GRADS 2 CAREERS

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42K

Measuring the Wage Impact of Workforce Training for High School Graduates in Baltimore

Dr. James Sadler - MLDS Center Research Series - December 19, 2025

BALTIMORE'S PROMISE

Baltimore's Promise works on behalf of Baltimore to spur collective action by building the civic infrastructure required to accelerate positive outcomes for youth and disrupt systemic barriers that limit youth and young adults from achieving economic self-sufficiency.

Baltimore's Promise Mission

Research Team

Research Team

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We are grateful for the assistance provided by the MLDS Center.
All opinions are the authors' and do not represent the opinion of the MLDS Center or its partner agencies.

Background: Grads2Careers

GRADS 2 CAREERS

2018 Post-Secondary Pathways Report

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Using data from
MLDS Center
Maryland Longitudinal Data System
Better Data • Informed Choices • Improved Results

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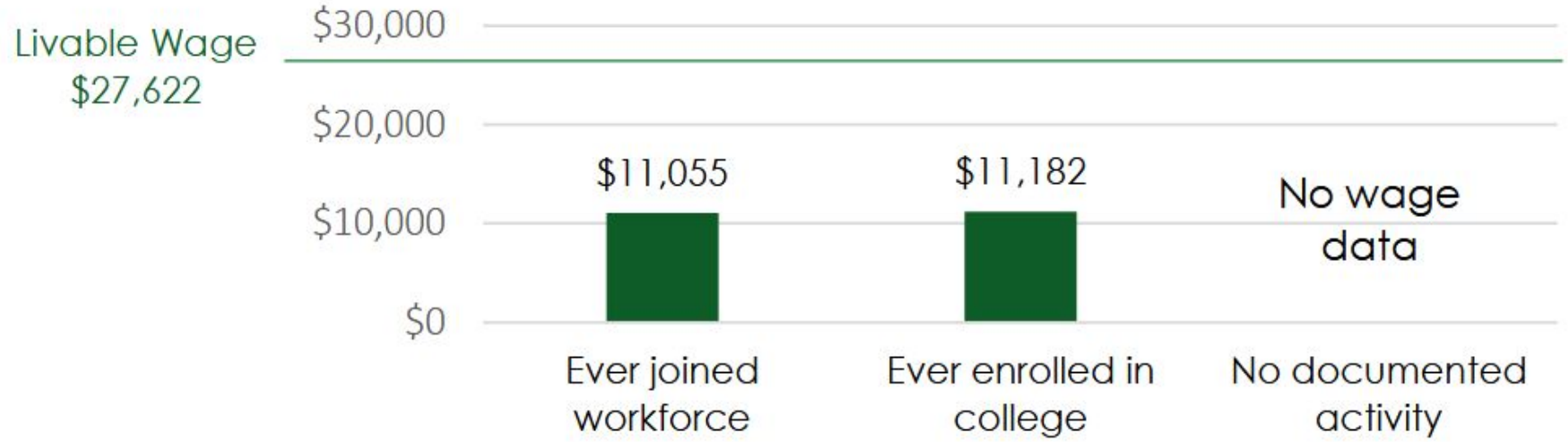
2018 Post-Secondary Pathways Report

Figure 2. Median annual earnings in year six for graduates neither enrolled nor working in the fall after high school (class of 2009).



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About G2C

- Grads2Careers is a pathway for recent Baltimore City Public Schools graduates — who are not planning to enter college full-time within the next year — into career-track jobs through free occupational skills training in high-growth industries
- Participants must be 21 or younger at the start of training
- Participants in Grads2Careers receive wraparound supports, barrier removal, and academic interventions to support their successful completion of the program

G2C is a collaborative partnership between City Schools, the Mayor's Office of Employment Development (MOED), and Baltimore's Promise

Training Variety

- Training Provider
  - Includes community colleges (BCCC and CCBC) and other job training providers (e.g., Jobs Opportunities Task Force, Urban Alliance, Code in the Schools, etc.)
- Training Industry & Track
  - Healthcare, Bioscience, Construction, Logistics & Distribution, etc.
- Training Length
  - On average around 3 months, but can be as short as 3 weeks and as long as 7 months

Research Questions

Research Questions

1. What is the impact of G2C Enrollment on wages?
2. What is the impact of G2C Completion on wages?
3. How are impacts differentiated by demographic characteristics?
4. How does employment in the field of training alter the wage impact?

