Appendix Materials

A. Analytical Dataset

During the summer of 2022, youth could apply to the SuccessLink program between March 18th and June 19th and could be selected for a position through June 24th. Youth applied for each job separately through the City's hiring platform and all youth-job applications were tracked by the Office of Youth Employment and Opportunity (OYEO) in their daily recruiting report. This report provides a daily snapshot of the status of each job application that the youth submitted corresponding to the application flow illustrated in Figure A1 below:

- Incomplete: If the youth did not complete the job application, then they were recorded as such and sent an automated message to encourage them to return to the hiring portal and finish it. A nonnegligible portion of applications were incomplete or invalid. See section B for an analysis of application behavior.
- Initial DNQ: If the youth did not answer one or more of the screening questions correctly indicating that did not meet the eligibility criteria they were flagged as potential "do not qualify." For example, youth might enter the wrong year for their birthdate which would result in an age that was either younger than 14 or older than 24, potentially disqualifying them from the program. OYEO staff contacted these youth to verify the correct information and update the youth's status if they qualified.
- Does Not Qualify (DNQ): If OYEO verified that the youth entered the correct information but they were not eligible, then they would be assigned this status.
- Applied: If the youth completed the application, then they received a confirmation and their application was visible to the employer on the hiring platform with a status of applied for each particular position.
- Onboarding (Selected): If the youth was selected for the position, then they were sent an email notifying them to complete the paperwork needed to be hired onto the City's payroll. They were assigned this status for the particular position they were selected for while they completed the paperwork. Hundreds of youth were observed to be "stuck in onboarding" and did not complete the hiring paperwork despite having been selected for a job.

- Hired: If the youth completed the hiring paperwork, then they were ready to start work and were assigned a status of hired for this particular position.
- Self-Withdrew (Portal): If the youth chose to withdraw their application before being selected by the employer (e.g., they had already accepted another job offer), then they were assigned this status for that particular position. Only a handful of youth chose to withdraw their applications.
- Self-Withdrew (Recruiter): If the youth notified the recruiter that they withdrew their application (e.g., they turned down the employer's offer), then they were assigned this status for that particular position. A total of 43 youth-applications which were self-withdrawn had been placed into onboarding.

Our analytical data set was created by appending these daily recruiting reports provided by OYEO between May 19th and end August 10th where each row is a job application (whether complete or incomplete). The information in each row includes each youth's profile information which contains their personally identifying information (name, date of birth, address, phone number, and email), basic demographics (gender, race/ethnicity, language spoken at home, and school name), and work readiness (prior participation in the program, open-ended response for why they wanted a job, and a resume if they chose to upload one). For each job application, we also observe the employer's name, the status of the application (e.g., incomplete, do not quality, applied, onboarding (selected), hired, self-withdrew), and timestamps corresponding to each status for that day's recruiting report. We use the employer's name to merge in data from OEYO's daily requisition report which includes information such as the number of openings, the industry and occupation, and a brief job description for each position.

The daily recruiting snapshots have a few irregularities which required processing prior to analysis. First, when a youth created a profile within the City's hiring portal, they were assigned a unique system ID that identified each youth throughout the application and hiring process. Among the youth-job records in the recruiting report, 2.67 percent of youth had created more than one system ID by using more than one email address (either accidentally or intentionally). For youth with duplicate IDs where the profile has the same first name, last name, and date of birth (N=200), we reassigned their records to have one unique ID. For youth where the profiles had identical first and last name, but one had a valid birth date and the other was missing birth

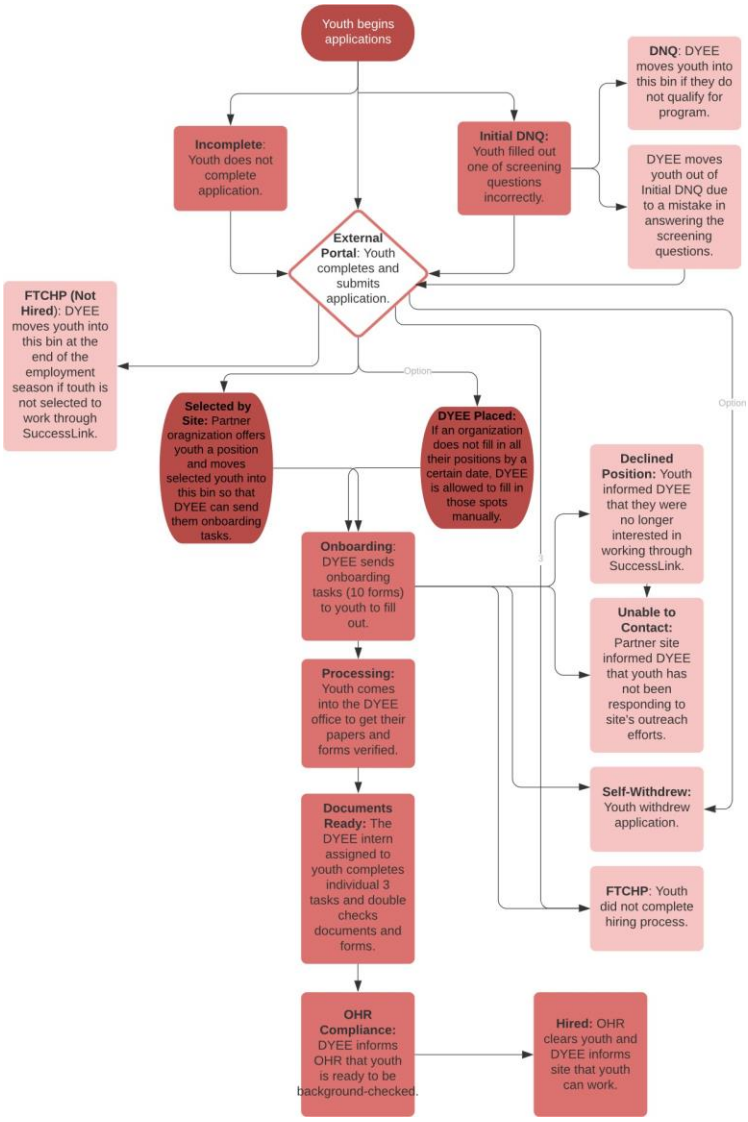
date information (N=164), we kept the profile with the valid birth date field. Finally, for youth where first name and last name matched but the birth date varied, we identified duplicate observations by matching non-missing middle name, address, and email address (N=29).

