Work-Study: Time Use Tradeoffs among Employed Students and Implications

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Abstract

Does paid employment during high school and college displace the time students spend in educational activities? Most enrolled college students in the US now work in paid jobs, almost half of whom work 25 or more hours per week. An economic approach suggests that students consider the tradeoffs involved with work versus study time allocation in terms of both current income and future earnings capacity and well being. There may be some complementarities, not just substitutability, between work and education time, regarding educational outcomes. Previous research tends to find that when paid hours exceed some threshold level, typically somewhere between 15 and 25 hours per week, various indicators of students' academic performance are lower. Longer work hours also undermine certain aspects of mental health. This research applies the pooled 2003-2005 American Time Use Survey (ATUS) data (n=47k#) to empirically investigate four main questions: (1) Are paid work hours of students associated with time spent doing homework or research and/or attending class? (2) If so, at what threshold point of paid work hours are hours of student work displaced? (3) Are there differences between college and high school students in the above relationships? They are addressed with econometric analyses of the ATUS sample of college (n = 1,314, with 1,121 full-time) students and high school students. (4) Is student employment in certain industries or occupations associated with more time spent studying? Work hours are found to be inversely related to hours in educational activities among those aged 16-24. Moreover, there are nonlinearities by the number of actual hours. In contrast to previous studies and samples, students who work as little as 5 or more hours spend a statistically significant lesser amount of time studying than their cohorts who are not employed. The extent to which work displaces time spent studying is consistent across levels of weekly work hours, but becomes largest when hours are 40 or more, even when controlling for various demographic and occupational characteristics, but not time spent in class. The conclusion explores how to investigate whether students who work during the school year have a relatively lower well being, as indicated by available estimates of "net affect" associated with particular uses of time? It also explores implications for policies, such as extending youth employment regulatory protections to students if it is warranted by clear threats to their mental or physical well being.
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Overview and Previous Literature

As in many other countries, in the US a surprisingly high and perhaps increasing proportion of youth are attempting to combine both paid work and schooling activities. In the US, there is evidence that both rates of employment and average hours of work have been rising over time among students, at least among college students. While rising in most countries, the levels appear to be a bit higher in the US than in most of Europe, particularly in non-Anglo countries (see, e.g., Häkkinen, 2006; Moreau and Leathwood, 2006). Nearly 80 percent of undergraduates work while in college—actually more than the proportion who are full-time students—and many are working long hours (Student Aid News, 2006; Riggert, et al, 2007). Estimates in the US vary. About 30 percent of full-time students worked over 20 hours a week while attending college, with another 70 percent of their part-time counterparts in the workplace for 20 or more hours each week (see Table 1 and NCES, 2005; Heiselt and Bergerson, 2007). Three-quarters of all working undergraduates average over 25 hours per week. Among just the full-time students, nearly half (46%) with jobs tend to work 25 hours or more a week. They were relatively evenly distributed across the work spectrum, with similar proportions reporting that they worked full time (over 35) hours as working 15 or fewer hours.[1] Among the nation's 16- to 17-year-old high school students, over 40 percent hold jobs during the school year.[2] About 25 percent of them worked 20 hours or more per week.[3] In the ATUS for 2003–04, about 26 percent of teens aged 15 to 19 worked more than 20 hours per week at paid or unpaid work (Winkler and Porterfield, 2007). Perhaps not coincidentally, about 62 percent of teens who work spend less than 5 hours per week on homework and less than 18 percent spend more than 10 hours per week. The homework figures have risen and shrunk, respectively, since a similar mid 1970s time diary survey. The prime motivation of students to work in paid jobs is largely attributed to the cost of higher education and other relevant expenses outpacing both household real income gains, parental transfers and government subsidies (Oettinger, 2004; Kalenkoski and Pabilonia, 2006). Full-time students who work 25 hours or more a week often do so because they cannot afford to go to college if they work any less. Neither federal financial aid for higher education nor state subsidies has been keeping up with increasing college tuition costs. About 84 percent identified themselves primarily as students working to meet college expenses. Students of low income

families often find themselves working long hours to finance their way through college. Those from low-income families were much more likely to work than wealthy students to pay for tuition, fees, or living expenses, rather than to earn spending money or to gain job experience.[4]

How much do youth enrolled in school tend to work and why does it mater? Most previous studies use cross sectional data to evaluate specified outcomes in relation to either the amount or the nature of student employment. Surprisingly few theoretical models have been developed to explain the relationship between employment and student outcomes and strikingly many inconsistencies are found (Riddick, et al, 2007). The literature tends to focus on either the empirical connection between paid work hours and indicators of students' academic performance and achievement (e.g., grade point average (GPA), dropout/retention rates, exam scores, attendance records, etc.) or the connection of work hours to the amount of time spent in educational and studying activities, an arguably key input into student outcomes. It is well recognized that time use is subject to a zero sum assumption or at least substitutability. But for performance, there are some potential complementarities and positive spillovers. Employment is a dual edged sword. There are potential long-term positives of youth employment for pay in the labor market, not only the additional current earnings but future earnings capacity (Ehrenberg and Sherman, 1987; Ruhm, 1997; Häkkinen, 2006). Thus, on the one hand, it provides income and higher income trajectory, which funds both current consumption needs and investment in one's future human capital, including experience, and soft skills development.[5] Work also tends to promote incentives for improved time management and personal efficiency in one's use of time. Performing paid work while enrolled in college may sustain one's enrollment and minimize subsequent debt. Students often extol the benefits of working, which are not only monetary but include the development of skills, greater understanding of the world of business and an increase in confidence, all of which can be advantageous to their studies, both at the present time and in the future (US BLS, 2005).

Many studies have found that an increase in studying time indeed boosts student achievement. Thus, to the extent work time crowds out class time or studying time, work may come at the expense of performance in school and knowledge gained. If the paid work hours are either long or taxing, the occupational safety and health literature has been fairly thoroughly documenting the potential adverse consequences of long work hours on individuals' well being. These include the added risks—primarily via fatigue or stress—to illness, disease, injury and

work-life imbalance.[6] College students appear to be at least somewhat aware and responsive to these risks when expressing their work hours preferences. Those in the 16 to 24 year old age bracket who are enrolled in college have a higher likelihood of being overemployed, when controls are added for number of hours, timing of work shift and occupational sector (otherwise their low earnings leaves them more likely to be underemployed, preferring more income to fewer hours) (Golden, 2007). Thus, students prefer fewer to more hours, at their given number of hours and type of job.[7]

In this paper we focus on the direct association between work time and study time and class time. It controls for observed personal and work characteristic factors that might affect a student's tendency to work, attend class and do homework. It aims to find the precise point at which working longer hours may begin to impair students' time spent in educational activities. Because the risk of lower student achievement potentially harms their future labor market outcomes, it is important to analyze not only whether, but the extent to which additional hours worked in the paid labor market while in school tend to crowds out students' study time. More paid work unavoidably constrains time allocation elsewhere. Alternatively, it heightens the perceived intensity of time use or time squeeze, multi-tasking and coordination challenges. Thus, it may, instead, have indirect effects students' performance and well-being, via fatigue and stress.

Additional hours of studying are a fairly reliable predictor of a higher GPA. Often, however, the findings regarding the effects of time spent studying are not unequivocal. For example, when controlling for a student's ACT score (ability), time spent studying has a significant effect on their semester GPA, but not when controlling for an indicator of the student's achievement striving (motivation) (Nonis and Hudson, 2006; Kalenkoski and Pabilonia, 2006). There are adverse effects of employment on study time in the form of missed lectures, and students' perceptions are that coursework grades are lower than they would have been had they not been working (Curtis and Najah, 2002). Students recognize that working full time not only may compromise their academics, but also limits their ability to engage in other extracurricular activities such as civic learning and community service. The consequences in no small part depend on the nature of students' occupations, number of hours commitment, and summertime vs. school year work. While many students are working at levels that are likely to

negatively impact their academic achievement and the quality of their education, they often simply cannot afford to cut back their work hours.