Data & Methods

Data

- G2C Program Data from 117 enrollees (71 completers)
  - Data integrated into the MLDS; Includes training dates, training outcomes, and training provider information
- Education and Demographic Information
  - Department of Education; Includes grades, attendance, disciplinary record, graduation date, etc.
- Wage record information
  - Department of Labor; Includes wages by quarter and industry of employer (NAICS)
- Control group derived from Baltimore City HS graduates who did not enroll in G2C
  - Graduation years 2017-2020; n = 9,254

Methods: Propensity Score Weighting

- In order to achieve balance between these two groups, we used Propensity Score Weighting using a Generalized Boosted Model (GBM) approach (McCaffrey, Ridgeway, & Morral, 2004)
- Specifically, we used the Toolkit for Weighting and Analysis of Nonequivalent Groups (TWANG) from the Rand Corporation (Griffin, et. al, 2014)
- **Phase 1:** Develop weights for control group based on how well they match with G2C participants on observable characteristics
- **Phase 2:** Estimate the effect of G2C on wages with a regression model that uses the weights from the first phase

Variables used in the Weighting Stage

- Gender Identity (Female)
- Race/Ethnic Identity (African American, Hispanic)
- English Language Learner (ELL) status
- Free or Reduced Price Lunch status
- Homeless status
- IEP/504 status
- Absence Rate (Last two years of school)
- Suspension Incidences (Last two years of school)
- GPA in 12th Grade
- Number of Advanced Courses in 12th Grade
- Graduation Year

Outcome of Interest:
Annualized Wages in the Third Year After High School Graduation

Graduation Year	First Year after HS Graduation				Second Year after HS Graduation				Third Year after HS Graduation			
Quarters After Graduation Date	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12

- Year 3 wage records were annualized for every individual
- Individuals with at least two wage records in Q9 - Q12 were included in the analysis
- G2C participants were only included if their G2C training ended before Q9 after graduation
- All first stage variables were included in the second stage regression models (double robust)
- The number of wage records in the third year was also included in the model

Findings

Descriptive Statistics (Unweighted Averages)

	G2C Attendee (N = 117)	Control Group (N = 9,254)	Difference test p-value
Female	70.1%	56.7%	**0.002**
African American	96.6%	90.8%	**0.001**
Hispanic	S	4.4%	**0.025**
ELL	S	4.5%	**0**
Free or Reduced Price Lunch	54.7%	45.2%	**0.041**
Has an IEP or 504 Plan	21.4%	20.9%	0.896
Homeless	S	1.1%	**0**
Absence Rate (Last Year of HS)	23.96	19.5	**0.01**
Absence Rate (Second-to-Last Year of HS)	23.6	16.66	**0**

	G2C Attendee (N = 117)	Control Group (N = 9,254)	Difference test p-value
Suspension Incidence (Last Year of High School)	0.094	0.052	0.217
Suspension Incidence (Second-to-Last Year of HS)	0.094	0.105	0.715
GPA in 12th Grade	2.145	2.224	0.356
Number of Advanced Courses in 12th Grade	0.359	0.387	0.681
Graduated in 2017	14.5%	27.1%	**0**
Graduated in 2018	33.3%	24.1%	**0.035**
Graduated in 2019	31.6%	23.8%	0.07
Graduated in 2020	20.5%	25.0%	0.232

