HIGH SCHOOL EMPLOYMENT, DROPPING OUT, AND EARLY FERTILITY AMONG YOUNG MEN

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ABSTRACT

Despite previous research examining the impact of high school employment on educational attainment, academic performance, substance use, delinquency, and risky sexual behaviors, very little research has considered the impact of high school employment on early fertility; this is especially true for early fertility among males. The present study uses data on young men in the National Longitudinal Survey of Youth 1997 (NLSY97) to examine the relationship between employment in 9th and 10th grades and dropping out of high school and/or experiencing a first birth before age 24 and the relationship between employment in 11th and 12th grades and experiencing a first birth before age 24 among non-dropouts. Results from a series of multinomial logistic regressions suggest that youth who work consistently and moderately (20 or fewer hours/week) are the most likely to both graduate from high school and delay fertility until after age 24, while youth who work intensively (consistently working 21 or more hours/week) or sporadically (inconsistently working 21 or more hours/week) are the most likely to drop out of high school and drop out of high school and experience a first birth before turning 24. Among youth who do not drop out of high school, youth who work consistently and moderately in 11th and 12th grades are the least likely to experience an early first birth, relative to other kinds of workers, while youth who work intensively or sporadically are the most likely to experience a first birth before age 24. These results suggest that early work behaviors are associated with high school dropout, while later work behaviors among non-dropouts are associated with fertility outcomes for young men.

Introduction

Working is a major part of development for many youth in the United States; the Bureau of Labor Statistics (BLS; 2011) reported that the labor force participation rate for all youth, or the proportion of 16 to 24 year olds working or looking for work, was 59.5% in July 2011. Due to the recent economic recession, this rate was the lowest recorded since 1948 when the BLS began collecting information on youth employment, and yet still constitutes more than half of youth. Many youth begin working earlier than age 16, most often in free-lance jobs such as babysitting or yard work (Mortimer, 2010). With adolescent employment being so prevalent among American youth, many researchers developed interests in studying the characteristics, precursors, and impacts of adolescent employment. While previous research has tended to focus on delinquency, substance use, high school performance and completion, as well as other outcomes, much less research has studied the impacts of adolescent employment on fertility, and this is especially true for male fertility. Many parents and youth believe that employment is beneficial for teenagers (Mortimer, 2010), yet some theories suggest that as employment is an adult behavior, youth who begin working in high school may be inclined to take on additional adult roles, including having children. The current study addresses the question "Are patterns of high school employment related to dropping out of high school and early fertility in young men?" Using data from the NLSY97, patterns of high school employment are used to predict dropping out of high school and/or experiencing a first birth before age 24.

Theoretical Background on Adolescent Employment

Previous research on adolescent employment has yielded both positive and negative findings for a variety of outcomes. The outcomes that have been previously examined generally focus on academic performance and educational attainment (Lee & Staff, 2007; Monahan, Lee, & Steinberg, 2011;Oettinger,

1999; Staff & Mortimer, 2007; Staff & Mortimer, 2008; Warren & Lee, 2003); delinquency and substance use (Apel, Paternoster, Bushway, & Brame, 2006; Bauermeister, Zimmernman, Barnett, & Caldwell, 2007; Monahan et al., 2011; Paternoster, Bushway, Brame, & Apel, 2003); long-term labor market outcomes (Mroz & Savage, 2006; Ruhm, 1997; Staff & Mortimer, 2008; Wang, Carling, & Nääs, 2006); and to a lesser extent, risky sexual behaviors and early fertility (Bauermeister et al., 2009; Ku, Sonenstein, & Pleck, 1993; Rauscher, 2011; Rich & Kim, 2002; Staff, VanEseltine, Woolnaugh, et al., 2012). Researchers have drawn on several theories from which to frame their research and interpret their findings: some conclude that employment is good for adolescent development, others that employment is bad, and still others suggest that the impacts of adolescent employment are dependent on selection factors or characteristics of the youth and/or their job (Mortimer, 2010).

Parents and teenagers often believe that employment is a positive influence on youth development, as it allows youth to learn the "value of a dollar", learn time management skills, be more responsible, and be more comfortable around adults (Mortimer, 2010). Mortimer notes that while very few adolescents give the money they earn from high school jobs directly to their parents, many youth use their earnings to buy things for themselves such as clothes and food, and in that way may lessen the burden of financial strain on their parents. Additionally, working while in high school may facilitate the transition to adulthood and full-time employment after high school (Bauermeister et al., 2007).

However, others have suggested that high school employment has negative impacts on adolescent development. One prominent concern seems to be that working while in high school uses time that could be spent focusing on the requirements of school (Mortimer, 2010). Youth who spend long hours working have less time to devote to homework and other extracurricular activities, are less available to meet with teachers, and are more tired and less able to focus when they are in school (Bills, Helms, & Ozcan, 1995). Others point out that youth who work while in high school tend to engage in more delinquency and substance use, especially if youth work more than 20 hours per week (Apel et al., 2006; Monahan et al., 2011). Additionally, Precocious Development Theory suggests that because employment

is an adult activity, youth who work in high school may be more inclined to take on other adult behaviors and roles they are perhaps not prepared to handle (Bauermeister et al., 2009; Staff et al., 2012).

While some researchers suggest that high school employment is either good or bad, others argue that the effects of high school employment are different for different kinds of youth, or that high school employment has no impact on youth development after accounting for selection (Mortimer, 2010). Lee and Staff (2007) use propensity score matching to identify youth with low, medium, or high propensities to work intensively, defined as more than 20 hours per week. The authors included in their propensity equation covariates that previous research had identified as potential confounders of the relationship between work intensity and high school dropout, such as respondent age, gender, race, family structure, number of siblings, household size, parents' education, mother's employment status, autonomy from parents, 8th grade grade-point average, and other variables (see Lee & Staff (2007) for a full description). They concluded that intensive employment has no impact on dropping out of high school only among those youth with a high propensity to work intensively; youth with low or medium propensities for intensive employment were more likely to drop out when they worked intensively. These results suggest that the impact of high school employment may be different for different kinds of youth. Still others suggest that, after accounting for selection, high school employment has no impact on adolescent development. Paternoster et al. (2003) replicate the findings of other researchers using logit models estimating the impact of high school employment on delinquency, substance use, and other problem behaviors. The replicated findings align with other studies, and suggest that high school employment promotes these negative behaviors. However, after accounting for pre-employment differences using fixed- and random-effects models, the authors conclude that high school employment has no effect on delinquency, substance use, or problem behaviors after properly accounting for selection.

Given these different perspectives on the effects of high school employment, as well as the inconsistent findings of previous research, the impact of high school employment is not yet clearly understood. Previous research has, however, converged on the facets of high school employment that

seem to be especially important correlates of youth development. Examining the ways in which high school employment has been measured in previous research reveals that most research on high school employment has focused on working as a dichotomous activity (i.e., either youth work or they do not), the intensity of work (i.e., the average number of hours worked per week), and on the duration of employment (i.e., number of weeks worked in a year). The intensity of employment is one factor that has received a great deal of attention in previous research. Despite different analytic strategies to examine the relationship and account for selection, working an average of 21 or more hours per week seems to be associated with a number of negative outcomes, including dropping out of high school (Warren & Lee, 2003), engaging in substance use and delinquency (Apel et al., 2006), and engaging in risky sexual behaviors (Bauermeister et al., 2009; Ku, Sonenstein, & Pleck, 1993).

Using data from the Youth Development Study, Mortimer and colleagues have conceptualized high school employment as belonging to one of five patterns based on combinations of intensity and duration of employment: non-workers, occasional workers, steady workers, sporadic workers, and intensive workers (Mortimer, 2003; Mortimer, 2010; Staff & Mortimer, 2007; Staff & Mortimer, 2008). Occasional workers are characterized by a low duration of employment, and work few hours when they do work. Steady workers, on the other hand, work consistently, but work fewer than 20 hours per week. Similar to occasional workers, sporadic workers are characterized by working fewer weeks, but work intensively when they do work. Intensive workers consistently work more than 20 hours per week throughout the school year. Using these categorizations of high school employment, steady workers seem to fare best, while intensive workers seem to experience the most negative outcomes. The present study utilizes this conceptualization of high school employment to examine the association between high school employment and high school dropout and early fertility.

