

The effects of employment on undergraduate student academic performance

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Abstract

This paper reviewed previous studies conducted in multiple countries on the effect of employment on undergraduate student academic performance. This review focuses on understanding the population and characteristics of students taking jobs while studying, the positive and negative effects of paid work on student academic performance, and if there is a threshold of work hours. It was found that a high percentage range, 27.2-97 percent, of college students were reported to take jobs while studying, with the main purpose of obtaining financial stability or acquiring needed skills for future long term employment in the field of study. More than a half of studies showed that employment has negative effects on academic performance and only one study concluded more positive than negative effects. For those that reported mixed results, the threshold was found to be 10-25 hours per week. This information may be used to guide undergraduate students in taking employment when considering their study and work balance.

Keywords: part-time job, student employment, academic performance, threshold working hours, college student

1. Introduction

A high percentage of undergraduates are taking jobs during their studies. According to the National Center for Education Statistics, 43% of the U.S. full-time undergraduates were employed and 78% of part-time undergraduates were employed in 2015 [1]. These two numbers were slightly higher in 2005, which were 50% and 86%, respectively. The percentages of full-time undergraduates who were employed less than 10 hours per week, 10 to 19 hours per week, 20 to 34 hours per week, and 35 hours or more per week were 7, 8, 17, and 10 percent, respectively in 2015; while the percentages of part-time undergraduates who were employed less than 10 hours per week, 10 to 19 hours per week, 20 to 34 hours per week, and 35 hours or more per week were 2, 6, 25, and 45 percent, respectively in 2015. Part-time students spend many more hours on paid jobs than full-time students.

The rationale for a student contemplating and undertaking part-time employment is complex and multi-factorial, usually including financial hardship, inadequate income and debt, skills improvement, and major requirements [2-4]. The increase in tuition and the decrease in governmental and family support, as well as the changes in student's lifestyle and consumption preferences, contribute to the phenomenon. One study carried out by Ford et al [5], surveyed over a thousand undergraduate students in four United Kingdom (UK) universities and identified factors largely influential in a student's decision to work while studying. These factors include inadequate parental contribution, low personal income and debt. The extent of parental financial contribution to students was considered a particularly important factor in influencing a student's decision to work during their studies. A third of students who did not receive a monetary contribution from their parents worked, but only a fifth who did receive a contribution were working during their studies [5, 6]. In general, dependent students with parental incomes of \$60,000 or more are most likely to work up to 20 hours per week, while independent students with incomes of \$25,000 or more are most likely to work 35 or more hours per week [7]. Upper-income dependent students receive support from their parents, limiting their need to work, whereas upper-income independent students fall into that income category precisely because they are working. As one might expect, younger dependent students work less than older independent students [7]. A more recent survey of 1,182 undergraduate students in England showed that 68.1% of students took jobs due to the need of "pay for social, leisure or luxuries", while the needs for "career related experience" and "degree related experience" counted for only 15.6% and 8.9%, respectively [8]. The changes in student's lifestyle and consumption preferences play a significant role in making the employment decisions.

How working during their university studies affect student academic performance has been studied in multiple countries, and the research over the last two decades has reported negative, positive or no significant effects. The different conclusions were made due to a variety of reasons such as student characteristics, work hours, and the year of study. The theories, methodological approaches used, and some empirical conclusions has been reviewed recently [9]. The objective of this study is to use a systematic method to review these previous studies to generalize the effects of working on academic performance. This review will focus on the following questions:

1. How many hours do undergraduates spend on jobs? Are there any differences between male and female students?
2. What jobs do students take and are any of them closely related to their majors?
3. Are there any positive or negative effects on student academic performance? Is there a threshold in work hours?
4. What are the possible negative or positive effects of getting employed?

