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ABSTRACT

We examine the effect of attending stand-alone technical high schools on the industry of employment and within industry earnings premiums using a regression discontinuity design. We study the universe of students that applied to the Connecticut Technical Education and Career System (CTECS) between 2006 and 2011. CTECS admission shifts male applicants towards higher paying industries that align with CTECS programs of study, but has a much more modest impact on the industry of employment for female applicants. Further, key industry effects observed for females shift these applicants towards lower paying industries. Surprisingly, overall industry earnings premiums and treatment effects of CTECS on earnings premiums are similar for female applicants in traditionally male dominated industries like manufacturing and construction. However, female representation in these industries is too small to contribute substantially to female earnings in aggregate. For male applicants, mechanism analyses show that treatment effects in manufacturing and construction depend in part on work experience while in high school and as a young adult. Alternatively, in professional and office support industries, treatment effects on earnings arise through selection of students with high 8th grade tests scores into these industries because they offer a higher direct return to cognitive skills.

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A data appendix is available at http://www.nber.org/data-appendix/w30408

I. Introduction

Career and Technical Education (CTE) improves labor market opportunities by providing hands-on training, practical skills and early integration into high paying industries (Jacob, 2017; Cullen et al., 2013). Over time, many high paying manufacturing industries (those involving routine tasks) have seen significant reductions in labor demand (Autor, Levy and Murnane 2003; Acemoglu and Autor 2011). In turn, these declining labor market opportunities have led to declining labor force participation among non-college going, prime-age males (Abraham and Kearney 2018; Aguiar, Bils, Charles, and Hurst 2021; Autor 2019; Austin, Glaeser, and Summers 2018). Traditional training programs and active labor market policies, even expensive programs, have been generally unsuccessful in improving the employment outcomes of young adults (Greenberg et al. 2003; Card et al. 2018; Kluve et al. 2019), and CTE is often proposed as a means for improving the labor market attachment and success of young, non-college bound males.

Furthermore, early jobs held by young workers can have disproportionate effects on long-run earnings as shown for initial industry (Ross and Ukil 2021), firm size (Arellano-Bover 2019; Muller and Neubaeumer 2018), and whether firm is higher paying (Abowd, McKinney, and Zhao 2018).[1] Consequently, CTE may also contribute to labor market success by promoting early entry and integration into high paying jobs and industries. However, the effects of CTE on early labor market outcomes may differ by gender because enrollment patterns differ with men focusing on building trades and manufacturing and women primarily specializing in human

[1] Simply entering the labor market during a recession depresses long-run earnings, especially for less skilled workers (Altonji, Kahn and Speer 2016; Oreopoulos, Von Wachter and Heisz 2012; Schwandt and von Wachter 2017).

services and hospitality (Liu and Burns 2020; Jacob and Ricks 2020).[2] For example, the Connecticut Technical Education and Career System (CTECS), a statewide system of public CTE focused high schools, has approximately 52% of female students enrolled in culinary arts, guest services, early child care and education, hairdressing and cosmetology, health technologies, hotel hospitality, and tourism programs, but less than 7 percent of male students. In contrast, programs like automotive manufacturing and technology, carpentry, collision repair, heavy equipment repair, electrical, HVAC, masonry, plumbing and welding enroll 73 percent of male students, but only 33 percent of female students (see Appendix Table A1).

This study provides new and unique insights into the impact of CTE programs on industry of employment choices and within industry earnings premiums of young adults. Our analysis is based on the universe of students that applied to CTECS high schools between 2006 and 2011. We use admission score thresholds to estimate a regression discontinuity (RD) model of the reduced form effects of being above the threshold.[3] Our data includes quarterly earnings through the first quarter of 2018 for approximately 22,800 8th grade student applicants to CTECS between 2006 and 2011.[4] Using this data, Brunner et al. (In Press) find: 1) 44% higher total earnings for male students attending CTECS, and 33% higher average quarterly earnings between ages 23 and 25 (fuzzy RD treatment on the treated estimates); 2) an additional quarter with labor market earnings over a base of seven quarters for males; and 3), small and insignificant labor market effects for females.[5]

[2] See for example, Brunner et al. (In Press), Bertrand et al. (2019), Page (2012) who all find large earnings gains for males and small or no earnings gains for females. A notable exception is Silliman and Virtanen (2019) who find positive effects for female students in Finland

[3] We estimate reduced form models because our earnings by industry models estimate multiple effects, a unique estimate for each industry of employment, and so the two stage least squares estimator would likely perform poorly.

[4] Roughly 11,000 students attend these 16 schools each year, over 7% of all high school students in the state.

[5] Brunner et al. (In Press) refer to the system as the Connecticut Technical High School System (CTHSS), but the system was renamed to CTECS in 2017.

Our industry choice models examine the likelihood that a student is observed working in a specific industry after high school, relative to retail trade,[6] and tests for a discontinuity in that likelihood at the admissions threshold. For male applicants, we find significant intent to treat effects (being over the admissions threshold) of attending a CTECS school for manufacturing, professional, and construction industries, representing 10.5, 4.0, and 9.0 percentage point increases in the likelihood of working in these industries relative to retail trade.[7] All four industries have substantial, unexplained earnings premiums of 62, 33, and 59 percent relative to retail trade, and so industry placement could lead to substantial earnings gains. For female applicants, CTECS eligibility reduces the likelihood of working in professional services by 3.4 percentage points relative to retail trade, an industry with a substantial earnings premium, and increases the likelihood of working in office support by 4.3 percentage points, an industry where earnings are on average 22 percent lower.[8] We do not find statistically significant effects of treatment for services, education or health care for females, even though female students are heavily represented in related CTECS programs. The lack of treatment effects for education and health are notable given earnings premiums of 12% and 47% in those industries, respectively.

Next, we estimate quarterly earnings regression discontinuity models similar to those in Brunner et al. (In Press) except that we include industry controls. Consistent with the patterns of industry choice, adding industry fixed effects reduces the intent to treat effect on quarterly earnings for male students from 16.0% to 12.2% implying that 3.8 percentage points of the earnings effect arose from sorting into higher earnings industries. On the other hand, for female

[6] Retail trade represents about half of employment in our sample, 52.9% of males and 51.9% of females.
[7] The first stage estimates of treatment on attendance is 62.2% for males (58.5% for females) so that Intent to Treat estimates can be obtained by inflating these reduced form estimates by about 61% (71% for females).
[8] CTECS also increases male student representation in office support industries by 4.2 percentage points relative to retail trade and female representation in transportation by 3.1 percentage points.

students, the marginally significant earnings effects of 3.3% increase to 3.6% when industry fixed effects are included. Further, industry fixed effect estimates are similar between male and female applicants: manufacturing 61.7 vs. 62.9%, professional 33.3 vs. 40.4%, construction 58.9 vs. 60.5%, wholesale trade 47.5 vs. 32.5%, operations support 20.9 vs. 14.1%, office support -33.5 vs. -22.0%, and health 26.6 vs. 47.1%, respectively. Female students who enter these high earnings industries tend to earn comparable premiums to their male peers.

We then interact industry fixed effects with an indicator for a student being above the CTECS admissions threshold. For male applicants, treatment increases earnings by 7.1% in retail trade, and female earnings gains are similar at 5.3%. Therefore, for our baseline industry, earnings gains are similar between genders, a result that was unanticipated given the findings in Brunner et al. (In Press). Treated male students also earn substantial additional premiums in professional (14.9%), construction (21.3%), operations support (9.2%), and office support (11.1%) industries. Point estimates for manufacturing and transportation are also noteworthy at 6.3% and 11.9%, but not precisely estimated. Notably, treated female applicants have similar or larger additional earnings premiums in manufacturing (10.0%), construction (32.2%) and office support (17.2%), although the construction estimate is imprecise. However, female CTECS applicants experience a substantial earnings discount in education (primarily pre-school), -19.6, and health, -8.7%, CTE programs where women are disproportionately represented. These negative effects may reflect CTECS's focus on career readiness, as opposed to college preparation, given the importance of higher education for many careers in health and education. Unlike industry choice, our earnings estimates are not causal because students select their

industry, but at least on observables bias from selection appears minimal as our treatment effect estimates are quite stable to adding controls for student test scores and demographics.[9]

Finally, we investigate potential mechanisms. We begin by examining employment outcomes while students are still in high school. For male applicants, treatment leads to increases of 8.2% and 4.5% in the likelihood of employment in manufacturing and construction, respectively, during high school years. Female applicants were also 2.9% more likely to work in manufacturing during high school. Second, we examine how increased post-high school employment experience in these industries impacts subsequent earnings. After conditioning on overall experience, we find that industry specific experience explains 21% and 13% of the treatment effect on male earnings in construction and manufacturing. Finally, we allow industry earnings to vary by student demographics and test scores and observe substantial declines in the earnings effects for professional (30%) and for office support (67%). Admission to a CTECS school increases the representation of students with above average 8th grade test scores in professional and office support, and higher-scoring students tend to receive a substantial earnings premium in those industries.

Taken together, our results suggest that CTECS is shifting male students towards higher paying industries, but having minimal impact on industry for female students. Further, CTECS yields additional earnings premium in the male dominated industries of manufacturing, construction and operation support, likely in part due to related work experience during and after high school. CTECS also increases male employment in professional services and office support

[9] Industry fixed effects never differ by more than 7% between models with and without controls and the median change is less than 3%. Controls have virtually no influence on the baseline effect of treatment with differences of 0.6 and 1.1% for male and female applicants. The industry specific treatment premiums are also quite robust, percent changes always below 7% with a median change of 3%.

and yields substantial earnings premiums in those industries by facilitating the entry of students with higher cognitive ability into industries that appear to reward those abilities.

From a policy perspective, our results suggest CTE specialized high schools in Connecticut place non-college bound male students into high paying, traditional industries even as those industries have transitioned away from routine skills. In addition, our results suggest that CTE high schools help transition students into employment in less traditional industries when they have the cognitive ability to succeed in those industries. Given the importance of early job placements (Ross and Ukil 2021; Arellano-Bover 2019; Muller and Neubaeumer 2018), CTECS could have long lasting effects on labor market outcomes. Many states are developing and implementing workforce readiness initiatives that focus especially on less educated populations that may be poorly attached to the labor market,[10] and CTE as implemented in Connecticut could play a substantial role in those efforts.

II. Connecticut Technical Education and Career System

The Connecticut Technical Education and Career System (CTECS) is a statewide public school district comprised of 16 high schools. The system focuses on providing skills to support transition into the labor market following high school graduation. While CTECS students must meet the standard high school graduation requirements, they also complete CTE coursework in lieu of other electives. At CTECS, 9th grade students explore 3 to 6 programs of interest and at the end of the first semester rank programs they wish to pursue. In the spring of 9th grade, they are assigned a program based on preferences and availability and spend the next three and a half years completing their CTE coursework with a stable cohort of peers and instructors. Within

[10] See for example state efforts under the federal Workforce Innovation and Opportunity Act.

their selected program, students take a minimum of three aligned courses. Often, these sequences are combined with career awareness activities and opportunities for work-based learning in settings outside of school. In contrast, traditional comprehensive high schools typically offer only 2 to 4 CTE programs from which to choose, and students may only take one or two courses, often not even in the same program.

Roughly 11,000 students attend the 16 CTECS high schools comprising more than seven percent of all high school students in the state. Approximately, 30 percent of total enrollment comes from the state's largest five city school districts of Bridgeport, Hartford, New Haven, New London and Waterbury, and has a result CTECS tends to serve a disproportionate share of students from lower-income families. Eighth graders across the state can elect to apply in the winter before they would enroll in 9th grade to attend high school at one of the CTECS schools. Students can apply to multiple schools, but must rank-order their choices. All 16 of the technical high schools are oversubscribed and receive more applicants than they can accommodate.

Each student receives an application score following a common standardized formula. For the 9th grade years of 2006-07 through 2008-09, the score is based on standardized 7th grade test scores in math and language arts (reading and writing) plus GPA and attendance in middle school. For the 9th grade years of 2009-10 through 2011-12, two additional categories were added based on points for extracurricular activities and a written statement.[11] Even though the underlying attendance and standardized test scores are close to continuous, the scoring system discretizes each of these components into an ordinal set of points that are then added together to form the total score.[12]

[11] The number of points associated with each component in each application year is shown in Appendix Table A2. Points for extracurricular activities and the written statement are based on information provided by the applicant.
[12] As discussed in detail by Brunner et al. (In Press), the discrete nature of application components when combined with the high correlation between them yields a distribution of raw scores that is irregular with both mass points and

School administrators have described establishing an admissions threshold in each school every year and then sending out initial acceptance letters primarily to students whose scores lie above the threshold. However, some students may be admitted with lower scores in order to increase diversity, and later waves of letters can be sent out to lower scoring students if all seats in the school are not filled. Other students with higher scores may not be admitted because they applied late, withdrew their application prior to a second wave of admissions, or were excluded based on information in their disciplinary file. Therefore, the admissions process results in a "fuzzy" discontinuity where the noise arises from deviations of school administrators from the scoring system, errors in the recording of acceptance letters, and imperfect take-up by applicants. Finally, applicants with identified disabilities, i.e. applicants with an Individualized Educational Plan, are subject to another layer of review and evaluation prior to admission, and so are excluded from our analysis.

III. Methods

We model the relationship between outcomes and admission scores using a regression discontinuity design with a uniform kernel. However, we do not observe the threshold established for sending out admissions letters. Therefore, we identify the score thresholds empirically as the threshold that yields the largest discontinuity in the probability of receiving an offer of admission for each school and year following Porter and Yu (2015). Specifically, we estimate linear probability models for receiving an acceptance letter (T_{isyt}) separately for each school *s* and application year *y* for the sample of applicants *i* from 8th grade sending school

holes/gaps in what might otherwise appear as a smooth distribution. However, all evidence (Brunner et al. In Press) suggests the scoring system is the reason for the irregular distribution, as opposed to manipulation at the threshold. As we demonstrate later in the paper, balancing tests provide no evidence of changes in the composition students across the admissions threshold.

district *t* controlling for linear running variables in the admissions score (X_{isyt}) on either side of candidate thresholds or cut-offs (X^*_{sy}):

$$T_{isyt} = \alpha_{sy} d\left(X^*_{sy} \leq X_{isyt}\right) + \theta_{11}\left(X_{isyt} - X^*_{sy}\right) + \theta_{12}\left(X_{isyt} - X^*_{sy}\right) d\left(X^*_{sy} \leq X_{ist}\right) + \varepsilon_{1isyt} \quad (1)$$

where $d\left(X^*_{sy} \leq X_{isyt}\right)$ is a binary indicator that equals one if the condition is satisfied. Equation (1) is estimated using observations that fall within a specified bandwidth (BW) or for which:

$$X_{isyt} \in [X^*_{sy} - BW, X^*_{sy} + BW],$$

and the threshold estimate is selected as:

$$\widehat{X^*_{sy}} = argmax_{X^*_{sy}}\, \widehat{\alpha_{sy}}(X^*_{sy}) \text{ over all } X^*_{sy} \in [X_{min} + BW, X_{max} - BW]$$[13]

We then create a panel so that each applicant has multiple observations, i.e. one observation for each quarter and year *q* a student is observed in the labor market data. Finally, we create a centered score, $\tilde{X}_{isyt} = X_{isyt} - \widehat{X^*_{sy}}$ and pool the data across schools and years in order to estimate reduced form linear probability models of industry choice (*I*):

$$I^j_{isytq} = \beta_{1j} d\left(0 \leq \tilde{X}_{isyt}\right) + \theta_{j21}\tilde{X}_{isyt} + \theta_{j22} X_{isyt} d\left(0 \leq \tilde{X}_{isyt}\right) + \delta_{j2sy} + \gamma_{j2t} + \varphi_{1q} + \varepsilon_{j2isytq} \quad (2)$$

where I^j_{isytq} takes the value of one if student *i* is observed working in industry *j* in year and quarter q and zero if they are working in the baseline industry *0* (individual by quarter

[13] For more details, please see the Methodological Appendix in Brunner et al. (In Press).

observations where the individual works in another industry are omitted from the sample), δ_{2sy} is a vector of CTECS school-by-application year fixed effects, γ_{2t} is a vector of applicant 8th grade district (often the same as the student town of residence) fixed effects effectively identifying the likely counterfactual high school or schools, and φ_{1q} represents a vector year fixed effects and quarter of the year fixed effects. Standard errors are clustered following our fixed effects structure: application school by application year and sending 8th grade school district.[14]

Next, we estimate models of earnings by quarter y_{isytq} allowing earnings and the treatment effects on earnings to vary by industry:

$$y_{isytq} = \omega_0 d\left(0 \le \tilde{X}_{isyt}\right) + \left[\sum_{j\neq 0} \omega_j d\left(0 \le \tilde{X}_{isyt}\right) I^j_{isytq}\right] + \theta_{j31}\tilde{X}_{isyt} + \theta_{j32}X_{isyt}d\left(0 \le \tilde{X}_{isyt}\right) + \rho_j + \delta_{3sy} + \gamma_{3t} + \varphi_{2q} + \varepsilon_{3isytq} \quad (3)$$

where ω_0 captures the level effect of treatment on earnings for the baseline industry, ρ_j is a vector of industry fixed effects, and ω_j captures the differential effect of treatment on earnings for industry j by interacting d with the industry fixed effects.

