and suggests employment exposes adolescents to a wider social network, including peers who encourage delinquent behaviors, while at the family level parents lose

more control when a youth works. While the positive aspects of social capital (discussed above) expect work to reduce behavior problems, early employment could also incorporate youth into delinquent social networks, which encourage behavior problems (Hagan and McCarthy 1997; Haynie and Payne 2006; Sullivan 1989). Thus, hypothesis 2A predicts that if employment integrates youth into pro-social peer networks, it will reduce behavior problems. On the other hand, if work exposes youth to delinquent peers, hypothesis 2B predicts it will promote more behavior problems (as predicted by differential association).

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, youth may work long hours, in an attempt to achieve high income goals, only to become exhausted and find that even intense work hours cannot meet their goals. In other words, work could increase stress by placing too many demands on youth and increasing the conflict between their employee and student roles. Research by Mortimer et al. (2002) and Shanahan et al. (1991) finds that work-related stress is associated with depressive affect and lower self-concept. If frustration is externalized rather than internalized, however, work-related stress could increase behavior problems. Thus, strain theory, in which the key mechanism is emotional distress, predicts heterogeneous effects depending on the number of hours worked per week, with longer work hours increasing emotional distress. 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 depression or anger, increasing stress and problem behaviors. Therefore, hypothesis 3 predicts that intensive work will be associated with higher emotional distress and more behavior problems.

Other theories 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.

Theories about employment effects 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 above, 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. Therefore, we incorporate neighborhood employment opportunities in our conceptual framework to better understand the relationship between youth employment and behavior.

### **Heterogeneity, Endogeneity, and Sample Selection Bias**

Several methodological concerns may also contribute to the contradictory findings in previous research. These include the issue of heterogeneity in the sample, potential endogeneity among covariates in the analyses or the self-selection problem, and potential bias in sample selection. We address each of these concerns in this paper.

Early youth employment may have heterogeneous effects on youth behavior 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; 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 backgrounds differently. Research finds differences in job quality by race and class (Mihalic and Elliot 1997; Entwisle et al. (2000), suggesting that it is important to control for 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).

Recent studies have used causal inference techniques to address the self-selection issue, including fixed effects (Paternoster et al. 2003), instrumental variables (Rauscher 2011), and controlling for pre-employment differences (Mihalic and Elliott 1997). Most of these studies find that controlling for self-selection reduces, but does not eliminate, the negative effects of work (e.g., Ploeger 1997; Mortimer et al. 1996). Despite their careful methodological contributions, these studies focus on school performance, future employment or fertility (e.g., Mihalic and Elliott, Rauscher), do not examine the impact of early youth employment by job quality (e.g., Paternoster et al. 2003, Bachman and Schulenberg 1993, and Steinberg et al. 1993) , and do not assess potentially heterogeneous effects of employment by race or SES.

We address these limitations while tackling 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.

Finally, apart from the issues of heterogeneity and self-selection, much previous research uses cross-sectional, local, out-dated, 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. As Mortimer and Johnson (1998) note, much previous research on adolescent employment is cross-sectional (e.g., Bachman and Schulenberg 1993; Greenberger and Steinberg 1986; Steinberg and Dornbusch 1991), while several longitudinal studies on adolescent employment have data problems including small sample sizes (Greenberger and Steinberg 1986) or low retention rates (Steinberg et al. 1993). The Youth Development Study (Mortimer and Johnson 1998; Mortimer et al. 1996; Mortimer et al. 2002; Staff and Mortimer 2008) has an excellent retention rate, but is a local sample, over-representing middle class, white youth from Minnesota and under-representing individuals of particular interest to many theories, including low SES and minority youth.

Thus, while some research (e.g., Mortimer et al. 2002) has studied effects of work conditional on both work hours and quality, as we do, they use local, non-representative data (from the Youth Development Study) and look at outcomes other than behavior. In addition, while a great deal of research (e.g., Ruhm 1995; D'Amico and Baker 1984) has studied employment effects among a cohort from the late 1970s (NLSY 1979), analysis of more recent data is necessary to understand the contemporary transition to adulthood. Several contributions (e.g., Paternoster et al. 2003; Apel et al. 2007, 2008) have used the NLSY97 survey, which offers more recent data, but does not include information about job quality, our central interest. The PSID data used in this paper improve on previous research by providing rich, longitudinal, and more recent nationally representative data that can be generalized to youth of all family backgrounds.



