The Extent and Consequences of High School Employment

By: CHRISTOPHER J. RUHM

***Note: Figures may be missing from this format of the document

I. Introduction

During the mid-1970s, a number of prestigious commissions convened to study the problems of adolescents reached the common conclusion that additional early work experience would foster the development of personal responsibility, smooth the transition from youth to adulthood, and improve educational performance and occupational attainment. Shortly thereafter, a number of federal initiatives were passed with the goal of increasing the employment experience of youths. These recommendations were made in the absence of hard empirical evidence that increased job-holding caused or even was correlated with favorable outcomes. Economic theory also fails to provide unambiguous predictions concerning the efficacy of youth employment. For example, the human capital model identifies both potential benefits and costs of working. On the one hand, time devoted to jobs could detract from potentially more productive educational investments. On the other, the employment might provide skills and knowledge which increase future productivity and complement in-class learning. Early work experience could also speed the process by which youths obtain positions where there is a good match between job requirements and worker qualifications.

Given these ambiguities, it is not surprising that a partial reappraisal of the benefits and costs of student employment occurred during the 1980s. The seminal research of Greenberger and Steinberg (1986) indicated mixed and generally negative outcomes, leading them to conclude that "working is more likely to interfere with than enhance schooling; promotes pseudomaturity rather than maturity; is associated in certain circumstances with higher, not lower, rates of delinquency and drug and alcohol use; and fosters cynical rather than respectful attitudes toward work" (p. 235). These concerns are even more salient in light of evidence suggesting that youths take jobs to finance short-term consumption, rather than to enhance human capital investments.[1] They also have provided a justification for recent efforts to strengthen enforcement of the child labor provisions of the Fair Labor Standards Act.

Previous research suffers from two fundamental shortcomings, however, which make it difficult to determine the net benefits or costs of job-holding by students. First, most studies treat youth employment as an exogenous variable, ignoring the selection process determining which students work and, conditional on doing so, how many hours they are employed. Second, analysts have focused on educational achievement and employment outcomes shortly after the completion of high school but have obtained little information on long-run labor market success. This paper

improves our understanding in both areas. First, several strategies are used to account for difficult-to-observe differences between workers and nonworkers. Second, the dependent variables are employment consequences 6 to 9 years after the scheduled date of high school graduation, thus providing the best available information on longterm effects of the student job-holding. In addition, I examine a wider variety of economic outcomes and utilize better information on high school employment status than that previously available.[2]

No evidence is uncovered of detrimental effects of low-to-moderate amounts of student employment. To the contrary, job-holding in the senior year is associated with substantially elevated future economic attainment, whether the latter is measured by earnings, wages, occupational status, or the receipt of fringe benefits. These results are robust across a variety of specifications and sample selection criteria and suggest that employment plays an important developmental role for students as they approach the end of high school. Interestingly, the economic benefits are obtained despite a small reduction in completed schooling, indicating that time on the job may detract slightly from educational human capital investments but more than compensates for this loss through employment-related training.

II. Prior Research

There is currently no consensus whether student employment improves or worsens school performance, although the data do suggest that any beneficial effects are maximized at low or intermediate hours of work, while harmful impacts are most likely for heavy job commitments. The results pertaining to employment outcomes are clear. High school jobs are unambiguously associated with elevated rates of future job-holding and increased earnings. It is not obvious, however, whether these represent permanent benefits or transitory gains which will disappear over time. Unfortunately, virtually all earlier studies have focused on the period immediately following school completion, making it difficult to infer life-cycle effects.

Correlations between student employment and future outcomes could result from confounding factors, rather than being due to any causal effects of the work itself. Spurious correlation is likely to be particularly problematic when, as in many studies, only rudimentary controls for observable differences are included. These methodological problems are further aggravated when (nonrepresentative) convenience samples are used or when subsamples are selected in ways which introduce unobserved differences between workers and nonworkers.