To illustrate the predictive power of the threshold, we estimate a first stage equation for attendance A_{isyt} in the sample of applicants:

$$A_{isyt} = \tilde{\alpha}\, d\left(0 \le \tilde{X}_{isyt}\right) + \theta_{41}\tilde{X}_{isyt} + \theta_{42}X_{isyt}d\left(0 \le \tilde{X}_{isyt}\right) + \delta_{4sy} + \gamma_{4t} + \varepsilon_{4isyt} \quad (4)$$

[14] Many prior studies with discrete running variables have clustered standard errors by the running variable. However, clustering by the running variable leads to confidence intervals with poor coverage properties (Kolesár and Rothe 2018).

where $\tilde{\alpha}$ represents the composite or sample average effect of being above the threshold on being treated, i.e. attending a CTECS school.

Finally, we conduct balancing tests of the following form:

$$X_{isyt}^{k} = \beta_2^k d\left(0 \le \tilde{X}_{isyt}\right) + \theta_{51}^k \tilde{X}_{isyt} + \theta_{52}^k X_{isyt} d\left(0 \le \tilde{X}_{isyt}\right) + \delta_{5sy}^k + \gamma_{5t}^k + \varepsilon_{5isyt}^k \qquad (5)$$

where X_{isytq}^{k} represents applicant attribute k, and rejection of the null hypothesis that $\beta_k = 0$ implies a balance failure.[15]

IV. Data, Sample and Identification

Our sample consists of approximately 22,800 8th graders who applied to a technical high school during the academic years of 2006-07 to 2011-12. The sample contains one observation for every application so students with multiple applications independently contribute to estimates based on being above the threshold of each school. Sixteen percent of the sample applied to two schools and only three percent applied to three schools (the maximum allowed), but a much smaller fraction are within the bandwidth of the admissions threshold for more than one school.[16] The CTECS admissions data contains each student applicant's name, date of birth, home town, middle school, the total admissions score, the individual components of the score, and in later years the State Assigned Student Identification Number (SASID). We match the CTECS admissions records to the Connecticut State Department of Education's (CSDE) longitudinal

[15] As noted by Brunner et al. (In press), traditional tests for manipulation cannot be applied due to the scoring system that leads to a non-standard distribution of the running variable. Therefore, to address concerns about bias from manipulation, we also estimate models using a donut hole approach dropping observations at the cut-off for the school and year (Barreca et al., 2011). However, as shown by Brunner et al. (In press), results are nearly identical regardless of whether or not the donut hole observations are dropped.

[16] Correlation between observations from the same student is addressed by clustering by sending 8th grade school district. Results are robust to dropping students who applied to more than one school.

data system using the following criteria sequentially: 1) SASID; 2) exact match on first and last name plus birth year; 3) first initial and exact match on last name plus birth year and month; and 4) exact match on last name plus exact birth date. The reason for the sequential process is reporting errors for birth dates, spelling errors and nicknames in the CTECS application that was filled out by hand. Our resulting match rate was 95 percent.

From the CSDE longitudinal data system, we obtained information on each student's race, gender, free or reduced price lunch status, English learner, special education status (i.e. presence of an IEP) and 8th grade standardized test scores. Through Connecticut's P20Win process, students in our sample are matched to Connecticut State Department of Labor (CSDOL) data on quarterly earnings and the industry of the primary employer for each quarter. This CSDOL match is facilitated by Department of Motor Vehicle records that contain gender, birth date, and first and last name, which is matched to the CSDOL data using social security numbers. CSDOL personnel then match the resulting data to the CSDE data using an exact match on birth date and gender and a fuzzy match algorithm on name. The fuzzy match algorithm requires an estimated confidence of 70%, which yields a match rate of 72.3% between the student applicant records and the CSDOL data.[17] Student are in the labor market sample if CSDOL observes unemployment insurance covered earnings in any quarter for which the students is age 16 or older.[18]

Our sample includes quarters of earnings after allowing for five years to complete high school and two quarters to enter the labor market. For both male and female students, the match

[17] A fuzzy match criteria of 60% only yields an additional 500 matches, many of which looked erroneous upon visual inspection by CSDOL personnel.

[18] Several factors drive the failure to match applicants in the CSDOL data including never having a driver's license in Connecticut, name changes due to marriage or other factors, moving out of state prior to or upon completion of high school or failure to participate in the labor market after high school perhaps due to college attendance.

rates rise for the first few quarters in our sample, but then stabilize at just above 60% in each subsequent quarter and year (see Appendix Tables A3 and A4). Our labor market data ends in the 1st quarter of 2018. Therefore, we restrict the sample to cohorts entering CTECS in 2006 to 2011 so that for 2011 applicants we observe five quarters of data. Below, we verify that membership in the labor market sample is not influenced by CTECS attendance and that the labor market sample passes standard balancing tests. We select a bandwidth of 15 points around the admissions threshold for each school and year.[19]

We divide employment into 12 major industry categories: manufacturing, retail trade, transportation, professional, services, construction, wholesale trade, operations support, office support, public/social services, education, and health.[20] We selected these categories in part based on the types of programs offered by CTECS and also based on known patterns of gender sorting across industries. These categorizations depart from traditional NAICS industry classifications in several places. We combine NAIC codes 51-55 (information, finance and insurance, real estate, profession/scientific/technical, and management) into an overall category of professional. However, NAIC code 56 (administrative and support) combines many traditional female dominated jobs such as office administrative services and male dominated jobs like facilities support and investigation/security. We therefore split these into two categories which we call office and operations support. Health care is separated from social assistance within code 62 due to its significant role for women in CTE and child day care services 6244 is combined with educational services due to a focus in CTECS on early childhood education. Social

[19] Brunner et al. (In Press) used a smaller bandwidth of 10, but also show that changes in the bandwidth had minimal effects on their estimates. We use a larger bandwidth because our analyses within industry imply that effects are identified based on smaller subsamples. Our balancing tests with the larger bandwidth are quite similar to the balancing tests of Brunner et al.

[20] We delete the tiny fraction of applicant-quarter observations associated with employment in 11 Agriculture, Forestry, Fishing and Hunting or 21 Mining, Quarrying, and Oil and Gas Extraction.

assistance services (code 62) and public administrative services (code 92) are also combined given the significant government role in each. Finally, arts/entertainment/ recreation (code 71) and accommodation/food services (code 72) are combined capturing CTE concentrations related to hospitality. The catch all category of other services 81 is divided up with 811 repair and maintenance assigned to operation support, personal and laundry services 812 assigned to services, and religious/grantmaking/civic 813 assigned to public/social services.[21]

Table 1 shows the industry and demographic composition of students in our sample. For comparison purposes, columns 1 and 2 first present summary statistics for a representative sample of Connecticut residents between the ages of 19 and 26 and without four year college degrees drawn from the American Community Survey (ACS). Columns 3 and 4 present summary statistics for our sample overall, while columns 5-8 present the same information within the bandwidth separately for subsamples above and below the threshold. Retail trade is the largest industry of post-high school employment regardless of gender. Male applicants are more heavily represented in manufacturing, transportation, construction, wholesale trade and operations support, and female applicants are more heavily represented in services, education and health. Being above the threshold leads to substantial increases in male applicant representation within manufacturing and construction, but minimal changes in the industry composition of female applicants. The CTECS applicant and ACS samples have very similar industry representation by gender except for: 1) Office Support where the largest subcategory 5611 office administrative services is not identified in the ACS because in the ACS those workers are distributed across the industries associated with each specific office; and 2)

[21] See Appendix Table A5 for a detailed cross-walk between NAICS codes and our industry categories, as well as the gender composition of the specific industry categories based on a representative subsample of the American Community Survey.

Public/Social Service where total share of employment assigned to social service industries in the ACS is much smaller than in our sample and Social Service employment is predominantly female.[22]

Table 2 presents average quarterly earnings for the sample by industry. On average, male applicants earn more than female applicants in every industry, but the industries with the largest male-female differences (at or over $2,000 per quarter) are manufacturing, professional, wholesale trade, operations support, and public/social services. We also observe differences in earnings when comparing the sample of male applicants above and below the admissions threshold with the largest differences (at or over $1,000 per quarter) in manufacturing, transportation, professional, construction, operations support and public/social services. For female applicants, earnings differences of this magnitude only arise for manufacturing, construction and office support.

To validate our discontinuity-based identification strategy, in Table 3 we present balancing tests across the cut-off boundaries. For both the male and female applicants pooled across years and schools, we regress student and sending school district attributes on a dummy variable for whether the applicant's score is above the cut-off, the linear running variable for the student's score and the interaction of that running variable with the dummy for being above the cut-off.[23] The student attributes include: 1) whether the student is in the labor market sample; 2) race and ethnicity; 3) whether the student is free lunch eligible; 4) whether the student is an English language learner; 5) 8th grade composite test scores; and 6) sixth grade attendance. The

[22] Brunner et al. (In Press) also compare the CTECS applicant sample to the student population statewide. The applicant sample is substantially less female (42%) than students statewide. On average, minority students and students qualifying for free and reduced price lunch are overrepresented among the population of applicants with percent African-American being 50 percent higher and percentages of Hispanic and Free-lunch eligible almost double the shares statewide. This pattern of overrepresentation is even stronger for female applicants.

[23] As with our main RD models, these balancing tests include school by application year fixed effects and applicant 8th grade school district fixed effects.

sending district attributes include: 1) spending per pupil; 2) pupil teacher ratio; and 3) 6th grade average math scores. None of the student or sending district attributes are significant. Appendix Table A6 presents the balancing test for alternative bandwidths and results are similar.

As discussed above, we empirically select a threshold for each school and application year. We estimated equation (1) separately for each school and year identifying the cut-off score that maximizes the discontinuity in the probability of receiving an acceptance letter.[24] We then estimate a first stage equation pooling data from all schools and years. Figure 1A and Table 4 column 1 present the pooled estimates for whether a student receives an acceptance letter using our 15-point bandwidth. Figures 1B-1D and the additional columns of Table 4 present first-stage estimates for attending a CTECS high school for the full sample and then separately for male and female applicants. All figures show a clear discontinuity with the probability of receiving an acceptance letter being above 0.9 and approaching one as the running variable increases past the cut-off. Figures 1C and 1D show a different pattern with the likelihood of attending a CTECS school being relatively stable for male applicants to the right of the cut-off, and falling with application scores for female applicants, which is consistent with higher scoring students having more options or coming from better school districts on average and thus being less likely to accept an offer of admission. The estimated first stage effect of being above the cut-off on receiving an acceptance letter is 0.89 implying an 89 percentage point increase in the likelihood of receiving a letter. The first stage for being observed in the technical high school is somewhat smaller, but still sizable, at 0.62 for male students and 0.59 for female students.[25]

[24] The sending of an acceptance letter is recorded in the system by the date on which the acceptance letter was sent. Students are also coded by us as having received an acceptance letter if the system records a date at which the student responded to and accepted the offer, even if no date is recorded for the sending of the acceptance letter.
[25] In principle, the power of the first stage could be overstated because the same sample was used to identify the thresholds and estimate the pooled first stage model. Brunner et al. (In Press) demonstrate using hold-out samples that the strong power of this first stage is relatively unaffected this problem.

V. Main Results

Table 5 presents the results of pairwise linear probability models examining the likelihood of being employed in each industry in any given quarter of employment, relative to our default industry of retail trade (omitting applicant by quarter observations in other industries). Table 5A presents results for the first five industries and Table 5B on the next page presents results for the last six industries. We select retail trade as the comparison (omitted) industry because it is a very common employment option for individuals without a college degree, and in our data employment in retail trade represents the most common jobs held by both male and female CTECS applicants. Panels 1 (male) and 2 (female) present intent to treat estimates for being above the threshold, and given the first stage estimates treatment on the treated effects are about 67 percent larger. These estimates are based on models with the individual student-level balancing test controls; Appendix Table A7 shows that estimate are very similar when the model excludes these variables as controls.

The second row underneath the parameter estimates shows the fraction of workers employed in an industry relative to employment in retail trade. For example, Table 5A Column 1 Panel 1 has an entry of 0.30 for manufacturing implying that just under 1/3rd of all jobs designated as either manufacturing or retail trade are in manufacturing, or about twice as many males are employed in retail trade than in manufacturing. The third row presents the industry fixed effect estimate from log of quarterly earnings models that will be presented below. Looking at column 1, we observe approximately a 62% earnings premium in manufacturing relative to retail trade for both male and female applicants.

For male applicants in Panel 1, we find significant effects of 10.5, 4.0, 9.0 and 4.2 percentage points for manufacturing, professional, construction and office support, respectively,

compared to relative likelihoods of industry employment of 30, 15, 29 and 16 percent. Notably, the first three of these industries have a large earnings premium over retail trade of 62%, 33% and 59%, respectively. Therefore, on average, treated male students are more likely to end up working in industries that yield higher earnings on average. The only exception is office support, which has average earnings that are 34% below earnings in retail. The industry selection effects for manufacturing and construction are not surprising given that skilled trade related programs like automotive manufacturing and technology, carpentry, collision repair, heavy equipment repair, electrical, heating-ventilation-air conditioning, masonry, mechanical design, machining, plumbing and welding enrolled 79 percent of all male students in CTECS in 2019, but the concentration of effects in professional and office support are less expected and will be investigated in our mechanism analysis below.

For female applicants in Panel 2, we find that CTECS reduces the likelihood of working in the professional services industry by 3.4 percentage points relative to a base share of 16 percent, and increases the likelihood of working in transportation by 3.1 percentage points relative to a 5% share and in office support industries by 4.3 percentage points relative to a 14% share. The decline in employment in professional industries implies less representation of successful female applicants in an industry that carries a wage premium of 40% relative to retail trade. Further, estimates of the impact of selection into the health, education or the service industry, which includes both Arts, Entertainment, and Recreation and Accommodation and Food Services industries, are insignificant even though CTECS programs that focus on culinary arts, guest services, early child care and education, hairdressing and cosmetology, health technologies, hotel hospitality, and tourism enroll approximately 52% of all female CTECS students. The lack of effects for education and health are especially concerning given that those

industries offer earnings premiums relative to retail trade of 12% and 47%, respectively. Therefore, we find much less evidence that CTECS is placing female applicants in jobs related to their program choices at higher rates than comparable students who did not attend CTECS.[26]

In order to summarize the effects of industry, we estimate specifications similar to those reported in Table 5 except that we use the entire student-quarter sample across all industries and replace the dependent variable with the industry fixed effect estimate from the last row of Panels 1 and 2 of Table 5.[27] The results are shown in Column 1 of Table 6 where the top and bottom panels present estimates for the male and female samples, respectively. Male students who are admitted to CTECS experience on average a 3.3% increase in the industry earnings premium to which they are exposed. For female students, the estimate is small and statistically insignificant. We use this model to examine whether the effects on industry sorting are heterogeneous. We find no meaningful differences in the estimates when comparing free and reduced price eligible students to non-eligible students or when comparing black and Hispanic students to all other students, but the industry effects do appear to be concentrated among male CTECS applicants from suburban and rural school districts (not central city districts). Female estimates are insignificant for all subgroups considered.[28]

Table 7 presents estimates of the impact of attending CTECS on quarterly earnings overall and by industry of employment. Models 1 and 4 show the direct effect of being above the admissions threshold for male and female applicants, and Figure 2 presents these results in graphical format. Being above the admissions threshold raises quarterly earnings by 16.0% for male applicants, consistent with our earlier 33% treatment on the treated estimate of CTECS on

[26] Treatment effects on industry choice for alternative bandwidths are shown in Appendix Table A8.
[27] For the omitted category, retail trade, the fixed effect value is set to zero.
[28] Appendix Tables A9 (male) and A10 (female) present separate industry choice estimates of the linear probability models in Table 5 for each subsample considered in Table 6.

quarterly earnings, and Figure 2 Panel A shows a clear discontinuity. The estimate for female applicants is much smaller at 3.3%, and the discontinuity in Panel B is well within the scatterplot of log earnings on either side of the threshold. The first row of models 2 and 5 show the direct effect after including industry fixed effects, and the rest of the rows in models 2 and 5 show industry differences in earnings in our sample of CTECS applicants. After conditioning on industry fixed effects, the treatment effect estimate for males falls to 12.2%, so effects on industry selection potentially explain 25% of the gain in quarterly earnings. On the other hand, the inclusion of industry fixed effects leads to a modest increase in the treatment effect estimate to 3.6% for female applicants, consistent with negative effects on industry selection on earnings.