## **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 social networks, human capital, and strain.

(Figure 1 about here)

## **METHODS**

### **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) that contains information on child development and family dynamics. 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 2003<sup>2</sup> (CDS-II). These children were between the ages of 5-18 in 2003. The total sample size in CDS-II is 2,907 children (response rate=85% at the child level) residing in 2,019 families (response

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<sup>2</sup> 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.

rate=91% at the family level). In CDS-II, a set of questions about youth employment 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.

Our study sample includes youth aged 12 through 18 in 2003 from all economic backgrounds.<sup>3</sup> 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 non-response 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 variable is an index of behavior problems 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

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<sup>3</sup> 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.

and Zill (1986). We use the externalizing behavior index<sup>4</sup>, rather than internalizing behavior, because it measures overt behavior.

### Independent Variables

The main independent variable, youth employment, is measured by various characteristics of employment behavior. First, we use a dummy variable indicating whether a youth currently holds a regularly paying job at the time of the interview.

Second, we create a qualitative measure based on youth perceptions of the extent to which a job enables learning new skills, gives responsibility, and provides satisfaction on the job. The qualitative job index is a sum of how the youth rates their job on a scale from 0 to 7 in terms of: 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; the median is 17 for those working. A high quality job includes those above the median, who rate their job a 6 or above on all 3 questions (with a sum of 18 and above). This threshold limits high quality job holders to youth who rate their job highly on all three measures and who rate their job higher than most other youth.

Third, 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

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<sup>4</sup> Externalizing BPI 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)

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).<sup>5</sup>

### Mediators

To test differential association theory we create an index of peer influence, which 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 the first three questions from the peer index above (alpha=.61). The negative peer influence index includes all of the remaining questions from the overall peer index above (alpha=.72).<sup>6</sup>

To test human capital theory, we use the qualitative job index (described above), which measures whether a job provides the opportunity to learn new skills and handle responsibilities (reported by youth themselves). 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

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<sup>5</sup> An alternative threshold (fewer than 20 hours compared to 20 or more hours) yields the same results.

<sup>6</sup> Because these Cronbach alpha values are relatively low, peer indices are measured with error and therefore less likely to reveal a significant mediation relationship.

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, distinguishing two-biological parent families from other family types. Youth characteristics including age, gender, and race are also controlled. Race is reported by the primary caregiver, who was instructed to report one race for the child. Our indicators for white and black include non-Hispanic white and black youth. Due to the small number of the Hispanics, Asians or Pacific Islanders, American Indians, or other, we include them in the "other race" category.

We control for several social factors which may influence both early employment and behavior problems: educational expectations, parental control, and parental psychological distress. Measures of a youth's own educational expectations include indicators for: 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. "Parental control/closeness to parents" is an index that 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 control for parental psychological distress in 1997 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 emotional 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 urban residence, neighborhood quality, local unemployment rate, and region to capture labor market opportunity and other geographical differences. Neighborhood quality is measured by two 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. Local unemployment is measured in the census tract where the family resided at the time of the CDS-II.

### **Analytic Strategy**

We first examine the extent and nature of youth employment. These preliminary analyses help us address self-selection into employment. Using a large set of factors that previous research suggests influence early work behavior, we predict whether youth have a regular paying job in logistic models. 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 behavior problems. We include a host of control variables, including those found to predict youth employment and prior BPI score (assessed in CDS-I), to control for previous behavior and address self-selection, reducing the chance that the relationship is spurious. After these baseline models, 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.<sup>7</sup>

Finally, we use state minimum youth employment certification laws as an instrumental variable (IV) to estimate the relationship between employment and behavior after controlling for self-selection. Some states require age certification for employment (a “work permit”) until age 18 (as opposed to age 16 or not at all<sup>8</sup>), which is associated with lower youth employment. A state is

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<sup>7</sup> While most measures have low rates of missing values, four variables are missing values for a substantial proportion of the sample (up to 36%, see Table 1): youth emotional distress and parental distress in 2003, self-concept and low test score in 1997. To avoid losing a large number of observations through listwise deletion due only to these four variables, we use multiple imputation, imputing each value ten times. All regression coefficients and standard errors are adjusted for variation in imputations (Rubin 1987).