2. Student worker characteristics

2.1 Gender

Both male and female students work while studying. In general, female students are more likely to work than male students in the college, although the difference can be minor for many cases. The National Center for Education Statistics shows that 41% and 45% full-time male and female students were employed in the U.S. in 2015, respectively [1]. Similar results were reported by many studies carried out in other countries, as show in Figure 1, although the percentages of students employed are quite varied in those reports due to different target student groups. The one exception is the study conducted in Latvia, in which female students are 17 percent less likely to work than male students and over 10 percent less likely to work full-time [10], which may due to the relatively low percentage (20%) of married female students working full-time. The study in China presented a much higher percentage of working female students than male students, and illustrated female students from rural area in China that having more siblings and higher financial need, are most likely to take paid jobs [11]. This observation matches with the phenomena in traditional rural China that the female has more family obligation to support the family and help raise male siblings before their marriage when their family obligation switched from the birth family to their husband's family.

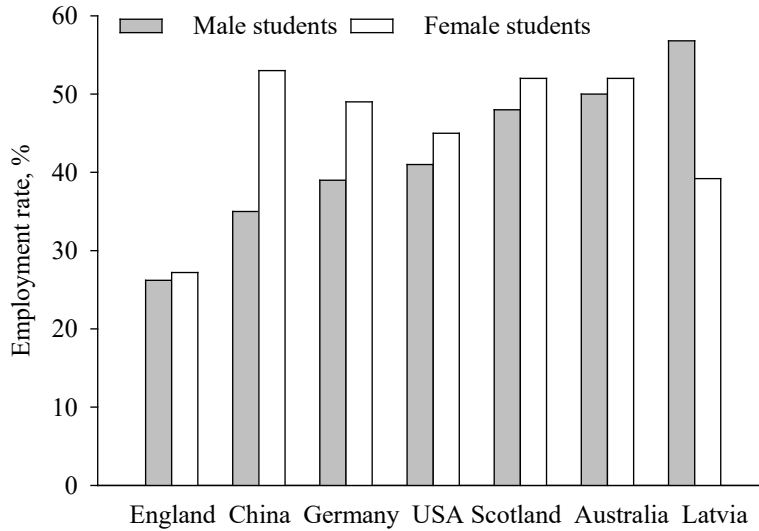


Figure 1. Percentages of male and female students employed during studies. Data obtained from [10-14].

2.2 Ethnicity/Race

Students work regardless their race/ethnicity groups. The ethnicity demography are different in different countries, and the sample size of minority groups sometimes are too small to be representative [15], leading to inconclusive and non-significant results. Based on the data from the U.S. Department of Commerce, in 2015, full-time undergraduate employment for different races are Asian (26%, the lowest), Hispanic (41%), Black (43%) and Two or more races (43%), White (46%), and American Indian/Alaska Native (52%, the highest). In contrast, among part-time undergraduate, the employment ratios for different races are Black (70%), Asian (79%), Hispanic (80%), and White (80%) while no qualified data reported for the American Indian/Alaska Native and Two or more races [1]. A study in UK showed minority students (60%) are more likely to work during term-time compared to white students (53%) [16].

However, minority has statistically significant less probability of term-time employment in China, particularly minority students with higher socio-economic status work significantly less in term-time and in college [17]. In Latvia, ethnic Belarussians, the second largest minority group, has marginally statistically less probability to work compared to ethnic Latvians [10].

2.3 Socio-economic status

Different indicators have been used in literatures to reflect the socio-economic status of working students, including but not limited to family income/parental income [15, 18], independent student income [7], social class [16, 19], socio-economic status scores [17], family support [5],

student loan in force [5], and certain grant/scholarship support [15]. Students work while studying regardless their socio-economic status [7, 20]. But many research has pointed out that low income or financial need is the major incentives for student workers [5, 21, 22]. For example, a random survey from fourth institutes in UK showed that the proportion of students having loans is higher for the working students compared to non-working students (51% vs. 39%) [5]. Studies in Europe shows that students from lower social classes (e.g., routine and manual labor households) are more likely to work than those from higher socio-economic classes [19, 23-25] and work longer hours [26]. Based on the study from Winona State University in the U.S. between 2004 and 2008, average parental income for working students was lower (\$69,670.51) than that of non-working students (\$82,806.00) [18]. The National Postsecondary Student Aid Study (NPSAS) conducted by the U.S. Department of Education (2003-04) illustrated that low-income students worked longer [7] while a study based on eight-year data (2001-2009) from a midsized Midwestern public university in the U.S. confirmed there were significant difference in work hour between low family-income students (M=16.82 h/w, SD=12.42) and higher family-income students (M=15.05 h/w, SD=12.38). However, a study from Canada did not find lower-income students work more hours than higher-income peers [4] and a study in China found family socio-economic status did not show statistically significant influence on the probability of term-working [17].

