

WORK PARTICIPATION AND ACADEMIC ACHIEVEMENT: THEORETICAL AND PRACTICAL IMPLICATIONS

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ABSTRACT

The vast majority of the previous studies on the effect of student employment on GPA have treated student employment either as a homogeneous or heterogeneous experience. In this study, however, student employment is treated as both homogeneous and heterogeneous experience/category. In doing so, we conducted a number of analyses using correlations matrix, regression, ANOVA, and independent sample t-tests. When student employment is treated as a homogenous category, this study finds that non-working students were found to have 0.061 higher GPA than their counterparts - working students, and when it is treated as heterogeneous, it had a negative effect on GPA ($\beta = -.13$; $R^2 = .017$) after controlling for the confounding effects. In both approaches, we find a statistically significant negative effect of student employment on GPA, although practically very minimal. Moreover, the current study examines the effect of students' background (gender, family income, first generation status, campus residency status, ACT scores and college GPA) on the number of hours worked per week. The findings reveal that except for race, the other five variables (gender, family income, first generation status, campus residency, ACT scores, and college GPA) show a statistically significant difference on the number of hours worked. Both theoretical and practical implications of these findings and future research directions are discussed.

Keywords: Student employment; working hours; academic performance; GPA; higher education.

Introduction

Student employment is not a recent phenomenon, but it has risen sharply in recent years, especially in American colleges and universities. Smith (1937) concluded that about 65 percent of baccalaureate and graduate college students in the 1920s and 1930s held jobs such as selling Fuller brushes and magazine subscriptions, shoveling coal, and providing childcare. Several studies reveal the increasing proportion of students working since the 1960s in most developed countries, including the U.S. (e.g., King 2006; Pascarella and Terenzini 2005; Kalenkoski and Pabilonia 2008), Great Britain (e.g., Bradley 2006; Broadbridge and Swanson 2006; Callender 2008) and Australia (e.g., Hall 2010; James et al. 2007). King's study (2006) shows that about 80 percent of American undergraduates worked while attending college in 2003-2004, and one-third of working students describe themselves as employees who are taking classes.

In the U.S., a federal work-study program helps qualified students cover educational expenses. Additionally, most universities have student employment for students who do not qualify for work-study. As underscored by Pascarella and Terenzini (2005), working while enrolled is perhaps the single most common major activity among America's diverse undergraduate population. It has become common to think of work when it comes to the issues of college life. Callender (2008, 359) concludes that "student employment is likely to remain part of the higher education landscape," with more students increasingly reliant on their wage. Hence, student employment is not uniquely an American issue; it is global in scope.

A number of studies have been conducted to answer questions such as "Why do some college students do better than others? These studies indicate that academic/cognitive and non-academic factors influence college success or academic achievement (GPA) (Noble 2001; Callender 2008; Chee et al. 2005, Russell and Lehman 2008). While considerable research has been conducted to assess factors affecting academic achievement as measured by GPA, previous research has given little attention to the effect of student employment (working hours) on students' academic performance as measured by cumulative GPA. Moreover, the majority of prior studies concerning the impact of college student employment and working hours on GPA either used first-year college GPA's as a success measure (Bleyaert 2010; Paszczyk 1994; Stumpf and Stanley 2002) and were criticized for low validity [for many less outstanding students take many lower level courses during the first year which likely increases their GPA (Stumpf and Stanley, 2002) or used a small sample size. In addition, the most recent studies reveal that students' prior academic achievement (e.g., ACT scores), which could moderate the effect of student employment (working hours) on GPA was not controlled.

The objective of this study is to address the limitations of the past studies mentioned above. Senior students' cumulative GPA (as a measure of college success or academic performance) and a large sample size (N=5223) were used. It should be noted that, although some studies have examined the effect of student employment on academic achievement (GPA), their findings are mixed as will be discussed later (Callender 2008; Wang et al. 2010).

In this research, past academic performance (as well as other students' background) is controlled when assessing the effect of student employment on GPA. Specifically, the effects of students' background (gender, race, parental income, first generation college student, past academic performance as measured by ACT scores, and campus residency) on the number of working hours are examined. The authors believe that, if the majority of college students are working, knowing the effect that student employment (and number of working hours) has on college success (Cumulative GPA) is critical for stakeholders such as students, parents, academic advisors, counselors, faculty and administrative staff.

Literature Review

The number of college students employed in part-time jobs has been increasing. For example, Carroll and Chan-Kopka (1988), based on 1980-84 data, found that one in twelve full-time college students were employed more than full time while attending college, and 25 percent worked less than 20 hours per week. By 2003-04, about 80 percent of American undergraduates worked while attending college (King, 2006). This represents an 8 percent increase compared with the previous decade when 72 percent worked (Cuccaro-Alamin and Choy, 1998). King's (2006) study also reveals that, on average, employed students spend almost 30 hours per week working while enrolled, about one-quarter of full-time students work full time, and one-third of working students describe themselves as employees who also are taking classes. Tuttle, McKinney, and Rago (2005) describe the continual increase in percentage of students working since the 1960s. The above statistics are indicative of the increase in student employment and the corresponding rise in working hours on American campuses (U.S. Dept. of Labor 2011).