<sup>8</sup> 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,

coded one if it 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, therefore IV analyses are limited to youth ages 16 and 17.

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. Assumption 1 can be tested directly and the results (provided in the results section) show that assumption 1 holds and the work permit variable is therefore a strong instrument.<sup>9</sup> 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 serve as a valid instrument for youth employment, allowing estimation of the causal effects of employment, net of self-selection.

Nevertheless, there are two important limitations of applying an IV approach here. First, because we only have one strong instrument available, the IV analysis can only identify the effect of holding a regular paying job. Without two valid instruments, we are unable to estimate interaction effects using the IV approach. For example, to estimate different effects of holding a high or low quality job in an IV model, we would need an instrument for both high quality job and low quality job.

Second, the IV approach demands a large sample size. The work permit instrument is necessarily limited to youth ages 16 and 17, the only ages affected by the law, leaving only about 300 youth for the IV analysis. With this limited sample size, the risk of Type II errors (failing to

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Pennsylvania, Washington, and Wisconsin. All of these states require a permit until age 18, except Alaska, where the requirement ends at age 17.

<sup>9</sup> We investigated other potential IVs, including: an indicator for whether the state minimum wage rate is over the federal level; states requiring work curfews for youth; states limiting the number of hours a youth can work per week; and states without any law limiting youth work time. None of these instruments, however, meet strength requirements in this sample of youth (i.e. they are weak instruments, failing assumption #1).



reject a false null hypothesis) is high. Despite these limitations, the IV approach is critical to address concern about endogeneity between youth employment and behavior.

## FINDINGS

### Employment Patterns

(Table 1 about here)

Table 1 provides basic information about youth employment by racial category.<sup>10</sup> 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, are more likely to work moderate hours. 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.<sup>11</sup> 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 U.S. 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.

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<sup>10</sup> We present descriptive information for white, black, and all youth but not for the “other race” group because the PSID-CDS does not have a large enough sample of other ethnic groups to allow separate analyses in this paper and our focus is on black-white differences.

<sup>11</sup> 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](http://www.bls.gov/cps/cps_aa2003.htm)

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 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 a significant difference by race: 16.2 overall, 14.9 for black, 16.5 for white youth (with a median of 17). 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 external 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. The list includes: 1) *contemporaneous measures* of peer influence; neighborhood quality; emotional distress; closeness to parents; educational expectations and intent; self-concept; 2) *geographic characteristics* such as urban residence; region; and the unemployment rate in the census tract where the family resided at the time of the CDS-II interview; and 3) *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. Background variables, including age, race, gender, family income since birth, mother's education, and family structure are controlled. 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. Contrary to the literature discussed above, logistic regressions predicting youth employment indicate that by far the most important factors are neighborhood characteristics

such as whether an adolescent is living in an SMSA (an urban area) and 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 5.6% drop in the probability of youth employment.<sup>12</sup> Those who live in a city, 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. These results should be interpreted with caution because youth characteristics measured in 2003 are potentially endogenous.

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 associated (negatively and positively, respectively) with intense work. Based on these findings, we control for these factors in later regressions.<sup>13</sup>

## Youth Employment and Behavior Problems

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<sup>12</sup> We first calculate the log of the odds ratio ( $\log(.003)=-5.81$ ). Then the change in probability associated with a 1% increase in unemployment rate is  $((\exp(-5.81*.08)-\exp(-5.81*.07))/\exp(-5.81*.07))*100=-5.64$ .

<sup>13</sup> 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.

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. (Models using the simplest measure of employment – whether a youth is working – are not shown in the interest of space.) A more careful examination reveals that only high quality jobs or jobs worked for moderate hours are associated with fewer externalizing behavior problems, while jobs that extend to long hours (more than 20 hours) 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; among whites, high quality work is associated with a decrease of 1.46 on the externalizing behavior problems scale, whereas among blacks, high quality work is associated with a decrease of 3.46 (-1.461-1.998=-3.46) such that there is a stronger association between high quality work and fewer behavior problems for blacks than for whites.

