Job amenities for students: evidence from a field experiment

Amanda Chuan & Hye Jin Rho

Michigan State University

ASSA Jan 6, 2023

Student jobs: important for school-to-work transition

- ▶ 14 M (70%) American college students begin their work lives with a student job (Carnevale and Smith, 2018)
 - first exposure to work world
 - shape preferences about work
- ► Student jobs can train the future workforce (Le Barbanchon et al., 2023; Harrington and Khatiwada, 2016)
 - Impart skills that cannot be learned in the classroom (Mortimer & Staff, 2004)
 - ▶ Raises earnings, educational attainment (Le Barbanchon et al., 2023)
 - ▶ Help low-income youth pay for school (Carnevale and Smith, 2018)
- But we know little about how to recruit for them

Field Experiment

- Partner with student employment division of large state university
 - Recruitment emails to students during annual recruitment drive
 - ► Natural field experiment (Harrison & List, 2004)
- One week prior to academic year, conducted intervention:
 - ▶ Subjects: entire undergraduate student body (N = 40,875)
- Randomly assigned students to emails which varied
 - 1. Pay: mention \$13 vs. \$15
 - 2. Nonpecuniary: "flexible schedule around classes"
 - 3. Nonpecuniary: mandatory weekday and weekend shifts
- Email contained link to real jobs site
 - All subjects viewed same website
 - Tracked clicks ("job interest")
 - Observed real job applications
 - % students apply at all (extensive margin)
 - # applications per applicant (intensive margin)

Results Overview

- 1. Mentions of pay raise interest among both men and women
 - raise total applications among men
- 2. Mentions of shift work
 - decrease likelihood of applying among women (extensive margin)
 - increase applications from men (intensive margin)
 - conjecture: shift work is has both desirable and undesirable features
- 3. Mentions of **flexible scheduling** have little impact overall
 - increase applications from men

Contributions

- 1. What job characteristics appeal to students?
 - ▶ Understanding students' work preferences can help craft more appealing jobs
 - ▶ Better utilize student work as a way to train future workforce
- 2. Value of different nonpecuniary job amenities after Covid-19 pandemic?
 - Burst of literature on remote work geographic flexibility (see Barrero et al., 2021; Choudhury et al., 2021; Angelici & Profeta, 2022; Aksoy et al., 2022; Bick et al., 2023; Alipour et al., 2023)
 - ► This paper informs how to accommodate service-sector workers
 - ▶ Difficult to make remote, but may accommodate via time flexibility
 - ▶ Often most "time poor" (Giurge et al., 2020; Whillans and West, 2022)
- 3. Informs gender gap in job preferences, work time
 - ► Goldin (2014): flexible work valuable to women, since motherhood imposes time constraints
 - Our paper closely examines "flexibility": "flexible schedules" vs. "shift work"
 - "flexible schedules" does little to increase % of women that apply
 - but women strongly deterred by "shift work"

Experiment Timeline Clicks over Time

Applications over Time

Intervention email

N = 40.875



Opened email

N=14,077

34% of experimental sample



Clicked on jobs site

N=1.722

12% of those who opened email



Apply to job

N=1,339

78% of those who visited jobs site

Variation from emails impacts click rates

Caveat: can only track clicks of reminder emails

Almost all clickers apply

	Baseline	Mandatory shifts	Flexible schedules
\$13			
\$ 15			
113			

	Baseline	Mandatory shifts	Flexible schedules
\$13	You could earn \$13 per hour.		
	Different jobs pay different rates.		
\$ 15	You could earn \$15 per hour. Different jobs pay different rates.		

	Baseline	Mandatory shifts	Flexible schedules
\$13	N = 7,808	You could earn \$13 per hour.	
		Different jobs pay different rates.	
		For some jobs, workers must work	
		two shifts during the week and	
		two shifts every other weekend.	
\$15	N = 7,806	You could earn \$15 per hour.	
		Different jobs pay different rates.	
		For some jobs, workers must work	
		two shifts during the week and	
		two shifts every other weekend.	

	Baseline	Mandatory shifts	Flexible schedules
\$13	N = 7,808	N = 7,792	You could earn \$13 per hour. Different jobs pay different rates. Flexible scheduling around classes.
\$ 15	N = 7,806	N = 7,783	You could earn \$15 per hour. Different jobs pay different rates. Flexible scheduling around classes.