Finally, models 3 and 6 present estimates for the specification given by equation (3) where the effect of CTECS on earnings varies across industry. It is important to note that these estimates may not be causal because workers have selected into these industries. However, as with the model of industry choice, the inclusion of controls has minimal impact on our estimates as shown in Appendix Table A11. The first columns for models 3 and 6 present the industry fixed effect estimates for male and female applicants and second columns present the estimates on the interaction of treatment (being above the admission threshold) with the industry dummies. The estimated coefficient on the offer indicator in the first row and first column of models 3 and 6 shows the level effect of treatment on earnings for the omitted industry category, namely retail trade. For retail trade, the male and female treatment effects are relatively similar at 7.1% and 5.3%, respectively. Turning to the second columns that capture additional premia above the premium in retail trade, we find statistically significant larger effects of treatment on earnings for male applicants in professional (15%), construction (21%), operations support (9%) and office support (11%). For female applicants, we also find large and significant wage premium:

manufacturing (10%), construction (32%) and office support (17%), although the large effects in construction are not statistically significant due to the small number of female applicants in that industry.[29]

The greater earnings gains from CTECS in office support might help explain the selection of female students into office support, since the 17 percent gain helps offset the 22 percent lower earnings in office support relative to retail trade. Regardless, while CTECS appears to provide valuable skills for students placed in office support industries, the lower earnings in that industry imply that on average those skills are not resulting in higher earnings at least within a few years of having graduated from high school. The earnings gains in manufacturing and construction suggest that female CTECS students could potentially benefit from the traditionally male dominated trade focused programs in CTECS. However, these results should be viewed as illustrative because these earnings gains arise for a very select population of applicants: only 1.2% of employed female CTECS applicants were observed working in the construction industry in any given quarter. While more numerous, females in manufacturing still only represent 8% of all female applicants.[30]

VI. Mechanisms

We consider three possible mechanisms behind these findings. First, given the emphasis on work based learning and transition into the labor market, we examine work experiences of applicants during their anticipated years of high school. Second, Brunner et al. (In Press)

[29] Appendix Tables A12 and A13 show earnings estimates using alternative bandwidths.
[30] Appendix Tables A14 (male) and A15 (female) present earnings models separately for each subsample considered in Table 6.

document that attending CTECS increased the number of quarters worked overall, and so we examine whether experience within an industry can explain some of the industry earnings premium arising from CTECS. Finally, as noted above, our industry premium estimates might be influenced by sorting across industries. While controls for observables do not influence our estimates, sorting might still matter if industry specific earnings vary by observables, such as test score or race/ethnicity. Therefore, we also examine the robustness of our estimates to interacting industry of employment post-high school with the applicant attributes.

In Table 8, we re-estimate the model of treatment effects on industry choice for a sample of quarters where the applicant is over the age of 16 and the quarters fall within the four year period post-application in which the individual would be expected to be attending high school. For male applicants, we find strong treatment effects of 8.2 and 4.5 percentage points on the likelihood of working in construction or manufacturing while in high school, respectively, relative to retail trade. For female applicants, we only find effects for manufacturing and those effects are smaller at 2.9 percentage points. Therefore, for male students especially, work-based learning experiences appear to play a significant role in the earnings gains from attending CTECS.

In Table 9, we present models of treatment effects on earnings controlling for the number of post-high school quarters with earnings and the number of quarters with earnings in the specific industry where the individual is employed.[31] Both overall work experience and industry specific work experience lead to higher earnings for male and female applicants. Moreover, after controlling for overall work experience post-high school, we find that the inclusion of these controls reduces the large additional treatment effect on earnings in manufacturing and

[31] The estimates of overall experience and industry specific experience are constructed so that they measure experience prior to the year and quarter of observed earnings.

construction for male applicants by 21% and 13%, respectively, with both significant at the 1% level (Appendix Table A16). Further, the substantial 40% decline in the premium for operation support when controlling for overall experience may arise because the skills obtained when working in manufacturing, construction and related industries complements work with operations support. For females, the effect on earnings in manufacturing falls by 16% after controlling for industry experience, but this decline is not statistically significant (Appendix Table A17).[32]

Finally, in Table 10, we present earnings models where the industry fixed effects are interacted with applicant attributes. While these controls have only minimal effects on the baseline treatment effect (retail trade), the inclusion of these controls leads to a substantial decline in the estimated industry specific treatment effect on male earnings for both professional and office support. The earnings premium for office support declines by 67% and this decline is significant at the 1% level. The earnings premium for professional declines by 30%, but the decline is not quite statistically significant with a *t*-statistic of 1.5.[33] In Appendix Tables A20 and A21, we estimate pairwise models of industry choice similar to those reported in Table 6 except that we interact applicant attributes with treatment. Treatment increases the 8th grade test score composition of applicants who are later observed working in several industries: manufacturing, transportation, professional, services and construction. However, the composition changes can only explain treatment effects on earnings premium if earnings in the industry are correlated with those test scores. In our sample, test scores have significant explanatory power in

[32] Notably, estimating models of the effect of admission on quarters of experience by initial industry of employment post-high school in Appendix Tables A17 and A18 shows that admitted male applicants experience a 7 percentage point increase in the number of quarters with earnings if their initial industry was construction.
[33] Appendix Table A19 presents the difference between the estimates with standard errors in Columns 2 and 4.

professional and office support, and as a result, selection appears to play a substantial role in explaining the earnings premium in those two industries.

VII. Summary and Conclusion

Policymakers, practitioners, and government officials have long been interested in identifying effective job training and other active labor market programs for non-college bound young adults both internationally and within the U.S. In the U.S and other developed countries, training programs, even expensive programs, have been generally unsuccessful in improving youth employment outcomes (Greenberg et al. 2003; Card et al. 2018; Kluve et al. 2019). At the same time, some local youth employment programs with sector targeted training, like San Antonio Quest (Elliot and Roder 2017) and Year-Up Boston (Heinrich 2012-13), have had large impacts on youth earnings. Notably, in both programs, earnings effects were driven heavily by increases in hourly wages associated with placement into targeted sectors. Career and Technical Education is a common strategy, domestically and internationally, for providing sector-specific or targeted skills to youth while they are still engaged in formal education.

In this study, we attempt to unpack the impacts of CTE on sector of employment and earnings gains. We examine the effect of attending one of the 16 stand-alone technical high schools in the state of Connecticut on students' post high school choice of industry and earnings by industry using a regression discontinuity design. Using data on the universe of 8th grade student applicants to the Connecticut Technical Education and Career System (CTECS) between 2006 and 2011, we find that being admitted to and attending a CTECS high school shifts male applicants towards working in higher paying industries on average, and raises earnings in several industries.

The delivery of CTE in dedicated Career and Technical High Schools, as done in Connecticut, may provide a valuable strategy for improving the labor market outcomes of non-college bound, young men. In our mechanism analyses, we find evidence that in manufacturing and construction work experience matters while in high school and as a young adult. On the other hand, for the earnings premium in professional and office support, we find that a substantial portion of the treatment effects on earnings arise because treatment affects selection into these industries over 8th grade tests scores. These industries appear to offer a higher direct return to cognitive skills for young adults, and attending a CTECS high school moves students with higher cognitive skills towards industries that reward those skills. In both cases, the practical training and work based learning opportunities provide these students valuable skills and experience allowing them to match their skills and abilities to higher paying jobs.

Our study also helps to shed light on the common but puzzling finding of many studies that participation in CTE has positive impacts on male students, but minimal effects for female students (Brunner et al. In Press; Bertrand et al. 2019; Page 2012). Specifically, our results suggest, that, in contrast to male students, admission to and attendance at a CTECS high school has a much more modest impact on the industry of employment of female applicants. Further, in several cases, the industry effects observed for female students shifts these applicants towards lower paying industries. Surprisingly, both the overall industry earnings premiums and the treatment effects of CTECS on earnings premiums are similar and sometimes larger for female applicants in traditionally male dominated industries like manufacturing and construction that are often the target of career and technical education programs. The number of female students in these industries, however, is too small to contribute substantially to aggregate female earnings. CTE that focuses on transition to employment can yield significant earnings gains for young

women, but to be broadly successful these programs must find a way to provide female students with more relevant work experience and target those students into industries that offer substantial earnings premiums.

On the other hand, among the female dominated programs, the two related industries that offer substantial earnings premiums are health and education, both industries that require four year college degrees for access to the key high paying jobs such as registered nurse and state certified K-12 teacher. The CTECS system focuses heavily on post-high school career readiness as opposed to college preparation, and CTECS students who do pursue post-secondary education typically attend two year colleges. In contrast, Bonilla (2020) finds the largest effects of increased CTE spending on educational attainment for girls in California, a state where CTE tends to have a strong focus on college readiness. Similarly, while Silliman and Virtanen (2022) find positive earnings effect for women in Finland, they also observe that vocational track students pursuing secondary education typically attend the Universities of Applied Sciences (UAS), which are four-year Bachelor's degree granting institutions offering for example business, education, engineering and nursing degrees.

When combined with the findings of Bonilla (2020) and Silliman and Virtanen (2022), our finding that attendance at a CTECS school does little to shift female applicants towards working in higher paying industries on average, suggest the strong focus on health and education within many CTE programs (including in CTECS) may be a poor fit for many of the students enrolled in such programs. Specifically, the strong focus on work force readiness and transition to employment in CTECS may be poorly aligned with traditional female dominated jobs in health care and education that typically require a four year college degree. To access high paying

jobs in those industries a hybrid CTE model that also emphasizes college preparatory skills may be more appropriate.

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Table 1: Summary Statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
					Male BW 15		Female BW 15	
	ACS Males	ACS Females	Male	Female	Below Threshold	Above Threshold	Below Threshold	Above Threshold
Quarterly Earnings	6092.34	4794.02	6449.80	4593.40	5560.62	6794.43	4268.60	4632.85
	(5277.31)	(3635.92)	(4674.50)	(3181.67)	(3943.68)	(4786.40)	(2843.80)	(2988.86)
Manufacturing	0.11	0.04	0.12	0.03	0.09	0.13	0.02	0.03
Retail	0.22	0.24	0.26	0.28	0.28	0.26	0.29	0.28
Transportation	0.04	0.02	0.04	0.01	0.04	0.03	0.02	0.02
Professional	0.06	0.07	0.05	0.05	0.04	0.05	0.05	0.05
Services	0.18	0.27	0.17	0.27	0.18	0.16	0.25	0.27
Construction	0.10	0.01	0.11	0.00	0.07	0.13	0.00	0.00
Wholesale Trade	0.03	0.01	0.04	0.01	0.04	0.03	0.00	0.01
Operation Support	0.09	0.02	0.08	0.02	0.09	0.08	0.02	0.02
Office Support	0.01	0.01	0.05	0.04	0.06	0.04	0.05	0.04
Public/ Social Service	0.09	0.04	0.02	0.05	0.03	0.02	0.07	0.05
Education	0.04	0.10	0.02	0.05	0.02	0.02	0.05	0.05
Health	0.04	0.18	0.04	0.17	0.05	0.04	0.17	0.17
Female	0.44		0.44		--	--	--	--
Asian	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Black	0.11	0.14	0.17	0.26	0.21	0.16	0.29	0.27
Hispanic	0.20	0.24	0.27	0.38	0.31	0.26	0.43	0.39
Free Lunch			0.52	0.71	0.63	0.51	0.79	0.71
English Learner			0.05	0.07	0.07	0.04	0.11	0.07
8th Grade CMT-Reading			234.64	231.45	218.89	233.32	214.07	229.56
			(30.41)	(29.95)	(25.20)	(24.05)	(23.68)	(23.61)
8th Grade CMT-Math			243.51	233.91	224.99	241.72	213.42	231.73
			(32.86)	(32.76)	(25.74)	(25.58)	(24.12)	(24.81)
8th Grade CMT-Writing			230.84	237.24	217.26	229.03	223.70	235.09
			(30.30)	(30.50)	(25.08)	(25.38)	(24.79)	(26.24)
Total Application Score			58.77	58.52	46.07	59.66	46.00	59.25
			(17.12)	(17.90)	(8.12)	(8.35)	(8.53)	(8.68)

Notes : Table presents summary statistics of American Community Survey (ACS) and CTECS applicant samples or quarterly earnings, industry classifications and student demographics and for our student sample achievement by gender. Columns 1 and 2 present means and standard deviations for the ACS sample, columns 3 and 4 present means and standard deviations for our CTECS applicant sample. Columns 5-8 present summary statistics for students within a 15 point bandwidth of the RD cutoff score. Columns 4 and 6 present summary statistics below the cutoff while columns 5 and 7 present summary statistics above the cutoff. The ACS samples is percent female is based on 2013-2018 for workers residing in the State of Connecticut, are age 19-26, worked at least 27 weeks last year, and on average at least 20 hours per week. Office support does not contain industry 5611 office administrative services and operation support does not contain 5612 facilities support services because those industries are not identified in the ACS, but instead the workers are distributed across the industries associated with the specific office or facility.

Table 2: Quarterly Earnings By Industry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Male BW 15		Female BW 15	
	Full Sample	Male	Female	Below Threshold	Above Threshold	Below Threshold	Above Threshold
Manufacturing	9031.62	9384.67	7283.38	8368.65	9378.67	6435.91	7424.38
	(4785.87)	(4796.42)	(4328.39)	(4095.68)	(4571.11)	(3704.04)	(4283.60)
Retail	4421.65	4963.54	3779.18	4668.15	5142.98	3511.03	3851.63
	(3065.90)	(3365.51)	(2520.81)	(3065.69)	(3530.18)	(2312.33)	(2434.91)
Transportation	5597.47	5881.23	4741.59	5186.56	6158.81	4523.33	4854.59
	(4247.72)	(4481.60)	(3303.95)	(3784.21)	(4731.36)	(3265.88)	(2989.39)
Professional	7273.52	8178.28	6212.06	6731.34	8509.04	5843.28	6157.88
	(4760.92)	(5356.91)	(3675.26)	(4371.84)	(5662.77)	(3648.46)	(3372.16)
Services	4127.85	4323.30	3974.98	4031.64	4588.07	3718.79	4064.49
	(2803.44)	(3049.76)	(2584.32)	(2884.91)	(3219.01)	(2346.68)	(2513.32)
Construction	9633.95	9683.14	8112.95	8103.10	10075.81	6194.56	7850.29
	(5428.76)	(5449.77)	(4477.48)	(5116.13)	(5574.44)	(3922.27)	(4046.72)
Wholesale Trade	7664.36	7965.11	6035.58	7668.16	8183.40	5628.14	5687.05
	(4445.43)	(4518.84)	(3614.86)	(4248.74)	(4440.17)	(4649.29)	(3332.85)
Operation Support	6568.82	6894.47	4899.64	5915.68	7242.45	4289.70	4825.40
	(4515.51)	(4686.92)	(2996.60)	(3520.80)	(4634.44)	(2489.32)	(2803.08)
Office Support	3999.84	4205.94	3694.20	3752.52	4331.58	3207.54	4031.23
	(3177.90)	(3346.98)	(2882.41)	(2892.59)	(3289.43)	(2563.10)	(3011.36)
Public/ Social Service	5438.66	7128.48	4466.58	6550.05	7785.76	4166.03	4588.54
	(4623.22)	(5988.04)	(3234.04)	(5313.66)	(6407.16)	(2945.04)	(3066.66)
Education	5082.37	6098.10	4525.01	6302.98	6383.96	4484.03	4363.76
	(3906.40)	(5010.34)	(2997.43)	(5489.65)	(4755.45)	(2423.12)	(2895.34)
Health	6124.88	6362.12	6046.30	5892.71	6306.73	5840.84	5961.73
	(3705.61)	(3972.91)	(3609.38)	(3380.64)	(3598.21)	(2949.23)	(3123.74)

Notes : Table presents mean quarterly earnings by industry. Column 1 presents means and standard deviations of quarterly earnings for the full sample, while columns 2 and 3 present separate summary statistics for the sample of male and female students respectively. Columns 4-7 present quarterly earnings by industry for male and female students within a 15 point bandwidth of the RD cutoff score. Columns 4 and 6 present summary statistics below the cutoff while columns 5 and 7 present summary statistics above the cutoff.

