Adolescent Work Experiences and Family Behavior

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Abstract

A long-standing critique of adolescent employment is that it engenders a *precocious maturity* of more adult-like roles and problem behaviors, including school disengagement, substance use, dating and sexual activity, inadequate sleep and exercise, and work-related distress. Though negative effects of high-intensity work on adolescent adjustment have been found, little research has addressed whether work experiences are associated with precocious family behaviors in adolescence, such as sexual intercourse, pregnancy, childbearing, residential independence, and union formation. Using data from the National Longitudinal Study of Adolescent Health (N = 13,372), findings suggest that teenagers who spend long hours on the job during the school year are more likely to experience these family behaviors earlier than youth who work moderately or not at all.

Key words: Adolescence, Adolescent sexual behavior, National Longitudinal Study of Adolescent Health (Add Health), Paid Work

A long-standing critique of adolescent employment is that it engenders a *precocious maturity* of more adult-like roles and problem behaviors, including school disengagement and dropout, licit and illicit drug use, dating and sexual activity, inadequate sleep and exercise, and work-related distress (Greenberger & Steinberg, 1986; Marsh, 1991; Newcomb & Bentler, 1988). Negative effects of paid work intensity (i.e., number of hours worked per week during the school year) on adolescent adjustment and achievement have been found (see Staff, Messersmith, & Schulenberg, 2009 for a review), though little research has addressed whether early work experiences are associated with precocious family behaviors, and if so, what explains these associations. In this paper we examine the link between paid work and the likelihood of sexual intercourse, pregnancy, childbearing, residential independence, and union formation in adolescence.

Why might there be a link between adolescent work experiences and precocious family behaviors? Teenage workers may engage in family behaviors if they work with older employees, if working compromises their school success or long-term socioeconomic ambitions, if working leads to greater autonomy from parents, or if paid work schedules facilitate unstructured and unsupervised socializing with peers. Work effects on early family behaviors may also depend on the degree to which adolescents are invested in paid work. Existing research on teenage employment has shown detrimental effects to be focused primarily among youth working intensively (i.e., more than 20 hours per week during the school year). For instance, intensive workers are more likely to have poor school performance (Marsh & Kleitman, 2005), drop out of school (Lee & Staff, 2007), engage in substance use and other problem behaviors (McMorris & Uggen, 2000), and spend more time dating and in unstructured leisure activities when compared to youth who limit their work hours (Osgood, 1999; Safron, Schulenberg, & Bachman, 2001).

Extending such findings to our topic, adolescents who spend long hours on the job might be more likely than their moderately working peers to engage in early family behaviors. On the other hand, given the behavior of young adult workers, intensive employment in adolescence may discourage early family formation behaviors. Among women, for example, rising rates of full-time employment have been linked to delays or reductions in union formation and childbirth (Brewster & Rindfuss, 2000; Budig, 2003; Oppenheimer, 1994).

To estimate the association between early work experiences and family behaviors in adolescence, we use data from the National Longitudinal Study of Adolescent Health (Add Health). Unlike previous research, we consider the association between paid work and the timing of a broad range of family behaviors in adolescence, including first sex, pregnancy, fertility, residential independence, and union formation. Our use of a large, nationally representative data set allows us to consider family behaviors that are uncommon in adolescence. In addition, we control for a number of factors in an attempt to uncover explanations for the associations between paid work and family behaviors in adolescence, including sociodemographic background and relationship history, as well as measures of problem behaviors, unstructured socializing, parental monitoring, school engagement and dropout, and friends' substance use.

Adolescent Work, Sexual Behavior, and Family Formation

Scholars have long expressed concern that employed adolescents may take on adult roles and responsibilities such as leaving school, establishing a residence away from the parental home, and engaging in premarital cohabitation, before they are socially and developmentally mature enough for the responsibilities of young adulthood. This syndrome of more adult-like roles and activities (i.e., sexual activity, substance use) in adolescence has been referred to as

adolescent “transition proneness,” “precocious development,” “pseudomaturity,” or “hurried adolescence” (Jessor & Jessor, 1977; Newcomb & Bentler, 1988; Greenberger & Steinberg, 1986; Safron, Schulenberg, & Bachman, 2001). The general argument is that paid work in adolescence has little effect on school and family disengagement, substance use, and other problem behaviors, but instead reflects the influence of prior orientations, behaviors, and sociodemographic factors. For instance, precocious development theory (Newcomb & Bentler, 1988) suggests that early substance use hastens the transition to adulthood, as adolescent drug users have a higher probability of selecting into situations that are more compatible with continued drug use, such as quitting school, acquiring a full-time job, and moving into their own residences. Precocious work roles may also correspond with sexual activity, substance use, and school disengagement because they signify a claim to a more mature status (Jessor & Jessor, 1977; Willis, 1977). Social background differences in involvement in paid work, school engagement, and early family behavior (Schoen, Landale, Daniels, & Cheng, 2009; Staff & Mortimer, 2007) may also influence whether youth experience this syndrome of precocious development.

It is clear that employment affects family behaviors in young adulthood (Brewster & Rindfuss, 2000). For instance, employment has been shown to both increase birth control use (Kraft & Coverdill, 1994) and reduce the overall likelihood of pregnancy, especially for women who are also attending school (Budig, 2003; Coverdill & Kraft, 1996). Working women may have easier access to contraception, but they may also seek to avoid negative consequences to their future work-related goals. Women with high wages may choose to have fewer children because the higher costs of childrearing represent a trade-off with investment in the labor market (Leibowitz, Eisen, & Chow, 1986). At the same time, women’s employment and wages

contribute to the family income, thus boosting their appeal as attractive prospects and providing a marriage gain for men who select these working women as wives (Lloyd & South, 1996). Though none of these theories specifically addresses teenage workers, it is possible that by engaging in intensive work sooner, these adolescents may effectively be moving their developmental timeline forward. If so, the same or similar processes might be at work for both employed teenagers and young adults.

