Women's labor force participation: Causes, consequences, and ways policy can improve women's work lives

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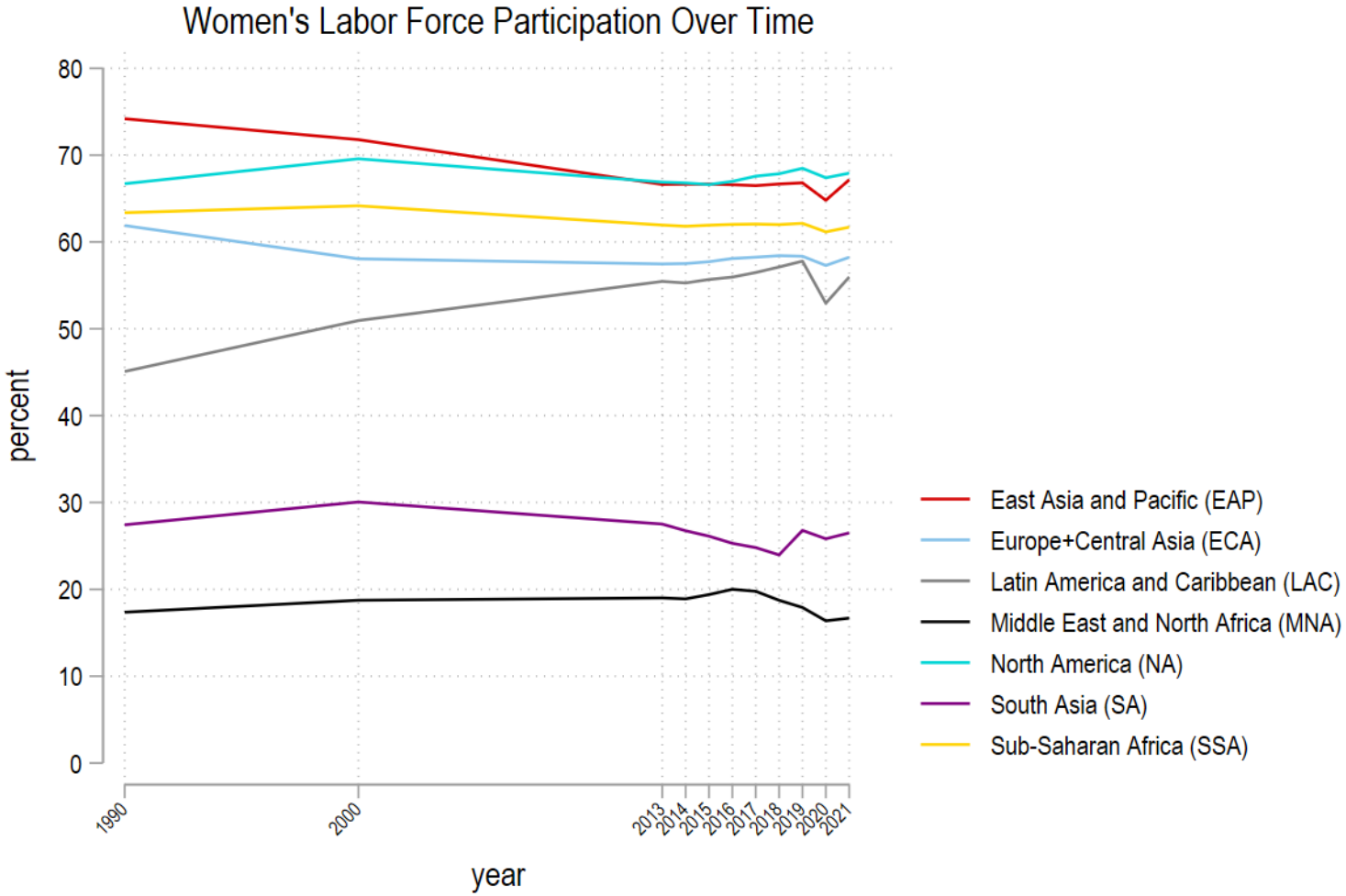
Overview

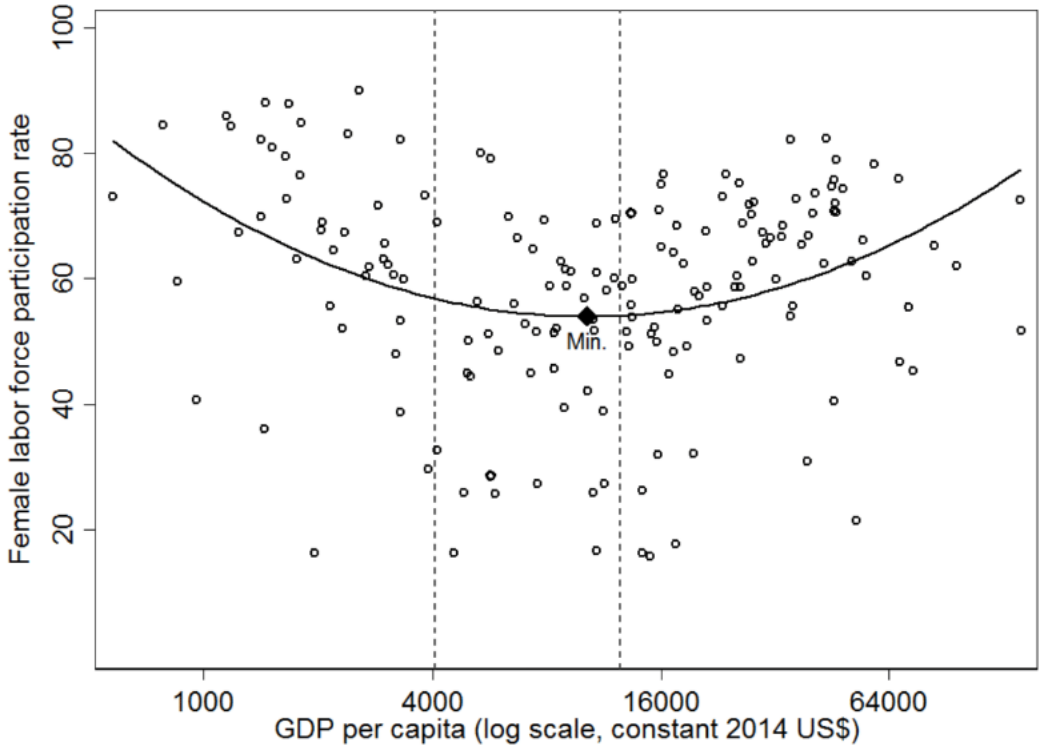
- Which women work?
  - “Classic” determinants
  - Heath and Tan (2019) and other recent work on intrahousehold bargaining and women’s LFP
- What are the consequences on women and their families?
  - Heath and Mobarak (2015) and other recent work on the effects of women’s work
- How can policy make women’s work lives better?
  - Bossavie, Cho and Heath (2023)
  - Ahmed, Boudreau, and Heath (ongoing)

What determines women's labor force participation?



Source: International Labour Organisation data retrieved from the World Development Indicators (data.worldbank.org). Adults ages 15 to 64 included. The ILO defines labour force participation as "Economically Active: All People Who Supply Labour For The Production Of Goods And Services During A Specified Period."