Second, some youth applied to the same job multiple times, either intentionally or accidentally. Of these, some youth had received the same status for that job within the same recruiting snapshot (e.g., identical system ID, first and last name, job posting title, and status). For these cases, we kept only one of the duplicate observations. There were also a handful of youth who applied to the same job multiple times but received a different status within the same recruiting snapshot (e.g., identical system ID, first and last name, and job posting title but different status). For these cases, we kept the observation with the higher status in that recruiting snapshot (e.g., hired over applicant).

Third, there were also some youth who applied to SuccessLink because they wanted to continue working with the same employer during the summer that had employed them during the school year. We identified these youth in two ways. First, there were a handful of youth-job observations with the status "School Year Participant" (N=6). Second, there are approximately 300 youth who applied to a job posting titled "Summer 2022 Continuing Candidates" which was created as a means to onboard youth who were continuing employment with a year-round employer partner. In the paper we categorize both these groups as School Year Participants and treat these youth as having been selected by an employer since the employer had allowed them to continue working in the same position during the summer.

Using the rich data collected through the recruiting snapshots, our final analytical dataset allows us to construct variables capturing the total number of applications a youth submitted, the date of a youth's earliest application (e.g., when a youth first entered the application system), and the competitiveness of the position they applied to (e.g., the ratio of total youth applications to total openings for a given position). We also constructed variables measuring the youth's characteristics in terms of basic demographics (e.g., age, gender, race/ethnicity, language spoken at home), school type (e.g., regular public school, prestigious exam public school, parochial or private school), and work readiness (e.g., prior participation in the program, length and Flesch readability score for the open- ended question which asked youth "why do they want to participate in the SYEP this summer").

Figure A1: Job Application Flow



Source: Authors' illustration based on information from the City of Boston's Office of Youth Employment and Opportunity.

B. Youth Application Behavior

Submitting a valid job application may pose a barrier for youth with roughly one-third failing to submit a valid application. During the 2022 summer job cycle, we observed 5,488 unique SuccessLink profiles created by youth prior to the employer selection deadline of June 2nd. Of those users, 66.8 percent (N=3,762) successfully submitted at least one job application, while

approximately 33.2 percent (N=1,726) never completed a valid job application, (i.e. their assigned system ID only received an 'Incomplete', 'Initial DNQ', or 'Did Not Qualify (DNQ)' status). Table B1 contains the average age, racial composition, and gender composition for users who have at least one valid job application and those who only have invalid job applications. However, it is difficult to assess which youth characteristics may be correlated with not completing an application due to the large amount of missing data (hence the incompleteness). For youth who have at least one valid application, only less than one percent (N=30) are missing date of birth, gender, or race/ethnicity. Among youth who do not complete at least one valid application, 75.9 percent (N=1,141) youth are missing that basic demographic information. Slightly more than half of youth without at least one valid application (55 percent) did not enter their street address and nearly all (95 percent) did not enter their social security number. As a result, we focus our analysis exclusively on youth who have submitted at least one valid job application.

Youth also vary in terms of when they apply to the program and this behavior differs in terms of key demographic traits. To explore this further, tables A2 through A6 report descriptive statistics for youth applicants by their earliest application date for each month (e.g., March through July). Later applicants are significantly more likely to be older, Black, and female. They are also less likely to speak English as their first language, to be enrolled in school at all or attend a prestigious exam school, or to have previously participated in the SuccessLink program.

Finally, youth vary in terms of which jobs they choose to apply for. Figure A2 shows that youth tend to apply to the same employer and that the concentration of applications among few employers also varies considerably by race. In particular, Black and Hispanic youth are more likely than White and Asian youth to apply to the same employer, suggesting that they may lack information on the wide variety of positions that are available beyond their neighborhood (e.g.,YMCA) or other popular sites they may have visited before (e.g., New England Aquarium).