Model 3 shows that positive peer influence slightly mediates this interaction effect, reduces its significance to  $p < 0.1$ , and also 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 partly by providing positive role models or social networks. Adding an interaction effect for positive peers and high quality work in Model 4 makes employment coefficients non-significant.<sup>14</sup> This non-significant interaction suggests that, while positive peers do not have a significantly different relationship with BPI by job quality, controlling for positive peers among those in high quality work reduces all work measures to insignificance. Thus, based on both the traditional regression and Sobel-Goodman mediation tests (see footnote 17), the association between high quality work and behavior appears to be mediated by positive peer influence. This mediating effect of positive peer influence 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 mediate the interaction effect between black and high quality job, suggesting the apparently different effects by race may be related to different peers encountered at work in high quality jobs. Compared to similar white youth, the benefit of having positive peers and role models at work may be greater for black youth because such role models may be less available to them at home or in the neighborhood.

(Table 5 about here)

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<sup>14</sup> As a further verification of this mediation, we use the Sobel-Goodman mediation test to ask whether positive peers significantly mediate the interaction between black and high quality work. Testing an interaction term is difficult, because it would yield strange results in the preliminary models of the mediation analysis. Therefore, we alternately limit the sample to those with and without high quality work and ask whether, within those groups, positive peer influence significantly mediates the relationship between being black and BPI score. We find that among those without high quality jobs, positive peers is a significant mediator and among those with high quality jobs, positive peers mediates the black-BPI relationship, but the mediation is only marginally significant ( $p < 0.1$ ).

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 context 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 downward 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, evidence does not directly support hypothesis 2B, which suggests that work exposes youth to delinquent peers, and thus will promote more behavior problems. Rather, consistent with hypothesis 2A, we find that if employment integrates youth into pro-social peer networks, it reduces behavior problems. Differential association theory typically portrays work as promoting behavior problems due to the delinquent peers encountered. Our findings indirectly support differential association theory, revealing the importance of social networks but emphasizing the positive rather than negative potential of peers encountered at work when youth work moderate hours or high quality jobs.

Evidence confirms hypotheses 1 and 2A, offering the most support for human and social capital theories. High quality jobs are related to fewer behavior problems. The significant interaction effect of high quality work and race 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 accounting for the positive effects of both moderate work hours and high quality jobs, which supports social network theory more than human capital

theory. Results (not shown) contradict hypothesis 3, because contrary to strain theory, emotional distress is associated with fewer behavior problems, but only for those working intensive hours.

### **Instrumental Variable Approach**

Finally, we use an instrumental variable (IV) approach in an attempt to address the endogeneity in early youth employment. 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 models predicting youth employment, shown in Table 3). Combined with previous evidence that work permit laws satisfy the other assumptions required for an IV approach (Rauscher 2011), this suggests that state work permit laws provide an exogenous shock on individual adolescent employment, allowing estimation of the causal effects of employment, net of self-selection.

(Table 6 about here)

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. Our data may not be sufficiently adequate to provide conclusive results; further investigation is needed. However, overall results consistently suggest that working is related to a lower incidence of behavior problems.

While we cannot estimate separate effects for high and low quality work (or for moderate or intense work) without two valid instruments, we use work permit laws to estimate the effect of high quality work or moderate work hours on BPI score (compared to youth in other types of work or non-workers). Results are consistent with what we observed with the OLS approach. That is, in all



of our models, moderate hours and high quality work are associated with lower behavior problems (results not shown due to space constraints). While these effects do not reach significance, possibly due to the relatively small sample size, the results broadly support OLS results.

In sum, the IV results are consistent with the relationship found in OLS models, suggesting the work-behavior relationship holds even when controlling for self-selection into work. Despite the small sample size, work marginally reduces behavior problems. While we cannot investigate effects of different types of work, the direction of the coefficients in the IV analyses are consistent with lower behavior problems among those who work moderate hours in high quality jobs.