Babcock and Marks (2010) report that between 1961 and 2003, the time spent on academics by full-time college students in the United States declined. In 1961, full-time students allocated 40 hours of study per week toward classes compared with about 27 hours per week in 2003. Young (2002) indicates that 12 percent of first-year college students spent 26 or more hours weekly preparing for classes; 63 percent spent 15 or fewer hours on class preparation, and 19 percent spent only one to five hours per week preparing for classes. The report states that seniors reported studying even less than freshmen, with 20 percent studying 1 to 5 hours per week. One of the reasons for this decline in studying hours is an increase in students' engagement in paid work. Most university officials inform incoming students that 2 hours of study will be required for every hour in class to obtain satisfactory grades. However, most students report substantially fewer hours of study outside of the classroom (National Survey of Student Engagement 2000). About 60 percent of full-time college and university students are studying less than 15 hours outside of the classroom each week, and many of those students are not studying at all (ibid.).

Noting these trends, the question is: *Why is the number of college students working increasing or why do students work?* There are many reasons for the increase in student employment. Some of the reasons for more students working are to: earn money for covering basic essentials or related expenses (Callender 2008; Darmody and Smyth 2008; King 2006; Laskowski 2009), relieve the financial burden of parents (Callender 2008; King 2006; Hall 2010), improve the network with managers, employees, and customers (Curtis 2007), gain work experience or practical skills (Callender 2008; Pinto, Parente, and Palmer 2001; Wang et al. 2010), support a particular lifestyle or as a reaction to peer influence (Oi I and Morrison 2005), and to socialize and meet people (Curtis 2007).

Other reasons for students working include: college students not getting as much financial support from their parents due to parent's other financial obligations (Post, 2008), or that grants or loan limits might not fully cover educational costs (Pinto, Parente, and Palmer 2001). About two-thirds of working students state that their primary reason for working is to pay tuition, fees, and living expenses, with upper-income students more likely to work in order to earn spending money or to gain job experience (King 2006). Tuition and fees began to outpace consumer prices in the 1980's with the cost of attending college rising three times faster than median family income. Average tuition and fees at both public and private four-year colleges and universities rose 38 percent in the past decade, and the cost of a public four-year college education increased by 202 percent, while the Consumer Price Index has risen only 80 percent since 1981 (Boehner and McKeon 2003). From the ongoing discussion, it could be argued that financial necessity is one major reason for the increasing propensity for students to work while enrolled in school.

As the financial burden for college-related costs continues to increase for students, the question is: **“Does work affect college success or academic performance (GPA)? Specifically, does having a job while in college impact GPA?** Some studies show *positive effects* of student employment on GPA; students who worked (part-time) were found to have (slightly) higher GPA’s than those who didn’t (Anderson 1981; Astin 1982; Ehrenberg and Sherman 1987; Peng and Fetters 1978; Kalenkoski and Pabilonia 2008; Hammes and Haller 1983; Horn and Berkhold 1998; King 2002; Manthei and Gilmore 2005). Other studies reveal the *negative effects* of student employment on GPA; unemployed students were found to have higher GPA’s than working students (King 2002; Humphery 2006; Hunt, Lincoln, and Walker 2004; Lindsay and Paton-Saltzberg 1994; Pascarella and Terenzini 1991; Tuttle, McKinney, and Rago 2005; Curtis and Shani 2002; Metcalf 2003; Curtis 2007; Callender 2008; Singh 1998). A few other studies found neither positive nor negative effects of work; in this case, part-time student employment had *no effect* on GPA (Cheng 2004; Nonis and Hudson 2006; Wang et al. 2010). Thus, the findings regarding the impact of college students working on GPA are inconclusive.

Positive effects of students working are demonstrated in a recent study by Kalenkoski and Pabilonia (2008). They found that college students working less than 20 hours a week had an average GPA of 3.13, while students who didn’t work had an average GPA of 3.04. This suggests that college students who work one to 20 hours per week do slightly better, on average, than those who do not work at all. However, other researchers (e.g., Hunt, Lincoln, and Walker, 2004) found that non-working students obtained a significantly higher GPA than working students. Barke et al. (2000) found that the average GPA for students who worked was 1.7 percentage points below that of non-working students. Moreover, Humphery’s (2006) study shows a significant reduction in end-of-year average grades for employed students. Lindsay and Paton-Saltzberg (1994) concluded that student employment affects academic performance as follows: first, working students failed on average three times more modules as non-working students; second, working students obtained significantly lower marks; and third, they had poorer degree results. The negative long-term consequences after graduation are supported by Purcell et al.’s (2005) research. Students’ lower academic performance (GPA) led to lower paying jobs after graduation and harmed their careers, especially those from lower social classes.