	Baseline	Mandatory shifts	Flexible schedules
\$13	N = 7,808	N = 7,792	N = 7,833
\$15	N = 7,806	N = 7,783	N = 7,811

	Baseline	Mandatory shifts	Flexible schedules
\$13	N = 7,808	N = 7,792	N = 7,833
\$15	N = 7,806	N = 7,783	N = 7,811

Identifying assumption: open email \bot treatment

No difference in opening email across treatments

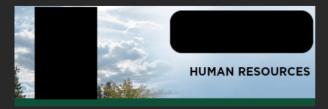
Regression of Opening Email on Treatment

	(1)	(2)	(3)	(4)
15 per hour	0.004	0.005	0.014	0.014
	(800.0)	(800.0)	(0.012)	(0.012)
13 per hour, mandatory shifts	0.013	0.013	0.007	0.006
	(800.0)	(800.0)	(0.012)	(0.012)
15 per hour, mandatory shifts	0.006	0.006	0.004	0.004
	(800.0)	(800.0)	(0.012)	(0.012)
13 per hour, flexible	0.010	0.009	0.006	0.007
	(800.0)	(800.0)	(0.012)	(0.012)
15 per hour, flexible	0.010	0.010	0.005	0.005
	(800.0)	(800.0)	(0.012)	(0.012)
Observations	40875	39970	17536	17536
% opened email	34.44	34.50	32.88	32.88
Joint F-test p-value	0.620	0.674	0.924	0.918
Age, sex, race, class		Yes	Yes	Yes
Additional Controls			Yes	Yes
College Controls				Yes

Notes: Additional controls are citizenship, in-state residence, expected family contribution, whether eligible for Pell grants, and disability status. * p < 0.10, ** p < 0.05, *** p < 0.01.



Tue 8/23/2022 9:09 AM



Dear Amanda:

SR

To: Chuan, Amanda

is hiring student workers for the Fall 2022

Semester You could earn \$15 per hour. Different jobs pay different rates. For some jobs, workers must work two shifts during the week and two shifts every other weekend. Ve invite you to apply!

For more information, please click on the link:

j<u>obs.</u> edu

Sincerely,

(she/her/hers)

Director, Human Resources

Jobs Website

20153893P 06/10/2023 University Activities Board University Student Activities Student Coordinator Board (UAB) (Loc) - Starting pay \$14.50General Duties and Responsibilities:- Attend and collaboratively lead all weekly UAB Member meetings- Attend and participate in all Location: UAB at the weekly UAB meetings. Meet weekly with designated UAB Advisor- Maintain event files and UAB programming calendars. Recruit volunteers to assist with events. Recruit and lead members on Project Teams- Serve as back-... View Details **Bookmark** Dining Event Set-Up/Server 20153904P Student 08/05/2023 Center (Loc) \$13.00 per hour/Looking for a great summer job with the ability to work into the coming school year? Are you a person who is customer focused, hardworking, a team player and dependable? If you answered Yes, then we want you!Join the Events Team at Center, that helps serve the hotel and Athletic Venues, including Center. Tower Arena, for... View Details Bookmark Clerical Front Desk Rotation 20153902P Center Student 06/30/2023 (Loc) Wage = \$12.00 per hour!Great Level I Internship for HB Students|Looking for a great summer job with the ability to work into the coming school year? Are you a person who is customer focused, hardworking, a team player and dependable? If you answered Yes, then we want you'As a Front Office Rotational Student, you will train on and master all the front office positions at Hotel & ...

● View Details Bookmark

Receptionist Clerical 20153898P Student 07/31/2023

Place/ Apartments

Hiring Service Center Receptionist (SCR's) for Apartments/ IThis position is for summer 2023 (May to August) and also Fail 2023 and Spring 2024/lAs a Service Center Receptionist, you will perform routine clerical support while providing customer service to all residence hall students and customers, both in person and over the phone. You will also be responsible for marintain...

Service Centers (Loc)