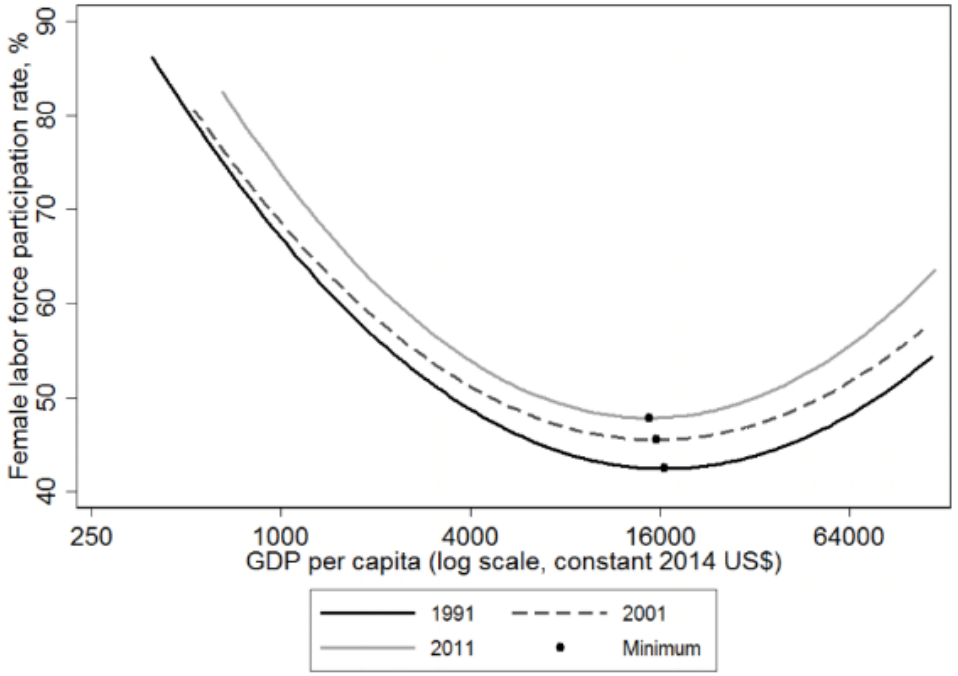
The “classic” theory



Source: Heath and Jayachandran (2018). GDP per capita is the purchasing power parity-adjusted value in 2014; female labor force participation is for women ages 15-64and is from the World Bank’s World Development Indicators

- U-shaped FLFP (Boserup, 1970; Goldin,1995)
- Early stages of development: women do unpaid work on family farms and in family businesses
- With development, economic activity migrates to factories and firms, and women tend to withdraw from the labor force
- Women rejoin labor force with high income (service sector jobs)

Shifts in the U-shape



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- Supply-side
  - Fertility
  - Childcare availability
    - Evans, Jakiela, and Knauer (2021); Halim et al (2023)
  - Costs of home production
- Demand-side
  - Industrial policy/trade liberalization
  - Education/human capital

What else might matter?

- How does intra-household bargaining affect women's labor supply?
- Theory: if a woman has more say in her earnings ("autonomy"), she is more likely to work
- Heath and Tan (2019): this model can predict that giving a woman a transfer of unearned income can increase her labor supply
  - Standard income effect: lower labor supply
  - Autonomy channel: increase labor supply

Empirical test

- Need plausibly exogenous change in unearned income.
- Amendments to the Hindu Succession Act in India.
  - State level amendments include daughters in “coparcenary” (recipients of inheritance for those who die intestate).
    - Kerala in 1976, Andhra Pradesh in 1986, Tamil Nadu in 1989, Maharashtra and Karnataka in 1994, Nationwide in 2005
    - Only applied to Hindu (+ Sikh/Buddhist/Jain) women, and only if unmarried at the time the amendment passed
  - Literature examines its impacts on inheritance (Deininger, Goyal and Nagarajan, 2013), education (Deininger, Goyal and Nagarajan, 2013; Roy, 2015), women’s empowerment (Roy 2008; Calvi 2020), …

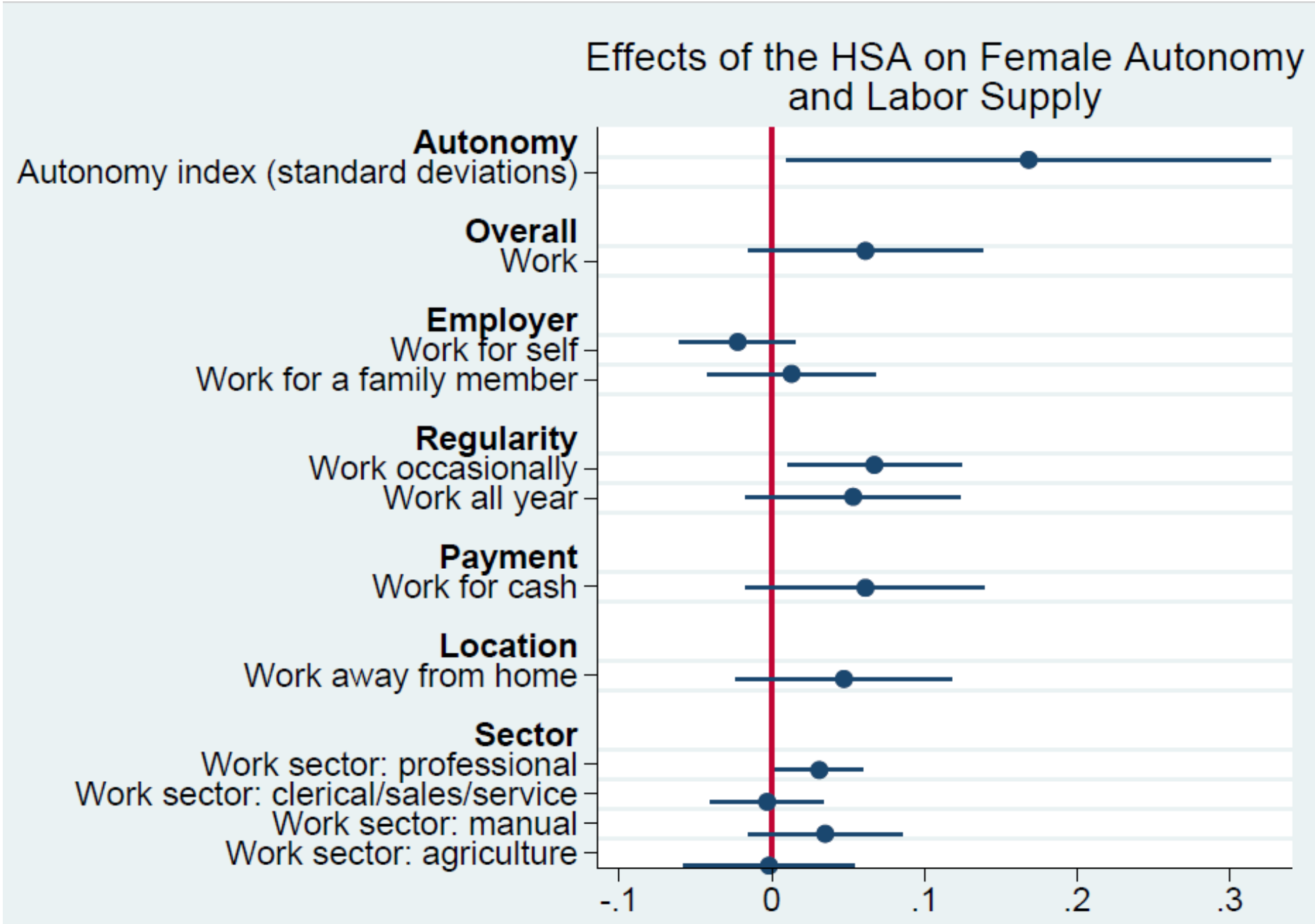
Estimation strategy

For woman *i* of religion *r* born in year τ living in state *j*.

