Barriers to entry:
Decomposing the gender gap in job search in urban Pakistan

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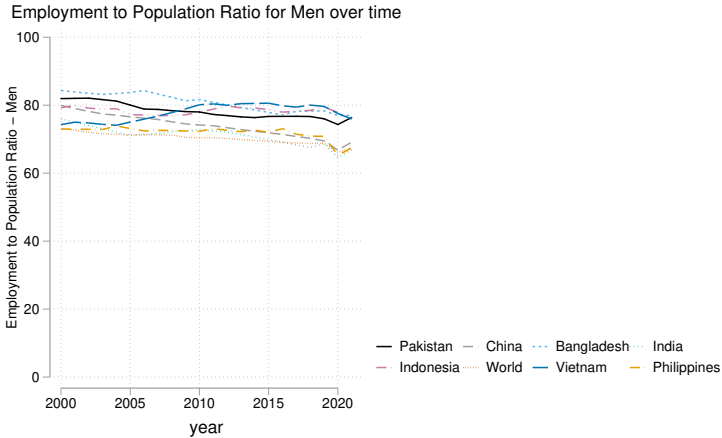
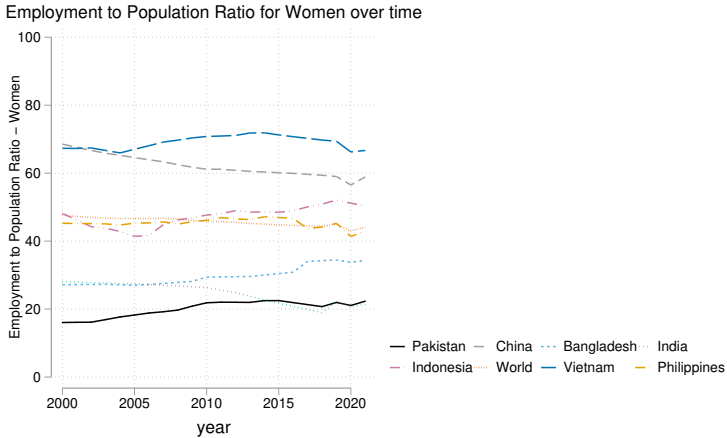
Employment Rate - Men



Employment to Population Ratio for Men over Time

Employment Rate - Women



Employment to Population Ratio for Women over Time

Motivation

- Demand-side factors affect women's employment (Kuhn and Shen 2013, Card et al 2021, Shahid et al 2022, Goldin and Rouse 2000, Hangartner et al 2021, Ozen et al 2019)

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- Are supply-side or demand-side factors the binding constraint for women's employment opportunities?
- How do patterns change across education levels?

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- Selection and endogeneity issues when observing firm interview and hiring decisions

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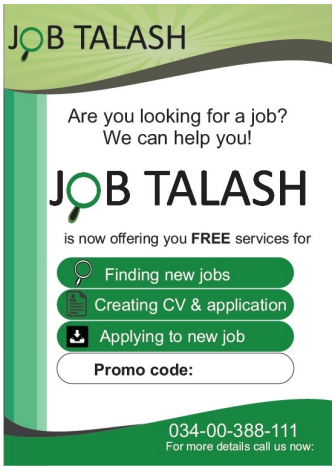
- Combine with Incentivized Resume Rating experiment Kessler Low Sullivan 2019

Representative Sample of Individuals



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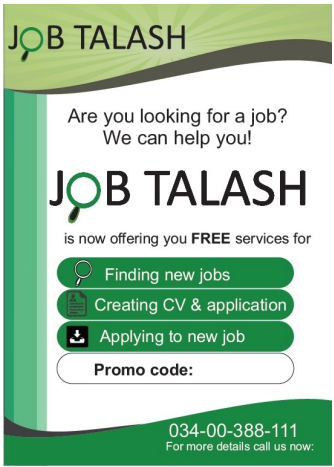

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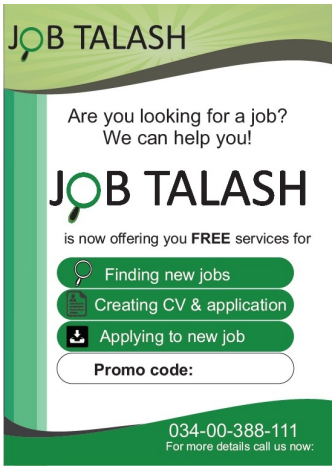

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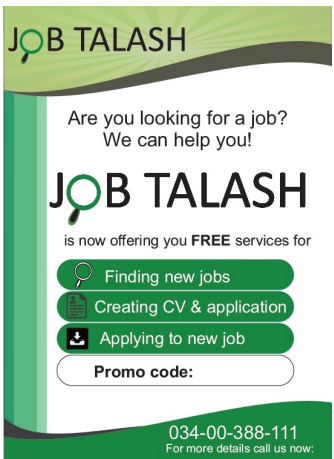