## **DISCUSSION**

We contribute to the literature of youth employment and behavior by focusing on job quality and how job quality affects black and white youth differently. Our results based on the PSID data are in general agreement with Mortimer and colleagues' findings that 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. Results presented in this paper show that this relationship is mediated by positive socialization and peer influence. 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.

Our findings lend the most support to human capital/learning and social capital/network theories, which stress the importance of positive role models and training opportunities for youth. Instrumental variable analyses address self-selection into employment and find consistent results. The causal relationships, however, warrant further investigation.

It is important to note that we show the main determining factors for youth employment to be the availability of jobs in the neighborhood rather than individual or family characteristics suggested in previous research such as poor academic performance, youth behavior, or a lack of parental supervision. By doing so, we move the literature on youth employment and behavior beyond the traditional individualistic focus. 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 conceptualized as part of the stratified social capital/networks shaping the life chances of youth from different racial and socioeconomic backgrounds.

We find that high quality work has a particularly strong association with fewer behavior problems for black youth. 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 low quality jobs. In line with the arguments by Wilson (1987) that black joblessness and lack of quality jobs for black male adults contribute to many social problems of urban areas, our results suggest that even as early as adolescence, early employment opportunities may 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. High quality early employment

opportunities could provide useful social network and training opportunities that may generate inequalities in life chances in 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. These efforts, however, should work to promote high quality work, particularly among black youth.

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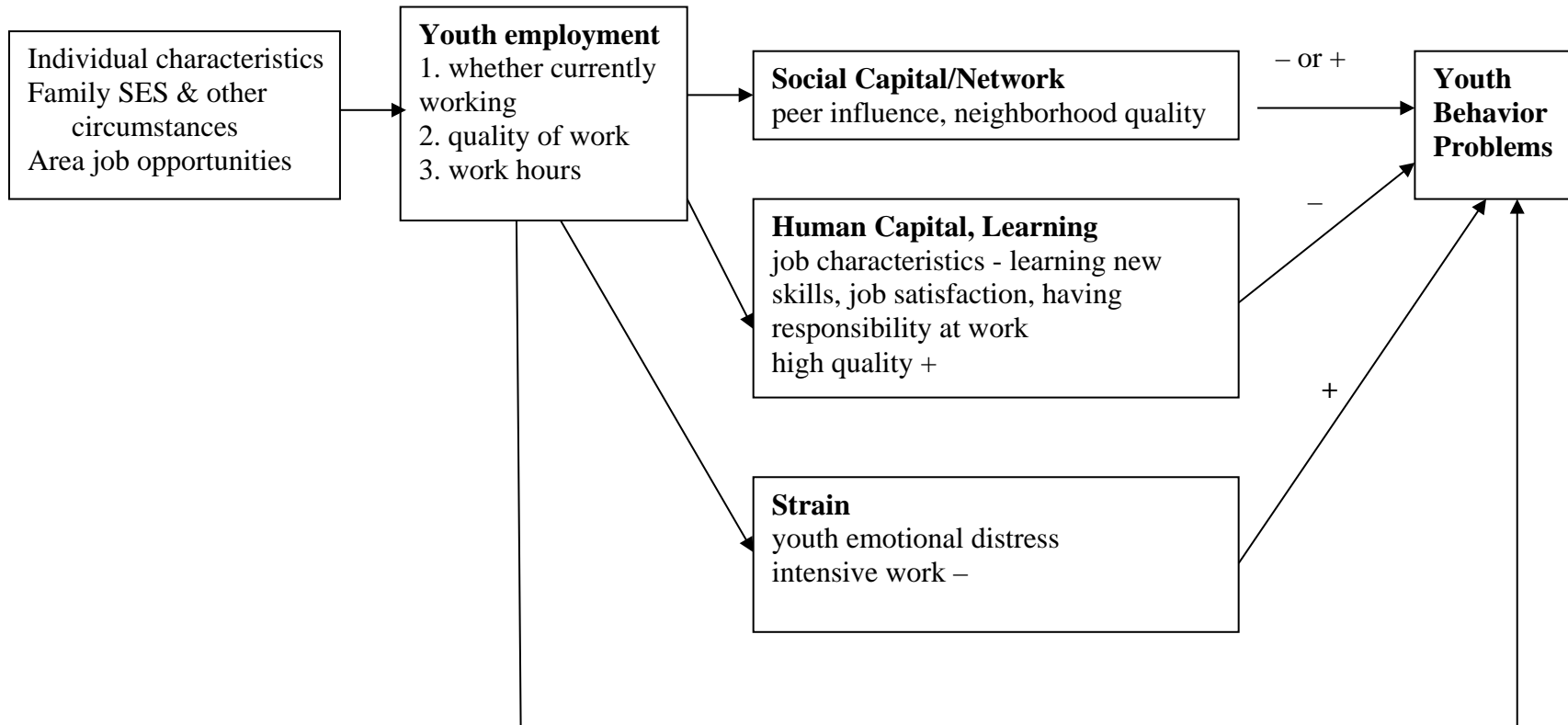
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**Figure 1: Conceptual Framework for Early Youth Employment and Behavior Problems**