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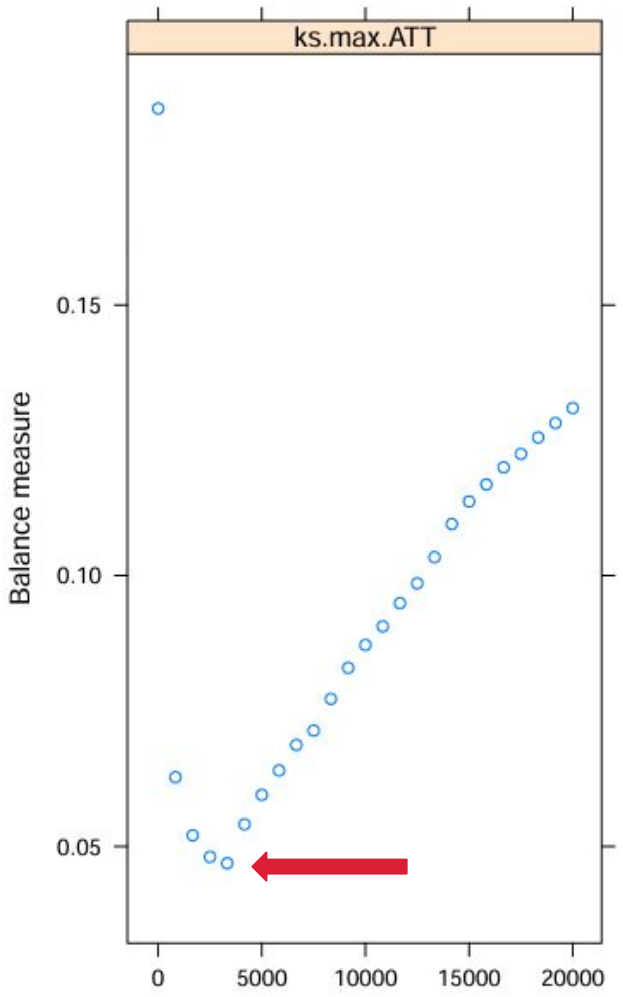
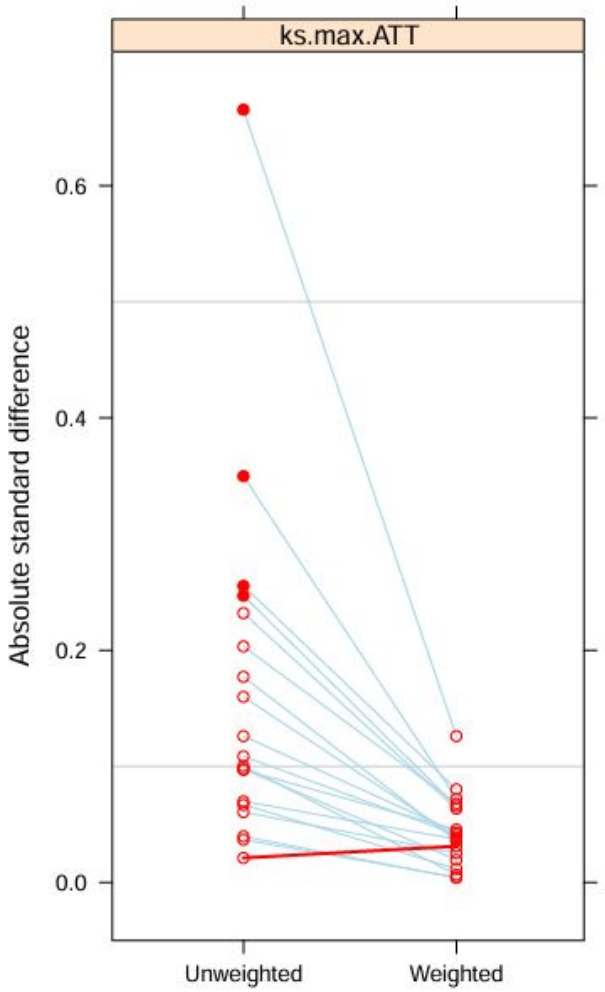
Finding the Best Balance (Iteration #3220!)