◆ View Details

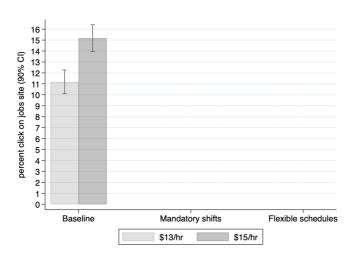
Bookmark

Bookm

Jobs Website

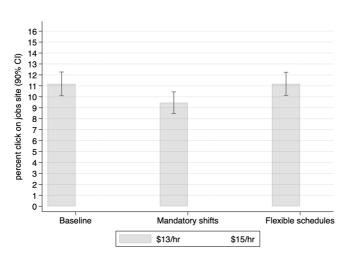
Job Title Event Set-Up/Server \$13.00 per hour! Looking for a great summer job with the ability to work into the coming school year? Are you a person who is customer focused, hardworking, a team player and dependable? If you answered Yes, then we want you! Join the Events Team at Center, that helps serve the hotel and Athletic Venues, including Arena, for all types of events! Center. Tower. Job Description Provides exceptional customer service by Delivering Outstanding Experience (DOSE) Prepare room for events; set tablecloths, dishes, glassware, silverware as directed Assist in clearing, cleaning and breaking down room at the completion of an event · Serve guests food and drinks during event as required Accommodate any needs for reasonable special requests Ensure guest satisfaction Follow directions as detailed from Banquet Lead, Banquet Captain or Banquet Manager Other duties as assigned Must be able to work Summer 2023 May - Aug Be able to work 15-20 hours per week Be able to work morning, lunch, and evening shifts Required Be able to work weekends Qualifications Be able to work between classes when your schedule allows. Punctuality, positive attitude, and attention detail and provide great customer service Work with a team in a fast-paced environment Re able to work Summer 2023 Preferred Qualifications Able to work flexible hours and shifts Equal Employment All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, Opportunity gender identity, national origin, citizenship, disability or protected veteran status. Statement Be able to lift up to 45 pounds **Physical Demands** Realize the position will require you to stand for long periods of time Must be able to work Summer 2023 May - Aug Must be able to work 15-20 hours per week, including weekends. Work Hours Work 2 Lunch Shifts between 11am-2pm Mon-Fri Work shifts between classes when needed Work Location Center (Loc)





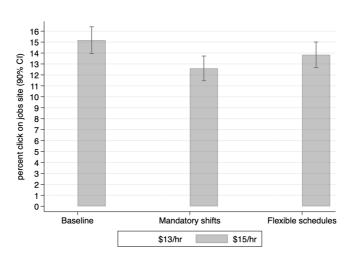
► Compare \$13 vs. \$15 at baseline

Click on Jobs Website

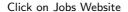


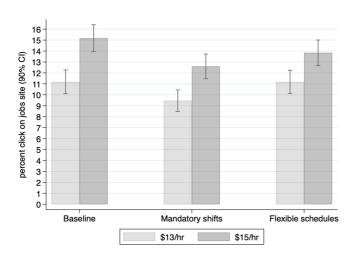
- ► Compare effect of mentioning shift work or flexible scheduling
 - when salient pay is \$13





- Compare effect of mentioning shift work or flexible scheduling
 - when salient pay is \$15





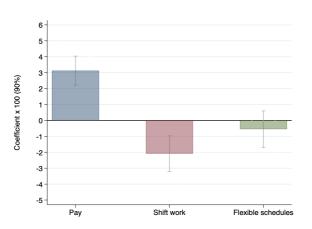
Compare interactions btwn pay, shift work, flexible scheduling

Regression Specification (ITT)

$$y_i = eta_0 + eta_1$$
pay $+ eta_2$ shifts $+ eta_3$ flexible $+ eta_2 X_i + \epsilon_i$

- y_i : click rates ("interest"), % job applicants (extensive margin), applications (intensive margin)
- ► Independent Variables:
 - 1. Pay \$13 vs. \$15
 - 2. shift work during weekdays and weekends
 - 3. flexible schedules around classes
- \triangleright Controls X_i : student record data (age, female, race, academic level)
- ► Sample: students who opened email

Click on Jobs Website

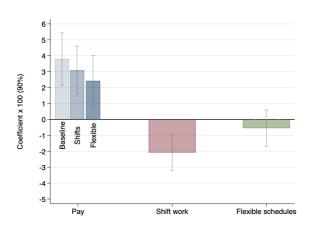


Pooling all results:

- ► Higher pay raises interest in jobs site
- ► Mentions of shift work decreases interest
- ▶ Mentions of flexible scheduling do not impact interest

Time Series: Raw Data

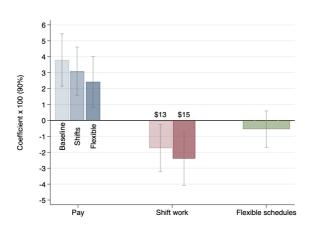
Click on Jobs Website



Examining impact of pay,

▶ greater interest for "baseline" condition, shift work condition, and flexible condition

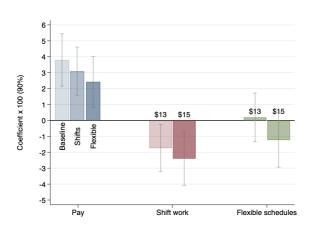
Click on Jobs Website



Examining impact of mentioning shift work:

▶ lower click rates if shift work is mentioned, when pay is \$13 or \$15

Click on Jobs Website



Examining impact of mentioning flexible scheduling:

no significant effect in either pay condition

2SLS Regression (TOT)

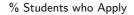
First Stage:
$$\operatorname{click}_{D_i} = \alpha_0 + \alpha_1 D_i + \alpha_2 X_i + v_i$$
 (1)

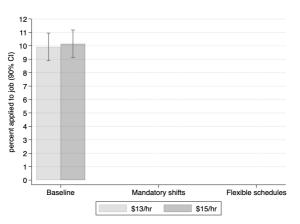
- \triangleright D_i randomized assignment to email:
 - **pay** \$13 vs. \$15
 - shift work during weekdays and weekends
 - flexible schedules around classes
- \triangleright click_{D_i} click on jobs site | assigned to email D_i

2SLS Regression (TOT)

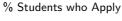
Second Stage:
$$\widetilde{y}_i = \gamma_0 + \gamma_1 \widehat{click}_{D_i} + \gamma_2 X_i + u_i$$
 (2)

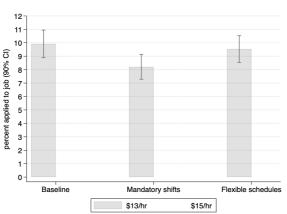
- $ightharpoonup \widetilde{y}_i$: % job applicants, applications
- ightharpoonup Controls X_i : student record data (age, female, race, academic level)
- ► Sample: students who opened email
- Exclusion restriction: difference across assigned treatments impacts application rates through influencing whether student clicks on jobs site
- Robustness: Results hold with
 - OLS for students who opened email & all students (ITT)
 - Additional controls: residence, citizenship, expected family contribution, Pell eligibility, disability, major group
 - Interactions between pay and whether shifts/flexibility are mentioned





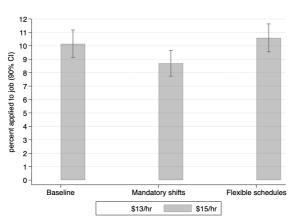
- ► Compare \$13 vs. \$15 at baseline
 - no effect of pay on actual application rates



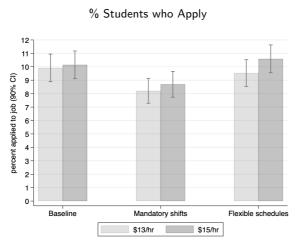


- ▶ When salient pay is \$13
 - mentioning shift work decreases applications
 - ▶ no impact of mentioning flexible scheduling



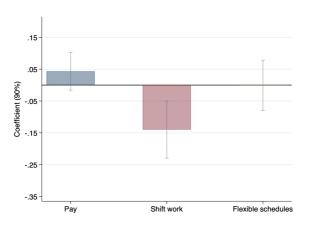


- ▶ When salient pay is \$15
 - mentioning shift work decreases applications
 - no impact of mentioning flexible scheduling



► Compare interactions btwn pay, shift work, flexible scheduling

% Students who Apply

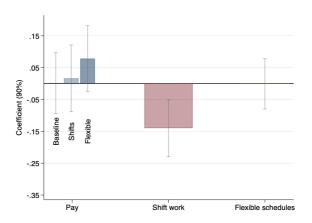


Pooling all results:

- ► No impact of pay or flexible scheduling
- ▶ Decline in applications when email mentions shift work



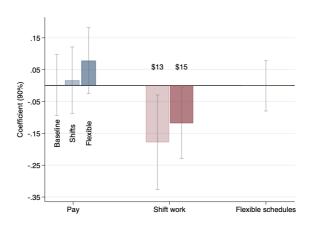
% Students who Apply



Examining impact of pay,

- ► No impact in any condition
- Expected: clicking on jobs site reveals same pay information for all students
 - ▶ Regardless of whether email mentioned \$13 or \$15

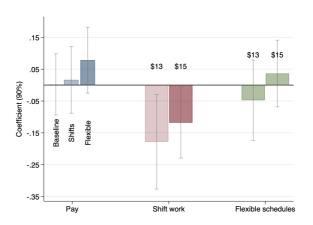
% Students who Apply



Examining impact of shift work,

▶ Significant decline in applications for both \$13 and \$15 condition

% Students who Apply



Examining impact of flexible scheduling,

▶ No significant impact in either pay condition

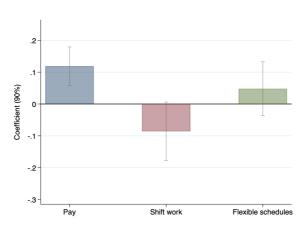


Mentions of pay

- ▶ increase interest but do not increase # students who ever apply
- do they change total applications received?