3. Job characteristics

3.1 Job position

Most students worked in retail or sales industries, and some worked in food and drink stores. A study of 371 students conducted in 2005 in UK [21] showed that 51% of students worked in retail, 30% of students worked in the food and drink industry, while a small number worked in call centers (5%), health care (4%) and universities (such as research assistant or teaching assistants, 2%).

A survey of student workers in different industries in UK supported the aforementioned job distribution. Figure 2 shows that over a third of this sample (806 student workers) were working in retail/sales, a quarter in catering (bars/pubs/restaurants), and 10% in

clerical/administration/office work. Other significant areas of work were care work/nursing/childcare (7%), and call center work (6%).

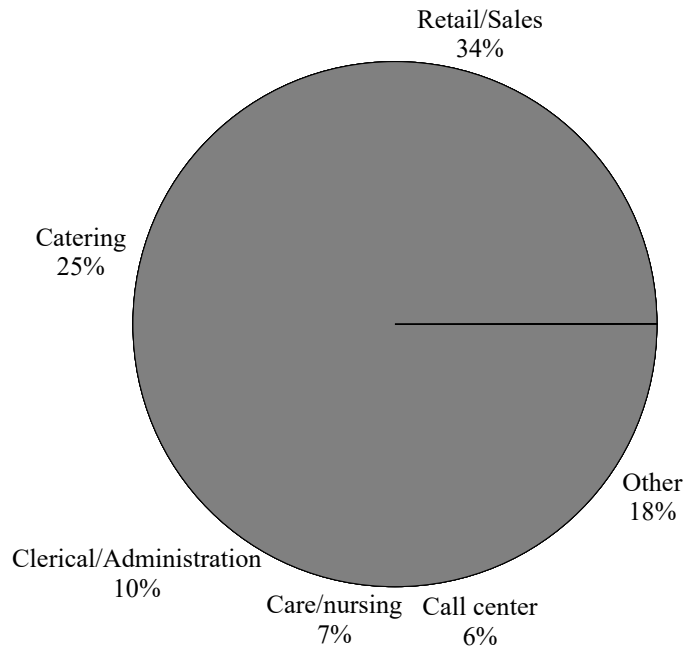


Figure 2. Percentage of student jobs. Adopted from [16].

3.2 Job location

The location of the job, whether on campus or off campus seemed to play a significant role in affecting their academic performance as reported by several studies [27, 28]. On campus employment such as working on research projects and campus services usually allow students to have more contact with faculty members and peers, and apply what they learned in classroom into their jobs; while off campus employment provides fewer opportunities for students to integrate their classroom experiences with their job duties. Another factor that off campus employment may negatively affect academic performance is the work schedule. Students working on retail or sales jobs often take night shifts which may lead to class absences. Table 2 shows that majority of students taking jobs work off campus. The survey conducted by Ho and Huang in Taiwan showed the highest percentage of on campus employment [29].

Table 2. Percentage of jobs located on campus, off campus, or both, %.

On campus	Off campus	Both on and off campus	Ref.
6	94 ^a		[28]
6.8	91.1	2.1	[7]
15 ^a	84 ^a	1 ^a	[27]
21	79		[18]
27 ^a	73 ^a		[29]

Note a: the numbers were calculated from the publication.

3.3 Major relevance

Table 3 summarizes the percentage of students taking major (or credit) related jobs. Students from nursing major shows high tendency in taking major related jobs ($\geq 60\%$, exception: 35% for 1st year nursing student), while ratios based on students from mixed majors varies from less than 1% to 62%. Students working as an assistant in research and private lessons/coaching of pupils are most likely to choose employment relevant to their major (61% and 60%). Students working as an assistant in a firm have the next highest tendency to choose major-related employment (35%), but students only helping out in a firm have the lowest tendency to choose major-related employment (6%) [13]. Paid internship is one typical type of major-related employment. In China, working students from public university has higher internship participation ratios (29.52% - 40.29% for different levels of public universities) compared to private colleges (25.98%), but shorter internship length (2.34 - 3.07 months for public universities vs. 3.24 months for private colleges). The participation ratio and intensiveness of paid internship also varied upon gender, disciplines, regions of universities, numbers of siblings, etc. [11].