III. Data

I use data from the National Longitudinal Survey of Youth (NLSY). The subsample analyzed is restricted to respondents who: (1) were high school freshman or sopho-mores in 1979, (2) remained enrolled in school through at least the interview date of their senior year (two years if a sophomore in 1979 and three years if a freshman), and (3) were members of the nationally representative cross-sectional sample of non- institutionalized civilian youths. Two types of information on high school employment are utilized. The first are questions indicating the number of hours worked during the week prior to the survey date in the respondent's sophomore, junior, and senior year of high school. Second, the work history file is used to construct measures of average work hours during the junior and senior academic years and the preceding summers. The primary outcome considered is total annual earnings which is decomposed into wage rates (hourly and weekly) and employment levels, where the former are measured as total earnings

divided by hours or weeks employed. Three additional measures of economic attainment are considered. The first is the Duncan Socioeconomic Index; the second and third indicate whether group health insurance and pensions are provided by the current or most recent employer. The dependent variables are averaged over the three-year period 1988 through 1990, which is 6 to 9 years after the scheduled date of high school graduation.

In addition to high school work hours, two sets of supplemental covariates are available in the NLSY and controlled for in the regression analysis. The first are standard demographic variables indicating ethnic status, gender, marital status, geographic region, residence in an SMSA and in an urban area, local unemployment rates, and high school class at the 1979 survey date. The second set of attributes includes potentially important characteristics for which data have typically been unavailable to previous researchers. These include whether the respondent and his/her parents are foreign born; whether a foreign language was spoken at home; parent's educational attainment; if magazines, newspapers, or library cards were in the home at age 14; if the respondent considered school boring, unsafe, or was very dissatisfied with it; school type (public vs. private); and whether s/he had smoked cigarettes or used drugs (marijuana or hashish) by the sophomore year of high school. Religion, expected years of education, number of siblings, (log of) family incomes, and the score received on the Armed Forces Qualifications Test (AFQT) are also included in this extended set of covariates.

IV. Extent of Student Employment

Much of the concern over student employment stems from the belief that this type of job-holding has risen rapidly in recent years, in contrast to stable or falling rates earlier in the century. For example, Greenberger and Steinberg (1986, p. 15) cite a 65 percent increase in the labor force participation rates of 16 and 17 year old school-going males (from 27 percent to 44 percent) occurring between 1947 and 1980. The rise in student employment is likely to be overstated by these figures, however, for at least two reasons. First, youth unemployment rates increased dramatically during this period, which implies larger increases in labor force participation than employment probabilities.[3] Second, the calculated changes are quite sensitive to the endpoints chosen. For instance, the increase in participation rates was less than a third as large (rising from 37 percent to 44 percent) between 1950 and 1980 as when the initial year is 1947, and there was almost no change in participation between 1950 and 1970.[4]

Information on trends in student employment was obtained from unpublished Current Population Survey data on the employment-to-population (EP) ratios of 16 to 18 year olds who were attending school. The EP ratios of teenagers with school as a major activity rose moderately between 1968 and 1978 (from 27.6 percent to 30.4 percent), with large increases for females and little change for males. By contrast, no growth in job-holding is evident for the decade ending in 1988. Over this period, a slight contraction in male employment (from 31.4 percent to 29.1 percent) more than offsets the marginal increase for females (from 29.3 percent to 30.6 percent). These data suggest that the frequency of student job-holding has changed relatively little over time, particularly since the middle 1970s, with any time trend being small when compared to cyclical fluctuations induced by macroeconomic conditions. Concerns based on the notion that the employment levels of high school students have been rapidly rising during the last 25 years may, therefore, be exaggerated.

Descriptive information on high school work hours, from the NLSY data, is provided in Table 1. Column (a) refers to the full sample and column (b) to persons interviewed in 1991. Employment rates are marginally higher for persons remaining in the sample throughout the period of investigation, but there is little evidence of attrition bias and the remaining analysis is restricted to the 1,067 individuals interviewed through 1991. The first panel displays work hours in the week prior to the survey date (hereinafter referred to as survey date employment); the second presents corresponding information for academic year and summer jobs.