TOT Results: Applications

Total Applications



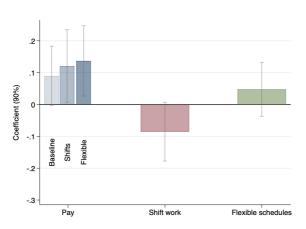
Pooling all results:

- ► Mentioning pay raises total volume of applications
- ▶ Mentioning **shift work** decreases total volume of applications



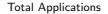
TOT Results: Applications

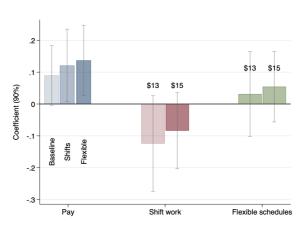




- ▶ Effect of pay is positive for all email conditions
 - significant only when flexible schedule mentioned

TOT Results: Applications





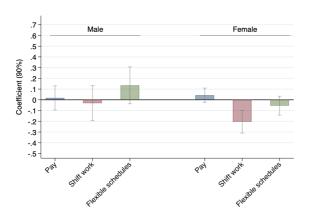
- ▶ Effect of shift work negative for both pay conditions
 - (insignificant in each condition)





TOT Results by Gender: Applicants

% Students who Apply



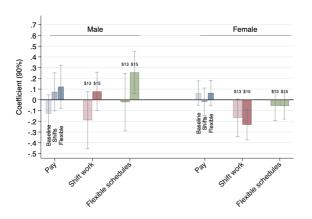
Pooling all results:

▶ Decline in applicants for shift work driven by women



TOT Results by Gender: Applicants

% Students who Apply



For those who received email mentioning \$15:

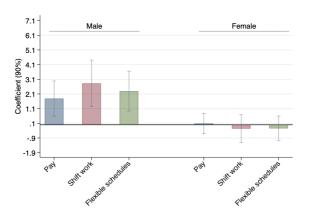
- ► Mentioning **shift work** decreases female applicants
- Mentioning flexible scheduling raises male applicants

ITT Result

Demographic Breakdown

TOT Results by Gender: Applications

Average Applications per Applicant



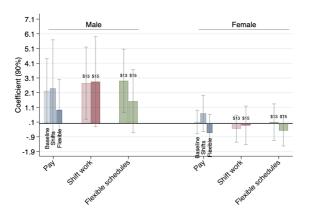
- ► Mentioning pay, shift work, or flexible scheduling raises average applications per *male applicant*
 - Opposite gender effect of shift work!
 - Shift work conveys ambiguous information

ITT Result

Demographic Breakdown

TOT Results by Gender: Applications

Average Applications per Applicant



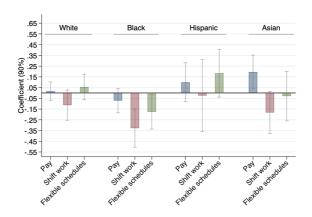
- ▶ Effect of pay significant for men only in baseline condition
- ► Effect of shift work, flexible scheduling significant for men who received email mentioning \$13





TOT Results by Race: Applicants

% Students who Apply

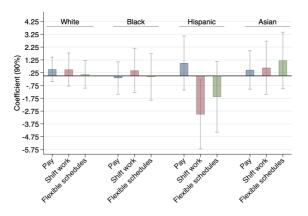


- ▶ Mentioning higher pay makes Asian students more likely to apply
- ▶ Mentions of shift work makes Black students less likely to apply



TOT Results by Race: Applications

Average Applications per Applicant

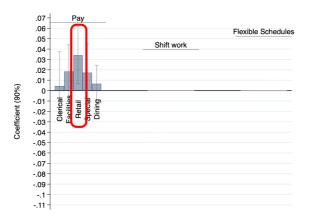


Mentions of shift work decrease average applications among Hispanic applicants



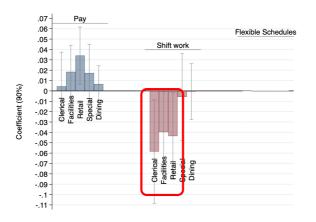


Coefficient estimate for different job types



- ▶ Mentioning greater pay raises application rates in retail jobs
 - ► E.g., Spirit shop, golf vendors, etc.