Table A1: Comparison of Descriptive Statistics for Youth with No Valid Job Applications versus Youth with at Least One Valid Job Application

	No Valid Job Application Mean/Num. Obs	At Least One Valid Application Mean/Num. Obs.	Diff in Means/ Std.Err. of Diff	p-value Diff in Means
Age	17.78	16.71	1.064	0.0000
	434	3,727	(0.076)	
Black African American	0.47	0.44	0.027	0.2061
	636	3,761	(0.021)	
White	0.17	0.15	0.021	0.1777
	636	3,761	(0.015)	
Hispanic or Latino	0.21	0.23	-0.014	0.4251
	636	3,761	(0.018)	
Asian	0.06	0.09	-0.034	0.0043
	636	3,761	(0.012)	
Other Race	0.10	0.09	0.001	0.9372
	636	3,761	(0.013)	
Missing Race	0.63	0.00	0.631	0.0000
	1,726	3,762	(0.008)	
Missing Birth Date	0.75	0.01	0.739	0.0000
	1,726	3,762	(0.007)	
Female	0.57	0.49	0.087	0.0000
	636	3,761	(0.021)	
Male	0.41	0.50	-0.098	0.0000
	636	3,761	(0.021)	
Missing Gender	0.63	0.00	0.631	0.0000
	1,726	3,762	(0.008)	
Observations	1,726	3,762	5,488	

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Note: Column 1 reports means for youth who only submitted applications that were incomplete or did not qualify. Column 2 reports means for youth who submitted at least one valid job application. Column 3 reports the differences in the reported means. Column 4 contains the p-value from a two-sampled t-test. The 'other race' category includes American Indian or Alaska Native, Native Hawaiian or Pacific Islander, two or more races, or opt out of reporting race.

Table A2: Descriptive Statistics for Youth who Applied in March 2022

	Mean	Std. Dev.	Count
Age	16.6	1.129	1,032
Black or African American	0.40	0.490	1,038
White	0.20	0.399	1,038
Hispanic or Latino	0.22	0.415	1,038
Asian	0.087	0.282	1,038
Other Race	0.092	0.290	1,038
Female	0.48	0.500	1,038
Fluent in Another Language	0.31	0.463	1,036
First Language English	0.87	0.338	1,036
Attends Exam School	0.24	0.427	972
Prior Summer Participant	0.33	0.471	1,038
Number of Applications	3.67	4.482	1,038
Avg. # of Other Applications Per Slot	6.82	4.570	1,038
Avg. Why Work Question Character Length	317.9	286.0	901
Avg. Why Work Question Flesch Score	69.5	15.55	901
Employer Selected	0.70	0.460	1,038
NU Algorithm Selected	0.082	0.274	1,038
Selected by OYEO	0.16	0.363	1,038

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A3: Descriptive Statistics for Youth who Applied in April 2022

	Mean	Std. Dev.	Count
Age	16.6	1.088	1,341
Black or African American	0.44	0.497	1,351
White	0.15	0.358	1,351
Hispanic or Latino	0.22	0.413	1,351
Asian	0.11	0.309	1,351
Other Race	0.080	0.271	1,351
Female	0.45	0.498	1,351
Fluent in Another Language	0.32	0.468	1,349
First Language English	0.84	0.364	1,349
Attends Exam School	0.26	0.437	1,271
Previous Summer Participant	0.26	0.441	1,351
Number of Applications	3.03	3.504	1,351
Avg. # of Other Applications Per Slot	6.51	3.762	1,351
Avg. Why Work Question Character Length	318.7	286.3	1,187
Avg. Why Work Question Flesch Score	66.9	38.16	1,187
Employer Selected	0.65	0.478	1,351
NU Algorithm Selected	0.088	0.284	1,351
Selected by OYEO	0.17	0.379	1,351

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A4: Descriptive Statistics for Youth who Applied in May 2022

	Mean	Std. Dev.	Count
Age	16.6	1.536	855
Black or African American	0.47	0.499	866
White	0.10	0.304	866
Hispanic or Latino	0.26	0.440	866
Asian	0.075	0.264	866
Other Race	0.091	0.288	867
Female	0.51	0.500	866
Fluent in Another Language	0.35	0.478	829
First Language English	0.81	0.392	829
Attends Exam School	0.18	0.381	772
Prior Summer Participant	0.19	0.392	867
Number of Applications	2.73	3.397	867
Avg. # of Other Applications Per Slot	5.94	3.742	867
Avg. Why Work Question Character Length	266.8	253.2	730
Avg. Why Work Question Flesch Score	69.0	21.70	730
Employer Selected	0.54	0.499	867
NU Algorithm Selected	0.093	0.291	867
Selected by OYEO	0.19	0.391	867

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A5: Descriptive Statistics for Youth who Applied in June 2022

	Mean	Std. Dev.	Count
Age	16.3	1.360	611
Black or African American	0.57	0.496	623
White	0.074	0.262	623
Hispanic or Latino	0.22	0.416	623
Asian	0.055	0.227	623
Other Race	0.082	0.274	623
Female	0.46	0.499	623
Fluent in Another Language	0.33	0.470	617
First Language English	0.86	0.345	617
Attends Exam School	0.15	0.356	553
Prior Summer Participant	0.14	0.352	623
Number of Applications	0.11	0.718	623
Avg. # of Other Applications Per Slot	5.69	3.722	623
Avg. Why Work Question Character Length	244.7	229.0	526
Avg. Why Work Question Flesch Score	68.9	16.50	526
Employer selected	0.29	0.453	623
NU Algorithm Selected	0.026	0.158	623
Selected by OYEO	0.31	0.463	623

