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ADOLESCENT WORK INTENSITY, SCHOOL PERFORMANCE, AND ACADEMIC ENGAGEMENT*

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Abstract

Teenagers working over 20 hours per week perform worse in school than youth who work less. There are two competing explanations for this association: (1) that paid work takes time and effort away from activities that promote achievement, such as completing homework, preparing for examinations, getting help from parents and teachers, and participating in extracurricular activities; and (2) that the relationship between paid work and school performance is spurious, reflecting preexisting differences between students in academic ability, motivation, and school commitment. Using longitudinal data from the ongoing national Monitoring the Future project, this research examines the impact of teenage employment on school performance and academic engagement during the 8th, 10th, and 12th grades. We address issues of spuriousness by using a two-level hierarchical model to estimate the relationships of within-individual changes in paid work to changes in school performance and other school-related measures. Unlike prior research, we also compare youth school performance and academic orientation when they are *actually* working in high-intensity jobs to when they are jobless and *wish* to work intensively. Results indicate that the mere wish for intensive work corresponds with academic difficulties in a manner similar to actual intensive work.

Keywords

teenage employment; school performance; academic engagement; wishing to work

The majority of secondary students in the United States are employed at some point during the school year, and those students who work long hours tend to do worse in school than those who work less intensively (see Staff, Messersmith, and Schulenberg 2009 for a recent review). Indeed, students who work "intensively" (over 20 hours per week) devote fewer hours to homework and extracurricular activities, have higher absenteeism, achieve lower grade point averages and standardized test scores, and have lower rates of high school graduation, college

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matriculation, and college completion than youth who do not work or who work at lower intensity (Bachman and Schulenberg 1993; Marsh and Kleitman 2005; Mortimer 2003; Lee and Staff 2007; McNeal 1997; Schoenhals, Tienda, and Schneider 1998; Staff and Mortimer 2007; Warren and Lee 2003; Warren, LePore, and Mare 2000). Two competing explanations have been offered about why these associations occur. One explanation asserts that high-intensity work takes time and effort away from activities that foster academic engagement and achievement, such as preparing for examinations, completing homework, receiving help from teachers and parents, and participating in extracurricular activities. High-intensity work may also increase problem behaviors that undermine school commitment and academic success, such as delinquency, truancy, substance use, and school misconduct (Uggen and Wakefield 2007). The second explanation argues that work effects on adolescents' schooling result from selection rather than any causal impact of high-intensity employment (Schoenhals et al. 1998; Warren et al. 2000). Youth who have less success in school or involvement in extracurricular activities are more likely to desire employment rather than school, and are more likely to invest their time in paid work (Bachman et al. 2003; Mortimer 2003; Warren 2002). Current research also indicates that unmeasured (or inadequately measured) differences among students in academic ability or motivation may also affect decisions about subsequent work and school investments and account for the relationship between long hours on the job and poor achievement (Rothstein 2007).

In an effort to determine which explanation is more valid, the present paper uses nationally representative longitudinal data from the Monitoring the Future (MTF) project (Johnston et al. 2008a, 2008b) to examine the effects of paid work in adolescence on eight measures of school performance and academic orientation. To extend the literature, we address selection issues in two new ways. First, we minimize potential bias due to unmeasured individual differences by estimating the relationships of within-individual changes in academic orientation and achievement to changes in paid work (Allison 2005; Halaby 2003). Second, we consider whether the *desire* for long hours on the job among nonworking youth also contributes to academic disengagement and school failure. Past research based upon cross-sectional data shows that a strong desire for paid work is associated with poor school performance, substance use, and other problem behaviors, irrespective of actual jobholding and hours of work (Bachman et al. 2003; Warren 2002).

TWO HYPOTHESES EXPLAINING THE POOR ACHIEVEMENT OF HIGH-INTENSITY WORKERS

High-intensity workers may perform poorly in school because their long hours on the job leave them little time or energy to devote to activities that promote academic engagement and achievement (Greenberger and Steinberg 1986; Steinberg and Cauffman 1995). Several studies show that youth who work more than 20 hours per week during the school year report spending fewer hours completing homework than youth who do not work or who limit their hours (Carr, Wright, and Brody 1996; Eckstein and Wolpin 1999; Marsh 1991; Marsh and Kleitman 2005; Steinberg and Dornbusch 1991; Steinberg, Fegley, and Dornbusch 1993). Research has shown that longer hours on the job are associated with less sleep and exercise and a higher frequency of skipping breakfast (Bachman and Schulenberg 1993; Safron, Bachman, and Schulenberg 2001), so high-intensity workers may be more likely than moderate workers or jobless youth to come to school unprepared for learning (Greenberger and Steinberg 1986). The rates of school absenteeism are also higher for high-intensity workers (Schoenhals et al. 1998).

Youth who work long hours may also be unable to take full advantage of valuable extracurricular and community activities that promote learning and school engagement (McNeal 1995; Osgood 1999; Schoenhals et al. 1998). High-intensity workers may have less

flexibility in their work schedules compared to those who work fewer hours. In addition, intensive workers may also become more attracted to less structured and unsupervised activities, such as going to parties and bars and riding around in cars for fun; these same youth may have more autonomy from parental supervision (Longest and Shanahan 2007), which enables more unstructured socializing and problem behaviors (Osgood 1999; Safron et al. 2001). Research also shows that high-intensity workers engage more frequently in school misconduct, delinquency, and substance use (Bachman and Schulenberg 1993; McMorris and Uggen 2000; Mortimer and Johnson 1998; Staff and Uggen 2003; Steinberg and Dornbusch 1991; Steinberg et al. 1993). Teachers' negative reactions to school misbehavior and delinquency may lead these youth to develop nonachiever academic identities (Uggen and Wakefield 2007).

An alternative hypothesis asserts that preexisting individual differences in school performance, aspirations, problem behaviors, and ability explain the educational deficits of high-intensity workers (Bachman et al. 2003, 2008; Rothstein 2007; Warren 2002; Warren et al. 2000). Students with poor achievement and little interest in school may prefer to work longer hours than those who have greater success in school (National Research Council 1998; Warren 2002). Many of the established factors that predict early school failure—e.g., academic disengagement, substance use, school misconduct, and low achievement—also predict, and often precede, a greater likelihood of intensive work during high school (Bachman and Schulenberg 1993; Mortimer 2003; Staff and Uggen 2003). Selection processes, rather than limited hours, may explain the observed correlation between intensive work and school failure.