Further, the present study considers early high school employment, or employment in 9^{th} and 10^{th} grades, in addition to employment in later high school, or 11^{th} and 12^{th} grades. The Bureau of Labor Statistics (2005) reports that among youth in the NLSY97, approximately 41 percent of high school

freshmen work at some point during the school year or following summer, and a higher percentage of respondents report working with each higher grade level reaching 87% by senior year. Michael and Tuma (1984) argue that despite the fact that researchers typically focus on employment after age 16, many youth accumulate a substantial amount of work experience when they are 14 or 15. Further, youth who begin working at 14 or 15 report working 2.4 more hours per week when they are 16 or 17 years old than those who were not working. The authors did not find a link between early high school employment and high school dropout. However, Lee and Staff (2007) report that working intensively while in 9th and 10th grade is related to high school dropout for some youth. Thus, the present study examines the association between early high school employment and high school dropout, in addition to early fertility to add to the literature on this topic and hopefully clarify the inconsistent relationship.

Adolescent Employment and High School Dropout

The impact of high school employment on high school dropout is perhaps one of the most studied relationships in research on adolescent employment. A number of studies have considered the relationship between high school employment and educational attainment, with several focusing specifically on dropping out of high school. Using data from the National Educational Longitudinal Study of 1988 (NELS:88), Warren and Lee (2003) found that there were no differences in dropping out between non-workers and youth who worked moderately (20 hours or less per week), but that intensive workers were about 40% more likely to drop out. Further, this relationship did not differ by sex, race/ethnicity, socioeconomic status, grade retention, or curriculum track, nor did it differ based on characteristics of the local labor market. Also using the NELS:88, Lee and Staff (2007) use propensity-score matching to identify the youth with high-, medium, or low-propensities toward intensive working based on several demographic, socioeconomic, and family characteristics measured in 8th grade that previous research suggests are potential confounders in the relationship between intensive high school

employment and high school dropout. The authors report that youth with low- or moderate-propensities to work intensively were more likely to drop out of high school when they did work intensively, while youth with high propensities to work intensively were not impacted by working intensively. Additionally, the authors find that among youth with moderate-propensities to work intensively, those who do work intensively would have benefitted from not doing so; the odds of dropping out among this group would be lower if they worked 20 hours or less per week.

Alternatively, Michael and Tuma (1984) conclude that youth who are employed at ages 14 and 15 are no more likely to drop out of high school than are other youth, using data from the NLSY79. However, the authors only consider whether or not youth are employed, and not how many hours they are working. Ruhm (1997) also uses the NLSY79, and reports that while working during the senior year is related to lower levels of overall educational attainment, youth employed during their senior year are actually more likely to graduate from high school than are unemployed youth. However, Ruhm also reports that youth who work intensively in their senior year are less likely to complete school and attend college.

Mortimer (2010) suggests that youth who work intensively may be relying on their employment experiences rather than educational experiences as a means of accruing human capital. In fact, Staff and Mortimer (2007) report that the most invested workers in their sample of youth from the Youth Development Study spend more months in full-time work only, and fewer months in school only and fewer months being idle than do other kinds of high school workers. Sporadic workers appear to be similar to the most invested workers in their study in terms of how they spend their time after high school. Thus, the relationship between high school employment and high school dropout remains unclear; previous research suggests that intensive workers may be more likely to drop out, and that they may be using employment in high school rather than post-secondary education as an investment their futures beyond high school.

Adolescent Employment and Early Fertility

The link between high school employment and early fertility has been far less studied than the link between high school employment and high school dropout. Further, females have been the focus of the work that has been done, and these studies have produced mixed results. Rauscher (2011) reported that working slightly but significantly increased the likelihood of fertility among 17 year old girls using data from the 2006 and 2007 American Community Surveys. However, this relationship differed by socioeconomic status, such that work was associated with early fertility for low-income but not high-income women. Further, Rich and Kim (2002) report that working while in high school is associated with experiencing a pregnancy for some girls; African American girls who work had an increased risk of becoming pregnant, while Hispanic girls had a decreased risk, and the relationship for Whites was not significant. However, Staff et al. (2012) report that working intensively in high school is only marginally related to experiencing a pregnancy among their female subsample. Thus, previous research that explicitly examines the relationship between high school employment and early fertility has generally focused on young women, and has produced mixed results. The remainder of the studies discussed in this section focus on research with young men.

The studies that have included male respondents have generally focused on sexual risk taking (Bauermeister et al., 2009; Ku, Sonenstein, & Pleck, 1993) and other family formation behaviors (Staff et al., 2012). Ku, Sonenstein, and Pleck (1993) found that among young men, working more hours (as a percent relative to full time work) was associated with having more sexual partners and reporting more frequent intercourse. Further, those who were not working were slightly more likely to report using contraception. Bauermeister et al. (2009) also report that intensive employment is related to sexual risk-taking: participants working a higher number of hours were more likely to report inconsistent condom use than low intensity workers and non-workers both during high school and in the four years following high school. However, their study includes both males and females, and found very few differences between genders. Staff et al. (2012) found that among male and female youth in the National Longitudinal Study

of Adolescent Health, intensive workers were 75% more likely to report having initiated sexual intercourse, 70% more likely to have entered into a marital or cohabitating union, and 39% more likely to have established an independent residence by Wave 2. While their sample included both men and women, they only examined pregnancy and fertility among women, and did not find a significant relationship after accounting for demographic and background characteristics.

This previous research establishes that intensive high school employment relates to sexual risk-taking and early family formation behaviors such as union formation and residential independence, but thus far, no definitive link has been found with early fertility in previous research. In addition to examining adolescent males' sexual risk taking behaviors, Ku, Sonenstein, and Pleck (1993) also examined how individual- and neighborhood-characteristics may influence early fertility behaviors. The authors found that working more hours was associated with an increased risk of having ever made someone pregnant and having ever fathered a live birth or current pregnancy, as was living in a neighborhood with a higher unemployment rate, among other factors. The authors suggest that respondents with more economic opportunities, evidenced by the number of hours worked, may be more attractive sexual partners because they have more discretionary income to pay for dates and gifts. However, the authors suggest that the observed relationship may in fact be due to reverse causality, that those respondents who had fathered a child or made someone pregnant were working more hours to support their additional responsibilities. Because the study made use of cross-sectional data, the authors were not able to place the timing of different events in a sequence that would confirm a causal relationship between employment and fertility outcomes. The present study makes use of longitudinal data to overcome this barrier.

These findings suggest that high school employment and early fertility in the years immediately following high school may in fact, be linked. The current study seeks to expand on this previous research by considering the relationship between early high school employment and early fertility before age 24 among young men.

Current Study

The current study examines the relationship between high school employment and high school dropout and early fertility. Using data from the NLSY97, patterns of high school employment are identified and used to predict whether respondents drop out of high school and/or experience an early first birth. Following the lead of Mortimer and colleagues, five patterns of high school employment are identified using combinations of high and low duration and intensity of employment in 9th and 10th grades. As discussed above, Mortimer and colleagues have identified five patterns of high school employment (non-workers, occasional workers, steady workers, sporadic workers, and intensive workers), and found that these particular patterns of employment are related to post-secondary employment and educational outcomes. Additionally, because high school dropout and early fertility are tightly linked outcomes, and because fewer youth drop out before 10th grade, considering early high school employment allows us to examine the relationship between high school employment and both high school dropout and early fertility. Analyses that focus on later high school employment only include respondents who completed high school, and examine the influence of employment in 11th and 12th grades on early fertility.

In the present study "early fertility" is defined as fathering a child before age 24. Hynes, Joyner, Peters et al. (2008) report that by age 24, more than a quarter of white men in the NLSY79 and 2002 National Survey of Family Growth have experienced a first birth, while more than 40% of African American and Hispanic men have; only about half of those respondents began having children by age 20. Astone and colleagues report that the median age at first birth for men in the NLSY79 is around 26, and use 25 or 26 as their cut-off for "early fatherhood" (Astone, Dariotis, Sonenstein et al., 2010; Dariotis, Pleck, Astone et al., 2011). Further, Hynes et al. (2008) report that few men experience teenage births; only about 5-7% of White men, 11-12% of Hispanic men, and 15-17% of African American men experience a first birth before age 20. Therefore, previous research would suggest that considering fertility through age 24 is an appropriate age to consider "early" fertility for young men.

