

# The Effects of Working while in School: Evidence from Uruguayan Lotteries

Thomas Le Barbanchon (Bocconi University)  
Diego Ubfal (Bocconi University)  
Federico Araya (MTSS)

February 13, 2020  
Workshop on Labour Market Policies and Dynamics

## Should students work while in school?

- Working while in school might smooth the school-to-work transition:
  - Youth may acquire skills that cannot be obtained at school (Heckman et al. 2006, Alfonsi et al. 2017)
  - Early work experience can signal workers' productivity or motivation (Pallais, 2014)
  - May provide funding to continue with studies
- But, it may harm academic outcomes
  - Unless youth organize better their time, it might reduce general human capital accumulation (Eckstein and Wolpin, 1999)

## Cross-country heterogeneity

- Heterogeneity in the share of students working while in school
- OECD countries: 14% of students aged 15-19 work (OECD, 2018)
  - 40-50%: Denmark, Netherlands, Switzerland
  - 20-40%: Australia, Austria, Canada, Germany, New Zealand, UK
  - 10-20%: Brazil, Colombia, Sweden, Turkey, US
  - 0-10%: Chile, France, Ireland, Greece, **Italy**, Japan, Spain, Uruguay
- Disagreement among policy makers on whether working while in school should be encouraged

# This Paper

- We provide the first estimates that use controlled randomized variations to address selection into employment
- We leverage a large-scale program in Uruguay encouraging youth to work while in school: "Yo estudio y trabajo" (YET)
  - Students at high school or university (aged 16-20)
  - Lottery at the locality level throughout Uruguay
  - Every year since 2012, around 800 out of 40,000 applicants are offered a **temporary part-time job for 9 to 12 months**
  - Mainly clerical positions in large state-owned companies (electricity, banking, etc.)
  - Conditionality: enrollment at school during the program year

# Unique Setting

- Features of a social experiment without common implementation issues (Rothstein and von Wachter 2017)
  - 1 Randomly allocated offers
    - Offer acceptance rate= 70%
  - 2 Active program run by government (Banerjee et al 2017). Applications from a large sample including poor and non-poor students limits participation bias (Czibor et al 2019)
    - Using Population Census we estimate a 35% application rate
    - Characteristics of applicants similar to relevant population table
  - 3 Outcomes from all applicants recovered from administrative records
    - We match more than 120K applications to data on earnings and education. Complement with in-house survey

## Summary of Findings

- **Significant effects on labor market outcomes** (4y post-program):
  - 9% increase in formal earnings
  - 3 p.p. increase in employment (over complier control mean of 70%)
  - 5% increase in wages (survives to bounding exercise)
- **Positive effects on education**
  - 12 p.p. increase in enrollment during the program year
  - 2 p.p. increase over the two years after the program
  - Small reductions on study time, but no effects on GPA
- **Decomposition of earnings effect:** 54% due to greater work experience and 21% due to more education
  - Lower returns to work experience in the treatment group (no increase in non-cognitive skills)
- **Significant youth welfare effects** (earnings adjusted for leisure loss)
  - Also reduction in household chores: within-household externality

## Related Literature

- Working while in School
  - No consensus on effects among non-experimental estimates: Eckstein and Wolpin (1999), Hotz et al. (2002), Buscha et al. (2012), Ashworth et al. (2018)
- Summer jobs: limited effects on earnings
  - Gelber et al. (2016), Davis and Heller (2017)
  - Summer jobs = 30% of youth employment; low quality jobs
- Active Labor Market Policies
  - Experimental estimates for job training, vocational training, subsidized jobs (Card et al. 2011, Escudero et al. 2017, McKenzie 2017, Behaghel et al. 2018): on average lower effects than those we find
  - Alfonsi et al. 2017, Attanasio et al. 2011, Card et al. 2011
  - Target dropouts or disadvantaged youth

# Plan for the rest of the talk

- Empirical Setting
- Effects on Earnings, Education
- Mechanisms
  - Decomposition exercise: work experience vs. education
  - Returns to work experience: soft skills, job tasks, sector specificity
- Youth Welfare



# Empirical Setting

## Jobs Offered

- Firms cannot select the applicant, and they pay for the salary
  - Reasons to participate: flexible part-time contracts; to please central administration
- Candidates cannot select the job
  - Matching based on distance from home to work and school hours (not based on skills)
- Salary: USD 446 per month for 30-hour-per-week job (minimum wage is USD 372 in a full-time job)