Developmental psychologists have expressed particular concern about adolescents who exhibit "transition proneness" (Jessor and Jessor 1977; Jessor, Donovan, and Costa 1991) or "precocious development" (Newcomb and Bentler 1988), characterized by an interest in more adultlike roles and leisure activities. For instance, the problem behaviors that tend to accompany intensive work in adolescence, such as alcohol use, smoking, drug use, and school disengagement may be viewed as a symbolic claim to adult status among youth who strongly desire to act like an adult (Jessor and Jessor 1977). Research shows that binge drinking during high school is associated with a syndrome of precocious behaviors such as intensive work hours, limited involvement in school-related activities, inadequate sleep, and poor diet (Bachman and Schulenberg 1993). Moreover, prior engagement in delinquent behaviors such as drinking, using drugs, and misbehaving in school may influence some adolescents to enter work environments offering fewer social constraints than do school and family. Newcomb and Bentler (1988) found that adolescent drug users have a high probability of selecting into adultlike situations that are more compatible with substance use, such as quitting school, acquiring intensive work, and moving into their own apartments.

Longitudinal research shows that prior academic engagement and achievement explain some of the difference in school success between high- and low-intensity workers (Marsh and Kleitman 2005; Schoenhals et al. 1998; Warren et al. 2000), though most research still leaves open the possibility that unmeasured factors may explain the remaining relationship. Recently, Rothstein (2007) addressed this important selection issue by controlling for all stable individual differences through fixed-effects panel models and instrumental variables (referencing state-level youth employment restrictions and labor-market conditions). Using data from the 1997 National Longitudinal Survey of Youth, Rothstein showed that this analytic approach reduced the relationship between intensive hours and grade point average (GPA) to statistical nonsignificance. However, other studies using similar methodologies to control for unobserved sources of spuriousness still found statistically significant effects of intensive work on test scores (Tyler 2003), high school dropout (Apel et al. 2008), and GPA among black and Hispanic youth (Oettinger 1999). Thus, evidence is mixed on whether unobserved differences between students explain disparities in academic achievement.

DISENTANGLING THE EFFECTS OF ACTUAL WORK HOURS FROM PREFERENCES

Most prior research makes comparisons among high-intensity workers, moderate workers, and nonworkers because youth who work limited hours (especially to 20 hours per week or less) tend to perform better in school than their peers who work intensively or not at all (D'Amico 1984; Mortimer and Johnson 1998). There are several possible explanations for this. Paid work during adolescence can build self-confidence, responsibility, and independence; expose teenagers to new challenges; and promote coping skills that lead to positive adjustment (Greenberger 1988; Greenberger and Steinberg 1986; Mortimer 2003; Mortimer et al. 1996; Mortimer and Shanahan 1994). In contrast, some nonworkers fail to acquire or hold a job because of limited opportunities (e.g., residence in poor labor markets, strict parents, or lack of transportation) and/or (prior) low self-confidence, poor coping skills, poor performance, lack of positive references, and poor interview or people skills.

Moderate workers may perform better in school than high-intensity workers and nonworkers because they prefer school to work and do not want to spend long hours on the job. Little research, however, has examined how students' preferences for employment and work intensity affect their academic success. Research based on cross-sectional data shows that employed teenagers who place a stronger emphasis on work than school tend to perform poorly in school, irrespective of actual hours worked (Warren 2002). Bachman and colleagues (2003) showed that 8th graders' *desire* for intensive work (measured before most respondents actually worked intensively) was associated with school disengagement, substance use, and other problem behaviors. These studies suggest an interesting possibility: one reason that some earlier research has shown detrimental effects of intensive work hours on school outcomes may be that differing work *preferences* were not examined.

Studying work preferences among jobless youth may be a useful way to disentangle whether high-intensity workers tend to do relatively poorly in school because their work schedules are overly demanding (the limited-hours or time trade off hypothesis), or because high-intensity workers have long preferred intensive work to school (the selection hypothesis). Non-working students with a desire for long work hours may have unobserved aptitudes and motivations in common with those youth in high-intensity work, but without the time demands and conflicts of actual employment. Yet students who are disengaged from school and wish they could spend long hours on the job may remain jobless because of the numerous personal, structural, and situational factors that affect the likelihood of adolescent employment. The decision to work (and how much to work) is influenced by the young person's own credentials, talents, preferences, obligations, and family backgrounds; in addition, employment during adolescence is shaped by external influences such as local labor market conditions, mandates on secondary school attendance and work hours, union provisions restricting certain types of jobs, and age/racial discrimination (U.S. Department of Labor 2000). When youth are not employed, preference for work is thus a useful proxy for the numerous unmeasured, time-varying selection factors that are associated with adolescent employment.

DATA AND MEASURES

To explain the educational deficits of high-intensity workers, we draw upon longitudinal data from Monitoring the Future (MTF), an ongoing cohort sequential and prospective study of middle and high school students (Bachman et al. 2008; Johnston et al. 2008a, 2000b). For over 35 years the MTF has studied changes in the beliefs, attitudes, and behavior of young people in the United States; in particular, it has monitored trends in substance use and abuse among adolescents and young adults. Each year, three-stage probability sampling procedures (Kish

1965) are used to select large, nationally representative samples of 8th, 10th, and 12th graders from 135 high schools and 155 middle schools (public and private).

In this research, we used longitudinal data from 8th-grade classes surveyed initially in 1992 and 1993, and followed biennially for four years. From those 8th graders who participated in the initial in-school questionnaire surveys, 2,000 were sampled each year for a follow-up survey using a stratified random procedure that overrepresented those most likely to drop out of school (i.e., students with low parental education, low GPAs, high rates of truancy, and prior grade retention) (Bachman et al. 2008). As we describe in more detail below, this longitudinal design allowed us to rule out spurious relationships between employment and school achievement by estimating the relationships of within-individual changes in school outcomes to changes in desired and actual work hours. This strategy of analysis minimized the potential bias due to unmeasured individual differences between employed and jobless youth. In addition, by following respondents' work histories from 8th grade through 12th grade, we were able to account for frequent changes in work preferences, employment status, and work intensity during the early occupational career (Kerckhoff 2000).