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A6: Descriptive Statistics for Youth who Applied in July 2022

	Mean	Std. Dev.	Count
Age	16.2	1.384	276
Black or African American	0.58	0.495	281
White	0.096	0.295	281
Hispanic or Latino	0.19	0.389	281
Asian	0.032	0.176	281
Other Race	0.11	0.313	282
Female	0.52	0.501	281
Fluent in Another Language	0.24	0.429	277
First Language English	0.90	0.307	277
Attends Exam School	0.16	0.367	256
Prior Summer Participant	0.13	0.334	282
Number of Applications	0	0	282
Avg. # of Other Applications Per Slot	4.91	3.432	282
Avg. Why Work Question Character Length	249.4	263.4	238
Avg. Why Work Question Flesch Score	70.2	16.46	238
Employer Selected	0.21	0.405	282
NU Algorithm Selected	0	0	282
Selected by OYEO	0.21	0.405	282

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

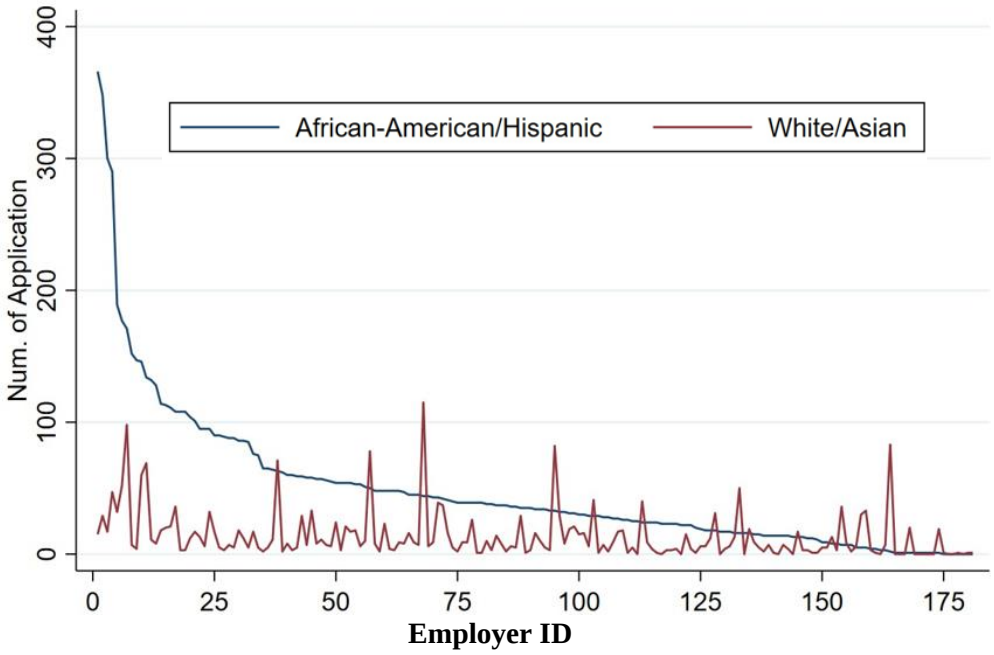
Table A7: Relationship between Youth Characteristics and Number of Applications Submitted – Poisson Specification

	(1)	(2)	(3)	(4)	(5)
Age 15	-0.16***	-0.16***	-0.16***	-0.16***	-0.17***
	(-3.88)	(-3.84)	(-3.93)	(-3.94)	(-4.19)
Age 16	-0.26***	-0.26***	-0.27***	-0.25***	-0.25***
	(-6.24)	(-6.21)	(-6.37)	(-5.80)	(-5.85)
Age 17	-0.42***	-0.42***	-0.43***	-0.40***	-0.40***
	(-9.55)	(-9.48)	(-9.57)	(-8.78)	(-8.84)
Age 18	-0.47***	-0.46***	-0.47***	-0.43***	-0.45***
	(-9.82)	(-9.74)	(-9.83)	(-8.88)	(-9.11)
Age 19	-0.72***	-0.58***	-0.58***	-0.54***	-0.51***
	(-6.30)	(-4.92)	(-4.96)	(-4.62)	(-4.26)
Age 20 or Older	-0.81***	-0.54***	-0.54***	-0.50***	-0.49***
	(-6.89)	(-4.12)	(-4.09)	(-3.75)	(-3.60)
Missing Birth Date	0.26***	0.30***	0.28***	0.29***	0.26***
	(2.89)	(3.31)	(3.16)	(3.20)	(2.91)
African American	0.39***	0.40***	0.43***	0.43***	0.43***
	(12.48)	(12.56)	(13.18)	(12.95)	(11.59)
Hispanic or Latino	0.33***	0.35***	0.38***	0.37***	0.38***
	(9.40)	(9.38)	(10.04)	(9.75)	(9.17)
Asian	0.23***	0.25***	0.23***	0.22***	0.27***
	(5.37)	(5.53)	(4.97)	(4.81)	(5.59)
Other Race	0.49***	0.49***	0.51***	0.51***	0.52***
	(11.84)	(11.84)	(12.24)	(12.21)	(11.86)
Female	0.13***	0.13***	0.13***	0.13***	0.13***
	(6.85)	(6.80)	(6.50)	(6.56)	(6.49)
Continuing Candidate	0.02	0.02	0.03	0.05	0.04
	(0.37)	(0.49)	(0.50)	(0.90)	(0.77)
Fluent in Another Language		-0.03	-0.03	-0.03	-0.02
		(-1.30)	(-1.36)	(-1.37)	(-0.90)
Enrolled in School		0.23*	0.22	0.23	0.19
		(1.65)	(1.57)	(1.63)	(1.34)
Attends Exam School			0.11***	0.11***	0.09***
			(4.17)	(4.19)	(3.48)
Previously Participated				-0.08***	-0.08***
				(-3.27)	(-3.16)
Observations	3762	3762	3762	3762	3762
Zip Code Controls	No	No	No	No	Yes