Table 3. Ratio of students taking major related jobs

Country	Major	% of major related jobs	Reference
Australia	Nursing	35 (yr 1) 72 (yr 3)	[30]
Australia	Nursing	79	[31]
Ireland	Nursing	60	[32]
UK	Nursing	60	[33]
UK	Mixed	<1	[28]
Germany	Mixed	6-62	[13]
		39 (Year 2005)	
		37 (Year 2008)	
Spain	Mixed	44 (Year 2011) 43 (Year 2014)	[23]
China	Mixed	36.73 (paid internship)	[11]
U.S.	Mixed	14.9	[34]
U.S.	Mixed	5	[35]
U.S.	Mixed	3.1 (Year 2008)	[18]
U.S.	Mixed	16.5	[36]
U.S.	Business	31	[22]

Although researchers have recommended students to take major related employment due to the benefits on career decision making, career attainment, career skill development, and level of professional responsibility attained early in one's career [23, 37-40], some researchers believed only part-time (≤ 15 hrs/wk) major-related employment can be beneficial [10]. A survey conducted in the University of Central Florida in the U.S. in 2004 found that having a major related job showed no statistical significantly positive effect on student academic achievement using GPA as the target parameter [36]. Surveys from Winona State University between 2004 and 2008 [18] and Midwestern State University business college [22] in 2008 in the U.S. confirmed this finding. But when using future job quality as the indicator, students working in a related job while studying showed positive effect compared to a non-related job based on study in Spain [23]. Considering academic marks as a medium-term aspect and further labor market insertion as a long-term aspect, medium-term and long-term effects are not necessarily congruent. In addition, student may choose to focus more on the job than on scores to ensure long-term benefit (better labor market insertion). One study from the U.S. showed that student employed in the major related jobs and career aspiration related jobs are different (14.9% vs. 16.3%) and students in certain occupations (engineering, health care, lab, teaching, and computer) were more inclined to choose employment aligning up with their career interests

compared to those in other occupations (bookkeeping, child care, clerical, delivery, and food service) [34].

4. Effects on academic performance

A variety of factors have been studied and mixed results were reported, mainly determined by respondent characteristics, research method, country, and year of study. Among these studies, some focused on nursing majors, which are dominated by female students and those students usually take closely major related jobs.

4.1 Positive effects

A few studies reported positive effect of employment on student GPA, especially when they take low intensity jobs or work on campus [28, 35]. Tessema et al. [35] reported positive effects on GPA when students did work fewer than 10 hours, and they believe this is because part-time job can help students cover expenses for basic essentials, relieve financial burden of their parents, and offer opportunities for students to gain practical (transferable) skills and learn new knowledge.

Many studies showed that working while studying improve student employability and competitiveness in the labor market [11, 35]. It is generally believed that student employment can improve or help develop particular personal characteristics, including responsibility, work organization, and time management, which could in return enhance school achievements, although most on-the-job training mainly improves non-cognitive skills, which are not measured by standard school exams [41]. This was reported to be advantageous by most nursing students with regards to enhancing confidence and skills [33]. Table 4 showed the students' opinions about the positive outcomes of employment while studying.

Table 4. Positive outcomes of student employment. Adopted from [28].

Positive outcomes	Percentage
Improved my ability to deal with other people	70
Improved my communication skills	69
Increased my self-confidence	69
Helped me to work better as part of a team	58
Helped me to organize my time better	52
Increased my motivation	36
Enabled me to relate more to what I learn	23

In a study carried out by Robison et al., showed that majority (61 percent) of students believed that their work would help them get a job when they finished studying [14]. This overall figure marked a gender difference, with females (64 percent) considerably more likely than males (56 percent) to agree that they worked because it would help them to get a job later. The view that their work would help them get a job later was held more frequently by white collar workers than blue collar workers. It was also significantly more likely to be held by lower and middle achieving students (67 percent agreed with the statement) than by higher achievers (50% agreed).