Academic Outcomes

To assess the robustness of the effects of paid work, we considered a range of school-related outcomes concerning school performance, school difficulties, and extracurricular activities. Table 1 presents the means and standard deviations for each outcome and predictor variable by grade level. Note that the longitudinal sample for this study deviates from the full population in that we have an oversample of respondents who were likely to drop out of school. For comparable academic outcome data in the MTF 8th grade full sample, see Bachman et al. (2008).

Grade point average (GPA) was based on the respondent's self-reported GPA (coded on a four-point scale in which A = 4.0, A− = 3.7, B+ = 3.3, etc.). As shown in Table 1, GPA ranged from a mean of 2.68 in the 8th grade to 2.98 in the 12th. *Educational expectations* indicated the respondent's reported likelihood to graduate from a four-year college (coded 1 = "definitely will"; 0 = "probably will," "probably won't," and "definitely won't"). Approximately one-half of students expected that they would "definitely" graduate from a four-year college.[1] *School effort* captured how often the student tried to do his or her best work in school (ranging on a five-point scale from 1 = "never" to 5 = "almost always"). There were moderate bivariate relationships among these indices (shown in Table 2), ranging from r = .19 (between educational expectations and school effort) to r = .36 (between GPA and school effort).

Incomplete assignments was measured as the number of times the student failed to turn in assignments (ranging on a five-point scale from 1 = "never" to 5 = "almost always"). *School suspension* measured whether the respondent had ever been suspended or expelled from school (coded 0 = "no"; 1 = "yes, one or more times"). *Truancy* indicated the number of times in the past four weeks the student skipped a whole day of school (ranging on a seven-point scale from 1 = "none" to 7 = "11 or more days"). *School misbehavior* indicated how often during the past year the student was sent to the office, or had to stay after school, because of misbehavior (ranging on a five-point scale from 1 = "never" to 5 = "almost always"). In general, the frequency of incomplete assignments, school misbehavior, and truancy declined from the 8th to the 12th grades (Table 1). The bivariate correlations among these variables ranged from r

[1]Alternatively, we could have measured educational expectations by distinguishing respondents who indicated they would "definitely" or "probably" graduate from a four-year college from those youth who "probably" or "definitely" won't. The substantive results we report in this paper were unchanged when we considered this variable specification, despite the reduced variation in the dependent variable (i.e., less than 18 percent of respondents believed they "definitely" or "probably" would *not* graduate from college).

= .20 (between suspension and truancy) to r = .42 (between school misbehavior and suspension; see Table 2).

Finally, to assess whether intensive work constrains the time available to engage in sports and other extracurricular activities, we included a measure of *school activities*. This composite measure captures the extent to which the student participated in school newspaper or yearbook, music or other performing arts, athletic teams, and other school clubs or activities (each item ranged on a five-point scale from 1 = "not at all" to 5 = "a great extent"). The four items were averaged. As shown in Table 2, school activities were positively related to indices of school performance, with correlations ranging between .17 (with school effort) to .31 (with GPA); school activities were negatively related to school difficulties, with correlations ranging between −.13 (with truancy) to −.20 (with incomplete assignments).

Preferred and Actual Work Hours

We distinguished five employment patterns based on the students' *actual* and *preferred* hours of work during the school year. Work hours indicated the average hours of paid work per week during the entire school year, as there was often movement in and out of the labor force over the course of a year, and job hours were likely to change even among those who remain employed in successive years. The question asked respondents, "On the average over the school year, how many hours per week do you work in a paid job?" This variable ranged on an eight-point scale from 0 to 31 or more hours per week (coded "0"; "5 or less hours"; "6 to 10"; "11 to 15"; "16 to 20"; "21 to 25"; "26 to 30"; and "31 or more hours"). Among nonworkers, we considered how many hours per week they desired to work during the school year. The question asked respondents to "think about the kinds of paid jobs that people your age usually have. If you could work just the number of hours that you wanted, how many hours per week would you prefer to work?" Responses to this measure ranged in the same scale as actual hours per week (from "0" to "31 or more" hours per week). For over 89 percent of respondents, preferences for work changed during the observation period (analyses not shown).

Based on their work status, hours, and preferences during each school year, youth were assigned to one of five mutually exclusive categories: (1) *high-intensity workers* who averaged over 20 hours per week during the school year; (2) *moderate workers* who averaged 1–20 hours per week; (3) *nonworkers who prefer intensive work*, were not employed during the school year, but wished they could have worked 20 or more hours per week; (4) *nonworkers who prefer moderate work*, averaged zero hours of paid work during the school year, but preferred to work 1–20 hours per week; and (5) *nonworkers who preferred not to work*. The 20-hour mark has long been considered the point at which investments in paid work become "intensive" for in-school American youth, interfering with school activities and increasing problem behaviors (National Research Council 1998).

Though work preferences were also assessed for youth who had jobs, employed youth rarely preferred to not work or wished to work a different number of hours. For instance, approximately 82 percent of actual high-intensity workers desired working more than 20 hours per week during the school year and only 2 percent of both intensive and moderate workers did not want to work. Further, the difference between actual work hours and preferred work hours was less than one standard deviation of actual work hours for over 75 percent of employed youth. Because employed youth rarely preferred to work a different number of hours or not at all, we did not distinguish their preferred hours from actual hours.

Table 1 also presents the percentage of workers in each work category by grade level. During the eighth grade most students either worked moderately or wished they could do so (42 percent and 38 percent, respectively). Only 5 percent of teenagers worked more than 20 hours per week during the eighth grade school year. In the tenth grade the largest group was jobless students

who wished for intensive hours of work (34 percent of the total sample). In comparison to the 8th grade, youth were less likely to work moderately and, and they were more likely to work intensively in the 10th grade (13 percent did so). Though the percentage of moderate workers dropped from the 8th to 10th grade (shown in Table 1), the average hours worked per week increased over the same period (not shown in Table 1). Whereas approximately 21 percent of the moderate workers in the 8th grade worked 1–5 hours per week, and the majority of these youth worked in informal type jobs, only 6 percent of 10th graders worked 1–5 hours per week. By the twelfth grade, the majority of youth were employed during the school year (64 percent) and almost one-third of youth averaged more than twenty hours per week during the school year (30 percent). High school seniors who were jobless were more likely to prefer intensive than moderate hours of work (22 versus 12 percent, respectively). Teenagers rarely were jobless *and* had no desire for work (ranging from 2 to 4 percent during the 8th, 10th, and 12th grades).