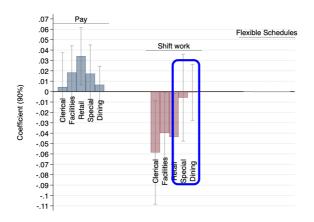
TOT estimates for different job types



► Shift work

- Decreases applications to clerical, facilities, and retail
- ▶ All tend to mention weekend work in their job ads

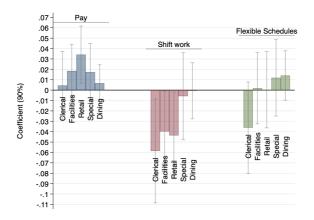
TOT estimates for different job types



Shift work

- Decreases applications to all categories except specialized and dining
 - Specialized: helps students learn skills, helpful for major or future career
 - Dining: difficult to hire for; higher hours than other categories

TOT estimates for different job types



Flexible scheduling

- No significant impact across job categories
- Specialized, dining esp likely to mention flexible scheduling around classes



Conclusion

What job features appeal to students?

- Pay: email mentioning higher pay rate generated more interest, more applications
- ► Flexibility: mentioning shift work decreased female applicants, generated more applications among men
- ▶ Vague mentions of "flexible scheduling around classes" had limited effect
 - Some evidence of higher application likelihoods among men
- Notable gender gap in results
 - women deterred by shift work
 - driven by Black and Hispanic women
 - connects to lit arguing that women have greater preferences for flexibility (Goldin, 2014; Mas and Pallais, 2017; He et al., 2021)

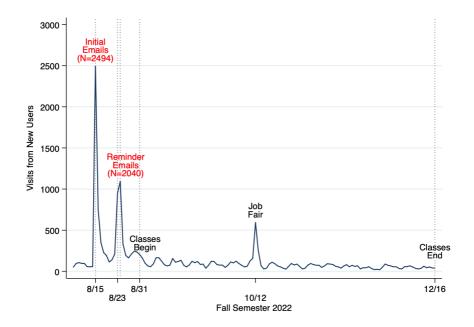
29/

References

- Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2022). Working from home around the world. National Bureau of Economic Research No. w30446.
- Alipour, J. V., Falck, O., & Schuller, S. (2023). Germany's capacity to work from home. European Economic Review 151, 104354.
- Angelici, M., & Profeta, P. (2023). Smart working: work flexibility without constraints. Management Science.
- Barrero, J. M., Bloom, N., & Davis, S. J. (2021). Why working from home will stick. National Bureau of Economic Research No. w28731.
- Bick, A., Blandin, A., & Mertens, K. (2023). Work from home before and after the COVID-19 outbreak. American Economic Journal: Macroeconomics 15(4), 1-39.
- Carnevale, A.P., & Smith, N. 2018. Balancing Work and Learning: Implications for Low-Income Students. Georgetown University McCourt School of Public Policy Center on Education and the Workforce.
- Choudhury, P., Foroughi, C., & Larson, B. (2021). Work-from-anywhere: The productivity effects of geographic flexibility. Strategic Management Journal 42(4), 655-683.
- Giurge, L. M., Whillans, A. V., & West, C. (2020). Why time poverty matters for individuals, organisations and nations. Nature Human Behaviour 4(10), 993-1003.
- Goldin, C. 2014. A grand gender convergence: Its last chapter. American Economic Review 104(4), 1091-1119.
- Harrington, P., & Khatiwada, I. 2016. U.S. Teens Want to Work. Federal Reserve Bank of Boston: Communities and Banking. Accessed May 22, 2023 at https://www.bostonfed.org/publications/communities-and-banking/2016/spring/us-teens-want-to-work.aspx
- ▶ Harrison, G. W., & List, J. A. 2004. Field experiments. Journal of Economic Literature 42(4), 1009-1055.
- He, H., Neumark, D., & Weng, Q. 2021. Do Workers Value Flexible Jobs? A Field Experiment. Journal of Labor Economics 39(3), 709-738.
- Le Barbanchon, B., Ubfal, D., & Araya, F. 2023. The Effects of Working While in School: Evidence from Employment Lotteries. American Economic Journal: Applied Economics 15(1): 383–410.
- Mas, A., & Pallais, A. 2017. Valuing Alternative Work Arrangements. American Economic Review 107(12), 3722-3759.
- Mortimer, J., 2010. The Benefits and Risks of Adolescent Employment. Prevention Research 17(2), 8-11.
- Ross, M., & Svajienka, N.P. 2016. Employment and disconnection among teens and young adults: The role of place, race, and education. Brookings Institute Report. Accessed May 22, 2023 at https://www.brookings.edu/research/employment-and-disconnection-among-teens-and-young-adults-the-role-of-place-race-and-education/
- Whillans, A., West, C. Alleviating time poverty among the working poor: a pre-registered longitudinal field experiment. Sci Rep 12, 719 (2022).