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  - $<$ secondary education: $\approx$ 70%
  - secondary education: 12%
  - $>$ secondary education: 15-16%

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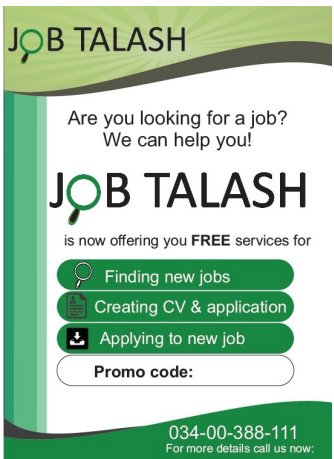

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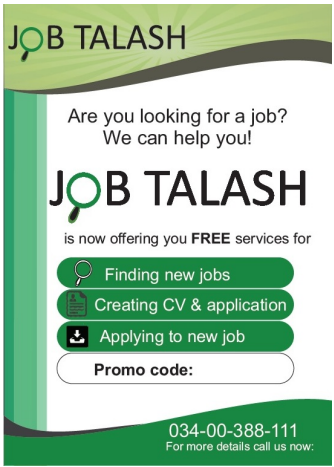

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- Distribution nearly identical to Labor Force Survey data for Lahore
- Every adult offered free sign-up for job search service

Comparing LFS to HH Listing - All | Comparing LFS to HH Listing - Women | Comparing LFS to HH Listing - Men

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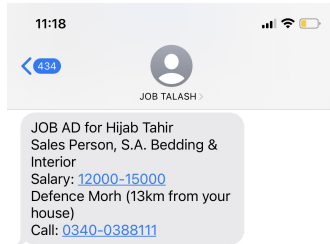

Gender Gaps in Work and Signup

	(1) Working at baseline	(2) Interested in Job Talash	(3) Completed signup
β_1: Female$_i$	-0.632***	-0.095***	-0.039***
	[0.002]	[0.002]	[0.001]
β_0: Constant	0.713***	0.302***	0.074***
	[0.001]	[0.002]	[0.001]
β_1/β_0	-0.89	-0.32	-0.53
N	182,491	182,491	182,491

Unit of observation: individual; robust SEs

Gender Gaps in Work and Signup-by Education

	(1) Working at baseline	(2) Interested in Job Talash	(3) Completed signup
β_1: Female_i	-0.669***	-0.121***	-0.044***
	[0.002]	[0.002]	[0.001]
β_2: $\text{Female}_i \times \text{Secondary Ed}_i$	0.131***	0.039***	-0.005
	[0.006]	[0.006]	[0.004]
β_3: $\text{Female}_i \times \text{Tertiary Ed}_i$	0.134***	0.126***	0.029***
	[0.005]	[0.006]	[0.003]
β_4: Secondary Ed_i	-0.111***	0.026***	0.027***
	[0.005]	[0.005]	[0.003]
β_5: Tertiary Ed_i	0.016***	-0.011**	0.012***
	[0.004]	[0.004]	[0.003]
β_0: Constant	0.724***	0.301***	0.069***
	[0.002]	[0.002]	[0.001]
P-value:$\beta_1+\beta_2=0$	0.00	0.00	0.00
P-value:$\beta_1+\beta_3=0$	0.00	0.28	0.00
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As education levels rise...

- Gender gaps close
- Gender gap in interest closes completely with tertiary education; signup narrows by 66%

Dyad Analysis

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- $>$3.5 million individual-vacancy dyads
- 17% of dyads satisfy both supply- and demand- imposed criteria and are sent to individual
- We observe whether dyads that do not satisfy all criteria are due to supply-side, demand-side factors or both
- Regress dyad-level outcomes on an indicator for female; cluster SEs by individual and vacancy

Gender Gaps in Platform Outcomes

	(1) Selected occup.	(2) Qualify educ	(3) Qualify exper.	(4) Qualify gender	(5) Matched	(6) Apply | matched	(7) Interview | apply
β_1: Female$_i$	-0.006	-0.001	-0.175***	-0.458***	-0.132***	0.002**	0.022
	[0.009]	[0.005]	[0.008]	[0.028]	[0.010]	[0.001]	[0.023]
β_0: Constant	0.361***	0.799***	0.866***	0.864***	0.225***	0.006***	0.071***
	[0.007]	[0.010]	[0.006]	[0.013]	[0.007]	[0.000]	[0.012]
β_1/β_0	-0.02	-0.00	-0.20	-0.53	-0.59	0.34	0.31
N	3,541,932	3,541,932	3,541,932	3,541,932	3,541,932	606,579	3,548