Sociodemographic Measures

We included measures of gender, race/ethnicity, socioeconomic background, and family structure because these demographic background factors influence the desire for intensive work in adolescence (Lee and Staff 2007). Race and ethnicity were measured using four dummy variables referencing blacks, Hispanics (Chicano, Cuban American, Puerto Rican American, and other Latino), whites, and other races (including American Indian, Asian American, and other). Parental education was based on the average educational level of the mother and father. Family structure indicates whether the respondent resided in a two-parent family during the 8th grade. Though not shown in Table 1, approximately 53 percent of respondents in the three unweighted data sets are male, 17 percent are black, 15 percent are Hispanic, 55 percent are white, and 13 percent are coded as “other” race/ethnicity. The average parental education level is a high school degree. Finally, 62 percent of 8th graders resided in a two-parent family.

STRATEGY OF ANALYSIS

Using the panel data, we estimated relationships of within-individual changes in each of the eight academic outcomes to within-individual changes in paid work and work preferences. The two-level hierarchical model (Raudenbush and Bryk 2002) treats multiple observations over time as nested within persons. The first level of the hierarchical model includes variables referencing time and time-varying covariates. In the second level, the level-1 parameters become outcome variables, so we use level-2 parameters to address between-person variation in change.

The general form of our level-1 model can be written as:

$$Y_{ti}=\beta_{0i}+\beta_{1i}T_{ti}+\beta_{Xi}X_{ti}+e_{ti} \quad (1)$$

where Y is the level of academic engagement or performance for individual i at time t, and parameters β are specific to each individual i. β_{0i} refers to the individual’s intercept, β_{1i} is his or her rate of change, T represents year, and X represents time-varying explanatory variables that may affect school performance or academic orientation for individual i at time t.

The initial level-2 equations can be written as:

$$\beta_{0i}=\gamma_{00}+\mathrm{u}_{0i} \quad (2)$$

$$\beta_{1i}=\gamma_{10}+\mathrm{u}_{1i} \quad (3)$$

$$\beta_{xi}=\gamma_x \quad (4)$$

where β_{0i} indicates the academic engagement or achievement for individual *i* when year = 0; β_1 is the expected change in academic outcomes during 8th, 10th, and 12th grade; β_{xi} represents the effects of time-varying variables (i.e., work hours and preference) that may affect changes in *Y*; and u_{0i} and u_{1i} indicate the variation around the intercept and linear components. The coefficients for the effects of the time-varying measures in equation 4 (β_x) are fixed rather than random at the second level.

The effects of the time-varying covariates, however, may be biased and inconsistent if the level-1 predictors (X_{it}) are associated with person-level factors (u_{0i}) that influence the outcome variable (Halaby 2003:518–523; Raudenbush and Bryk 2002:183). To eliminate this potential bias in the estimation of the level-1 explanatory variables, we included the individual means from each time-varying covariate $\overline{X_i}$ as predictors in the level-2 intercept equation. The level-2 intercept equation is then written as:

$$\beta_{0i}=\gamma_{00}+\gamma_{0x}\overline{X_i}+u_{0i} \quad (5)$$

where γ_{0x} reflects the effects of between-person differences in time-varying covariates. As stated by Halaby (2003), "introducing $\overline{X_i}$ to the intercept equation will account for the correlation of X_{it} with u_{0i}, the original source of unobserved heterogeneity bias" (519). In addition, the inclusion of $\overline{X_i}$ to the intercept equation "blurs the distinction between random and fixed effects models: it is a random effects model that yields the same estimators of key parameters as a fixed effect model" (Halaby 2003:519; see also Allison 2005).

Because the slope parameters in the two-level hierarchical models were specified as random, we also included the individual means from each time-varying covariate $\overline{X_i}$ as predictors in the level-2 slope equation. If work hours and preferences are indeed correlated with unobserved slope effects (as some prior research suggests), this step helps to ensure that the effects of the time-varying explanatory measures on the outcome variables will remain consistent and unbiased (Halaby 2003:522–523). The level-2 slope equation is then expressed as

$$\beta_{1i}=\gamma_{10}+\gamma_{1x}\overline{X_i}+u_{1i} \quad (6)$$

where β_{1i} is the expected change in an academic outcome for person *i* and u_{1i} indicates the individual variation around these changes. Introducing $\overline{X_i}$ to the intercept and slope equations constitutes a stringent control for unobserved heterogeneity bias in our models.

Our longitudinal analysis is based on youth who were in the sample during the 8th grade and who completed a follow-up survey during the 10th or 12th grade. After accounting for initial stratification, approximately 81 percent of students completed the first follow-up survey and 67 percent completed the second (Bachman et al. 2008). Survey non-response in follow-up waves reduced our longitudinal dataset from 12,000 to 9,476 student/wave measurements. We then restricted our analysis sample to youth who were currently attending school. We omitted 369 student/wave measurements when youth were early graduates (14 during the 10th grade and 355 during the 12th grade), and 518 student/wave measurements when youth had dropped out of high school (139 during the 10th grade and 379 during the senior year). Of the remaining 8,589 cases, we also restricted our longitudinal sample to those youth who provided information on work hours and preference as well as measures of school performance and

academic engagement. As shown in Table 1, approximately 8 percent of student/wave measurements were missing information on work hours and preference. Missing data on the outcome variables ranged from less than 1 percent (on the measures of school misbehavior, incomplete assignments, and school effort) to 11 percent for school activities (Table 1). Thus, for most of our analyses, we follow 3,860 students over 8,000 student/wave measurements. Note that survey questions regarding school activities were asked only to a *random* one-half of the sample, while all respondents were asked questions concerning the other measures. Thus, the number of student/waves is lower for this outcome variable compared to the others.

Bachman and colleagues (2008) show that 8th graders who were not retained in later surveys were more likely to be male, non-white, and of low academic promise than those students who completed the follow-up surveys. Though our strategy of analysis with the longitudinal data does not require observations across all waves of the study (Raudenbush and Bryk 2002), in supplemental analyses (not shown) we addressed whether panel attrition affected our findings in two ways. First, we used sample weights to adjust for sample attrition and the oversampling of youth with high academic risk in the follow-up surveys (e.g., see Bachman et al. 2008). The inclusion of sample weights did not change our substantive findings. Second, we estimated a "hybrid" model (Allison 2005) in which gender, race/ethnicity, socioeconomic background, and family structure were included as time-invariant predictors of the intercept and slope parameters in our analyses of within-individual change. Including variables that are associated with both survey attrition and the outcome variables may help minimize potential bias from nonrandom sample attrition (Raudenbush and Bryk 2002). In analyses not shown, however, we found that the inclusion of these sociodemographic variables did not substantively change our overall pattern of findings.