Yet, turning to adolescents, little prior research has examined the relationships between teenagers' paid work experiences and precocious family behaviors. Bozick (2006) found that adolescents who worked intensively experienced their first sexual intercourse earlier than their peers. Likewise, Rich and Kim (2002) found that current employment status and cumulative number of months employed increased the odds of first sex. Rich and Kim also found that intensive work increased the likelihood of first pregnancy by age 20, though the effect of work varied by race. Other research has reported null findings regarding the relationship between work intensity during adolescence and the timing of childbearing and marriage in young adulthood (Mortimer, 2003; Mortimer & Johnson, 1998).

Although little research has targeted this question, there are several reasons why paid work in adolescence may affect early family behavior, especially among teenagers who are spending long hours on the job. First, teenage workers may be more likely to engage in family behaviors because they come into contact with older employees, for whom such behaviors may be normative. Adolescents who are well-integrated into employment settings through intensive work may develop peer relationships with older coworkers, obscuring age differences, facilitating attitudes favorable to family behaviors, and providing opportunities to act in accordance with these revised attitudes. More directly, if employment leads to an older pool of

potential relationship partners, older sexual partners may initiate teenage workers into earlier adult-like behavior. Bauermeister and colleagues (2009) pursued this hypothesis and found results that, though statistically nonsignificant, were suggestive of increases in sexual partner age among African American youth as hourly paid workloads increased.

Second, teenagers may be more likely to engage in family behaviors if working compromises their school success or long-term ambitions. Research shows that female fertility is inversely related to education (Mason, 2001), and youths who work intensively tend to have worse educational outcomes than their counterparts who work moderately or not at all. Although some youth employment experiences are valuable for both education and later adult employment (Mortimer, 2003), heavy investment in work while still in school is associated with reductions in attendance and homework (Steinberg, Fegley, & Dornbusch, 1993), lower grades (Marsh & Kleitman, 2005), dropping out of high school (Lee and Staff, 2007), and reduced likelihood of postsecondary education (Ahituv & Tienda, 2004; Staff & Mortimer, 2007).

Third, teenagers may be more likely to engage in family behaviors if their paid work facilitates unstructured socializing with peers, or if working leads to greater autonomy from parents. Employed youth who work long hours spend more time in unstructured social activities away from the parental home, such as going on dates and attending parties (Safron, Schulenberg, & Bachman, 2001). Unstructured and unsupervised socializing with peers is not only associated with a wide variety of problem behaviors (Osgood et al., 1996), it may also increase the likelihood of precocious family behaviors. For instance, beyond the accumulation of the necessary resources needed for residential independence, the experience of working may foster a sense of adult status and remove adolescents from the position of being “children” in the parental home (Goldscheider and DaVanzo, 1989). Residential independence, cohabitation, and marriage

can serve as markers of this "achieved" adult status. Involvement in the work force can thereby lead to greater freedom from parental control and weaker ties to parents (Greenberger & Steinberg, 1986), which is associated with an increased likelihood of family behaviors (Longmore, Manning, & Giordano, 2001).

Finally, as suggested earlier, the effect of paid work on precocious family behaviors may be a spurious reflection of prior behaviors, orientations, and sociodemographic factors. Although the vast majority of high school students hold a paid job at some time during adolescence, there is a great deal of variation in the duration and intensity of the work experience (Mortimer, 2003). It could be that similarly situated teens choose both intensive work and early adult-like behaviors and roles. Youth from disadvantaged backgrounds, for example, are both more likely to work long hours during the school year (Staff & Mortimer, 2007) and engage in family behavior at an earlier age than more advantaged peers (Meier & Allen, 2008; Schoen et al., 2009). To help eliminate such potentially spurious findings, we control for a variety of background factors: gender, age and physical maturity, race and ethnicity, family structure, and socioeconomic background (Manning, Longmore, & Giordano, 2005). Furthermore, it could be that intensive workers are simply more social with the opposite sex; if so, an apparent association with first sex or early union formation could merely be a result of higher opportunity for such behaviors. For this reason, we also control for dating history (Meier, 2003).

In summary, our study contributes to the small but growing literature on adolescent employment and family behaviors in at least two important ways: First, we use nationally representative data to examine a range of early family behaviors, such as first sex, pregnancy, fertility, residential independence, and union formation. By taking a multiple-outcome approach, we increase the robustness of our findings and help to clarify the scope of the association

between youth employment and early family behaviors. Furthermore, our large sample size allows us to estimate work effects on relatively rare adolescent transitions to parenthood, residential independence, and union formation. Second, we control for a number of known correlates of both early work and family behaviors, and attempt to explain precocious work-family associations in adolescence by including measures of academic engagement, school dropout, parental monitoring, unstructured socializing, and problem behaviors.

METHOD

Data

We use data from Add Health, a large and nationally representative study of adolescents. Respondents in seventh through twelfth grades were first surveyed in 1994 and 1995 (Wave One) and follow-up interviews were conducted in 1996 (Wave Two). Add Health was created with a two-stage stratified design, using a total of 132 core schools at the first stage. At the second stage, in Wave One, all students (over 90,000) at these schools completed an in-school questionnaire. Approximately 20,000 students were sampled to take a lengthier questionnaire in their homes. Follow-up questionnaires constituting Wave Two were administered to 14,004 respondents in 1996, between one and two years after the first survey. The present study uses data from both Wave One and Wave Two, drawing most measures of independent variables from Wave One questionnaires.