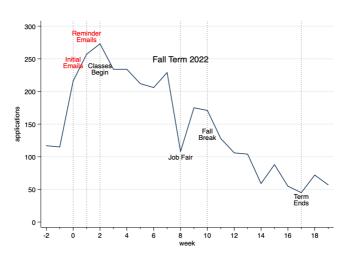
Reminder emails mostly generate clicks from new users

New Users to Jobs Website



Students continue to apply after intervention week

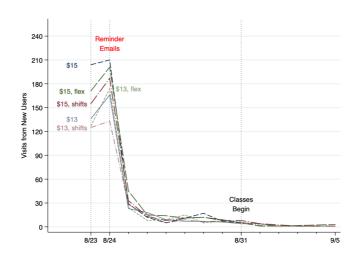




◆ Timeline

New users to job site by treatment

New Users to Jobs Website



◆ ITT Results on Job Interest

Demographic Breakdown

	% of students	% opened email	% click if opened email	% apply if opened email
Men	47.4%	40.8%	31.4%	36.4%
Women	52.6%	59.2%	68.64%	63.6%
White	66.5%	65.1%	54.1%	49.1%
Black	6.9%	6.9%	13.0%	12.9%
Hispanic	6.3%	6.2%	7.3%	7.0%
Asian	7.9%	8.5%	11.2%	8.3%
Total	40,875	14,077	1,722	1,339

Relative to representation in student population,

- ▶ Women more likely to open email, click, and apply
- ▶ Whites less likely to click and apply
- Blacks more likely to click and apply



Demographic Breakdown (Intersection)

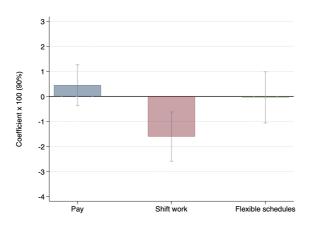
	% of students	% opened	% click if	% apply if
		email	opened email	opened email
White Men	31.1%	25.8%	16.4%	15.2%
White Women	35.4%	39.3%	37.7%	33.9%
Black Men	2.7%	2.1%	2.9%	3.2%
Black Women	4.2%	4.8%	10.1%	9.6%
Hispanic Men	2.8%	2.3%	2.2%	2.3%
Hispanic Women	3.5%	3.9%	5.1%	4.7%
Asian Men	4.0%	3.7%	3.5%	3.1%
Asian Women	3.9%	4.8%	7.6%	5.2%
Total	40,875	14,077	1,722	1,339

[▶] Among minorities, women more likely to click and apply

esp Black and Asian women

ITT Regression Results: Job Applicants

% Students who Apply



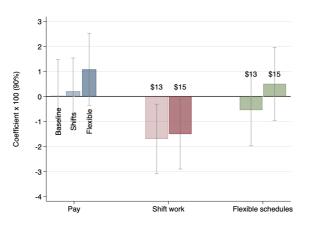
Examining impact of flexible scheduling,

▶ No significant impact in either pay condition



ITT Regression Results: Job Applicants

% Students who Apply



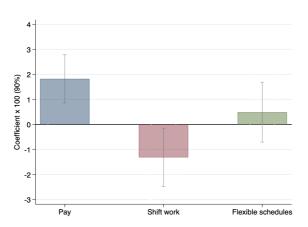
Examining impact of flexible scheduling,

▶ No significant impact in either pay condition



ITT Results: Applications

Total Applications



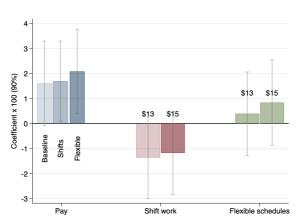
Pooling all results:

- ▶ Mentioning pay raises total volume of applications
- ▶ Mentioning **shift work** decreases total volume of applications



ITT Results: Applications



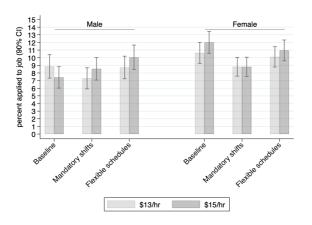


- ▶ Effect of shift work negative for both pay conditions
 - (insignificant in each condition)



Raw Data: Applicants by Gender

% Students who Apply

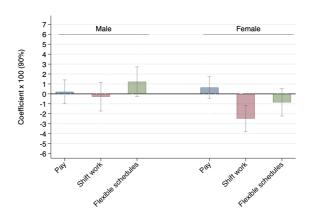


- ▶ More women apply than men at baseline (852 vs. 487)
- ► Emails mentioning pay do not impact # of applicants
- Mentioning shift work decreases # of female applicants