Other details on program

# Data

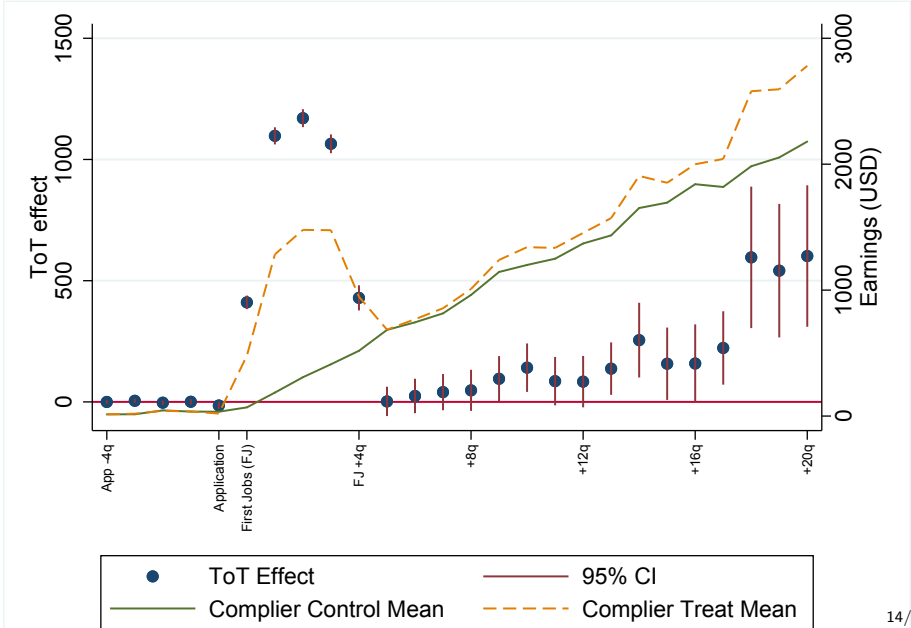
- Administrative data on 3 cohorts of applications (2012-2014) to the lottery (122,195 applications)
  - Application forms (age, gender, locality)
  - Social Security: formal sector earnings (monthly from 2011 to 2017), and welfare programs
  - Education Records: enrollment at high school or university (yearly from 2011 to 2017)
- Face-to-face survey with representative sample (N=1,616) of 2016 cohort
  - While the treatment group is finishing the program
  - School performance, job tasks, soft skills, time use
  - Response rate 79%, attrition non-differential by treatment arm

# Econometric Analysis

- IV estimates
  - Offered (ever receiving an offer) as an instrument for Treated (completing a program job). Take-up rate: 70%
- Specification controls for lottery design fixed effects [details](#)
- Analysis at the application level. Standard errors clustered at the individual level
- Lotteries correctly implemented [balance table](#)
- Robustness:
  - applicant-level analysis
  - alternative treatment definitions [Table: treatment=work and study](#)
  - DREO estimator (de Chaisemartin and Behaghel, 2019)

## Main results

# Quarterly Earnings



# Effects of work-study program on Labor Outcomes

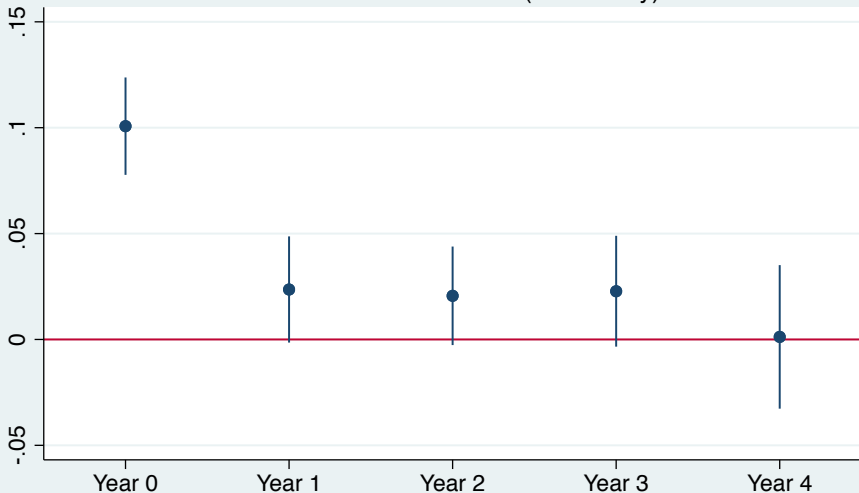
year-by-year

bounds for wages

	Total yearly earnings	Months with positive earnings	Positive earnings	Monthly wages
<b>Program Year</b>				
Year 0	2001.48*** (41.64) [972.36]	7.41*** (0.08) [2.57]	0.60*** (0.01) [0.40]	-24.81*** (3.09) [321.32]
<b>Post-Program Years</b>				
Years 1-4 (Avg.)	285.35*** (103.38) [3142.03]	0.07 (0.12) [5.56]	0.03*** (0.01) [0.67]	26.22*** (8.60) [506.65]
Individuals	90,423	90,423	90,423	48,375
Applications	122,195	122,195	122,195	58,078

Note: Control Complier Mean in [.]

## Work-study Program Effects on Education enrollment (Secondary)



Program in Year 0; Post-program years Year 1-4  
95% confidence interval



# Effects of work-study program on Enrollment in Education

year-by-year

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	Any Level	Secondary Education	University	Tertiary Non-Univ.	Out-of-school Programs
<b>Program Year</b>					
Year 0	0.119*** (0.010) [0.756]	0.101*** (0.012) [0.521]	0.012 (0.008) [0.207]	0.005 (0.004) [0.017]	0.004 (0.005) [0.025]
<b>Post-Program Years</b>					
Ys 1-4 (Avg.)	0.022** (0.010) [0.483]	0.020** (0.009) [0.253]	0.001 (0.008) [0.206]	0.002 (0.003) [0.027]	0.001 (0.003) [0.009]
Individuals	90,423	90,423	90,423	90,423	90,423
Applications	122,195	122,195	122,195	122,195	122,195

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## Effects on Study Effort and Time Use

- Work-study program participation does not significantly impact schooling performance [table](#)
- Work crowds out leisure and household chores, but not so much study time [table](#)
- Earnings returns to education are similar in treatment and control group (Mincerian regression with fixed effects)

## Persistent Effects on Enrollment

- Related to the income shock due to program wages?
  - A priori, income effect stronger for poor households (more likely to be credit constrained)
  - No heterogeneity by poverty status of the household [table](#)
- Related to greater expectations about the returns to education?
  - Positive treatment effect on the reported probability that one finds a job after graduating from high school [table](#)