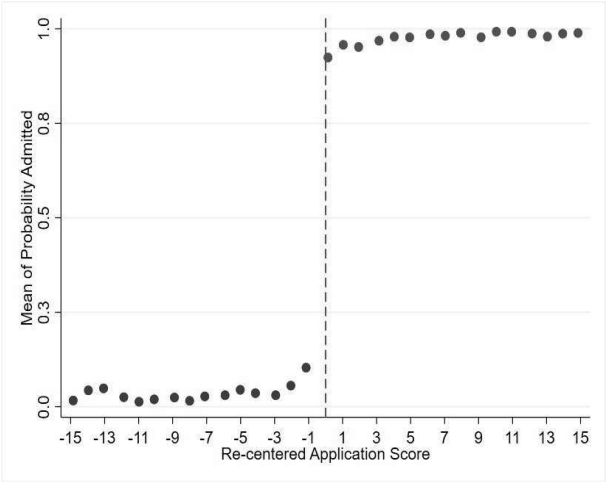
Table 3: Balancing Tests

	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)
			Individual-level Covariates					School Covariates	
Outcome	Black	Hispanic	Free Lunch	English Learner	8th Grade Test Scores	6th Grade Attendence	Spending Per Pupil	Pupil Teacher Ratio	6th Grade Avg Math Score
					Male Students				
Offer	0.020	-0.013	-0.004	-0.004	-0.002	-0.004	61.173	-0.042	-0.107
	(0.013)	(0.018)	(0.019)	(0.010)	(0.033)	(0.003)	(53.162)	(0.106)	(0.247)
Observations	98,723	98,723	98,723	98,723	70,464	48,240	92,690	98,028	97,052
Mean CG	0.210	0.312	0.629	0.068	-0.544	0.947	16249.10	14.001	240.880
St. Dev. CG	(0.408)	(0.463)	(0.483)	(0.251)	(0.747)	(0.043)	(2699.105)	(2.482)	(18.856)
					Female Students				
Offer	0.003	0.009	0.005	-0.005	0.0343	-0.004	72.227	-0.051	-0.065
	(0.020)	(0.015)	(0.019)	(0.018)	(0.041)	(0.002)	(60.731)	(0.066)	(0.213)
Observations	75,289	75,289	75,289	75,289	52,976	37,480	69,145	74,809	74,596
Mean CG	0.294	0.425	0.793	0.109	-0.671	0.947	15846.57	14.151	236.394
St. Dev. CG	(0.456)	(0.494)	(0.405)	(0.312)	(0.735)	(0.044)	(2681.7)	(2.714)	(17.423)

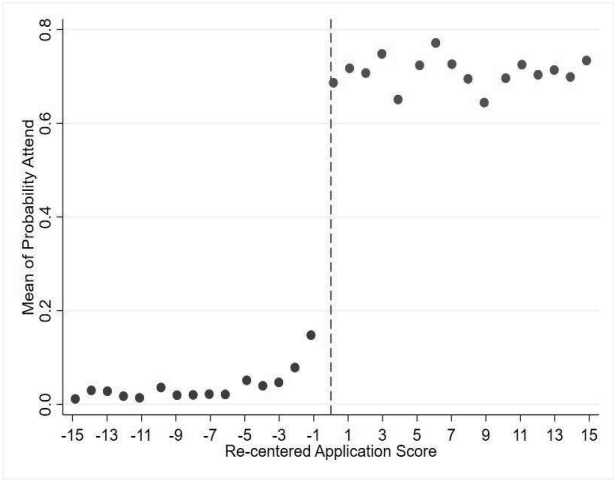
Notes: Table presents balancing tests for the samples of male and female students. Estimates are from a RD specification using local linear regression and a 15 point bandwidth. Top panel presents balancing tests for male students bottom panel presents balancing tests for female students. Columns 1-5 present balancing tests for individual covariates. Columns 6 and 7 present balancing test for 8th grade raw test scores and 6th grade attandance, respectively. Columns 8-10 present balancing tests for school-level spending per-pupil, pupil-teacher ratio and 6th grade average math scores for sending middle schools. Spending per-pupil is for sending middle schools in 2017, pupil teacher ratio, average 6th grade test scores, are for 2006 - 2011. Mean CG is the mean of the dependent variable for the control group and is defined as the mean to the left of the cutoff within the 15 point bandwidth. St. Dev. CG is the standard deviation of Mean CG. All specifications other than spending per-pupil include CTHSS school-by-year fixed effects and 8th grade school district fixed effects. Spending per pupil specification omits town fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 1: Probability of Being Admitted to or Attending a CTECS School

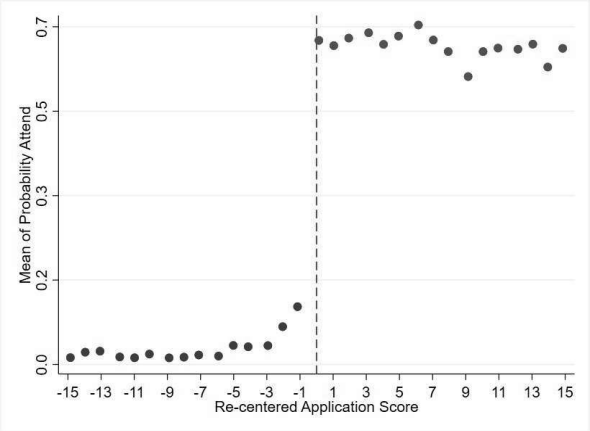
Panel A: Admitted to a CTECS School Full Sample



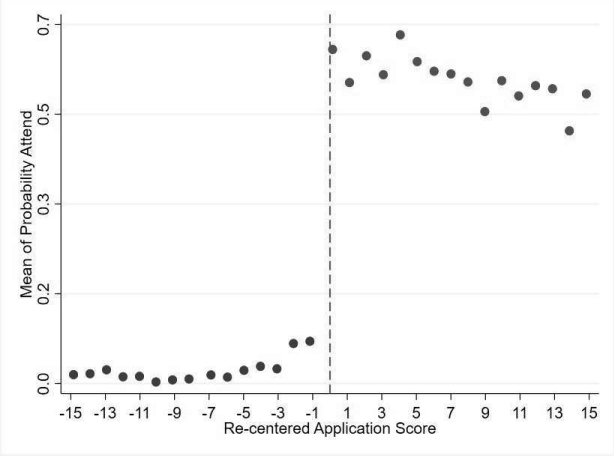
Panel C: Attending a CTECS School Male Students



Panel B: Probability of Attending Full Sample



Panel B: Probability of Attending Female Sample



Notes : The scores forming the horizontal axis have been re-centered by subtracting the threshold for each school and year from the scores associated with the applicants from those schools and years. These figures document the share of students admitted to or enrolled for each discrete application score where the size of the circle indicates the relative number of applications at each score. The figures are based on all applications from 8th graders from 2006-2013 (omitting IEP students and students not observed in 9th grade). Panel A shows the results for admission, panel B shows the results for acceptance, and panels C and D show the results separately for the male and female subsamples.

Table 4: First Stage Estimates (Bandwidth 15)

Outcome	(1) Probability of Being Admitted Full Sample	(2) Probability of Attending Full Sample	(3) Probability of Attending Male Students	(4) Probability of Attending Female Students
Offer	0.894***	0.604***	0.622***	0.585***
	(0.011)	(0.017)	(0.017)	(0.025)
Controls	Yes	Yes	Yes	Yes
F	6946.22	1255.54	1275.29	565.37
Observations	174,013	174,013	98,723	75,289

Notes: Table presents first-stage estimates of the probability of being admitted to a CTECS school and the probability of attending a CTECS school for the sample of all applications from 8th graders from 2006-2011. Column 1 presents first-stage estimates of the probability of being admitted to a CTECS school where the dependent variable is an indicator for receiving an offer of admittance and the sample includes both male and female students. Column 2 presents main first-stage estimates for probability of attending a CTECS school after receiving an offer where the dependent variable is an indicator for attendance at a CTECS school in 9th grade. Columns 3-4 present the same information as column 2 but limit the sample to male and female students respectively. All specifications include controls for whether a student is: Asian, Black, Hispanic, Free lunch eligible or an English Learner as well as the standardized sum of 8th grade math and reading score. All specifications include CTECS school-by-year fixed effects and 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and 8th grade district in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5A: Pairwise Linear Probability Estimates: Industry Choice

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
			Male Students		
Offer	0.105***	0.013	0.040*	0.031	0.090***
	(0.030)	(0.016)	(0.021)	(0.031)	(0.027)
Observations	37,545	29,783	30,967	42,586	36,747
Share Relative to Trade	0.301	0.119	0.153	0.384	0.286
Earnings Industry FE	0.617	-0.041	0.333	-0.171	0.589
			Female Students		
Offer	0.018	0.031***	-0.034*	0.023	0.010
	(0.017)	(0.011)	(0.020)	(0.026)	(0.008)
Observations	23,494	22,732	25,438	41,527	21,784
Share Relative to Retail	0.085	0.054	0.155	0.482	0.013
Earnings Industry FE	0.629	0.059	0.404	0.039	0.605

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns relative to being observed in retail. Top panel presents estimates for sample of male students. Bottom panel presents estimates for sample of female students. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include the full set of controls listed in Table 3 . All specifications include CTHSS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5B: Pairwise Linear Probability Estimates: Industry Choice

	(6)	(7)	(8)	(9)	(10)	(11)
Outcome	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
			Male Students			
Offer	0.008	0.008	0.042**	0.026	0.020	0.035
	(0.018)	(0.031)	(0.018)	(0.016)	(0.013)	(0.024)
Observations	29,850	34,452	31,199	28,558	28,301	30,548
Share Relative to Trade	0.121	0.239	0.159	0.083	0.074	0.142
Earnings Industry FE	0.475	0.209	-0.335	0.106	0.066	0.266
			Female Students			
Offer	0.013	0.003	0.043***	0.007	0.004	0.024
	(0.008)	(0.011)	(0.016)	(0.025)	(0.023)	(0.021)
Observations	22,135	22,942	24,938	25,708	25,263	34,127
Share Relative to Trade	0.029	0.063	0.138	0.165	0.148	0.369
Earnings Industry FE	0.325	0.141	-0.220	0.091	0.122	0.471

Table 6: Industry Earnings Fixed Effects as Outcome

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample	Full Sample	Free Lunch	Not Free Lunch	Black or Hispanic	Not Black or Hispanic	Central City	Not Central City
				Male Students			
Offer	0.033***	0.030**	0.033	0.032*	0.028*	0.011	0.041**
	(0.011)	(0.014)	(0.020)	(0.017)	(0.018)	(0.016)	(0.017)
Observations	98,242	54,357	43,883	43,110	55,131	30,630	67,612
				Female Students			
Offer	0.003	0.002	0.027	0.008	-0.011	0.001	0.003
	(0.009)	(0.012)	(0.019)	(0.009)	(0.016)	(0.010)	(0.017)
Observations	75,043	55,526	19,516	49,489	25,554	33,865	41,177

Notes: Table presents alternative models of industry choice where the dependent variable is the quarterly earnings fixed effect associated with the industry and the dependent variable is set to zero for retail trade, which is the omitted industry in the earnings models. Top panel presents estimates for sample of male students. Bottom panel presents estimates for sample of female students. Column 1 presents estimates for the full sample, columns 2 through 7 present subsample estimates in pairs for free and reduced price lunch elibible or not, student is either black or Hispanic or not, student resides in one of Connecticut's five largest urban cities. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include the full set of controls listed in Table 3 . All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

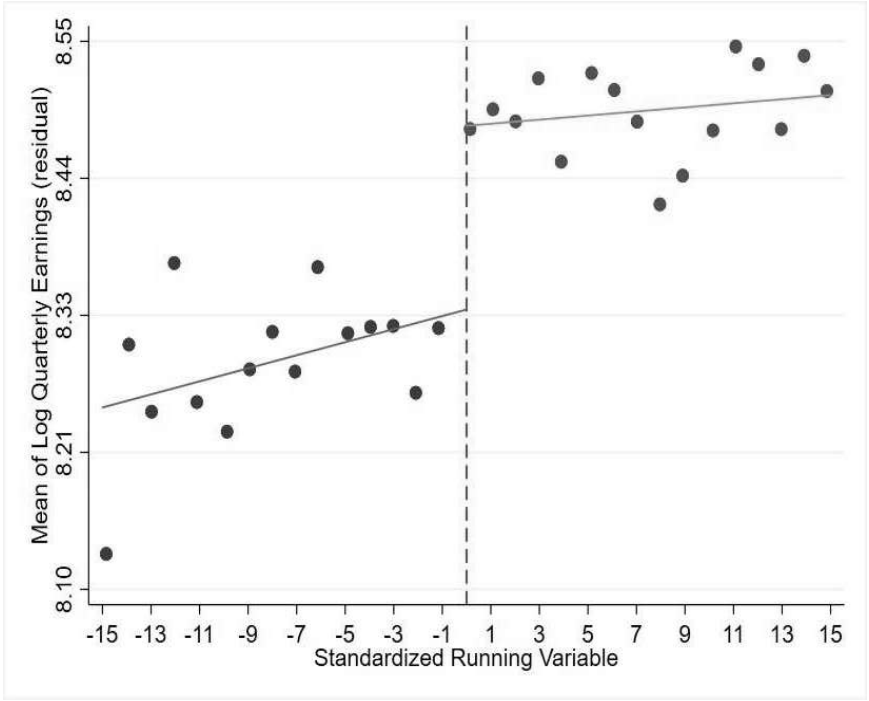
Table 7: Earnings by Industry

	(1)	(2)	(3)		(4)	(5)	(6)	
	Male Students				Female Students			
	Overall Treatment Effect	Conditional on Industry FEs	Treatment Effect by Industry		Overall Treatment Effect	Conditional on Industry FEs	Treatment Effect by Industry	
Offer	0.160***	0.122***	0.071**		0.033	0.036*	0.053*	
	(0.032)	(0.032)	(0.035)		(0.020)	(0.021)	(0.030)	
Manufacturing		0.617***	0.576***	0.063		0.629***	0.560***	0.100*
		(0.021)	(0.034)	(0.038)		(0.049)	(0.061)	(0.058)
Transportation		-0.041	-0.115**	0.119		0.059	0.060	-0.001
		(0.038)	(0.047)	(0.078)		(0.049)	(0.085)	(0.100)
Professional		0.333***	0.231***	0.149***		0.404***	0.399***	0.007
		(0.033)	(0.041)	(0.047)		(0.028)	(0.039)	(0.044)
Services		-0.171***	-0.193***	0.035		0.039**	0.051	-0.0192
		(0.026)	(0.033)	(0.036)		(0.019)	(0.040)	(0.050)
Construction		0.589***	0.431***	0.213***		0.605***	0.332*	0.322
		(0.025)	(0.046)	(0.044)		(0.099)	(0.194)	(0.220)
Wholesale Trade		0.475***	0.531***	-0.091		0.325***	0.417**	-0.114
		(0.035)	(0.056)	(0.061)		(0.092)	(0.167)	(0.164)
Operation Support		0.209***	0.151***	0.092*		0.141***	0.114**	0.0418
		(0.030)	(0.043)	(0.049)		(0.033)	(0.052)	(0.060)
Office Support		-0.335***	-0.401***	0.111***		-0.220***	-0.317***	0.172***
		(0.030)	(0.042)	(0.042)		(0.037)	(0.048)	(0.058)
Service		0.106	0.112	-0.010		0.091**	0.071	0.036
		(0.071)	(0.099)	(0.118)		(0.037)	(0.052)	(0.074)
Education		0.066	0.048	0.028		0.122***	0.247***	-0.196**
		(0.065)	(0.117)	(0.139)		(0.025)	(0.057)	(0.080)
Health		0.266***	0.268***	-0.002		0.471***	0.527***	-0.087**
		(0.043)	(0.045)	(0.048)		(0.020)	(0.042)	(0.043)
R-Square	0.117	0.197	0.198		0.08	0.126	0.127	
Observations	98,723	98,428	98,428		75,289	75,205	75,205	