A burgeoning research literature finds several negative associations between the employment commitment of students toward paid work with their current and future academic performance or achievement (e.g., Lillydahl, 1990; Steinberg, 1996; Bailey and Mallier, 1999; Lerman, 2000; Rau and Durand, 2000; Hannah and Baum, 2002; Curtis and Najah, 2002; Stinebrickner and Stinebrickner, 2003; Hawkins, et al, 2005; Singh, Chang and Dika, 2007). Recent longitudinal data reveal that the working behavior of high school students during the school year and/or summer affects their tendency to later graduate or later drop out (US BLS, 2005).[8] Working during high school reduces academic success also by reducing the probability of being an honors student.[9] Working also leads to a longer time to get a college degree (at least in Finland, see Häkkinen, 2006).

The number of paid hours of work appears to matter more than whether a student is employed or not. Any adverse effects are likely to occur either directly, by reduced time and energy for class time, time studying alone or with peers and assignment work, or indirectly via its effect on sleep time and other physiological restorative activities (Rothstein, 2007). Generally speaking, working full-time jobs are far more likely to lead to negative effects than part-time hours.[10] As many as 42 percent of students reported that working full-time hours has hurt their grades, limited their class schedule, and has limited their class choice. For example, in a UK sample of college students, 81 per cent of whom held at least one job during term time (for an average of 14 hours per wee), work hours reduced time than desired for study, and for social activities and recreation (Manthei and Gilmore, 2005). Working hours, at least among high-school students, thus does not necessarily translate into negative school-related performance outcomes provided that usual weekly hours are relatively short (US BLS, 2005). Longer work hours, however, often do translate into relatively lower grade point averages achieved (Dundes and Marx, 2006-07).[11] Ten additional hours of work per week reduced math test performance scores (Tyler, 2003). Even part-time jobs were associated with reduced math and science achievement or course-taking (Singh and Ozturk, 2000). One study found that working during high school had negative effects on 15 of 23 Grade 12 and postsecondary outcomes such as achievement, coursework selection, educational and occupational aspirations and college attendance (Marsh and Kleitman, 2005). Oettinger (2005) found that hours of employment

among had a substantial negative causal effect on college students' GPA. A 20 hour per week job reduced GPA by 0.22 grade points on average and a one standard deviation reduction in SAT score. A similar study found that for every extra hour of work per week, GPA decreased by 0.16 (Stinebrickner and Stinebrickner, 2004). Another found high school employment during the school year associated with significantly lower grades if the hours were more than modest (Oettinger, 1999). Another included a wide range of controls, such as family background, students' educational aspirations, and school engagement, and found that the effect of work during the high school year on self-reported grades was negatively affected by the number of work hours per week ("work intensity," see Singh, Chang and Dika, 2007). Such studies largely support the view that work demands and job activities reduced course effort, and thus indirectly inhibited GPA potential (Svanum and Bigatti, 2006). However, others have found much smaller effects, among college upperclassmen, of an additional hour of study time on GPA (Lahmers and Zulauf, 2000). Rothstein (2007) found strong negative effects of high school students' work hours on academic credits taken. However, a measurably smaller impact of current or recent employment was found on students' GPA. The effect of work hours diminish when a fixed person effect is included, and effectively disappear when hours are instrumented.

Documenting precise, isolated effects of work hours on student performance has been challenging and generalizations elusive.[12] Teens who work long hours experience not only lower school performance, but also diminished engagement in school, increased psychological distress, higher drug and alcohol use, higher rates of delinquency, and greater autonomy from parental control.[13] However, teens who work long hours were less academically inclined to begin with. The students most likely to have a job working 20 hours or more are those with low GPAs and no aspirations for the future.[14] Nevertheless, for most outcomes, the effects of hours worked are primarily negative, often linear and were consistent across demographics, initial ability levels and different types of jobs. When considered more precisely, the level of work hours may tend to have nonlinear effects. Once exceeding some threshold of a moderate number per week, work may prove detrimental to various indicators of students' academic outcomes. Students working 15 or fewer hours were found to be much less likely than students working longer hours to report that work limited their class choices or class schedules, the number of classes they could take, or access to the library.[15] Students who worked more than 15 hours a week not only tend to do less homework but had lower grades, higher drop out rates, and reduced chances of completing post-

secondary education, compared with other students (Montmarquette, et al 2007). Students working less than 15 or 20 hours a week had better grades, test scores, or likelihood of going to college than students who did not work at all. However, college students with a limited number of work hours per week seem to actually outperform both students working 20 or more and those not working at all. Students working 10 to19 hours per week performed better in school, particularly if their GPA fell in the 2.0-2.9 range (Dundes and Marx, 2006). However, students who worked 10 hours per week or fewer are also those most likely to report minimal effort in classes and less studying time than the other groups (Stern and Briggs, 2001). Students who work a moderate number of hours while in school actually maintain better academic performance than students who do not work at all, but also perform better than students who work long hours. Those who worked 20 or more hours a week felt that they were not applying themselves fully, for example, spending lesser amounts of time on assignments, studying and meeting with peers. About 74% of students who worked believed that working made them more efficient, but 64% reported an increased level of stress. Those who work at least 10 hours a week felt more compelled to manage their time well, especially those working in the 10-19 hour time range. This is confirmed more recently with longitudinal data that shows that four-year college students who worked 20 hours or less had a higher GPA than students who did not work. Nevertheless, the lowest GPAs were found in students who worked more than 20 hours per week (Kalenkoski and Pabilonia, 2006).

Thus, there appear to be some advantages to time management, organization and efficiency when working a few hours per day or days per week. In a survey of self student reports, a significant minority, 38 percent who had a job during the year (with a mean of about 19 hours per week), felt that they would have done better in school had they not had a job. Moreover, students who worked a longer number of hours were less likely to report that they received “mostly A’s” or “A’s and B’s,” particularly those who worked 35 or more hours (Galinsky, et al 2000). Controlling for selectivity or endogeneity is important because students who work more may be doing so as a strategy because of poor grades in school, or, because of low interest in school or low aspirations for career. Indeed, controlling for the endogeneity of the work hours and drop out decision of high schools, somewhat diminishes the negative effect of employment, its lag and hours on GPA (Rothstein, 2007). However, Oettinger (2005) found that differences between the instrumental variable and OLS estimates suggest that students with high

"unobserved motivation" take heavier course loads, choose greater employment, and spend less on leisure. In sum, the preponderance of research evidence continues to support the "inverted U" (Stern, 1995; Mortimer and Johnson, 1998).

Theoretical Perspectives: Production Possibilities and Utility Effects of Work While in School

The conventional economic model of labor supply predicts that an individual will seek employment if their going market wage rate per hour is expected to exceed the value of an hour of their "leisure" or "nonwork time." Youth will thus choose to participate in the paid work force and desire more hours if their potential market wage rate opportunities are rising (a "substitution effect"), their non-wage sources of income are depleting (an income effect) and/or their preferences for earnings vis-à-vis preferences for time are growing. However, virtually all theoretical and empirical analyses of labor supply behavior treat the time allocation decision as a sequential one. It is presumed that those choosing to enroll in college do so to postpone going on the job market. Others may "choose" to transition from school to work directly from high school. Higher education is portrayed as a human capital investment of both time and money in skills development, credentials or other benefits that is expected to yield higher net returns in income over one's lifetime.

Conventional models of household labor supply decisions typically identify no more than three categories of time use; work, leisure time and household production. Sometimes the household production time is broken out by housework and parenting or caregiving time. The latter use of time is to produce "child quality." However, when it comes to the time allocation decision making of students, even the Becker model of household production is under-equipped to directly account for the relevant, distinct uses of "leisure" time, which would include attending classes and studying. The Becker model does recognize the substitutability between uses of time, in terms of both hours and energy. Time and energy spent in paid work may be a zero-sum with unpaid household production activities. Thus, for our purposes, the uses of time other than paid work can be further subdivided so that there will be six total classifications, most notably, productive leisure. Each subcategory in the taxonomy of non-market time has a unique economic and social impact. The category of productive leisure refers to activities that enhance human capital development, such as studying time in formal education or career-relevant reading. Only rarely do such models consider the choice to pursue time investments in educational-type activities, such as Fahr's (2005) investigation of the demand for informal education. The next

category, recuperative leisure, includes rest and recreation activities that in the longer run, like productive leisure, facilitate achievement of one's productive potential. Social reproduction refers to child rearing, household chores, as well as civic and volunteer work— activities that build future human and "social capital." Consumptive leisure encompasses activities such as shopping, which drives much of consumption spending in that it is somewhat dependent on available time (Gershuny, 2005).[16] Nonproductive "pure" leisure includes personal care or activities that disengage the mind and body (e.g., "relaxing, thinking" in the ATUS). Nonproductive work-related leisure reflects inactivity, such as commuting time. How individuals or groups differ in the allocation of their time among these distinct categories has bearing on their own well-being. For our purposes here, only the first three categories are focused upon:

Given T = H + L; each type of "leisure" activity by (L) = L (L_1 , . .. L_6)

(1) social reproductive leisure (housework, child rearing, caregiving);

(2) ***productive leisure (formal or informal education, career-related reading, other human or social capital building activities);***

(3) regenerative/recuperative leisure (sleep, recreation, personal care, eating);

(4) consumptive leisure (shopping, buying);

(5) nonproductive work-related leisure (commuting);

(6) nonproductive "pure" leisure (TV watching, music listening).