Treated cohort$_{ijr\tau}$ = 1 if they were younger than the 10th percentile for age at marriage when Amendment passed in their state.

$$Y_{ijr\tau} = \beta_1 TreatedCohort_{ijr\tau} + \beta_2 TreatedCohort_{ijr\tau} \times Hindu_{ijr\tau} + \delta_j + Hindu_{ijr\tau} \times \delta_j + \gamma_\tau + Hindu_{ijr\tau} \times \gamma_\tau + \varepsilon_{ijr\tau}$$

Outcomes: autonomy (index of participation in household decisions); labor supply (overall and by job type).


Effects of the HSA on Female Autonomy and Labor Supply
Autonomy
Autonomy index (standard deviations)
Overall
Work
Employer
Work for self
Work for a family member
Regularity
Work occasionally
Work all year
Payment
Work for cash
Location
Work away from home
Sector
Work sector: professional
Work sector: clerical/sales/service
Work sector: manual
Work sector: agriculture
-.1
0
.1
.2
.3

Take-home messages

- Intrahousehold bargaining affects labor supply
- Given that we know working affects women's bargaining power, potential for a "virtuous cycle"
- Women's empowerment need not be zero-sum. Men benefit from higher household income.

Other evidence on household bargaining and labor supply

- Empowering women by depositing NREGA earnings in a bank account in their name increases overall labor supply (Field et al, 2021)
  - In longer-term also find norms around women's work change
- Lighter touch interventions impactful too
  - Lowe and McKelway (2023) randomize whether one or both spouses told about a job offer for a woman, and whether spouses encouraged to discuss. Discussion lowers take-up, suggesting a "veto-power" model of decisionmaking.
  - McKelway (2023) finds that a promotional video targeted at reassuring men about women's work increases labor supply, but only in the short run.

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Potential benefits of garment jobs on women who (could) work

Household-level: income effects

Differential effects on women

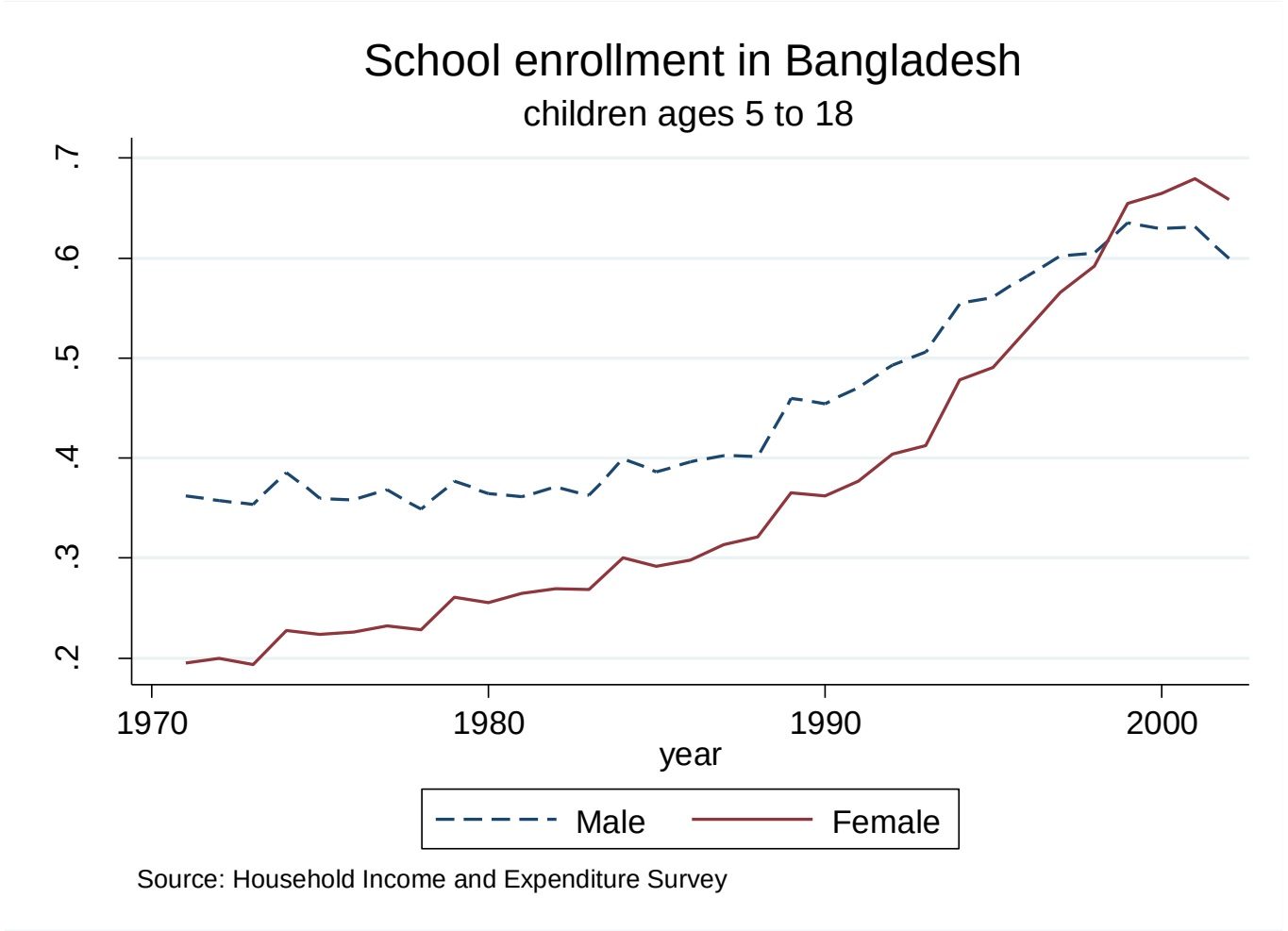
- Increased bargaining power (Anderson and Eswaran 2009; Luke and Munshi 2011; Majlesi 2014)
- Delayed marriage and childbearing (Jensen 2012; Sivansankaran 2014; Heath and Mobarak 2015)
- Increased say in choosing husband (Sivansankaran 2014; Chaterjee and Heath 2021)

Increased investment in children's human capital (Atkin 2009; Majlesi 2014)

Benefits on *future* workers

- Parents take account of future returns when making human capital investments in children
- Before factory jobs, women rarely worked outside of home
- Factory jobs reward
  - Ability to read English signs and keep written records
  - Do basic math and follow patterns
- Plausible increased returns to education
- But also may see dropouts (Atkin 2016)