RESULTS

Table 3 presents unstandardized coefficients showing how within-individual changes in each of the eight academic outcomes are related to changes in work hours and preferences during the 8th, 10th, and 12th grades. As previously mentioned, this methodology provides us with an especially stringent test that the purported effects of youth employment are simply the result of selection effects. Model 1 compares the academic engagement and performance of youth when they are working moderately or intensively to when they were not. Thus, students were assigned to one of three work statuses during the 8th, 10th, and 12th grades (i.e., no work, moderate work, or intensive work). Model 2 then distinguishes nonworkers based upon their preferred work hours, allowing us to consider whether the preference for intensive work among jobless youth also affects academic outcomes. In Model 2, students were assigned to one of five work statuses during each school year (i.e., no work and preferred not to work; no work and wished for moderate work; no work and wished for intensive work; moderate work; and intensive work). Because educational expectations and school suspensions are dichotomous outcome variables, we used hierarchical linear models for binary outcomes (Raudenbush and Bryk 2002). Though not shown in Table 3, all models control for time in order to address changing investments in work and school with age. The rate of change in academic outcomes significantly varied across individuals (results not shown but available upon request).

As shown in Model 1, youth exhibited more academic problems when working intensively than when jobless, even after controlling for all time-stable sources of spuriousness. When youth worked intensively, they had lower GPAs and gave less effort in the classroom than when they were not working. In addition, when youth spent long hours on the job they reported a greater frequency of school misbehavior, truancy, and incomplete assignments, as well as greater odds of being suspended from school than when they were not working. However, there were two exceptions to this pattern: compared to when youth were not working, intensive work did not reduce educational expectations or limit participation in extracurricular activities.

Furthermore, youth did not have more academic problems when they worked limited hours compared to not at all. In fact, the odds of expecting a BA/BS degree increased by 20 percent [exp (.174)] when previously jobless youth were employed for 20 or less hours per week during the school year. Yet, despite these differences between workers and nonworkers in academic outcomes, prior research suggests that both work preference and actual work hours may be significantly related to academic success. In particular, Model 1 does not distinguish when youth actually work intensive hours from when they merely wish they could.

Model 2 presents coefficients that consider the work preferences of jobless youth. In these models, the reference category becomes "not working but preferring moderate hours" because this was the most common nonwork status. As shown in Model 2, when youth work intensively, they have lower grades and expectations, participate in fewer school activities and give less effort, and have more academic problems (i.e., school suspensions, misbehavior, truancy, and incomplete assignments) than when they are jobless but wish for moderate hours of work. Importantly, when youth wish for intensive work, but remain jobless, they have significantly more academic problems than when they are jobless but wish for limited work. Thus, the mere wish for intensive work corresponds with academic difficulties in a manner similar to actually spending long hours on the job.

A simple comparison of the coefficients in Model 2 indicates that when youth work intensively, they exhibit more academic problems than when they work moderately. Though not shown in Table 3, when youth work intensively they had lower GPAs ($\gamma = -.237$; s.e. = .083; $p < .05$); gave less effort in the classroom ($\gamma = -.189$; s.e. = .047; $p < .001$); had lower expectations for college completion ($\gamma = -.312$; s.e. = .083; $p < .001$); and were more likely to misbehave at school (γ=.11; s.e. =.044; $p < .05$), be suspended from school ($\gamma = .475$; s.e.=.07; $p < .001$), skip school (γ=.259; s.e.=.077; $p < .001$), and fail to finish their assignments (γ=.166; s.e.=.049; $p < .001$) than when they worked moderately. But when youth work moderately, they are somewhat more likely to be truant than when they are not working but wish they could work moderately (γ=.093; s.e.=.044; p < .05). However, we observe no appreciable differences in GPAs, educational expectations, problem behaviors, extracurricular activities, and school effort when youth work moderately compared to when they are jobless and prefer moderate work or no work.

We also examined whether the larger magnitudes for the coefficients for working intensive hours were statistically significant compared to those for not working but desiring intensive hours. As shown in Table 4, when youth worked intensively they gave less effort in the classroom ($\gamma = -.113$; s.e. = .051; $p < .05$); and were more likely to misbehave at school (γ=.079; s.e. =.047; $p < .10$), be suspended from school ($\gamma = .178$; s.e.=.07; $p < .01$), skip school (γ=.226; s.e.=.082; $p < .01$), and fail to finish their assignments (γ=.118; s.e.=.054; $p < .05$) than when they merely wished for intensive work. However, youth did not have significantly lower GPA's ($\gamma = -.022$; s.e.=.032; $p = .48$), expectations for college completion ($\gamma = -.008$; s.e. = .090; $p = .93$), or school activities ($\gamma = -.028$; s.e. = .047; $p = .55$) when they worked intensively compared to when they were not working and wished for intensive work.

Alternative Specifications

In analyses not shown, we assessed whether the effect of paid work on academic outcomes varied by demographic characteristics such as gender, race/ethnicity, family structure, and especially socioeconomic background. We found that non-whites and youth whose parents have lower levels of education were overrepresented among the nonworkers desiring intensive work. In contrast, nonworkers who preferred not to work averaged the highest socioeconomic family background. We included gender, race, family structure, and parental education as predictors of both the intercept and slope of each time-varying work and preferences covariate, and then assessed whether the inclusion of each of these variables (i.e., gender, family structure,

socioeconomic background, and the set of four race/ethnicity dummy variables) was a statistically significant improvement in model fit. This test was statistically significant only twice ($p < .05$) in 32 different chi-square tests. Though sociodemographic factors in part influence these work experiences, we find that the effect of paid work on academic outcomes does not significantly vary for males and females; for whites, blacks, and Hispanics; for youth from non-intact and two-parent families, or for youth from more or less advantaged socioeconomic backgrounds. This general lack of statistically significant effects associated with sociodemographic background suggests the robustness of the findings concerning how changes in work relate to changes in academic outcomes.[2]

In additional analyses we considered whether job type explained the difference in academic outcomes between moderate and high-intensity workers. Because our analyses begin in the 8th grade, when "informal" jobs (e.g. babysitting, paper routes, lawn care activities, etc.) are common, approximately 15 percent of youth worked in such jobs during the total survey period. We distinguished whether a young person was working in a formal job (with a set schedule and pay) or whether the job is in an informal setting (such as lawn or yard work, newspaper routes, and babysitting). Although not shown, inclusion of this variable in our regression analyses did not substantively change our pattern of findings.