# Mechanisms

## Decomposition Exercise: Education vs. Work Experience

- YET increases both work experience and education
- Estimate respective returns in Mincerian regression with individual fixed effects. Results used as input for decomposition [details](#)
- Work experience contributes to 54% of the earnings effect
  - Positive quantity effect would explain 174% of the effect
  - Negative price effect of 120% (larger returns to experience for control)
- Education contributes to 21% of the earnings effect
  - Price effect not significant (same returns to education in both groups)

## Why lower returns to experience in treatment group?

- Sector specificity of human capital? No...
  - Less than 5% of participants hired again in program firms over 4 post-prog years
  - Earnings effects are not concentrated in program-firms sectors [table](#)
- Not learning on the job? No...
  - Youth read, write and use computers more often in program jobs [tasks](#)
- Less accumulation of soft skills? Maybe...
  - Less frequent meetings with colleagues
  - No effects on soft skills [details](#)

## Youth Welfare

- We use reservation wage questions from our survey to give a monetary value to leisure time
- One hour of leisure yields utility equivalent to \$3.7 of consumption
- During the program, monthly reduction in leisure of 21 hours
- Then, the monthly loss of utility due to the decrease in leisure is \$77.7 ( $=3.7*21$ )
- The net effect on welfare is \$69 per month: \$147 (monthly earnings effect during the program) minus \$78.
- This amounts to \$836 over the program year
- Under some additional assumptions, we estimate that effect on welfare after the program is \$267 per year

## Conclusion

- Working while in school improves labor market outcomes
- It does not crowd-out education. On the contrary, it crowds it in, probably because of the program conditionality
- Accumulation of work experience explains the largest part of the earnings effect
  - Experience acquired in state-owned firms is valued by the private sector
  - But, this experience has lower returns than alternative jobs
- Future research: external validity to jobs in different occupations and without the conditionality requirement



# Appendix

## Selection into work-study program (YET) [back](#)

- Program conducts lotteries to allocate vacancies in the main cities of Uruguay (total 77 localities). Every year since 2012.
- Participants aged 16-20 residing in Uruguay should satisfy two criteria to be eligible:
  - 1 Be enrolled in an educational institution
  - 2 Have not worked formally for more than 90 consecutive days
- Using the Population Census we estimate 35% of eligible youth apply to the 2012 edition
- Characteristics of program applicants are overall similar to those of the eligible population [table](#)

## Program Lotteries

- Candidates are randomly ranked within locality
- Sequential rounds of offers made until vacancies are filled
  - Candidates may apply to more than one locality
  - In practice 2% did so
- May apply again in the following edition if not offered or not completed job
- Third edition introduced minorities quotas (disabled, transgender, African ethnicity)

## YET work-study program: edition by edition

Edition	1	2	3	4	5
Application Date	May 2012	May 2013	May 2014	Sep 2015	Sep 2016
Applications	46,544	43,661	31,990	21,159	27,143
Applicants	46,008	42,643	30,969	20,537	26,137
Job Offers Made	754	981	955	722	843
Jobs Completed	549	686	660	541	632
Sector: Civil	0.81	0.73	0.71	0.64	0.64
Sector: Industry/Trade	0.03	0.05	0.04	0.05	0.05
Sector: Banking	0.16	0.23	0.25	0.31	0.31
Localities	51	64	67	65	63

## One third of the eligible population applies [back](#)

	(1) Census All 2011	(2) Census Studying 2011	(3) YET First Ed. 2012	(4) YET Ed. 1-3 2012-2014
Female	0.49	0.55	0.58	0.60
Age 16-18	0.62	0.72	0.70	0.72
Age 19-20	0.38	0.28	0.30	0.28
Montevideo	0.38	0.42	0.52	0.49
Enrolled	0.54	1.00	1.00	1.00
Highly Vulnerable Household	0.12	0.08	0.09	0.09
Worked formally last month	0.14	0.07	0.06	0.07
Individuals	255,338	132,968	46,008	90,423
Applications			46,544	122,195

## Main Econometric Specification back

$$Y_{i(a),t,e} = \alpha + \delta_t \text{Treated}_{i(a),e} + \text{Locality} * \text{EditionFE}_a + \text{QuotaFE}_{i(a)} \\ + \# \text{App}_{i(a),e} + \beta_0 X_{i(a),0,e} + \epsilon_{i(a),t,e}$$

$$\text{Treated}_{i(a),e} = \alpha_2 + \delta \text{Offered}_{i(a),e} + \text{Locality} \times \text{EditionFE}_a + \text{QuotaFE}_a \\ + \# \text{App}_{i(a),e} + \beta X_{i(a),0,e} + \epsilon_{2,i(a),e}$$

- Analysis at the application level  $a$
- $Y_{i(a),t,e}$  individual  $i$  outcome,  $t$  periods after application in edition  $e$
- $\text{Treated}_{i(a),e}$  dummy indicating whether individual  $i$  completed a program job offered in edition  $e$
- $\# \text{app}_{i(a),e}$  number of applications of individual  $i$  in edition  $e$
- $X_{i(a),0,e}$  vector of covariates measured at application (gender, age, hh poverty status, earnings, edu level)