Two analytic approaches are used to separately examine the associations with early and later high school employment. The outcome used in early high school analyses is a four-group combination of whether a respondent drops out of high school and/or experiences an early first birth: does not drop out and does not experience an early first birth, does not drop out and does experience an early first birth, drops out but does not experience an early first birth, and drops out and experiences an early first birth. Multinomial logistic regressions are used to simultaneously examine the association with early high school employment and experiencing any of the outcomes. Rather than conducting separate logistic regressions for dropouts and non-dropouts, this technique can also consider the likelihood of dropping out in addition to early fertility, two outcomes that are tightly linked. For the later high school analyses, only those respondents who complete high school are included, and logistic regression is used to examine the likelihood of experiencing a first birth based on employment patterns in 11th and 12th grades.

Several covariates are included in the analyses to control for factors that are likely correlated with high school employment, high school dropout, and early fertility. Several demographic characteristics (race/ethnicity, family structure, and biological mother's education) as well as individual risk factors (high school grades, delinquency, and age at first sex), are included based on previous research.

Hypotheses

Given the previous research cited above, the present study examines how patterns of high school employment are related to whether or not young men drop out of high school and/or experience a first birth before age 24. For early high school employment, the first hypothesis is that non-workers and occasional workers in early high school will not significantly differ from each other in their likelihood of dropping out or experiencing a first birth before age 24. As these youth are not engaging in the intensive work behaviors that are typically associated with negative outcomes, they will not be at an increased risk of either dropping out or experiencing an early first birth. The second hypothesis is that steady workers

will fare the best, and be the least likely to drop out of high school and the least likely to experience an early first birth. Previous research has found that intensive work is associated with negative outcomes, and as these youth are not working intensively, they should be less likely to experience any negative outcomes. Further, previous research has found that steady workers are the least likely to drop out of high school and the most likely to attend college. Third, intensive and sporadic workers will be at an increased likelihood of dropping out, as well as experiencing an early first birth. Intensive workers, especially, will be more likely to drop out, drop out and experience an early birth, and experience an early birth but not drop out, relative to non-workers and to steady workers. Because both sporadic and intensive workers are engaging in intensive work behaviors, they may be investing in employment as an adult behavior, and be more likely to take on other adult behaviors including investing in the labor market full time by leaving school and/or becoming a parent.

The second set of analyses focuses on the association between employment in 11th and 12th grades and early fertility; in these analyses, a subsample of youth who do not drop out of high school are examined to eliminate any confounding between high school dropout and early fertility. In terms of later high school employment, steady workers will be the least likely to experience an early first birth (Hypothesis 4), because these respondents are the most likely to pursue post-secondary education (Staff & Mortimer, 2007; Staff & Mortimer, 2008). Because steady workers are working a moderate number of hours, it may indicate less investment in employment as an adult role, and steady workers will be less inclined to take on other adult roles, such as having children. Finally, intensive and sporadic workers will both be more likely to experience an early first birth because these youth are the most invested in employment as an adult role, particularly intensive workers. Intensive workers should be more likely to experience an early first birth than sporadic workers, but both groups will be more likely than other types of workers.

Methods

Data

The present study utilizes data from the National Longitudinal Survey of Youth 1997 (NLSY97; Bureau of Labor Statistics). The NLSY97 is an annual survey of a cohort of youth who were 12 to 16 years old on December 31, 1996. The sample includes a nationally-representative cross-section of adolescents (n = 6,748), as well as oversamples of African American and Hispanic youth (n = 2,236), totaling 8,984 youth. For most participants, the first interview was conducted in 1997, but because additional respondents were included during a refielding period in 1998, the respondents were aged 12-18 at Round 1. Additionally, the second round was conducted approximately 18 months after the first interview, while subsequent interviews were conducted approximately 12 months apart. Originally sponsored by the Bureau of Labor Statistics, the purpose of the NLSY97 was to assess the educational and employment trajectories of a cohort of American youth. Other institutions and organizations provided additional sponsorship; as a result, the NLSY97 collects information not only education and employment trajectories, but also family formation and fertility histories, dating, sexual activity, onset of puberty, criminal behavior, time use, expectations, and alcohol and substance use.

Interviews took about an hour and were conducted using a computer-assisted personal interview (CAPI) system, which guides respondents down appropriate paths and loops of questions depending on their characteristics and responses. Questions on sensitive topics were administered using audio computer-assisted self-interview (ACASI) technology, so that respondents could answer questions without the interviewer knowing the answer by either having the questions read to them through headphones or allowing the respondent to read the questions to him- or herself. One advantage to using the computer system is that it collects information from respondents while also automatically checking for inconsistencies and improbable responses (for example correcting inconsistent reports of dates of major events), reducing errors in reporting.

A major advantage of using this data for the current study is that the NLSY97 collects weekly employment data for each respondent beginning after the respondent's 14th birthday. Respondents report the type of employment (including employee work and freelance work, such as babysitting or yard work), start and stop dates for each employee job, the number of hours worked each week, industry and occupation, regular and overtime pay rates, eligibility for benefits, and other characteristics of the employment arrangement and the immediate supervisor. Using these responses, a complete employment history is available for each respondent beginning at the respondent's 14th birthday. The present study focuses on weekly employment status and hours worked to construct measures of high school employment (see below).

Sample

The complete NLSY97 sample includes 8,984 respondents. Of those, 4,599 are male. Due to small sample size, respondents who report being a race/ethnicity other than White, Black, or Hispanic are excluded (n = 167); forty of those excluded respondents are mixed-race, 18 are Asian or Pacific Islander, 88 report being Native American or Eskimo, and 21 report their race as "other." Excluding these respondents leaves 4,432 male respondents who are White, Black, or Hispanic. Only those respondents with complete information on the outcome, experiencing a first birth before age 24, were also included; if a respondent dropped out of the survey before turning 24, and had not experienced a birth, they were excluded from the sample (412 excluded), leaving 4,020 respondents in the sample. This sample forms the basis of the groups that are analyzed for the early and later high school analyses.

The analyses that focus on early high school employment include both dropping out of high school and experiencing an early first birth as outcomes. One-hundred thirty-four respondents were excluded because their high school dropout status could not be established (see below for a description of how high school dropout status was established); this reduced the number of respondents included in

analyses to 3,886 respondents. In order to establish proper timing between early high school employment, dropping out, and experiencing an early first birth, several other respondents were excluded from analyses. Of the remaining youth, 37 reported experiencing a first birth before age 16, leaving 3,849 respondents that did not experience a first birth before age 16. Further, 451 youth reported leaving high school before 11th grade and were excluded from analyses. This left a sample of 3,398 youth that did not drop out of high school before 11th grade. Finally, 3,373 had complete data on their employment in 9th and 10th grades, and were included in the analyses focused on early high school employment.

The analyses that examine later high school employment focus only on experiencing an early first birth as an outcome. Only those respondents who did not drop out of high school were included in the later high school analyses, leaving 2,800 youth who graduated from high school. Only those respondents who did not report experiencing a first birth before age 18 were included in analyses (n = 2,758); forty-two respondents reported having a child before turning 18, and these respondents were excluded in order to establish proper timing between high school employment an early fertility. Finally, 19 respondents did not have complete data on their employment in 11th and 12th grades, and were excluded. Thus, the final sample for the later high school analyses included 2,739 respondents.

Measures

Outcome: High School Dropout and/or Experiencing an Early First Birth

High School Dropout. Whether or not a respondent dropped out of high school was established using two items in the NLSY97 interview: respondent reports of their highest degree completed and reports of the highest grade completed when the respondent left high school. Respondents who reported earning a GED or no degree as their highest degree were designated as high school dropouts. Following that, respondents who indicated that their highest grade completed when they left high school was 12th

grade were designated as "non-dropouts." Cases where there was disagreement between the highest degree earned and the highest grade completed when the respondent left high school were excluded from analyses (see above). For instance, if a respondent reported completing a college degree, but only reported having completed 11th grade when they left high school, they were excluded.