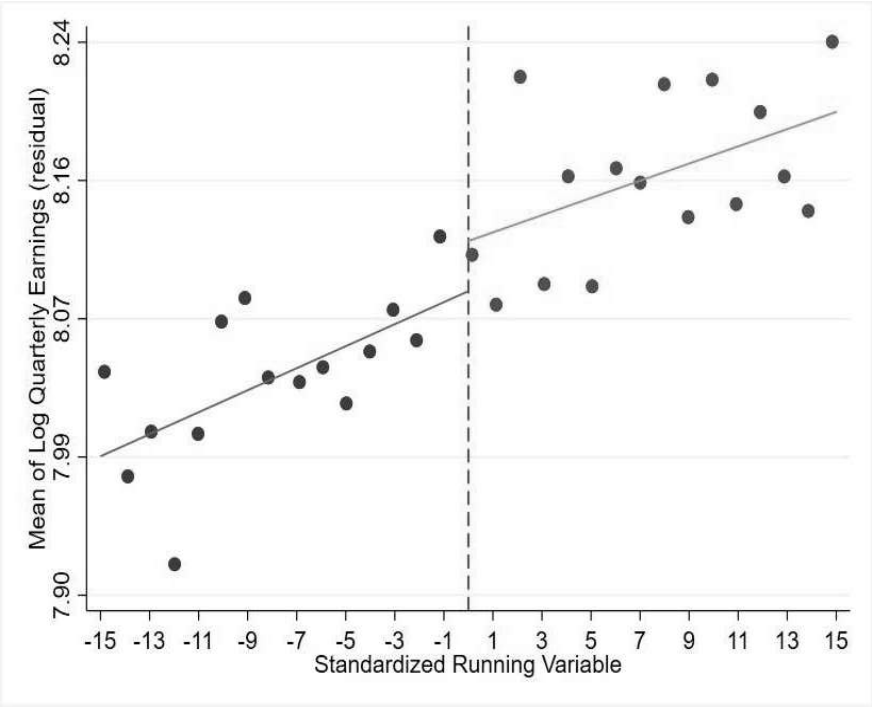
Notes: Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Models labelled 1-3 present estimates for the sample of male students. Models 4-6 present estimates for the sample of female students. Models 1 and 4 present estimates that exclude industry fixed effects. Models 2 and 5 present estimates that add industry fixed effects. The omitted or reference industry is retail. Models 3 and 6 each contain two columns presenting estimates based on a specification that includes industry fixed effect, shown in the first column, and those fixed effects interacted with the offer indicator, shown in the second. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 2: Reduced Form Graphs Quarterly Earnings

Panel A: Log Quarterly Earnings Male Students



Panel B: Log Quarterly Earnings Female Students



Notes : The scores forming the horizontal axis have been re-centered by subtracting the threshold for each school and year from the scores associated with the applicants from those schools and years. These figures document the logarithm of average quarterly earnings for each score value. Earnings are based on applications from 8th graders from 2006-2011 who matched in at least one quarter to the labor market data.

Table 8A: Pairwise Linear Probability Estimates: Industry Choice in High School

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
			Male Students		
Offer	0.084***	-0.003	0.028	0.006	0.048**
	(0.026)	(0.011)	(0.019)	(0.030)	(0.019)
Observations	11,496	10,122	10,828	23,351	10,932
Share Relative to Retail	0.137	0.022	0.086	0.578	0.095
			Female Students		
Offer	0.030**	0.005	0.002	0.020	0.006
	(0.015)	(0.005)	(0.025)	(0.026)	(0.004)
Observations	9,171	8,627	9,443	22,711	8,662
Share Relative to Retail	0.062	0.005	0.090	0.624	0.009

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns at the age of 16 or below relative to being observed in retail. Top panel presents estimates for sample of male students. Bottom panel presents estimates for sample of female students. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include the full set of controls listed in Table 3 . All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8B: Pairwise Linear Probability Estimates: Industry Choice in High School

	(6)	(7)	(8)	(9)	(10)	(11)
Outcome	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
			Male Students			
Offer	-0.017	0.040	-0.009	0.003	-0.027	0.026
	(0.019)	(0.029)	(0.017)	(0.024)	(0.019)	(0.027)
Observations	10,353	11,348	10,273	11,410	10,890	11,104
Share Relative to Retail	0.044	0.128	0.036	0.134	0.092	0.110
			Female Students			
Offer	0.030**	0.003	0.000	0.028	-0.066***	-0.039
	(0.008)	(0.015)	(0.017)	(0.020)	(0.024)	(0.034)
Observations	8,697	8,805	8,839	9,977	9,802	9,978
Share Relative to Retail	0.012	0.025	0.030	0.140	0.124	0.141

Table 9: Earnings by Industry controlling for Experience and Industry Experience

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Male Treatment Effect by Industry				Female Treatment Effect by Industry			
Offer	0.071**	0.052	0.074**	0.057*	0.053*	0.040	0.0364	0.034
	(0.035)	(0.032)	(0.035)	(0.033)	(0.030)	(0.027)	(0.026)	(0.026)
Experience		0.089***		0.071***		0.085***		0.072***
		(0.003)		(0.003)		(0.005)		(0.005)
Industry Experience			0.052***	0.027***			0.044***	0.021***
			(0.002)	(0.002)			(0.003)	(0.002)
Manufacturing*Offer	0.063	0.102**	0.038	0.081**	0.100*	0.117**	0.065	0.098*
	(0.038)	(0.040)	(0.037)	(0.039)	(0.058)	(0.056)	(0.062)	(0.058)
Transportation*Offer	0.119	0.126*	0.092	0.110	-0.001	0.057	0.011	0.054
	(0.078)	(0.068)	(0.072)	(0.066)	(0.100)	(0.095)	(0.098)	(0.094)
Professional*Offer	0.149***	0.142**	0.121**	0.129**	0.007	0.021	0.019	0.025
	(0.047)	(0.056)	(0.050)	(0.055)	(0.044)	(0.039)	(0.040)	(0.038)
Services*Offer	0.035	0.044	0.034	0.041	-0.019	-0.007	-0.015	-0.007
	(0.036)	(0.036)	(0.037)	(0.037)	(0.050)	(0.052)	(0.046)	(0.050)
Construction*Offer	0.213***	0.175***	0.155***	0.152***	0.322	0.217	0.286	0.215
	(0.044)	(0.037)	(0.039)	(0.036)	(0.220)	(0.210)	(0.212)	(0.207)
Wholesale Trade	-0.091	-0.066	-0.081	-0.066	-0.114	-0.135	-0.136	-0.142
*Offer	(0.061)	(0.058)	(0.058)	(0.056)	(0.164)	(0.153)	(0.173)	(0.159)
Operation Support	0.092*	0.055	0.087**	0.060	0.042	0.048	0.004	0.030
*Offer	(0.049)	(0.042)	(0.042)	(0.039)	(0.060)	(0.065)	(0.066)	(0.067)
Office Support*Offer	0.111***	0.117**	0.130***	0.125***	0.172***	0.158***	0.196***	0.172***
	(0.042)	(0.045)	(0.042)	(0.045)	(0.058)	(0.052)	(0.056)	(0.052)
Service*Offer	-0.010	0.000	0.019	0.014	0.036	0.045	0.053	0.052
	(0.118)	(0.109)	(0.111)	(0.107)	(0.074)	(0.068)	(0.067)	(0.066)
Education*Offer	0.028	0.008	0.022	0.009	-0.196**	-0.163**	-0.160**	-0.151**
	(0.139)	(0.136)	(0.135)	(0.134)	(0.080)	(0.077)	(0.074)	(0.074)
Health*Offer	-0.002	-0.001	-0.014	-0.007	-0.087**	-0.082**	-0.084**	-0.081**
	(0.048)	(0.049)	(0.046)	(0.047)	(0.043)	(0.039)	(0.040)	(0.038)
R-Square	0.198	0.248	0.231	0.255	0.127	0.174	0.151	0.179
Observations	98,428	98,428	98,428	98,428	75,205	75,205	75,205	75,205

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Columns between 1 and 4 present estimates for sample of male students. Columns 5 and 8 present estimates for sample of female students. The omitted or reference industry is retail. Columns 1 and 5 present estimates based on a specification that includes industry fixed effect and those fixed effects interacted with the offer indicator. Only the interactions are reported in 1 and 5 while uninteracted estimates reported in Table 6 columns 3 and 7. Columns 2 and 6 also contol for experience, columns 3 and 7 control industry experience, finally column 4 and 8 control for experience and industry experience. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Earnings by Industry (controls interacted with industries)

	(1)	(2)	(3)	(4)
	Male		Female	
	Treatment Effect by Industry		Treatment Effect by Industry	
Offer	0.071**	0.066*	0.053*	0.055*
	(0.035)	(0.034)	(0.030)	(0.033)
Manufacturing*Offer	0.063	0.073*	0.100*	0.065
	(0.038)	(0.043)	(0.058)	(0.069)
Transportation*Offer	0.119	0.084	-0.001	0.010
	(0.078)	(0.081)	(0.100)	(0.093)
Professional*Offer	0.149***	0.105*	0.007	-0.017
	(0.047)	(0.061)	(0.044)	(0.056)
Services*Offer	0.035	0.052	-0.019	-0.014
	(0.036)	(0.043)	(0.050)	(0.053)
Construction*Offer	0.213***	0.198***	0.322	0.128
	(0.044)	(0.051)	(0.220)	(0.227)
Wholesale Trade*Offer	-0.091	-0.088	-0.114	-0.124
	(0.061)	(0.067)	(0.164)	(0.165)
Operation Support*Offer	0.092*	0.083	0.042	0.054
	(0.049)	(0.059)	(0.060)	(0.081)
Office Support*Offer	0.111***	0.037	0.172***	0.158**
	(0.042)	(0.050)	(0.058)	(0.070)
Public / Social Service*Offer	-0.010	-0.069	0.036	0.035
	(0.118)	(0.127)	(0.074)	(0.072)
Education*Offer	0.028	0.060	-0.196**	-0.222***
	(0.139)	(0.155)	(0.080)	(0.074)
Health*Offer	-0.002	0.008	-0.087**	-0.094**
	(0.048)	(0.062)	(0.043)	(0.043)
R-Square	0.198	0.205	0.127	0.132
Observations	98,428	98,428	75,205	75,205
Industry by Control Interactions	No	Yes	No	Yes

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Columns 1 and 2 present estimates for sample of male students. Columns 3 and 4 present estimates for sample of female students. The omitted or reference industry is retail. Columns 1 and 3 present estimates based on a specification that includes industry fixed effect and those fixed effects interacted with the offer indicator. Only the interactions are reported in 1 and 3 while uninteracted estimates reported in Table 6 columns 3 and 7. Columns 2 and 4 also contol for the interaction of each of the controls listed in Table 3 with each industry dummy. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A1 Gender Composition of Programs in CTHSS

CTE Program	Female	Male	Percent Male
Automated Manufacturing	25	29	53.7%
Automotive Technology	160	775	82.9%
Bioscience Environmental Technology	63	28	30.8%
Biotechnology	27	21	43.8%
Carpentry	236	610	72.1%
Collision, Repair and Refinishing	115	248	68.3%
Criminal Justice and Protective Services	7	5	41.7%
Culinary Arts	672	352	34.4%
Culinary Arts and Guest Services	21	14	40.0%
Diesel and Heavy Duty Equipment Repair	11	40	78.4%
Digital Media	29	48	62.3%
Early Care And Education	26	1	3.7%
Electrical	162	799	83.1%
Electronics Technology	62	226	78.5%
Facilities Management	0	16	100.0%
Graphic Technology	218	131	37.5%
Hairdressing and Cosmetology	820	45	5.2%
Health Technologies	570	75	11.6%
Heating, Ventilation and Air Conditioning	53	391	88.1%
Hotel Hospitality Technology	6	0	0.0%
Information Systems Technology	102	440	81.2%
Marketing, Management and Entrepreneurship	44	27	38.0%
Masonry	67	132	66.3%
Mechanical Design & Engineering Technology	146	359	71.1%
Mechatronics	21	48	69.6%
Plumbing and Heating	99	577	85.4%
Plumbing, Heating, and Cooling	3	38	92.7%
Precision Machining Technology	192	593	75.5%
Pre-Electrical Engineering and Applied Electronics	14	33	70.2%
Sound Production	9	23	71.9%
Sustainable Architecture	95	85	47.2%
Tourism, Hospitality and Guest Services Management	27	3	10.0%
Welding And Metal Fabrication	11	56	83.6%

Notes: Data are courtesy of CTECS central office. Breakdown is districtwide and represents enrollment in grades 9 through 12 during the 2018-2019 school year.

Table A2 Application Score Components

Year	Total Score	Language Arts	Mathematics	Grades	Attandance	Leadership	Pers. Statement
2006							
Max Score (Weight)	100	20 (0.20)	20 (0.20)	40 (0.40)	20 (0.20)	0 (0.00)	0 (0.00)
2007							
Max Score (Weight)	100	21 (0.21)	21 (0.20)	48 (0.48)	10 (0.10)	0 (0.00)	0 (0.00)
2008							
Max Score (Weight)	100	21 (0.21)	21 (0.20)	48 (0.48)	10 (0.10)	0 (0.00)	0 (0.00)
2009							
Max Score (Weight)	106	21 (0.21)	21 (0.20)	48 (0.48)	10 (0.10)	3 (0.03)	3 (0.03)
2010							
Max Score (Weight)	106	21 (0.20)	21 (0.20)	48 (0.45)	10 (0.09)	3 (0.03)	3 (0.03)
2011							
Max Score (Weight)	120	21 (0.18)	20 (0.18)	48 (0.40)	10 (0.08)	10 (0.08)	10 (0.08)
2012							
Max Score (Weight)	120	21 (0.18)	20 (0.18)	48 (0.40)	10 (0.08)	10 (0.08)	10 (0.08)
2013							
Max Score (Weight)	120	21 (0.18)	20 (0.18)	48 (0.40)	10 (0.08)	10 (0.08)	10 (0.08)

Numbers in parentheses represent the weight attached to each component when calculating the total application score.

Table A3: Labor Market Match Rate by Quarters Male Students

	Observed in Labor Market	
Quarters Count	No	Yes
1	53.57	46.43
2	42.05	57.95
3	40.32	59.68
4	40.80	59.20
5	42.42	57.58
6	38.22	61.78
7	37.26	62.74
8	38.89	61.11
9	40.58	59.42
10	37.86	62.14
11	37.26	62.74
12	37.80	62.20
13	40.06	59.94
14	37.38	62.62
15	36.89	63.11
16	37.22	62.78
17	39.50	60.50
18	37.79	62.21
19	37.83	62.17
20	38.25	61.75
21	41.37	58.63
22	39.19	60.81
23	39.23	60.77
24	39.43	60.57
25	41.67	58.33
Total	40.42	59.58

Notes: Table presents the fraction of the sample of male applicants observed in the labor market in a given quarter where quarters are enumerated starting in the first quarter of the calendar year five years after starting high school.

Table A4: Labor Market Match Rate by Quarters Female Students

	Observed in Labor Market	
Quarters Count	No	Yes
1	52.88	47.12
2	41.54	58.46
3	40.14	59.86
4	39.36	60.64
5	40.69	59.31
6	38.43	61.57
7	37.37	62.63
8	37.98	62.02
9	39.66	60.34
10	38.49	61.51
11	37.48	62.52
12	37.69	62.31
13	39.37	60.63
14	38.38	61.62
15	37.61	62.39
16	37.71	62.29
17	39.23	60.77
18	40.28	59.72
19	40.28	59.72
20	40.10	59.90
21	41.29	58.71
22	40.65	59.35
23	40.65	59.35
24	40.84	59.16
25	42.23	57.77
Total	40.32	59.68

Notes: Table presents the fraction of the sample of female applicants observed in the labor market in a given quarter where quarters are enumerated starting in the first quarter of the calendar year five years after starting high school.