# Balance Check back

	(1)	(2)	(3)	(4)	(5)
	Control		Offered		
	Mean	S.D.	Mean	S.D.	p-value <sup>1</sup>
<b>Panel A. Demographics</b>					
Female	0.60	0.49	0.61	0.49	0.33
Aged 16-18	0.72	0.45	0.71	0.45	0.64
Aged 19-20	0.28	0.45	0.29	0.45	0.64
Montevideo (Capital City) <sup>2</sup>	0.49	0.50	0.53	0.50	
<b>Panel B. Education and Social Programs Year -1</b>					
Enrolled in Academic Secondary Education	0.49	0.50	0.48	0.50	0.32
Enrolled in Technical Secondary Education	0.22	0.41	0.22	0.42	0.49
Enrolled in University <sup>3</sup>	0.16	0.37	0.16	0.37	0.89
Enrolled in Tertiary Non-University	0.01	0.11	0.01	0.10	0.43
Enrolled in Out-of-School Programs	0.02	0.13	0.02	0.14	0.80
Highly Vulnerable HH (Food Card Recipient)	0.09	0.29	0.09	0.29	0.93
Vulnerable Household (CCT recipient)	0.26	0.44	0.27	0.44	0.22
<b>Panel C. Labor Outcomes Year -1</b>					
Earnings (winsorized top 1%, USD)	163.17	578.73	151.63	571.44	0.34
Positive Earnings	0.15	0.36	0.15	0.35	0.73
Months with Positive Earnings	0.68	2.07	0.62	1.96	0.25
<b>Panel D. Aggregate orthogonality test for panels A-C</b>					
p-value (joint F-test) <sup>4</sup>					0.80
Observations	119,366		2,829		122,195

## First Stage

	(1)	(2)	(3)	(4)
	All Editions	YET Participation Edition 1	Edition 2	Edition 3
Offered	0.71*** (0.01)	0.73*** (0.02)	0.70*** (0.02)	0.70*** (0.02)
Fstat	6,110	2,001	2,077	2,088
Applications	122,195	46,544	43,661	31,990
Individuals	90,423	46,008	42,643	30,969

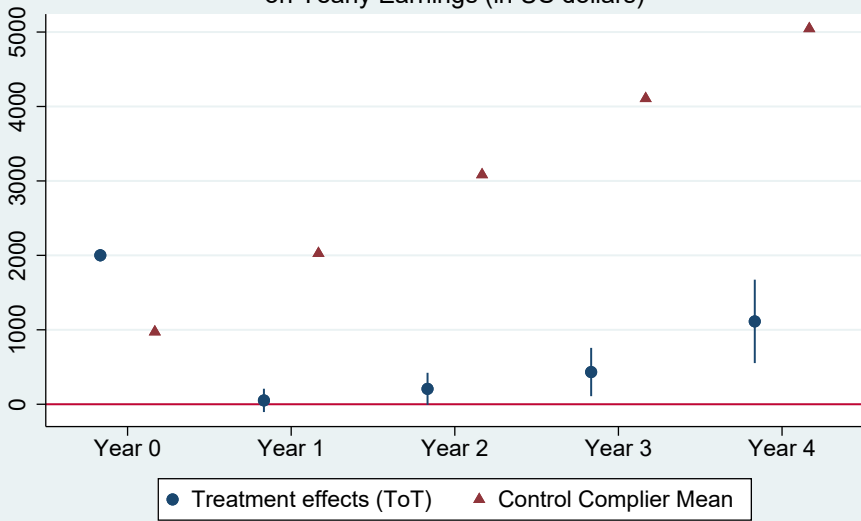
OLS regressions of work-study program participation in year 0 on the offer to take the program job (winning the lottery). Controls for lottery design (lottery and quota dummies) and number of applications are included. Covariates include gender, a dummy for age below 18 at application, baseline earnings and dummies for baseline education type. Standard errors clustered at the applicant level shown in parenthesis.  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .



# Yearly Effects of YET on Labor Outcomes [back](#)

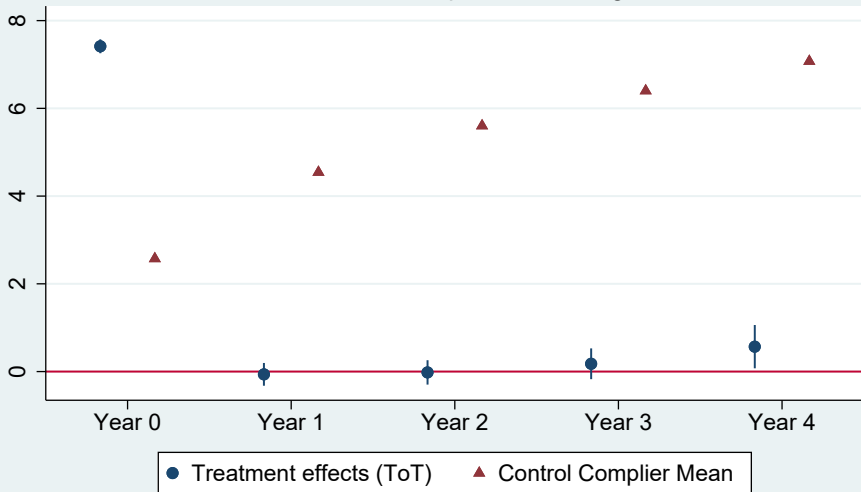
	(1) Total earnings	(2) Months with positive earnings	(3) Positive earnings	(4) Wages
<b>Program Year</b>				
Year 0	2001.48*** (41.64) [972.36]	7.41*** (0.08) [2.57]	0.60*** (0.01) [0.40]	-24.81*** (3.09) [321.32]
<b>Post-Program Years</b>				
Year 1	51.75 (79.92) [2026.38]	-0.06 (0.13) [4.54]	0.04*** (0.01) [0.60]	4.59 (7.92) [398.50]
Year 2	206.56* (110.24) [3083.94]	-0.02 (0.14) [5.60]	0.02 (0.01) [0.67]	26.39*** (9.97) [498.05]
Year 3	432.84*** (165.44) [4107.04]	0.18 (0.18) [6.40]	0.01 (0.02) [0.72]	43.08*** (13.35) [583.19]
Year 4	1113.19*** (285.81) [5046.11]	0.57** (0.25) [7.07]	0.05** (0.02) [0.75]	71.86*** (23.08) [661.82]
Ys 1-4 (Avg.)	285.35*** (103.38) [3142.03]	0.07 (0.12) [5.56]	0.03*** (0.01) [0.67]	26.22*** (8.60) [506.65]
Individuals	90,423	90,423	90,423	48,375
Applications	122,195	122,195	122,195	58,078

