Globalization, purdah and women’s labor force participation

Ian Coxhead
University of Wisconsin-Madison

Sisira Jayasuriya
Monash University

Takashi Kurosaki
Hitotsubashi University
The big picture

• Institutions $\rightarrow$ Economic conditions $\rightarrow$ Welfare
  • Acemoglu & Robinson 2011 (among others)
    • Historical institutions $\rightarrow$ contemporary institutions $\rightarrow$ economic development
    • Mechanism: historical instns $\rightarrow$ political interests with a stake (e.g. in specific forms of property rights) $\rightarrow$ conditional outcomes
  • Tabellini 2010
    • Historical institutions $\rightarrow$ culture $\rightarrow$ economic development
    • E.g. S & N Italian judiciary: same legal system & training, different practices

• Culture “matters” in context-dependent ways

• Our project is to examine implications of a specific cultural practice, purdah, on economic development outcomes
  • Starting point: Pakistan FLFPR
  • But purdah has evolved: it may be endogenous
  • Likely end point: compare influences of and on FLFPR
• **Purdah** refers to a set of practices that regulate women’s behavior and activities, especially outside the family home
• Conforms to idealized stereotypes of male and female roles
• Principles of *gender segregation* and *female seclusion*
  • Segregation: Limits on interactions with men who are not relatives
  • Seclusion: Avoid situations in which family honor might be compromised
• “Family honor ... tarnished if women or girls engage in paid employment, unless in a very prestigious profession” (Wright 2000: 232)
  → Women who practice purdah have limited ability to seek paid employment outside the home or immediate locale
• Purdah is very widely observed in Pakistan
  • Women’s LFPR is among world’s lowest
  • Low willingness/capacity to relocate for work
Globalization disappoints in Pakistan

• 1990-2000s, lowering of barriers to trade & factor flows
  • Average applied tariff rate
    • > 70% in 1985
    • 20% in 2001-02
    • 12% in 2016

• But failure to gain from globalization
  • Export growth
  • FDI
  • Employment growth
  • Industrialization

• Instead, Pakistan exports (male) blue-collar labor
  • Remittances are largest single source of forex earnings in many years
Per capita income ($PPP) as fraction of USA (Source: World Bank data)

- Pakistan
- India
- Bangladesh
- Low & middle income
- Vietnam
- Cambodia
No boom in labor-intensive apparel exports

Garment exports (SITC 84), source: COMTRADE

- Pakistan
- Bangladesh
- Vietnam
- Cambodia
- India
Explaining disappointing outcomes

• Poor performance is overdetermined. Explanations include...
  • China effect
  • Political instability, weak institutions
  • Poor infrastructure and logistics
  • Insufficient skilled labor
  • Negative dynamic with labor export and remittances
  • (Hamid and Khan, 2015; Nazeer and Rasiah, 2016; Mangla and Din, 2015; ul Haque, 2015, Mahmood and Ahmad 2017...)

• *None of these are unique to Pakistan*—yet it lags behind comparable countries
Low female LFPR and mobility are more special

A priori:

• Inelastic supply of women to non-ag labor force reduces effective size of the total labor endowment and contributes to low labor productivity

• It has particularly strong implications for “first-rung” manufacturing, esp. garments

• Consequences
  • Lower potential for industrial expansion
  • Persistent L misallocation over sectors and occupations
  • Lower incentives for investment and technological upgrading
Production possibilities and globalization gains with/without restrictions on female labor mobility

Initial long-run equilibrium with prices $P_0$ is at A.

**Counterfactual** (full L mobility): relative price increase to $P_1$ raises output of industry, new eq’m at B

**Purdah** (some L fixed in agriculture): same price increase $\rightarrow$ less growth in industry output, new eq’m at C
  - Counterfactual industry growth is $(M_B-M_A)/M_A$; purdah growth is lower at $(M_C-M_A)/M_A$
  - GDP gain is measured by x-intercepts of isovalue lines with slope $P_1$ relative to one of same slope through A
  - Wage gap widens in purdah case due to declining real returns to specific factors in agriculture
Why FLFP matters

• Pakistan’s economy and endowments resemble those of countries in which garments & textiles are produced for global markets

• Globally, the garment manufacturing labor force is more than 75% female (ILO)
  • Bangladesh: pre-Rana Plaza, 80% of garment factory employees (= almost 3.2m) were women
  • Cambodia: 85% of garment production-line workers are women

