

What's in a Job? Evaluating the Effect of Private Sector Employment Experience on Student Academic Outcomes

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American educational and employment systems perpetuate inequities that routinely disadvantage young people who are Black, Latino or Hispanic, or low-income—gaps that have only been exacerbated by the pandemic (Ross et al 2020). Over the past several decades, city leaders have sought to address these gaps through publicly-funded Summer Youth Employment Programs (SYEP) that aim to provide meaningful employment experiences for youth that lead to a career or some type of postsecondary education (Boston Mayor's Office of Workforce Development, 2017). Yet publicly-funded SYEPs experience large funding swings from year to year, are often oversubscribed, and have little private sector employer involvement with youth

typically assigned by lottery to entry-level jobs with community based organizations or city departments (Ross et. al. 2020). Although SYEPs have consistently strong impacts on reducing crime (Heller 2014; Gelber, Isen, and Kessler 2016; Modestino 2019), the evidence on academic outcomes is mixed, with improvements in some high school outcomes such as attendance (Leos-Urbell 2014), test taking (Schwartz et al 2021), and graduation rates (Modestino and Paulsen 2022) but no increase in college test prep or enrollment (Gelber, Isen and Kessler 2016).

Greater engagement of private sector firms could be one way to scale-up summer jobs programs while also providing early employment experiences that have more consistent impacts on academic outcomes. We study a unique program offered by the Boston Private Industry Council (PIC) that brokers internships with over 150 private sector firms to place roughly 1,300 youth in high quality, paid work experiences. In addition to covering youth wages, private sector internships expose students to a greater variety of occupations in industries such as healthcare, finance, real

estate, insurance, and life sciences compared to jobs sponsored by publicly-funded SYEPs (Boston Private Industry Council 2015).¹

However, it is not clear that private sector employment enhances student outcomes. Many internships lack the classroom alignment, career readiness, and socio-emotional curriculum provided by SYEPs. For example, one internship program for out-of-school youth showed initially positive impacts that faded quickly (Skemer et al 2017). Another program improved high school graduation rates and college enrollment among males, but only as part of a larger job training program (Theodos et al 2017).

I. Empirical Strategy and Data Sources

Like many studies in this literature, we use a quasi-experimental design since randomly assigning youth to jobs would undermine the credibility of the PIC brokering process which is essential to maintaining private sector engagement. Without randomization, students who are placed in a private sector internship by the PIC likely differ across both observable and unobservable characteristics that affect both their decision to apply as well as their likelihood of being chosen by an employer. To explore and address this selection bias, we

make use of administrative school records provided by the Massachusetts Department of Elementary and Secondary Education (DESE). These data include information on all public-school students in the state such as attendance, course grades, test scores, dropout status, and high school graduation. DESE merges these data with records from the National Student Clearinghouse which provides information on SAT scores and college enrollment. During summer 2015, the PIC placed 1,301 students in internships across 155 private sector firms. Of these, 726 students were in grades 8 through 11 during the school year prior to the program and of these, 722 students were matched to the DESE data.

Comparing the PIC participants and the BPS student population reveals that PIC participants were older with a greater share of students in grades 11 or 12, in part because employers tend to select more experienced students. Yet PIC participants were no more advantaged than the general BPS population with a greater proportion who were non-white, low-income, or male— characteristics that are less correlated with attending college (Autor and Wasserman 2013). Nonetheless, PIC participants had higher attendance rates than the general BPS population prior to participating in the program, suggesting higher levels of school engagement that would

¹ See the online appendix for more details about the PIC program.

positively affect both the student's decision to apply and their likelihood of being selected by an employer, in addition to their post-program outcomes.²

Given that PIC participants are positively selected relative to other BPS students, using OLS would produce estimates of the program's impact that are biased upward. To address this selection issue, we apply two empirical strategies. For outcomes that can be measured repeatedly over time, such as attendance and course failures, we generate fixed effects estimates using equation (1):

$$(1) \quad Y_{it} = \alpha_i + \beta_1(T_i * post_t) + \varepsilon_{it}$$

where Y_{it} is the outcome variable, T_i is the treatment indicator for students placed in a private sector internship by the PIC, and $post_t$ is an indicator equal to 1 for the post-program academic year (2015-16) and 0 otherwise. The student fixed effect is captured by α_i . Standard errors are robust and clustered at the student level. The coefficient of interest (β_1) captures the change in the outcome over time for PIC participants relative to other BPS students.