Table A5: Cross-reference between NAICS Codes and CTE focused Industry Categories

(1) NAICS Two Digit Code	(2) NAIC Industry Label	(3) CTE Based Industry Categories	(4) ACS Percent Female
11	Agriculture, Forestry, Fishing and Hunting	Delete	18.6
21	Mining, Quarrying, and Oil and Gas Extraction	Delete	6.2
22	Utilities	Operation Support	12.6
23	Construction	Construction	6.0
31-33	Manufacturing	Manufacturing	23.4
42	Wholesale Trade	Wholesale Trade	24.7
44-45	Retail Trade	Retail Trade	47.9
48	Transportation and Warehousing	Transportation	21.6
49	Postal, Couriers and Warehousing/storage	Transportation	25.9
51	Information	Professional	40.8
52	Finance and Insurance	Professional	69.8
53	Real Estate and Rental and Leasing	Professional	43.5
54	Professional, Scientific, and Technical Services	Professional	53.0
55	Management of Companies and Enterprises	Professional	55.6
56	Administrative and Support and Waste Management and Remediation Services		
561	Administrative and Support Services		
5611	Office Administrative Services	Office Support	NA
5612	Facilities Support Services	Operation Support	NA
5613	Employment Services	Office Support	43.0
5614	Business Support Services	Office Support	65.5
5615	Travel Arrangement and Reservation Services	Office Support	54.4
5616	Investigation and Security Services	Operation Support	25.4
5617	Services to Buildings and Dwellings	Operation Support	19.9
5619	Other Support Services	Office Support	39.6
562	Waste Management and Remediation Services	Operation Support	12.2
61	Educational Services	Education	59.1
62	Health Care and Social Assistance		
621	Medical Offices, Centers and Labs	Health	82.3
622	Hospitals	Health	75.8
623	Other Medical Facilities	Health	79.9
624	Social Assistance		
6241	Individual and Family Services	Public/Social Services	72.3
6242	Community Food and Housing, and Emergency and Other Relief Services	Public/Social Services	56.8
6243	Vocational Rehabilitation Services	Public/Social Services	47.9
6244	Child Day Care Services	Education	94.0
71	Arts, Entertainment, and Recreation	Services	45.4
72	Accommodation and Food Services	Services	53.2
81	Other Services (except Public Administration)		
811	Repair and Maintenance	Operation Support	9.1
812	Personal and Laundry Services	Services	76.2
813	Religious, Grantmaking, Civic, Professional, and	Public/Social Services	52.0
814	Private Households	Services	91.0
92	Public Administration	Public/Social Services	21.4
99	Not Labelled	Delete	NA

Notes : The percent female is based on a national sample of the ACS from 2013-2018 for workers aged 19-26 who worked at least 27 weeks last year and on average at least 20 hours per week. Percent female is not presented for industries 5611 and 5612 because those industries are not identified in the ACS, and all workers in the ACS have a self-reported or imputed NAICS industry code.

Table A6: Covariate Balancing Tests Alternative Bandwidths

	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)
Outcome	Black	Hispanic	Free Lunch	English Learner	8th Grade Test Scores	6th Grade Attendence	Spending Per Pupil	Pupil Teacher Ratio	6th Grade Avg Math Score
					Male Students Bandwidth 10				
Offer	0.023	-0.012	-0.010	0.007	-0.028	-0.001	26.570	-0.062	-0.396
	(0.019)	(0.020)	(0.019)	(0.012)	(0.040)	(0.004)	(35.150)	(0.097)	(0.286)
Observations	70,481	70,481	70,481	70,481	50,067	34,183	66,219	70,053	69,457
					Male Students Bandwidth 12				
Offer	0.013	-0.011	-0.011	-0.003	0.000	-0.002	48.150	-0.033	-0.119
	(0.018)	(0.022)	(0.019)	(0.009)	(0.037)	(0.003)	(39.160)	(0.097)	(0.263)
Observations	82,384	82,384	82,384	82,384	58,448	40,116	77,381	81,817	81,134
					Female Students Bandwidth 10				
Offer	-0.011	0.021	0.002	-0.013	-0.035	0.000	52.650	-0.007	0.028
	(0.027)	(0.022)	(0.020)	(0.017)	(0.053)	(0.004)	(50.350)	(0.100)	(0.238)
Observations	54,516	54,516	54,516	54,516	37,871	26,762	50,062	54,195	54,027
					Female Students Bandwidth 12				
Offer	-0.009	0.032	-0.001	0.002	-0.002	-0.004	59.940	0.043	0.040
	(0.024)	(0.020)	(0.018)	(0.018)	(0.047)	(0.005)	(40.100)	(0.065)	(0.226)
Observations	63,596	63,596	63,596	63,596	44,130	31,336	58,499	63,249	63,019

Notes: Table presents balancing tests for male and female students. Estimates are from a RD specification using local linear regression and the bandwidth listed at the top of each panel. Top two panels present balancing tests for male students. Bottom two panels present balancing tests for female students. All specifications other than spending per-pupil include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Spending per pupil specification omits district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A7A: Pairwise Linear Probability Estimates: No Covariates

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
			Male Students		
Offer	0.108***	0.013	0.039*	0.031	0.094***
	(0.030)	(0.015)	(0.021)	(0.031)	(0.027)
Observations	37,545	29,783	30,967	42,586	36,747
Share Relative to Trade	0.301	0.119	0.153	0.384	0.286
			Female Students		
Offer	0.020	0.031***	-0.035*	0.022	0.010
	(0.017)	(0.012)	(0.020)	(0.028)	(0.009)
Observations	23,494	22,732	25,438	41,527	21,784
Share Relative to Retail	0.085	0.054	0.155	0.482	0.013

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns relative to being observed in retail. Top panel presents estimates for sample of male students. Bottom panel presents estimates for sample of female students. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A7B: Pairwise Linear Probability Estimates: No Covariates

	(6)	(7)	(8)	(9)	(10)	(11)
Outcome	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
			Male Students			
Offer	0.009	0.011	0.039**	0.026	0.020	0.034
	(0.019)	(0.031)	(0.018)	(0.016)	(0.013)	(0.024)
Observations	29,850	34,452	31,199	28,558	28,301	30,548
Share Relative to Trade	0.121	0.239	0.159	0.083	0.074	0.142
			Female Students			
Offer	0.013	0.002	0.042***	0.006	0.002	0.024
	(0.008)	(0.012)	(0.016)	(0.026)	(0.023)	(0.022)
Observations	22,135	22,942	24,938	25,708	25,263	34,127
Share Relative to Trade	0.029	0.063	0.138	0.165	0.148	0.369

Table A8A: Pairwise Linear Probability Estimates: Alternative Bandwidth

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
			Male Students BW 10		
Offer	0.104***	0.028	0.014	0.029	0.067**
	(0.038)	(0.021)	(0.022)	(0.034)	(0.033)
Observations	26,975	21,718	22,629	30,657	26,459
			Male Students BW 12		
Offer	0.101***	0.020	0.028	0.042	0.094***
	(0.036)	(0.021)	(0.021)	(0.037)	(0.032)
Observations	31,415	25,092	26,014	35,609	30,848
			Female Students BW10		
Offer	0.026	0.021	-0.056**	0.021	0.016*
	(0.020)	(0.017)	(0.021)	(0.032)	(0.009)
Observations	16,959	16,472	18,455	29,699	15,790
			Female Students BW 12		
Offer	0.019	0.027*	-0.043**	0.025	0.015*
	(0.020)	(0.015)	(0.021)	(0.025)	(0.009)
Observations	19,789	19,147	21,426	34,918	18,362

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns relative to being observed in retail. Top 2 panels presents estimates for sample of male students. Bottom 2 panels presents estimates for sample of female students. All estimates are based on a reduced form RD specification using local linear regression and the bandwidth listed at the top of each panel. All specifications include the full set of controls listed in Table 3 . All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A8B: Pairwise Linear Probability Estimates: Alternative Bandwidth

	(6)	(7)	(8)	(9)	(10)	(11)
Outcomes	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
			Male Students BW 10			
Offer	0.019	0.023	0.028	0.034*	0.026*	0.026
	(0.023)	(0.035)	(0.022)	(0.019)	(0.014)	(0.034)
Observations	21,897	25,252	22,709	20,871	20,792	22,257
			Male Students BW 12			
Offer	0.024	0.019	0.046**	0.044**	0.013	0.025
	(0.021)	(0.034)	(0.021)	(0.020)	(0.014)	(0.029)
Observations	25,244	29,086	26,273	24,113	23,934	25,840
			Female Students BW10			
Offer	0.007	-0.002	0.059***	-0.013	0.023	0.004
	(0.014)	(0.017)	(0.022)	(0.027)	(0.032)	(0.028)
Observations	16,056	16,684	18,028	18,694	18,368	24,985
			Female Students BW 12			
Offer	0.008	-0.009	0.029*	-0.001	-0.004	0.020
	(0.012)	(0.014)	(0.017)	(0.020)	(0.025)	(0.017)
Observations	18,679	19,390	20,973	21,714	28,888	23,494

Table A9: Pairwise Linear Probability Estimates: Heterogeneity Analysis Male Students

	(1) Free Lunch	(2) Not Free Lunch	(3) Black or Hispanic	(4) Not Black or Hispanic	(5) Central City	(6) Not Central City
Manufacturing	0.098***	0.081**	0.097***	0.081*	0.015	0.150***
	(0.032)	(0.035)	(0.025)	(0.043)	(0.030)	(0.038)
Transportation	0.012	0.009	0.020	-0.010	-0.040**	0.049*
	(0.021)	(0.020)	(0.023)	(0.025)	(0.019)	(0.026)
Professional	0.039***	0.010	0.065***	-0.008	-0.011	0.074**
	(0.013)	(0.039)	(0.017)	(0.030)	(0.031)	(0.036)
Services	0.006	0.049	0.041	-0.001	-0.021	0.063*
	(0.030)	(0.031)	(0.028)	(0.032)	(0.030)	(0.034)
Construction	0.031	0.144***	0.029	0.121***	-0.014	0.146***
	(0.020)	(0.038)	(0.020)	(0.037)	(0.016)	(0.037)
Wholesale Trade	-0.013	0.041	-0.004	0.004	-0.022	0.037
	(0.012)	(0.035)	(0.014)	(0.034)	(0.015)	(0.034)
Operation Support	-0.010	0.025	0.006	-0.011	-0.050	0.051
	(0.029)	(0.040)	(0.030)	(0.036)	(0.041)	(0.039)
Office Support	0.035	0.038	0.028	0.032	-0.028	0.086***
	(0.023)	(0.023)	(0.024)	(0.027)	(0.030)	(0.027)
Public / Social Service	-0.011	0.086***	0.013	0.016	-0.022	0.059**
	(0.011)	(0.029)	(0.013)	(0.033)	(0.014)	(0.029)
Education	0.015	0.035	0.025	0.013	-0.008	0.050**
	(0.016)	(0.023)	(0.023)	(0.021)	(0.026)	(0.022)
Health	0.037	0.048*	0.079**	-0.024	0.049	0.048
	(0.025)	(0.027)	(0.039)	(0.024)	(0.043)	(0.030)

Notes: Table presents pair-wise linear probability estimates for the probability that a male student is observed in the industry listed in the corresponding rows relative to being observed in retail trade. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. Columns 1 and 2 split the sample based on whether a student is eligible for free or reduced price meals. Columns 3 and 4 split the sample based on whether a student is Black or Hispanic (column 3) or some other race/ethnicity (column 4). Columns 5 and 6 split the sample based on whether a student resides in one of Connecticut's five largest urban cities. All specifications include CTECS school-by-year fixed effects, resident 8^{th} grade school district fixed effects and the full set of controls listed in Table 3 (other than the covariate listed in the top row). Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A10: Pairwise Linear Probability Estimates: Heterogeneity Analysis Female Students

	(1) Free Lunch	(2) Not Free Lunch	(3) Black or Hispanic	(4) Not Black or Hispanic	(5) Central City	(6) Not Central City
Manufacturing	0.013	0.024	0.019	0.007	0.017	0.001
	(0.016)	(0.038)	(0.021)	(0.041)	(0.023)	(0.037)
Transportation	0.033**	-0.004	0.039**	0.010	0.045**	0.014
	(0.015)	(0.026)	(0.015)	(0.023)	(0.020)	(0.023)
Professional	-0.036*	-0.010	-0.038	-0.007	-0.037*	-0.050
	(0.021)	(0.042)	(0.025)	(0.029)	(0.021)	(0.040)
Services	0.019	0.013	0.036	-0.012	0.024	0.006
	(0.027)	(0.023)	(0.023)	(0.025)	(0.023)	(0.034)
Construction	0.017*	-0.032	0.012	0.028	0.013	0.011
	(0.010)	(0.028)	(0.008)	(0.030)	(0.011)	(0.017)
Wholesale Trade	0.014	0.002	0.021***	0.006	0.033**	0.003
	(0.010)	(0.030)	(0.007)	(0.027)	(0.015)	(0.022)
Operation Support	0.002	-0.017	0.008	-0.021	0.001	-0.011
	(0.012)	(0.032)	(0.012)	(0.029)	(0.007)	(0.028)
Office Support	0.044**	0.007	0.056***	-0.011	0.071***	0.001
	(0.018)	(0.022)	(0.018)	(0.026)	(0.019)	(0.031)
Public / Social Service	0.010	-0.017	0.018	-0.039	0.025	-0.027
	(0.030)	(0.028)	(0.028)	(0.030)	(0.029)	(0.030)
Education	-0.003	0.026	0.009	-0.011	0.020	-0.027
	(0.023)	(0.052)	(0.023)	(0.041)	(0.025)	(0.035)
Health	0.015	0.019	0.046**	-0.024	0.045**	-0.011
	(0.026)	(0.034)	(0.022)	(0.026)	(0.020)	(0.026)

Notes: Table presents pair-wise linear probability estimates for the probability that a female student is observed in the industry listed in the corresponding rows relative to being observed in retail trade. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. Columns 1 and 2 split the sample based on whether a student is eligible for free or reduced price meals. Columns 3 and 4 split the sample based on whether a student is Black or Hispanic (column 3) or some other race/ethnicity (column 4). Columns 5 and 6 split the sample based on whether a student resides in one of Connecticut's five largest urban cities. All specifications include CTECS school-by-year fixed effects, resident 8^{th} grade school district fixed effects and the full set of controls listed in Table 3 (other than the covariate listed in the top row). Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A11: Earnings by Industry with No Control Covariates

	(1)	(2)	(3)		(4)	(5)	(6)	
	Male Students				Female Students			
Offer	0.156***	0.119***	0.072*		0.034*	0.037*	0.057**	
	(0.034)	(0.033)	(0.037)		(0.020)	(0.021)	(0.028)	
Manufacturing		0.628***	0.591***	0.058		0.652***	0.585***	0.098*
		(0.021)	(0.037)	(0.041)		(0.046)	(0.055)	(0.057)
Transportation		-0.052	-0.123**	0.114		0.063	0.068	-0.008
		(0.037)	(0.049)	(0.079)		(0.050)	(0.085)	(0.101)
Professional		0.332***	0.237***	0.139***		0.420***	0.416***	0.005
		(0.033)	(0.042)	(0.047)		(0.029)	(0.040)	(0.043)
Services		-0.172***	-0.192***	0.030		0.044**	0.059	-0.024
		(0.027)	(0.033)	(0.036)		(0.020)	(0.039)	(0.050)
Construction		0.611***	0.461***	0.205***		0.602***	0.350*	0.295
		(0.025)	(0.046)	(0.043)		(0.094)	(0.201)	(0.220)
Wholesale Trade		0.480***	0.533***	-0.085		0.345***	0.436***	-0.114
		(0.035)	(0.055)	(0.062)		(0.092)	(0.163)	(0.163)
Operation Support		0.223***	0.165***	0.091**		0.150***	0.120**	0.045
		(0.029)	(0.040)	(0.046)		(0.032)	(0.052)	(0.060)
Office Support		-0.349***	-0.415***	0.110***		-0.226***	-0.318***	0.164***
		(0.032)	(0.044)	(0.041)		(0.038)	(0.048)	(0.055)
Public / Social		0.094	0.101	-0.010		0.076**	0.059	0.031
Service		(0.072)	(0.101)	(0.120)		(0.036)	(0.050)	(0.074)
Education		0.057	0.049	0.015		0.125***	0.250***	-0.195***
		(0.062)	(0.118)	(0.139)		(0.024)	(0.051)	(0.074)
Health		0.251***	0.262***	-0.016		0.463***	0.519***	-0.087**
		(0.043)	(0.047)	(0.047)		(0.019)	(0.040)	(0.041)
R-Square	0.106	0.192	0.193		0.076	0.123	0.124	
Observations	98,723	98,428	98,428	98,428	75,289	75,205	75,205	74,205