If student employment results are inconclusive as to their impact on GPA, the question is: **How many hours can college students work without negatively impacting their GPA’s?** According to the threshold model, there is a threshold beyond which negative effects will occur and below which positive effects will result (Warren, LePore, and Mare 2000). The threshold model posits that student employment is harmful only if a student works an excessive number of hours. However, what constitutes excessive hours varies in the existing literature. For instance, some scholars suggest that 20 hours a week could be the threshold beyond which the negative consequences of student employment on academic performance (GPA) are realized (e.g., Cermak and Filkins 2004; Barling, Rogers and Kelloway 1995; Kalenkoski and Pabilonia 2008), while others suggest 10 to 15 hours (e.g., Horn and Berkhold 1998; King 2002; Pascarella and Terenzini 2005; Furr and Elling 2000; Lundberg 2004; Orszag, Orszag, and Whitmore 2001; Pascarella, et al. 1998; Hammes and Haller 1983; Horn and Berkhold 1998; Manthei and Gilmore 2005). According to Kalenkoski and Pabilonia (2008), college students who worked less than 20 hours a week actually earned a higher GPA than those who didn’t work. Other researchers found positive effects of student employment on GPA when students were employed on campus for less than 15 hours (Hammes and Haller 1983; Horn and Berkhold 1998; King 2002; Manthei and Gilmore 2005). Yet, other studies (Astin 1982; Ehrenberg and Sherman 1987; Velez 1985; Cermak and Filkins, 2004) revealed that students who worked less than 20 hours and worked on-campus (usually in the form of a work-study arrangement) had a higher GPA and satisfaction with the institution.

The vast majority of prior studies conclude that the more hours students work, the greater the likelihood of negative effects on GPA. That is, as working hours per week increases (beyond 20 hours a week), GPA decreases (e.g., King and Bannon 2002; King 2006; Furr and Elling 2000; Pascarella and Terenzini 2005). Pascarella and Terenzini (2005) state that analyses of prior U.S. Department of Education data have consistently found that working more than 15 to 20 hours per week has a negative impact on degree completion. Some studies indicate that the number of working hours is negatively associated with school performance and school experience (Chee, Pino, and Smith 2005; Curtis and Shani 2002). However, few studies (e.g., Kalenkoskis and Pabillionia 2008) conclude that there is no evidence that an increase in hours worked negatively impacts student's GPA.

A related question is: *What are the negative effects on GPA from student's working too many hours?* According to Coleman's (1961) zero-sum time-allocation model, time spent on working may lead to reduced time spent on studying, school activities and gathering with family members and friends. Thus, working student's GPA's may be lower than GPA's of students not working. Many researchers have provided explanations for these negative effects, such as students: spending less time on studying (Hall, 2010; Oi I and Morrison 2005; Moreau and Leathwood 2006), missing classes (Curtis and Shani 2002; Curtis, 2007), being late for classes (Lundberg 2004; Metcalf 2003; Curtis 2007), having difficulty concentrating in classes (Curtis and William 2002; Pickering and Watts 2000), making less use of university facilities including libraries and computer labs (Metcalf 2003; Lundberg 2004), and feeling exhausted (Curtis 2007). For instance, according to King (2006), the major impact of work on student's educational experiences is their class schedule (48 percent), number of classes they take (40 percent), class choice (34 percent), and access to facilities (31 percent). Not surprisingly, the likelihood that students experience these limitations increases with the number of hours that they work. Students who work off campus also are more likely to experience these limitations than those who work on campus (Post 2008).

Research Questions

Based on the above discussions and research findings, there is a need to examine the effect of student employment and number of working hours on GPA. In this study, the authors propose the following ten hypotheses:

Main Hypotheses 1 – The effect of students work on Academic Success

H1a: Students who work will more likely have lower GPA's than those who do not work.

H1b: The GPA among students will vary significantly depending on working hours (0, 1-10, 11-20, 21-30 and above 30).

H1c: The number of working hours will negatively impact GPA.

Under what conditions or how could part-time jobs (less than 15-20 hours a week) have a positive effect on college success, which could be measured in terms of GPA, degree completion, academic engagement, and employability? Student employment (lower than 15-20 hours a week) could have a positive impact provided that [i] jobs are relevant to their studies which could help them relate theory to practice and improve their employability after graduation (Callender 2008; Cuccaro-Alamin and Choy 1998; Wang et al. 2010), [ii] jobs offer opportunities for students to develop new skills and learn new knowledge (Curtis 2007; Darmody and Smyth 2008), [iii] jobs improve a student's network with supervisors, colleagues and customers (Cuccaro-Alamin and Choy 1998), [iv] jobs do not affect their motivation to study (Curtis and William 2002), [v] jobs provide opportunity to balance school and work- flexibility and don't require long travel (Hall 2010), [vi] jobs help students develop industrious work habits and skills such as the ability to manage time (King 2006) and [vii] jobs provide an additional dimension to student's social lives - enabling

them to meet and interact with others (Curtis 2007; Hodgson and Spours 2000). Previous studies, however, show that jobs available for students are often menial and undesirable (Watts 2002; Hun et al. 2004; Mortimer et al. 1996). Most of the jobs involve unsocial hours (Curtis and Shani 2002) and are low paying and low skilled (Broadbridge and Swanson 2006). Campus jobs are limited. Cuccaro-Alamin and Choy's study (1998) indicated that most working students (91%) were employed off-campus. The vast majority of college students (88%) work in manual unskilled or low-skilled service sector jobs. Three out of five students are employed in just two occupations: sales and catering, and an additional one quarter work in clerical/administrative jobs (Callender et al. 2003 quoted in Callender 2008). These occupations tend to offer flexible part-time work that students require and the sort of labor employers need (Callender 2008). Hunt, Lincoln, and Walker (2004) concur and conclude that many jobs for college students are in sales and service occupations, jobs that don't require much responsibility. These jobs are generally considered to be low quality jobs.