**Table 1: Patterns of Early Youth Employment, by Race**

	<b>ALL</b> (N=1154)		<b>BLACK</b> (N=497)		<b>WHITE</b> (N=512)	
	Mean	Std.	Mean	Std.	Mean	Std.
% currently holding a regular job*	18%	(0.39)	15%	(0.36)	22%	(0.42)
<b><u>OF THOSE WORKING</u></b>	(N=211)		(N=79)		(N=118)	
<b>Average weekly work hours*</b>	13.8	(8.80)	15.1	(10.80)	14	(8.30)
% moderate work (<20 hours/week)*	70%	(0.46)	60%	(0.49)	72%	(0.45)
% intensive work (20+ hours/week)*	30%	(0.46)	40%	(0.49)	28%	(0.45)
<b>Quality of job scale (0-21)*</b>	16.2	(3.7)	14.9	(4.3)	16.5	(3.6)
% in low quality (<18)	59%	(0.49)	66%	(0.48)	54%	(0.50)
% in high quality (≥18)	41%	(0.49)	34%	(0.48)	46%	(0.50)
<b>Earnings/month (topcoded)</b>						
Earn <\$275 per month	36%	(0.48)	43%	(0.50)	35%	(0.48)
Earn \$275 to <525 per month	33%	(0.47)	30%	(0.46)	34%	(0.48)
Earn ≥\$525 per month	31%	(0.47)	27%	(0.45)	31%	(0.46)
Median	\$390	(270)	\$356	(286)	\$400	(268)
<b>Type of work/Occupation</b>						
food service	31%	(0.47)	31%	(0.46)	33%	(0.47)
sales*	29%	(0.45)	40%	(0.49)	24%	(0.43)
personal care service	10%	(0.30)	8%	(0.27)	12%	(0.32)
cleaning and maintenance	6%	(0.24)	3%	(0.16)	5%	(0.22)
office and administrative support	4%	(0.20)	4%	(0.20)	5%	(0.22)
education	4%	(0.20)	5%	(0.22)	3%	(0.16)
others	19%	(0.39)	15%	(0.36)	21%	(0.41)
arts and entertainment*	3.8%	(0.19)	0	(0)	5.2%	(0.22)
health	3.1%	(0.17)	1.5%	(0.12)	3.9%	(0.19)
agriculture	2.1%	(0.14)	0	(0)	2.8%	(0.17)
installation and repair	1.5%	(0.12)	1.5%	(0.12)	1.7%	(0.13)
transportation	1.4%	(0.12)	4.8%	(0.22)	1.0%	(0.10)
construction	1.0%	(0.10)	0.7%	(0.08)	1.2%	(0.11)
protective services	0.8%	(0.09)	0	(0)	0.9%	(0.09)
architecture and engineering	0.5%	(0.07)	0	(0)	0.7%	(0.08)
military	0.3%	(0.06)	0	(0)	0.5%	(0.07)
production	0.1%	(0.04)	0.9%	(0.09)	0	(0)

Note: Includes only those with work-related data. Race is based on mother's report.