Measures

Table 1 displays the means and standard deviations of the dependent and independent variables used in our analyses. For the logistic regression models, most continuous or ordinal variables included as covariates were standardized to provide easier comparisons of coefficients

between disparate scales. As some variables had small rates of missing data, we applied the *ICE* multiple imputation procedure in Stata 11.0 (Royston, 2004, 2005). The leftmost columns of Table 1 show the original values, and the rightmost columns show the results from our imputed data. The differences in descriptive statistics before and after imputation are minimal.

Outcome Variables. First sexual intercourse is a binary variable coded 1 = *yes* and 0 = *no*. The variable is coded from the self-reported response to the question in Wave Two: "Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female's vagina." In order to capture only those respondents who engaged in their first sexual intercourse between Waves One and Two, respondents who responded "yes" in Wave One were excluded from this outcome.

Pregnancy is a binary variable coded 1 = *yes* and 0 = *no*, limited to female respondents, in response to the Wave Two item "Have you ever been pregnant?" Childbirth is coded from follow-up questions for each reported pregnancy, "How did this pregnancy end?" If any respondent selected "a live birth," childbirth is coded 1. No direct questions to male respondents about existing biological children or past pregnancies are available in Wave Two of Add Health. Some information about household children and past involvement in pregnancies is available, but because even direct male reports of fertility have validity problems (Rendall et al., 1999), we restricted these analyses to female respondents. Female respondents who reported a pregnancy or having a first birth prior to Wave One were removed from the sample for these analyses, so that these variables represent only first pregnancies and births.

Residential independence is a binary variable coded 0 for those respondents living with any of the following: (a) a mother, (b) a father, (c) any other relative from a prior generation, or (d) anyone identifying a household member as acting "in the place of a mother [or father] to

you" at the time of the Wave Two interview. Respondents who did not meet any of these criteria are coded 1, indicating residential independence. Respondents reporting residential independence at Wave One were removed from the sample, and the 2.4% of respondents reporting college attendance at Wave Two are also excluded from the analysis of residential independence.

Union formation, including either marriage or cohabitation, is a binary variable coded 1 = *married or living with a romantic partner* for the respondent's status at Wave Two. Marriage is a single-item question ("Since [the last interview], did you get married?") and cohabitation is determined from further household relationship information where respondents reported living with a romantic partner. Respondents married or living with a partner at Wave One were removed from the sample.

Paid Work. Paid work hours during the school year, our main independent variable of interest, is coded as a set of dummy variables. After students were asked whether they were working at Wave One, they were asked how many hours they worked per week during the school year. The range of hours was divided into four categories: intensive at 21 or more hours of work per week, moderate at 11 to 20 hours of work, light at 1 to 10 hours of work, and no work (used as the reference category in regression models).

Demographics. We control for several demographic and personal factors that may represent background factors affecting both work and family behaviors. Gender is coded as 1 = *male* and 0 = *female* in the analyses. Race and ethnicity are coded as a set of five mutually exclusive dummy categories from self report. Age, as included in the analyses and in the descriptive statistics in Table 1, is the respondent's age in years at Wave 2. To more accurately capture the effect of age on our outcomes, a squared term is added to each regression model. Physical maturity is a subjective measure from a report by the interviewer at the end of the Wave

1 interview. Interviewers reported from 1 = *very immature* to 5 = *very mature* how "physically mature" the respondent was "compared to other adolescents of his/her age."

Socioeconomic status (SES) is a composite measure from the parents' education and occupational prestige, averaged between both parents if applicable. Education is scored from 1 = *never attended school* to 9 = *post-graduate education*, and prestige values from 1 = *no employment* to 11 = *professional or managerial* were coded from parents' self-reported occupation. Both scales were standardized and summed; the overall SES measure was then standardized.

Family structure, the kind of parents or guardians in the respondent's household, is captured in five categories and represented in regression models as four dummy variables. Respondents were coded as either (a) in a household with both biological parents, which was used as the reference category in regression models, (b) with two parents at least one of whom was a step-parent, (c) with one parent, whether a biological, adoptive, or step-parent, and (d) living with adoptive parents or with a non-parent relative.

Dating. Respondents reported detailed information about multiple intimate relationships (romantic and non-romantic) at Wave One and Wave Two. This self-reported information was coded into four exclusive categories: (a) dating the same person continuously from Wave One through Wave Two, (b) dating at Wave One but not dating the same person at Wave Two, (c) had dated prior to Wave One, but were not in a relationship at the time of the Wave One interview, or (d) had no such relationship involvement, current or past, at Wave One.

Parents and School. Parental monitoring is an average of six dichotomous variables (α = .603) from "yes" and "no" answers to whether parents allowed the respondent to make decisions about: (a) "the people you hang around with,"; (b) "what you wear," (c) "how much television

you watch," (d) "which television programs you watch," (e) "what time you go to bed on weeknights," and (f) "what you eat." The final scale is reverse coded so that higher scores indicate parents do not let them make such decisions. Unstructured socializing is a single-item variable in response to the question: "During the past week, how many times did you just hang out with friends?" Answers range from 0 = *not at all* to 3 = *five or more times*.

All students attended school during Wave One of Add Health. At Wave Two, 6.6% of respondents were no longer attending school because of expulsion or dropout, graduation, or some other reason. Grade point average was computed as an average of the student's four self-reported grades in their most recent courses in English or language arts, mathematics, history or social science, and science (α = .752). A measure of educational aspirations is coded from a single item: "On a scale of 1 to 5, where 1 is low and 5 is high, how much do you want to go to college?"