Work experience rises steadily throughout the high school years. 28 percent of sophomores are employed in the week prior to the survey, compared to 43 percent of juniors and 51 percent of high school seniors. Given the large fraction of nonemployed students, average work hours are modest, rising from slightly over 3 hours per week for sophomores to around 10 hours per week for seniors. Conditional on employment, sophomores, juniors, and seniors work an average of 12, 16, and 19 hours per week, respectively. Only 3 percent of sophomores, 10 percent of juniors, and 19 percent of seniors work more than 20 hours in the week before the interview and just 1 percent, 3 percent, and 5 percent are employed over 30 hours. Thus, only a small proportion of students have the heavy job commitments which have raised particular concern in previous research.

The work history data (lower panel, Table 1) provide further evidence that employment experience is the norm for high school students, with almost two-thirds of juniors and three-quarters of seniors working at some point during the academic year. Employment hours are higher in the summer than during the academic year but the differences are relatively small, suggesting that a large number of students continue their academic year employment through the summer or vice versa.

Table 1
Frequency and Amount of High School Employment

	Sophomores		Juniors		Seniors	
	(a)	(b)	(a)	(b)	(a)	(b)
Employment Status in Week Prior to Survey Date						
Percent Working	27.9%	28.3%	42.4%	43.3%	50.3%	50.8%
Ave. Hours/Week	3.3 hr	3.3 hr	6.6 hr	6.7 hr	9.4 hr	9.6 hr
Ave. Hours/Week if Employed	11.9 hr	11.8 hr	15.5 hr	15.5 hr	18.7 hr	18.9 hr
Hours Worked in Week Prior to Survey						
0	72.2%	71.8%	57.6%	56.6%	49.7%	49.2%
1-10	16.3	16.4	15.4	15.8	11.3	11.3
11-20	8.1	8.5	17.1	17.5	20.5	20.5
21-30	2.2	2.3	7.6	7.7	13.4	13.8
31-40	0.7	0.7	2.0	2.1	4.1	4.2
>40	0.5	0.4	0.4	0.4	1.0	1.0
Academic Year Employment (From Work History File)						
Percent Employed 1 Week			63.9%	64.9%	72.6%	73.4%
Percent of Weeks Employed			41.5%	42.6%	51.5%	52.3%
Ave. Hours/Week			7.7 hr	8.0 hr	12.1 hr	12.3 hr
Ave. Hours/Week if Employed			18.6 hr	18.9 hr	23.5 hr	23.5 hr
Summer Employment (From Work History File)						
Percent Employed 1 Week			56.2%	57.2%	59.6%	60.8%
Percent of Weeks Employed			44.1%	45.0%	48.5%	49.6%
Ave. Hours/Week			10.2 hr	10.3 hr	13.7 hr	14.0 hr
Ave. Hours/Week if Employed			23.1 hr	23.0 hr	28.2 hr	28.1 hr

Notes: Full sample included in column (a), *n*=1,149. Column (b) includes respondents interviewed in 1991, *n*=1,067. Academic year employment status calculated for 26-week periods covering the months of October, November, February, March, April, and May, of the relevant survey years. Summer employment status is calculated for 8-week periods beginning with the week which includes July 1 of the summer before the specified high school year.

Whites and males work more than nonwhites and females. The gender differential in survey date work hours is 57 percent for sophomores (4.1 vs. 2.6), 43 percent for juniors (7.9 vs. 5.5), and 12 percent for seniors (10.1 vs. 9.0).[5] White sophomores work 40 percent more hours than their minority peers (3.5 vs. 2.5), with still larger 74 percent and 54 percent differentials for juniors (7.3 vs. 4.2) and seniors (10.2 vs. 6.6). Conditional on holding jobs, however, there no evidence that whites have heavier employment commitments than nonwhites. If anything, the reverse is true.[6] This suggests that the race disparities may be the result of differences in opportunities rather than tastes and, if student work is beneficial, could provide one reason why nonwhites receive relatively low earnings later in life.