## Work-study Program Effects on Yearly Earnings (in US dollars)



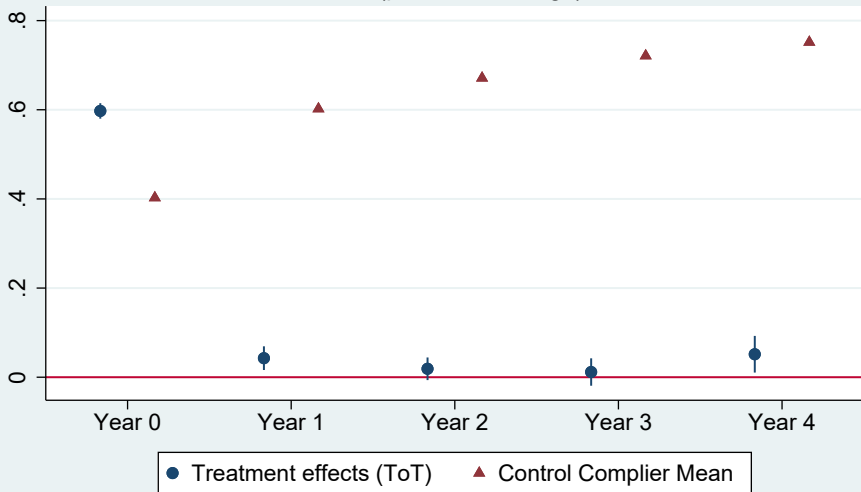
Program in Year 0; Post-program years Year 1-4

## Work-study Program Effects on months with positive earnings



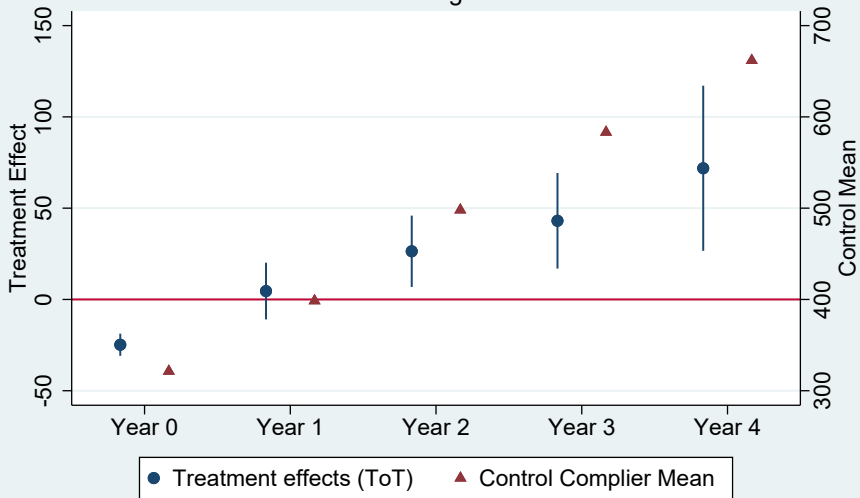
Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Work-study Program Effects on P(positive earnings)



Program in Year 0; Post-program years Year 1-4  
95% confidence interval

# Work-study Program Effects on wages



Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Bounds for Program Effects on Wages [back](#)

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	ITT effect on wages	Lee bounds on wage effect		Imbens and Manski 95% confidence interval
		Lower	Upper	
Year 1	3.29 (5.68) [409.15]	-23.27*** (5.04)	20.84*** (5.57)	{-31.56, 30.00}
Year 2	18.99*** (7.19) [501.88]	16.21** (7.06)	28.72*** (7.02)	{4.60, 40.27}
Year 3	31.35*** (9.74) [589.37]	30.49*** (9.71)	38.20*** (9.68)	{14.52, 54.12}
Year 4	53.91*** (17.34) [682.72]	-3.635 (14.16)	82.80*** (17.08)	{-26.93, 110.90}

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## Earnings Effects: Formal vs. Informal Work

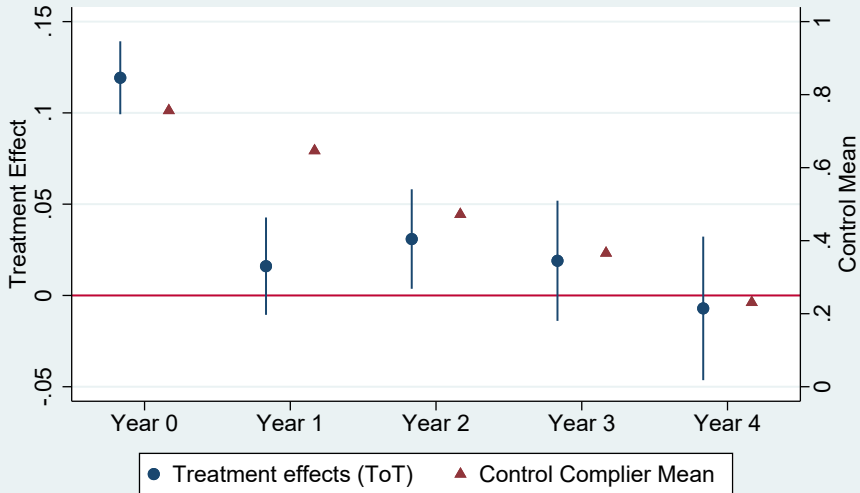
- \$285 (9%) average increase in post-program formal earnings over complier control mean
- The Continuous Household Survey in Uruguay indicates that youth aged 16-20 earn around \$200 per year in the informal sector
- Even if we assume that increase in formal earnings completely crowds-out informal earnings, the effect will still be positive