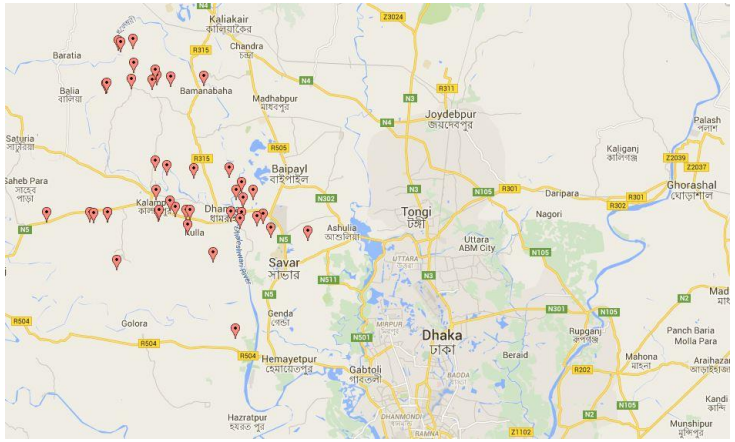
Did families respond by increasing girls' enrollment?



Heath and Mobarak (2015): formally test link between garment sector and girls' education

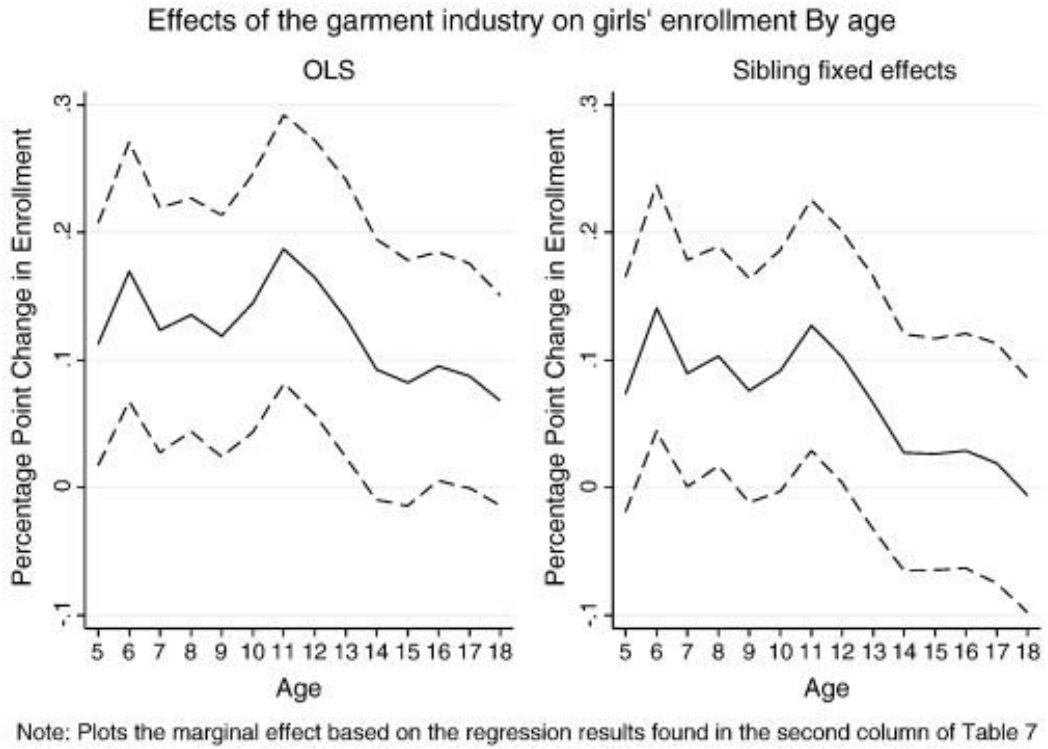
Data

- Survey of 1400 households in peri-urban Dhaka and Gazipur
- 44 villages within commuting distance of garment factories, and 16 not.
- Areas where factories do not typically have dormitories
- Retrospective schooling histories of all offspring of household head (plus migration and marriage/child-bearing histories)



Identification: compare enrollment in garment-proximate villages to non-garment proximate villages, before vs after garment factories open

Garment industry increased education, particularly for younger girls



For instance, an 8-year-old girl is 13 percentage points more likely to be in school, after women in her village have begun working in the garment industry, relative to a comparable girl in a non-garment proximate village.

Education effects: punchline

- Large effects on young girls
- Net zero effect on older girls
  - Possible that there were some dropouts,
  - But if so, some girls positively affected too
- Back-of-the-envelope calculation: garment sector caused 2.8 percentage points of the national increase in girls' enrollment

Garment industry delayed girls' marriage and fertility

	Girls				Boys	
Dependent Variable	Married	Married	First Birth	First Birth	Married	First Birth
Panel A: estimated coefficients						
Garment village X years exposed	-0.000482**	-0.00012	-0.000360**	1.23E-09	0.00012	7.89E-05
	[0.000231]	[0.000128]	[0.000184]	[2.59e-09]	[7.33e-05]	[5.05e-05]
Garment village X years exposed X age		-2.08E-06		-1.40E-10		
		[1.38e-05]		[2.95e-10]		
Garment village X years exposed X age^2		3.62E-07		3.80E-12		
		[3.83e-07]		[8.02e-12]		
Panel B: marginal effects at key ages						
Age = 12		-0.0289***		0.0184		
		[0.0089]		[0.0130]		
Age = 14		-0.0244***		0.003		
		[0.0074]		[0.0089]		
Age = 16		-0.0189***		-0.0067		
		[0.0067]		[0.0087]		
Age = 18		-0.0125*		-0.0106		
		[0.0066]		[0.0093]		
Age = 20		-0.0053		-0.0089		
		[0.0068]		[0.0095]		
Observations	29,081	29,081	30,180	30,180	36,258	36,235
Mean dependent variable	0.0111	0.0111	0.0080	0.0080	0.0071	0.0051
Mean years of garment exposure	6.390	6.390	6.430	6.430	6.098	6.209

The dependent variable equals 1 in the year in which an individual was married or had his/her first child. Individuals are in the sample from birth until either the time of marriage or first birth, or the time of the survey (if unmarried or have not yet given birth). Years of exposure counts the years up to marriage or first birth that an individual in the regression was exposed to the garment industry (i.e. people in the village in which the individual grew up have been working in the garment industry). It equals zero for all individuals not in garment villages. All regressions have year of birth trends for garment and non-garment villages, and a dummy for garment village. Standard errors in brackets, clustered at the level of the individual; *** p<0.01, ** p<0.05, * p<0.1

What else happens when (better) jobs become available for women

- Greater decision-making power within marriage (Atkin, 2009; Majlesi, 2016; Molina and Tanaka 2023)
  - Corresponds to increased investment in child health (also seen in Qian 2008)
- But, is the story entirely positive?
  - McKelway (2023) finds that women induced to work when their families are shown a video do reduce time doing chores around home. “Time poverty.”