Balance Measure by Iteration



Standard Difference of Variables



The TWANG package ran 20,000 different combinations of observable variables to find the one that produced the best balance between the G2C group and the non-G2C group.

The covariate balance metric (Max KS Statistic) of 0.046 suggests high balance between the two groups.

Descriptive Statistics (Weighted Averages)

	G2C Attendee (N = 117)	Weighted Control (ESS = 5,653)	Difference test p-value
Female	70.1%	65.6%	0.298
African American	96.6%	94.5%	0.213
Hispanic	S	S	0.789
ELL	S	S	**0**
Free or Reduced Price Lunch	54.7%	50.7%	0.395
Has an IEP or 504 Plan	21.4%	21.7%	0.925
Homeless	S	S	**0**
Absence Rate (Last Year of HS)	23.96	22.91	0.546
Absence Rate (Second-to-Last Year of HS)	23.6	22.22	0.492

	G2C Attendee (N = 117)	Weighted Control (ESS = 5,653)	Difference test p-value
Suspension Incidence (Last Year of High School)	0.094	0.08	0.691
Suspension Incidence (Second-to-Last Year of HS)	0.094	0.118	0.422
GPA in 12th Grade	2.145	2.164	0.822
Number of Advanced Courses in 12th Grade	0.359	0.339	0.779
Graduated in 2017	14.5%	17.8%	0.316
Graduated in 2018	33.3%	30.3%	0.491
Graduated in 2019	31.6%	28.3%	0.447
Graduated in 2020	20.5%	23.6%	0.420

S: Cells Suppressed due to small cell sizes

RQ1: Effect of G2C Attendance on Wages

1. What is the impact of G2C Enrollment on wages?

Grads2Careers Enrollment had no significant impact on wages in any direction.

Note that Grads2Careers counts a student as “enrolled” if they attended at least three days of training. Enrollees drop out of G2C for a multitude of reasons.

RQ2: Effect of G2C Completion on Wages

2. What is the impact of G2C Completion on wages?

Grads2Careers Completion is associated with a marginally significant wage increase of $2,073 ($p < .10$) in the third year after high school graduation

Select Variables	Outcome: Year 3 Annualized Wages
G2C Completion	**2073.33+**
Female	**-5,297.79****
Non African American	1,977.44
Hispanic	805.95
Non FRPL	941.42
IEP/504 Plan	**-3,886.84****
Absence Rate (Last Year of HS)	62.26
Suspension Incidences (Last Year of HS)	705.686
GPA in 12th Grade	**1,946.9***
Number of Advanced Courses in 12th Grade	-1,109.12
Constant	**28,059.28****

+ p<0.10; * p<0.05; ** p<0.0; R^2 = 0.2, N = 9,325

Note: All First Stage variables were included in second stage as well as indicator variables for the number of wage records in the third year after high school graduation. Continuous variables were centered around the mean.

RQ3: Gender Differences in Effect of G2C Completion on Wages

3. How are impacts differentiated by demographic characteristics?

Young Male completers see a marginally significant increase in wages of $3,813 ($p < .10$).

The estimated effect for Young Women is smaller and not statistically significant ($1,194). The statistical significance between these two outcomes is inconclusive due to sample size constraints.

Select Variables	Outcome: Year 3 Annualized Wages
G2C Completion	**3812.53+**
G2C Completion * Female	**-2604.2**
Female	-4074.05**
…	…
Constant	**27,319.18****

+ p<0.10; * p<0.05; ** p<0.01; R^2 = 0.2, N = 9,325

Note: All First Stage variables were included in second stage as well as indicator variables for the number of wage records in the third year after high school graduation. Continuous variables were centered around the mean.