Experiencing an Early First Birth. Respondents were asked the date of each of their children's births, and birthdates were confirmed in subsequent interviews. The first reported birthdate of the first child was used to construct respondents' age at first birth. Cases where the birthdate of the first child was not consistently reported in subsequent interviews were flagged, and some cases were re-coded if it was apparent that an incorrect date was recorded (i.e., all but the first date were the same reported date). The respondent's age at first birth was then calculated. Respondents were coded 1 if they had their first birth before age 24, 0 if they had not experienced a first birth before age 24. Respondents who had not reported experiencing a first birth as of their last available interview were categorized as not experiencing an early birth (0) if they were at least 24 as of their last interview. Respondents who attrited from the study prior to their 24th birthday were classified as missing if they had not experienced a birth by their last interview, and were excluded from analyses (see above).

Final Outcome Variables. The outcome used in early high school analyses is a combination of whether or not the respondent dropped out of high school and whether or not the respondent experienced first birth before age 24: did not drop out of high school and did not experience an early first birth (reference group in analyses), did not drop out of high school but did experience an early first birth, dropped out of high school but did not experience an early first birth, or both dropped out of high school and experienced an early first birth. The outcome used in later high school analyses is a dummy indicator of whether or not the respondent experienced a first birth before age 24. Across the entire sample, 64.8% of respondents did not drop out of high school and did not experience an early first birth; 17.4% of respondents did not drop out of high school but did have a child before age 24; 9% of respondents

dropped out of high school but did not experience an early first birth; and 8.8% of respondents both dropped out of high school and experienced a first birth before age 24 (Table 1).

Predictor: Patterns of Early and Later High School Employment

Previous research on high school employment categorized patterns of work behavior into five groups (for examples, see Staff & Mortimer, 2007; Staff & Mortimer, 2008); the current study utilizes a similar measurement of high school employment patterns. The groups are constructed using different combinations of high and low duration and intensity of employment. Duration of employment is defined as the number of weeks worked over an entire school year, including the summer before a grade (i.e., the summer before 9th grade is included with 9th grade employment). Staff and Mortimer (2007; 2008) dichotomized duration of employment by distinguishing those respondents who worked more or less than the median number of months or the sample; this study uses the number of weeks instead of months to determine duration of employment. The median number of weeks worked in 9th and 10th grades, among all respondents who ever worked, was 32 weeks. Based on this, respondents who worked 31 or fewer weeks in 9th and 10th grades were considered "low duration," while respondents who worked 32 or more weeks were considered "high duration." Among 11th and 12th grade employment, the median number of weeks worked among respondents who ever worked was 56 weeks; thus, respondents who worked 55 weeks or fewer in 11th and 12th grades were considered "low duration" and respondents who worked 56 or more weeks in 11th and 12th grades were considered "high duration." Intensity of employment is defined as the mean number of hours worked per week. Previous research has suggested that working more than 20 hours per week is considered "high intensity," and is generally associated with negative outcomes (see above). Thus, the current study follows suit and defines "low intensity" as working an average of 20 hours or less per week, and "high intensity" as working 21 hours or more per week.

Using different combinations of duration and intensity, respondents are grouped into one of four work patterns; non-workers form the fifth group used in analyses. Respondents who worked low duration/low intensity were categorized as "occasional" workers. Those who worked low duration/high intensity were categorized as "sporadic" workers. "Steady" workers were those who worked high duration/low intensity. Finally, those who worked high duration/high intensity were classified as "intensive" workers. These categories align with previous research by Staff and Mortimer (2007; 2008) on high school employment.

Table 1 includes the distribution of youth who belong to each work pattern for the early and later high school samples; the percentages included in Table 1 are weighted percentages. In early high school, the largest group of youth fall into the non-worker category (41.8%), followed by the occasional worker group (18.0%). Sporadic workers make up 15.7% of the sample, while steady and intensive workers comprise 13.9% and 10.5%, respectively. Among youth who did not drop out of high school, however, the largest group of youth are categorized as intensive workers in 11th and 12th grades (30.4%), followed closely by sporadic workers (27.8%). Occasional and steady workers also form approximately equal proportions of the sample (14.6% and 15.7%, respectively), and non-workers form the rest of the sample at 11.5%.

Covariates

Several covariates are included in the models to account for demographic and background factors that may be related to the predictor (high school employment) and outcome (high school dropout, early fertility) in the models. Missing data on any covariates are imputed to the most common category for the entire NLSY97 sample, and the percent missing is noted below for the analytic sample. Descriptive analyses for both the early and later high school samples (including imputed cases) are included in Table 1.

Respondent race/ethnicity (Black, White, or Hispanic) is included as dummy variables with White serving as the reference category. There was no missing data for the race/ethnicity variables in the NLSY97. *Biological mother's education* is included as a proxy for socioeconomic status. Respondents report on the highest grade completed for their biological and/or residential mother and father. Mother's education was divided into four categories based on the reported highest grade completed: less than high school, high school graduate, some college, and bachelor's degree or higher. Biological mother's education is included in the models are a series of dummy variables, with high school graduate as the reference category. Missing cases (7.1% of cases) were imputed to the most common category, high school graduate. *Family Structure* at Round 1 interview is included as a series of dummy variables: two biological-parents (reference category), single parent, or other family structure, including step-parent, grandparent, foster parent, adoptive parent, or any other family structure. Missing cases (0.4% of cases) were imputed to the most common category, two-parent biological household.

In addition to respondent demographics, several individual risk factors are included as covariates in the analyses. Respondents retrospectively report their overall *grades in high school* using an eight-point scale where a higher score indicates better grades. Respondents report if they received "Mostly below Ds," "Mostly Ds," "About half Cs and half Ds," "Mostly Cs," "About half Bs and half Cs," "Mostly Bs," "About half As and half Bs," and "Mostly As." Other options, including "other," "ungraded," and "mixed" were imputed to the most common category in addition to missing cases (1.0% of cases were imputed), "About half Bs and half Cs." Respondents report their *age at first sexual intercourse* in the first interview after it occurs. Missing cases (11.9% of cases were missing) were imputed to the mean for males (M = 15.4 years). A ten-item composite of *delinquency* was also included as a covariate. Respondents reported on their engagement in ten behaviors: ever smoked tobacco, ever drank alcohol, ever smoked marijuana, ever carried a hand gun, ever belonged to a gang, ever purposely destroyed property, ever stole anything worth more than $50 including cars, ever committed any other property crime, ever attacked anyone with the intention of seriously hurting or injuring them, and ever

helped sell illegal drugs. Responses from the interview closest to when the respondent was 16 years old were utilized to construct the composite. This means that for respondents aged 16 and older at Round 1, responses from the first interview were used, while responses were used from Round 2 for those respondents who were 15 at the first interview, Round 3 for respondents who were 14 at the first interview, and so on. Missing data on this composite was imputed to the most common value, zero delinquency behaviors (0.7% of cases were missing). A dummy indicator for whether or not respondents had *missing* data on any covariates was also included.

Table 1 presents descriptive results on the sample. *Early High School Employment Sample.* Seventy-one percent of respondents are White, 15.0% are Black, and 13.9% are Hispanic. In terms of biological mother's education, the largest group have a biological mother who graduated from high school (40.3%), with the remainder of the sample having mothers that did not graduate from high school (13.3%), attended some college but did not earn a degree (23.6%), or earned a college degree (22.8%). More than half of youth (60.3%) were living with both biological parents at the first interview, while 23.9% were living with one biological parent only, and the remaining 15.8% were living in some other arrangement. The mean age at first sex in this sample was 15.6 years old (*SD* = 2.59); 9.1% of respondents reported having sex for the first time before age 14, 36.6% when they were 14 or 15, 28.2% when they were 16 or 17, 19.3% when they were 18 or 19, and 6.8% when they were 20 years old or older. The mean score on the delinquency composite in this sample is 2.8 (*SD* = 2.44); 17.6% of the respondents reported that they did not engage in any of the behaviors included in the composite measure, while 48.6% reported engaging in 1-3 behaviors, 25.6% reported engaging in 4-6, and 8.3% reported engaging in 7-10 behaviors. In terms of their high school grades, youth in the sample reported that they performed well in high school; 9.1% of respondents reported receiving mostly As, 20.9% reported receiving about half As and half Bs, 20.2% reported earning mostly Bs, 24.6% reported earning about half Bs and half Cs, 13.3% reported earning mostly Cs, 6.1% reported earning about half Cs and half Ds, 1.3% reported earning mostly Ds, and 0.4% reported earning mostly below Ds.