The student's production function and utility function

Assume that a student is trying to maximize production of two types of output, in the short run— a targeted level of income (Y) or goods and services and some targeted level of "academic performance." Given the constraints that their K is constant, at least in the short run, the variable input is time for labor, devoted to either paid work or studying (productive leisure). If all resources are utilized, a production possibilities frontier exists (see Figure). Realistically, each type of output has a minimum necessary (horizontal) level. There is a standard minimum level of Y at their (socially determined) subsistence level plus expenses uniquely associated with attending college, such as tuition, fees, books, transportation and perhaps housing expenses. There is also a minimum threshold level of academic performance indicators, such as grades and test performance, above a level that would result in either flunking out or termination or dropping out (disengagement), before reaching an aspired degree. This minimum standard outcome determines some minimum necessary time allotment into educational activities,

including for class attendance and homework-research time. The student may begin with an endowment of both non-wage income (e.g., parental transfers, subsidies, grants and loans, or savings/wealth). Thus, the minimum threshold point of Y needed rises with higher tuition rates and fees and falls with student subsidies. The maximum level of Y reflects the maximum possible time available for work, what remains of the 168 hours in a week (or 24 per day) after the minimum necessary productive leisure plus other leisure uses (L_3), such as rest and personal care. Similarly, they may possess an endowment of innate ability that can reach a level of academic achievement without any time in class or studying outside of class time. A minimum threshold point of studying time is presumed to be positive, to keep from flunking out or dropping out. If academic performance is subject to positive but diminishing returns to studying time, then there are increasing costs that make the production possibilities concave in shape. Similarly, the potential sacrifice of knowledge and skills gained grows exponentially as work hours climb. (The inverted-U is based on a cross section of students, not necessarily the experience of any particular student. It is theoretically possible that, for example, two hours of work per day improves the efficiency per hour of studying time, it is unlikely to increase the total volume of study time, vis-à-vis a given individual having no work hours at all).

The whole production possibilities frontier may be shifted out over time with further income subsidies or grants, improvements in capital needed to produce better grades or productivity at work (reduced commuting time, more down time at work for studying, or positive spillovers from the job to student performance, etc.).[17] The production possibilities also could be higher if one's job had sufficient down time for engaging in studying, that is, a primary activity of work and secondary activity of studying. However, the output effects are likely to be less than additive with such "multi-tasking" in the same block of time. Moreover, the utility (or "process benefits") derived from the activities might be no greater, and perhaps even less, as compared to performing the two tasks sequentially or separately.[18]

Picking the appropriate point along the production possibilities could depend on an individual's "preferences"—the marginal rate of substitution of income for academic achievement. Suppose an individual's utility is positive in three types, where pure leisure captures all but the productive and household production categories of "leisure" time use.

$U = f(Y; L_1; \mathbf{L_2}; L_3)$

L_1 = household production;

L_2 = "productive leisure," time spent in human capital formation, such as educational activity—class time, studying time and related;

L_3 = pure leisure (= L_3 + …. + L_6);

With Total Hours of work = paid work (H) plus hours of student work (L_2)] = H_2; [H_2 + hours of housework (L_3)] = H_3.

Indifference curves could be drawn to illustrate the tradeoffs between: Y and L_2; (and also between L_2 and L_1+ L_3).

This model is a far simplified version of Oettinger's (2005), in which a student chooses to allocate time optimally among course enrollment, study, labor market employment, and leisure uses of time. Academic performance subsequently is determined by the chosen course load and study time, as well as the student's characteristics. The theory leads to an empirical model in which grade-point average (GPA) outcomes depend on course enrollment (credit) hours, employment hours, leisure expenditure and student characteristics.

The ATUS and Descriptive Statistics

The ATUS asked participants to track the use of all blocks of time in the previous 24 hours period. It creates 17 "first tier" activities, and coded 452 total categories of detailed activities. The chief categories of concern here are paid work and education—classtime and studying time.. The large sample in the annual ATUS of over 20,000 individuals contains extremely fine detail regarding the specific uses of time among the employed. It provides 17 broad categories of "first tier" potential uses of time over the course of a day, breaking it down to specific uses of time. These data provide four new opportunities for research yielding new insights into the employment, pay and work schedules of enrolled college students. The key category is:

Educational activities. Educational activities include taking classes (including Internet and other distance-learning courses); doing research and homework; and taking care of administrative tasks, such as registering for classes or obtaining a school ID. Activities are classified separately by whether the educational activity was for a degree or for personal interest. Educational activities do not include time spent for classes or training that respondents identified as part of their jobs. Time spent helping others with their education-related activities is classified in the Caring for and helping categories.

From the 2006 survey, about 9 percent of the population engaged in educational activities on an average day. Those who attended class spent an average of 4.5 hours doing so, and those who did homework and research spent 2.4 hours in such activities. On an average day, persons ages 15 to 19 spent 3.3 hours engaged in educational activities (more than four times as long as individuals in any other age group). The average hours per weekday spent by high school students in educational activities were 6.3 hours if not employed and 5.6 hours if employed. Persons who did homework spent about the same amount of time doing it on weekdays (2.4 hours) and weekend days (2.5 hours). Figure 3 shows that among college students (aged 15 o 49), average hours of educational activity per day were 3.2 hours and work hours were 2.8. In the four-year averages for the 2003 to 2006 ATUS samples, employed high school students spent about 42 fewer minutes per day engaged in educational activities than high school students who were not employed. Among those aged 15 to 49 in the 2003 ATUS, those who were enrolled in school worked about half as many hours per day in the labor market, suggesting that the typical school attendee also has substantial commitment to paid work. Those who are employed part-time work an average 3 hours on a given day and study or attend school for an average hour and a quarter. Those who are employed full time average about 6 hours of work per day and spend only a negligible amount of time in school or studying activities. The non-enrolled spend on average 2.4 hours a day more at work than the enrolled student. In the 2005 ATUS, employed high school students aged 15 to 19 worked about 2 hours on average on weekdays during the school year.