V. High School Employment and Economic Outcomes

High school students who work generally have higher levels of future economic attainment than those who do not. This result holds across a variety of outcome measures. The positive correlation typically increases with grade level, is more pronounced for academic year than survey date employment, and is strongest when considering earnings (Table 2). For example, whereas sophomores working more than 20 hours in the week prior to the survey date earn 9 percent more than their nonworking counterparts, 6 to 9 years later, the differentials associated with junior and senior employment are a much larger 31 percent and 35 percent, respectively. Individuals not working at any point during the academic year do even worse — their counterparts averaging 20 hours of employment weekly in the junior and senior grades earn 39 percent and 55 percent more per year. These findings provide a first indication that high school employment has favorable effects on future outcomes.

The positive relationship between student employment and future labor market attainment could result from spurious correlation between youth work experience and confounding factors which are the actual causes of the favorable subsequent performance. For example, persons with advantaged backgrounds may have superior access to jobs both in high school and after graduation. If so, socioeconomic differences, rather than high school employment, may explain the disparity in economic achievement.

Regression analysis was used to control for differences in observable characteristics. The equation estimated is

$$Y_i = X_i\beta + \gamma H_i + \delta H_i^2 + \varepsilon_i, \qquad (1)$$

where Y_i is the outcome for individual i; X is a set of covariates; H is a vector of high school work hours; and E is the regression disturbance. Quadratic terms are included to allow for nonlinear effects of student employment. The predicted effect of working h hours in a given high school grade (compared to nonworkers) is then equal to $\hat{\gamma}H + \hat{\delta}H^2$; $\hat{\gamma}$ and $\hat{\delta}$ are the regression coefficients obtained from estimating (1).

Table 3 presents estimates of the expected difference in future labor market outcomes as a function of the number of hours worked by high school seniors, compared

Table 2

Economic Outcomes by High School Employment in Week Prior to Survey

High School Employment Hours	N		Outcome Measure (1988-1990 Average)		
		Annual Earnings	Duncan Occupation Index	Employer Health Insurance	Employer Pension Plan
All Respondents	1,067	$16,513	42.4	75.6%	53.6%

Employment Status in Week Prior to Survey Date

High School Employment Hours	N	Annual Earnings	Duncan Occupation Index	Employer Health Insurance	Employer Pension Plan
Sophomore Work Hours					
0	766	$16,012	42.1	75.2%	54.1%
1-20	266	$17,846	44.3	77.5%	52.3%
>20	35	$17,441	34.0	71.1%	53.9%
Junior Work Hours					
0	604	$15,086	41.5	74.0%	52.9%
1-20	355	$17,969	44.1	77.2%	54.5%
>20	108	$19,739	41.3	79.9%	55.0%
Senior Work Hours					
0	525	$14,422	39.6	70.7%	49.6%
1-20	339	$17,949	45.8	80.8%	58.3%
>20	203	$19,510	43.6	79.7%	56.1%

Academic Year Work Hours (From Work History File)

High School Employment Hours	N	Annual Earnings	Duncan Occupation Index	Employer Health Insurance	Employer Pension Plan
Junior Work Hours					
0	370	$13,856	40.4	72.3%	53.7%
1-20	553	$17,592	44.1	77.1%	52.2%
>20	139	$19,241	40.7	77.9%	58.9%
Senior Work Hours					
0	282	$12,765	37.7	69.9%	51.7%
1-20	494	$16,703	43.4	75.0%	51.7%
>20	289	$19,789	44.9	81.9%	58.3%

Notes: Sample includes respondents interviewed in 1991. Table shows average values of outcome variables for 1988-1990 time period. If data are missing for one interview, the average is calculated for the remaining two years.