School attachment is a three-item measure of the respondent's self-reported attitude toward his or her school (α = .771). Ranging from 1 = *strongly agree* to 5 = *strongly disagree*, students responded to: (a) "You feel close to people at your school," (b) "You feel like you are part of your school," and (c) "You are happy to be at your school." Items were reverse coded, so that 1 = *lowest levels of attachment* 5 = *highest levels of attachment*. Problem behavior in school is a three-item measure of the respondent's trouble at school (α = .677), in response to questions asking, in the school environment, "…how often have you had trouble:" (a) "getting along with your teachers," (b) "paying attention in school," and (c) "getting your homework done." Scores for each item range from 0 = *never* to 4 = *every day*.

Delinquency and Substance Use. The delinquency measure was constructed from eight self-reported items covering drug sales, property crime, and violent crime (α = .741): "In the past

12 months, how often did you" (a) "sell marijuana or other drugs," (b) "steal something worth less than $50," (c) "steal something worth more than $50," (d) "go into a house or building to steal something," (e) "use or threaten to use a weapon to get something from someone," (f) "hurt someone badly enough to need bandages or care from a doctor or nurse," (g) "take part in a fight where a group of your friends was against another group," and (h) "deliberately damage property that didn't belong to you?" Responses ranged from 0 = *never* to 3 = *five or more times*. The eight items were averaged to form a single delinquency scale.

Marijuana use is measured as a binary variable coded 1 = *used marijuana recently* in response to the question: "During the past 30 days, how many times did you use marijuana?" Drinking is an ordinal variable coded from a single item: "During the past 12 months, on how many days did you drink alcohol?" Original responses ranged from 1 = *every day or almost every day* to 7 = *never*. The scale was reverse-coded, so that higher scores on the final variable indicate more frequent drinking over the last year. Friends' marijuana use and friends' drinking are both coded as an ordinal scale from 0 to 3, corresponding to the respondent's answers to "Of your 3 best friends, how many use marijuana at least once a month?" and "Of your 3 best friends, how many drink alcohol at least once a month?" Tobacco use is a dichotomous measure coded 1 = *reported tobacco use* in response to this question: "Have you ever smoked cigarettes regularly, that is, at least 1 cigarette every day for 30 days?"

Analysis Design

From the original sample of 14,004 respondents present in both Wave One and Wave Two, 632 cases were excluded for a final sample size of 13,372. Cases meeting any one of the following criteria at Wave One were excluded: (a) current or past pregnancy; (b) married or living with a romantic partner; or (c) living without any parent, older relative, or parent figure.

These restrictions ensure that our analyses assess the link with employment for teenagers who have not yet experienced these precocious family role transitions and adult-like behaviors. The *mim* prefix in Stata 11.0 was used to adjust standard errors for the data following multiple imputation (Royston, 2004, 2005). Furthermore, as Add Health data does not come from a simple random sample, we applied survey regression routines in Stata 11.0 using the *svy* command (Chantala, 2006). This technique further adjusts the standard error of our regression estimates to account for Add Health's stratified survey design. Following Winship and Radbill (1994), we do not use probability sampling weights in our regression models. Alternative models estimated with these weights showed patterns consistent with our findings as presented here.

As each outcome of interest is dichotomous, we used binary logistic regression models to estimate work effects, with adjustments for survey design and multiple imputation as described above. Beyond the models presented here, separate male and female models were estimated for first sex, residential independence, and union formation. The resultant work estimates were compared between models with a z-test of coefficient invariance (Clogg, Petkova, & Haritow, 1995) to assess whether estimates of work effects varied by gender. None of the work coefficients showed a statistically significant difference between the male-only and female-only analyses. We therefore present first sex, residential independence, and union formation models for the full sample with a dichotomous indicator of gender as a control variable.

RESULTS

Our initial findings regarding the associations between adolescent work and precocious family behaviors are displayed in Table 2. Each of the five models includes gender, race, age, physical maturity, socioeconomic status, family structure, and dating history. The results indicate

strong, significant associations between intensive work and first sex (odds ratio = 1.80; *t* ratio = 5.57), pregnancy (odds ratio = 1.44; *t* ratio = 2.16), residential independence (odds ratio = 2.04; *t* ratio = 4.28), and union formation (odds ratio = 2.04; *t* ratio = 2.54). The coefficients for moderate work appear smaller, but are likewise statistically significant for first sex (odds ratio = 1.23; *t* ratio = 2.37), pregnancy (odds ratio = 1.41; *t* ratio = 2.16), and union formation (odds ratio = 1.56; *t* ratio = 2.11). We find no differences between non-employed youth and those who work fewer than 10 hours per week. Furthermore, no differences between categories of work for childbirth were statistically significant. Overall, then, we find that students with intensive amounts of time invested in employment during the school year are more likely to transition to adult-like roles and behaviors. Light workers appeared no different from non-workers, while moderate workers fell somewhere in between. The associations between early work experience and family behaviors do not appear to be spurious due to prior demographic or socioeconomic differences, nor are they merely reflective of differential involvement in dating.