Unit of observation: individual-vacancy dyad; SEs clustered on individual and vacancy

Gender Gaps in Platform Outcomes - by Education

	(1) Selected occup.	(2) Qualify educ	(3) Qualify exper.	(4) Qualify gender	(5) Matched	(6) Apply | matched	(7) Interview | apply
β_1: Female$_i$	0.002	-0.028***	-0.211***	-0.623***	-0.179***	0.007***	0.021
	[0.011]	[0.006]	[0.011]	[0.030]	[0.010]	[0.002]	[0.035]
β_2: Female$_i$ $\times$ Secondary Ed$_i$	-0.015	0.013	0.123***	0.439***	0.119***	-0.009***	0.030
	[0.019]	[0.013]	[0.017]	[0.041]	[0.016]	[0.002]	[0.044]
β_3: Female$_i$ $\times$ Tertiary Ed$_i$	-0.038**	0.049***	0.121***	0.558***	0.151***	-0.012***	0.000
	[0.018]	[0.009]	[0.016]	[0.051]	[0.021]	[0.002]	[0.044]
β_4: Secondary Ed$_i$	0.033***	0.013	-0.099***	-0.084***	-0.032***	0.004***	-0.041**
	[0.012]	[0.017]	[0.013]	[0.021]	[0.011]	[0.001]	[0.018]
β_5: Tertiary Ed$_i$	0.013	0.134***	-0.043***	-0.112***	-0.012	0.004***	-0.036*
	[0.015]	[0.014]	[0.012]	[0.027]	[0.014]	[0.001]	[0.021]
β_0: Constant	0.356***	0.782***	0.882***	0.886***	0.230***	0.005***	0.084***
	[0.008]	[0.012]	[0.006]	[0.014]	[0.008]	[0.000]	[0.017]
P-value:β_1+β_2=0	0.43	0.24	0.00	0.00	0.00	0.24	0.09
P-value:β_1+β_3=0	0.01	0.00	0.00	0.14	0.14	0.00	0.44
N	3,541,932	3,541,932	3,541,932	3,541,932	3,541,932	606,579	3,548

Unit of observation: individual-vacancy dyad; SEs clustered on individual and vacancy

Question

To what extent do firms' explicit gender restrictions form the binding constraint on the number of opportunities available for women to apply to?

Meeting Firm Gender Criteria

	Qualify based on gender		
	(1)	(2)	(3)
β_1: Female$_i$	-0.458***	-0.455***	-0.427***
	[0.028]	[0.031]	[0.035]
β_0: Constant	0.864***	0.878***	0.878***
	[0.013]	[0.013]	[0.014]
β_1/β_0	-0.53	-0.52	-0.49
Sample	Full Sample	Qualify educ+exp	Qualify educ+exp +select occp
N	3,541,932	2,317,189	841,114

Meeting Firm Gender Criteria- by Education

	Qualify based on gender		
	(1)	(2)	(3)
β_1: Female$_i$	-0.623***	-0.654***	-0.643***
	[0.030]	[0.032]	[0.037]
β_2: Female$_i$ $\times$ Secondary Ed$_i$	0.439***	0.440***	0.500***
	[0.041]	[0.046]	[0.053]
β_3: Female$_i$ $\times$ Tertiary Ed$_i$	0.558***	0.605***	0.668***
	[0.051]	[0.055]	[0.062]
β_4: Secondary Ed$_i$	-0.084***	-0.106***	-0.131***
	[0.021]	[0.022]	[0.026]
β_5: Tertiary Ed$_i$	-0.112***	-0.144***	-0.170***
	[0.027]	[0.029]	[0.033]
β_0: Constant	0.886***	0.906***	0.914***
	[0.014]	[0.014]	[0.013]
P-value:β_1+β_2=0	0.00	0.00	0.00
P-value:β_1+β_3=0	0.14	0.31	0.65
Sample	Full Sample	Qualify educ+exp	Qualify educ+exp +select occp
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	(1)	(2)	(3)
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Sample	Full Sample	Qualify educ+exp	Qualify educ+exp +select occp
N	3,541,932	2,317,189	841,114

- At higher levels of education, gender gap in meeting gender criteria closes in the sub-samples

Question

While the gender gap in the *quantity* of opportunities due to firm-side gender constraints closes with higher education, what about the quality of job opportunities?