Finally, we considered earnings from employment as a possible mediator of work hours and academic problems, as high earnings, especially among high-intensity workers, may enable more unstructured socializing and autonomy from parental supervision and thus lower academic engagement and success. Earnings, however, was not consistently related to the outcomes, and its inclusion in our models did not substantively change the pattern of results.

DISCUSSION

Past research on teenage employment has been troubled by the problem of selection. Specifically, how can the effects of paid work be separated from the effects of individual preferences, orientations, abilities, and local-life circumstances? Past research shows that controlling for stable individual differences between working and nonworking youth, through fixed-effects panel models or instrumental variables, accounts for at least some of the relationship between intensive work and school difficulties; evidence is mixed on whether it accounts for all of the relationship. Importantly, though studies have offered sophisticated methodologies to address this issue, they have largely relied on comparing workers to nonworkers. Using the nationally representative Monitoring the Future data, we specified a more nuanced measure of joblessness by distinguishing youth who wished for intensive work from those who desired moderate hours or no work at all. This step allowed us to differentiate school outcomes when youth were actually spending long hours on the job from when they only wished they could spend long hours on the job, while still controlling for time-stable differences between students. Thus, we provide a novel way to disentangle whether high-intensity workers tend to do relatively poorly in school because of demanding work schedules (i.e., time trade off hypothesis), or because high-intensity workers prefer work to school (selection hypothesis).

Consistent with other researchers who question the extent to which the negative links between work intensity and school success are causal (e.g., Bachman and Schulenberg 1993; Bachman et al. 2003; Lee and Staff 2007; Rothstein 2007; Schoenhals et al. 1998; Warren et al. 2000; Warren 2002), our results highlight the dominant role of selection. Though intensive work is associated with poor performance and academic disengagement across a number of important

[2]Unfortunately, the MTF data set does not include measures of family income or local-labor market conditions, which would allow us to more fully examine whether intensive work is less harmful to the school performance of disadvantaged youth (Entwisle et al. 2005).

dimensions, our analyses indicate that the preference for intensive work is linked to lower academic success even among nonworkers. Because the preference for paid work often precedes the actual experience of employment (Bachman et al. 2003, 2008), our results suggest that high-intensity workers likely have problems in school because they are the kinds of individuals who have long preferred work to school (Warren 2002).

Why should the preference for intensive work relate to school disengagement and failure in a similar manner as actual work hours? Youth who have long been uninterested and unsuccessful in school-related activities may be drawn to the perceived freedom and autonomy of paid work relative to the unacceptable constraints of the school and family environment. They may also view employment as an important symbol of a more adultlike and precocious status (Bachman and Schulenberg 1993; Newcomb and Bentler 1988). Although school sets the stage for more or less rewarding careers (Kerckhoff 2000), early work experiences may also provide an important avenue to future occupational success for adolescents who are unengaged or unsuccessful in school. Studies of poor youth in Baltimore suggest a process whereby youth who have low interest and attachment to school develop their human capital in the labor market. Entwisle and colleagues (Entwisle et al. 2000; Entwisle, Alexander, and Olson 2005) found that by age 13, poor school performance and low socioeconomic background predicted the "best" jobs in adolescence (in semi-skilled occupations such as sales workers, clerical and kindred workers, and service workers). For non-college-bound youth who see early labor-market experience as having a greater payoff than school, work might improve life chances by building important workplace skills and connections to potential future employers.

Nevertheless, it is important to note that actual intensive work is more strongly linked to academic problems than is the mere wish for intensive work, which suggests that both selection and causation processes are operating for at least some of the work-school relationships. For instance, spending long hours on the job may indeed pose a time trade-off to more beneficial school-related activities, as the frequency of incomplete assignments and truancy are significantly higher when youth work intensively compared to when they are jobless and wish they could work intensively. Students also give less effort in the classroom when they work intensively. In addition, intensive employment may provide young people with financial resources that could subsequently undermine their commitment to school (Willis 1977), as well as promote autonomy from parents (Longest and Shanahan 2007; McMorris and Uggen 2000). A heavy work commitment may also encourage unstructured and unsupervised socializing among youth whose work schedules change from week to week (Osgood 1999; Safron et al. 2001), which in turn would increase the likelihood of problem behaviors. These factors might explain why school misbehavior and the odds of suspension are higher when youth work intensively compared to when they are jobless and merely *wish* they could work intensively.

Yet, consistent with prior research (Rothstein 2007; Warren et al. 2003), we find little support for the time-trade off hypotheses regarding academic outcomes that reflect a more cumulative process that is influenced by earlier choices, experiences, and evaluations, such as extracurricular activities, college expectations, and GPA. For instance, childhood leisure activities set the stage for later participation in sports and other extracurricular activities, and youth who have little interest or success in these activities may gravitate toward paid work at an early age, often before many of these youth have the chance to work. College expectations and GPA also reflect an ongoing process of prior school performance, course-taking patterns, and the influence of significant others, whereas the more non-cognitive academic behaviors reflecting effort, attendance, and misbehavior may be more influenced by the actual demands and constraints of paid work during the school year.

Though we examine the proximal links between changing work preferences and hours and changes in academic behaviors during middle and high school, a proposition left unexplored in our study is whether paid work has causal long-term effects on educational attainment. In our models of within-individual change, we did not include the student/waves of early graduates and school dropouts because they were missing data on academic outcomes. Yet, recent research suggests that intensive work in adolescence has causal effects on high school dropout (Apel et al. 2008; Lee and Staff 2007; Warren and Lee 2003), and may subsequently affect longer-term socioeconomic attainment (Mortimer et al. 2003). Though we do include student/waves prior to dropout, we still may have underestimated the impact of actual high work intensity on academic outcomes. Nonetheless, studying these proximal associations of early work preferences and experiences gives us a greater understanding of the risk factors that lead to academic disengagement, school failure, and high school dropout.