These initial models provide a baseline from which to examine potential explanations for the observed links between precocious work and family behaviors. Table 3 shows the results of a binary logistic regression predicting first sexual intercourse between Wave One and Wave Two (*n* = 9,293). This model includes the full range of control variables described above, accounting for background and demographic factors and relationship history, as well as school and family involvement, problem behaviors, and substance use. Light and moderate levels of work during the school year show no statistically significant difference from no work in the predicted change in odds of first sexual intercourse (odds ratio for 1 – 10 hours = 1.04; odds ratio for 11 – 20 hours = 1.14). Intensive levels of work, however, show a strong and significant effect (odds ratio = 1.61, *t* ratio = 4.15). Students working more than 20 hours per week during school at Wave

One were 61% more likely than non-workers to engage in sex by Wave Two, holding the other variables constant. The likelihood of first sex also varies significantly by age, race, SES, and family structure. School engagement, including higher GPA and higher school attachment, appears to have a protective effect, while almost all delinquency measures were associated with higher odds of engaging in sex. The inclusion of measures of academic disengagement, substance use, delinquency, and parental reduced the coefficient of intensive work by 19% from Table 2 to Table 3.

Table 4 displays the results of two binary logistic regression models predicting first pregnancy and first childbirth among the female subsample (n = 6,920). Compared to their non-working counterparts, the risk of first pregnancy is 42% higher among youth who work 11 to 20 hours per week and 38% higher among youth who work intensively. The childbirth analysis shows no significant difference between levels of work (t ratio = –0.56; t ratio = 1.26; t ratio = –0.25). Black respondents and those from single parent families or of lower SES are more likely to report first pregnancy and birth. Ongoing relationships predict both pregnancy and fertility, as does friends' drug use. The coefficient for intensive work in the pregnancy model is reduced by only 12% from Table 2 to Table 4.

Table 5 shows the results of two binary logistic regression models predicting residential independence among respondents not in college (n = 13,054) and union formation for the entire sample (N = 13,372). Intensive work is significantly associated with residential independence (odds ratio=1.73; t ratio= 3.25) and union formation (odds ratio = 1.75; t ratio= 1.97). Low levels of work show no significant associations with either residential independence (t = –1.04) or union formation (t = –0.56). Moderate workers are significantly more likely to form a union (t = 2.31) but not to establish residential independence (t = 1.66) compared to non-workers. Male,

Black, and lower SES respondents were less likely to be married or cohabiting. Respondents from non-two-parent families were more likely to become residentially independent or enter a cohabitation or marriage, as were respondents who left school for any reason. Problems with school are also associated with these transitions. Overall, inclusion of the precocious maturity measures reduces the magnitude of the intensive work coefficient by 22% for the residential independence outcome and 17% for the union formation outcome; nonetheless, both coefficients remain statistically significant. These results show an overarching association between intensive work and the transition to adult-like residential and relationship responsibilities,

Comparisons of Intensive Work Effects

Figure 1 displays the pattern of results for intensive work coefficients (non-exponentiated) along with 95% confidence intervals for each effect. For each category, the effect estimate and interval on the left is from the initial set of models including demographic controls (as displayed in Table 2), and the estimate and interval on the right is from the second set of models that accounts for all the explanatory variables (as in Tables 3 – 5). When error bars cross the X axis, this indicates that the estimated effect is not significant at $p < .05$. As can be seen from the interval ranges, our statistical power to pinpoint the strength of these outcomes is limited. Some base rates are still quite low despite the large sample size. Recall that fewer than 2% of respondents experienced a first childbirth, residential independence, or union formation. Especially for childbirth, where our sample is limited to women only, little can be concluded from our results about the association with work. As Figure 1 shows, the confidence interval of the intensive work estimate is substantial.

The other four outcomes showed statistically significant effects when only the background and dating controls were included. When we included additional controls, the effects of intensive paid work on first sex and residential independence were reduced by about 19% and 22% respectively, but they remained statistically significant. Pregnancy was reduced by only 12% and union formation by 17%. The reduction of these coefficients from the first set to the second set indicates that some intensive workers do engage in early family behaviors alongside delinquency, drug use, and withdrawal from school. Nonetheless, the associations between intensive work and first sex, pregnancy, residential independence, and union formation remain even after the precocious maturity elements are controlled for.

Discussion

In this study, we found a consistent pattern of paid work effects across a broad range of precocious family roles and behaviors, from the transition to first sex, to first pregnancy, to residential independence, and to the creation of an adolescent's own family via union formation and childbirth. Even after imposing stringent controls for factors that have been shown to affect early family behaviors (Longmore et al., 2001; Manning et al., 2005; Meier, 2003; Meier & Allen, 2008; Schoen et al., 2009), we found that youth who worked intensively during the school year were more likely to engage in family behavior than youth who worked fewer hours or not at all. Importantly, moderate hours of paid work had little or no effect on adolescent family behaviors. Taken as a whole, we found evidence of a link between precocious work and family roles in adolescence.

We considered a number of plausible reasons for these work-family associations in adolescence, but found only weak support that school disengagement and failure, increased

autonomy from parents, problem behaviors, and unstructured socializing explained why intensive workers were more likely to engage in family behaviors than other youth. For instance, we found that between 12% and 22% of the differences between intensive workers and non-workers, net of the initial controls, were accounted for by these explanatory variables. With the exception of female childbearing, intensive workers were more likely to experience first sex, pregnancy, residential independence, and union formation earlier than their moderately and non-working counterparts, even after accounting for the behaviors and orientations that are typically associated with a syndrome of precocious maturity. As with young adults, "intensive" investments in paid work during adolescence thus appear to have similar effects on other key family role transitions.