• Potential for investment and industrial growth is constrained by inelastic labor supply
  • K-L complementarity ($\frac{\partial r_k}{\partial x_f} > 0$) so less investment overall
    • Less investment $\rightarrow$ less jobs, lower wages, lower overall growth
    • Women are disproportionately affected $\rightarrow$ wider gender wage gap & lower bargaining power
Pakistan: female LFPR remains very low

PSLM 2011-12, microdata (unweighted)

PSLM 2005-06, microdata (unweighted)
Rural-urban differences are inverted, and large

**Female LFP ratio, PSLM 2011-12 (unweighted)**

**Female LFP ratio, PSLM 2005-06 (unweighted)**
Women’s paid work in non-agric has increased only slightly.

Source: PSLM
Looking for cultural influences on female LFP

• Caution: for now, we are inferring purdah from patriarchy!

• Data sources:
  • LFS is rich in employment-related data but not complementary info
  • PSLM is richer, but doesn’t ask directly about purdah or seclusion

• Some PSLM questions may provide indirect indicators:
  • Q.3: “Why are you not seeking paid work?”
    • Option 1: “Not permitted by husband or father”
      → “Traditional” indicator = 1
  • “Who decides about…:”
    • Education, employment, marriage, family planning, HH consumption choices
    • [Woman alone; HH head/father alone; head/father in consultation with (woman/spouse/other males)]
    • If “woman alone” --> “Empowerment” indicator = 1
## Women in decision-making, from PSLM 2011-12

<table>
<thead>
<tr>
<th>Strong norm of husband/father against paid work</th>
<th>All Pakistan</th>
<th>Punjab</th>
<th>Sindh</th>
<th>Khyber P</th>
<th>Balochist</th>
<th>Rural/Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>% &quot;Not permitted by husband/father&quot; to q.3</td>
<td>35.83</td>
<td>28.65</td>
<td>27.24</td>
<td>48.39</td>
<td>51.29</td>
<td>32.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who decides about female members? Women empowerment</th>
<th>All Pakistan</th>
<th>Punjab</th>
<th>Sindh</th>
<th>Khyber P</th>
<th>Balochist</th>
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</tr>
</thead>
<tbody>
<tr>
<td>% &quot;Women herself&quot; to q.1 (education)</td>
<td>12.90</td>
<td>21.79</td>
<td>6.83</td>
<td>7.58</td>
<td>3.56</td>
<td>16.89</td>
</tr>
<tr>
<td>% &quot;Women herself&quot; to q.2 (employment)</td>
<td>11.23</td>
<td>20.40</td>
<td>5.60</td>
<td>4.40</td>
<td>2.92</td>
<td>13.59</td>
</tr>
<tr>
<td>% &quot;Women herself&quot; to q.4 (marriage)</td>
<td>2.81</td>
<td>3.38</td>
<td>1.99</td>
<td>2.47</td>
<td>3.01</td>
<td>2.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who decides about family planning? Women empowerment (strong)</th>
<th>All Pakistan</th>
<th>Punjab</th>
<th>Sindh</th>
<th>Khyber P</th>
<th>Balochist</th>
<th>Rural/Urban</th>
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</thead>
<tbody>
<tr>
<td>% &quot;Women herself&quot; to q.5 (birth control)</td>
<td>7.85</td>
<td>3.78</td>
<td>18.25</td>
<td>2.24</td>
<td>8.80</td>
<td>5.85</td>
</tr>
<tr>
<td>% &quot;Women herself&quot; to q.6 (# of children)</td>
<td>4.39</td>
<td>3.39</td>
<td>7.28</td>
<td>1.42</td>
<td>7.09</td>
<td>4.57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who decides about family planning? Women empowerment (weak)</th>
<th>All Pakistan</th>
<th>Punjab</th>
<th>Sindh</th>
<th>Khyber P</th>
<th>Balochist</th>
<th>Rural/Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>% &quot;Husband &amp; women jointly&quot; to q.5</td>
<td>67.02</td>
<td>67.66</td>
<td>61.18</td>
<td>79.41</td>
<td>53.37</td>
<td>73.74</td>
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<tr>
<td>% &quot;Husband &amp; women jointly&quot; to q.6</td>
<td>61.13</td>
<td>63.84</td>
<td>59.20</td>
<td>68.02</td>
<td>41.65</td>
<td>67.96</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who decides about household consumption? Women empowerment</th>
<th>All Pakistan</th>
<th>Punjab</th>
<th>Sindh</th>
<th>Khyber P</th>
<th>Balochist</th>
<th>Rural/Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>% &quot;Women herself&quot; to q.7.1 (food)</td>
<td>27.47</td>
<td>53.70</td>
<td>12.68</td>
<td>6.13</td>
<td>4.33</td>
<td>29.62</td>
</tr>
<tr>
<td>% &quot;Women herself&quot; to q.7.2 (clothing)</td>
<td>33.09</td>
<td>48.28</td>
<td>26.16</td>
<td>23.11</td>
<td>10.16</td>
<td>40.05</td>
</tr>
<tr>
<td>% &quot;Women herself&quot; to q.7.3 (medical)</td>
<td>11.06</td>
<td>17.31</td>
<td>7.99</td>
<td>6.64</td>
<td>2.91</td>
<td>13.34</td>
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<tr>
<td>% &quot;Women herself&quot; to q.7.4 (recreation)</td>
<td>7.28</td>
<td>13.83</td>
<td>2.51</td>
<td>3.38</td>
<td>1.13</td>
<td>8.00</td>
</tr>
</tbody>
</table>
Incomplete coverage of individuals, and aggregation within HH