Later High School Employment Sample. The later high school analyses sample includes a slightly higher proportion of White respondents (73.3%) than the early high school analyses sample, and slightly lower proportions of Black (13.7%) and Hispanic (13.0%) respondents. About 10.9% of respondents in this sample have a biological mother with less than a high school degree, 39.9% with a high school degree, 24.1% with some college, and 25.0% with a bachelor's degree or higher. Three-fifths of the sample (63.0%) was living with both biological parents at Round 1, while 21.9% were living with one of their biological parents, and the remaining 15.1% were living in some other family structure. In terms of reported age at first sex, 7.9% of the sample reported initiating intercourse younger than age 14, 34.6% reported being 14-15, 29.0% reported being 16-17, 21.2% reported being 18-19, and 7.4% reported being 20 or older. About one-fifth (18.7%) of the sample reported not participating in any of the behaviors included in the delinquency composite, while half (50.3%) reported engaging in 1-3 behaviors, 24.2% reported engaging in 4-6, and 6.8% reported engaging in 7-10 of the behaviors. Finally, in terms of retrospective reports of high school grades, 0% report receiving "Mostly below Ds;" 0.4% report receiving "Mostly Ds;" 3.8% report earning "About half Cs and half Ds;" 12.3% report earning "Mostly Cs;" 24.3% report receiving "About half Bs and half Cs;" 21.7% report receiving "Mostly Bs;" 22.8% report earning "About half As and half Bs;" and 14.8% report earning "Mostly As."

Tables A and B in the Appendix present the distribution of covariates across early and later high school work patterns, respectively.

Analytic Strategy

The present study has two main research questions. The first research question addresses the relationship between patterns of early high school employment and whether or not youth drop out of high school and/or experience a first birth before age 24 (Hypotheses 1, 2, and 3). A series of multinomial logistic regressions are used to examine the relationship between early high school employment and

dropping out and experiencing an early first birth. In each model, work behaviors are entered in the first step, and covariates are entered in the second step to account for demographic and background differences. The outcome "No Drop Out/No Child" is the reference outcome to which the odds of experiencing another outcome are compared. The models presented in Tables 3 use non-workers as the reference work category (Hypothesis 1). Table 4 shows excerpts from additional models that alter the omitted work category to allow for additional comparisons between groups (Hypotheses 2 and 3).

To address the second research question on the association between later high school employment and experiencing an early first birth, logistic regressions are used to examine the relationship between later high school employment and early fertility among youth who do not drop out (Hypotheses 4 and 5). Again, for each model only the work patterns are entered into the model in the first step and covariates are included in Step 2. Odds ratios using non-workers as the omitted group are reported in Table 5. Table 6 includes excerpts from additional models where steady workers and intensive workers are used as the omitted group to allow for additional comparisons between groups (Hypothesis 5).

While the descriptive analyses presented in table 1 are weighted, the results presented in Tables 2-6 are unweighted. However, factors included in the construction of the weights (i.e., race/ethnicity, socioeconomic status, etc.) are included in the models as covariates.

Results

Descriptive Results

Table 2 presents the distribution of the outcomes across work patterns in early and later high school. The distributions in Table 2 suggest that there are imbalances in the numbers of youth with different patterns of employment experiencing different outcomes. Steady workers in early high school have the highest frequency of not dropping out and not experiencing an early first birth (77.0%), relative

to all other kinds of workers. Sporadic and intensive workers in early high school are the most represented among those who drop out and who drop out and have a child. For later high school employment, intensive, sporadic, and non-workers are the most represented groups among those who experience an early first birth (23.8%, 22.7%, and 21.3%, respectively). Steady workers are the least represented group among those experiencing an early first birth (11.4%). Chi-squared tests indicate that there are significant differences between the groups for both early and later high school employment patterns.

The Relationship between Early High School Employment and High School Dropout and Early Fertility

Results from the multinomial logistic regressions are included in Tables 3 and 4; the only difference between the models presented in the tables is the omitted category used for early high school employment patterns. In each table, Model I includes only the work variables, and Model II adds the covariates to account for demographic and background characteristics.

After accounting for demographic and background characteristics (Table 3, Model II), working in 9th and 10th grades is not significantly associated with an increased or decreased likelihood of experiencing an early first birth among those who will not eventually drop out of high school. Steady workers are less likely to experience an early birth than are non-workers, but the magnitude of the relationship is not significant after accounting for demographic and background characteristics. Sporadic and intensive workers in early high school are significantly more likely to eventually drop out of high school even after accounting for demographic and background characteristics, compared to non-workers. Sporadic workers are 45% more likely, and intensive workers are 55% more likely. Steady workers in early high school are about 52% less likely to drop out of high school than are non-workers, but this difference is marginally significant after including the covariates. After accounting for demographic and background characteristics, steady workers in early high school are 61% less likely to drop out of high

school and have a child before age 24 than are non-workers. Intensive workers in early high school are 2.4 times more likely to drop out of high school and have a child before age 24 than are non-workers. Sporadic workers are 51% more likely to drop out and have a child before age 24.

Differences between certain groups become more pronounced when steady workers are used as the reference category in the analyses (Table 4). The magnitude of these differences is reduced after accounting for demographic and background characteristics, but in many cases the differences are still significant for those who will drop out of high school compared to those who do not. After accounting for demographic and background characteristics, the significant differences between work patterns for experiencing an early first birth diminished to nonsignificance. Each of the work patterns are still more likely to experience an early first birth, but not drop out of high school, than are steady workers, but the differences are not significant. Among those who do not experience an early first birth, occasional workers are 2.4 times more likely to drop out of high school than are steady workers after accounting for demographic and background characteristics. Sporadic workers are three times more likely to drop out of high school, and intensive workers are 3.2 times more likely to drop out of high school than are steady workers. Finally, occasional workers are more than three times as likely (OR = 3.4) than steady workers to drop out of high school and experience an early first birth, after accounting for demographic and background characteristics; sporadic workers are nearly four times as likely (OR = 3.9); and intensive workers are 6.2 times more likely to drop out and experience an early first birth than are steady workers.

Also included in Table 4 are models that use intensive workers as the omitted work category; the purpose of this model was to specifically examine any differences between intensive and sporadic workers. While there are differences between intensive workers and other groups, there were no significant differences between intensive workers and sporadic workers on any of the outcomes. After accounting for demographic and background characteristics, sporadic workers are 37% less likely to drop out of high school and experience an early first birth than are intensive workers, but this difference is only marginally significant.

Additional analyses (not shown) compare test for differences in the likelihood of having an early first birth among those who drop out (Drop Out/No Child is reference category). After accounting for demographic and background characteristics, intensive workers are marginally more likely to drop out and have a child, compared to drop out but not have an early first birth, indicating that there are not substantial differences between workers who drop out in their likelihood to have an early first birth.

The Relationship between Later High School Employment and Early Fertility

Results of the logistic regressions estimating the influence of later high school employment on early fertility are included in Tables 5 and 6. Only steady workers are significantly different from non-workers in their likelihood to experience an early first birth (Table 5); after accounting for demographic and background characteristics, the magnitude of the difference is reduced such that steady workers are 36% less likely than non-workers to experience an early first birth, and this difference is significant.

Table 6 presents excerpts from additional analyses that use steady workers and intensive workers as the omitted work group to allow for additional comparisons between workers. Steady workers in later high school are the least likely to experience an early first birth, relative to all other kinds of workers, including non-workers. Non-workers are 55% more likely to experience an early first birth than are steady workers after accounting for demographic and background characteristics. After including the covariates in the model, occasional workers are 43% more likely to experience an early first birth than are steady workers, a difference that is marginally significant. Sporadic workers are 0.7 times more likely to experience an early first birth than are steady workers in later high school, after accounting for demographic and background characteristics. Finally, after accounting for demographic and background characteristics, intensive workers were nearly two times more likely to experience an early first birth than were steady workers (*OR* = 1.98).

Intensive workers were used as the reference group in the final pair of models included in Table 6. The purpose of this was to test for significant differences between intensive workers and sporadic workers. The results indicate that there are no significant differences between intensive workers and sporadic workers. Beyond this, occasional workers were 27% less likely to experience an early first birth than were intensive workers, after including covariates.