Women's economic empowerment and IPV

- Effect is theoretically ambiguous (improved outside option vs backlash/more to fight over).
- Empirical results are correspondingly mixed
  - Reductions: Aizer (2010); Park and Kumar (2022); Molina and Tanaka (2023); Sanin (2023)
    - Sanin (2023) provides compelling evidence for a "husband self interest channel." Suggests that better jobs may be more protective
  - Increases: Erten and Keskin (2019; 2021; 2022)
  - No effect on average: Kotsadam and Villanger (2022); Angelucci, Heath, and Noble (2023)

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Rana Plaza, April 2013

Photo credit: Jaber Al Nahanian

Garment workers in Dhaka, September 2013

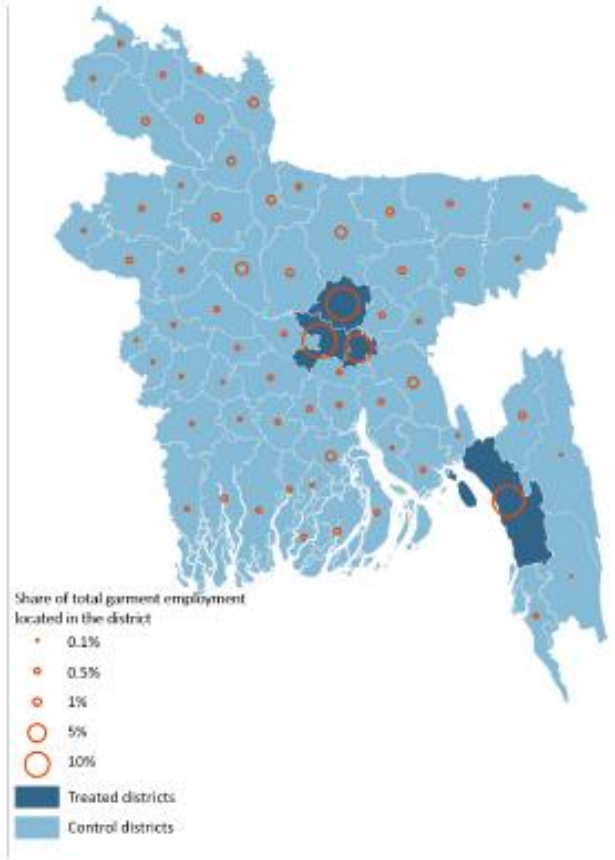
Photo credit: Daily Star

The effect of Rana Plaza reforms

- What happened after Rana Plaza?
  - Accord and Alliance: voluntary audits
  - Pressure from buyers
  - Worker protests, leading to minimum wage increase
- We evaluate the net effect of all these reforms
  - Compare workers' outcomes in garment industry to other manufacturing industries, before vs after Rana Plaza …

In districts that export versus not

Figure: Distribution of garment workers across treated and non-treated districts of Bangladesh



Treated districts: Dhaka, Gazipur, Narayanganj, and Chittagong. Represent 99% of export-oriented garment factories (Mapped in Bangladesh, 2021).

Dependent Variable	Log(wage)	Working Conditions	Hours last week	1(Contract)
Garm × Post × TreatedD	0.100**	0.803***	-0.777	-0.002
	(0.0494)	(0.205)	(1.047)	(0.058)
Garment	-0.0294	0.000	4.205***	0.544***
	(0.0510)	(0.090)	(0.992)	(0.0365)
TreatedD	0.142***	0.104	4.295***	0.0938
	(0.0447)	(0.093)	(1.157)	(0.057)
TreatedD × Garment	-0.108**	-0.160	-0.691	-0.104**
	(0.0460)	(0.153)	(0.881)	(0.046)
R^2	0.421	0.277	0.178	0.157
N	46638	46638	46638	42439

Notes: Working conditions index sums standardized measures of working conditions and then renormalized to have standard deviation = 1. All regressions include controls for time fixed effects interacted with $Garment_{ijt}$ *and* $TreatedDistrict_j$ *(and each variable's interaction with gender);* $TreatedDistrict_j$ *interacted with* $Garment_{ijt}$ *and a triple interactions with gender; worker's age and level of schooling, interacted with year dummies and gender dummies, and a triple interaction with year and gender. Sampling weights included. Standard errors clustered at the PSU.*

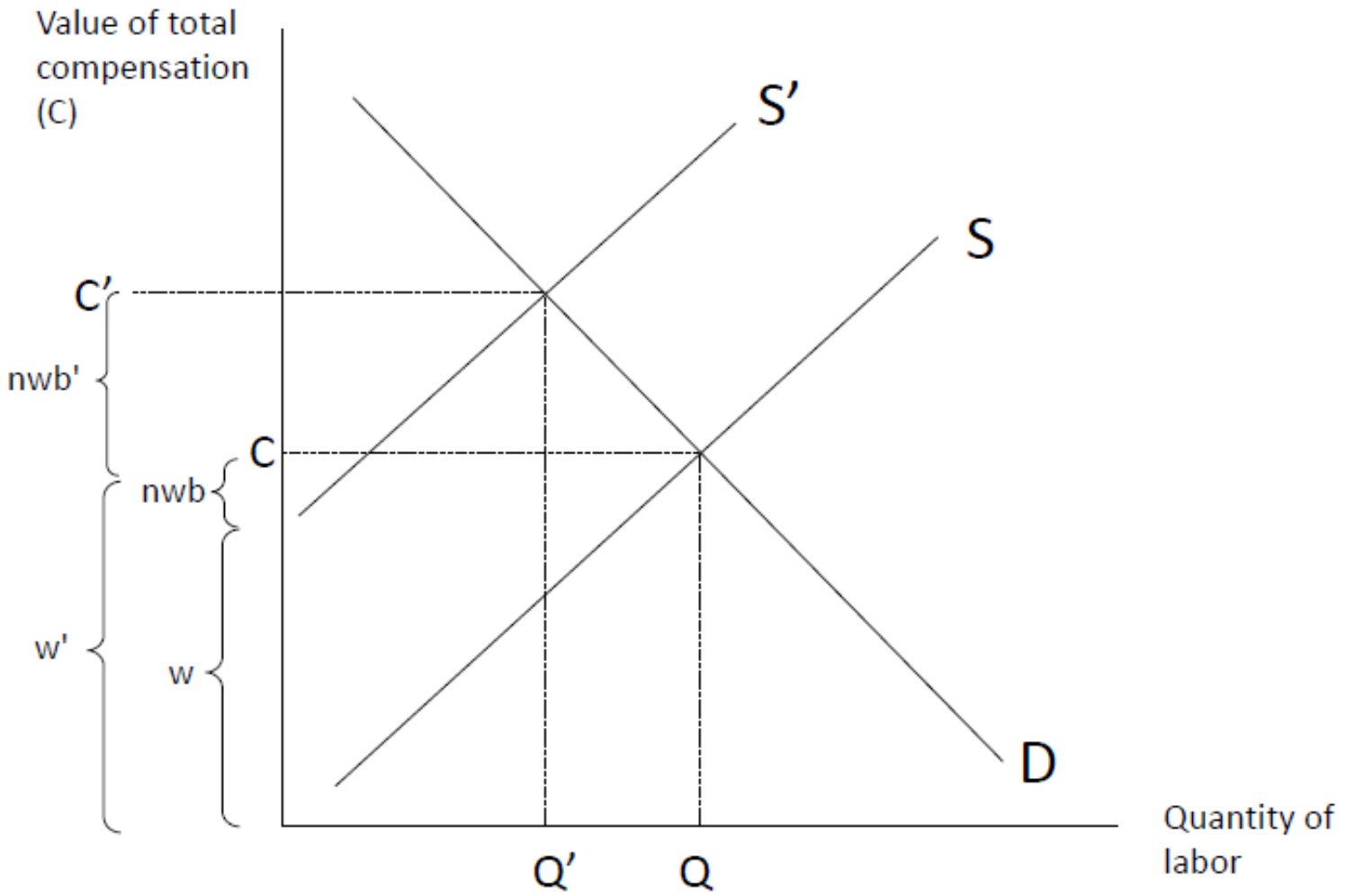
Fewer garment workers?