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Note: White, male, and work question Flesch Score - below grade level are omitted categorical variables. The 'Other Race' category includes American Indian or Alaska Native, Native Hawaiian or Pacific Islander, two or more races, or opt out of reporting race. Although not reported here, we also include controls a set of dummy variables for missing data on the application for each of the demographic characteristics (columns 1-5), school enrollment status and school name (columns 2-5), and previous SYEP participation (columns 3-5). Column (5) also includes a set of dummy variables for youth ZIP code. Standard errors are reported in parentheses. Statistical significance is indicated at the following levels: *p<0.10, **p<0.05, ***p<0.01.

Figure A2: Distribution of Applications by Race



Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.
Notes: Number of total applications per employer across all possible job openings (not applications per opening).

C. Employer Site Selection

Employers were asked to select youth for jobs by June 2nd so we categorize a youth as "selected by employer" based on the timestamp of when the youth's status changed from 'Applied' to 'Onboarding.' Of the 5,488 valid youth applicants, 3,762 youth applied before the June 2nd cut-off date for which they could be observed by an employer. Of these 3,762 youth, over two-thirds (66 percent) were selected by an employer.

Table A7 compares the descriptive statistics for youth who were selected versus not selected by an employer. In terms of demographic characteristics, youth who were selected by an employer were on average older, white, male, attended an exam school, and also indicated that they had previously participated in the OYEO program. In contrast, youth who were Black, Hispanic, or fluent in another language and/or did not have English as their first

language were less likely to be selected by an employer.

In terms of labor market dynamics, youth who showed greater job readiness, as measured by the number of submitted job applications and week of earliest job application submitted, were more likely to be selected by an employer. Furthermore, youth who apply to less competitive jobs, as measured by the average number of applications per slot, were more likely to be selected. Although youth selected by an employer were less likely to have answered the open-ended "Why Work" question on the application, this is likely due to applicants who had a pre-existing relationship with the employer. That said, among youth who answered the open-ended question, those with longer text responses and higher readability scores were more likely to get selected by an employer. We test whether these characteristics account for the racial disparities in both selection and hiring using a regression framework. Table A8 shows that the OLS results in the paper are robust to using a Logit specification.

Table A8: Relationship between Youth Characteristics and Likelihood of being Selected by an Employer – Logit Specification

	(1)	(2)	(3)	(4)	(5)	(6)
Age 15	0.16	0.15	0.13	0.12	0.37**	0.40**
	(0.93)	(0.87)	(0.77)	(0.72)	(2.08)	(2.18)
Age 16	0.35**	0.35**	0.31*	0.17	0.55***	0.62***
	(2.08)	(2.04)	(1.85)	(1.01)	(3.02)	(3.27)
Age 17	0.40**	0.40**	0.37**	0.18	0.58***	0.68***
	(2.29)	(2.26)	(2.10)	(0.99)	(3.08)	(3.42)
Age 18	0.50***	0.48***	0.46**	0.22	0.65***	0.69***
	(2.68)	(2.59)	(2.46)	(1.17)	(3.25)	(3.27)
Age 19	1.89***	1.43***	1.42***	1.12**	1.54***	1.80***
	(3.99)	(2.88)	(2.85)	(2.22)	(2.63)	(2.95)
Age 20 or Older	2.13***	1.08**	1.09**	0.79	1.18*	1.58**
	(4.46)	(2.00)	(2.00)	(1.43)	(1.95)	(2.37)
Female	-0.02	-0.01	-0.03	-0.04	0.03	0.05
	(-0.22)	(-0.10)	(-0.41)	(-0.52)	(0.32)	(0.56)
Black or African American	-0.85***	-0.85***	-0.76***	-0.73***	-0.71***	-0.62***
	(-5.91)	(-5.85)	(-5.15)	(-4.91)	(-4.55)	(-3.80)
Hispanic or Latino	-0.97***	-1.00***	-0.91***	-0.86***	-0.80***	-0.60***
	(-6.45)	(-6.25)	(-5.61)	(-5.29)	(-4.70)	(-3.41)
Asian	-1.00***	-1.03***	-1.16***	-1.13***	-1.13***	-0.98***
	(-5.54)	(-5.41)	(-5.94)	(-5.79)	(-5.52)	(-4.62)
Other Race	-0.38**	-0.35*	-0.30	-0.32*	-0.35*	-0.27
	(-2.08)	(-1.95)	(-1.63)	(-1.72)	(-1.81)	(-1.35)
Fluent in Another Language		0.01	0.01	0.01	0.01	-0.00
		(0.14)	(0.13)	(0.13)	(0.12)	(-0.02)
Enrolled in School		0.98**	0.87*	0.78*	0.58	0.40
		(2.18)	(1.91)	(1.72)	(1.17)	(0.77)
Attends Exam School			0.38***	0.38***	0.40***	0.39***
			(3.32)	(3.37)	(3.32)	(3.12)
Prior Summer Participant				0.56***	0.57***	0.42***
				(5.56)	(5.33)	(3.75)
Number of Applications					0.16***	0.16***
					(10.59)	(10.26)
Avg. # of Other Applications Per Slot					-0.08***	-0.07***
					(-11.88)	(-10.99)
Avg. Why Work Question Character Length						0.00**
						(2.48)
Avg. Why Work Question Flesch Score						0.00
						(0.20)
Observations	3723	3723	3723	3723	3723	3723