Discussion

The present study utilizes data from the NLSY97 to examine the relationship between high school employment and whether or not young men drop out of high school and/or experience a first birth before age 24. After accounting for demographic and background characteristics, early work patterns are not significantly related to the likelihood of experiencing an early first birth among those who eventually graduate from high school. However, sporadic and intensive workers in 9th and 10th grades are more likely to drop out and experience an early first birth than are other kinds of workers; steady workers in 9th and 10th grades are the most likely group to graduate from high school and delay fertility until after age 24. Among those who do not drop out, steady workers are the least likely to have a child before age 24 among the different patterns of work behavior in high school.

Based on the findings presented above, steady workers seem to experience the most favorable outcomes. Steady workers in early high school are the least likely to drop out of high school and to drop out of high school and experience an early first birth. Respondents in each of the other work patterns, including non-workers, were all more likely to drop out of high school, and drop out of high school and experience an early first birth than were steady workers. Among patterns of later high school employment, steady workers were the least likely to experience an early first birth than were all other kinds of workers. Previous research has also found that steady workers seem to experience the best outcomes. Staff and Mortimer (2007) not only found that steady workers earned a bachelor's degree at

higher rates than other types of workers, but also found that 26% of youth with low educational promise who worked consistently and moderately earned bachelor's degrees; the next highest group was non-workers, but only 9% of non-workers with low educational promise earned bachelor's degrees in their sample. Further, Staff and Mortimer (2008) found that steady workers reported the highest median wages at ages 26 and 31, relative to other kinds of workers in high school.

Also consistent with previous research, intensive workers seem to fare the worst. Among early workers, they were the most likely to drop out of high school, and the most likely to both drop out and experience an early first birth; and among later high school employment, intensive workers were the most likely to experience an early first birth. Further, there do not appear to be many differences in terms of outcomes for sporadic and intensive workers; intensive workers are more likely to drop out and experience an early first birth than are sporadic workers, but there are not significant differences between the two work patterns for the other outcomes. This suggests that intensive work, whether consistently or sporadically, has a negative association with educational attainment and fertility. It is important to note, however, that this finding may be an artifact of the way in which the groups were defined. Because duration of employment was based on the number of weeks worked, without considering the length of each period of employment, some "intensive" workers may have been classified as "sporadic" workers if they began working later than their peers and did not accumulate enough weeks of intensive employment to be categorized as intensive workers. Nevertheless, previous research has found that intensive high school employment is related to having more sexual partners and reporting more frequent intercourse (Ku, Sonenstein, Pleck, 1993); more inconsistent condom use (Bauermeister et al., 2009); and to higher odds of union formation and residential independence (Staff et al., 2012). The findings from this study add to this research by explicitly examining the relationship between high school employment and early fertility. While Ku, Sonenstein, and Pleck (1993) also examined fertility among males, their study was cross-sectional and could not untangle the ordering of events between working and fertility: were the more intensive workers more likely to have a child, or were they working more because they had had a

child? The present study includes only those youth who did not report having a child before the observation period for high school employment had ended (before age 16 for early high school analyses, and before age 18 for later high school analyses). While the results from the present study cannot establish a definite causal link, the findings suggest a temporal order of events that previous research has not been able to establish.

Given the findings of the current study, in addition to previous work, limiting youth's work hours to 20 hours per week or fewer may be an effective strategy for interventions aimed at decreasing rates of high school dropout, increasing college enrollment, and perhaps reducing early fertility. Taking advantage of state- or county-level variation in limits on youth employment, particularly maximum hours that youth are eligible to work, could provide a quasi-experimental opportunity to further examine the impacts of high school employment.

An interesting note in the results of the present study is the influence of the *timing* of employment, in addition to duration and intensity. Very little previous research in this area has considered the timing of high school employment; Precocious Development Theory suggests that the working while in high school may encourage youth to take additional adult roles, as employment is considered an adult-behavior. However, there has been little discussion on whether there are impacts of high school employment dependent on how early youth begin working. In the present study, youth who worked intensively or sporadically in 9th and 10th grades were more likely to drop out and to drop out and have a child. Further, youth working intensively or sporadically in 11th and 12th grades were more likely to experience an early first birth. However, those working intensively in 9th and 10th grades were not more likely to finish high school and experience an early first birth. These results suggest that intensive or sporadic employment early in high school may be related to dropping out, which may in turn be related to having children before age 24. However, among those who graduate from high school, working intensively or sporadically in 11th and 12th grades is more directly related to having children before age

24. Further research that tests this idea more explicitly is needed to clarify more fully the impact that timing of employment may have on high school dropout and early fertility in young men.

Limitations

The present study has several limitations. The current study would benefit from a sample that includes more high school dropouts and more youth experiencing a first birth before age 24. As the first research question focused on early high school employment, a time when fewer youth are working, having a different sample could have increased the number of respondents who were working in early high school. Nearly half of the sample (41.8%) did not work at all during 9th or 10th grades. Further, nearly two-thirds of the sample did not drop out of high school nor experience an early birth, leaving one-third of the sample to be divided amongst the three remaining groups. Some of the results found in the present study may be imprecise as a result of the small cell sizes. Second, as mentioned above, the way in which the work patterns were defined may have influenced the results. Because the duration of employment was defined as the number of weeks worked, relative to the median in the sample, some respondents may have been placed in a different group if duration of employment had been defined differently. Specifically, if duration of employment had been defined based on the length of individual job spells, some youth categorized as sporadic workers may have been categorized as intensive workers if their employment was consistent but began later in the observation period. This would only perhaps make differences between sporadic and intensive workers and occasional and steady workers more apparent.

Third, as the focus of the present study was on young men, issues related to the quality of male fertility data certainly apply here. Concerns over the quality of male fertility data have been a topic of discussion for many years (see Joyner, Peters, Hynes et al., 2012 for a review). However, Joyner et al. (2012) estimate that in both the NLSY97 and NLSY79, approximately nine-tenths of births prior to age

24 are reported, indicating that the survey design in these studies reduces underreporting. While the quality of the fertility data among young men in the NLSY97 seems to be better than previously thought, there is still a sizable amount of underreporting. Finally, the current study accounts for selection using several covariates. Previous research has suggested that selection plays a big role in the observed relationships between high school employment and several outcomes. Paternoster et al. (2003) argue that merely controlling for factors related to selection is not a sufficient means to account for selection. As a result, the present study only presents associations between high school employment and high school dropout and early fertility, rather than suggesting any causal links.

Conclusions and Future Directions

Because high school employment is so prevalent an experience among American youth, many researchers have tried to understand how high school employment might be impacting adolescent development. Previous research has generally neglected to examine the impact of high school employment on early fertility, and this is especially true among young men. Nevertheless, understanding the relationship between high school employment and early fertility is an important relationship, especially among young men with lower levels of educational attainment and who begin having children earlier than their peers, as these are the ones for whom high school employment may be more closely linked to post-secondary employment in the years immediately after high school. Results from the present study suggest that intensive and sporadic workers in 9th and 10th grades are significantly more likely to drop out of high school than other youth, and they are also more likely to both drop out and father a child before age 24. Relative to youth who work consistently and moderately, all other youth are more likely to drop out of high school and drop out of high school and experience an early first birth. Further, non-steady workers in 11th and 12th grades are more likely to experience an early first birth than are steady workers. These findings suggest that there may be a link between high school employment,

educational attainment, and early fertility; understanding this link may be key to designing policies and programs aimed at improving college attendance, promoting marriage, and reducing the number of early, nonmarital births. Future work in this area should further explore the relationship young men's employment and early fertility. Additionally, future studies would benefit from exploring more precise ways of measuring adolescent employment that potentially capture other aspects of employment, including duration of job spells, as well as the type and quality of work.

