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Should student employment be subsidized? Conditional counterfactuals and the outcomes of work-study participation☆

Judith Scott-Clayton[a,*], Veronica Minaya[b]

[a] Assistant Professor of Economics and Education and Senior Research Associate, Community College Research Center, Teachers College, Columbia University, 525 W. 120th Street, Box 174. New York, NY 10027, USA
[b] Community College Research Center, Teachers College, Columbia University, 525 W. 120th Street, Box 174. New York, NY 10027, USA

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ABSTRACT

Student employment subsidies are one of the largest types of federal employment subsidies, yet little is known about their impact. We provide a framework highlighting the likelihood of heterogeneity in program effects, depending upon whether recipients are marginal or inframarginal workers. We then utilize a matching approach to estimate the effects of the Federal Work-Study program, leveraging the fact that FWS funding varies across institutions for idiosyncratic reasons. Our results suggest that about half of FWS participants would have worked even in the absence of the subsidy; for these students, FWS reduces hours worked and improves academic outcomes, but has little impact on early post-college employment. For students who would not have worked otherwise, the pattern of effects reverses. Overall, the positive effects are strongest for subgroups who are the least likely to have access to the program, suggesting there may be gains to improved targeting of funds.

1. Introduction

Student employment subsidies—also known as work-study programs—are one of the largest types of targeted employment subsidies funded by the federal government and are also one of the oldest policy mechanisms intended to promote college access and persistence for low-income students. Since 1964, the Federal Work-Study (FWS) program has provided approximately $1 billion annually to cover up to 75% of the wages of student employees, who typically work on campus for 10 to 15 h per week (The College Board, 2012; U.S. Department of Education, 2009). Federal Work-Study has an extensive reach, serving nearly 700,000 students per year (for a total of 30 million student-years since its inception), including one out of every 10 full-time first-year undergraduates (and three out of 10 at private nonprofit four-year colleges).[1] Some states and institutions also subsidize student employment.

Despite the durability of student employment subsidies in student aid policy, their economic justification has never been fully articulated, and the presumed impacts of such subsidies are often conflated with the impacts of student employment itself. Prior literature on student employment at both the college and high school level suggests that combining work and school reduces students' academic

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* Corresponding author. Tel.: +1 212 678 3091.
E-mail addresses: Scott-clayton@tc.columbia.edu (J. Scott-Clayton), Vmm2122@tc.columbia.edu (V. Minaya).

[1] Online computation by NCES QuickStats on 8/29/2013 using BPS: 2009 Beginning Postsecondary Students.

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performance (Dadgar, 2012; Kalenkoski & Pabilonia, 2010; Stinebrickner & Stinebrickner, 2003; and Tyler, 2003), even while it may improve later labor market outcomes (Light, 2001; Ruhm, 1997). But knowing whether or not student employment is beneficial is insufficient to infer the effectiveness of student employment subsidies as a policy tool. Indeed, student employment subsidies may be most effective when students' unsubsidized employment options are harmful, because they may enable working students to access jobs with better amenities (or fewer disamentities).

As in other wage subsidy contexts, the employment and (hedonic) wage effects of a student employment subsidy will depend upon the elasticities of labor supply and demand, as well as on the design features of the program (Katz, 1996). In the absence of underlying market imperfections, wage subsidies can generate windfalls to employers (in this case, colleges) and deadweight loss to society and are thus an inefficient means of transferring money to students. However, market imperfections that could justify student employment subsidies include information constraints regarding the value of work experience, structural barriers to employment for low-income and/or minority students, or minimum wage laws that constrain employers' ability to offer the types of part-time, flexible positions most complementary with college enrollment. The effectiveness of such subsidies depends upon the extent to which they increase students' access to productive employment, to what extent it raises their wages or improves the non-wage aspects of employment, and to what extent it simply subsidizes institutional employers to hire students that would have been working in similar jobs anyway.