Despite its strengths, the fixed effects model poses two disadvantages for this study. First, we cannot use this approach for policy-

relevant outcomes that are not observed repeatedly over time such as high school graduation and college enrollment. Second, the fixed effects model cannot control for time-varying characteristics which could be important when studying changes in outcomes for youth during their transition to adulthood.

To address these shortcomings, we also make use of a matching model that generates a comparison group of BPS students to provide a plausible counterfactual. Our preferred model generates matches by minimizing the distance between a vector of covariates for PIC participants and other BPS students using a Mahalanobis Distance Measure (MDM).³ We match on observable characteristics such as gender, grade, race, English proficiency, socioeconomic status and the school each student attended prior to the program. We also match on pre-program attendance to proxy for unobservable characteristics such as school engagement. Our matching model significantly reduces the difference in means between the PIC participants and the MDM generated comparison group, and eliminates it entirely for the pre-program outcomes and key demographic characteristics.⁴

² See Table A2 in the appendix which compares the pre-program baseline characteristics for PIC participants and BPS students.

³ See the appendix for more details on the MDM matching model and how it compares to other matching techniques.

⁴ See Table A3 for the mean difference in pre-program characteristics between PIC participants and the comparison group.

Once the unmatched units are pruned, we estimate the effect of private sector internships on academic outcomes using equation (2):

$$(2) Y_i = \beta_0 + \beta_2(T_i * w_i) + \gamma X_i + \rho S_i + \varepsilon_i$$

where Y_i is the outcome variable, T_i is the treatment indicator, and w_i is the MDM matching weight assigned to individual i . We also include a school fixed effect S_i as well as a vector of demographic controls, X_i . For outcomes measured repeatedly over time, we use the fixed effects model to bound our matching estimates as a way to validate the model. We then apply our matching technique to estimate the program’s impact on outcomes for which we cannot use a fixed effects approach such as on-time high school graduation and post-secondary enrollment.

II. Program Impacts on Academic Outcomes

During the school year after participating in the program, PIC participants showed positive impacts on attendance and course performance (see Table 1). The OLS estimates suggest that students participating in a PIC brokered private sector internship during the summer of 2015 attended six additional school days compared to other BPS students, in part due to having two fewer truant days. However, the

MDM matching model reduces the post-program improvements in attendance by two-thirds to a gain of only two additional days, which is similar in magnitude to the impact of publicly-funded SYEPs using an experimental design (Leos-Urbel 2014; Modestino and Paulsen 2021). The MDM estimates are consistent with the FE estimates but are slightly smaller in magnitude, perhaps because the FE model cannot control for factors that change over time (Allison 2009). Finally, both the MDM and FE estimates indicate that PIC students are less likely to fail a course after participating in the program. Overall, it appears that our matching model generates plausible estimates that are similar in magnitude, direction, and significance to the FE model, possibly due to the rich set of characteristics that we are able to match on.

Table 1—Impacts on Attendance and Course Failures

	Coefficient on Participant Dummy		
	OLS	MDM	FE
Total days attended	6.148 (0.773)	2.272 (0.811)	3.696 (0.750)
Total days truant	-1.840 (0.489)	-1.100 (0.648)	-1.184 (0.477)
Percent failing a course	-0.070 (0.025)	-0.037 (0.015)	-0.057 (0.017)
PIC participants	722	722	722
Comparison youth	17,549	2,690	17,549
Total	18,271	3,412	18,271

Notes: Each coefficient is from a separate regression of the outcome listed including control variables. Standard errors are in parentheses

Source: Authors’ calculations based on MA DESE school records.

We next turn to outcomes for which there are no pre-program observations such as standardized test taking. Table 2 shows no improvement in the share of students taking the state’s standardized test used to determine high school graduation (MCAS). However, there is a 6.8 percentage point increase in the share of students deemed “proficient” that is consistent with experimental studies of publicly-funded SYEPs that find significant improvements in passing statewide exams (Schwartz et al. 2021).