Table 3

Change in Economic Attainment Associated with Senior Year Employment

Hours of Employment in Senior Year	Annual Earnings	Hourly Wages	Duncan Occupation Index	Employer Health Insurance	Employer Pension Plan
Differentials Associated with Employment in Week Prior to the Survey Date					
10 Hours	14.3%	7.7%	2.8 pts	.075	.087
20 Hours	22.1	11.0	4.1	.114	.115
40 Hours	13.4	3.8	2.1	.097	-.015
Max. Difference	24.6 hr	22.2 hr	23.5 hr	27.3 hr	19.4 hr
Differentials Associated with Academic Year Employment (from Work History File)					
10 Hours	11.0%	5.0%	2.2 pts	.074	.055
20 Hours	19.3	9.1	4.0	.125	.086
40 Hours	25.5	14.4	6.5	.168	.069
Max. Difference	37.9 hr	53.6 hr	59.8 hr	42.1 hr	26.8 hr

Notes: Sample includes respondents interviewed in 1991. Table shows difference in predicted outcomes compared to persons not working in the senior year of high school. Estimates are obtained from OLS and ordered probit estimates of equations which include the same set of covariates. The fourth and fifth columns refer to the probability that the respondent receives employer health insurance or pension coverage at the time of the 1988, 1989, and 1990 surveys. Sample averages for the Duncan Index and probabilities of receiving health insurance and pension coverage from the employer are 42.4 points, .623, and .375, respectively.

to counterparts who are not employed, with predictions obtained from equations which control for the full set of covariates. The top panel summarizes results for jobholding in the week prior to the survey date; the bottom panel provides corresponding estimates for average work hours during the 26-week academic year. The first three columns show results for the log earnings, log wages, and the Duncan score. The last two columns show predicted probabilities that the respondent obtains employer-provided health insurance and pension coverage at all three of the 1988 through 1990 survey dates. The fourth row of each panel shows the hours of senior year employment at which the specified economic outcome is expected to reach a maximum.

Compared to seniors who do not hold jobs, working 10 hours during the week prior to the survey is associated with 14.3 percent greater future earnings, a 7.7 percent rise in hourly wages, a 2.8 point higher Duncan Score, and 7.5 and 8.7 percentage point increases in the probability of obtaining health insurance and pension coverage from the employer. Corresponding benefits for averaging 10 hours of employment per week throughout the academic year are 11.0 percent, 5.0 percent, 2.2 points, and 7.4 and 5.5 percentage points, respectively. The second row of each panel shows that substantially larger gains are associated with working 20 hours per week. For instance, 20 hours of employment in the week prior to the survey date is associated with 22.1 percent higher earnings, 11.0 percent greater hourly wages, a 4.1 point rise in the Duncan score, and increases exceeding 11 percentage points in the probability of receiving the two fringe benefits.

The predicted benefits of survey date employment are maximized at between 19 and 27 hours per week, depending on the outcome. By contrast, the gains associated with academic year job-holding peak beyond 27 hours per week and, except for pension coverage, increase steadily throughout the employment levels experienced by the vast majority of high school seniors. One reason the results depend on the type of work hours used is that, although many students hold jobs intermittently, the vast majority of high school seniors work at some point during the academic year. Thus, students without any measured academic year work experience are a far more selected group than those not working in a given week. A second factor is that employment appears to be slightly overestimated in the retrospective data.

VI. Conclusion

I examine the effects of high school employment on labor market outcomes 6 to 9 years after the scheduled date of graduation, using data from the National Longitudinal Survey Youth Cohort. Contrary to some previous research, the analysis fails to uncover any evidence of harmful effects of working during high school. Instead, jobs held during the senior year yield substantial and lasting benefits. For example, seniors employed 20 hours per week are expected to earn approximately 20 percent more annually and to receive 10 percent higher hourly wages, 6 to 9 years later, than their counterparts who do not work at all. They are also more likely to receive employer-provided fringe benefits and be in higher status occupations. The favorable effects of employment in the senior year of high school persist after controlling for a comprehensive set of background characteristics, and the results are robust across a variety of specifications, samples, and estimation techniques.