Despite the scale and longevity of the Federal Work-Study program, scant research has been conducted regarding its impacts. This is surprising given the dramatically increasing prevalence of college student employment over the past 40 years: average weekly hours of work, including zeros, rose from six hours per week in 1970 to 10 hours per week just before the Great Recession (Perna, Cooper, & Li, 2007; Scott-Clayton, 2012). The available rigorous research examining effects of work-study has been limited to single-institution or single-small-state data, and the findings have been inconsistent across studies and across subgroups within studies (DesJardins, Ahlburg, & McCall, 2002; Scott-Clayton, 2011; Stinebrickner & Stinebrickner, 2003). Prior findings have been limited to academic outcomes, despite the fact that potential returns in the labor market are an important motivation for the policy.

We extend the literature in several ways. First, we present a conceptual framework linking work-study programs to the broader wage-subsidy literature, and illustrating how the impact of student employment subsidies operates through two distinct mechanisms. Just as any subsidy may affect both quantity and price, we show how a work-study program may influence both students' likelihood of working, as well as the types of jobs students hold conditional on working (wage and non-wage aspects including hours, location, job content). Some work-study participants who would not have worked may do so because of the program, but other students will replace outside work with a work-study job and may even reduce their overall hours worked as a result. The impacts of work-study participation in these two cases could plausibly go in opposite directions. As a result, not only are program effects likely to be heterogeneous across individuals, but the average effect is unlikely to apply to any individual.

Second, we take advantage of the fact that access to FWS subsidies in the U.S. is somewhat idiosyncratic; far more students qualify than can be offered access, and there are large institutional differences in the availability of funds. Because we can observe both detailed institutional characteristics as well as the student characteristics that institutions likely have when making FWS offers, we argue that propensity-score matching (PSM) provides a plausible estimate of causal effects. Moreover, we utilize PSM in a novel way that enables us to test key implications from the theoretical framework. Our approach, which we call conditional-counterfactual matching, is similar but not identical to the principal stratification (Rubin et al., 2003; Frangakis & Rubin, 2002) and principal score modeling (Hill, Waldfogel, & Brooks-Gunn, 2002; Jo & Stuart, 2009) approaches in the context of randomized experiments. This approach estimates not only the overall impact of participating in work-study, but also the impact under two highly distinct conditional counterfactuals: what would have happened if the participant had worked at an alternative, non-work-study job, and what would have happened if the participant had not worked at all. In each analysis, we perform extensive diagnostics and sensitivity tests to evaluate the plausibility of the selection-on-observables assumption, the quality of matches, and the robustness of our findings to alternative specifications. While unobservable selection cannot be definitively ruled out, our key findings are reasonably robust to analyses that place bounds on unobservable bias (Becker & Caliendo, 2007; Oster, 2014).

Finally, this study provides estimates of the effect of Federal Work-Study participation for a much broader range of participants and outcomes than have been considered by the prior literature. We utilize two waves of the nationally representative Beginning Postsecondary Student (BPS) survey to look at the effects of work-study participation not only on first-year grade point average (GPA), but also on number of months enrolled, bachelor's degree completion, employment, and earnings six years after college entry. This breadth of analysis is particularly valuable because our theoretical framework implies heterogeneous impacts depending upon the context, the counterfactual and the type of outcome (academic versus labor market). Thus, our broad examination provides a critical complement to the more localized estimates that may be obtained from experimental or quasi-experimental designs.

We find that six years after entering college, Federal Work-Study participants are 3.2 percentage points more likely to earn a BA and 2.4 percentage points more likely to be employed after finishing school than similar non-participants ($p < 0.05$ in both cases). But these overall impacts mask important patterns of heterogeneity. Less than half of work-study participants are induced into employment; a slight majority are students who would have worked in their first year anyway. For these students, participation appears to have positive academic impacts, but no future employment impacts. In contrast, compared against not working at all, participation appears to have null or negative effects on academics but a positive ef-