4.2 Negative effects

One obvious negative effect is that employment reduces the time available for educational activity, and therefore could lead to lower educational achievements. Employment may also impact on students' attitude and commitment towards studying [11]. Attendance in particular has been identified as being affected by employment with approximately 25% of students reporting that it was the principal reason for being absent from college [42, 43]. Poor attendance at lectures related to work may eventually result in student attrition. Working more than 20 hours a week off campus contributes to a higher likelihood that students will drop out of school before receiving a degree. A survey carried out by the Brigham Young University showed that full-time student workers are 10 percent less likely to receive a degree than part-time student workers or those who do not work at all [44]. However, working 20 hours or less per week on campus did not seem to have an effect on the dropout rate compared to students who did not work [44, 45]. It was also found that students who work for primarily financial reasons earn lower grades than students who work for career-specific skills, but higher grades than those students motivated by a desire for general work experience [33, 46]. Faculty, administrators, and staff who advise students on proper time management believed that student employment reflects a lack of commitment to degree [47].

Noticeably, students who work during the studies realize these negative outcomes. A report given by Robotham listed some common negative outcomes identified by students, with the "cut down on leisure/social activities", "done less work/reading", and "felt so tired you cannot concentrate" as the top three negative outcomes, and were selected by 53%, 42%, and 31% of

students, respectively [28]. Besides that, 9% of the respondents picked “work seemed more important”.

4.3 Effects on nursing students

A couple of studies focused on nursing majors which are often dominated by female students (Case 1-4 in Table 6). Nursing students predominantly work in health-related settings such as care assistants, because most of them are either required or highly recommended to have practical experience and the possibility of future employment at the completion of their studies. Therefore, the percentage of nursing students take major related jobs is much higher than other major students. The study in Iceland showed 60% of students took health care related jobs (the percentage of students taking employment was 88.6%) [32], while the study carried out in Australia showed 79% of students taking major related jobs [31].

Although work experience is highly advocated for nursing students, two out of the four studies (as numbered in Appendix A) (Case 3 and 4) reported negative effects on academic performance, while the other two studies (Case 1 and 2) showed mixed results. Salamonson et al. found there was an inverse relationship between average hours in paid work during term-time and nursing students' GPA in their final year, especially for students work for more than 16 hours per week [30]. The study conducted by Rochford et al. also showed that students who worked long hours had negative outcomes in course performance, student's experience of college, and grades achieved. The authors attributed these negative outcomes to the numbers of hours' students are actually working while attending college, not the working experience [32].

4.4 Effects of working hours

Working hour plays an important role in determining the effects of work on academic performance. While many studies listed on Table A1 in Appendix support that working for long hours can be negative on academic performance, there is an argument about whether a threshold exists (Table 5). Tessema et al. found out that the academic impacts can be positive when work occurs less than ten hours per week, but can be negative when work occurs more than ten hours per week [35]. Similarly, Ehrenberg and Sherman concluded that working for less than 25 hours per week tended not to adversely affect their GPA, but working for more than 25 hours per week

would [48]. A few studies reported threshold working hours, ranging from 10 to 25 hours per week. Noticeably, the negative effects were found to be very small in the study that reported the threshold of 10 hours per week.

Table 5. Reported threshold of working hours per week

Threshold working hours per week	Reference
10	[35]
16	[30, 49]
18	[39]
25	[48]

Wenz and Yu evaluated the degree of negative effects that working hours put on academic performance and found out that students' GPA declined by 0.007 points per work hour [18]. The authors also noted that working for course credit didn't significantly impact student GPA.

4.5 Overall impacts

A total of 25 previous studies are summarized as shown in Appendix A1. Most of these studies were carried out in the U.S. and Europe. Many factors such as major, working hours, and job position play a role in determining the effects of paid work on academic performance. Based on the reported findings, the 25 studies are categorized as shown in Figure 3. More than a half (13) of the studies concluded that working while studying has a negative effect on academic performance. One study showed no harm on grades by limited work hours, but students complete fewer credits when increasing work [50]. Five studies reported no significant positive or negative impacts on academic performance. Five studies had mixed results, demonstrating that the impacts of work on academic performance were mainly determined by the working hours. One study showed more positive than negative effects, although the positive effects were mainly shown by increased interpersonal skills [28]. That study reported that 23% students agreed that taking part-time job "enabled me to relate more to what I learn" while 13% students said that "achieved a lower grade".