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Note: The sample conditions on those who submitted at least one complete and valid job application prior to the June 15th cut-off date. The dependent variable is equal to one if the youth was selected for employment by at least one partner site and is equal to zero otherwise. Omitted categorical variable is aged fourteen or youth, white, and male. The 'other race' category includes American Indian or Alaska Native, Native Hawaiian or Pacific Islander, two or more races, or opt out of reporting race. Although not reported here, we include the following as controls in the regression: a dummy variable indicating if the youth reported their birth date (columns 1-6), a dummy variable for whether or not the youth reported their gender and race (columns 1-6), a dummy variable if the youth chose to opt out of reporting their gender (columns 1-6), a dummy variable indicating if the youth recorded being fluent in a secondary language (columns 2-6), a dummy variable indicating if the youth recorded enrollment status (columns 2-6), a dummy variable indicating if the youth recorded their school name (columns 3-6), a dummy variable indicating if the youth recorded previous SYEP status (columns 4-6), a set of dummy variables for earliest application date (columns 1-6), and a dummy variable indicating if the youth completed the open-ended text question (column 6). Statistical significance indicated at the *p<0.10, **p<0.05, ***p<0.01 levels.

D. Job Matching Algorithm

One drawback of the job matching algorithm that we were able to implement with OYEO is that it maximizes youth-job matches in a very simple way. Specifically, the algorithm fills undersubscribed jobs first and then runs lotteries within oversubscribed jobs starting with the positions with the most remaining openings. To test how efficient our algorithm was at filling jobs, we retroactively applied the Ford–Fulkerson algorithm and compared our results. The Ford–Fulkerson algorithm finds the maximum number of "matches" between youths and job slots (or flow network). For this exercise, we consider all youth who submitted at least one job application and were not hired by June 15th.

We completed a direct one-to-one comparison between the job matching pilot algorithm and the Ford-Fulkerson algorithm. For this comparison, we considered the same set of available youth and job slots which were used by the pilot algorithm in the June 2nd snapshot. To compute the number of job opening edges within the graph, we compute the number of openings still available for each employer by taking their total allocation of openings and subtracting the number of youth hired by June 2nd. There were a total of 350 remaining openings available and 661 unplaced youth. The Ford–Fulkerson algorithm made 256 youth-job matches while the pilot algorithm made 309 matches. Thus, our simple job matching pilot was slightly more efficient than the Ford–Fulkerson algorithm.

We also compared the descriptive statistics of the youth applicants selected by the Ford-Fulkerson and the job matching pilot using a two-sample t-test. Table A9 shows that the Ford-Fulkerson selected younger, less Black or African American, more White, more other race, and less youth who indicated they were fluent in another language. Recall that the pilot algorithm took into account the race and language fluency of youth applicants and gave priority to those who were underrepresented within the pool of employer-selected youth. As such, the results of racial and language-fluency differences across algorithms should be expected. Overall, our simple job matching pilot appeared to enhance equity to a greater degree than the Ford–Fulkerson algorithm.

Table A9: Comparison of Ford–Fulkerson Algorithm versus Job Matching Algorithm

	Ford-Fulkerson Algorithm Selected Mean	Job Matching Algorithm Selected Mean	Difference	p-value
Black or African American	0.44	0.60	0.162	0.000
Hispanic or Latino	0.28	0.24	0.039	0.304
White	0.09	0.02	0.069	0.001
Asian	0.09	0.07	0.012	0.600
Other Race	0.10	0.06	0.042	0.072
Age	16.52	16.84	0.315	0.003
Female	0.55	0.52	0.024	0.576
Fluent in Another Language	0.34	0.44	0.102	0.015
First Language English	0.83	0.85	0.025	0.437
Attends Exam School	0.20	0.19	0.009	0.792
Missing School Name	0.07	0.09	0.017	0.475
Prior Summer Participant	0.22	0.28	0.058	0.117
Number of Applications	4.19	4.44	0.255	0.458
Avg Num of Other Apps Per Slot	10.17	9.84	0.330	0.667
Earliest App Submitted in March	0.25	0.25	0.001	0.973
Earliest App Submitted in April	0.38	0.40	0.021	0.616
Earliest App Submitted in May	0.34	0.31	0.028	0.495
Earliest App Submitted in June	0.03	0.03	0.001	0.959
Avg Work Question Length	285.42	302.23	16.805	0.500
Avg Work Question Flesch Score	68.94	66.31	2.632	0.333