Table 2—Program Impacts on Standardized Test-Taking

	Coefficient on Participant Dummy	
	OLS	MDM
Percent taking MCAS exam	0.023 (0.012)	0.004 (0.005)
Percent scoring proficient or better		
Math	0.081 (0.031)	0.068 (0.023)
ELA	0.082 (0.026)	0.066 (0.021)
Percent taking SAT exam	0.048 (0.007)	0.041 (0.013)
Overall SAT raw score	25.130 (10.410)	17.270 (12.220)
PIC youth	722	722
BPS youth	17,549	2,690
Total	18,271	3,412

Notes: Each coefficient is from a separate regression of the outcome listed including control variables. Test scores are conditional on taking the exam post-program. Standard errors are in parentheses

Source: Authors’ calculations based on MA DESE school records.

Table 2 also shows that PIC participants were also 4.1 percentage points more likely to take

the SAT than the MDM comparison group, although there was no significant difference in test scores.

Table 3 shows that PIC participants were 5.4 percentage points more likely to graduate from high school on-time relative to the MDM comparison group. This was accompanied by a small decrease of roughly one percentage point in the likelihood of dropping out during the school year after having a private sector internship, suggesting that the PIC program produces high school outcomes that are similar in magnitude to the publicly-funded Boston SYEP (Modestino and Paulsen 2022).

Table 3—Impacts on High School and Post-Secondary Outcomes

	Coefficient on Participant Dummy	
	OLS3	MDM
High school outcomes		
Graduated on time	0.121 (0.020)	0.054 (0.014)
Dropped out one year post-program	-0.050 (0.017)	-0.008 (0.003)
Post-secondary outcomes		
Enrolled at any point	0.070 (0.013)	0.061 (0.029)
Enrolled in a two-year institution	-0.043 (0.019)	-0.029 (0.011)
Enrolled in a four-year institution	0.105 (0.025)	0.081 (0.011)
PIC youth	722	722
BPS youth	17,549	2,690
Total	18,271	3,412

Notes: Each coefficient is from a separate regression of the outcome listed including control variables. Standard errors are in parentheses

Source: Authors’ calculations based on MA DESE school records.

Finally, being better prepared for college, whether through engagement with adult mentors or through exposure to careers, may boost enrollment in postsecondary education. Our matching model shows that PIC participants were 6.1 percentage points more likely to enroll in any post-secondary institution relative to the MDM comparison group (see Table 3). There was also a change in the type of institution with PIC participants shifting from 2-year to a 4-year institutions, consistent with increasing aspirations after participating in a private sector internship.

III. Discussion

Our results suggest that private sector employers have an important role to play in the “ecosystem” of summer jobs to support experiences that help prepare youth for both educational and career pathways into adulthood. Participating in a PIC-brokered private sector internship appears to have impacts on attendance, course performance, and high school graduation that are similar in magnitude to publicly funded SYEPs, but also exhibits a positive effect on college enrollment (Gelber, Isen, and Kessler 2016). More research is needed to determine whether these differential impacts are associated with greater exposure to careers and/or different mentors through the PIC program.

There are several important caveats to these findings. First, the lack of an experimental design hinders our ability to control for selection into private sector placements on both sides of the job match. Generating experimental evidence on private sector youth employment should become a priority.

Second, not all groups of students are affected similarly by their private sector experiences. Subgroup estimates show that PIC participants who attend traditional BPS schools experience a bigger boost in college enrollment than those attending the city’s prestigious exam schools. This suggests the program’s impacts may stem from connecting less advantaged students to occupations and industries that require post-secondary education. Yet ELL students who participated in the PIC program were slightly less likely to graduate from high school on time compared to those who were English proficient. This is consistent with emerging research that private sector summer employment can slow down high school graduation for some groups of students (Heller and Kessler, 2022).

Overall, these results suggest that the type of job may be an important factor as cities continue to shift the emphasis of summer job programs towards employment experiences that prepare youth for both educational and career pathways into adulthood.

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