Why does paid work have little effect on childbearing? One reason is that intensive work may have countervailing effects on fertility, which in turn render the effect statistically non-significant. For example, consistent with the precocious maturity hypotheses, high intensity work may increase the likelihood of childbearing. On the other hand, evidence suggests that employment reduces the demand for children among young adult women, so high intensity work may reduce the odds of childbearing. Consistent with this idea, in additional (unshown) analyses we found that none of the young women who worked over 40 hours per week during the school year had children in the follow-up survey, compared to 2.1% of those who worked between 20 and 40 hours per week and less than 1% of the women who worked 20 or fewer hours. Thus, the association between paid work and childbearing is highly variable. In some settings, paid work may be associated with an increased likelihood of childbearing because it compromises education, parental monitoring, and adjustment, whereas in other settings the higher opportunity costs may reduce fertility. Finally, the relatively short time between the original and follow-up

survey (between 9 and 13 months in most cases), combined with our decision to limit the sample to those who had not experienced a pregnancy by Wave One to preserve temporal ordering, may have complicated the observed relationship between work and childbearing more than that for work and the other family behaviors.

Although we include a set of stringent controls, it is difficult to know whether the associations between paid work and family behaviors we find in this study are indeed causal. For instance, it is plausible that, for youth who have a strong desire to spend long hours on the job, their orientation to work and not their actual work investments per se would predict both work and family roles. Orientations toward future family roles might also predict both work investments and family behaviors (Manning, et al. 2007). Teenage employment could both reflect and encourage self-perceptions of maturity, leading to adult-like transitions. Direct measures of such attitudes or maturity were, unfortunately, not available in our data.

Future research should also examine whether the effect of adolescent paid work on family behaviors depends on the quality of the job. For example, minimum wage service jobs may not provide enough support to allow youth to establish residential independence from their parents. Higher-wage jobs also allow some teenage workers to invest more of their income in relationships with peers and romantic partners. As noted earlier, teenagers who work with older coworkers may be more likely to engage in precocious family behaviors. On the other hand, young workers in high-quality jobs may delay family formation so as not to jeopardize their career development. Though Add Health does not contain detailed information on the type, age-structure, or quality of work, these work conditions might help to explain the statistically significant associations we show in this study, and are worthwhile avenues for future research.

In sum, although teenage fertility has declined (Furstenberg, 2003) and young people are increasingly delaying marriage (Ventura & Bachrach, 2000), our study provides evidence that youth involvement in paid work is associated with early family behaviors that are pivotal in determining the life course trajectories of youth as they transition to adulthood. While we cannot be certain of the causal centrality of paid work in the family formation processes examined here, our results clearly support the view that youth involved in intensive work are "at risk" for engaging in behaviors that may lead to early—or, some might say, premature—family formation. Youth entering the paid labor force, therefore, may gain from the additional attention of parents, school personnel, and perhaps employers. It is in the interest of all, including the students themselves, that adolescent work experiences contribute to long-term well-being rather than lead to involvement in behaviors that may jeopardize the quality of their later adult lives.

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Table 1. *Descriptive Statistics (*N = *13,372)*

	Before Multiple Imputation			After Multiple Imputation	
Variables	Mean	(S.D.)	Missing	Mean	(S.D.)
Outcome variables					
First sex[a]	18.3%		<0.1%	18.3%	
First pregnancy[b]	6.3%		<0.1%	6.3%	
First childbirth[b]	1.1%		<0.1%	1.1%	
Residential independence[c]	1.9%		<0.1%	1.9%	
Union formation	1.3%		<0.1%	1.3%	
Work[d]					
1 – 10 hours/week	27.5%		0.8%	27.5%	
11 – 20 hours/week	11.8%		0.8%	11.8%	
21+ hours/week	8.4%		0.8%	8.4%	
Demographic variables					
Male	48.3%		0.0%	48.3%	
Race and ethnicity[e]					
Hispanic	16.5%		0.3%	16.5%	
Black non-Hispanic	21.0%		0.3%	21.0%	
Asian	7.0%		0.3%	7.0%	
Other race or ethnicity	2.7%		0.3%	2.7%	
Age	16.11	(1.62)	0.0%	16.11	(1.62)
Physical maturity	0	(1.00)	0.1%	0	(1.00)
Socioeconomic status	0	(1.00)	1.1%	0	(1.00)
Family structure[f]					
Stepfamily	11.0%		<0.1%	11.0%	
Single parent	29.3%		<0.1%	29.3%	
Other family structure	5.9%		<0.1%	5.9%	
Dating[g]					
Dated before but not at Wave 1	31.7%		0.4%	31.6%	
Dating at Wave 1	14.8%		0.4%	14.8%	
Same relationship from Wave 1 to 2	16.1%		0.4%	16.1%	
Parent and school involvement					
Parental monitoring	0	(1.00)	0.2%	0	(1.00)
Out of school[h]					
Expelled or dropped out	2.6%		<0.1%	2.6%	
Graduated	2.6%		<0.1%	2.6%	
Other reason	1.4%		<0.1%	1.4%	
Grade point average	0	(1.00)	1.1%	0	(1.00)
School attachment	0	(1.00)	0.1%	0	(1.00)
Educational aspirations	0	(1.00)	0.4%	0	(1.00)
Problem behavior	0	(1.00)	<0.1%	0	(1.00)
Delinquency and substance use					
Unstructured socializing	0	(1.00)	<0.1%	0	(1.00)
Self-reported delinquency	0	(1.00)	0.5%	0	(1.00)
Marijuana use	12.2%		1.5%	12.5%	
Friends' marijuana use	0.55	(.95)	1.9%	0.55	(.95)

Alcohol use	0	(1.00)	0.2%	0	(1.00)
Friends' alcohol use	0.99	(1.14)	2.0%	0.99	(1.14)
Tobacco use	16.8%		0.7%	16.8%	

[a]Limited to those reporting no sexual intercourse prior to Wave One. [b]Limited to female respondents. [c]Limited to those who were not attending college at Wave Two. [d]Reference category of non-Hispanic White. [e]Reference category of no employment. [f]Reference category of dual biological parent household. [g]Reference category of no reported relationships at Wave One. [h]Reference category of still attending school at Wave Two.

