

# Gender Norms, Integration Costs, and Missing Women in Firms

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# Many Firms Employ No Women

**Table:** % of Manufacturing Firms with Zero Female Employees

	Firm Size		Female
	Medium (20-99)	Large (100+)	Share (%)
Sub-Saharan Africa	10.5	2.3	27.0
East Asia and Pacific	1.8	0.5	41.2
Eastern and Central Europe	2.5	0.7	38.4
Latin America and Caribbean	3.0	0.8	32.8
Middle East and North Africa	<b>48.1</b>	<b>22.7</b>	16.9
South Asia	<b>49.9</b>	<b>28.6</b>	14.5

Source: World Bank Enterprise Survey, 2006-2018

# Social Norms in the Labor Market

- ▶ Norms play important role in explaining variation in female labor market outcomes (e.g. Bertrand 2011)
  - ▶ In MENA and South Asia, strong norms for gender segregation (Jayachandran 2015)
  - ▶ Literature focuses on women's labor supply
- ▶ Norms that favor segregation constrain *firm* behavior, too

# Integration is Costly

- ▶ Compliance with norms and expectations
  - ▶ Building separate facilities and workspaces (IFC 2013)
  - ▶ Limitations on interactions between male and female employees
  - ▶ Ensuring security (Field and Vyborny 2016)
    - ▶ Restrictions on women's working hours in 57% of MENA and South Asian countries; 8% in ROW (WB 2018)
- ▶ Accessing a new labor pool (Miller 2017)
  - ▶ Learning to recruit, screen, and retain women
  - ▶ Potential female hires may prefer more female co-workers
- ▶ Many of these costs have a significant *fixed* component
  - ▶ Firms face *extensive margin* integration decision

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# This Paper

To what extent are firms constrained by integration costs?

- ▶ Deploy methodology from Miller et al. (2022) to use the distribution of female employment across firms to assess the extent to which integration costs constrain female employment
- ▶ Estimate the share of firms that face binding integration costs
- ▶ Compare integration rates with measures of segregation preferences and women's employment outcomes

# Firm Hiring and Integration Decisions

Empirical strategy (following Miller et al. 2022) is based on a partial equilibrium model of individual firm's hiring in which:

1. Firms face an extensive margin integration decision (i.e. decide ex-ante whether to incur the integration costs associated with hiring both men and women)
2. Integration costs are largely fixed, so firms integrate only if they anticipate employing enough women to justify the costs
3. The probability that the top candidate for position  $i$  is female is modeled by a function  $\theta(\cdot)$  of observable job characteristics,  $X_i$
4. This  $\theta$  is the key parameter: dictates expected female employment at each firm given integration ( $\theta(X_i) \cdot n$  for a firm with  $n$  employees).

# Firm Hiring and Integration Decisions

We distinguish firms according to whether they face binding integration costs

- ▶ If firms have already paid integration costs (i.e. are unconstrained in their hiring) they are *ex-ante integrated*
- ▶ Firms that have not paid these costs (can only hire male employees) are *ex-ante segregated*

Note: even if all firms are ex-ante integrated some firms will have zero female employees by random chance

- ▶ We refer to firms that are observed to have female employees as *ex-post integrated* – these will be a subset of firms that are ex-ante integrated

Our goal is to test the null that all firms are ex-ante integrated (i.e. that no firms face binding integration costs) and then estimate the share of firms that are in fact ex-ante integrated.



# Data: World Bank Enterprise Survey

- ▶ Survey of manufacturing firms in various countries, years ranging from 2006-2018
- ▶ Limit to surveys that include at least 100 firms in country with breakdown of employees by gender (65 countries in 105 surveys)
- ▶ Measures female share of production and non-production employees

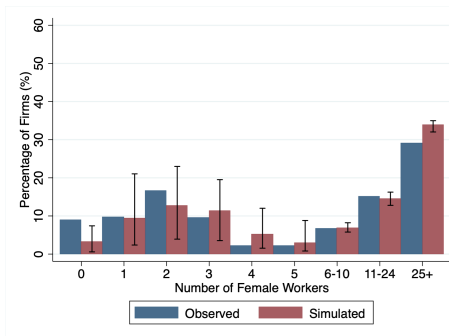
# Testing for Binding Integration Costs

We first test the null that all firms are ex-ante integrated

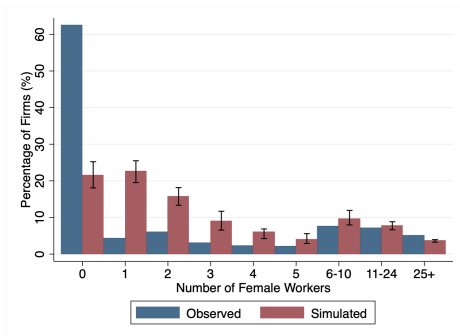
- ▶ Estimate  $\theta(X_i)$  using female share at *all* firms using logit model
  - ▶ If all firms are ex-ante integrated, overall distribution of female hires should reflect  $\theta(X_i)$  (female share of hires conditional on  $X_i$ )
- ▶ Use estimated  $\theta$  to simulate female employment under no integration costs
- ▶ Compare simulated with actual distribution of female employment
  - ▶ With binding integration costs expect bunching at zero and missing mass of firms with few female employees