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

**Table 2: Descriptive Statistics of Main Measures**

	<b>All</b>			<b>Black</b>			<b>White</b>		
	Mean	St Dev	N	Mean	St Dev	N	Mean	St Dev	N
<b>Dependent variable</b>									
Behavior problems*	5.49	4.30	1151	6.15	4.81	496	5.30	4.09	510
<b>Individual Covariates</b>									
Age of child	15.52	1.77	1154	15.72	1.76	497	15.56	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
<b>Family Covariates</b>									
Family inc since birth (\$10k)*	5.53	4.36	1087	3.30	2.37	472	6.70	4.72	477
Mother's education*	12.78	2.85	1074	12.32	1.82	471	13.67	2.08	475
2-biol parent household*	0.64	0.48	1087	0.32	0.47	472	0.71	0.45	477
<b>Geographic/Area Contexts</b>									
Urban area*	0.55	0.50	1138	0.65	0.48	495	0.44	0.50	504
Northeast*	0.18	0.38	1154	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
Neighborhood quality*	3.46	0.79	1144	3.12	0.88	489	3.69	0.63	510
<b>Potential Mediating Mechanisms</b>									
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
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	4.05	3.45	395
Close to parents*	22.77	5.02	1078	21.68	4.90	456	23.40	4.76	485
Self-concept 2003*	3.99	0.65	1145	4.16	0.58	495	3.99	0.64	506
<b>Socio-Emotional Context</b>									
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*	10.03	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	336	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.

\* 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)
<b>Individual Background Factors</b>				
Age	1.745** (0.131)	1.745** (0.133)	1.736** (0.138)	1.732** (0.136)
Male	1.208 (0.266)	1.164 (0.259)	1.344 (0.322)	1.356 (0.358)
Black	0.545* (0.190)	0.586 (0.217)	0.743 (0.271)	0.627 (0.253)
Other Race	0.409 (0.195)	0.479 (0.233)	0.391 (0.211)	0.412 (0.226)
Avg fam income birth to 2001, in \$10,000	0.998 (0.025)	0.989 (0.026)	0.991 (0.027)	0.991 (0.027)
Whether live in SMSA 2003		1.476+ (0.340)	1.733* (0.412)	1.799* (0.441)
% unemployed in 2000 census tract		0.007+ (0.017)	0.002* (0.004)	0.003* (0.007)
<b>Socio-Emotional Context</b>				
Self-concept 97			1.198 (0.217)	1.135 (0.214)
Low test scores 97			0.547 (0.280)	0.576 (0.308)
BPI 97			1.024 (0.038)	1.027 (0.039)
Parental monitoring 97			1.423+ (0.300)	1.330 (0.299)
Parental distress 97			1.100+ (0.060)	1.104* (0.062)
<b>Potential Mediating Mechanisms</b>				
Has a college savings acct 2003				1.667* (0.412)
Positive peers 2003				1.000 (0.161)
Close to parents index 2003				0.988 (0.031)
Emotional distress 2003				0.916+ (0.041)
Constant	2.31e-05** (3.26e-05)	4.21e-05** (6.28e-05)	4.72e-06** (1.00e-05)	1.58e-05** (3.29e-05)
Observations	1063	1043	962	926

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: 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)
<b>BPI Externalizing Score</b>				
<b>Job Quality</b>				
<b>(reference group is nonworkers)</b>				
Low quality	-1.234 (0.817)	-1.136 (0.827)	-1.190 (0.812)	-1.217 (0.807)
High quality	-1.756* (0.828)	-1.380 (0.884)	-1.423 (0.866)	1.115 (1.934)
<b>Individual Characteristics</b>				
Black	0.842+ (0.494)	0.974+ (0.509)	1.148* (0.506)	1.130* (0.507)
Male	-0.292 (0.330)	-0.281 (0.330)	-0.464 (0.320)	-0.415 (0.319)
Black*high quality job		-2.320* (1.137)	-2.125+ (1.099)	-1.445 (1.062)
Other race	-0.505 (0.672)	-0.493 (0.671)	-0.432 (0.664)	-0.442 (0.663)
<b>Potential Mediating Mechanisms</b>				
Close to parents index	-0.097** (0.035)	-0.096** (0.035)	-0.062 (0.038)	-0.061 (0.038)
Positive peers			-0.606** (0.213)	-0.539* (0.224)
Positive peers*high quality job				-0.806 (0.491)
Has a college savings 2003	0.225 (0.325)	0.205 (0.325)	0.350 (0.325)	0.367 (0.325)
Emotional distress 2003	0.104* (0.053)	0.105* (0.053)	0.090+ (0.052)	0.091+ (0.052)
Constant	7.926 (2.797)	8.102** (2.795)	9.812** (2.894)	6.678** (2.874)
Observations	923	923	923	923