# Effects of work-study program on Enrollment in Education

	Any Level	Secondary Education	University	Tertiary Non-Univ.	Out-of-school Programs
<b>Program Year</b>					
Year 0	0.119*** (0.010) [0.756]	0.101*** (0.012) [0.521]	0.012 (0.008) [0.207]	0.005 (0.004) [0.017]	0.004 (0.005) [0.025]
<b>Post-Program Years</b>					
Year 1	0.016 (0.014) [0.646]	0.024* (0.013) [0.344]	-0.000 (0.011) [0.279]	0.003 (0.005) [0.025]	-0.006* (0.003) [0.016]
Year 2	0.031** (0.014) [0.472]	0.021* (0.012) [0.236]	0.005 (0.011) [0.213]	0.004 (0.005) [0.028]	0.003 (0.004) [0.007]
Year 3	0.019 (0.017) [0.366]	0.023* (0.013) [0.181]	-0.011 (0.011) [0.161]	0.003 (0.005) [0.028]	0.005 (0.004) [0.005]
Year 4	-0.007 (0.020) [0.231]	0.001 (0.017) [0.156]	-0.006 (0.009) [0.044]	-0.008 (0.007) [0.030]	0.008 (0.005) [0.004]
Ys 1-4 (Avg.)	0.022** (0.010) [0.483]	0.020** (0.009) [0.253]	0.001 (0.008) [0.206]	0.002 (0.003) [0.027]	0.001 (0.003) [0.009]
Individuals	90,423	90,423	90,423	90,423	90,423
Applications	122,195	122,195	122,195	122,195	122,195

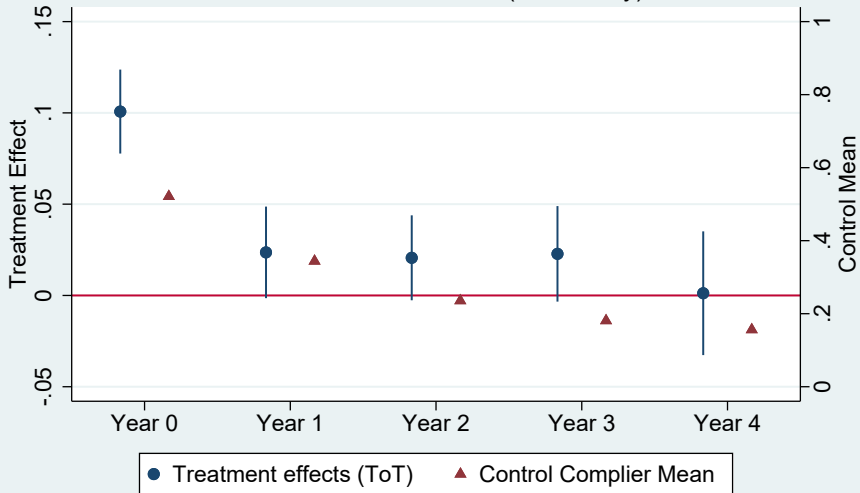


## Work-study Program Effects on Education enrollment



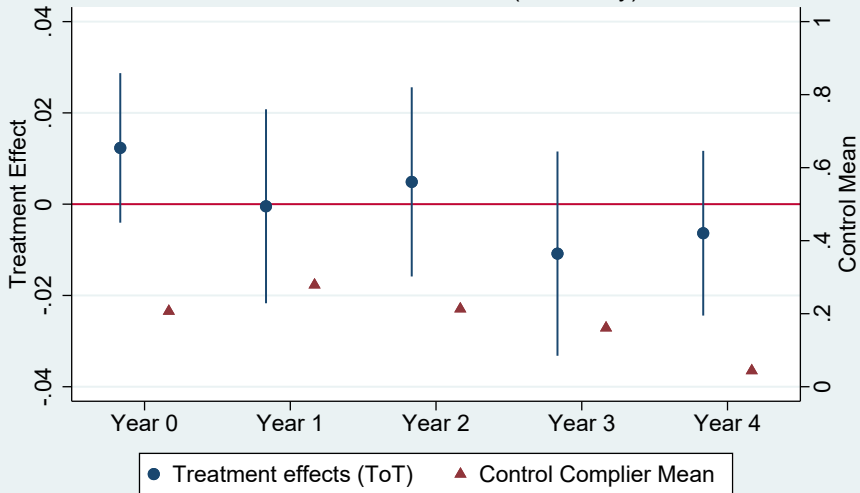
Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Work-study Program Effects on Education enrollment (Secondary)



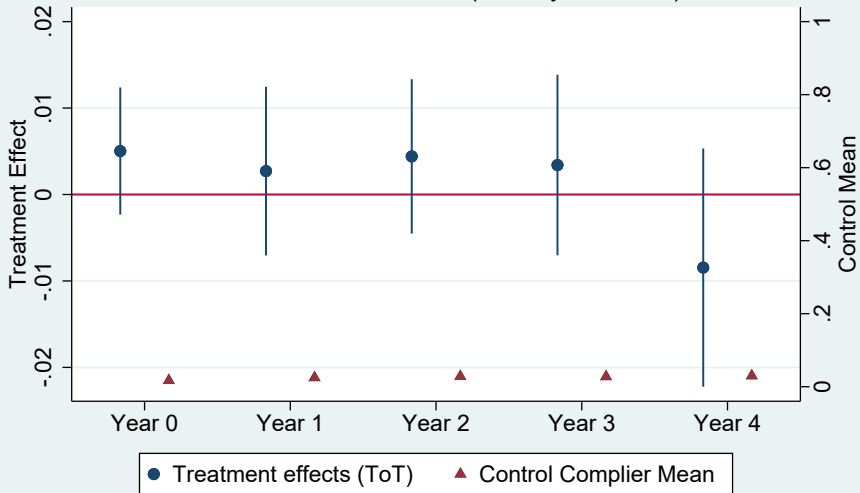
Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Work-study Program Effects on Education enrollment (University)