Effects of Students' Background on Number of Working Hours

College students differ in terms of gender, parental income, past academic performance (e.g., ACT scores), first generation college student in the family, campus residency status, college GPA, and racial or ethnic group. The question is: *Do college students' background or characteristics affect the number of hours they work?*

Most of the time, those employed in part-time jobs tend to come from lower income backgrounds (Callender 2008). Economically disadvantaged students are most likely to work while attending college (Purcell, Elias, Davies, and Walten 2005) and work longer hours (Callender 2008). According to King (2006), dependent students with parental incomes of \$60,000 or more are most likely to work less than twenty hours per week, while independent students from families with incomes of \$25,000 or more are most likely to work 35 or more hours per week. More than half of the students work because their families cannot support them (Curtis, 2007; Callender, 2008). Humphrey (2006) indicates that family financial support is the main predictor of whether or not students will seek employment. Based on the above studies, the following hypothesis is proposed:

H2a: Family income significantly affects the number of student working hours.

First generation college students [students who are the first in their families to attend a higher educational institution with neither parent possessing a Bachelor's degree] are more likely to come from non-white families with low incomes (Nunez and Cuccaro-Alamin 1998; Schmidt 2003; Ayala and Al 2002). Callender's study (2008) indicates that those students already disadvantaged, both materially and educationally, are the most likely to engage in student employment. If students' propensity to work was linked to financial circumstance (Callender 2008), then we speculate that first generation students are more likely to work for more hours than non-first generation college students. Thus, the following two hypotheses:

H2b: First generation college students will work significantly more hours than non-first generation students.

H2c: Non-white college students will work significantly more hours than white college students.

In addition, students with strong past academic performance are likely to do better in school. This is because past performance is a good predictor of future performance (Heneman, Judge, Kammeyer-Mueller 2015). Students with higher ACT scores are more likely to have higher college GPA's than students with lower ACT scores (Chee et al. 2005; Tessema, Ready and Malone 2012). Furthermore, students with higher GPA's are more likely to engage in student employment and work for longer hours than those with lower

GPA's (Callender 2008). Thus, we hypothesize the following:

H2d: There is a significant difference in student working hours when categorized by ACT scores.

H2e: There is a significant difference in student working hours when categorized by college GPA.

College students who live on campus are more likely to spend more time on campus and have more access to university facilities and important resources such as the library, study rooms, or tutorial services, than those who live off campus (Watts 2002; Hun et al. 2004). Therefore, we speculate that those who live off campus are more likely to work than those who live on campus. Thus, the following hypothesis is proposed:

H2f: Students living off campus will work significantly more hours than students living on campus.

Previous studies show that female students were found to have higher college GPAs than males (Chee et al. 2005; Russell and Lehman 2008) mainly due to more self-discipline and focus (Sax and Harper, 2005). A recent study by the U.S. Dept. of Labor shows that the rate of labor force participation was higher for female college students (U.S. Dept. of Labor 2011). Based on the above study, one can argue that female students are more likely to work more hours than male students. Thus, the following hypothesis:

H2g: Female students will work significantly more hours than male students.

Research Methodology

Sampling procedure

The data used in this study were collected from the Institutional Planning, Assessment and Research (IPAR) Office at a midsized, Midwestern public university between 2001 and 2009. In collecting the data, the IPAR Office conducted an electronic survey once a year each spring from senior students with 90 or more credits hours.

Sample size

The dataset used in this study has 5223 respondents. Table 1 reports a selective profile of the sample including response rates. As shown, approximately 30 percent of the respondents were male and 70 percent were female. (At the university, about 40 percent of the students are male and 60 percent are female). Response rates ranged between 25 percent and 59 percent for female respondents and between 18 percent and 45 percent for male respondents during the survey period (2001-2009). Almost 20 percent of the students completed the survey in 2009, which is considerably higher than in previous years. Moreover, the student response rate was the highest in 2006 (response rate 57 percent) and the lowest in 2001 (response rate 23 percent) as shown in Table 1. Table 1 also shows that the data used in this study were collected from the five colleges at the university, namely Business (20.6%), Education (15.2%), Liberal Arts (28.7%), Nursing/Health Sciences (20.9%), and Science/Engineering (14.6%). An analysis of the response sample also shows that response rates in the College of Business ranged between 22.5 and 60 percent, in the College of Education ranged between 23 and 53 percent, in the College of Liberal Arts ranged between 21 and 52 percent, in the College of Nursing/Health Sciences ranged between 14 and 76 percent, and in the College of Science/Engineering ranged between 18 and 61 percent over the course of the survey (2001-2009) (Table 1). The universe (U) profile somewhat mirrored the respondent population (R) for key demographics (gender and college) during the nine survey years (2001-2009).