# Testing for Binding Integration Costs

Figure: Distribution of Female Employment Across All Firms: Ethiopia and Egypt

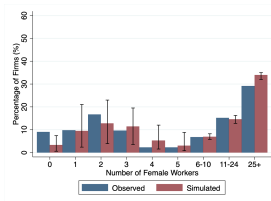


(a) Ethiopia

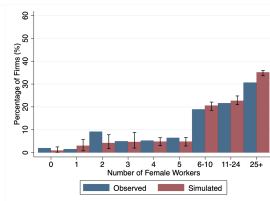


(b) Egypt

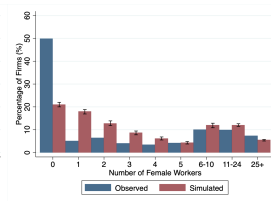
Figure: Distribution of Female Employment across Firms, by Country



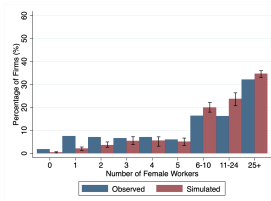
(a) Ethiopia



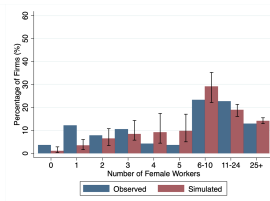
(b) China



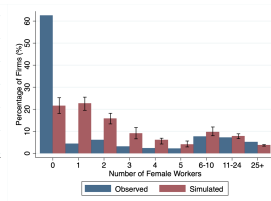
(c) India



(d) Russia



(e) Brazil



(f) Egypt

# Estimating Counterfactual Female Employment

- ▶ We reject null of no integration costs for firms in some countries
  - ▶ Also implies that we underestimate  $\theta(X_i)$  by including non-integrated firms
- ▶ Run simulation again under integration costs and with corrected  $\theta(X_i)$ 
  1. Estimate  $\theta(X_i)$  using female share of employees at *integrated* firms
  2. Construct predicted counterfactual female employment  $\bar{\theta}_j \times n$  using job mix at each firm
    - ▶ Expected female employment if firm  $j$  were to integrate, *holding other firms' behavior fixed*
  3. Calculate ex-post integration rates by  $\bar{\theta} \times n$
  4. Use simulation to adjust ex-post integration rates to reflect implied ex-ante integration rates by  $\bar{\theta} \times n$

# Calculating Integration Rates

Even firms with the *ability* to hire women may not be *observed* to hire women in the data due to random chance

- ▶ Firms that have the ability to hire women defined as *ex-ante integrated*
- ▶ Firms that are observed to hire women defined as *ex-post integrated*

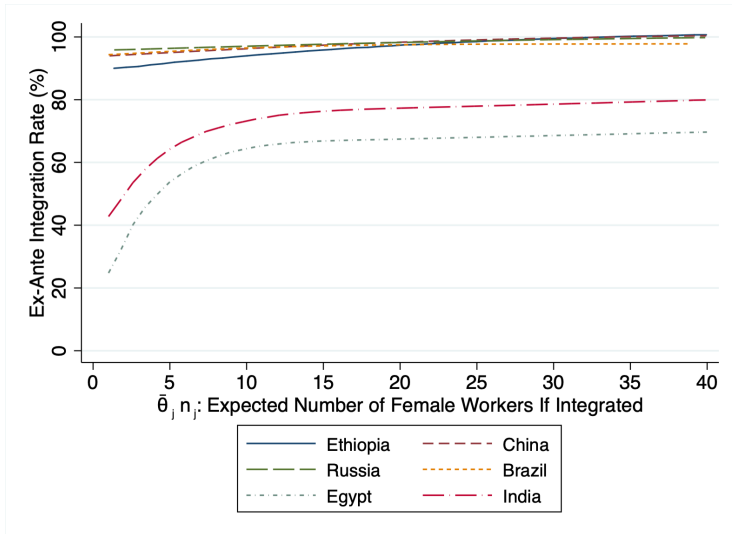
Adjust observed (ex-post) integration rates by predicted female employment ( $\bar{\theta} \times n$ ) by simulating the share of ex-ante integrated firms that would also be ex-post integrated

- ▶ e.g. Suppose simulation predicts that 80% of ex-ante integrated firms with  $\theta \times n = 2$  will be ex-post integrated, but only 20% are observed to hire women. This implies that 25% of firms in this bin are ex-ante integrated.