ITT Results by Gender: Applicants

% Students who Apply



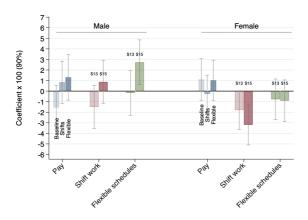
Pooling all results:

▶ Decline in applicants for shift work driven by women



ITT Results by Gender: Applicants

% Students who Apply



For those who received email mentioning \$15:

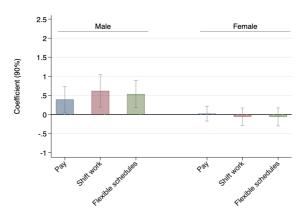
- ► Mentioning **shift work** decreases female applicants
- Mentioning flexible scheduling raises male applicants



Demographic Breakdown

ITT Results by Gender: Applications

Average Applications per Applicant



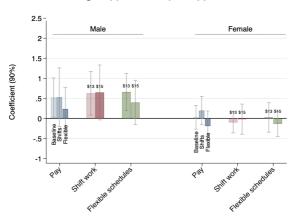
- ► Mentioning pay, shift work, or flexible scheduling raises average applications per *male applicant*
 - Opposite gender effect of shift work!
 - Shift work conveys ambiguous information





ITT Results by Gender: Applications

Average Applications per Applicant

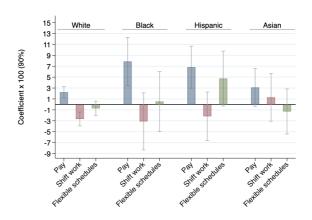


- Effect of pay significant for men only in baseline condition
- Effect of shift work, flexible scheduling significant for men who received email mentioning \$13



ITT Results by Race: Interest in Jobs

Click Rates to Jobs Site

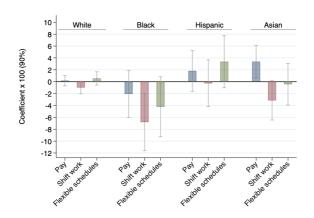


▶ Mentioning higher pay raises interest among White, Black, Hispanic students

Demographic Breakdown

ITT Results by Race: Applicants

% Students who Apply

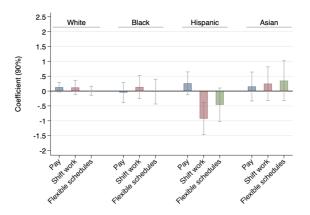


- ▶ Mentioning higher pay makes Asian students more likely to apply
- Mentions of shift work makes Black students less likely to apply



ITT Results by Race: Applications

Average Applications per Applicant

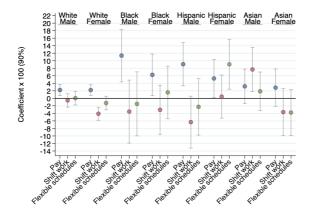


Mentions of shift work decrease average applications among Hispanic applicants



ITT Results by Race and Gender: Interest in Jobs

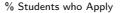
Click Rates to Jobs Site

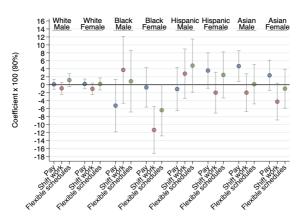


- Mentioning higher pay raises interest among both men and women among White, Black, and Hispanic students
- ▶ Mentions of shift work decreases interest among White women
- ▶ Mentions of shift work raise interest among Asian men



ITT Results by Race and Gender: Applicants

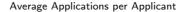


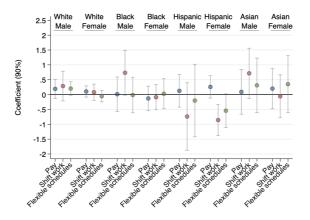


- ▶ Mentioning higher pay makes Asian students more likely to apply
- Mentions of shift work makes Black students less likely to apply



ITT Results by Race and Gender: Applications

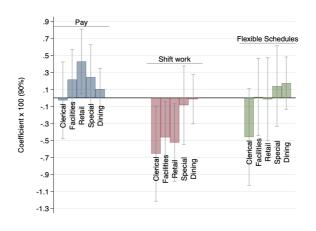




Mentions of shift work decrease average applications among Hispanic applicants



ITT estimates for different job types



◀ TOT Results