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Models labelled 1-3 present estimates for the sample of male students. Models 4-6 present estimates for the sample of female students. Models 1 and 4 present estimates that exclude industry fixed effects. Models 2 and 5 present estimates that add industry fixed effects. The omitted or reference industry is retail. Models 3 and 6 each contain two columns presenting estimates based on a specification that includes industry fixed effect, shown in the first column, and those fixed effects interacted with the offer indicator, shown in the second. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, and quarter and year fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A12: Earnings by Industry: Male Students Alternative Bandwidths

	(1)	(2)	(3)		(4)	(5)	(6)	
	Bandwdith 10				Bandwidth 12			
Offer	0.185***	0.146***	0.102***		0.178***	0.143***	0.100***	
	(0.038)	(0.032)	(0.034)		(0.033)	(0.031)	(0.033)	
Manufacturing		0.618***	0.580***	0.059		0.621***	0.574***	0.071*
		(0.022)	(0.038)	(0.042)		(0.021)	(0.034)	(0.041)
Transportation		-0.095*	-0.128*	0.052		-0.076	-0.145**	0.111
		(0.054)	(0.066)	(0.081)		(0.049)	(0.059)	(0.075)
Professional		0.350***	0.253***	0.143**		0.339***	0.228***	0.162**
		(0.038)	(0.055)	(0.070)		(0.037)	(0.051)	(0.064)
Services		-0.192***	-0.215***	0.0363		-0.179***	-0.190***	0.018
		(0.031)	(0.049)	(0.048)		(0.030)	(0.043)	(0.041)
Construction		0.583***	0.439***	0.197***		0.593***	0.437***	0.212***
		(0.035)	(0.056)	(0.053)		(0.029)	(0.051)	(0.047)
Wholesale Trade		0.475***	0.540***	-0.106		0.481***	0.543***	-0.102
		(0.034)	(0.059)	(0.074)		(0.039)	(0.060)	(0.068)
Operation Support		0.214***	0.154***	0.096		0.224***	0.184***	0.062
		(0.038)	(0.055)	(0.064)		(0.035)	(0.052)	(0.057)
Office Support		-0.378***	-0.416***	0.063		-0.343***	-0.384***	0.068
		(0.036)	(0.054)	(0.058)		(0.033)	(0.041)	(0.041)
Public / Social		0.152**	0.139*	0.021		0.113	0.135	-0.037
Service		(0.065)	(0.076)	(0.114)		(0.070)	(0.106)	(0.132)
Education		0.081	0.038	0.064		0.086	0.048	0.057
		(0.073)	(0.111)	(0.142)		(0.073)	(0.109)	(0.127)
Health		0.268***	0.295***	-0.040		0.267***	0.283***	-0.022
		(0.050)	(0.060)	(0.058)		(0.044)	(0.050)	(0.054)
R-Square	0.118	0.202	0.203		0.117	0.198	0.199	
Observations	70,481	70,299	70,299	70,299	82,384	82,170	82,170	82,170

Notes: Table presents reduced-form estimates for male students where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression. Columns 1-3 present estimates based on a bandwidth of 10. Columns 4-6 present estimates based on a bandwidth of 12. Models 1 and 4 present estimates that exclude industry fixed effects. Models 2 and 5 present estimates that add industry fixed effects. The omitted or reference industry is retail. Models 3 and 6 each contain two columns presenting estimates based on a specification that includes industry fixed effect, shown in the first column, and those fixed effects interacted with the offer indicator, shown in the second. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A13: Earnings by Industry: Female Students Alternative Bandwidths

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Bandwdith 10				Bandwidth 12			
Offer	0.049	0.058*	0.070		0.022	0.029	0.054	
	(0.032)	(0.031)	(0.050)		(0.026)	(0.027)	(0.039)	
Manufacturing		0.618***	0.544***	0.111**		0.641***	0.569***	0.106*
		(0.049)	(0.063)	(0.055)		(0.051)	(0.063)	(0.060)
Transportation		0.074	0.076	-0.003		0.057	0.018	0.062
		(0.052)	(0.103)	(0.123)		(0.048)	(0.095)	(0.124)
Professional		0.417***	0.412***	0.007		0.390***	0.403***	-0.022
		(0.032)	(0.044)	(0.057)		(0.028)	(0.036)	(0.051)
Services		0.0400*	0.057	-0.027		0.045**	0.077	-0.049
		(0.022)	(0.056)	(0.066)		(0.019)	(0.047)	(0.059)
Construction		0.629***	0.342**	0.345		0.630***	0.478***	0.178
		(0.115)	(0.172)	(0.213)		(0.107)	(0.173)	(0.205)
Wholesale Trade		0.352***	0.417**	-0.081		0.326***	0.395**	-0.087
		(0.096)	(0.204)	(0.193)		(0.088)	(0.183)	(0.177)
Operation Support		0.183***	0.184***	-0.002		0.176***	0.149***	0.039
		(0.039)	(0.052)	(0.061)		(0.039)	(0.052)	(0.056)
Office Support		-0.228***	-0.341***	0.189***		-0.229***	-0.337***	0.181***
		(0.043)	(0.060)	(0.070)		(0.042)	(0.054)	(0.060)
Public / Social		0.109**	0.092	0.029		0.097**	0.084	0.024
Service		(0.046)	(0.076)	(0.085)		(0.040)	(0.068)	(0.081)
Education		0.138***	0.225***	-0.139*		0.121***	0.240***	-0.187**
		(0.032)	(0.059)	(0.078)		(0.030)	(0.055)	(0.073)
Health		0.488***	0.529***	-0.065		0.485***	0.539***	-0.084*
		(0.019)	(0.045)	(0.050)		(0.021)	(0.047)	(0.049)
R-Square	0.084	0.132	0.133		0.08	0.128	0.129	
Observations	54,516	54,453	54,453	54,453	63,596	63,524	63,524	63,524

Notes: Table presents reduced-form estimates for female students where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression. Columns 1-3 present estimates based on a bandwidth of 10. Columns 4-6 present estimates based on a bandwidth of 12. Models 1 and 4 present estimates that exclude industry fixed effects. Models 2 and 5 present estimates that add industry fixed effects. The omitted or reference industry is retail. Models 3 and 6 each contain two columns presenting estimates based on a specification that includes industry fixed effect, shown in the first column, and those fixed effects interacted with the offer indicator, shown in the second. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A14: Earnings by Industry: Heterogeneity Analysis Male Students

	(1)		(2)		(3)		(4)		(5)		(6)	
	Free Lunch		Not Free Lunch		Black or Hispanic		Not Black or Hispanic		Central City		Not Central City	
Offer	0.011		0.174***		0.025		0.088**		-0.020		0.111***	
	(0.042)		(0.051)		(0.059)		(0.035)		(0.038)		(0.037)	
Manufacturing	0.571***	0.086*	0.600***	-0.002	0.555***	0.096	0.567***	0.052	0.543***	0.130	0.583***	0.036
	(0.041)	(0.045)	(0.059)	(0.061)	(0.058)	(0.066)	(0.041)	(0.043)	(0.072)	(0.079)	(0.038)	(0.045)
Transportation	-0.120*	0.162*	-0.126	0.040	-0.064	0.135	-0.183**	0.086	-0.138**	0.293***	-0.086	-0.007
	(0.064)	(0.093)	(0.108)	(0.161)	(0.057)	(0.090)	(0.090)	(0.121)	(0.052)	(0.051)	(0.064)	(0.101)
Professional	0.150**	0.200***	0.382***	0.007	0.176**	0.248***	0.329***	0.027	0.201**	0.192*	0.248***	0.119
	(0.062)	(0.068)	(0.073)	(0.088)	(0.078)	(0.079)	(0.050)	(0.078)	(0.089)	(0.109)	(0.054)	(0.072)
Services	-0.164***	0.047	-0.250***	0.025	-0.118***	0.022	-0.299***	0.077	-0.093***	-0.006	-0.251***	0.054
	(0.031)	(0.044)	(0.061)	(0.070)	(0.041)	(0.040)	(0.048)	(0.051)	(0.034)	(0.056)	(0.045)	(0.052)
Construction	0.357***	0.237***	0.501***	0.141**	0.429***	0.165	0.401***	0.246***	0.379***	0.291***	0.433***	0.193***
	(0.059)	(0.059)	(0.060)	(0.060)	(0.096)	(0.101)	(0.052)	(0.053)	(0.084)	(0.080)	(0.054)	(0.058)
Wholesale Trade	0.557***	-0.110	0.494***	-0.082	0.587***	-0.134	0.468***	-0.037	0.593***	-0.063	0.492***	-0.089
	(0.068)	(0.077)	(0.079)	(0.095)	(0.081)	(0.098)	(0.067)	(0.087)	(0.072)	(0.066)	(0.067)	(0.086)
Operation Support	0.173***	0.014	0.127**	0.122*	0.183***	-0.016	0.118***	0.149***	0.226**	-0.021	0.115***	0.127**
	(0.061)	(0.061)	(0.056)	(0.062)	(0.064)	(0.071)	(0.042)	(0.052)	(0.085)	(0.067)	(0.035)	(0.053)
Office Support	-0.439***	0.099**	-0.275***	0.089	-0.407***	0.0466	-0.351***	0.166*	-0.410***	0.072	-0.387***	0.136**
	(0.046)	(0.046)	(0.073)	(0.077)	(0.058)	(0.042)	(0.079)	(0.092)	(0.058)	(0.064)	(0.054)	(0.053)
Public / Social	-0.074	0.044	0.359**	-0.189	-0.017	0.036	0.259	-0.106	0.057	0.016	0.164	-0.061
Service	(0.079)	(0.107)	(0.175)	(0.176)	(0.079)	(0.096)	(0.180)	(0.187)	(0.067)	(0.098)	(0.162)	(0.175)
Education	-0.015	0.145	0.099	-0.124	-0.104	0.204	0.171	-0.093	-0.015	0.164	0.082	-0.049
	(0.145)	(0.167)	(0.184)	(0.205)	(0.129)	(0.168)	(0.149)	(0.171)	(0.099)	(0.146)	(0.154)	(0.179)
Health	0.242***	0.139**	0.319***	-0.215*	0.274***	0.066	0.285***	-0.118	0.363***	0.021	0.208***	-0.013
	(0.064)	(0.061)	(0.099)	(0.111)	(0.066)	(0.046)	(0.094)	(0.088)	(0.055)	(0.044)	(0.060)	(0.067)

Notes: Table presents reduced-form estimates for the sample of male students where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Each pair of columns (e.g. columns 1 and 2 under model 1) present the results from a single regression where the first column presents the estimated coefficients on the uninteracted industry fixed effects and the second column presents the estimated coefficients on the interaction between the offer indicator and the industry fixed effect. Models 1 and 2 split the sample based on whether a student is eligible for free or reduced price meals, models 3 and 4 based on whether a student is Black or Hispanic or other race/ethnicity, and models 5 and 6 based on whether a student resides in one of Connecticut's five largest central cities. In all specifications the omitted or reference industry is retail trade. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects and the full set of controls listed in Table 3 (other than the covariate listed in the top row). Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A15: Earnings by Industry: Heterogeneity Analysis Female Students

	(1)		(2)		(3)		(4)		(5)		(6)	
	Free Lunch		Not Free Lunch		Black or Hispanic		Not Black or Hispanic		Central City		Not Central City	
Offer	0.068*		0.005		0.066		0.025		0.050		0.052	
	(0.037)		(0.083)		(0.041)		(0.066)		(0.035)		(0.048)	
Manufacturing	0.533***	0.068	0.536***	0.200	0.517***	0.009	0.563***	0.216**	0.438***	0.237**	0.605***	0.063
	(0.060)	(0.058)	(0.097)	(0.123)	(0.075)	(0.085)	(0.085)	(0.107)	(0.054)	(0.099)	(0.071)	(0.075)
Transportation	0.095	-0.037	-0.146	0.170	0.190***	-0.104	-0.259	0.261	0.269***	-0.190**	-0.134	0.170
	(0.092)	(0.126)	(0.188)	(0.211)	(0.060)	(0.103)	(0.160)	(0.193)	(0.043)	(0.079)	(0.114)	(0.122)
Professional	0.385***	-0.035	0.408***	0.084	0.393***	-0.005	0.449***	-0.023	0.420***	-0.090*	0.374***	0.063
	(0.035)	(0.037)	(0.099)	(0.113)	(0.044)	(0.045)	(0.097)	(0.113)	(0.043)	(0.052)	(0.066)	(0.072)
Services	0.062	-0.038	-0.003	0.059	0.038	-0.014	0.051	-0.018	0.044	-0.042	0.055	-0.005
	(0.045)	(0.061)	(0.069)	(0.070)	(0.045)	(0.055)	(0.058)	(0.069)	(0.072)	(0.092)	(0.036)	(0.042)
Construction	0.493**	0.279	-0.109	0.668	0.630**	0.246	0.010	0.537**	0.662*	0.170	0.252	0.343
	(0.197)	(0.214)	(0.375)	(0.441)	(0.308)	(0.315)	(0.203)	(0.231)	(0.393)	(0.396)	(0.204)	(0.244)
Wholesale Trade	0.264***	0.044	0.643**	-0.311	0.235*	0.064	0.609*	-0.293	0.234**	0.134	0.517**	-0.235
	(0.095)	(0.119)	(0.306)	(0.320)	(0.126)	(0.148)	(0.313)	(0.319)	(0.115)	(0.128)	(0.229)	(0.230)
Operation Support	0.146***	-0.022	0.055	0.156	0.138***	0.050	0.085	-0.016	0.137***	0.034	0.142	0.006
	(0.045)	(0.070)	(0.174)	(0.192)	(0.051)	(0.064)	(0.189)	(0.203)	(0.043)	(0.063)	(0.108)	(0.117)
Office Support	-0.268***	0.102*	-0.573***	0.489***	-0.290***	0.134**	-0.387***	0.290**	-0.252***	0.055	-0.381***	0.299***
	(0.044)	(0.061)	(0.114)	(0.153)	(0.045)	(0.054)	(0.121)	(0.143)	(0.042)	(0.056)	(0.088)	(0.087)
Public / Social	0.048	0.070	0.170**	-0.114	0.088	0.066	0.072	-0.134	0.146*	0.093	-0.044	0.020
Service	(0.060)	(0.086)	(0.080)	(0.108)	(0.054)	(0.078)	(0.096)	(0.117)	(0.080)	(0.102)	(0.075)	(0.083)
Education	0.264***	-0.213**	0.168**	-0.090	0.270***	-0.242**	0.189*	-0.094	0.325***	-0.347**	0.186***	-0.091
	(0.070)	(0.100)	(0.078)	(0.099)	(0.081)	(0.113)	(0.104)	(0.119)	(0.087)	(0.134)	(0.069)	(0.084)
Health	0.520***	-0.0793*	0.526***	-0.087	0.539***	-0.099*	0.510***	-0.074	0.532***	-0.085	0.511***	-0.075*
	(0.044)	(0.044)	(0.074)	(0.079)	(0.049)	(0.051)	(0.042)	(0.057)	(0.069)	(0.066)	(0.040)	(0.045)

Notes: Table presents reduced-form estimates for the sample of male students where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Each pair of columns (e.g. columns 1 and 2 under model 1) present the results from a single regression where the first column presents the estimated coefficients on the uninteracted industry fixed effects and the second column presents the estimated coefficients on the interaction between the offer indicator and the industry fixed effect. Models 1 and 2 split the sample based on whether a student is eligible for free or reduced price meals, models 3 and 4 based on whether a student is Black or Hispanic or other race/ethnicity, and models 5 and 6 based on whether a student resides in one of Connecticut's five largest central cities. In all specifications the omitted or reference industry is retail trade. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects and the full set of controls listed in Table 3 (other than the covariate listed in the top row). Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A16 Earnings by Industry controlling for Experience and Industry Experience for Male