Instrumentation/Questionnaire

For the purpose of the current study, the following items/variables were collected from the IPAR Office: students working hours per week and cumulative GPA, and other student demographics, such as gender, generation (first or not), family income (low – students whose parents earned less than \$20,000 per year and who applied for student loans or not), campus resident (yes or not), university entrance exam scores (ACT scores), and race. Data regarding the students' ACT scores and college GPA were extracted from the student database at the university and matched to survey responses by the IPAR Office. Researchers were provided with anonymous data. Our findings show that student's worked an average of 15.6 hours per week with an average ACT score of 22.84 (ACT score is a continuous variable that is measured on a 1-36 scale) and possessed a college GPA of 3.29 (GPA is a continuous variable that is measured on a 0.0-4.0 scale). About 70 percent of the respondents were female, about 30 percent were from low income families¹, about 45 percent of them were first-generation college students, and about 51 percent of respondents lived on campus. With regard to race, 92.5 percent of respondents were White, 1.8 percent were African American, 1.8 were Asian American, 1.0 percent were Hispanic, 0.2 percent were American Indian, 0.1 percent were Hawaiian/Pacific Islander and 3.7 percent of respondents represented other International groups.

Table 1: Selected Profile of Sample

Variables		N	%	Response rate %	Av. weekly working hours
Gender	M	1553	30.0	18-45 [‡]	16.17
	F	3670	70.0	25-59	15.33
	Total	5223	100		15.6
Year	2001	261	5.0	23	
	2002	367	7.0	28	
	2003	482	9.2	NA	
	2004	664	12.7	55	
	2005	610	11.7	50	
	2006	635	12.2	57	
	2007	633	12.1	52	
	2008	562	10.8	47	
	2009	1009	19.3	49	
	Total	5223	100		
Colleges	Business	1078	20.6	22.5-60 ^{‡‡}	
	Education	793	15.2	23-53	
	Liberal Arts	1498	28.7	21-52	
	Nursing/Health Sciences	1094	20.9	14-76	
	Science/Engineering	760	14.6	18-61	
	Total	5223	100		

[‡] The highest response rates for the male students was 45% in 2004 and the lowest response rate of 18.5% was reported in 2002; whereas for female students, the highest response rate was 58% recorded in 2006, but in 2001 the response rate was only 25%. ^{‡‡} The highest and lowest response rates for College of Business were recorded in 2007 (60%) and 2001 (22.5%), for College of Education in 2006 (53%) and 23% (2002), for College of Liberal Arts in 2004 (52%) and 2001 (21%), for College of Nursing/Health Sciences in 2006 (76%) and 2001 (14%), for College of Science/Engineering in 2009 (61%) and 2002 (18%), respectively.

¹ In this study, students with low income family refer to students who are eligible and received Pell Grants. Pell Grants are normally awarded to students with a total family income below \$20,000 (Assessment Office, 2014).

Findings

Table 2 reveals the correlation between student employment (working hours) and GPA and the other six students' characteristics, namely gender, family income, race, first generation college student, campus residency status, and ACT scores. As shown in Table 2, the correlation between working hours and the above six variables ranges between $r = .03$ (gender) and $r = -.15$ (campus residency status), which is generally low for senior students. The following four factors were negatively associated with working hours: GPA ($r = -.13$), ACT scores ($r = -.05$), campus residency status ($r = -.15$) and race ($r = -.07$). In addition, the correlation between GPA and the six variables ranges between $r = -.02$ (first generation college students) and $r = .36$ (ACT scores) as shown in Table 2.

Table 2: Correlation Matrix

N	Variables	1	2	3	4	5	6	7	8
1	Working hours								
2	GPA	-.13**							
3	ACT scores	-.05**	.36**						
4	Gender	.03*	-.24**	.04*					
5	Income	.07**	-.10**	-.07**	.05**				
6	First Generation	.07**	-.02	-.12**	-.07**	.15**			
7	Campus residency	-.15**	.03	.07**	-.06**	-.11**	.05**		
8	Race	-.07	.07**	.04*	-.08**	-.06**	-.01	.07**	

Notes: **Correlation is significant at the 0.01 level (2-tailed); N=5223.

Table 3 shows the regression analysis results using undergraduate student cumulative GPA as the dependent variable and working hours (average number of hours worked) as the independent variable. Working hours shows a statistically significant negative impact on students' GPA ($\beta = -.13$) (Table 3, Model 1). The findings show that as hours worked increases, the GPA falls. Thus, hypothesis 1c is supported. In Model 2, in Table 2, when the six characteristics (ACT score, gender, parental income, campus residency status, first generation college student, and race) were added to the model, the R^2 change was .19, which is statistically significant (Table 3). The results show that working hours, ACT scores, gender, parental income and campus status were found to significantly influence GPA. As shown in Model 2, the combined variables explain 22 percent of the variation in student GPA ($R^2 = .22$).

Table 3 (Model 2) also suggests that the ACT score is the most important predictor of college GPA ($\beta = .35$). This finding supports the suggestion made by Heneman, Judge, Kammeyer-Mueller (2015, 261) in that past performance is a good indicator of future performance. Similarly, the GPA of female students will be higher than male students when all other variables are constant. The negative coefficient on low income suggests that students from low income backgrounds are more likely to have lower GPA's when all other variables are constant. Average number of work hours is found to adversely affect student GPA ($\beta = -.14$). Students living on campus are likely to have slightly higher GPA's than their off-campus counterparts.