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Table 1: Sample Descriptives

	Early High School Sample		Later High School Sample	
	Frequency	Percent[a]	Frequency	Percent[a]
Total Sample	3,373	100.0%	2,739	100.0%
Outcome				
No Drop Out, No Child	2,185	72.6%	2,180	82.7%
No Drop Out, Child	587	15.8%	559	17.3%
Drop Out, No Child	304	6.2%	--	--
Drop Out, Child	297	5.4%	--	--
Work Pattern				
Non-Worker	1,411	38.8%	315	9.6%
Occasional Worker	607	19.0%	399	15.7%
Sporadic Worker	530	14.9%	761	26.0%
Steady Worker	470	17.2%	431	18.2%
Intensive Worker	355	10.1%	833	30.5%
Race				
White	1,792	71.1%	1,565	73.3%
Black	856	15.0%	623	13.7%
Hispanic	725	13.9%	551	13.0%
Biological Mother's Education				
Less than HS	629	13.3%	417	10.9%
HS	1,411	40.3%	1,132	39.9%
Some College	738	23.6%	631	24.1%
Bachelor's or higher	595	22.8%	559	25.0%
Family Structure				
Two Biological Parents	1,795	60.3%	1,581	63.0%
Single Parent	973	23.9%	700	21.9%
Other	605	15.8%	458	15.1%
Age of First Sex				
14 or younger	454	9.1%	288	7.9%
14-15	1,269	36.6%	977	34.6%
16-17	953	28.2%	813	29.0%
18-19	524	19.3%	498	21.2%
20 or older	173	6.8%	163	7.4%
Delinquency				
0	619	17.6%	546	18.7%
1-3	1,610	48.6%	1,365	50.3%
4-6	821	25.6%	628	24.2%
7-10	323	8.3%	200	6.8%

Table 1 Continued

Table 1 Continued

High School Grades				
Mostly Below Ds	19	0.4%	3	0.0%
Mostly Ds	53	1.3%	16	0.4%
About Half Cs and half Ds	259	6.1%	129	3.8%
Mostly Cs	529	13.3%	388	12.3%
About half Bs and half Cs	942	24.6%	740	24.3%
Mostly Bs	653	20.2%	599	21.7%
About half As and half Bs	610	20.9%	567	22.8%
Mostly As	308	9.1%	297	14.8%

Source: NLSY97

a = weighted percentages.

Table 2: Outcome Variables by High School Employment

	No Drop Out/No Child		No Drop Out/Child		Drop Out/No Child		Drop Out/Child	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Early High School Employment Outcome[a], X^2 (12) = 80.33***								
Non-Workers	920	65.2%	255	18.1%	120	8.5%	116	8.2%
Occasional Workers	402	66.2%	97	16.0%	55	9.1%	53	8.7%
Sporadic Workers	303	57.2%	101	19.1%	64	12.1%	62	11.7%
Steady Workers	362	77.0%	72	15.3%	22	4.7%	14	3.0%
Intensive Workers	198	55.8%	62	17.5%	43	12.1%	52	14.7%
Later High School Employment Outcome[b], X^2 (4) = 31.52***								
Non-Workers	248	78.7%	67	21.3%	--	--	--	--
Occasional Workers	327	82.0%	72	18.1%	--	--	--	--
Sporadic Workers	588	77.3%	173	22.7%	--	--	--	--
Steady Workers	382	88.6%	49	11.4%	--	--	--	--
Intensive Workers	635	76.2%	198	23.8%	--	--	--	--

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

a. N = 3,373

b. N = 2,739

Table 3: Early High School Employment Predicting High School Dropout and Early Fertility (No Drop Out, No Child is Reference Category)

	No Drop Out/Yes Child			Yes Drop Out/No Child			Yes Drop Out/ Yes Child		
	Model I	Model II		Model I	Model II		Model I	Model II	
Early High School Work (Non-Workers Omitted)									
Occasional Workers	0.871	1.002		1.049	1.167		1.046	1.334	
	(0.116)	(0.141)		(0.182)	(0.221)		(0.184)	(0.264)	
Sporadic Workers	1.203	1.162		1.619 **	1.452 *		1.623 **	1.511 *	
	(0.162)	(0.165)		(0.273)	(0.269)		(0.277)	(0.293)	
Steady Workers	0.718 **	0.896		0.466 ***	0.480 **		0.307 ***	0.389 **	
	(0.106)	(0.141)		(0.112)	(0.124)		(0.089)	(0.121)	
Intensive Workers	1.130	1.201		1.665 **	1.552 *		2.083 ***	2.412 ***	
	(0.183)	(0.205)		(0.323)	(0.332)		(0.384)	(0.514)	
Covariates									
Mom- Less Than HS	--	1.380 *		--	2.068 ***		--	2.180 ***	
	--	(0.188)		--	(0.373)		--	(0.382)	
Mom- Some College	--	0.751 *		--	0.995		--	0.647 *	
	--	(0.099)		--	(0.182)		--	(0.134)	
Mom- Bachelor's Degree	--	0.414 ***		--	0.455 **		--	0.183 ***	
	--	(0.070)		--	(0.115)		--	(0.067)	
Single Parent HH	--	0.925		--	1.395 *		--	1.927 ***	
	--	(0.110)		--	(0.222)		--	(0.323)	
Other Family Structure	--	1.168		--	1.612 **		--	2.087 ***	
	--	(0.156)		--	(0.287)		--	(0.406)	
High School Grades	--	0.814 ***		--	0.510 ***		--	0.514 ***	
	--	(0.030)		--	(0.026)		--	(0.028)	

Table 3 Continued

Table 3 Continued

Age at First Sex	--	0.911	***	--	0.876	***	--	0.874	***
	--	(0.019)		--	(0.024)		--	(0.024)	
Delinquency	--	1.080	***	--	1.142	***	--	1.224	***
	--	(0.023)		--	(0.031)		--	(0.034)	
Black	--	2.139	***	--	1.078		--	2.581	***
	--	(0.272)		--	(0.186)		--	(0.482)	
Hispanic	--	1.552	***	--	0.944		--	2.386	***
	--	(0.207)		--	(0.172)		--	(0.456)	
Flag for Imputed Cases	--	0.893		--	2.048	**	--	1.330	
	--	(0.162)		--	(0.433)		--	(0.310)	

N = 3,373

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4: Associations Between Early High School Employment and High School Dropout and Early Fertility (No Drop Out, No Child is Reference Category)

	No Drop Out/Yes Child			Yes Drop Out/No Child			Yes Drop Out/ Yes Child		
	Model I		Model II	Model I		Model II	Model I		Model II	
Early High School Work (Steady Workers Omitted)										
Non-Workers	1.394	*	1.116	2.146	***	2.083	3.260	***	2.571	**
	(0.205)		(0.175)	(0.515)		(0.538)	(0.944)		(0.802)	
Occasional Workers	1.213		1.119	2.251	**	2.432 *	3.409	***	3.429	***
	(0.208)		(0.201)	(0.591)		(0.682)	(1.054)		(1.144)	
Sporadic Workers	1.676	**	1.297	3.476	***	3.025 **	5.291	***	3.885	***
	(0.290)		(0.236)	(0.901)		(0.841)	(1.619)		(1.284)	
Intensive Workers	1.574	**	1.341	3.573	***	3.232 *	6.791	***	6.203	***
	(0.306)		(0.271)	(0.989)		(0.954)	(2.131)		(2.109)	
Early High School Work (Intensive Workers Omitted)										
Non-Workers	0.885		0.833	0.601	**	0.645 **	0.480	***	0.415	***
	(0.143)		(0.142)	(0.117)		(0.138)	(0.089)		(0.088)	
Occasional Workers	0.771		0.835	0.630	*	0.752	0.502	***	0.553	**
	(0.142)		(0.160)	(0.139)		(0.181)	(0.107)		(0.134)	
Sporadic Workers	1.065		0.967	0.973		0.936	0.779	***	0.626	+
	(0.197)		(0.187)	(0.211)		(0.222)	(0.163)		(0.150)	
Steady Workers	0.635	**	0.746	0.280	***	0.309 ***	0.147	***	0.161	***
	(0.124)		(0.151)	(0.077)		(0.091)	(0.046)		(0.055)	

N = 3,373

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5: Later High School Employment Predicting Early Fertility