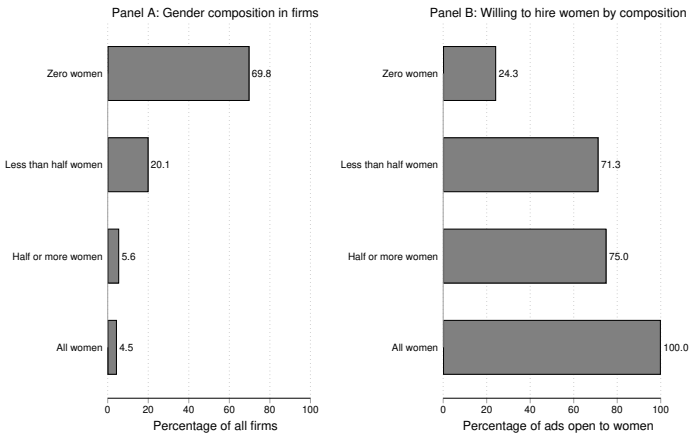
Quality Margin - Satisfy Gender Criteria - Salary

- At highest education level, women are significantly more likely to satisfy gender criteria for lowest salary quintile jobs
- This could explain high-ed women's selectivity in job applications

Question

Do firm characteristics explain gender gap in demand for applicants?

Firm Gender Composition and Gender Criteria



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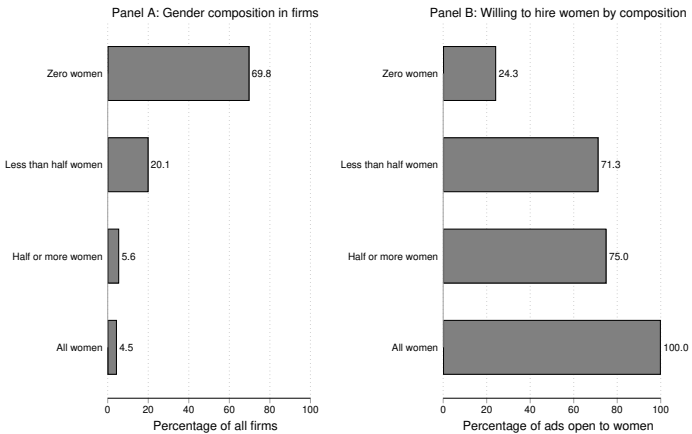
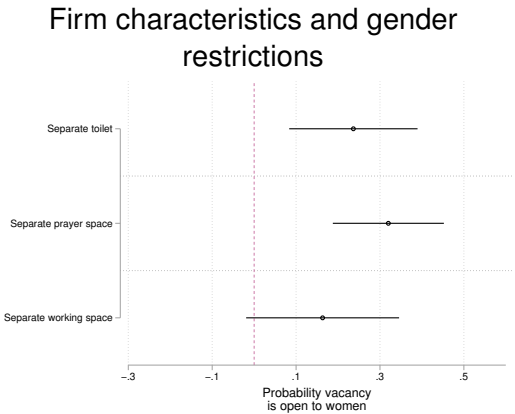


- At all-male firms, even conditional on meeting education and experience criteria, women are 74% less likely to meet gender criteria

Meeting Firm Gender Criteria - by Firm GC

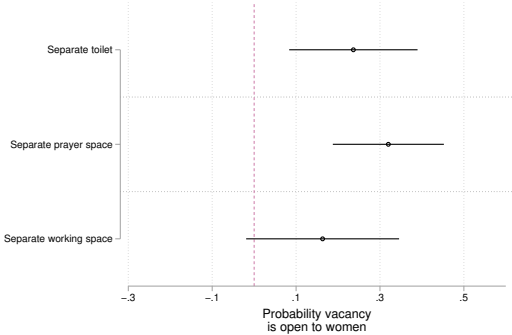
	Qualify based on gender		
	(1)	(2)	(3)
β_1: Female$_i$	-0.691***	-0.683***	-0.681***
	[0.028]	[0.031]	[0.036]
β_2: Female$_i$ $\times$ Firm has $<$ 50% female employees	0.564***	0.618***	0.619***
	[0.064]	[0.070]	[0.080]
β_3: Female$_i$ $\times$ Firm has 51-99% female employees	1.029***	1.035***	1.125***
	[0.143]	[0.161]	[0.136]
β_4: Female$_i$ $\times$ Firm has 100% female employees	1.612***	1.603***	1.625***
	[0.061]	[0.064]	[0.055]
β_5: Firm has $<$ 50% female employees	-0.088**	-0.106***	-0.099**
	[0.034]	[0.040]	[0.043]
β_6: Firm has 51-99% female employees	-0.478***	-0.495***	-0.492***
	[0.090]	[0.096]	[0.094]
β_7: Firm has 100% female employees	-0.856***	-0.857***	-0.874***
	[0.055]	[0.057]	[0.043]
β_0: Constant	0.935***	0.937***	0.930***
	[0.011]	[0.012]	[0.014]
P-value:β_1+β_2=0	0.03	0.30	0.38
P-value:β_1+β_3=0	0.02	0.03	0.00
P-value:β_1+β_4=0	0.00	0.00	0.00
Sample	Full Sample	Qualify educ+exp	Qualify educ+exp +select occp
N	3,330,146	2,185,452	791,681

