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Working (and studying) day and night: Heterogeneous effects of working on the academic performance of full-time and part-time students

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ABSTRACT

A growing number of students are working while in college and to a greater extent. Using nationally representative data from the 1997 National Longitudinal Survey of Youth, I analyze the effect of working on grades and credit completion for undergraduate students in the United States. Strategies to identify the causal relationship between working and academic performance include student-level fixed effects to control for permanent, unobserved characteristics that may affect both work and study intensity, and system GMM models to account for potentially endogenous relationships between working and academic performance that vary over time. I examine the consequences of working for heterogeneous subgroups, with a particular focus on differences between full-time and part-time students. I find no evidence that students' grades are harmed by marginal work hours, but that full-time students complete fewer credits per term when increasing work.

1. Introduction

A growing number of students turn to work in an effort to close the gap between college costs and available financial resources. Over 80 percent of all undergraduate students work while in school and recent students are both more likely to work and work more hours than in the past (Baum, 2010; Scott-Clayton, 2012). Even among "traditional" full-time college students less than 25 years of age, almost half work, with almost one in ten working at least 35 h a week (Perna, 2010). As working increasingly becomes commonplace among postsecondary students, the relationship between working and postsecondary educational outcomes has potentially important implications for the design and implementation of academic, vocational, and work-study programs, as well as for workforce training.

Working while in school can lead to better labor market outcomes for students through the accrual of work experience, professional connections, and the development of soft skills (such as time management, communication skills, and problem-solving) that contribute to academic and professional success (e.g., Light, 2001; Meyer & Wise, 1982; Molitor & Leigh, 2004; Ruhm, 1997). The complementary relationship between employment and academics may encourage colleges, employers, and public and private training providers to better coordinate cooperative training and workforce programs with postsecondary education. These vocational burdens on students, however, may impair academic achievement and experiences by substituting for time spent on studies and extracurricular activities.

In spite of the substantial postsecondary in-school work participation, only a few studies have used empirical approaches that control for potentially endogenous relationships among working and academic performance and there is little extant research examining the effects of working across heterogeneous types of students. In an

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effort to focus on closely comparable students, past research has frequently focused narrowly on samples from one school (e.g., Stinebrickner & Stinebrickner, 2003), while the few national studies have limited scopes (for example, Ehrenberg and Sherman (1987) analyze males who went to school full-time and Kalenkoski and Pabilonia (2010) focused on students in their first academic term). As such, extant research provides little evidence about the effects of working for a key segment of working students: students who attend school part-time. This gap in the literature is notable because part-time students work at higher rates and for more hours than their full-time counterparts, and these students comprise a large (almost 40 percent) and growing proportion of postsecondary students.[1]

Using a nationally representative sample of undergraduate students in the US from the National Longitudinal Survey of Youth 1997 ("NLSY97"), I analyze the effect of working on grades and credit completion across genders, races and ethnicities, and college types (four-year, two-year) for students' full tenure in college. In addition, the study provides some of the first estimates of the distinct effects of variation in work hours on academic performance between full-time and part-time students.

Determining the effects of working on academic performance is difficult, as students may endogenously choose the number of hours to allocate to work and study. Postsecondary academic performance can be correlated with personal background (e.g., Betts and Morell, 1999), such that unobserved personal characteristics, such as motivation or work ethic, may lead to strong academic performance as well as participation in the labor market. These factors could affect both the intensity of work (i.e., the intensive margin) and the decision to work or not (i.e., the extensive margin). To address this, I use student-level fixed effects to identify impacts based on variation in work behavior for each individual. Additionally, I use the system generalized methods-of-moments ("GMM") estimator to account for potentially dynamic relationships between hours worked and academic outcomes with and without instruments for plausibly exogenous determinants of financial resource availability.

I use two measures of academic performance as outcomes in this study: undergraduate students' grade point averages ("GPA") and credits completed. While the direct causal effect of grades on downstream outcomes is difficult to disentangle, college grades are transparently a determinant of admission into graduate schools, and evidence suggests that grades are associated with better labor market success (e.g., Loury & Garman, 1995; Wise, 1975). As well, grades can influence self-esteem and motivation (e.g., Crocker, Karpinski, Quinn, & Chase, 2003), which may affect persistence in school and overall well-being. Furthermore, an examination of credits contributes to the understanding of students' increasing time-to-degree over the last several decades (Bound, Lovenheim, & Turner, 2010). Policymakers have shown growing concern with increasing time-to-degree, with multiple states implementing legislation, initiatives, and studies to address college completion time.[2] Taking longer to complete degrees has macroeconomic implications by lowering the supply of college-educated workers and potentially raising public costs through federal and state subsidies for higher education (Turner, 2004). Taking fewer credits per term, moreover, may result in substantial forgone earnings for students, though these costs may be lesser for workers who are attending school as a secondary activity. Students who take longer to finish their degree also are less likely to graduate or complete their educational programs (Carroll, 1989; O'Toole, Stratton, & Wetzel, 2003).

I do not find harmful effects of marginal work hour increases on student grades in the sample. One reason for this could be a declining amount of time spent studying by students in recent years (e.g., Babcock & Marks, 2011), such that increased working is substituting for non-academic activities instead of study time. I find, however, a negative relationship between work hours and credit completion for full-time students. Therefore, students appear to reduce course loads when increasing work, which may be potentially concerning for policymakers. I find little conclusive evidence of effects of working on part-time students, suggesting that part-time student responses to working are distinct from those of full-time students.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical framework for the study and related literature. Section 3 presents the empirical identification strategy, and Section 4 describes the data. Section 5 discusses findings and Section 6 concludes.

2. Theoretical framework and related literature

Employment during school can have both negative and positive effects on students' academic performance. Since students have fixed time resources, time spent working might substitute for time spent on academic, social, leisure, or extracurricular activities. This can negatively affect academic performance, social integration, or student well-being. For example, time spent working may crowd out time spent studying. Given research demonstrates a positive relationship between study time and GPA (e.g., Stinebrickner & Stinebrickner, 2004, 2008), decreases in study time would be expected to have a negative impact on academic performance. Furthermore, time spent working may hinder students' opportunities to involve themselves in the academic and social community, with such integration believed to promote greater commitment to one's studies at the institution (e.g., Tinto, 1993).

Working, on the other hand, has benefits that could lead to improved academic performance for some students. Occupational activities can complement academic lessons by providing applied context, and work time could

[1] Author's calculations based on Snyder and Dillow (2011) and NLSY97.

[2] For example, "The Rhode Island Bachelor's Degree in Three Program Act" or Ohio's "Seniors to Sophomores" program, as well as initiatives in Connecticut, Texas, Florida, Tennessee, and North Carolina, among other states.