	Model I		Model II	
Early High School Work Patterns				
Non Workers Omitted	--		--	
	--		--	
Occasional Workers	0.815		0.923	
	(0.154)		(0.184)	
Sporadic Workers	1.089		1.086	
	(0.177)		(0.186)	
Steady Workers	0.475	***	0.644	*
	(0.097)		(0.139)	
Intensive Workers	1.154		1.273	
	(0.185)		(0.217)	
Covariates				
Mom- Less Than HS	--		1.307	+
	--		(0.184)	
Mom- Some College	--		0.732	*
	--		(0.098)	
Mom- Bachelor's Degree	--		0.423	***
	--		(0.073)	
Single Parent HH	--		0.905	
	--		(0.111)	
Other Family Structure	--		1.207	
	--		(0.165)	
High School Grades	--		0.825	***
	--		(0.031)	
Age at First Sex	--		0.927	***
	--		(0.019)	
Delinquency	--		1.073	**
	--		(0.023)	
Black	--		2.209	***
	--		(0.288)	
Hispanic	--		1.664	***
	--		(0.225)	
Flag for Imputed Cases	--		0.877	
	--		(0.164)	

N = 2,739

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6: Relationship Between Later High School Employment and Early Fertility

	Steady Workers Omitted				Intensive Workers Omitted			
	Model I		Model II		Model I		Model II	
Early High School Work Patterns								
Non Workers	2.106	***	1.552	*	0.866		0.786	
	(0.432)		(0.334)		(0.139)		(0.134)	
Occasional Workers	1.717	**	1.433	+	0.706	*	0.725	*
	(0.343)		(0.299)		(0.108)		(0.118)	
Sporadic Workers	2.294	***	1.686	**	0.944		0.853	
	(0.401)		(0.307)		(0.112)		(0.107)	
Steady Workers	--		--		0.411	***	0.506	***
	--		--		(0.071)		(0.090)	
Intensive Workers	2.431	***	1.976	***	--		--	
	(0.419)		(0.353)		--		--	

N = 2,739

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix Table A: Sample Descriptives by Early High School Employment Pattern

	Non-Workers		Occasional Workers		Sporadic Workers		Steady Workers		Intensive Workers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Race, X^2 (8) = 170.82***										
White	603	33.7%	350	19.5%	265	14.8%	349	19.5%	225	12.6%
Black	446	52.1%	142	16.6%	134	15.7%	59	6.9%	75	8.8%
Hispanic	362	49.9%	115	15.9%	131	18.1%	62	8.6%	55	7.6%
Biological Mother's Education, X^2 (12) = 67.86***										
Less than HS	299	47.5%	89	14.2%	128	20.4%	59	9.4%	54	8.6%
HS	570	40.4%	232	16.4%	226	16.0%	201	14.3%	182	12.9%
Some College	290	39.3%	154	20.9%	108	14.6%	111	15.0%	75	10.2%
Bachelor's or higher	252	42.4%	132	22.2%	68	11.4%	99	16.6%	44	7.4%
Family Structure, X^2 (12) = 38.94***										
Two Biological Parents	745	41.5%	338	18.8%	263	14.7%	286	15.9%	163	9.1%
Single Parent	443	45.5%	155	15.9%	152	15.6%	112	11.5%	111	11.4%
Other	223	36.9%	114	18.8%	115	19.0%	72	11.9%	81	13.4%
Age of First Sex, X^2 (16) = 55.59***										
14 or younger	209	46.0%	64	14.1%	88	19.4%	38	8.4%	55	12.1%
14-15	525	41.4%	226	17.8%	210	16.6%	159	12.5%	149	11.7%
16-17	382	40.1%	182	19.1%	149	15.6%	146	15.3%	94	9.9%
18-19	208	39.7%	108	20.6%	69	13.2%	96	18.3%	43	8.2%
20 or older	87	50.3%	27	15.6%	14	8.1%	31	17.9%	14	8.1%

Table A Continued

Appendix Table A Continued

Delinquency, X^2 (12) = 61.46***										
0	308	49.8%	104	16.8%	87	14.1%	69	11.2%	51	8.2%
1-3	710	44.1%	283	17.6%	231	14.4%	229	14.2%	157	9.8%
4-6	296	36.1%	158	19.2%	137	16.7%	129	15.7%	101	12.3%
7-10	97	30.0%	62	19.2%	75	23.2%	43	13.3%	46	14.2%
High School Grades, X^2 (28) = 49.84**										
Mostly Below Ds	7	36.8%	3	15.8%	2	10.5%	4	21.1%	3	15.8%
Mostly Ds	20	37.7%	7	13.2%	12	22.6%	5	9.4%	9	17.0%
About Half Cs and half Ds	114	44.0%	46	17.8%	44	17.0%	26	10.0%	29	11.2%
Mostly Cs	218	41.2%	102	19.3%	86	16.3%	65	12.3%	58	11.0%
About half Bs and half Cs	406	43.1%	143	15.2%	152	16.1%	119	12.6%	122	13.0%
Mostly Bs	276	42.3%	145	22.2%	80	12.3%	101	15.5%	51	7.8%
About half As and half Bs	246	40.3%	108	17.7%	108	17.7%	98	16.1%	50	8.2%
Mostly As	124	40.3%	53	17.2%	46	14.9%	52	16.9%	33	10.7%

N = 3,373

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix Table B: Sample Descriptives by Later High School Employment Pattern

	Non-Workers		Occasional Workers		Sporadic Workers		Steady Workers		Intensive Workers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Race, X^2 (8) = 110.10***										
White	118	7.5%	219	14.0%	394	25.2%	305	19.5%	529	33.8%
Black	97	15.6%	104	16.7%	198	31.8%	69	11.1%	155	24.9%
Hispanic	100	18.2%	76	13.8%	169	30.7%	57	10.3%	149	27.0%
Biological Mother's Education, X^2 (12) = 64.24***										
Less than HS	68	16.3%	51	12.2%	128	30.7%	44	10.6%	126	30.2%
HS	118	10.4%	154	13.6%	315	27.8%	160	14.1%	385	34.0%
Some College	60	9.5%	86	13.6%	187	29.6%	107	17.0%	191	30.3%
Bachelor's or higher	69	12.3%	108	19.3%	131	23.4%	120	21.5%	131	23.4%
Family Structure, X^2 (8) = 8.44										
Two Biological Parents	175	11.1%	242	15.3%	437	27.6%	265	16.8%	462	29.2%
Single Parent	89	12.7%	98	14.0%	198	28.3%	101	14.4%	214	30.6%
Other	51	11.1%	59	12.9%	126	27.5%	65	14.2%	157	34.3%
Age of First Sex, X^2 (16) = 49.76***										
14 or younger	36	12.5%	43	14.9%	93	32.3%	30	10.4%	86	29.9%
14-15	138	14.1%	130	13.3%	270	27.6%	154	15.8%	285	29.2%
16-17	63	7.8%	117	14.4%	237	29.2%	117	14.4%	279	34.3%
18-19	61	12.3%	74	14.9%	118	23.7%	98	19.7%	147	29.5%
20 or older	17	10.4%	35	21.5%	43	26.4%	32	19.6%	36	22.1%

Table B Continued

Appendix Table B Continued

Delinquency, X^2 (12) = 51.63***										
0	81	14.8%	86	15.8%	141	25.8%	96	17.6%	142	26.0%
1-3	174	12.8%	203	14.9%	364	26.7%	220	16.1%	404	29.6%
4-6	45	7.2%	90	14.3%	177	28.2%	98	15.6%	218	34.7%
7-10	15	7.5%	20	10.0%	79	39.5%	17	8.5%	69	34.5%
High School Grades, X^2 (28) = 54.64**										
Mostly Below Ds	0	0.0%	0	0.0%	0	0.0%	1	33.3%	2	66.7%
Mostly Ds	0	0.0%	3	18.8%	5	31.3%	1	6.3%	7	43.8%
About Half Cs and half Ds	13	10.1%	15	11.6%	42	32.6%	15	11.6%	44	34.1%
Mostly Cs	44	11.3%	64	16.5%	114	29.4%	47	12.1%	119	30.7%
About half Bs and half Cs	79	10.7%	104	14.1%	227	30.7%	95	12.8%	235	31.8%
Mostly Bs	74	12.4%	89	14.9%	155	25.9%	93	15.5%	188	31.4%
About half As and half Bs	69	12.2%	68	12.0%	146	25.8%	112	19.8%	172	30.3%
Mostly As	36	12.1%	56	18.9%	72	24.2%	67	22.6%	66	22.2%

N = 2,739

Note: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.