• “Traditional” and “empowerment” questions are asked to working-age women, regardless of marital status

• But not all questions were applicable to all women
  • Q.3 is asked only to women not working. Therefore, we cannot use variation of this variable to explain female LFP or female non-agric LFP
  • Q.5 and 6 (birth control/family planning) are asked only to currently married women. Therefore, we cannot use variation of this variable to explain LFP of currently unmarried females
  • Q.1, 2, 4, 7.1, 7.2, 7.3 are asked to all

• Approach: aggregate answers within household
  • Attribute answers for one woman to all in HH
    • 24,585 women in 14,429 HHs, so av. 1.7 responses/HH
    • Among multi-woman HHs (n=6,621), not much within-HH variation observed
Household-level indicators of female empowerment

- HH level dummy variables take account of within-household variation:
  - “Empowerment” =1 if *any* woman in HH can decide own education
  - “Traditional” =1 if ≥ 1 HH head/father decides for *all* women in HH
  - Continuous analogs give comparable results

- Over all HHs, female non-agric emplymt (in 2011-12) is positive in 9.24%
  - Among HH with Empowerment=1, this is 1.73 p.p. higher (+19%)
  - Among HH with Traditional=1, it is 2.7 p.p. lower (-24%)

- OLS with other covariates provides additional support
Association btw culture variables and LFP: education decision

<table>
<thead>
<tr>
<th></th>
<th>PSLM2011-12</th>
<th></th>
<th>PSLM2005-06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total, N</td>
<td>Wage/salary</td>
<td>Total, N</td>
<td>Wage/salary</td>
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<tr>
<td></td>
<td></td>
<td>employed in non-</td>
<td></td>
<td>employed in non-</td>
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<td></td>
<td></td>
<td>agriculture</td>
<td></td>
<td>agriculture</td>
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<tr>
<td>All females aged 15-49</td>
<td>25479</td>
<td>2355</td>
<td>25651</td>
<td>2054</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.24</td>
<td></td>
<td>8.01</td>
</tr>
<tr>
<td>A. By education decision making</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empowerment dummy = 1</td>
<td>3172</td>
<td>448</td>
<td>2564</td>
<td>362</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.12</td>
<td></td>
<td>14.12</td>
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<tr>
<td>Traditional dummy = 1</td>
<td>11302</td>
<td>755</td>
<td>11371</td>
<td>573</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.68</td>
<td></td>
<td>5.04</td>
</tr>
<tr>
<td>Empow.=0 &amp; Trad.dummy=0</td>
<td>10111</td>
<td>1049</td>
<td>10669</td>
<td>987</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.37</td>
<td></td>
<td>9.25</td>
</tr>
<tr>
<td>B. By completed grades of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary or no schooling</td>
<td>18802</td>
<td>1300</td>
<td>29.22</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>5949</td>
<td>491</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary</td>
<td>900</td>
<td>263</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“Traditional” influence on education associated with low rate of wage employment outside agriculture
## Correlates of female non-agri employment, 2011-12 (OLS)