Firm Characteristics

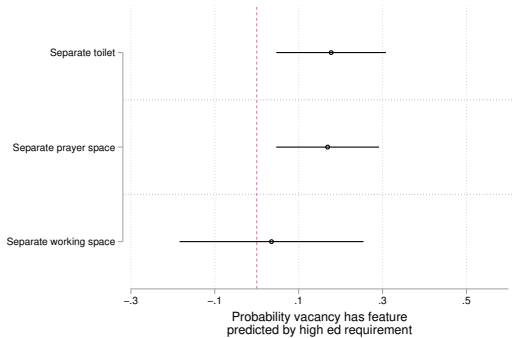


Firm Characteristics

Firm characteristics and gender restrictions



Firm characteristics and education requirements

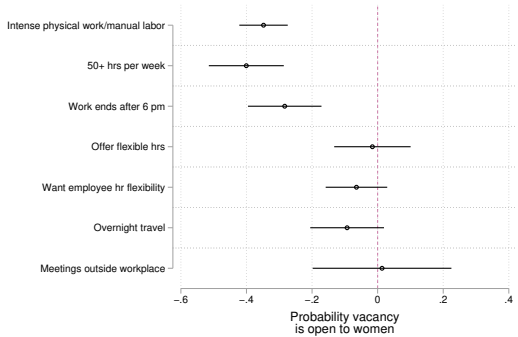


Question

Do vaccancy characteristics explain gender gap in demand for applicants?

Vacancy Characteristics

Vacancy characteristics and gender restrictions



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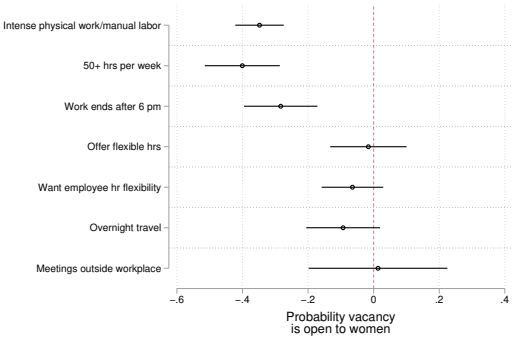
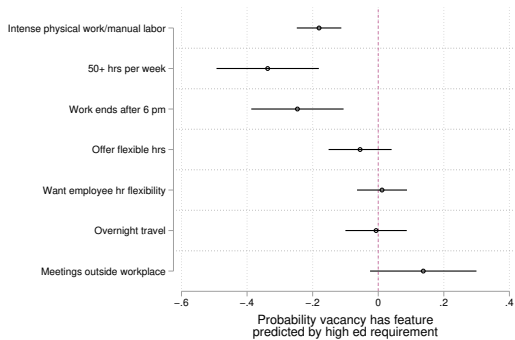


Vacancy characteristics and education requirements



Not driven fully by occupation and industry

Incentivized Resume Rating Experiment

- Delve further into the firm decision-making process at the time of interview
- Firms are asked to choose a CV from each of three pairs of CVs

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- CV characteristics balanced on gender Balance

IRR Results

- Firms are 12 pp less likely to select CV with female name Table

IRR Results

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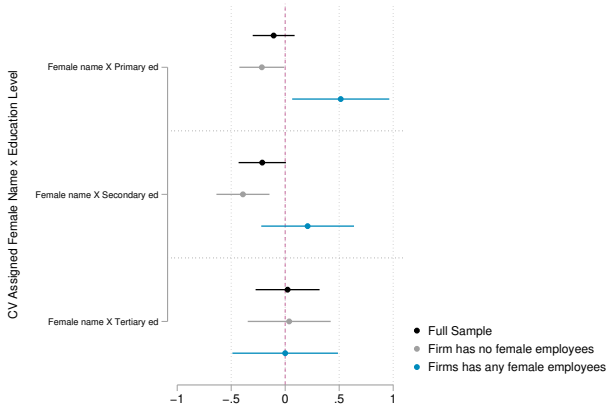
- Firms with zero female employees are 23 pp less likely to choose a female CV than a male CV
- Firms with any female employees are 22 pp more likely to choose a female CV than firms with no female employees
- Firms with all female employees are 60 pp more likely to choose a female CV than other firms Table

IRR: Heterogeneity by CV Education Level

Figure: Incentivized Resume Rating: Heterogeneity by CV Education Level



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- Through experiment: As education levels rise, female penalty goes away, even for firms without women