# Estimating Integration Costs in World Bank Data

- ▶ Calculate  $\theta_i$  separately for each survey (country by year)
  - ▶ Occupation: production versus non-production
- ▶ Calculate integration status by  $\bar{\theta}_j \times n_j$ , aggregate to region or country

Figure: Implied Ex-Ante Integration Rates by Country

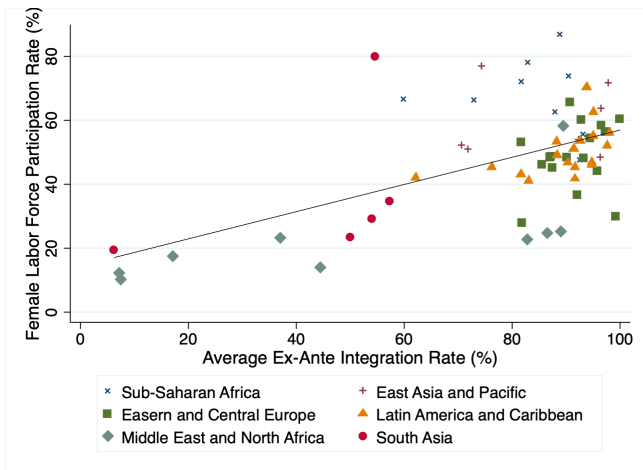




# Integration Barriers Common in MENA and South Asia

We find significant integration barriers in MENA and South Asia, but not other regions, consistent with regions with lowest female labor force participation and regional views on gender segregation (Jayachandran 2015)

Figure: Female Labor Force Participation and Ex-Ante Integration Rates



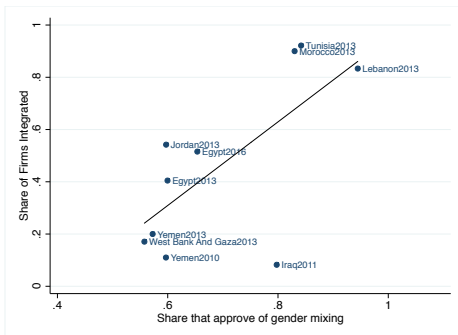
# Integration Costs Correlated with Norms

Integration rates correlated with segregation preferences from Arab Barometer survey  
agreement with statement regarding gender-mixed university classes:

“It is acceptable in Islam for male and female university students to attend classes together” (1,4)

“Gender-mixed education should be allowed in universities” (2,3)

Figure: Integration Rates vs. Support of Gender Mixing



# Integration Costs Correlated with Women's Labor Market Outcomes

**Table:** Female LFP and Integration Rates Across Countries

	$LFP_F$		$LFP_F - LFP_M$	
	(1)	(2)	(3)	(4)
<i>Ex-ante integration rate:</i>				
Overall ( $\hat{\theta}^{EP}$ )	0.425** (0.079)	0.278** (0.089)	0.453** (0.067)	0.298** (0.075)
Representative firm ( $\bar{\theta}_j^{EP} \times n_j = 10$ )	0.489** (0.081)	0.337** (0.093)	0.496** (0.070)	0.355** (0.077)
Region FEs		✓		✓
Observations	65	65	65	65

# Integration Costs Correlated with Women's Labor Market Outcomes

**Table:** Female Employment and Integration Rates Across Countries

	$EMP_F$		$EMP_F - EMP_M$	
	(1)	(2)	(3)	(4)
<i>Ex-ante integration rate:</i>				
Overall ( $\hat{\theta}^{EP}$ )	0.388** (0.083)	0.243** (0.097)	0.420** (0.065)	0.264** (0.073)
Representative firm ( $\bar{\theta}_j^{EP} \times n_j = 10$ )	0.461** (0.085)	0.321** (0.101)	0.459** (0.069)	0.324** (0.075)
Region FEs		✓		✓
Observations	65	65	65	65

## Concluding Summary

- ▶ Where local norms favor gender segregation, firms may face integration costs when employing both men and women
- ▶ We test for binding integration costs in firms in 65 countries
- ▶ We find evidence of substantial integration barriers for firms in MENA and South Asia, but not in other regions
- ▶ Integration costs are correlated with regional attitudes toward gender mixing in a cross section of MENA countries
- ▶ Our results suggest that integration costs prevent some firms from hiring superior female candidates, with significant consequences for women's labor market outcomes



**Table:** Distribution of Female Employment by Region (% of firms)

	Simulated	AFR	EAP	ECR	LAC	MNA	SAR
<i># of Fem. Employees</i>							
0	20.8	21.5	17.8	17.9	15.7	<b>55.1</b>	<b>54.6</b>
1	18.1	18.8	13.2	19.0	18.1	5.1	5.2
2	14.0	11.5	15.2	14.5	15.7	6.9	6.4
3	9.1	7.6	11.5	9.1	11.3	3.7	3.9
4	5.1	7.0	10.0	7.7	6.7	3.4	3.3
5	4.5	4.6	5.9	5.2	5.0	2.2	3.6
6-10	13.0	12.0	11.5	12.8	12.9	9.2	8.6
11-24	9.4	9.8	8.9	7.0	8.7	7.5	7.7
25+	6.1	7.2	6.1	6.9	6.1	6.9	6.7