Empirical Tests and Findings from the Pooled 2003-05 ATUS

The goal of this section is to estimate the empirical determinants of hours spent studying or in class by an enrolled student. The focus is on paid time at work as the key determinant. The empirical specification begins with a basic OLS regression model. The dependent variable is total hours spent per day in educational activities by a given individual (*i*). The regression model is specified as:

$(EH)_i = (X; H; Z)$

$= (X; H; Z; W)$

EH= hours of educational activity (mainly classtime and studying time);

X= demographic controls: gender, age, marital status, etc.;

H = hours of work (raw number or ranges for actual hours);

then add:

Z = job characteristics, such as occupation and industry;

W = wage rate.[19]

Specifically, the main goals of the regression analyses are to observe if there appears to be a displacement of studying and class time with paid work among enrolled students who are employed, holding constant a variety of worker and job characteristics. If so, to what extent does the extent of such displacement depend on the number of hours? The key variable (PREMPHRS) recodes the *actual* hours responses into many ranges. Information from respondents to the ATUS regarding hours, fortunately, are in the concurrent month, thus at their current job.[20] This makes it quite useful, for distinguishing the association of short, medium and long work hours on time spent in educational activity. The ranges are: 1-4; 5-14; 15-21; 22-29; 30-34; 35-39; 40; ... "41 or more". Alternatively, the *usual* hours" divides hours response into much more limited ranges, only: 0-20; 21-34 ... etc. This is far less useful because it groups those working 0 hours, thus not employed, with those who are employed for up to 20 hours. In addition, using "actual" is preferable to "usual" hours because the former includes, *overtime or extra hours,* which is over and above usual hours (PUHROT2), and, on the other side, time off taken (absences, sick time, holiday, etc.). Thus, actual hours are more relevant than usual hours when it comes to impact on educational time. We have the luxury of observing the effect associated with both the raw number of actual hours and the potential gradient by the range of hours, vis-à-vis working no hours. The sample universe uses the variable, PESCHNER, which includes anyone who is enrolled in school and is aged 16 to 24. Using the variable, PESCHLVL, is important because we may then distinguish the High School (HS) (Level 1) and COLLEGE (Level 2) students, for contrasting the two levels. In the regressions, we use a dummy variable. This is in contrast to virtually all the current literature, which samples either on HS or College students, but almost never both together. Furthermore, we then use PESCHFT (enrolled full- or just part-time in school) as a dummy variable. In addition, there are 11 "major" occupation and 14 "major" industry dummy variables, which are smaller in number), using NCAIS classification codes.[21] Finally, there will be controls for whether a worker is paid as an hourly worker (PEERNHRY) and also, if they are a member of a labor union (PEERNLAB).

Key Findings

Table 1 describes the variables and their names. Table 2 and its standardized beta coefficient

estimates show that the key variable of actual hours is negative and statistically significant, given its large t-scores. This is not too surprising, given that the Pearson Correlation coefficient time spent taking classes for degree (T060101) and actual work hours per week (PEHRACT) is -.025 and significant at the .01 level in a 2-tailed test. This suggests that longer work hours are clearly associated with less time spent in educational activity. The usual interpretation challenges involved with standardized coefficients is compounded here by the fact that the dependent variable is hours spent per day and the independent variable is in units of hours per week. Nevertheless, the most salient finding is the pattern of this negative association when broken out by range of work hours, in Tables 3 through 7. Even working just 5 to14 hours per week seems to crowd out time spent in class or studying. This negative effect appears to be consistent across many hours ranges. It is not discernibly larger in the 35 to 39 hours range than in the 5 to 14 hours range. This is somewhat surprising since i would expect more progressively greater, linear effects, between 15 and 39 hours (relative to working no hours). However, when students are working 40 or more hours, this doubles the size of the negative effect observed for working in the 5 to 39 hours range.

Control variable results reveal that age is strongly negative. This suggests that a 24 year old spends much less time on schooling in total then a 16 year old. This stands to reason given that HS classtime hours are longer, and, maybe some bias from excluding dropouts from the sample (as in Rothstein, 2007).[22] Demographics, such as being married or having more children, reduce the amount of time spent by students in educational activities. Being employed in certain industries, however, neutralized the positive effect of being married. Whereas better health and being a male increases such time. Being a labor union member had no measurable effect. However, being a HS student and a full-time student had statistically significant positive effects on time spent on educational activities. The occupation variables that were not significant were removed from the reported regression results. The technique of entering separate sets of industries, typically three at a time revealed that being employed in two particular nonagricultural industries tends to be associated with more studying time: trade (wholesale and retail) and in information services.

Future Research

Several adaptations will be attempted in the next round of investigation, beyond these initial, exploratory results. First, additional dependent variables will be created, for classtime and

homework/research time separately. The latter is likely to exhibit far more variation, particularly among College age students. When Research/Homework is the dependent variable, we can observe whether there is general substitution between work and *total* education time (which includes "attending class" and students' various administrative tasks). A selection model will then be estimated, to control also for the endogeneity of the work hours and, e.g., study time, attendance (or drop out) decisions. Differences between students may reflect different levels of "unobserved motivation," e.g., to choose more employment, take heavier course loads, and spend less on leisure (Oettinger, 2005). Instrumental variable estimation will be attempted, to observe robustness. In addition, we can observe the extent to which work hours also displace time sleeping or socializing among students. This can be contrasted to the effect of work time for cohorts aged 16-24 who are not students at all. Using PREMPHRS, we can also create variables necessary for those who work zero hours, in the following 3 different categories: i) zero hours (is not in labor force or is unemployed); ii) has a job but has zero work hours because of school/training; iii) has a job but has zero work hours because of (all the 9) "other" reasons. Finally, instead of occupational dummies, we can use a dummy for whether or not the occupation, or for that matter industry, tends to be a "high flexibility" a "low flexibility" sector (as measured using recent CPS monthly supplements, for formal flexible schedules, informal flexible schedules plus low/high underemployment and overemployment).

A further, large step, with more direct implications for public policy, will be to explore the well being differences between students who work and those who do not. This can be estimated by applying "net affect" index (happiness, stress, etc.) measures (e.g., Robinson and Godbey, 1997; Krueger, 2007) associated with time spent working, studying, socializing, commuting, etc. (see Table 8). The Table shows that net affect for time spent doing homework tends to be quite low—considerably lower than time spent in class or at work. The well being consequences for students who work versus those who do not, or work long versus short hours, depends largely on which particular time uses are displaced when paid work hours increase by a given number of units (see Kenaghan and Kaushik Sengupta, 2007).

Policy Implications

Deriving the implications for policies to promote academic achievement as well as enhance employment options will require more precise estimation of the effect of working hours, holding other influences constant, a task beyond the scope of this study. However, this exploratory

research gets closer at identifying the tipping point where paid work hours begin to threaten which their school performance becomes impaired. The point at which work hours begin to place into peril the health and safety of young workers juggling school and work, can be gleaned from other studies and evidence. The results here suggest that even as few as 5 hours of work per week is associated with less studying or class time. This should instruct and guide future thinking and policy proposals on college and career guidance, government financial aid, school-to-work institutions, and youth employment regulations. For example, providing subsidies to students who both have jobs and use their own earned income toward tuition, fees and books might help induce a preference for less labor supply during school year (if the income effect of this is dominant). Similarly, students' earnings could be made exempt from income tax (as is proposed recently in France)? If the exemption were to apply to only the first 20 hours per week (or 1000 per year outside of summer work), the effective wage rate increase, the net income effect is likely to dominate beyond that point, and thus restrain students' desired hours of work.
Finally, the results also suggest that existing national (and most state) dregulations, that encompass only those youths aged 14 and 15 years old, could improve youth's well being if certain expansions of regulations to high school or college students were considered.[23] This includes providing those with jobs and schooling responsibilities a legally protected "right to refuse" hours per week beyond which this study and other similar studies find begin to seriously impinge on students' school performance and/or mental and physical health.[24]

Table 1: Variable Definitions

1. T060101 = Time spent on studying or taking classes for degree (942 observations)—Dependent variable.

Independent variables:

2. TEAGE = respondent's age.
3. TRERNHLY = Hourly earnings.
4. HRANGE1 = Hours worked. 1-4 hours
5. HRANGE2 = Hours worked. 5-14 hours.
6. HRANGE3 = Hours worked. 15-21 hours.
7. HARNGE4 = Hours worked. 22-29 hours.
8. HRANGE5 = Hours worked. 30-34 hours.
9. HRANGE6 = Hours worked. 35-39 hours.
10. HRANGE7 = Hours worked. 40 hours.
11. HRANGE8 = Hours greater than 40 hours.
12. HRANGE9 = No of hours worked (i.e., Hours=0).
13. SCHTRAIN=1 if not working because of school or training.
14. MALE=1 if sex is male.
15. UNION=1 if a member of union.
16. PTSTUD=1 if enrolled as a part-time student.
17. LEVEL1=1 if high school student.
18. LEVEL2=1 if college/university student.
19. OCC1 = Management, business, and financial occupations.
20. Industry dummy variables:

1 = agriculture
2 = mining
3 = construction
4 = manufacturing
5 = trade (wholesale and retail)
6 = transport/utilities
7 = information services.