Employment Leakage: Fallback Jobs Differ by Gender

For those that don't find employment in their field of training, men fall into higher paying roles than women

We used NAICS codes to determine the field of employment for G2C Completers

- **Young Men:** Fallback sector is Transport & Logistics
  - *The Safety Net Wage:* $26,000 annually

- **Young Women:** Fallback sector is Retail
  - *The Safety Net Wage*: $17,500 annually

The cost of completing G2C but leaking into other professions is much higher for women.

RQ4: In-Field Employment & G2C Completion on Wages

4. How does employment in the field of training alter the wage impact?

Completing G2C and obtaining a job in the field of training (N = 28) is associated with a wage boost of $3,522 (p <.05) in the third year after high school graduation

This effect is statistically the same for young men and young women

Select Variables	Outcome: Year 3 Annualized Wages	
G2C Completion & In-Field Employment	**3522.49***	**3,481.03**
G2C Completion & In-Field Employment * Female	**-**	**59.96**
Female	-3006.56**	-3021.97**
…	…	
Constant	**27,319.18****	**26,401.82****

+ p<0.10; * p<0.05; ** p<0.01; R^2 = 0.18, N = 9,282

Note: All First Stage variables were included in second stage as well as indicator variables for the number of wage records in the third year after high school graduation. Continuous variables were centered around the mean.

Summary of Findings

- G2C Attendance has no effect on wages in the third year after high school
- G2C Completion is associated with a marginally significant increase in wages of $2,073
- The Completion effect for young men is $3,813 while the signal for young women is small and not statistically significant
- Completing G2C and obtaining a job in the field is associated with an increase in wages of $3,522 in the third year after high school, with no meaningful gender differences

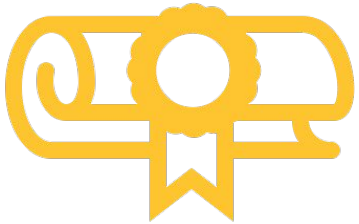
G2C Impact Evaluation Findings

How do our results compare to other initiatives?

We compared our findings to two 2018 MLDS studies that used similar methods.

Dual enrollment students earned $2,663 more six years after 12th grade*

(Henneberger, Witzen, & Preston, 2018)



Health CTE pathways completers earned $2,442 more six years after graduation*

(Witzen, 2018)

Our $2,073 G2C Completion finding approaches these strategies' impact three years earlier.

Our $3,522 in-field finding is 30-45% greater than these other high-profile state strategies.

*Both figures have been adjusted for inflation to match our G2C analysis findings

Limitations

- Assumption of propensity score modeling: weighting for observable variables adequately accounts for unobservable variables
- Wage data from MLDS does not include wages from out-of-state, military, or wages not covered by unemployment insurance (e.g., entrepreneurial roles)
- Connecting G2C industry to NAICS employer code is an inexact science
  - NAICS code denotes the *employer*, not the *job*
  - If a G2C Completer trained in IT receives an IT job at JHU Hospital, their employer NAICS code is Healthcare, and they will be coded as not obtaining a job in-field

Implications & Next Steps

Practical Implications

The data supports expansion efforts of CareerBound–the expansion of G2C

Baltimore's Promise, Baltimore City Public Schools, and the Mayor's Office of Employment Development has expanded Grads2Careers into an initiative called CareerBound

- A large focus of employer engagement and employer commitments to hire G2C and apprenticeship graduates
- Starting the career journey earlier through in-school youth apprenticeships
- Allowing G2C completers to earn additional stackable credentials to improve wage earning potential

Next Research Steps

This study analyzes the effects of G2C during the first years of the program.

Currently, G2C has enrolled over 1,300 Baltimore City youth

- Has the effect on wages changed as the program has matured?
- Does the effect differ based on when enrollees enter into training (e.g., immediately after HS graduation, or when they are 21 years old?)
- How does training length and industry affect wage impacts?
- What are longer term wage impacts?

Q&A

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