What model can predict wages and working conditions improve?

- Compensating differentials (which we saw earlier): if working conditions go up, wage will go down
- But, what if there's a supply shift inward?
  - Makes sense, if workers now are less willing to be garment workers

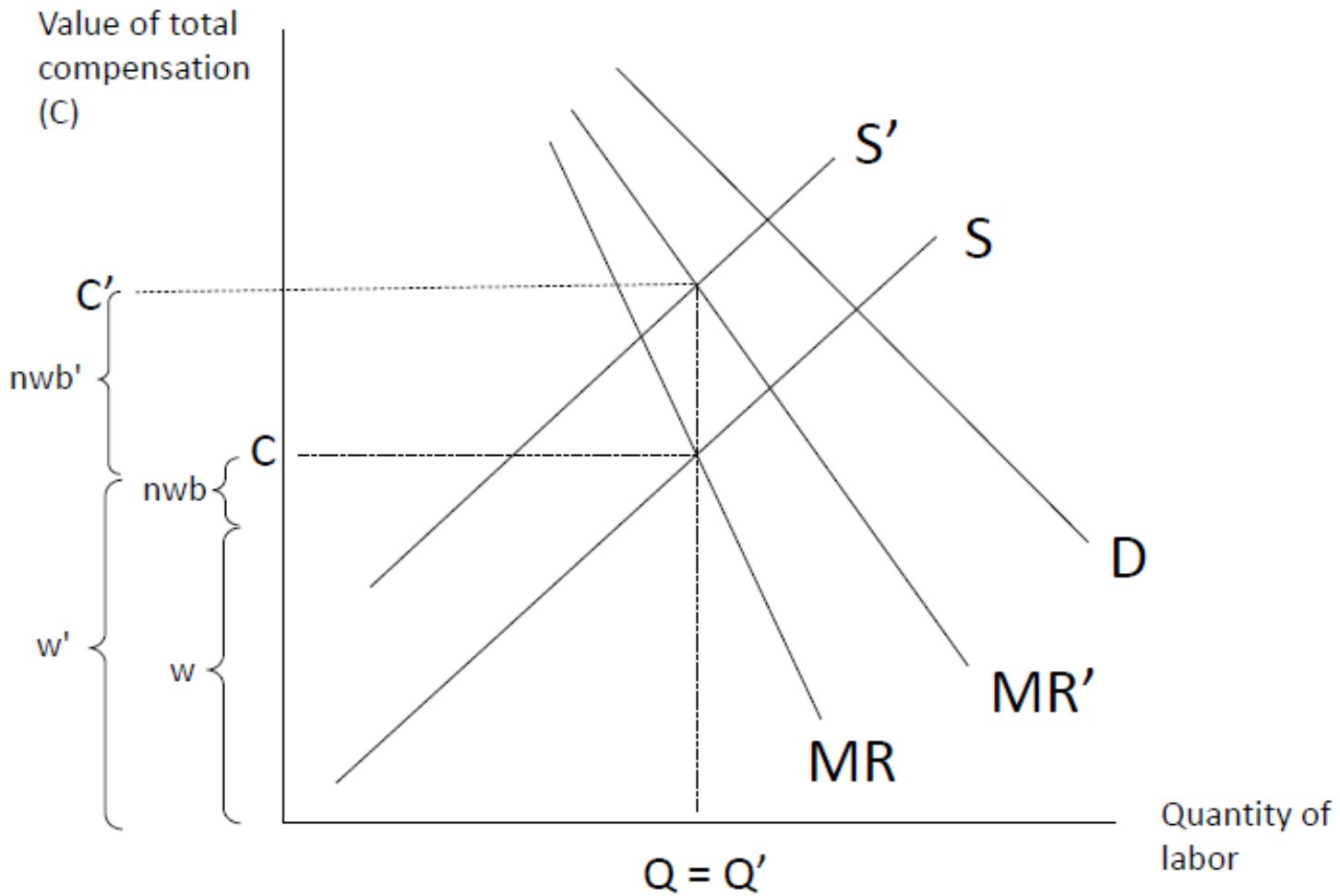
Perfect competition

What model can predict wages and working conditions improve?



Monopsony

What model can predict wages and working conditions improve?



Take home messages

- Empirical results more consistent with a monopsony model than perfect competition
- Suggests firms can raise total compensation when appropriately motivated
- Buyers and other wielders of “soft” power can potentially serve similar roles as formal regulation

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Information frictions around working conditions?

Boudreau, Heath, and McCormick (Forthcoming)

- Internal migrants in Bangladeshi garment factories are in factories with worse working conditions but higher wages
- But move towards better factories as they gain experience
- Consistent with a model in which internal migrants are less likely to be informed upon beginning work

An experiment about working conditions

- Can information frictions lead to inefficient matching between workers and firms and/or sub-optimal investment in working conditions?
- A clustered RCT that randomly provides information to existing garment workers about working conditions, job opportunities, or both
- Project status:
  - Treatment provided September and October 2023
  - Conducted follow-up rounds in months 1-3. Planned follow-ups at months 5 and 10; fundraising for additional rounds.

Setting and population

- Location: peri-urban Dhaka (Savar, Gazipur, Narayanganj)
- Level of randomization: neighborhood (372 total)
  - Identify neighborhoods using administrative use maps and Google satellite imaging
  - Assumption: info spillovers (mostly) within neighborhood. Leave buffer of 0.5 km in between
- To get information on working conditions, started with a representative survey (n=7320) of garment workers in and around these neighborhoods, July-August 2023.
  - Recruited RCT participants (workers with below median experience) from this survey, n = 2803.
  - Second wave of RCT recruitment in same neighborhoods in October 2023, n=1598.

Treatment 1: Information about Working Conditions

- Conducted pilots and focus groups to identify key components of working conditions
  - employment practices
  - opportunities for advancement
  - relationship with management
  - physical safety and comfort
  - maternity/childcare.
- **Working conditions score** = weight index in score above by the partial correlation between the index and worker's overall job satisfaction
- **Wage score** = factory fixed effect from a regression in which the dependent variable was hourly pay in the previous month, conditional on position type, skill grade, gender, and human capital (schooling and experience).