Referent = armed forces

Table 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.201[a]	.040	.040	47.28970

a. Predictors: (Constant), MARRIED1, SOUTH, TEAGE, OVERTIME, PEHRACTT, NEAST, MIDWEST

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4480544	7	640077.648	286.220	.000[a]
	Residual	1.07E+08	47723	2236.316		
	Total	1.11E+08	47730			

a. Predictors: (Constant), MARRIED1, SOUTH, TEAGE, OVERTIME, PEHRACTT, NEAST, MIDWEST

b. Dependent Variable: T060101

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	34.665	.786		44.101	.000
	TEAGE	-.542	.012	-.196	-43.447	.000
	PEHRACTT	-7.03E-02	.010	-.032	-6.752	.000
	OVERTIME	.300	1.038	.001	.288	.773
	NEAST	-.985	.675	-.008	-1.459	.144
	MIDWEST	-.621	.646	-.005	-.961	.337
	SOUTH	-.656	.594	-.006	-1.105	.269
	MARRIED1	-3.002	.443	-.031	-6.772	.000

a. Dependent Variable: T060101

Table 3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.226[a]	.051	.051	47.02509

a. Predictors: (Constant), INDUS3, TEAGE, HEALTH, HRANGE1, HRANGE2, HRANGE4, HRANGE6, INDUS2, HRANGE3, UNION, HRANGE5, MALE, LEVEL2, LEVEL1, HRANGE8, HRANGE7, FAMSIZE, MARRIED1, INDUS1, FTSTUD

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5700298	20	285014.920	128.887	.000[a]
	Residual	1.06E+08	47710	2211.359		
	Total	1.11E+08	47730			

a. Predictors: (Constant), INDUS3, TEAGE, HEALTH, HRANGE1, HRANGE2, HRANGE4, HRANGE6, INDUS2, HRANGE3, UNION, HRANGE5, MALE, LEVEL2, LEVEL1, HRANGE8, HRANGE7, FAMSIZE, MARRIED1, INDUS1, FTSTUD

b. Dependent Variable: T060101

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.163	.756		43.859	.000
	TEAGE	-.526	.012	-.190	-42.138	.000
	HRANGE1	-4.836	6.538	-.003	-.740	.460
	HRANGE2	-8.157	2.996	-.012	-2.723	.006
	HRANGE3	-6.287	2.438	-.012	-2.579	.010
	HRANGE4	-5.719	2.571	-.010	-2.225	.026
	HRANGE5	-4.930	2.063	-.011	-2.390	.017
	HRANGE6	-5.463	2.359	-.010	-2.315	.021
	HRANGE7	-3.886	1.059	-.018	-3.668	.000
	HRANGE8	-4.127	1.290	-.015	-3.198	.001
	MALE	1.310	.439	.014	2.983	.003
	UNION	1.149	.850	.006	1.353	.176
	FTSTUD	6.675	3.291	.032	2.028	.043
	LEVEL1	15.914	3.422	.061	4.650	.000
	LEVEL2	-3.021	3.109	-.010	-.972	.331
	MARRIED1	-3.518	.747	-.036	-4.707	.000
	HEALTH	28.298	9.411	.013	3.007	.003
	FAMSIZE	-4.183	.426	-.045	-9.808	.000
	INDUS1	2.684	.803	.026	3.340	.001
	INDUS2	1.784	3.171	.003	.563	.574
	INDUS3	1.216	1.541	.004	.789	.430

a. Dependent Variable: T060101

Table 4: with industry controls

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.226[a]	.051	.051	47.02735

a. Predictors: (Constant), INDUS6, HRANGE4, HRANGE1, HRANGE2, HEALTH, TEAGE, HRANGE3, HRANGE6, HRANGE5, MALE, HRANGE7, INDUS5, UNION, LEVEL2, HRANGE8, LEVEL1, FAMSIZE, INDUS4, MARRIED1, FTSTUD

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5690161	20	284508.038	128.645	.000[a]
	Residual	1.06E+08	47710	2211.572		
	Total	1.11E+08	47730			

a. Predictors: (Constant), INDUS6, HRANGE4, HRANGE1, HRANGE2, HEALTH, TEAGE, HRANGE3, HRANGE6, HRANGE5, MALE, HRANGE7, INDUS5, UNION, LEVEL2, HRANGE8, LEVEL1, FAMSIZE, INDUS4, MARRIED1, FTSTUD

b. Dependent Variable: T060101

Table 5: with industry controls

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5986362	20	299318.088	135.723	.000[a]
	Residual	1.05E+08	47710	2205.363		
	Total	1.11E+08	47730			

a. Predictors: (Constant), INDUS9, HEALTH, TEAGE, INDUS8, MALE, HRANGE1, HRANGE6, HRANGE2, UNION, HRANGE3, HRANGE4, MARRIED1, HRANGE5, LEVEL2, FAMSIZE, HRANGE8, LEVEL1, HRANGE7, INDUS7, FTSTUD

b. Dependent Variable: T060101

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30.527	.789		38.676	.000
	TEAGE	-.511	.013	-.184	-40.788	.000
	HRANGE1	-4.128	6.527	-.003	-.632	.527
	HRANGE2	-6.604	2.991	-.010	-2.208	.027
	HRANGE3	-5.085	2.432	-.009	-2.091	.036
	HRANGE4	-5.394	2.558	-.009	-2.109	.035
	HRANGE5	-4.625	2.047	-.010	-2.259	.024
	HRANGE6	-5.412	2.337	-.010	-2.315	.021
	HRANGE7	-3.893	1.021	-.018	-3.812	.000
	HRANGE8	-4.478	1.242	-.017	-3.606	.000
	MALE	1.083	.438	.011	2.473	.013
	UNION	.881	.850	.005	1.035	.300
	FTSTUD	6.158	3.286	.030	1.874	.061
	LEVEL1	13.305	3.425	.051	3.885	.000
	LEVEL2	-5.279	3.111	-.018	-1.697	.090
	MARRIED1	.647	.483	.007	1.339	.180
	HEALTH	28.920	9.398	.014	3.077	.002
	FAMSIZE	-4.372	.426	-.047	-10.265	.000
	INDUS7	7.871	.664	.062	11.849	.000
	INDUS8	-.551	2.263	-.001	-.243	.808
	INDUS9	-1.380	1.887	-.003	-.731	.465

a. Dependent Variable: T060101

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
1	HRANGE9	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), INDUS9, HEALTH, TEAGE, INDUS8, MALE, HRANGE1, HRANGE6, HRANGE2, UNION, HRANGE3, HRANGE4, MARRIED1, HRANGE5, LEVEL2, FAMSIZE, HRANGE8, LEVEL1, HRANGE7, INDUS7, FTSTUD

b. Dependent Variable: T060101

Coefficients[a]

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	32.956	.779		42.305	.000
	TEAGE	-.529	.013	-.190	-42.089	.000
	HRANGE1	-6.162	6.530	-.004	-.944	.345
	HRANGE2	-9.166	2.985	-.014	-3.071	.002
	HRANGE3	-7.347	2.421	-.014	-3.035	.002
	HRANGE4	-7.026	2.546	-.012	-2.760	.006
	HRANGE5	-6.104	2.030	-.013	-3.007	.003
	HRANGE6	-6.733	2.335	-.013	-2.884	.004
	HRANGE7	-5.234	.989	-.024	-5.293	.000
	HRANGE8	-5.650	1.226	-.021	-4.610	.000
	MALE	1.449	.439	.015	3.300	.001
	UNION	1.244	.850	.007	1.464	.143
	FTSTUD	6.589	3.291	.032	2.002	.045
	LEVEL1	16.227	3.426	.062	4.737	.000
	LEVEL2	-2.634	3.111	-.009	-.847	.397
	MARRIED1	-1.192	.487	-.012	-2.449	.014
	HEALTH	28.092	9.412	.013	2.985	.003
	FAMSIZE	-4.163	.433	-.045	-9.620	.000
	INDUS4	1.209	.906	.006	1.334	.182
	INDUS5	1.558	.753	.010	2.068	.039
	INDUS6	-1.374	1.370	-.005	-1.003	.316