Our analyses suggest some needed answers to the question of why intensive work during adolescence is associated with academic difficulties, separating out selection effects to pinpoint more actual effects of long hours. An important strength of this study is the use of national panel data. Still, there are limitations. Though we address how changes in work hours and preferences are related to school engagement and performance, our analyses do not fully capture the adolescent work experience. Certain types and qualities of jobs may be more or less conducive to schooling and academic success. For example, factory work is likely to have a different educational content than employment in a museum or law firm. Some evidence supports the notion that the effect of work hours on school performance may vary by job type. McNeal (1997), using data from the High School and Beyond surveys, found that youth employed in manufacturing and service jobs were more likely to drop out of high school when their work hours increased than youth who were employed in informal settings (such as farming, babysitting, and doing lawn work). Paid work during adolescence has been shown to increase attachment to and success in school if it enables young people to practice what they are learning in school (Mortimer 2003).

In addition, our study does not capture the degree of autonomy and self-direction, the amount of supervisory support, and the complexity of worker functions. For example, autonomy and self-direction at work are important predictors of adult well-being (Kohn and Schooler 1983), but are seen as more harmful to the adjustment of younger workers (Shanahan et al. 1991; Staff and Uggen 2003). Youth who gain autonomy and independence in their employment too soon may prematurely pull away from the more structured school environment. The relationship of young workers to their supervisors may also be a mediator of the work–school relationship. For instance, the degree of supervisory support at work is shown to diminish the negative effect of family strain on teenage mental health (Call and Mortimer 2001). Perhaps youth who have good relationships with their supervisors can cut back on their hours, or complete their homework while at their jobs, as the demands of school and work fluctuate during the year. It is also certainly plausible that youth who have more complex responsibility and decision-making in their jobs may bring these higher-order thinking skills into the classroom.

Moreover, our analysis does not capture the duration of work investment over the high school career, which has been shown to be an important predictor of subsequent work and school investments and longer-term educational attainment. For instance, Mortimer (2003) has shown that teenagers follow distinct work careers over the high school period based on both the months of their work involvement and the average intensity of their employment. Moderate work hours that are maintained over the duration of high school increase the likelihood of a four-year college degree, even for youth who display limited educational promise at the onset of high school. In contrast, youth who work intensive hours in shorter durations are the least likely to receive a college degree (Staff and Mortimer 2007). Though we consider the average work

hours over the course of the school year, our analysis does not consider the duration of employment, and how both the duration and intensity of employment are linked to long-term success in school and work.

Is paid work good or bad for teenagers? In a classic statement of the problem, Greenberger and Steinberg (1986) commented that “most youth can profit, presumably, from good work experiences in suitable amounts. None will profit from an overdose of low-quality work experience.” (p. 9). We agree, though our results suggest considerable heterogeneity among nonworkers, and that the relationship between actual work hours and school success is conditioned in part by preexisting *preferences* for intensive work. Nonworkers who *desire* intensive work perform almost as poorly in school as high-intensity workers. On the other hand, we find no appreciable differences in academic problems between moderate workers and those nonworkers who prefer moderate work or no work.

Biographies

Jeremy Staff is an Assistant Professor in the Department of Sociology at The Pennsylvania State University. He recently received a K01 mentored scientist research award in population research from the National Institute of Child Health and Human Development to study how early work experiences relate to achievement and adjustment during adolescence and the transition to adulthood. He is also examining how criminal behavior and substance use in adolescence affect longer-term success in school and work.

John E. Schulenberg is a Research Professor at the University of Michigan’s Institute for Social Research and Center for Human Growth and Development, a Professor of Developmental Psychology in the Department of Psychology, and a Co-Principal Investigator on the Monitoring the Future study. He has published widely on several topics concerning adolescent development and the transition to young adulthood. His recent research focuses on the etiology and prevention of alcohol and other drug use, the link between developmental transitions and health and well-being, and the conceptualization and analysis of developmental change.

Jerald G. Bachman is a Research Professor and Distinguished Research Scientist at the University of Michigan’s Institute for Social Research. He has been a Principal Investigator on the Monitoring the Future study since its inception in 1975 and has authored three books as well as numerous reports and articles based on that study. Earlier he initiated the Youth in Transition project in 1965 and authored five books and many articles based on that research. His scientific publications focus on youth and social issues, and his research interests include drug use and attitudes about drugs; other values, attitudes, and behaviors of youth; military plans and experiences; and public opinion as related to other social issues.

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Table 1

Description of Measures and Descriptive Statistics by Grade Level (Unweighted MTF Panel Data)

		8th-Grade		10th-Grade		12th-Grade			
School Outcomes	**Description**	**Mean or %**	**SD**	**Mean or %**	**SD**	**Mean or %**	**SD**	**Student/ waves**	**% Missing**
GPA	Student's average grade during the school year	2.68	.84	2.72	.77	2.98	.71	8,431	1.8%
Expect BA/BS Degree	Student's expectation of graduating from college (four-year program)	49%		48%		55%		8,346	2.8%
School Effort	How often student tries to do his/her best work in school	4.06	.99	3.99	.97	3.96	.95	8,540	0.6%
Incomplete Assignments	How often student failed to complete or turn in assignments	2.59	1.13	2.52	1.06	2.34	1.00	8,540	0.6%
School Suspension	Respondent was suspended or expelled from school	36%		35%		29%		8,417	2.0%
School Misbehavior	How often student was sent to the office, or stayed after school because they misbehaved	2.01	1.21	1.69	.99	1.42	.79	8,543	0.5%
Truancy	Number of times student skipped or "cut" a whole day of school in prior four weeks	1.46	1.17	1.61	1.38	1.85	1.44	8,102	5.7%
School Activities	Composite measure of participation in school newspaper or yearbook, music or other performing arts, athletic teams, and other school clubs or activities	2.33	1.06	2.18	.94	2.23	.99	6,045	11.2%[a]
Work Hours and Preferences									
Working intensive hours	Student working more than 20 hours per week during the school year	5%		13%		30%		7,888	8.1%
Working moderate hours	Student working 20 or less hours per week during the school year	42%		25%		34%			
Not working (and preferring not to work)	Student did not work during the school year and did not want to work	3%		4%		2%			
Not working (but wishing to work intensive hours)	Student did not work during the school year, but wished to work intensively	12%		34%		22%			
Not working (but wishing to work moderately)	Student did not work during the school year, but wished to work moderately	38%		24%		12%			

[a]Note. The four survey questions regarding school activities were asked only to a random one-half of the sample. Of these students, 11.2% were missing data on these items due to non-response.