Table 3: Results of Regression Analyses on Working hours^a

Variables	Model 1	Model 2
GPA	-.13***	-.14***
ACT Scores		.35***
Gender		.25***
Parent income		-0.04***
Lived on Campus		.04***
First generation		.01
Race		.02
R	.13	.47
R ²	.017**	.22
R ² change		.19***

^a Standardized Regression Coefficients are reported; *** $p < .001$; $N = 5223$

In addition to the regression analysis, we also conducted an independent samples t-test to determine the effect of work on GPA. In this case, we divided the students into two groups: working students and non-working students. First, we tested for the assumption of equal variances by using Levene's F-test. The results in the study are reported under the assumption of equal variances. Table 4 reports the average GPA of those who work (mean = 3.29) and those who do not work (mean=3.35). Results of the t-test indicates that there is a significant difference between the GPA of these two groups of students ($t_{4846} = 3.75$, $p < .001$). The small, yet significant, difference between mean GPA also explains the lower R^2 in the regression analysis discussed earlier. It could be argued that although the difference is significant, practically it is minimal. Table 4 indicates that about 79 percent of the respondents were working while studying. The high percentage of students working also reflects the national trend of 80 percent of American undergraduates working while attending college (King 2006).

Table 4: The mean GPA of working and non-working students and t-test result

Status	%	Mean GPA	SD	t-test result		
				t	df	Sig.
Working	79.1	3.286	.45		4846	.000
Non-working	20.9	3.347	.46	3.75		

Next, we examined the effect of student employment (average hours worked) on GPA by grouping college students into 5 categories: those who worked for 0 hours (unemployed), 1- 10 hours, 11-15 hours, 16-20, 21-30, and 31 hours or more. An ANOVA test was conducted to determine if these groups have significantly different GPAs. ANOVA test results showed that students in different workgroups have statistically significant differences in GPA ($F(4, 4846) = 27.167$, $p < 0.001$). Students working 1-10 hours were found to have the highest GPA's averaging 3.39, whereas students working 31 hours or more exhibited the lowest GPA's (3.24). As students worked more hours, average GPA's declined. However, non-working students had a mean GPA of 3.34, slightly lower than students working 1-10 hours. Thus, Hypothesis H1a is rejected.

Table 5: The mean GPA of students with varying working hours and ANOVA test

<i>Number of hours worked</i>	<i>%</i>	<i>Mean GPA</i>	<i>SD</i>	<i>ANOVA test</i>		
				<i>df</i>	<i>F</i>	<i>Sig.</i>
0	20.9	3.34	.45	(4,4846)	27.167	.000
1-10	19.87	3.39	.42			
11-20	31.12	3.28	.45			
21-30	17.13	3.25	.46			
31 and above	10.98	3.24	.50			

Next, we conducted ANOVA tests as shown in Table 6, to determine if there is a significant difference between the numbers of hours worked per week by gender, family income background, campus residency status, first generation student, ACT score, and college GPA. The findings in Table 6 show statistically significant differences in the average hours worked per week by male students ($M=16.17$, $SD=12.82$) and female students ($M=15.33$, $SD=12.23$) ($F(1, 4846) = 1.390$, $p < 0.001$). Students from low income families were also found to work more hours per week ($M=16.82$, $SD=12.42$) than students from higher income families ($M=15.05$, $SD=12.38$) ($F(1, 4873) = 1.781$, $p < 0.001$). Table 5 reports a significant difference in hours worked per week by first generation students ($M=16.50$, $SD=12.60$) than by non-first generation students ($M=14.82$, $SD=12.21$) ($F(1, 4873) = 1.464$, $p < 0.001$). Students who lived on campus were found to work fewer hours per week ($M=13.69$, $SD=11.68$) than those students who lived off campus ($M=17.52$, $SD=12.84$) ($F(1, 4873) = 3.470$, $p < 0.001$). Students who had an ACT score of 23 or higher worked fewer hours ($M=14.22$, $SD=11.73$) than those students who scored less than 23 on their ACT ($M=15.31$, $SD=12.13$) ($F(1, 3558) = 7.442$, $p < 0.001$). Students with GPA's of 3.00 and above were found to work fewer hours ($M=14.78$, $SD=12.19$) than those students with GPA's of less than 3.00 ($M=18.00$, $SD=12.77$) ($F(1, 4846) = 3.56$, $p < 0.001$). Thus, Hypotheses H2a, b and f are supported. Table 6 shows that the vast majority of college students work regardless of gender, family income, first generation status, campus residency status, ACT scores, or college GPA.

Table 6: Effects of students' background on working hours and ANOVA test results

<i>Variable</i>		<i>%</i>	<i>Average hours worked</i>	<i>SD</i>	<i>ANOVA result</i>		
					<i>Df</i>	<i>F</i>	<i>Sig.</i>
Family income	Low	29	16.82	12.42	(1, 4873)	1.781	.000
	High	71	15.05	12.38			
Generation	First	45	16.50	12.60	(1, 4873)	1.464	.015
	Non-first	55	14.82	12.21			
Lived on campus	Yes	51	13.69	11.68	(1, 4873)	3.470	.000
	No	49	17.52	12.84			
ACT scores	23 and above	71	14.22	11.73	(1, 3558)	7.442	.006
	Below 23	29	15.31	12.13			
College GPA	3.00 and above	75	14.78	12.19	(1, 4846)	2.56	.000
	Below 3.00	25	18.00	12.77			
Race	Asian	1.7	16.17	12.30	(5, 4565)	1.081	NS
	Black	.53	20.13	14.85			
	Hawaii/Pac	.11	15.20	15.27			
	Hispanic	1.01	17.7	13.95			
	International	3.40	14.43	8.56			
	White	93.29	15.56	12.40			
Gender	Male	30	16.17	12.82	(1, 4861)	1.390	.032
	Female	70	15.33	12.23			