a. Dependent Variable: T060101

Table 6: with industry controls

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.232[a]	.054	.053	46.96184

a. Predictors: (Constant), INDUS13, TEAGE, HEALTH, INDUS12, INDUS11, MALE, HRANGE1, MARRIED1, INDUS10, UNION, HRANGE4, LEVEL2, HRANGE6, HRANGE2, FAMSIZE, HRANGE5, HRANGE3, LEVEL1, HRANGE8, HRANGE7, INDUS7, FTSTUD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30.529	.789		38.671	.000
	TEAGE	-.511	.013	-.184	-40.786	.000
	HRANGE1	-4.188	6.539	-.003	-.640	.522
	HRANGE2	-6.442	3.050	-.010	-2.112	.035
	HRANGE3	-5.080	2.482	-.009	-2.047	.041
	HRANGE4	-5.451	2.595	-.010	-2.100	.036
	HRANGE5	-4.756	2.084	-.010	-2.282	.022
	HRANGE6	-5.457	2.394	-.010	-2.280	.023
	HRANGE7	-4.053	1.059	-.019	-3.826	.000
	HRANGE8	-4.623	1.260	-.017	-3.669	.000
	MALE	1.093	.440	.011	2.483	.013
	UNION	.875	.853	.005	1.026	.305
	FTSTUD	6.165	3.287	.030	1.876	.061
	LEVEL1	13.378	3.425	.051	3.906	.000
	LEVEL2	-5.211	3.111	-.018	-1.675	.094
	MARRIED1	.625	.483	.006	1.292	.196
	HEALTH	28.957	9.399	.014	3.081	.002
	FAMSIZE	-4.365	.426	-.047	-10.243	.000
	INDUS7	7.843	.665	.061	11.787	.000
	INDUS10	.442	1.475	.001	.299	.765
	INDUS11	-2.212	2.023	-.005	-1.093	.274
	INDUS12	9.888E-02	2.727	.000	.036	.971
	INDUS13	.411	2.719	.001	.151	.880

a. Dependent Variable: T060101

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5988304	22	272195.642	123.422	.000[a]
	Residual	1.05E+08	47708	2205.415		
	Total	1.11E+08	47730			

a. Predictors: (Constant), INDUS13, TEAGE, HEALTH, INDUS12, INDUS11, MALE, HRANGE1, MARRIED1, INDUS10, UNION, HRANGE4, LEVEL2, HRANGE6, HRANGE2, FAMSIZE, HRANGE5, HRANGE3, LEVEL1, HRANGE8, HRANGE7, INDUS7, FTSTUD

b. Dependent Variable: T060101

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	HRANGE9	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), INDUS13, TEAGE, HEALTH, INDUS12, INDUS11, MALE, HRANGE1, MARRIED1, INDUS10, UNION, HRANGE4, LEVEL2, HRANGE6, HRANGE2, FAMSIZE, HRANGE5, HRANGE3, LEVEL1, HRANGE8, HRANGE7, INDUS7, FTSTUD

b. Dependent Variable: T060101

Table 7: with occupation control for managerial and professional job

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5816028	17	342119.289	154.890	.000[a]
	Residual	1.05E+08	47713	2208.794		
	Total	1.11E+08	47730			

a. Predictors: (Constant), LEVEL2, HRANGE6, TRERNHLY, HRANGE1, MALE, HRANGE5, HRANGE4, SCHTRAIN, LEVEL1, HRANGE3, HRANGE7, HRANGE2, HRANGE8, UNION, TEAGE, OCC1, PTSTUD

b. Dependent Variable: T060101

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32.188	.686		46.935	.000
	TEAGE	-.541	.013	-.195	-43.071	.000
	TRERNHLY	-3.69E-03	.000	-.062	-13.677	.000
	OCC1	-1.256	1.634	-.004	-.769	.442
	HRANGE1	-7.263	6.527	-.005	-1.113	.266
	HRANGE2	-10.025	2.981	-.015	-3.363	.001
	HRANGE3	-8.094	2.418	-.015	-3.347	.001
	HRANGE4	-7.458	2.545	-.013	-2.930	.003
	HRANGE5	-6.637	2.034	-.015	-3.263	.001
	HRANGE6	-7.020	2.340	-.013	-3.000	.003
	HRANGE7	-5.702	.994	-.026	-5.735	.000
	HRANGE8	-5.826	1.264	-.022	-4.608	.000
	SCHTRAIN	-9.164	14.873	-.003	-.616	.538
	MALE	.971	.435	.010	2.231	.026
	UNION	.981	.847	.005	1.158	.247
	PTSTUD	-7.143	3.287	-.010	-2.173	.030
	LEVEL1	23.730	1.185	.090	20.021	.000
	LEVEL2	4.592	1.411	.016	3.254	.001

a. Dependent Variable: T060101

Excluded Variables [b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	HRANGE9	.[a]	.	.	.	.000
	FTSTUD	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), LEVEL2, HRANGE6, TRERNHLY, HRANGE1, MALE, HRANGE5, HRANGE4, SCHTRAIN, LEVEL1, HRANGE3, HRANGE7, HRANGE2, HRANGE8, UNION, TEAGE, OCC1, PTSTUD

b. Dependent Variable: T060101

Table 7a: Industries Only

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.217[a]	.047	.047	47.12112

a. Predictors: (Constant), NEAST, FTSTUD, HEALTH, MALE, TEAGE, UNION, FAMSIZE, MARRIED1, PEHRACTT

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5496141	9	610682.358	275.687	.000[a]
	Residual	1.06E+08	47721	2215.127		
	Total	1.11E+08	47730			

a. Predictors: (Constant), LEVEL1, HEALTH, MALE, UNION, TEAGE, FAMSIZE, MARRIED1, PEHRACTT, FTSTUD

b. Dependent Variable: T060101

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.123	.519		2.166	.030
	INDUS1	4.390	.640	.043	6.864	.000
	INDUS2	6.116	3.205	.009	1.908	.056
	INDUS3	3.739	1.611	.011	2.321	.020
	INDUS4	2.854	.977	.015	2.921	.003
	INDUS5	5.124	.855	.032	5.994	.000
	INDUS6	2.299	1.446	.008	1.590	.112
	INDUS7	16.485	.741	.129	22.253	.000
	INDUS8	-1.123	2.284	-.002	-.492	.623
	INDUS9	-1.123	1.898	-.003	-.592	.554
	INDUS10	-.812	1.419	-.003	-.572	.567
	INDUS11	-.507	2.013	-.001	-.252	.801
	INDUS12	-1.123	2.743	-.002	-.410	.682
	INDUS13	-.111	2.727	.000	-.041	.968

a. Dependent Variable: T060101

Table 7b: Occupations, that are significant

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.775	.230		29.512	.000
	OCC1	-6.775	1.574	-.020	-4.305	.000
	OCC2	-6.468	1.342	-.022	-4.821	.000
	OCC3	-5.455	1.366	-.018	-3.994	.000

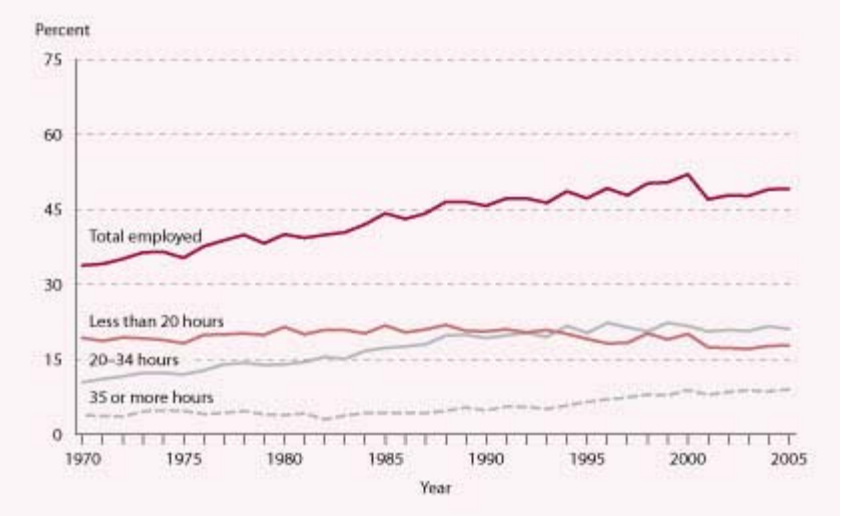
a. Dependent Variable: T060101

Table 8. Clusters assigned based on six emotions, 2006 PATS (Source: Krueger, 2007).