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A10: Comparing the Distributional Impacts of SuccessLink Alternative Placement Mechanisms

	(1) Employer	(2) NU Algorithm	(3) We Hire Event	(4) NU Algorithm + We Hire Event	(5) Total Selected	(6) Total Applicants	(7) Total Selected – Total Applicants	(8) *p-value*
Black or African American	0.42	0.51	0.63	0.54	0.43	0.44	-0.121	0.0000
	(0.493)	(0.500)	(0.486)	(0.499)	(0.496)	(0.496)	(0.023)	
Hispanic or Latino	0.21	0.23	0.19	0.22	0.21	0.23	-0.013	0.4895
	(0.404)	(0.420)	(0.392)	(0.414)	(0.407)	(0.419)	(0.019)	
White	0.18	0.093	0.047	0.083	0.17	0.15	0.099	0.0000
	(0.386)	(0.291)	(0.212)	(0.277)	(0.375)	(0.355)	(0.018)	
Asian	0.091	0.093	0.047	0.083	0.089	0.091	0.007	0.5924
	(0.287)	(0.291)	(0.212)	(0.277)	(0.285)	(0.288)	(0.014)	
Other Race	0.11	0.071	0.094	0.078	0.098	0.095	0.028	0.0498
	(0.308)	(0.258)	(0.293)	(0.268)	(0.298)	(0.293)	(0.014)	
Age	16.8	16.8	16.3	16.7	16.8	16.7	0.176	0.0068
	(1.392)	(1.185)	(1.228)	(1.210)	(1.372)	(1.366)	(0.065)	
Female	0.48	0.49	0.47	0.49	0.48	0.49	-0.006	0.8110
	(0.500)	(0.501)	(0.501)	(0.500)	(0.500)	(0.500)	(0.024)	
Attends Exam School	0.26	0.23	0.20	0.23	0.25	0.23	0.030	0.1656
	(0.437)	(0.422)	(0.402)	(0.420)	(0.434)	(0.420)	(0.022)	
Fluent in Another Language	0.31	0.34	0.30	0.33	0.31	0.33	-0.019	0.3932
	(0.462)	(0.474)	(0.459)	(0.470)	(0.464)	(0.469)	(0.022)	
Number of Applications	3.34	4.33	5.65	4.62	3.37	3.04	-1.278	0.0000
	(4.191)	(3.604)	(6.364)	(4.442)	(4.101)	(3.744)	(0.201)	
Avg Num. of Other Apps Per Slot	6.65	9.54	9.66	9.55	7.07	8.92	-2.899	0.0000
	(7.163)	(8.999)	(7.307)	(8.678)	(7.565)	(12.32)	(0.354)	
Earliest App Submitted in March	0.31	0.28	0.25	0.27	0.29	0.28	0.036	0.0972
	(0.462)	(0.449)	(0.434)	(0.445)	(0.455)	(0.447)	(0.022)	
Earliest App Submitted in April	0.36	0.41	0.32	0.39	0.36	0.36	-0.034	0.1369
	(0.479)	(0.493)	(0.467)	(0.489)	(0.481)	(0.479)	(0.023)	
Earliest App Submitted in May	0.19	0.26	0.24	0.25	0.21	0.23	-0.060	0.0018
	(0.395)	(0.439)	(0.429)	(0.435)	(0.405)	(0.420)	(0.019)	
Earliest App Submitted in June	0.14	0.048	0.19	0.083	0.14	0.14	0.058	0.0003
	(0.348)	(0.213)	(0.397)	(0.276)	(0.342)	(0.346)	(0.016)	
Completed Work Question	0.81	0.86	0.93	0.88	0.82	0.83	-0.070	0.0001
	(0.392)	(0.345)	(0.256)	(0.325)	(0.384)	(0.372)	(0.018)	
Avg Work Question Length	333.7	327.1	284.1	318.4	329.3	308.4	15.300	0.3036
	(289.1)	(313.1)	(274.9)	(305.3)	(291.7)	(280.4)	(14.871)	
Avg Work Question Flesch Score	67.9	66.2	70.4	67.2	67.8	68.3	0.726	0.6299
	(29.48)	(33.53)	(13.49)	(30.04)	(30.20)	(27.57)	(1.506)	
Observations	2,495	420	129	541	2,884	3,762		