Discussions

One of the goals of the current study was to examine the impact of student employment (the average number of hours worked per week) on GPA. To that end, we conducted a number of analyses as shown in Tables 2-5. The Correlation Matrix (Table 2) showed that working hours was negatively correlated with GPA ($r=-.13$). Table 3 (regression analysis) revealed that working hours show a statistically significant negative impact in explaining the change in students' GPA ($\beta=-.13$; $R^2=.017$). The size of the effect of student employment on GPA is very small and negative, although statistically significant. Table 4 (t-test result) indicates that the average GPA of those students who do not work was found to be statistically higher than those who do work ($t_{4846}=3.75$, $p<001$). That is, the difference in GPA between the two groups was 0.06. Table 5 (ANOVA test result) also shows a statistically significant difference in GPA's among students with varying working hours per week (0, 1-10, 11-20, 21-30 and above 30).

The vast majority of the previous studies on the effect of student employment on GPA have treated student employment either as a homogeneous or heterogeneous experience. While in the first approach (homogeneous), the GPA of those who did not work (0 hours of employment) is compared with those who did work (1-40 hours of employment). In the second approach (heterogeneous), working hours was treated as a continuous variable (1-40 hours of employment a week). In this study, we have treated student employment as homogeneous with heterogeneous experiences or categories to evaluate the effect of student employment on GPA (Tables 2-5). When student employment is treated as a homogenous category, we find that non-working students were found to have a 0.061 higher GPA than working students, even after controlling for the confounding effects (Table 4). This finding is consistent with Kalenkoski and Pabilonia's (2008) study that showed college students working less than 20 hours had higher GPA's than non-working students. In our study, when student employment is treated as heterogeneous (continuous variable), GPA declines ($\beta=-.13$; $R^2=.017$). This finding is consistent with many previous studies concluding that student employment negatively affects GPA (King 2002; Humphery 2006; Hunt et al. 2004; Tuttle et al. 2005; Curtis and Shani 2002; Metcalf 2003; Curtis 2007). One could argue that in many previous studies, the effect of student employment on GPA could be attributed to whether student employment was treated as a homogeneous or heterogeneous experience.

We examined the impact of student employment (1-40 hours a week) on students' GPA in several ways. First, we compared the GPA's of those who worked (1-40 hours a week) and those who didn't work (0 hours a week) using an independent samples t-test (Table 4). We also compared GPAs of those who worked various hours on GPAs. In doing so, we grouped the respondents into five categories (0 hours or not working, 1-10 hours, 11-20 hours, 21-30 hours and above 30 hours). We then conducted an ANOVA test, and the result showed a significant difference among the five groups (Table 5). For example, Table 5 portrays that students who worked between 1 and 10 hours were found to have the highest GPA ($M=3.39$, $SD=.42$), while students who worked for more than 30 hours a week were found to have the lowest GPA ($M=3.24$, $SD=.50$). Our results also show that those students who worked from 1-10 hours a week had higher GPA's than those who did not work ($M=3.34$, $SD=.45$). This further implies that examining the effect of student employment on GPA by grouping college students as working and non-working may lead to unrealistic conclusions (Table 4). According to our results, student employment impacts GPA positively, when students do work fewer than 10 hours. Thus, student employment may not always be detrimental to academic performance, as measured by GPA. However, when students work for more than 11 hours a week, GPAs were found to decline for each additional category of work, although the change is very small. This finding is consistent with the threshold model. The finding in Table 5 partly contradicts the conclusions drawn from Coleman's zero-sum time-allocation theory that assumes that time spent on working may lead to reduced time spent on studying, which subsequently reduces GPA.

With regard to the effect of students characteristics on the average hours worked per week, our findings show that first generation college students were found to work slightly more hours than non-first generation college students. This finding supports previous studies (e.g., Callender 2008). One possible reason is that first-generation students are more likely to come from families with lower family incomes than non-first generation students (Post, 2008). Additionally, the current prevailing economic situation may have an impact. As predicted, students from low income families were found to work for more hours than students from higher income families (King 2006; Curtis 2007; Callender 2008; Humphrey 2006). College students may not be getting as much support from their parents because their parents have other financial obligations. Grants may not be sufficient and loan limits might not fully cover educational costs (Callender 2008; Curtis 2007; King 2006; Pinto et al. 2001; Purcell et al. 2005).

Students who lived on campus were found to work fewer hours than those who did not. One possible explanation for this is that campus residents may focus more on academic studies due to their proximity to university facilities. In support of our hypotheses, students with higher ACT scores and college GPAs were found to work fewer hours than those students with lower ACT scores and college GPAs. One possible explanation is that non-working students or students working fewer hours have more time to devote to their studies. Finally, for the race variable, African American students were found to work the longest hours, followed by Hispanic students. However, the sample sizes for non-white groups were small, and the results from this analysis were not significant.