Activity	Cluster	Net Affect	Happy	Tired	Stress	Sad	Interested	Pain	No. of Episodes
personal medical care	1	0.21	2.34	3.69	2.21	1.06	2.70	3.10	24
financial/government services	1	0.32	2.87	3.19	3.40	1.86	3.34	1.92	20
homework	**1**	**0.80**	**2.71**	**3.08**	**3.32**	**0.94**	**3.08**	**1.47**	43
purchase medical services	1	2.08	3.67	2.77	2.51	0.74	4.08	1.63	80
writing by hand	2	2.79	3.46	1.97	0.96	0.52	3.69	0.53	34
purchase routine goods	2	3.08	4.03	2.29	1.46	0.52	3.96	0.88	218
other child care	2	3.08	3.93	2.43	1.32	0.48	3.79	0.73	30
use computer	2	3.24	3.99	2.17	1.16	0.55	4.52	0.55	240
second job, other paid work	2	3.40	4.39	2.49	1.42	0.66	4.48	0.90	67
other meals & snacks	2	3.61	4.47	2.42	1.15	0.58	3.91	0.83	971
walking	2	3.95	4.66	1.56	0.64	0.27	4.21	1.22	56
general voluntary acts	3	3.36	4.22	2.41	1.40	0.61	4.86	0.57	53
conversation, phone, texting	3	3.42	4.55	2.44	1.50	0.93	4.61	0.98	377
read books	3	3.49	4.36	2.35	0.94	0.83	4.81	0.87	474
receive or visit friends	3	3.79	4.71	2.71	1.25	0.59	4.77	0.90	187
read to/with, talk with children	3	3.92	4.73	2.61	1.45	0.39	4.72	0.58	35
travel related to consumption	3	4.04	5.02	2.87	1.86	0.51	4.23	0.55	18
other in-home social, games	3	4.08	4.77	2.23	1.04	0.25	4.92	0.78	121
pet care, walk dogs	3	4.14	4.91	2.89	1.06	0.49	4.51	0.75	104
worship and religious acts	3	4.24	4.97	1.70	0.90	0.66	5.09	0.61	151
sports & exercise	3	4.26	5.09	2.87	0.89	0.25	4.97	1.34	208
café, bar	3	4.39	5.00	2.24	0.88	0.29	4.59	0.66	255
general out-of-home leisure	3	4.39	4.91	1.91	0.46	0.38	4.49	0.69	29
purchase personal services	3	4.43	5.06	2.08	0.69	0.16	4.33	1.05	22
parties or receptions	3	4.72	5.24	2.04	0.88	0.29	5.00	0.38	90
hunting, fishing, boating, hiking	3	4.73	5.32	1.91	0.74	0.36	5.26	0.68	30
attend sporting event	3	4.74	5.24	1.73	0.78	0.04	4.97	0.69	21
play with children	3	4.81	5.41	2.49	0.74	0.21	4.69	0.86	40
listen to music (cd etc.)	3	4.81	5.33	1.56	0.38	0.35	5.06	0.84	22
watch television, video	4	2.94	3.91	2.94	1.17	0.82	3.97	0.94	1946
food preparation, cooking	4	3.14	4.25	2.65	1.63	0.60	3.91	1.11	452
relax, think, do nothing	4	3.25	4.40	2.77	1.31	0.80	3.96	1.34	313
gardening	4	3.34	4.26	2.79	0.92	0.43	3.88	1.41	306
set table, wash/put away dishes	5	2.28	3.32	2.81	1.45	0.68	2.76	0.93	145
laundry, ironing, clothing repair	5	2.46	3.33	2.28	1.11	0.61	2.73	0.94	187
adult care	5	2.56	3.90	2.56	1.72	1.19	3.82	1.10	87
Cleaning	5	2.63	3.72	2.85	1.61	0.62	3.54	1.05	327
other domestic work	5	2.63	3.76	2.59	1.85	0.66	3.87	0.90	368
travel related to leisure/other	5	3.00	4.02	2.73	1.66	0.57	3.43	0.79	1120
wash, dress, personal care	5	3.11	4.31	3.16	1.78	0.77	3.39	1.02	140
home repairs, maintain vehicle	6	2.22	3.50	2.76	1.97	0.85	3.95	1.03	89
paid work at home	6	2.35	3.47	2.66	2.01	0.63	4.00	0.71	207
regular schooling, education	**6**	**2.42**	**3.77**	**3.73**	**2.69**	**0.89**	**4.01**	**0.48**	70
main paid work (not at home)	**6**	**2.55**	**3.83**	**2.72**	**2.44**	**0.69**	**3.98**	**0.71**	1425
general care of older children	6	3.55	4.54	3.41	1.98	0.45	4.36	0.54	235

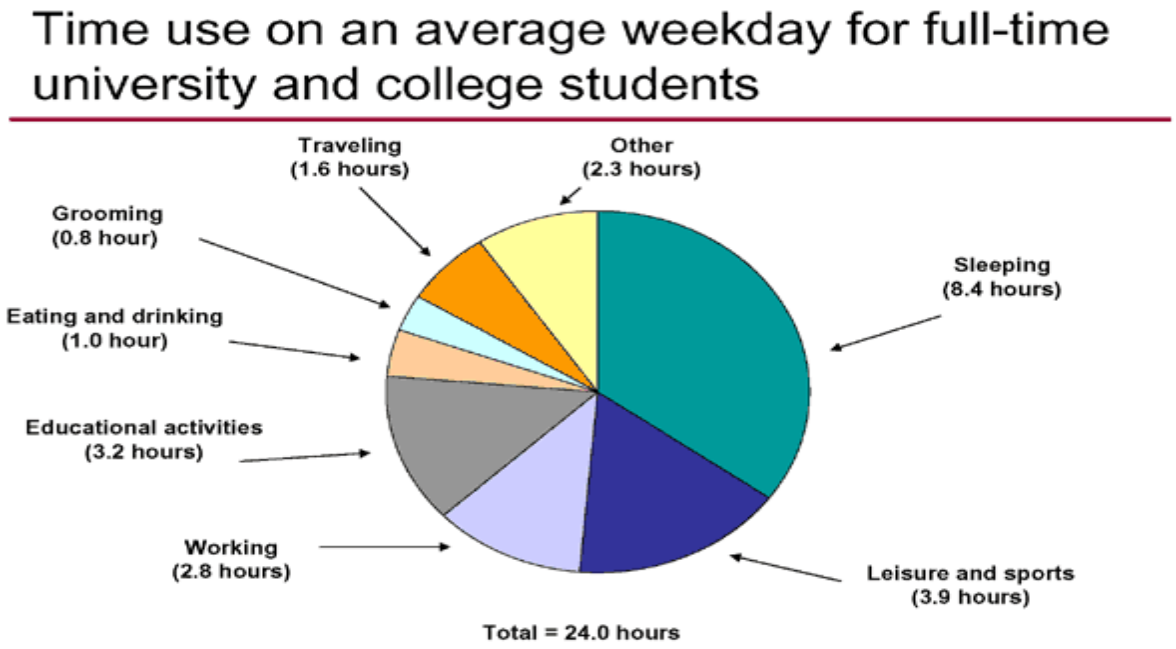
Figure 1

CPS October 2005 Supplement: Percentage of 16- to 24-year-old full-time college students who were employed, by hours worked per week: October 1970 through October 2005



NOTE: College includes both 2- and 4-year institutions. College students were classified as attending full time if they were taking at least 12 hours of classes (or at least 9 hours of graduate classes) during an average school week and were classified as part time if they were taking fewer hours.