Other design features

- Included factories
  - Within 5 km of neighborhood center, and
  - Had at least 5 workers surveyed in representative survey
- Concerned about retribution from lower-ranked factories
  - Mask scores below median, showing only color-coded quantile

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Garment Factory Report Card

DEVELOPMENT RESEARCH INITIATIVE

Based on reports by garment workers in these factories

Neighborhood 10

Approximate distance from neighborhoods center (km)	Factory	Address	Overall working conditions grade	Salary
2	Factory 1	Address 1	88	
5	Factory 2	Address 2	86	
1	Factory 3	Address 3	85	66
4	Factory 4	Address 4	84	
3	Factory 5	Address 5	83	
4	Factory 6	Address 6	83	55
4	Factory 7	Address 7	82	54
2	Factory 8	Address 8	82	
3	Factory 9	Address 9	82	
4	Factory 10	Address 10	81	75
0	Factory 11	Address 11	81	
4	Factory 12	Address 12	80	59
5	Factory 13	Address 13	80	64
3	Factory 14	Address 14	78	
4	Factory 15	Address 15	76	
4	Factory 16	Address 16	76	

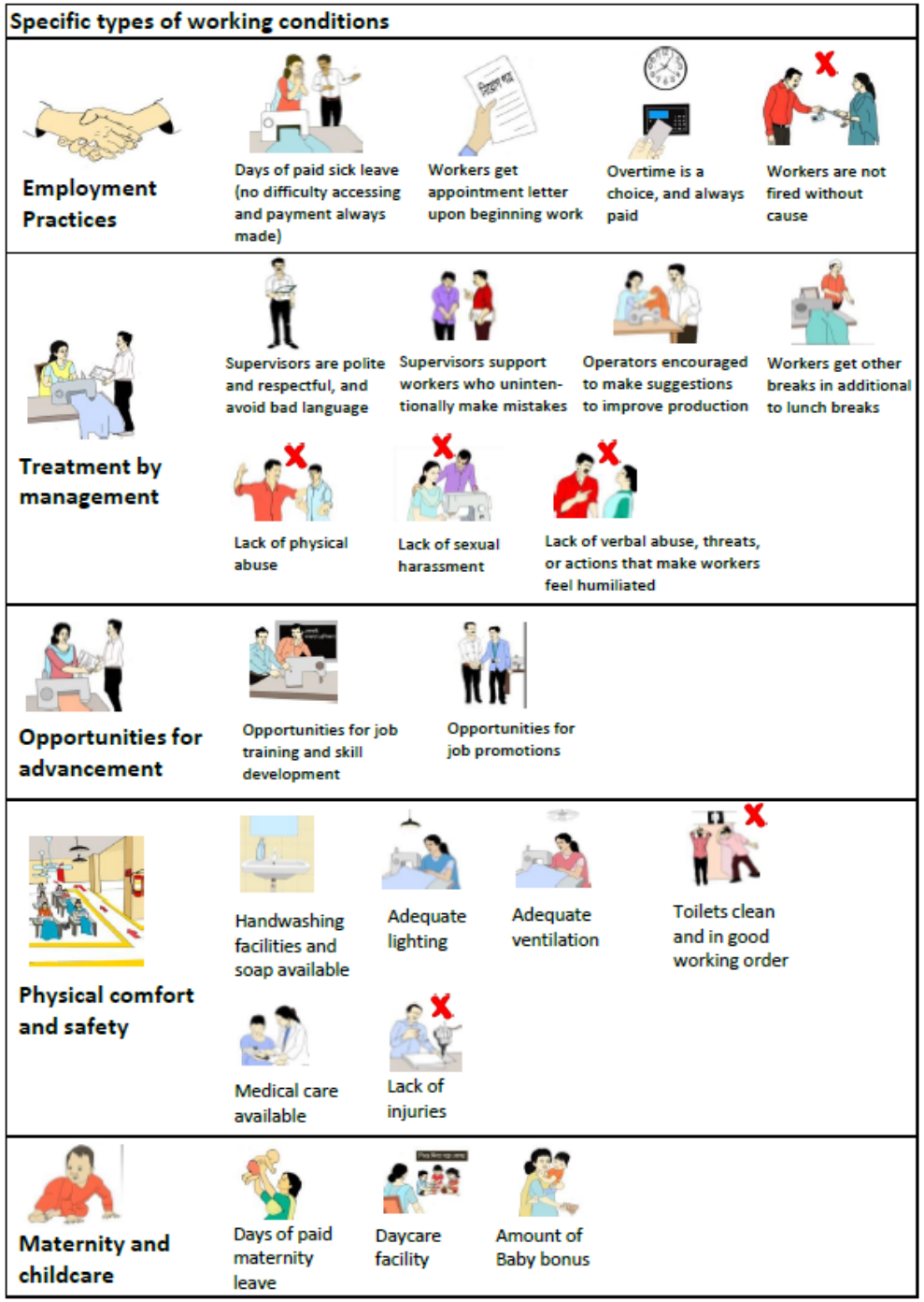
• • •

2	Factory 80	Address 80		64
1	Factory 81	Address 81		
1	Factory 82	Address 82		
4	Factory 83	Address 83		
2	Factory 84	Address 84		72
3	Factory 85	Address 85		59
4	Factory 86	Address 86		63

Notes: The highest grade possible for a factory we surveyed in Savar and Gazipur is 100 and the lowest is 0. Yellow colors represent higher grades and red colors represent lower grades; orange grades are in the middle. We surveyed workers in Savar and Gazipur in July and August and combined their responses to make overall grades for working conditions and wages for the factory. We surveyed at least 5 workers for each factory shown here. We include factories within 5 kilometers of your neighborhood, but some factories may not be shown if we could not find sufficient workers, if they have opened since 2021, if they are very small, or if they are located in the Export Processing Zone. Page 2 shows the questions we asked workers to calculate these scores. Page 3 shows grades for specific aspects of working conditions: physical safety and comfort, opportunities for advancement, treatment by management, employment practices, and maternity/childcare.

Specific types of working conditions

This page (translated into Bangla) appeared as page 2 of the scorecard



Scores for specific types of working conditions

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Garment Factory Report Card

Based on reports by garment workers in these factories

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Specific types of working conditions

Factory name	Employment practices	Opportunities for advancement	Treatment by management	Physical safety and comfort	Maternity and childcare
Factory 1	76	97	73	93	82
Factory 2	82	100		87	64
Factory 3	71	95	83	91	71
Factory 4	77	81	85	88	67
Factory 5	74	83	82	94	68
Factory 6	73	82	89	94	59
Factory 7	67	87	87	92	75
Factory 8	72	88	79	89	69
Factory 9	68	75	80	91	100
Factory 10	78	80	77	93	58
Factory 11	76	89	77		58
Factory 12	72	80	78	88	73
Factory 13	75	87	80	89	
Factory 14	68	81	79	90	64
Factory 15	75	76	78		
Factory 16	75		75		59