Table 2

Correlations of Variables

Work Hours and Preference	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1 Intensive work hours	1.00												
2 Moderate work hours	−.29	1.00											
3 Not working (prefer no work)	−.07	−.13	1.00										
4 Not working (prefer intensive hours)	−.21	−.38	−.09	1.00									
5 Not working (prefer moderate hours)	−.24	−.45	−.11	−.32	1.00								
School Performance and Engagement													
6 GPA	−.03	.06	.01	−.10	.04	1.00							
7 Expect BA/BS Degree	−.05	.06	.02	−.07	.03	.34	1.00						
8 School Effort	−.06	.03	−.02	−.03	.05	.36	.19	1.00					
9 Incomplete Assignments	.02	−.03	.00	.06	−.04	−.48	−.24	−.41	1.00				
10 School Suspension	.08	−.05	.01	.07	−.07	−.32	−.16	−.16	.24	1.00			
11 School Misbehavior	.00	.01	.03	.02	−.03	−.36	−.19	−.28	.38	.42	1.00		
12 Truancy	.10	−.02	.03	.03	−.09	−.21	−.12	−.24	.24	.20	.26	1.00	
13 School Activities	−.06	.08	.01	−.08	.05	.31	.28	.17	−.20	−.17	−.15	−.13	1.00

Note. Work hours and preference, educational expectations, and school suspension are coded as dichotomous variables in our analyses, though we still include them in the correlation matrix to give the reader a sense of relationship strength.

Table 3

Unstandardized Coefficients from Within Individual Regressions of Academic Performance, Educational Expectations, School Behaviors, and School Activities on Teenage Work Hours and Preferences (MTF Longitudinal Data)

	GPA		School Activities		School Effort	
Work Hours and Preferences	***Model 1***	***Model 2***	***Model 1***	***Model 2***	***Model 1***	***Model 2***
Working moderate hours	.020 (.019)	−.026 (.022)	.001 (.030)	−.054 (.037)	.040 (.030)	.002 (.034)
Working intensive hours	−.059 * (.029)	−.113 *** (.032)	−.050 (.045)	−.110 * (.052)	−.142 ** (.048)	−.187 *** (.053)
Not working (and preferring not to work)		−.001 (.047)		−.020 (.084)		−.070 (.074)
Not working (but wishing to work intensive hours)		−.090 *** (.026)		−.082 * (.042)		−.074 † (.040)

	Incomplete Assignments		School Misbehavior		Truancy	
Work Hours and Preferences	***Model 1***	***Model 2***	***Model 1***	***Model 2***	***Model 1***	***Model 2***
Working moderate hours	.017 (.031)	.059 † (.035)	.006 (.028)	.067 (.031)	.027 (.041)	.093 * (.044)
Working intensive hours	.171 *** (.049)	.225 *** (.052)	.110 * (.043)	.179 *** (.047)	.277 *** (.075)	.353 *** (.079)
Not working (and preferring not to work)		.038 (.081)		.189 * (.075)		.187 † (.113)
Not working (but wishing to work intensive hours)		.107 * (.042)		.099 ** (.037)		.127 * (.058)

	Expect BA/BS Degree *(Binary)*				School Sus pens ion *(Binary)*			
Work Hours and Preferences	***Model 1***		***Model 2***		***Model 1***		***Model 2***	
	γ	*odds*	γ	*odds*	γ	*odds*	γ	*odds*
Working moderate hours	.174 ** (.057)	1.19	.063 (.064)	1.07	−.085 (.049)	.92	.039 (.055)	1.04
Working intensive hours	−.104 (.082)	.90	−.250 ** (.091)	.78	.334 *** (.067)	1.40	.514 *** (.076)	1.67
Not working (and preferring not to work)			−.194 (.164)	.82			.115 (.122)	1.12

	Expect BA/BS Degree *(Binary)*		School Sus pens ion *(Binary)*	
Work Hours and Preferences	***Model 1***	***Model 2***	***Model 1***	***Model 2***
Not working (but wishing to work intensive hours)		−.242 ** (.078) .79		.337 *** (.058) 1.40

Note. Reference category for Model 1 is not working. Reference category for Model 2 is not working but wishing to work moderate hours. Numbers in parentheses are standard errors. Coefficients for year and year squared not shown.

*** P <.001,

** P <.01,

* P <.05,

† P <.10

Table 4

Unstandardized Coefficients from Within Individual Regressions of Academic Performance, Educational Expectations, School Behaviors, and School Activities on Teenage Work Hours and Preferences (MTF Longitudinal Data)

Work Hours and Preferences	GPA	School Activities	School Effort
Working moderate hours	.064 ** (.025)	.027 (.037)	.076 * (.037)
Working intensive hours	−.022 (.032)	−.028 (.048)	−.113 * (.051)
Not working (and preferring not to work)	.090 † (.049)	.061 (.086)	.004 (.079)
Not working (but wishing to work moderate hours)	.090 *** (.026)	.082 * (.042)	.074 † (.040)

Work Hours and Preferences	Incomplete Assignments	School Misbehavior	Truancy
Working moderate hours	−.048 (.041)	−.032 (.036)	−.034 (.058)
Working intensive hours	.118 * (.054)	.079 † (.047)	.226 ** (.082)
Not working (and preferring not to work)	−.069 (.085)	.090 (.078)	.060 (.120)
Not working (but wishing to work moderate hours)	−.107 * (.042)	−.099 ** (.037)	−.127 * (.058)

Work Hours and Preferences	Expect BA/BS Degree *(Binary)*		School Suspension *(Binary)*	
	γ	*odds*	γ	*odds*
Working moderate hours	.305 *** (.074)	1.36	−.297 *** (.058)	.74
Working intensive hours	−.008 (.090)	.99	.178 * (.071)	1.19
Not working (and preferring not to work)	.048 (.172)	1.05	−.222 † (.126)	.80
Not working (but wishing to work moderate hours)	.242 ** (.078)	1.27	−.337 *** (.058)	.71

Note. Reference category is not working but wishing to work intensive hours. Numbers in parentheses are standard errors. Coefficients for year and year squared not shown.

*** $p < .001$,

** $p < .01$,

* $p < .05$,

† $p < .10$