Thank you!

zuniatirmazee@gmail.com

Comparing LFS to HH Listing - All

Sample	LFS Lahore	HH Listing
	(1)	(2)
Female	0.493	0.496
	(0.500)	(0.500)
Age	34.0	33.2
Highest education level		
Primary Ed	0.692	0.708
Secondary Ed	0.141	0.121
Tertiary Ed	0.167	0.154
Employed	0.471	0.397
N	6464	184048

Representative Sample

Comparing LFS to HH Listing - Women

Sample	LFS Lahore	HH Listing
	(1)	(2)
Age	33.8	32.9
	(11.6)	(11.3)
Highest education level		
Primary Ed	0.678	0.702
Secondary Ed	0.149	0.126
Tertiary Ed	0.173	0.158
Employed	0.098	0.081
N	3189	91351

Representative Sample

Comparing LFS to HH Listing - Men

Sample	LFS Lahore	HH Listing
	(1)	(2)
Age	34.2	33.5
	(11.8)	(11.6)
Highest education level		
Primary Ed	0.705	0.715
Secondary Ed	0.135	0.117
Tertiary Ed	0.160	0.151
Employed	0.834	0.708
N	3275	92697

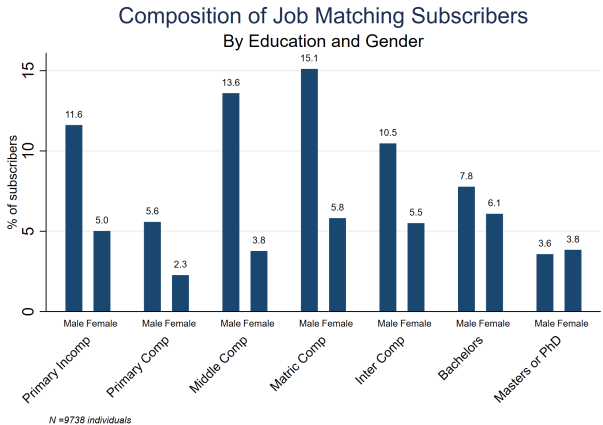
Representative Sample

Gender Gaps in Work and Signup - by Education

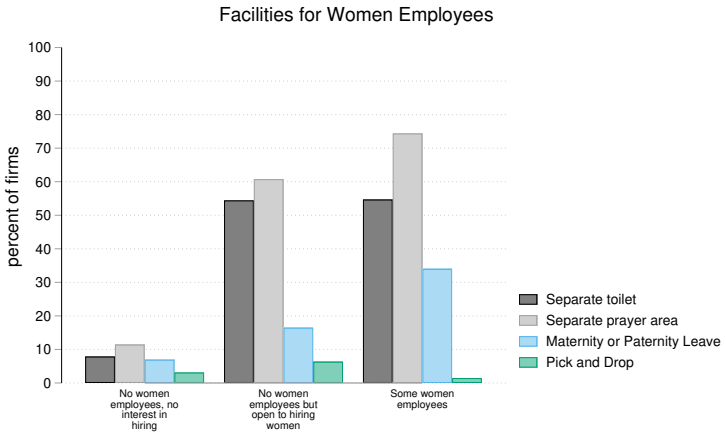
	(1) Working at baseline	(2) Interested in Job Talash	(3) Completed signup
β_1: Female_i	-0.669***	-0.121***	-0.044***
	[0.002]	[0.002]	[0.001]
β_2: $\text{Female}_i \times \text{Secondary Ed}_i$	0.131***	0.039***	-0.005
	[0.006]	[0.006]	[0.004]
β_3: $\text{Female}_i \times \text{Tertiary Ed}_i$	0.134***	0.126***	0.029***
	[0.005]	[0.006]	[0.003]
β_4: Secondary Ed_i	-0.111***	0.026***	0.027***
	[0.005]	[0.005]	[0.003]
β_5: Tertiary Ed_i	0.016***	-0.011**	0.012***
	[0.004]	[0.004]	[0.003]
β_0: Constant	0.724***	0.301***	0.069***
	[0.002]	[0.002]	[0.001]
P-value:$\beta_1+\beta_2=0$	0.00	0.00	0.00
P-value:$\beta_1+\beta_3=0$	0.00	0.28	0.00
N	182,491	182,491	182,491