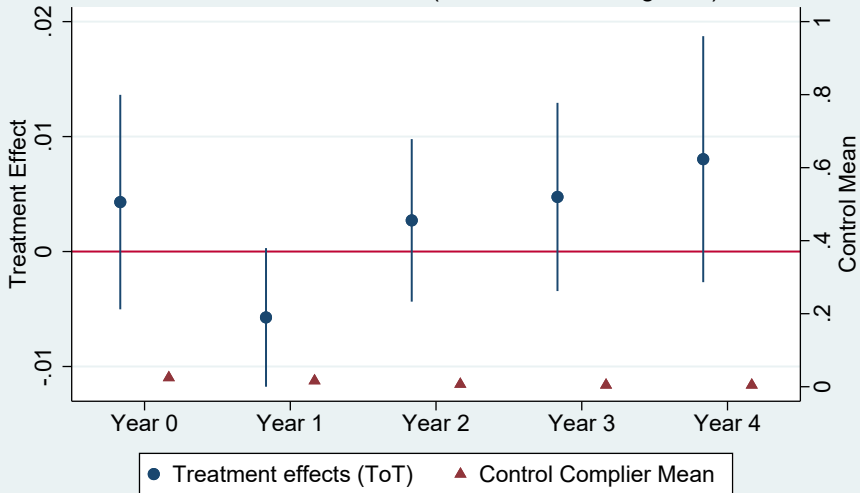
Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Work-study Program Effects on Education enrollment (Tertiary non-univ.)



Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Work-study Program Effects on Education enrollment (Out-of-School Programs)



Program in Year 0; Post-program years Year 1-4  
95% confidence interval

## Heterogeneity by Poverty Level [back](#)

	Enrolled Any Level	Total Earnings
	Avg Ys 1-4	
Treated (T)	0.019* (0.012)	258.253** (124.534)
T * Vulnerable	0.028 (0.027)	-2.524 (248.277)
T * Highly Vulnerable	-0.069 (0.044)	320.331 (376.595)
Vulnerable	-0.067*** (0.003)	-140.664*** (28.209)
Highly Vulnerable	-0.057*** (0.005)	-349.300*** (38.463)
Control Complier Mean	0.506	3308.204
Observations	381,139	381,139
Individuals	90,423	90,423

Note: Vulnerable households receive a cash transfers; highly vulnerable a food card as well.

## Effects of YET on Study Effort during Program Year [back](#)

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	(1) High school enrolled	(2) Absent last week	(3) Class hs per week	(4) Study time outside school (hs per week)	(5) GPA current
treated	0.10*** (0.04)	0.01 (0.05)	-1.85** (0.86)	-2.51*** (1.04)	-0.20 (0.16)
CCM	0.45	0.25	26.90	6.46	7.88
Applications	1,366	649	649	649	649
Applicants	1,272	604	604	604	604

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## Expected returns to education [back](#)

	(1)	(2)	(3)	(4)
	Expected probability (in%) of finding a job when one finishes...			
	3 years of high school	6 years of high school	tertiary education	university
Treated	-2.156 (1.478)	2.864* (1.515)	0.753 (1.250)	-0.497 (0.934)
CCM	42.22	70.60	85.33	94.30
Applications	1,366	1,366	1,366	1,366
Applicants	1272	1272	1272	1272



# Effects on Working and Studying [back](#)

	(1) Work and Study	(2) Work No Study	(3) No Work and Study	(4) No Work No Study
<b>Program Year</b>				
Year 0	0.60*** (0.01) [0.27]	-0.01 (0.01) [0.13]	-0.48*** (0.01) [0.48]	-0.11*** (0.01) [0.11]
<b>Post-Program Years</b>				
Year 1	0.04*** (0.01) [0.37]	-0.00 (0.01) [0.24]	-0.03** (0.01) [0.28]	-0.02* (0.01) [0.12]
Year 2	0.04*** (0.01) [0.30]	-0.02 (0.01) [0.37]	-0.01 (0.01) [0.17]	-0.01 (0.01) [0.16]
Year 3	0.01 (0.02) [0.26]	-0.00 (0.02) [0.46]	0.01 (0.01) [0.10]	-0.02 (0.01) [0.18]
Year 4	-0.01 (0.02) [0.18]	0.06*** (0.02) [0.57]	-0.00 (0.01) [0.05]	-0.05*** (0.02) [0.20]
Ys 1-4 (Avg.)	0.03*** (0.01) [0.30]	-0.00 (0.01) [0.36]	-0.01 (0.01) [0.18]	-0.02** (0.01) [0.15]
Individuals	90,423	90,423	90,423	90,423
Applications	122,195	122,195	122,195	122,195