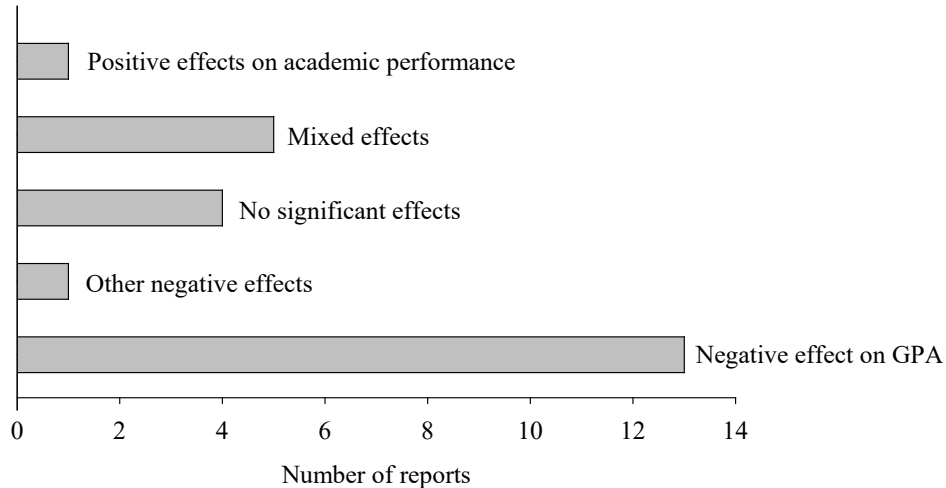


Figure 3. Summary of previous studies on the effects of work on academic performance.

5. Future works

Many other factors besides the working hours may also play a role in determining the effects of working while studying on student academic performance. The following directions are important:

1. Student demographic information such as student age, race, marital status, family income, major, campus residency status, parental educational level (e.g., first generation college student), and prior academic achievements have been collected in the previous surveys [5, 23, 50-53], many of which may moderate the effects of student employment on GPA. Therefore, it is very important to understand the effects of student background on their employment and control potentially endogenous relationships when evaluating effects of student employment on academic performance [50, 54].
2. Studies have shown that off campus jobs negatively affect academic performance and major-related jobs do not positively affect academic performance even benefit future job quality. It is valuable to further explore the employment types that benefit student academic performance, providing guidance to students when selecting part-time jobs. For example, Hsuan-Fu Ho used Analytic Hierarchy Process (AHP) to evaluate the benefits and detriments of different employment and generate a positioning map of determinant factors (from student's perspective for employment selection) and employment types [29].

3. Differences on the policy, culture, and attitudes towards work in different countries can lead to different behavior and motivation for student employment [12], resulting inconclusive findings from different countries. It will be useful to conduct the same survey from different universities from different countries and compare the differences.

6. Conclusions

College students taking paid jobs while studying is common, with a reported percentage range of 27.2 - 97%. Female students are more likely to work than male students in college, but the difference is minor. Nursing students tend to take major related jobs, while other students are not. Retail jobs are among the most commonly chosen jobs. More than a half of previous studies conclude that working during studies has negative effects on academic performance, and only one study reported more positive than negative effects. The number of work hours is critical. A few studies reported threshold working hours of 10-25 hours per week. Positive outcomes of student employment mainly are helping develop personal characteristics, work organization, and time management, which could in return enhance school achievements; while negative outcomes of student employment mainly are the reduced time available for educational activity, lower educational achievements, and possibly resulting school withdrawal.

Geolocation information

This work was done in Normal, Illinois and Raleigh, North Carolina in the USA.