All

Education and Gender

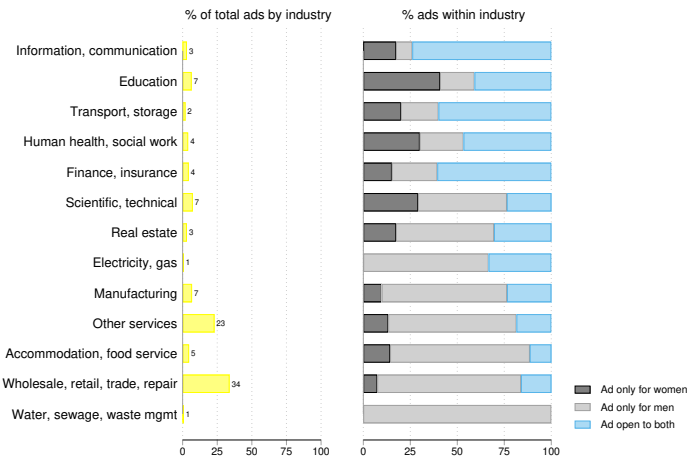


Facilities for Women Employees



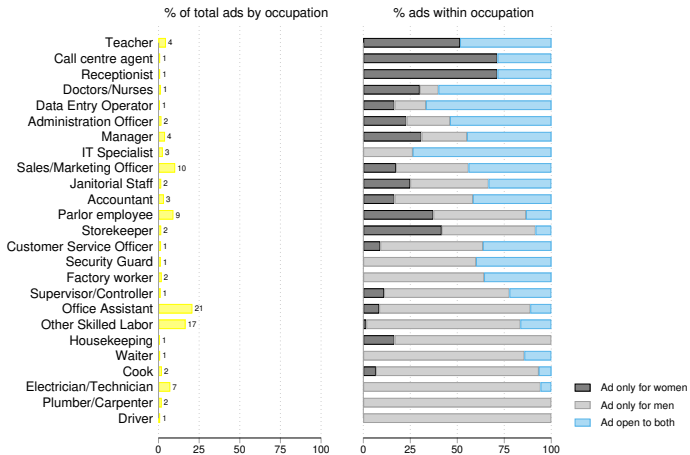
Description

Ads open to women - Industry



Job Characteristics

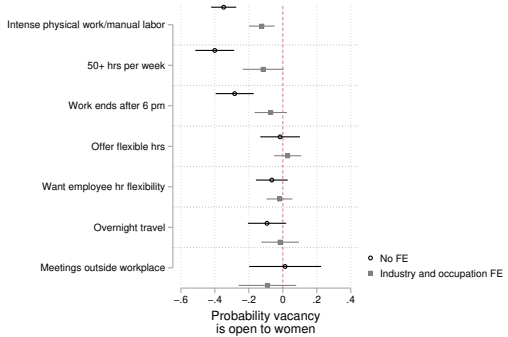
Ads open to women - Occupation



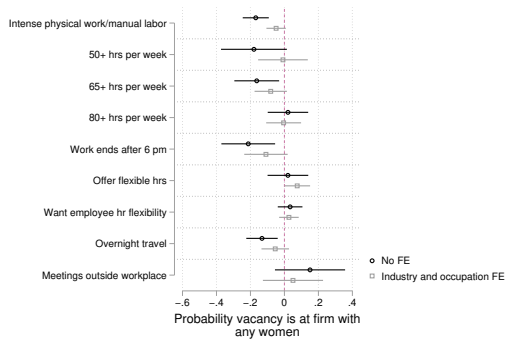
Job Characteristics

Not entirely driven by Occupation and Industry

Vacancy characteristics and gender restrictions

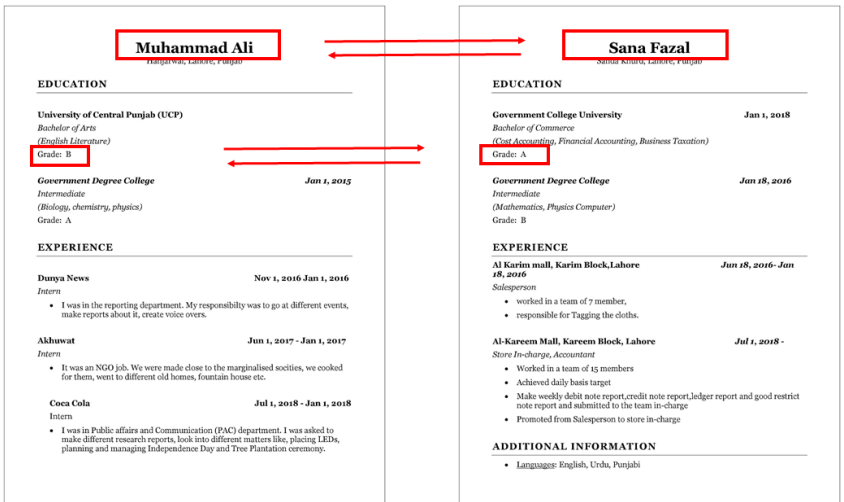


Vacancy characteristics and gender composition



Job Characteristics

IRR Experiment



Muhammad Ali
Hanjarwal, Lahore, Punjab

EDUCATION

University of Central Punjab (UCP)
Bachelor of Arts
(English Literature)
Grade: B

Government Degree College ***Jan 1, 2015***
Intermediate
(Biology, chemistry, physics)
Grade: A

EXPERIENCE

Dunya News **Nov 1, 2016 Jan 1, 2016**
Intern
- I was in the reporting department. My responsibilty was to go at different events, make reports about it, create voice overs.