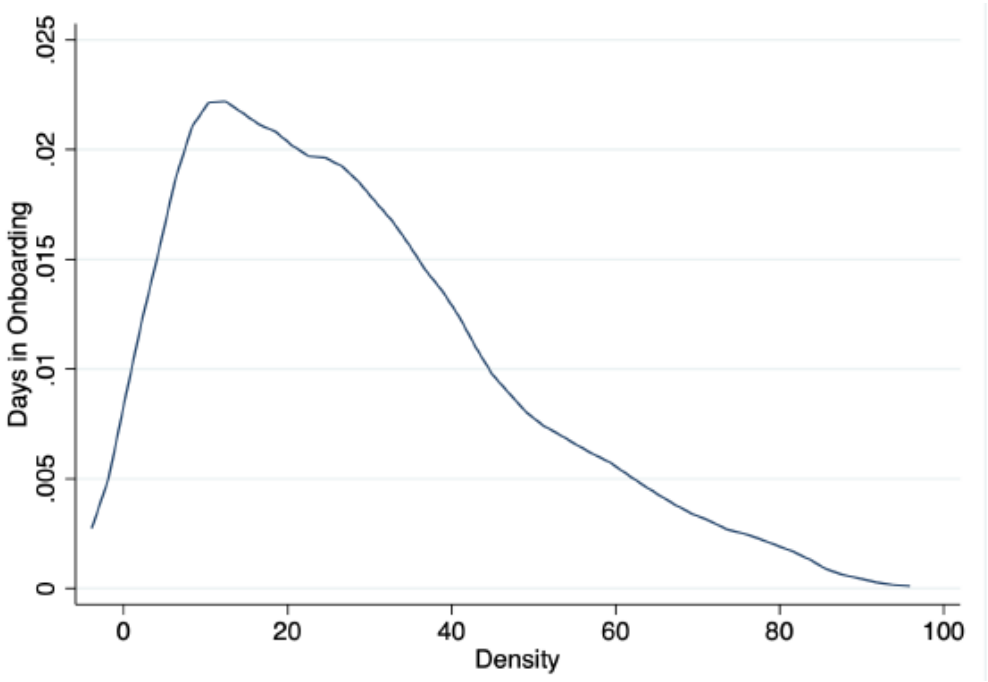
Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

E. Onboarding Barriers

We code youth as being selected if we ever observe that they have a status of 'Onboarding' and code youth as being hired if we ever observe that they have a status of 'Hired.' This includes youth who were selected and/or hired and later self-withdrew from the position. Figure A3 presents the distribution of number of days a youth spent in the onboarding status. Youth took on average 25 days to complete onboarding with a standard deviation of 19 days. Table A11 compares the characteristics of youth who reached the

onboarding status but did versus did reach a status of hired. Not surprisingly, these youth were often Black and Hispanic or fluent on another language. Table A12 shows that the disparity in hiring non-white youth persists even when controlling for the lower likelihood of the groups making it through the onboarding process.

Figure A3: Distribution of Days Youth Spent in Onboarding Status for a Job



Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Table A11: Comparing Characteristics of Youth who were Hired versus Youth who Failed to Make it through the Onboarding Process (Not Hired)

	Not Hired Mean/Num. Obs.	Hired Mean/Num. Obs.	Diff in Means/ Std.Err. of Diff	p-value
Black or African American	0.49	0.41	0.080	0.0001
	812	2,071	(0.020)	
Hispanic or Latino	0.29	0.18	0.107	0.0000
	812	2,071	(0.017)	
White	0.08	0.20	-0.122	0.0000
	812	2,071	(0.015)	
Asian	0.08	0.10	-0.020	0.0907
	812	2,071	(0.012)	
Other Race	0.07	0.11	-0.044	0.0003
	812	2,071	(0.012)	
Age	16.68	16.87	-0.192	0.0008
	801	2,062	(0.057)	
Female	0.53	0.46	0.065	0.0015
	812	2,071	(0.021)	
Fluent in Another Language	0.39	0.28	0.103	0.0000
	809	1,968	(0.019)	
First Language English	0.80	0.87	-0.069	0.0000
	809	1,968	(0.015)	
Attends Exam School	0.20	0.27	-0.070	0.0002
	744	1,866	(0.019)	
Prior Summer Participant	0.21	0.33	-0.123	0.0000
	813	2,071	(0.019)	
Continuing Candidate	0.00	0.18	-0.174	0.0000
	813	2,071	(0.013)	
Number of Applications	3.99	3.12	0.873	0.0000
	813	2,071	(0.169)	
Avg Num. of Other Apps Per Slot	8.53	6.49	2.041	0.0000
	813	2,071	(0.311)	
Earliest App Submitted in March	0.30	0.29	0.011	0.5540
	813	2,071	(0.019)	
Earliest App Submitted in April	0.41	0.35	0.065	0.0012
	813	2,071	(0.020)	
Earliest App Submitted in May	0.24	0.19	0.046	0.0058
	813	2,071	(0.017)	
Earliest App Submitted in June	0.05	0.17	-0.122	0.0000
	813	2,071	(0.014)	
Avg Work Question Length	304.21	340.05	-35.843	0.0061
	710	1,662	(13.062)	
Avg Work Question Flesch Score	67.68	67.84	-0.153	0.9098
	710	1,662	(1.354)	
Observations	813	2,071		

Source: Authors' calculations based on data from the City of Boston's Office of Youth Employment and Opportunity.

Notes: Column 1 reports means for youth who were selected by an employer-partner but never made it to the "Hired" status. Column 2 reports means for youth who were selected by an employer successfully reached the "Hired" status. Column 3 reports the difference in the means. Column 4 contains the p-value from a two-sampled t-test of the difference in means.