	(1)	(2)	(3)	(4)
Offer	0.071**	0.002	0.052	0.005
	(0.035)	(0.007)	(0.033)	(0.004)
Experience			0.089***	-0.019***
			(0.003)	(0.002)
Industry Experience		0.052***		0.027***
		(0.002)		(0.002)
Manufacturing*Offer	0.063	-0.025	0.102**	-0.021***
	(0.038)	(0.016)	(0.040)	(0.008)
Transportation*Offer	0.119	-0.028	0.126*	-0.016*
	(0.078)	(0.017)	(0.068)	(0.009)
Professional*Offer	0.149***	-0.028	0.142**	-0.013
	(0.048)	(0.028)	(0.056)	(0.014)
Services*Offer	0.035	-0.001	0.044	-0.003
	(0.036)	(0.010)	(0.036)	(0.005)
Construction*Offer	0.213***	-0.058***	0.175***	-0.023***
	(0.044)	(0.015)	(0.037)	(0.008)
Wholesale Trade*Offer	-0.091	0.010	-0.066	0.000
	(0.062)	(0.025)	(0.058)	(0.012)
Operation Support*Offer	0.092*	-0.006	0.055	0.005
	(0.049)	(0.015)	(0.043)	(0.008)
Office Support*Offer	0.111**	0.019	0.117**	0.009
	(0.043)	(0.014)	(0.046)	(0.009)
Public / Social Service*Offer	-0.010	0.030	0.000	0.013
	(0.119)	(0.031)	(0.109)	(0.016)
Education*Offer	0.028	-0.006	0.008	0.001
	(0.139)	(0.023)	(0.136)	(0.015)
Health*Offer	-0.002	-0.011	-0.001	-0.006
	(0.048)	(0.024)	(0.049)	(0.013)
R-Square	0.215		0.252	
Observations	196,856		196,856	

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings for male students. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. The omitted or reference industry is retail. Column 1 presents estimates from Table 9 Column 1 that includes no controls for experience. Column 2 presents the difference between the estimates from Table 9 columns 1 and 3 where column 3 includes within industry experience, except for the estimated on industry experience which is simply the estimate from Table 9. Column 3 presents estimates from Table 9 Column 2 that includes controls for overall experience. Column 4 presents the difference between the estimates from Table 9 columns 2 and 4 where column 4 also includes within industry experience. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A17 Earnings by Industry controlling for Experience and Industry Experience for Female

	(1)	(2)	(3)	(4)
Offer	0.053*	-0.017*	0.040	-0.006
	(0.030)	(0.009)	(0.027)	(0.004)
Experience			0.085***	-0.013***
			(0.005)	(0.001)
Industry Experience		0.044***		0.021***
		(0.003)		(0.002)
Manufacturing*Offer	0.100*	-0.035	0.117**	-0.019
	(0.059)	(0.030)	(0.056)	(0.014)
Transportation*Offer	-0.001	0.011	0.057	-0.003
	(0.100)	(0.023)	(0.095)	(0.012)
Professional*Offer	0.007	0.012	0.021	0.003
	(0.044)	(0.018)	(0.039)	(0.007)
Services*Offer	-0.019	0.004	-0.007	0.000
	(0.050)	(0.009)	(0.052)	(0.004)
Construction*Offer	0.322	-0.036	0.217	-0.001
	(0.220)	(0.045)	(0.210)	(0.024)
Wholesale Trade*Offer	-0.114	-0.022	-0.135	-0.007
	(0.165)	(0.040)	(0.153)	(0.020)
Operation Support*Offer	0.042	-0.038*	0.048	-0.019*
	(0.062)	(0.021)	(0.066)	(0.010)
Office Support*Offer	0.172***	0.0244**	0.158***	0.0135**
	(0.057)	(0.012)	(0.052)	(0.006)
Service*Offer	0.036	0.017	0.045	0.007
	(0.074)	(0.013)	(0.068)	(0.006)
Education*Offer	-0.196**	0.036**	-0.163**	0.012
	(0.081)	(0.018)	(0.077)	(0.009)
Health*Offer	-0.087**	0.003	-0.082**	0.000
	(0.043)	(0.011)	(0.040)	(0.004)
R-Square	0.139		0.176	
Observations	150,410		150,410	

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings for female students. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. The omitted or reference industry is retail. Column 1 presents estimates from Table 9 Column 1 that includes no controls for experience. Column 2 presents the difference between the estimates from Table 9 columns 1 and 3 where column 3 includes within industry experience, except for the estimated on industry experience which is simply the estimate from Table 9. Column 3 presents estimates from Table 9 Column 2 that includes controls for overall experience. Column 4 presents the difference between the estimates from Table 9 columns 2 and 4 where column 4 also includes within industry experience. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A18: Share of Quarters with Earnings

	(1)	(2)	(3)		(4)	(5)	(6)	
	Male Students				Female Students			
	Overall Treatment Effect	Conditional on Industry FEs	Treatment Effect by Industry		Overall Treatment Effect	Conditional on Industry FEs	Treatment Effect by Industry	
Offer	0.017*	0.015	0.006		-0.008	-0.010	-0.016	
	(0.010)	(0.010)	(0.012)		(0.012)	(0.012)	(0.015)	
Manufacturing		0.041***	0.056***	-0.020		0.054***	0.047	0.010
		(0.011)	(0.020)	(0.020)		(0.014)	(0.035)	(0.040)
Transportation		-0.069***	-0.062***	-0.013		-0.023	-0.027	0.007
		(0.013)	(0.020)	(0.033)		(0.015)	(0.022)	(0.029)
Professional		0.012	0.023	-0.015		0.032**	0.018	0.020
		(0.014)	(0.027)	(0.031)		(0.013)	(0.020)	(0.024)
Services		-0.015**	-0.015	-0.001		0.003	-0.010	0.020
		(0.007)	(0.013)	(0.017)		(0.008)	(0.014)	(0.017)
Construction		0.033***	-0.020	0.069***		0.114***	0.145**	-0.035
		(0.011)	(0.024)	(0.023)		(0.031)	(0.057)	(0.064)
Wholesale Trade		0.031**	0.026	0.007		0.058***	-0.152	0.235*
		(0.012)	(0.026)	(0.032)		(0.019)	(0.118)	(0.130)
Operation Support		-0.027**	-0.056***	0.049***		-0.018	-0.029	0.016
		(0.011)	(0.016)	(0.017)		(0.021)	(0.030)	(0.032)
Office Support		-0.096***	-0.107***	0.019		-0.064***	-0.074***	0.017
		(0.017)	(0.026)	(0.025)		(0.015)	(0.016)	(0.027)
Public / Social		-0.028	-0.019	-0.014		-0.008	-0.013	0.009
Service		(0.017)	(0.024)	(0.034)		(0.015)	(0.020)	(0.025)
Education		-0.047**	-0.066*	0.029		0.019	0.042***	-0.035
		(0.021)	(0.035)	(0.050)		(0.012)	(0.016)	(0.021)
Health		0.081***	0.089***	-0.013		0.076***	0.083***	-0.010
		(0.011)	(0.021)	(0.020)		(0.008)	(0.014)	(0.015)
Control Mean	0.547	0.547	0.547	0.547	0.577	0.577	0.577	0.577
Std. Dev	(0.235)	(0.235)	(0.235)	(0.235)	(0.213)	(0.213)	(0.213)	(0.213)
R-Square	0.085	0.114	0.116		0.118	0.142	0.144	
Observations	7,328	7,302	7,302		5,574	5,569	5,569	

Notes: Table presents reduced-form estimates where the dependent variable is the ratio of the number of working quarters and the feasible number of quarters of working. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Columns 1-4 present estimates for sample of male students. Columns 5-8 present estimates for sample of female students. Models 1 and 4 present estimates that exclude industry fixed effects. Models 2 and 5 present estimates that add industry fixed effects. The omitted or reference industry is retail. Models 3 and 6 each contain two columns presenting estimates based on a specification that includes industry fixed effect, shown in the first column, and those fixed effects interacted with the offer indicator, shown in the second. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A19: Earnings by Industry (controls interacted with industries)

	(1)	(2)	(3)	(4)
	Male		Female	
	Treatment Effect by		Treatment Effect by	
Offer	0.071**	-0.005	0.053*	0.002
	(0.036)	(0.008)	(0.031)	(0.008)
Manufacturing*Offer	0.063	0.010	0.100	-0.035
	(0.039)	(0.012)	(0.061)	(0.040)
Transportation*Offer	0.119	-0.036	-0.001	0.011
	(0.080)	(0.032)	(0.105)	(0.054)
Professional*Offer	0.149***	-0.044	0.007	-0.024
	(0.051)	(0.029)	(0.047)	(0.020)
Services*Offer	0.035	0.018	-0.019	0.005
	(0.038)	(0.015)	(0.050)	(0.013)
Construction*Offer	0.213***	-0.016	0.322	-0.194
	(0.045)	(0.018)	(0.224)	(0.165)
Wholesale Trade*Offer	-0.091	0.003	-0.114	-0.010
	(0.064)	(0.021)	(0.170)	(0.080)
Operation Support*Offer	0.0920*	-0.009	0.042	0.012
	(0.050)	(0.018)	(0.068)	(0.037)
Office Support*Offer	0.111**	-0.075***	0.172***	-0.014
	(0.045)	(0.026)	(0.060)	(0.024)
Public / Social Service*Offer	-0.010	-0.059	0.036	-0.001
	(0.120)	(0.060)	(0.076)	(0.026)
Education*Offer	0.028	0.032	-0.196**	-0.026
	(0.142)	(0.041)	(0.082)	(0.031)
Health*Offer	-0.002	0.010	-0.087*	-0.007
	(0.051)	(0.023)	(0.045)	(0.012)
Observations	196,856		150,410	
Industry by Control Interactions	No	Yes	No	Yes

Notes : Table presents reduced-form estimates where the dependent variable is the log of quarterly earnings. All estimates are based on a RD specification using local linear regression and a 15-point bandwidth. Columns 1 and 2 present estimates for sample of male students. Columns 3 and 4 present estimates for sample of female students. The omitted or reference industry is retail. Columns 1 and 3 present estimates based on a specification that includes industry fixed effect and those fixed effects interacted with the offer indicator, Table 10 Columns 1 and 3. Columns 2 and 4 present the difference between Table 10 Columns 1 and 2 and Table 10 Columns 3 and 4, respectively. All specifications include CTECS school-by-year fixed effects, resident 8th grade school district fixed effects, quarter and year fixed effects and the full set of controls listed in Table 3. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A20A: Pairwise Estimates: Offer Interacted with Controls, Male Students

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
Offer	0.098**	-0.003	0.007	0.019	0.111***
	(0.039)	(0.023)	(0.032)	(0.032)	(0.034)
Offer*Asian	-0.228**	-0.033	0.031	-0.179	0.134
	(0.112)	(0.055)	(0.068)	(0.166)	(0.097)
Offer*Black	-0.036	0.058**	0.051	0.031	-0.039
	(0.048)	(0.029)	(0.037)	(0.043)	(0.033)
Offer*Hispanic	0.049	0.041	0.012	0.020	0.012
	(0.030)	(0.029)	(0.033)	(0.037)	(0.035)
Offer*Free lunch	0.025	-0.006	-0.006	0.000	-0.044
	(0.037)	(0.023)	(0.028)	(0.041)	(0.037)
Offer*English Language	-0.007	0.025	0.054	0.034	0.052
Learner	(0.061)	(0.036)	(0.034)	(0.053)	(0.076)
Offer*Standardized	0.043*	0.037**	0.033**	0.035*	0.042**
8th Grade Score	(0.024)	(0.015)	(0.015)	(0.020)	(0.021)
Observations	37,545	29,783	30,967	42,586	36,747
T test (F score)	2.22	1.27	12.18	0.78	2.62
Prob	(0.039)	(0.275)	(0.000)	(0.609)	(0.016)

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns relative to being observed in retail. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include the interaction between offer and the full set of controls listed in Table 3. All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A20B: Pairwise Estimates: Offer Interacted with Controls, Male Students

	(6)	(7)	(8)	(9)	(10)	(11)
Outcome	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
Offer	0.029	0.000	0.038*	0.024	0.003	0.017
	(0.031)	(0.038)	(0.022)	(0.023)	(0.019)	(0.023)
Offer*Asian	-0.425**	-0.200	-0.237**	0.081*	-0.144	-0.113
	(0.184)	(0.148)	(0.109)	(0.044)	(0.186)	(0.129)
Offer*Black	-0.012	-0.014	-0.049	0.005	0.049**	0.069*
	(0.030)	(0.031)	(0.034)	(0.027)	(0.021)	(0.038)
Offer*Hispanic	-0.030	0.031	-0.035	0.013	0.015	-0.028
	(0.041)	(0.032)	(0.034)	(0.020)	(0.023)	(0.048)
Offer*Free lunch	-0.001	-0.002	0.049*	-0.012	0.013	0.037
	(0.028)	(0.037)	(0.028)	(0.025)	(0.021)	(0.036)
Offer*English Language	0.080*	-0.058	-0.012	-0.020	0.011	0.042
Learner	(0.043)	(0.063)	(0.062)	(0.025)	(0.042)	(0.078)
Offer*Standardized	0.003	-0.018	0.024*	0.020	0.015	0.004
8th Grade Score	(0.016)	(0.017)	(0.013)	(0.012)	(0.013)	(0.016)
Observations	29,850	34,452	31,199	28,558	28,301	30,548
T test (F score)	2.07	4.03	2.61	1.39	2.40	1.70
Prob	(0.054)	(0.001)	(0.017)	(0.218)	(0.027)	(0.119)

Table A21A: Pairwise Estimates: Offer Interacted with Controls, Female Students

	(1)	(2)	(3)	(4)	(5)
Outcome	Manufacturing	Transportation	Professional	Services	Construction
Offer	0.046	0.032*	-0.030	-0.009	0.014
	(0.031)	(0.017)	(0.038)	(0.040)	(0.010)
Offer*Asian	0.142*	0.035	0.058	-0.208	-0.020*
	(0.086)	(0.053)	(0.137)	(0.190)	(0.011)
Offer*Black	0.001	0.020	-0.040*	0.052**	0.011
	(0.024)	(0.021)	(0.023)	(0.025)	(0.012)
Offer*Hispanic	0.040	0.029	-0.032	0.070**	-0.003
	(0.031)	(0.020)	(0.025)	(0.033)	(0.012)
Offer*Freelunch	-0.019	-0.023	-0.010	-0.007	-0.005
	(0.039)	(0.022)	(0.037)	(0.032)	(0.010)
Offer*English Language	-0.049	-0.065**	0.024	-0.151***	-0.001
Learner	(0.052)	(0.031)	(0.039)	(0.057)	(0.006)
Offer*Standardized	0.001	-0.012	-0.040**	-0.024	0.003
8th Grade Score	(0.018)	(0.011)	(0.017)	(0.024)	(0.005)
Observations	23,494	22,732	25,438	41,527	21,784
T test (F score)	3.75	1.18	1.99	2.87	1.43
Prob	(0.001)	(0.322)	(0.064)	(0.009)	(0.202)

Notes : Table presents pair-wise linear probability estimates for the probability that a student is observed in the industry listed in the corresponding columns relative to being observed in retail. All estimates are based on a reduced form RD specification using local linear regression and a 15-point bandwidth. All specifications include the interaction between offer and the full set of controls listed in Table 3. All specifications include CTECS school-by-year fixed effects and resident 8th grade school district fixed effects. Robust standard errors, clustered at the school-by-year and district levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A21B: Pairwise Estimates: Offer Interacted with Controls, Female Students

	(6)	(7)	(8)	(9)	(10)	(11)
Outcome	Wholesale Trade	Operation Support	Office Support	Public / Social Service	Education	Health
Offer	0.010	0.002	0.055**	-0.016	-0.005	0.011
	(0.017)	(0.024)	(0.023)	(0.027)	(0.043)	(0.045)
Offer*Asian	-0.034	0.084	-0.220	-0.092	0.168**	-0.103
	(0.037)	(0.107)	(0.187)	(0.220)	(0.069)	(0.145)
Offer*Black	-0.021	-0.025	-0.005	-0.007	0.083**	-0.026
	(0.015)	(0.021)	(0.024)	(0.044)	(0.041)	(0.036)
Offer*Hispanic	-0.007	-0.002	-0.036	0.035	0.108***	0.015
	(0.018)	(0.020)	(0.024)	(0.041)	(0.036)	(0.053)
Offer*Freelunch	0.022	-0.010	0.009	0.011	-0.096**	0.000
	(0.017)	(0.021)	(0.030)	(0.045)	(0.039)	(0.042)
Offer*English Language	0.009	-0.025	-0.016	-0.121*	-0.046	-0.020
Learner	(0.023)	(0.044)	(0.045)	(0.063)	(0.041)	(0.050)
Offer*Standardized	0.008	-0.016	-0.014	-0.022	-0.005	-0.050*
8th Grade Score	(0.008)	(0.010)	(0.010)	(0.025)	(0.021)	(0.026)
Observations	22,135	22,942	24,938	25,708	25,263	34,127
T test (F score)	0.75	1.51	1.60	2.31	3.00	1.76
Prob	(0.632)	(0.172)	(0.144)	(0.032)	(0.007)	(0.104)