Akhuwat **Jun 1, 2017 - Jan 1, 2017**
Intern
- It was an NGO job. We were made close to the marginalised socities, we cooked for them, went to different old homes, fountain house etc.

Coca Cola **Jul 1, 2018 - Jan 1, 2018**
Intern
- I was in Public affairs and Communication (PAC) department. I was asked to make different research reports, look into different matters like, placing LEDs, planning and managing Independence Day and Tree Plantation ceremony.

Sana Fazal
Sanda Kharo, Lahore, Punjab

EDUCATION

Government College University **Jan 1, 2018**
Bachelor of Commerce
(Cost Accounting, Financial Accounting, Business Taxation)
Grade: A

Government Degree College ***Jan 18, 2016***
Intermediate
(Mathematics, Physics Computer)
Grade: B

EXPERIENCE

Al Karim mall, Karim Block,Lahore ***Jun 18, 2016- Jan 18, 2016***
Salesperson
- worked in a team of 7 member,
- responsible for Tagging the cloths.

Al-Kareem Mall, Kareem Block, Lahore ***Jul 1, 2018 -***
Store In-charge, Accountant
- Worked in a team of 15 members
- Achieved daily basis target
- Make weekly debit note report,credit note report,ledger report and good restrict note report and submitted to the team in-charge
- Promoted from Salesperson to store in-charge

ADDITIONAL INFORMATION

- Languages: English, Urdu, Punjabi

IRR - Balance

Variable	(1) Male	(2) Female	(3) P-values
Tertiary Education	0.209	0.209	1.000
Secondary education	0.326	0.349	0.611
Primary Education	0.465	0.442	0.629
Tertiary grades	3.051	3.093	0.784
Secondary grades	3.934	3.782	0.280
Public Tertiary Education	0.074	0.047	0.226
3-5 years experience	0.502	0.502	1.000
N	215	215	430

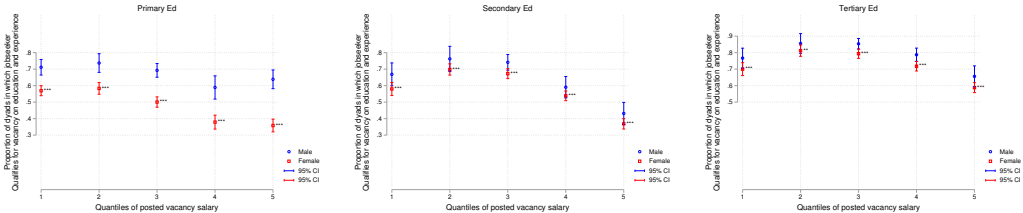
IRR Description

Pricing CV Attributes

	CV chosen	
	(1)	(2)
β_1: CV assigned Female name	-0.115*	-0.122*
	(0.068)	(0.069)
β_2: Experience	-0.003	-0.008
	(0.003)	(0.006)
β_3: Secondary Ed	-0.039	-0.027
	(0.029)	(0.046)
β_4: Tertiary Ed	-0.016	-0.045
	(0.012)	(0.081)
β_5: Secondary grades not reported		-0.016
		(0.058)
β_6: Tertiary grades not reported		-0.131
		(0.139)
β_7: Tertiary institute ranking=Medium		0.332*
		(0.179)
β_8: Tertiary institute ranking=High		0.017
		(0.145)
N	430	430

IRR Description

Satisfy Education, Experience Criteria - Salary



- Patterns similar across education levels

IRR - By Firm Gender Composition

	CV Chosen	
	(1)	(2)
β_1: Female name$_k$	-0.230**	-0.151*
	[0.072]	[0.066]
β_2: Female name$_k$ X Group$_j$	0.452**	0.751**
	[0.149]	[0.287]
β_3: Group$_j$	-0.226**	-0.376**
	[0.074]	[0.143]
β_1+β_2:		
Total effect of female name$_k$	0.222*	0.600**
in HTE group	[0.130]	[0.279]
Outcome Control Mean	0.558	0.558
N	430	430
HTE Group	Firm has any female employees	Firm has all female employees

Summary