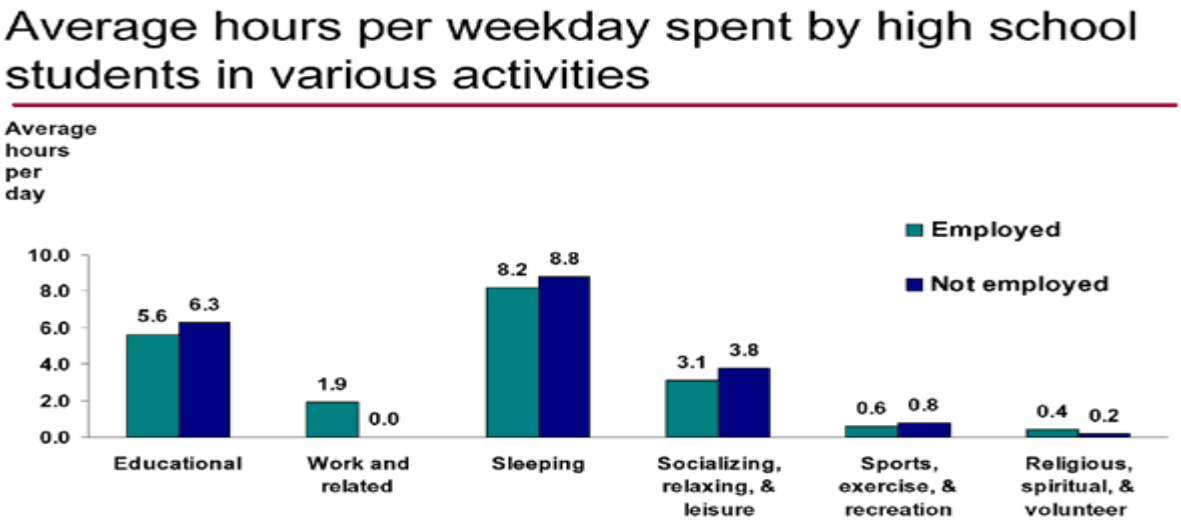
Figure 2:



NOTE: Data include individuals, ages 15 to 49, who were enrolled full time at a university or college. Data include non-holiday weekdays and are an average for 2003-06.

SOURCE: Bureau of Labor Statistics

Figure 3:



NOTE: Data include individuals ages 15 to 19 who were enrolled in high school. Data include non-holiday weekdays during the months of Jan.- May and Sept.- Dec. and are annual averages for 2003-06.

SOURCE: Bureau of Labor Statistics

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Notes

[1] In 1996, the average reported workweek among college was 25 hours (NCES, 1998). The reported averages are higher when including students on part-time status and those in 2-year institutions.

[2] Lerman, 2000.

[3] There is a marked gender gap. Boys are twice as likely to work twenty hours or more than girls. Twenty percent of black males work twenty hours or more, compared to just four percent of black females. The findings reveal little negative association between school engagement and work. In fact, among the lowest income families, high work intensity goes along with more school engagement and better schoolwork performance, as long as hours per week were moderate. Teens who worked long hours were more also likely to be suspended and to do less homework. Girls who worked long hours were more likely to do better in school than girls working fewer than twenty hours or not at all. However, the difference regarding low engagement between males working long hours and males not working. Teens in families considered welfare-leavers were most likely to work twenty hours a week or more and were more likely to do better in school. Teenagers in families who were once on welfare but currently are not are most likely to work long hours. Teens of current welfare families are more likely to work fewer than twenty hours or not hold jobs.

[4] However, this conflicts with recent finding for high school students: higher employment rates and hours among those with relatively higher family income levels. This is also in contrast to finding that the primary reason for teens working is to purchase and maintain a car (Hannah and Baum, 2002).

[5] See Rich, 1996, and Ruhm, 1997.

[6] Galinsky, et al (2005) and Sparks, Faragher, and Cooper, (2001) find deleterious effects of long hours on psychological stress and health risks generally. Weller, et al (2003) find for such adverse well-being effects on working high school students specifically, including satisfaction with leisure time, and Lenaghan and Sengupta (2007) similarly among college students. The mental and physical health effects of youth labor depend not only on hours worked, but on the conditions of the work climate and the degree of compliance and enforcement of protective safety and health regulations (National Academy of Sciences, 1998). Moreover, young people who engaged in a combination of high work and high recreational activity hours were twice as likely to sustain a medically attended injury compared to those who worked low hours and no recreational activity (Breslin, et al 2007).

[7] The pattern is similar by gender, but a bit stronger among females.

[8] The working behavior during the school year of students who later drop out differs from the working behavior of students who eventually graduate. Youths who eventually dropped out of high school were less likely than their peers to have worked more than half of the school year prior to the one in which they dropped out. For example, 52 percent of working youths who dropped out of high school during their senior year had worked more than half of the school weeks during their junior year. By comparison, among youths who eventually graduated from high school, 70 percent of those who worked during their junior year worked more than half the weeks of that school year. Eventual dropouts who worked more than half of the school weeks tended to work more hours per week. For example, students who dropped out as sophomores and worked more than half the school weeks during their freshman year

were nearly twice as likely as their freshmen counterparts who eventually graduated to average 21 or more hours of work per week. This pattern continued for youths who dropped out in later years. Among students who dropped out as seniors and worked more than half the school weeks during their junior year, 33 percent averaged 21 or more hours of work per week. By comparison, 29 percent of juniors who worked more than half the school year and eventually graduated averaged 21 or more work hours per week.

[9] Hannah and Baum, 2002.

[10] Orszag, Orszag and Whitmore, 2001.

[11] Also see the early literature, e.g., Ehrenberg and Sherman, 1987; Crawford, Johnson and Summers, 1997.

[12] In no small part this is because the effects on school behavior and grade performance may be moderated and meditated by the student's family environment (Roisman, 2002).

[13] Kelly, 1998.

[14] Working students who eventually graduated from high school spent a large amount of time at work while also juggling their academic requirements. Nearly 24 percent of working freshmen worked 21 or more hours per week during the school year, as did 56 percent of working seniors. More than half of freshmen who worked during the school year worked more than 50 percent of the school weeks, although most worked 10 hours or less per week. By their sophomore year in high school, 54 percent of students who worked during the school year worked more than half of their school weeks, with 18 percent of them averaging 21 or more hours per week. By their senior year, three-quarters of employed students worked more than half of school weeks. Moreover, 25 percent of seniors worked over half of the school year and averaged between 21 and 30 hours a week, while an additional 20 percent worked more than half of the school year and averaged 31 or more hours a week. Of the 75 percent of seniors who worked during the school year, over three-fourths had worked more than 50 percent of school weeks. About 1 in 5 employed seniors worked more than 50 percent of school weeks and averaged 31 or more hours of work per week.

[15] NCES, 1998.

[16] The ratio of consumption spending per unit of time is considered the rate of "consumptivity" (Gershuny, 1992).

[17] The effects of rising student wage rates, whether due to local labor shortages, increased legal minimum wages, etc., is ambiguous but likely to be dominated by substitution effect because of low wage rates available to students.

[18] It is in large part for this reason that multitasking or overlapping activities is associated with higher stress that in turn detracts from well-being (see Floro and Miles, 2003).

[19] Earnings are clearly is endogenous with hours, so future analysis will address this.

[20] Some information from respondents, derived from the basic CPS, are from their jobs 2 to 5 months earlier, the month that they rotated out of the monthly CPS process (See Polivka, 2005).

[21] For future use, there are 23 "detailed" (PEIO1OCD) occupational classifications, and 22 "intermediate" (PRIMIND1) and 52 detailed (PRDTIND1) industry classifications.

[22] Moreover, this is unlikely to remain so negative if time in class is omitted from the dependent variable.

[23] Current regulations stipulate that students' work outside school hours in various non-hazardous jobs must take place under these conditions: no more than 3 hours on a school day, 18 hours in a school week, 8 hours on a non-

school day, or 40 hours in a non-school week (see Rothstein, 2001). Also, work may not begin before 7 a.m., nor end after 7 p.m. (except during summer). Similar limits could be discussed regarding the hours worked for youth up to 18 years old if they are enrolled in high school or college.

[24] The National Institute for Occupational Safety and Health, in its report, *Protecting Youth at Work* concluded that the US Department of Labor should be extended the authority to limit the number of hours students can work per day and regulate the times when they start and stop working on school nights (Chaplin, 1999; National Academy of Sciences, 1999). However, exceptions would be made for school-to-work programs and for students who must work out of economic necessity. Note that a pay premium might have the desired enforcement effects, but since pay rates for working students tend to fall in the low range, this might have the perverse effect of inducing longer desired hours of work to earn premium pay, to relieve their higher rates of underemployment (see Golden, 2007).