Table 2. *Initial Binary Logistic Models Estimating the Effects of Adolescent Work with Limited Controls*

Model	exp(B)	t-ratios
First Sex (*n* = 9,293)		
1 – 10 hours/week of work	1.010	.14
11 – 20 hours/week of work	1.237	2.37
21+ hours/week of work	1.803	5.57
First Pregnancy (*n* = 6,920)		
1 – 10 hours/week of work	.879	-.91
11 – 20 hours/week of work	1.415	2.31
21+ hours/week of work	1.447	2.16
First Childbirth (*n* = 6,920)		
1 – 10 hours/week of work	.746	-.74
11 – 20 hours/week of work	1.365	1.04
21+ hours/week of work	1.031	.08
Residential Independence (*n* = 13,054)		
1 – 10 hours/week of work	.724	-1.14
11 – 20 hours/week of work	1.380	1.38
21+ hours/week of work	2.037	4.28
Union Formation (*N* = 13,372)		
1 – 10 hours/week of work	.844	-.77
11 – 20 hours/week of work	1.563	2.11
21+ hours/week of work	1.952	2.54

Note: Though not shown, all analyses control for respondent's gender, race/ethnicity, age, physical maturity, family structure, parents' socioeconomic status, and dating history. Analyses adjusted for complex survey design with Stata 11.0 *svy* command.

Table 3. *Binary Logistic Model Estimating the Effect of Adolescent Work on First Sex (*n = *9,293)*

	First Sex	
Variables	exp(B)	t-ratios
Work		
1 – 10 hours/week	1.037	.50
11 – 20 hours/week	1.138	1.33
21+ hours/week	1.613	4.15
Demographic variables		
Male	.910	-1.49
Race and ethnicity		
Hispanic	.999	-.01
Black non-Hispanic	1.608	5.97
Asian	.683	-3.65
Other race or ethnicity	.922	-.46
Age	2.713	2.85
Age squared	.975	-2.29
Physical maturity	1.047	1.76
Socioeconomic status	.865	-4.13
Family structure		
Stepfamily	1.183	1.52
Single parent	1.498	4.49
Other family structure	1.413	2.85
Dating		
Dated before but not at Wave 1	2.062	8.79
Dating at Wave 1	2.869	12.94
Same relationship from Wave 1 to 2	4.798	14.83
Parent and school control variables		
Parental monitoring	.980	-.63
Unstructured socializing	1.124	3.76
Out of school		
Expelled or dropped out	2.040	3.16
Graduated	1.206	1.10
Other reason	1.012	.05
Grade point average	.854	-4.43
School attachment	.918	-2.36
Educational aspirations	.969	-1.09
Problem behavior	1.003	.08
Delinquency and substance use		
Self-reported delinquency	1.177	3.55
Marijuana use	1.250	1.77
Friends' marijuana use	1.054	1.07
Alcohol use	1.262	5.89
Friends' alcohol use	1.096	2.58
Tobacco use	1.568	4.89

Note: Analyses adjusted for complex survey design with Stata 11.0 *svy* command.

Table 4. *Binary Logistic Models Estimating the Effect of Adolescent Work on First Pregnancy (*n *= 6,920) and First Childbirth (*n *= 6,920), Females Only*

	First Pregnancy		First Childbirth	
Variables	exp(B)	t-ratios	exp(B)	t-ratios
Work				
1 – 10 hours/week	.911	-.65	.794	-.56
11 – 20 hours/week	1.428	2.26	1.482	1.26
21+ hours/week	1.382	1.82	.909	-.25
Demographic variables				
Race and ethnicity				
Hispanic	1.050	.31	1.011	.02
Black non-Hispanic	2.029	5.16	2.899	3.30
Asian	1.188	.59	1.437	.45
Other race or ethnicity	1.692	1.65	.623	-.43
Age	1.222	.34	7.603	1.23
Age squared	.999	-.06	.948	-1.08
Physical maturity	1.035	.57	.947	-.50
Socioeconomic status	.720	-5.97	.513	-5.98
Family structure				
Stepfamily	1.212	1.02	2.470	1.88
Single parent	1.405	2.78	2.178	2.44
Other family structure	1.879	2.82	1.924	1.49
Dating				
Dated before but not at Wave 1	2.103	4.31	1.456	.84
Dating at Wave 1	2.568	5.22	2.151	1.93
Same relationship from Wave 1 to 2	3.942	9.70	3.681	3.13
Parent and school control variables				
Parental monitoring	.948	-.84	.902	-.78
Unstructured socializing	1.001	.01	.854	-1.79
Out of school				
Expelled or dropped out	1.596	2.12	2.431	1.94
Graduated	.957	-.17	1.363	.58
Other reason	2.199	2.19	4.685	2.77
Grade point average	.791	-3.75	.882	-.98
School attachment	1.020	.36	.922	-.64
Educational aspirations	.905	-1.95	.892	-1.17
Problem behavior	.973	-.42	.956	-.27
Delinquency and substance use				
Self-reported delinquency	1.104	1.81	.813	-1.11
Marijuana use	1.054	.30	1.192	.32
Friends' marijuana use	1.204	2.63	.947	-.44
Alcohol use	1.108	1.69	.796	-1.55
Friends' alcohol use	.986	-.21	1.348	2.27
Tobacco use	1.165	1.17	1.563	1.46

Note: Analyses adjusted for complex survey design with Stata 11.0 *svy* command.