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Appendix

Table A1. Summary of previous studies

Case	Country	Major	# of participants	% of students taking jobs	% of major related jobs	Avg work hrs/week	Academic effects	Ref.
1	UK	Nursing	32		60	N/A	Not significant: Balancing the dual roles of being a student nurse whilst working is not straightforward	[33]
2	Australia	Nursing	67	97	79	15–30+	Mixed: Students work in health settings believe it was strategic for their future careers	[31]
3	Ireland	Nursing	179	88.6	60	16	Negative: Excessive work negatively impacted course outcomes	[32]
4	Australia	Nursing	566 (1 st yr)	70	35	N/A	Negative: Work more than 16 hrs/wk is detrimental to academic performance	[30]
			182 (3 rd yr)	84	72	12.2		
5	Belgium	Mixed	255	N/A	N/A	10.17	Negative: A negative association between hours of work and the percentage of courses passed	[55]
6	China	Mixed	417	64	N/A	15.76	Not significant: # of working hours not correlated with students' academic achievements	[56]
7	China	Mixed	6,977	63	36.73 (paid internship)	23	Negative: Term-time working decreases students' academic performance	[11]
8	UK	Mixed	1,827	67	<1	13	Positive: More positive than negative outcomes	[28]
9	England	Mixed	1,182	53	N/A	N/A	Negative: Negative effect on students working for financial support	[8]
10	Germany	Mixed	3,194	48	6-62	12	Not significant: Not detrimental to academic performance	[13]

11	Latvia	Mixed	~1,000	44	N/A	N/A	Negative: significant negative impact on school performance. Increases with working hours.	[10]
12	Italy	Mixed	1,834	27.2	N/A	11.3 (low) 35.4 (high)	Negative: Negative effects on high-intensity works	[57]
13	Scotland	Mixed	756	50	N/A	14.2	Negative: Working more hours increased the probability of a negative effect on academic performance	[21]
14	Slovenia	Mixed	1,890	N/A	N/A	8.2	Negative: A small adverse impact when work 18+ hrs.	[39]
15	Spain	Mixed	Year 2005	59	39	N/A	Negative: Negative effects on academic performance, but positive effects on labor market, especially if the experience of work is related to the studies	[23]
			Year 2008	59	37	N/A		
			Year 2011	66	44	N/A		
			Year 2014	67	43	N/A		
16	U.S.	Mixed	230	68	N/A	15.64	Mixed. Relevant, and balanced work can be beneficial for academic outcomes.	[58]
17	U.S.	Mixed	288	65	N/A	N/A	Not significant: No direct impact. Quality of the time spent was not measured	[59]
18	U.S.	Mixed	505	65	N/A	9.6-on campus 24.4-off campus	Negative: 30+ hrs/week reduced campus activities, negatively impacted academic progress	[60]
19	U.S.	Mixed	1,282 (4-yr)	46	N/A	10.08	Negative: Increased work hrs negatively affects grades, more on 2-yr students than on 4-yr students.	[61]
			749 (2-yr)	72	N/A	21.86		
20	U.S.	Mixed	535 (2-yr degree) ^a	64	N/A	26.8	Mixed: Working >25 hrs/week adversely affected GPA, <25 hrs/week not adversely affected GPA but reduced the probability of graduating on time.	[48]
			1,735 (4-yr degree) ^a	39	N/A	22.6		

21	U.S.	Mixed	1,438	81	14.9	N/A	Mixed. Major/career related jobs increase job satisfaction.	[34]
22	U.S.	Mixed	3,323 ^b	N/A	N/A	15.9	Other negative effects: No harm on grades by marginal work hours. Students complete fewer credits when increasing work.	[50]
			759 ^c	N/A	N/A	21.9		
23	U.S.	Mixed	5,223	79	5	15.6	Mixed: Positive when work for <10 hrs; Negative when work for >10 hrs.	[35]
24	U.S.	Mixed	6,992	48.6	3	14.42	Negative: Modest negative effects on student grades, with a grade point average (GPA) falling by 0.007 points per work hour.	[18]
25	Germany	Mixed	~10,000	48	N/A	12	Not significant: no evidence that student employment is detrimental to academic performance.	[62]

Note: ^a only 1973 data were used. ^b Full time students only. ^c Part time students only.