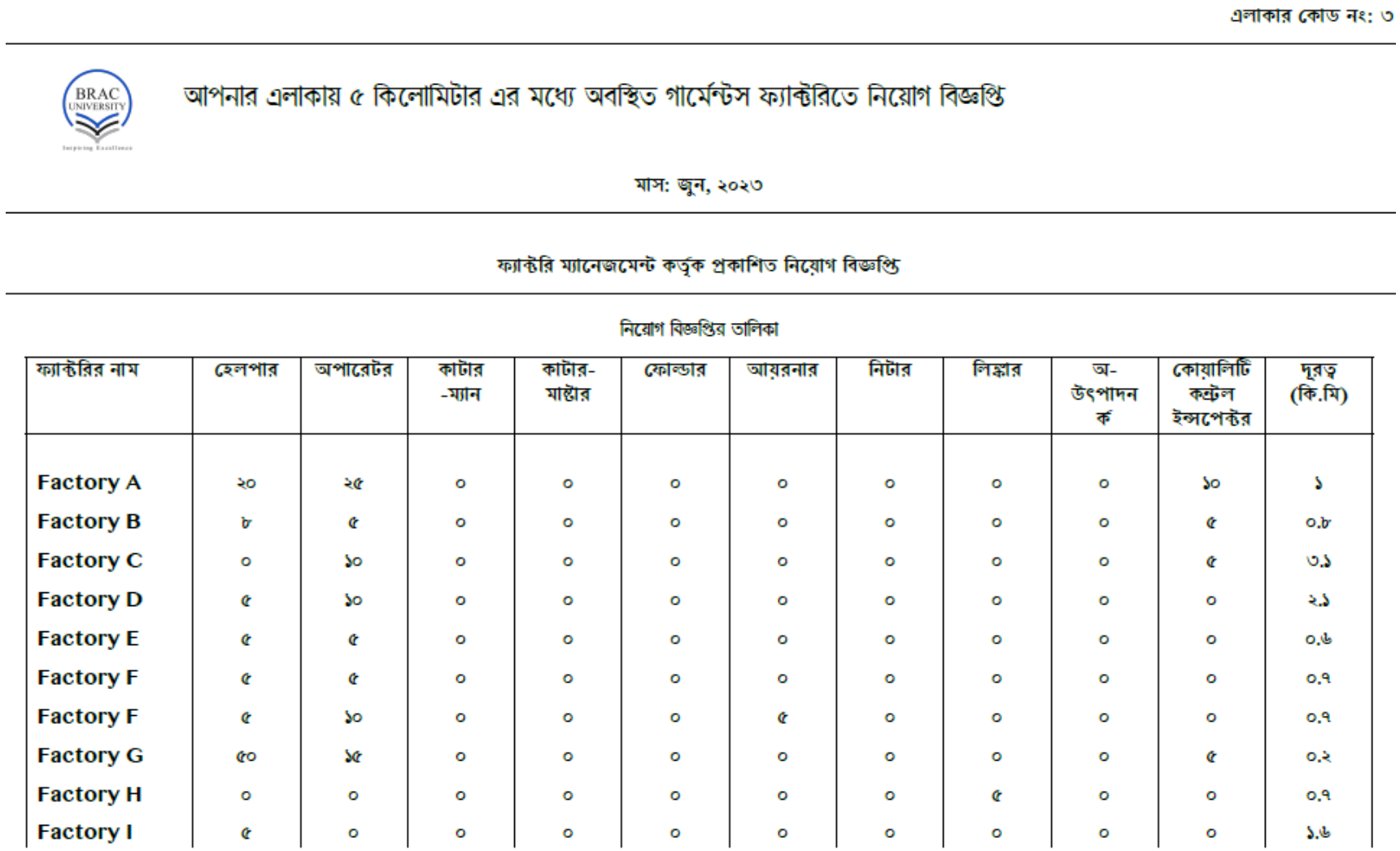
Treatment 2: Information about job vacancies

- Partnered with the Center for Entrepreneurial Development at BRAC University to survey HR managers from 2280 factories within 5 km of our experimental neighborhoods
- Survey asked about general HR practices/challenges, open vacancies, and success in hiring previous vacancies
  - Random assignment of neighborhoods created random variation in exposure of potential workers at the factory level
- Baseline survey in person, July 2023. Follow-up rounds monthly August 2023-January 2024; planned for Feb and May.

Job vacancy pamphlet

Front page(s) (shown): number of openings at different factories. References a page number for detailed listing for each vacancy

Detailed listings include salary, job requirements, bonus eligibility



এলাকার কোড নং: ৩

আপনার এলাকায় ৫ কিলোমিটার এর মধ্যে অবস্থিত গার্মেন্টস ফ্যাক্টরিতে নিয়োগ বিজ্ঞপ্তি

মাস: জুন, ২০২৩

ফ্যাক্টরি ম্যানেজমেন্ট কর্তৃক প্রকাশিত নিয়োগ বিজ্ঞপ্তি

নিয়োগ বিজ্ঞপ্তির তালিকা

ফ্যাক্টরির নাম	হেলপার	অপারেটর	কাটার -ম্যান	কাটার-মাষ্টার	ফোল্ডার	আয়রনার	নিটার	লিফ্টার	অ-উৎপাদন র্ক	কোয়ালিটি কন্ট্রল ইন্সপেক্টর	দূরত্ব (কি.মি)
Factory A	২০	২৫	০	০	০	০	০	০	০	১০	১
Factory B	৮	৫	০	০	০	০	০	০	০	৫	০.৮
Factory C	০	১০	০	০	০	০	০	০	০	৫	৩.১
Factory D	৫	১০	০	০	০	০	০	০	০	০	২.১
Factory E	৫	৫	০	০	০	০	০	০	০	০	০.৬
Factory F	৫	৫	০	০	০	০	০	০	০	০	০.৭
Factory F	৫	১০	০	০	০	৫	০	০	০	০	০.৭
Factory G	৫০	১৫	০	০	০	০	০	০	০	৫	০.২
Factory H	০	০	০	০	০	০	০	৫	০	০	০.৭
Factory I	৫	০	০	০	০	০	০	০	০	০	১.৬

Next steps

- Does this information improve workers working conditions and/or wages? Channels:
  - Mobility towards better factories
  - Willingness to raise issues/bargain with baseline factory
- Do (some) factories benefit?
  - Theoretical basis for an overall efficiency gain: improved matching given heterogeneous preferences and/or skills.
  - Or better factories benefit given positive assortative matching
- Other research on improving working conditions in garment factories
  - Boudreau, Chassang, Gonzalez-Torres and Heath (2023). Partner with a large manufacturer. Assess harassment using hard garbling to provide plausible deniability.
  - Exploring interventions to reduce harassment (manager training and/or changes in pay structure)

Other recent research on improving job opportunities/working conditions for women

- Women are frequently more mobility constrained than men. Gives employers monopsony power over women and lowers wages (Sharma 2023).
  - But police patrols targeting sexual harassment reduce harassment and increase women's mobility (Amaral et al., 2023)
- Strengthening unions in Brazil increased female-friendly amenities in particular (Corradini et al., 2023)
- Inducing factories to provide worker safety committees improves worker satisfaction (Boudreau, 2022)

Overall conclusions

- Many positive benefits to women's labor supply. Learning more about potential negative effects and ways to mitigate them.
- Empowering women within the household can increase the likelihood they will work
- Potential approaches to improve working conditions
  - International buyers
  - Information provision
  - Institutions (unions, policing, etc.)