Much of the alarm raised by researchers that the jobs held by high school students may hinder their long-term development has been based on the analysis of nonrepresentative samples and using methods which are unlikely to account for the selection process into student employment. The concerns have also been magnified by a belief that job-holding among in-school youths has rapidly increased since the end of World War II. This trend appears to have ended by the late 1970s, however, with subsequent reductions in the employment rates of some groups (e.g., 16-18 year old boys). Moreover, the NLSY data indicate that relatively few students work the long hours which have caused particular consternation.

Further research on the benefits and costs of student employment is needed. In particular, it is important to better understand the mechanisms by which the early work experience raises economic attainment, to analyze the importance of characteristics of the jobs held by high school students, and to examine the types and sources of demographic group differences in returns to student employment. Based on current knowledge, however, concern that working during high school has extremely deleterious consequences appears misplaced. A tentative but fairly strong conclusion is that light to moderate work commitments prOVide important net human capital investments and so should be encouraged, especially as students approach the end of their high school years.

NOTES

1. For example, 69 percent of working high school seniors, surveyed in 1982 by thc High School and Beyond Survey, report spending some of their earnings for car expenses, 97 percent to "buy things", but just 44 percent saved for college.
2. This paper draws hcavily on Ruhm (1994), which contains considerably morc detail on the analysis and findings summarized here.
3. The unemployment rates of 16-19 year old males rosc from 9.8 percent in 1948 to 18.3 pcrcent in 1980 (Economic Report of the President, 1992, p. 340).
4. There is some evidence that the Current Population Survcy employment statistics undcrestimate the level of work involvement because the information on youths is typically provided by their parcnts, who systematically undcrstate their children's labor force attachments (Freeman and Mcdoff, 1982). Flaim (1982) points out that much of the difference between self-rcports and proxy-responses relatcs to casual jobs (e.g., lawnmowing or babysitting) which are rcported as employment by the youth but not by the parent.
5. Similar gender differences in student employmcnt have been uncovered by a numbcr of other researchers (c.g., D'Amico, 1984; Michael and Tuma, 1984).
6. Steele (1991) also finds that whites more often work than nonwhites but with no differenccs in hours conditional on working.

REFERENCES

D'Amico, Ronald, and Paula Baker. "Thc Nature and Consequences of High School Employment." ln Paula Baker et. al. (eds.), *Pathways to the Future,* Vol. 4. Columbus, Ohio: Center for Human Resources Rcsearch, Thc Ohio State University, 1984, pp. 1-49.

Economic Report of the President. Washington, D.C.: U.S. Government Printing Office, 1992.

Flaim, Paul 0. "Comment on Why Does thc Rate of Youth Labor Force Activity Diffcr Across Surveys?" ln Richard B. Freeman and David A. Wise (eds.), *The Yourh Labor Market Problem: Its Nature, Causes, and Consequences.* Chicago: University of Chicago Press, 1982, pp. 104-10.

Freeman, Richard B., and James L. Mcdoff. "Why Does the Rate of Youth Labor Forcc Activity Differ Across Surveys?" In Richard B. Freeman and David A. Wise (eds.), *The Youth Labor Market Problem: Its Nature, Causes, and Consequences.* Chicago: Univcrsity of Chicago Press, 1982, pp. 74-104.

Greenberger, Ellen, and Laurcncc Steinberg. *When Teenagers Work: The Psychological and Social Costs of Adolescent Employment.* Ncw York: Basic Books, 1986.

Michacl, Robert T., and Nancy Brandon Tuma. "Youth Employmcnt: Docs Life Begin at 16?" *Journal of Labor Economics* 2 (April 1984): 464-76.

Ruhm, Christopher J. "ls High School Employment Consumption or Invcstmcnt?" mimeo, University of North Carolina Grecnsboro, 1994.

Steel, Lauri. "Early Work Expcricncc Among White and Non-White Youths: Implications for Subsequcnt Enrollmcnt and Employment." *Youth & Society* 22 (June 1991): 419-47.