Implications of the study

It is argued that, if the vast majority of college students are working, knowing the effect of student employment (and the number of working hours) on academic performance (GPA) is critical for counselors, academic advisors, administrators, students, and parents. The results of our empirical study indicate that student employment had a significant negative effect on GPA, although practically was very minimal. The question is: “*Should college students work?*” Based on our empirical research and considering the cost-benefit analysis of working versus not working, we can reasonably argue that students should work. Our study reveals that student employment has a negative, but very small effect on GPA. Prior studies identified a number of benefits for students working while attending college, (e.g., it helps students cover expenses for basic essentials (Darmody and Smyth 2008; King 2006; Laskowski 2009), relieves financial burden of their parents (King 2006), improves employability after graduation (Callender 2008; Cuccaro-Alamin and Choy 1998; Wang et al. 2010), offers opportunities for students to gain practical (transferable) skills and learn new knowledge (Curtis 2007; King 2006), improves their network with supervisors, colleagues and customers (Cuccaro-Alamin and Choy, 1998), and provides an additional dimension to their social lives (Curtis 2007; Hodgson and Spours 2000). Our results show that GPA’s were actually higher for students working 1-10 hours than the GPA’s of non-working students.

If college students are to work, then a related question is: “*How many hours should they work?*” Our findings (Table 5) reveal that students who worked in the range of 1-10 hours per week were found to have the highest GPA among the five categories of working respondents. However, it could be argued that college students could work more hours each week given a small GPA difference between those who worked 1-10 hours a week and those who worked more hours. Although students could work more hours, there is a need to balance work and study, so that work does not impinge on a student’s educational experiences (Tuttle et al. 2005). It should be pointed out that the above suggestions are general, and counselors, academic advisors, and students need to take into account the unique situation of the student (e.g., cumulative GPA, health issues, degree of discipline, time management, and maturity level) when deciding how many hours to work. For example, if a student does not have a good GPA (e.g., 2.0), is not in

good health, is not well disciplined, or is unable to accommodate both work and study), then working may not be in his/her best interest (King 2002; Pascarella and Terenzini 2005). Further, the GPA's used in the analysis are cumulative GPA's for seniors which may have been impacted by student's decisions in earlier years to work or not-work while attending college.

As previously indicated, student employment has both short-term (e.g., covering some college expenses) and long-term benefits (e.g., enhancing employability after graduation and acquiring transferable skills). Moreover, if graduates are to be competitive in today's labor market, work experience is critical. One way college student's can acquire work experience is by working while attending college. The question is: *"What type of jobs would most benefit students?"* Although it is beyond the scope of the current study, it could be argued that the job should be flexible, provide practical/transferable skills, and be in a location close to the school to reduce travel time. One way to secure this type of work is through a work-study program, a federal program that helps qualified students work on campus. However, work study programs provide only a limited number of job opportunities which may not be supportive of the student's career aspirations. As a result, the vast majority of students (who do not qualify for work-study programs) must seek employment elsewhere.

A related question is: *"What should be the role of colleges and universities to support the student's job search process?"* Universities should support this process by providing a well staffed and funded career services office and by establishing strong partnerships with the surrounding business community. Career services should play an important role in assisting students with part-time jobs through training in resume writing, interviewing skills, and providing access to job vacancies. It should be noted that the satisfaction and success of students (before and after graduation) is also a measure of the institution's effectiveness (Tessema et al. 2012). It could also be argued that, although student employment (previous work experience) cannot guarantee future employment, the absence of previous work experience adversely impacts job opportunities after graduation, especially in a competitive labor market (King 2006).

Conclusions and future research directions

This study concludes that student employment has a significant negative effect on GPA when student employment is treated both as homogeneous and heterogeneous experiences, although the effect is practically very small. This study extends previous research on student employment and GPA relationships by conducting several different analyses and examining the effect of students' background (gender, family income, first generation status, campus residency, ACT scores and college GPA's) on the number of hours worked per week. Empirical testing of ten hypotheses related to student employment issues adds to the literature on "student employment" using a large sample (N=5223). While this study is an important step in understanding the extent to which college student employment affects GPA and the effects of students' background on number of hours worked per week, it also leaves some questions open for future research. First, this study was conducted in only one U.S. mid-sized, state university. That is, this study is based on data derived from a single university, which may not reflect the experiences of a nationally representative sample of students. Hence, in order to generalize and validate the findings of this study, we suggest that a similar study be conducted in other universities both in the U.S. and in other parts of the world. Second, although the sample size is large and conducted over a nine year period, only senior students were surveyed. The results provide guidance for senior college students relative to work experiences, but may not be a realistic guide for students earlier in their college careers. That is, it may not be a good idea for freshman to work at all. Further studies need to examine the robustness of the findings and generalizations with different college population groups. Third, it is beyond the scope of this research to examine reasons why students work (e.g., out of financial necessity, to gain work experience/practical skills, peer influence, networking, support a lifestyle, or socialize and meet people) and how it affects GPA. Hence, future research should attempt to link reasons for working and GPA. Finally, students responding to this survey were predominately Caucasian (92.3%) which may limit the generalizability of the findings. Further research should replicate similar research using races that reflect the national population.

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