<table>
<thead>
<tr>
<th>Model 1: Baseline</th>
<th>Model 2: with education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household-level women empowerment dummies</strong></td>
<td><strong>Household-level women empowerment dummies</strong></td>
</tr>
<tr>
<td>Empowerment dummy = 1 for some women</td>
<td>Traditional dummy = 1 for all women</td>
</tr>
<tr>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>0.0216***</td>
<td>0.0079</td>
</tr>
<tr>
<td>-0.0285***</td>
<td>0.0053</td>
</tr>
<tr>
<td><strong>Education of the woman concerned (ref.=primary)</strong></td>
<td><strong>Education of the woman concerned (ref.=primary)</strong></td>
</tr>
<tr>
<td>Secondary</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>-0.0373***</td>
<td>0.0057</td>
</tr>
<tr>
<td><strong>Age of the woman concerned (ref.=28 yrs old)</strong></td>
<td><strong>Age of the woman concerned (ref.=28 yrs old)</strong></td>
</tr>
<tr>
<td>Age-28</td>
<td>(Age-28)^2/100</td>
</tr>
<tr>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>0.0028***</td>
<td>0.0002</td>
</tr>
<tr>
<td>-0.0125***</td>
<td>0.0023</td>
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<tr>
<td><strong>Provincial dummies (ref.=Punjab)</strong></td>
<td><strong>Provincial dummies (ref.=Punjab)</strong></td>
</tr>
<tr>
<td>Sindh</td>
<td>Khyber Pakhtunkhwa</td>
</tr>
<tr>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>0.0329***</td>
<td>0.0091</td>
</tr>
<tr>
<td>-0.0616***</td>
<td>0.0066</td>
</tr>
<tr>
<td><strong>Regional dummies (ref.=urban area)</strong></td>
<td><strong>Regional dummies (ref.=urban area)</strong></td>
</tr>
<tr>
<td>Rural area</td>
<td>Intercept</td>
</tr>
<tr>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>0.0137**</td>
<td>0.0061</td>
</tr>
<tr>
<td>0.1157***</td>
<td>0.0069</td>
</tr>
<tr>
<td>N</td>
<td>F-stat for zero slopes</td>
</tr>
<tr>
<td>25127</td>
<td>67.53***</td>
</tr>
<tr>
<td>25127</td>
<td>69.42***</td>
</tr>
</tbody>
</table>

Notes: Cluster-robust standard errors are reported in column "S.E.", significant at 1% ***, 5% **, and 10% *.
Is it just about income/wealth?

<table>
<thead>
<tr>
<th></th>
<th>Model 3: Land dummy</th>
<th>Model 5: ln(land val)</th>
<th>Model 6: ln(PSU cons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>S.E.</td>
<td>Coef.</td>
</tr>
<tr>
<td>Empowerment = 1 for some women</td>
<td>0.034 ***</td>
<td>0.0087</td>
<td>0.034 ***</td>
</tr>
<tr>
<td>Traditional = 1 for all women</td>
<td>-0.028 ***</td>
<td>0.0051</td>
<td>-0.028 ***</td>
</tr>
<tr>
<td>Rural area</td>
<td>0.020 ***</td>
<td>0.0063</td>
<td>0.019 ***</td>
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<tr>
<td>Any real property in HH = 1</td>
<td>-0.028 ***</td>
<td>0.0078</td>
<td>0.001 ***</td>
</tr>
<tr>
<td>Ln (real property value)</td>
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<td></td>
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<tr>
<td>Ln(PGU median real p.c. cons)</td>
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<tr>
<td>Intercept</td>
<td>-0.027 ***</td>
<td>0.0204</td>
<td>-0.040 ***</td>
</tr>
<tr>
<td>N</td>
<td>24585</td>
<td>24585</td>
<td>24585</td>
</tr>
<tr>
<td>F-stat for zero slopes</td>
<td>56.77 ***</td>
<td>56.89 ***</td>
<td>57.77 ***</td>
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<tr>
<td>R2</td>
<td>0.0323</td>
<td>0.0328</td>
<td>0.034</td>
</tr>
</tbody>
</table>

Notes: Cluster-robust standard errors are reported in column "S.E.", significant at 1% ***, 5% **, and 10% *. Province dummies included but not reported in table.
Discussion & agenda

• OLS results on norms are remarkably robust across specifications
  • Consistent with the view that widely-held conservative cultural norms in Pakistan inhibit female participation in non-agricultural work

• Caution: other (non-purdah) constraints are likely to be important
  • Security and comfort in public spaces & on public transport (Sajjad, Anjum, Field & Vyborny 2017)
    • Proposal: change public transport (“pink buses”)
    • But what about mixed workplace, & what about stigma of work?