Table 5. *Binary Logistic Models Estimating the Effect of Adolescent Work on Residential Independence (*N = *13,054) and Union Formation (*N = *13,372)*

	Resid. Independence		Union Formation	
Variables	exp(B)	t-ratios	exp(B)	t-ratios
Work				
1 – 10 hours/week	.733	-1.04	.882	-.56
11 – 20 hours/week	1.497	1.66	1.617	2.31
21+ hours/week	1.739	3.25	1.748	1.97
Demographic variables				
Male	.752	-1.89	.490	-4.03
Race and ethnicity				
Hispanic	1.286	1.41	1.135	.41
Black non-Hispanic	1.289	1.08	.445	-2.61
Asian	.853	-.35	.797	-.54
Other race or ethnicity	1.055	.12	1.948	1.76
Age	2.191	.77	.333	-1.27
Age squared	.992	-.30	1.042	1.60
Physical maturity	1.136	1.47	1.002	.02
Socioeconomic status	.872	-1.64	.814	-2.33
Family structure				
Stepfamily	1.347	1.35	1.357	1.07
Single parent	1.593	2.51	1.541	2.21
Other family structure	3.847	8.42	2.324	3.56
Dating				
Dated before but not at Wave 1	1.095	.50	1.943	1.91
Dating at Wave 1	1.264	1.02	3.160	3.47
Same relationship from Wave 1 to 2	1.419	1.68	4.638	4.63
Parent and school control variables				
Parental monitoring	1.084	1.22	.997	-.03
Unstructured socializing	1.036	.51	1.030	.32
Out of school				
Expelled or dropped out	4.313	5.28	3.212	3.33
Graduated	3.327	5.27	2.411	3.12
Other reason	4.723	3.64	3.308	2.99
Grade point average	1.100	1.08	.859	-1.29
School attachment	.836	-2.95	.886	-1.80
Educational aspirations	.845	-3.67	.862	-2.43
Problem behavior	1.077	1.02	.828	-2.14
Delinquency and substance use				
Self-reported delinquency	.929	-1.03	1.006	.07
Marijuana use	.673	-1.53	.775	-.87
Friends' marijuana use	.995	-.05	.976	-.21
Alcohol use	1.006	.08	1.028	.34
Friends' alcohol use	1.042	.56	1.056	.63
Tobacco use	1.142	.85	1.180	.83

Note: Analyses adjusted for complex survey design with Stata 11.0 *svy* command.

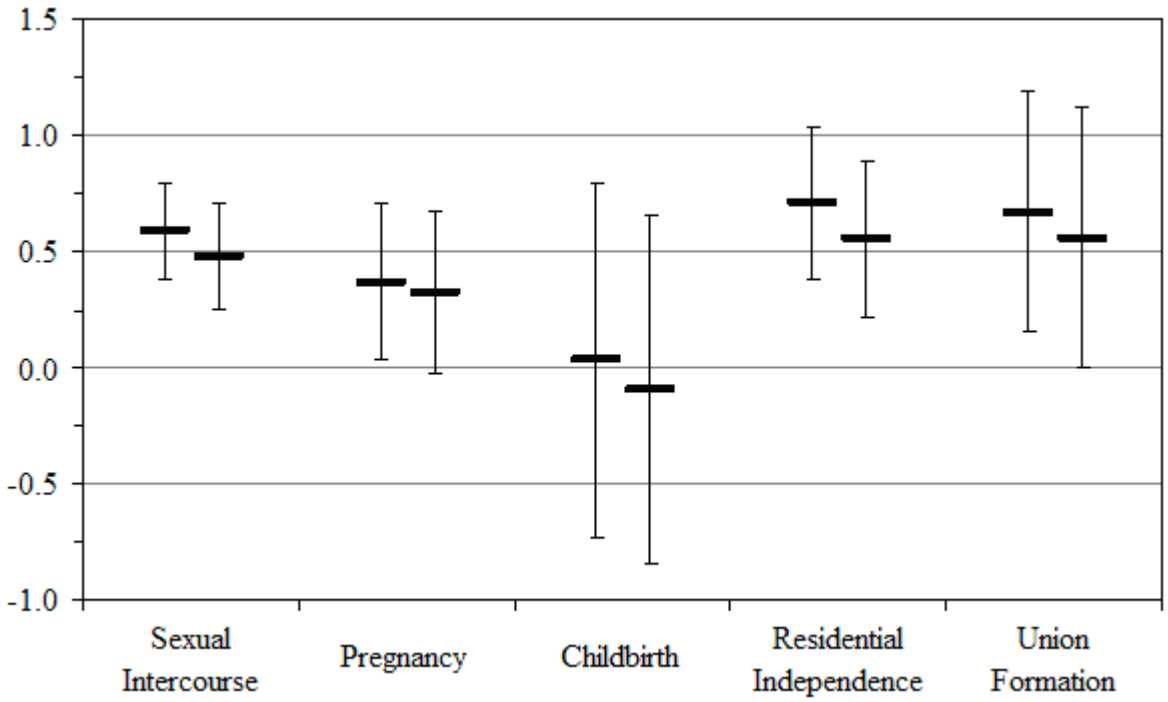

FIGURE 1. CONFIDENCE INTERVALS OF INTENSIVE WORK COEFFICIENTS (21+ HOURS PER WEEK) FROM INITIAL MODELS (LEFT BARS) AND MODELS WITH PRECOCIOUS MATURITY MEASURES (RIGHT BARS)