## Decomposition Exercise

Assume the following structural equations for earnings of the youth receiving a program offer (T) and of the control youth (C):

$$Y_i^C = \alpha^C + f^C(E_i) + \epsilon_i$$

$$Y_i^T = \alpha^T + f^T(E_i) + \epsilon_i$$

$E_i$  is a vector of education and work experience at the end of year  $t - 1$

$f$  is a non-linear pricing function of human capital in the labor market

## Decomposing the ITT on earnings back

$$\begin{aligned}\delta &= \mathbb{E}[Y|O=1] - \mathbb{E}[Y|O=0] \\ &= \mathbb{E}[\alpha^T + f^T(E_i) + \epsilon_i|O=1] - \mathbb{E}[\alpha^C + f^C(E_i) + \epsilon_i|O=0] \\ &= \underbrace{\alpha^T - \alpha^C}_{u=\text{unexplained-by-mediators}} + \underbrace{\mathbb{E}[f^T(E_i) - f^C(E_i)|O=1]}_{p=\text{price-effect}} \\ &\quad + \underbrace{\mathbb{E}[f^C(E_i)|O=1] - \mathbb{E}[f^C(E_i)|O=0]}_{q=\text{quantity-effect}} + \underbrace{\mathbb{E}[\epsilon_i|O=1] - \mathbb{E}[\epsilon_i|O=0]}_{e=0\text{-by-randomization}}\end{aligned}$$

# Earnings Returns to Education and Work Experience

[back](#)

	Earnings	Education <sub>t-1</sub>	Experience <sub>t-1</sub>	Earnings
Offered	196.2*** (72.97)	0.142*** (0.023)	0.430*** (0.013)	
Education <sub>t-1</sub>				313.81*** (13.77)
Educ. × offered				89.92 (85.69)
Work experience <sub>t-1</sub>				1,065.6*** (28.81)
Exp. <sup>2</sup>				-123.84*** (7.91)
Exp. × offered				-523.36** (227.55)
Exp. <sup>2</sup> × offered				183.25*** (58.63)
Control mean	3290.7	15.52	0.785	
Application FE				Y
Observations	283,630	283,624	283,630	283,624
Number applicants	90,422	90,420	90,422	90,420

Sample: pooled post-program years

# Effect of work-study program on Earnings by Sector

[back](#)

	Total earnings Industry	Total earnings Civil	Total earnings Banking	Total earnings Low Qual.
<b>Program Year</b>				
Year 0	-589.23*** (36.83) [871.81]	1985.05*** (37.19) [37.13]	646.73*** (30.53) [9.30]	-41.01*** (5.97) [52.68]
<b>Post-Program Years</b>				
Year 1	34.79 (72.59) [1675.14]	-6.50 (35.67) [202.07]	60.08** (26.47) [39.03]	-38.18*** (12.80) [95.01]
Year 2	273.20** (122.45) [2486.52]	45.85 (70.04) [299.96]	95.68* (51.93) [62.48]	16.08 (26.71) [92.03]
Year 3	300.29** (152.12) [3331.32]	36.94 (86.63) [440.62]	116.24* (65.13) [80.35]	-1.46 (29.63) [130.49]
Year 4	409.21 (256.05) [4105.23]	578.59*** (211.47) [594.97]	43.96 (86.92) [87.36]	26.58 (61.25) [129.02]

# Effects on Soft Skills at End of Program [back](#)

## Panel A. Big 5 and grit

	Open	Conscientious	Extrav Scale 1-5	Agreeable	Neurotic	Grit
Treated	-0.041 (0.036)	0.035 (0.038)	0.007 (0.057)	-0.026 (0.041)	0.046 (0.068)	-0.049 (0.043)
CCM	4.041	3.501	3.611	3.695	3.419	3.736
Control sd	0.493	0.478	0.734	0.533	0.835	0.579

## Panel B. Soft Skills Related to Labor Market

	Finish on time	Adapts fast	Teamwork important Scale 1-5	Punctual	Index Cols. 1-4	Unpunctual Interview
Treated	0.071 (0.050)	0.067 (0.051)	0.050 (0.050)	-0.002 (0.061)	0.047 (0.038)	-0.010 (0.010)
CCM	4.047	4.006	4.246	4.169	4.117	0.0241
Control sd	0.679	0.650	0.677	0.811	0.494	0.149
Applications	1,366	1,366	1,366	1,366	1,366	1,366
Individuals	1,272	1,272	1,272	1,272	1,272	1,272

## During Program: Time Use [back](#)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Time (hours per week)						
	Work	Study in or out of school	Commute	Household chores	Leisure	Sleep	Eat
Treated	10.90*** (1.509)	-1.990 (1.811)	2.143** (0.984)	-3.170*** (0.780)	-4.936*** (1.885)	-0.784 (1.402)	-1.443* (0.769)
CCM	8.759	20.08	5.974	6.404	34.80	58.81	10.72
Applications	1,366	1,366	1,366	1,366	1,366	1,366	1,366
Individuals	1,272	1,272	1,272	1,272	1,272	1,272	1,272

## During Program: Occupations and Tasks [back](#)

	Reading	Writing	Computers every day	Measuring weights, distances	Physically demanding (scale 1-10)	Frequent meeting colleagues
Treated	0.275*** (0.056)	0.184*** (0.056)	0.470*** (0.054)	-0.137*** (0.048)	-1.509*** (0.294)	-0.195*** (0.056)
CCM	0.562	0.542	0.381	0.252	4.367	0.392
Applications	641	641	641	641	641	641
Applicants	587	587	587	587	587	587

Note: sample of employed youth at the end of program year



## Effect of working and studying on main outcomes [back](#)

	(1) Total Earns.	(2) Pos. Earns.	(3) Wages	(4) Enrolled Any Level
	Avg Ys 1-4			
Work and Study	477.79*** (172.49)	0.05*** (0.02)	51.62*** (16.97)	0.04** (0.02)
CCM	2338.30	0.56	473.65	0.51
Observations	381,139	381,139	253,957	381,139
Individuals	90,423	90,423	73,681	90,423