• Need to explore link between empowerment indicators and purdah norm

• What’s really exogenous, and over what interval, or conditions?
  • Bangladesh: more elastic response to employment opportunities
    • Est’d elasticity of women’s labor supply w.r.t. wage in Pakistan: 0.16; in Bangladesh: 0.31 (Lopez-Avcedo & Robertson 2016)
    • Interpretations of compatibility of purdah & work may be changing (Wright 2000; White 2017)
  • Potential for culture $\leftrightarrow$ economic development
Sajjad et al. survey findings:

Approval/disapproval and perceived safety on public transport in Lahore
Back to the big picture

• Tabellini: variation in culture $\rightarrow$ variation in economic outcomes, even given similar contemporary institutions

• But specific institutions evolve, perhaps in response to economic & growth conditions
  • Search for valid instruments continues

• Broader perspectives: Pakistan and Bangladesh
  • Share similar historical, cultural and religious origins
  • Different openness to international trade and FDI
    • Different influence on VMP(L)
  • Do cultural constraints bind in the same ways?
  • Are they fixed or do they respond to changing economic circumstances?
  • Is Pakistan stuck in a low-level cultural-economic equilibrium?
Thank you

Questions/comments: ian.coxhead@wisc.edu
Macroeconomic consequences of purdah and low FLFPR

• In vertically integrated agriculture:
  • ‘Feminization’ of work deepens (>70% of females work in ag)
  • Returns to women’s labor are lower than counterfactual
  • Lower incentives to adopt labor-augmenting technologies—except in “male” activities such as land preparation

• In vertically integrated industry:
  • Lower int’l competitiveness; less FDI, lower growth

• In economy as a whole:
  • Less capital accumulation, lower labor productivity growth
  • Men’s outside option (labor export) may exacerbate (real exch. rate effect, reservation wage)

Sabir and Aftab 2007, women’s wage gap growth
Low FLFPR and mobility: ex ante implications

• Specific factors model (SFM) (Jones 1971)
• 2-sector economy w/ vertically integrated agr. (A) and mfg (T)
• Both A & T subject to exogenous world prices
• Production technology: mobile labor and specific capital

• **Counterfactual:** full L mobility: \( L_T + L_A = L^m + L^f = L \)
  
  \[ Y_T = Y_T(L-L_A, K_T) \quad Y_A = Y_A(L_A, K_A) \]

• **Purdah:** only \( L^m \) mobile; \( L^f \) employed only in A:
  
  \[ Y_T = Y_T(L-L^f-L^m_A; K_T) \quad Y_A = Y_A(L^m_A; K_A, L^f) \]

• Differential responses to price shocks: Le Chatelier-Samuelson
Factor immobility limits potential industrial growth

• In SFM, using proportional change form, e.g. \( \hat{x} = dx/x \)

• With sectoral output and price changes \( \hat{y}_j \) and \( \hat{p}_j \) we have:

\[
\hat{y}_j = \left(1 - \frac{\theta_{Kj}}{\theta_{Kj}}\right) \sigma_j \varepsilon_{Lk} (\hat{p}_j - \hat{p}_k), \quad j \neq k
\]

where \( \theta_{Kj} \) = cost share of specific factor

\( \sigma_j \) = elasticity of factor substitution;

\( \varepsilon_{Lk} = \lambda_{Lk} e_{Lk}/(\lambda_{Lj} e_{Lj} + \lambda_{Lk} e_{Lk}) \) = own-price elasticity of L demand \( (e_{Lk}) \)

weighted by sectoral employment share \( (\lambda_{Lk}) \)

• Le Chatelier-Samuelson: \( \frac{\hat{y}_j}{(\hat{p}_j - \hat{p}_k)} \rightarrow 0 \) as \( \theta_{Kj} \rightarrow 1 \) \( \Rightarrow \) PPF more concave
  • (Note: same outcome as when \( \sigma_j \rightarrow 0 \))
Factor immobility widens gender wage gap

- Zero profit conditions, under CRS:

\[ p_j = a_{Lj}w + a_{Kj}r_j \quad j = A, T \]

- From which, in proportional change form:

\[ \hat{r}_T > \hat{p}_T > \hat{w} > \hat{p}_A = 0 > \hat{r}_A \]

- Mobile factor price change is weighted average of product price changes
- Specific factor price changes are magnifications of product price change
- If industry’s price rises, real return to ag. specific factors fall
- When women are “fixed” in agriculture, their wage change is \( \hat{r}_A < 0 \)

- The foregoing predictions shape an agenda for empirical research on female labor mobility and drivers of the gender wage gap