\*\* p<0.01, \* p<0.05, + p<.10

Robust standard errors in parentheses

The following covariates are included in all models but are insignificant and not shown in the table: Age; 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
<b>Work Intensity</b>			
Moderate (<20 hrs per week)	-1.789*	-1.741*	1.141
	(0.875)	(0.851)	(1.818)
High (20 or more hrs per week)	-0.935	-0.974	-1.007
	(0.778)	(0.808)	(0.799)
<b>Potential Mediating Mechanisms</b>			
Close to parents index		-0.062	-0.059
		(0.038)	(0.038)
Positive peers		-0.609**	-0.488*
		(0.212)	(0.224)
Positive peers*moderate hours per week			-0.883+
			(0.468)
Has a college savings acct 2003		0.358	0.359
		(0.324)	(0.322)
Emotional distress 2003		0.089+	0.095+
		(0.053)	(0.053)
Constant	6.237**	9.663**	9.333**
	(1.977)	(2.891)	(2.871)
Observations	922	922	922

\*\* p<0.01, \* p<0.05

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; Neighborhood quality; 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**

VARIABLES	(1)	(2)	(3)	(4)
	Odds Ratios (First Stage of IV Regs)		IV Regressions	
	Has a Regular Paying Job		BPI Externalizing Score	
Work Permit Required >Age 16	0.411*	0.308**		
	(0.159)	(0.135)		
Regular paying job			-7.794+	-4.433+
			(4.719)	(2.666)
<b>Individual Background Factors</b>				
Age	1.556	1.658	1.387+	0.737
	(0.488)	(0.575)	(0.763)	(0.529)
Male	1.301	1.455	-0.365	-1.141*
	(0.455)	(0.631)	(0.830)	(0.576)
Black	0.266**	0.292*	-1.766	0.157
	(0.130)	(0.175)	(1.646)	(0.906)
Other race	0.114	0.160	-0.967	-0.905
	(0.165)	(0.200)	(2.519)	(1.820)
<b>Socio-Emotional Context</b>				
Self-concept 97		1.411		1.000**
		(0.382)		(0.367)
Low test scores 97		0.900		1.102
		(0.965)		(0.957)
BPI 97		1.062		0.643**
		(0.056)		(0.072)
Parental monitoring 97		1.083		0.596
		(0.353)		(0.387)
Parental distress 97		1.013		-0.016
		(0.065)		(0.088)
<b>Potential Mediating Mechanisms</b>				
Close to parents index 03		0.974		-0.092
		(0.046)		(0.068)
Positive peers 03		0.702		-0.039
		(0.262)		(0.465)
Has college savings acct 03		3.810**		1.412+
		(1.779)		(0.856)
Youth emotional distress 03		0.924		-0.124
		(0.077)		(0.104)
Constant	0.004	0.000	-12.884	-5.978
	(0.023)	(0.000)	(11.469)	(9.271)
Observations (16-17 year-old youth)	312	282	312	282
F statistic <sup>a</sup>			5.921⊠	7.875◆
Endogeneity test <sup>b</sup>			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: Average family income from birth to 2001; Whether live in SMSA 2003; neighborhood quality; % unemployed in 2000 census tract; Region; Mother's years of education; peer influence index; and Family structure (whether lives with 2 biological parents).

<sup>a</sup> Test of IV strength is above Stock-Yogo (2005) critical values: § = 15%; ◆ = 20%; ⊠ = 25% (calculated using non-imputed data). <sup>b</sup> 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; calculated using non-imputed data)