



Macro-linkages between gender gaps in access to finance and labor market outcomes

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IMF Gender and Macroeconomics Conference

March 2017

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Key question

- 1) How do constraints on female entrepreneurs' access to formal finance affect macroeconomic outcomes in India?
 - What is the impact of an increase in female entrepreneurs' access to formal finance on:
 - Macroeconomic outcomes (GDP, unemployment, overall formality)
 - Gender gaps in business opportunities (i.e. entrepreneurship)
 - Gender gaps in labor market (female labor force participation (FLFP), female informality in employment, and wage gaps)

Key question (contd.)

- 2) Does the impact of financial inclusion reforms depend on existing policy & institutional settings in other areas?
- What is the impact of an increase in access to formal finance for female entrepreneurs under:
 - Low versus high labor market flexibility
 - Low versus high female workers' skill level
 - Featured in: 2017 IMF India Staff Report (17/54); 2017 India Selected Issues Paper (17/55); forthcoming IMF WP.

Roadmap

- A. Relevance to India
- B. Empirical evidence & Macroeconomic relevance
- C. Modeling framework
- D. Method of analysis
- E. Results
- F. Policy implications

A. Gender Inequality in India: Economic Opportunities



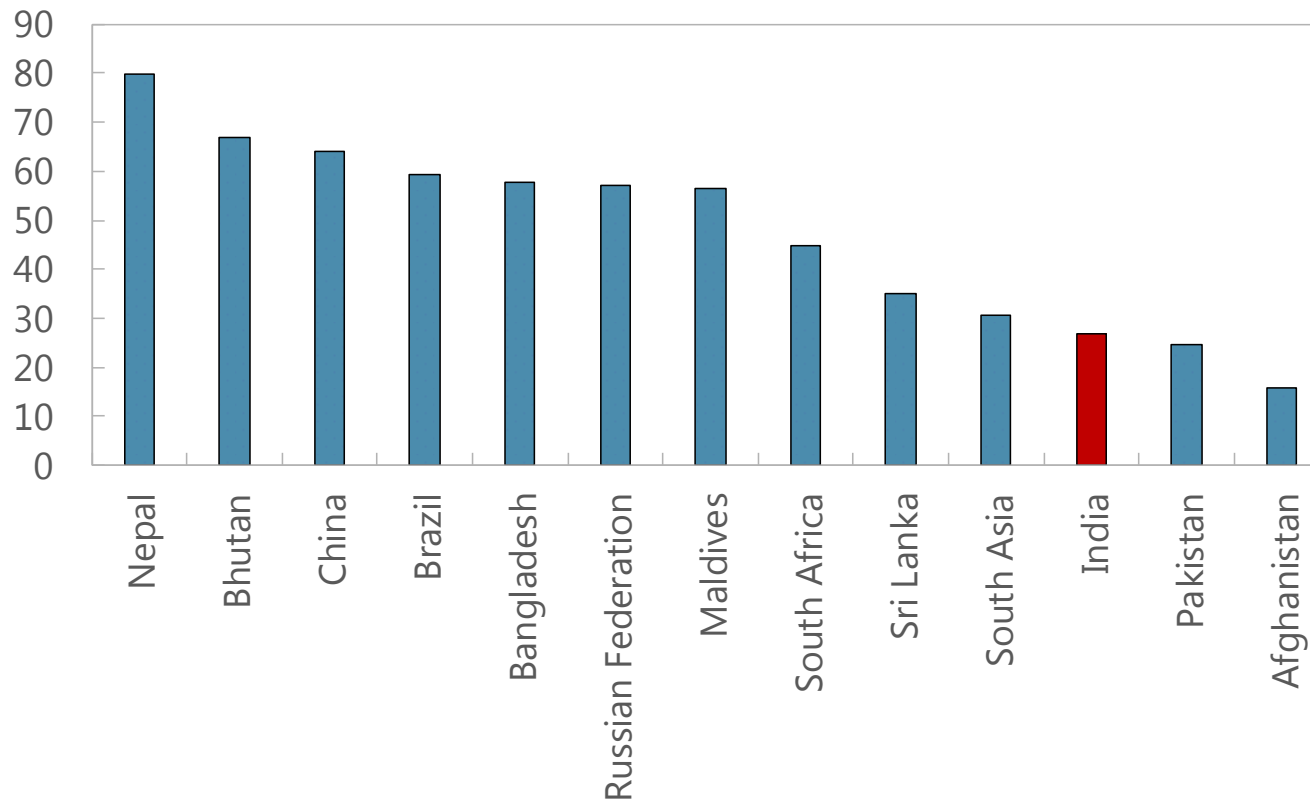
Labor market

Business opportunities

Female labor force participation rate in India is lower than its peers....

Female Labor Force Participation Rate (2014)

(in percent)

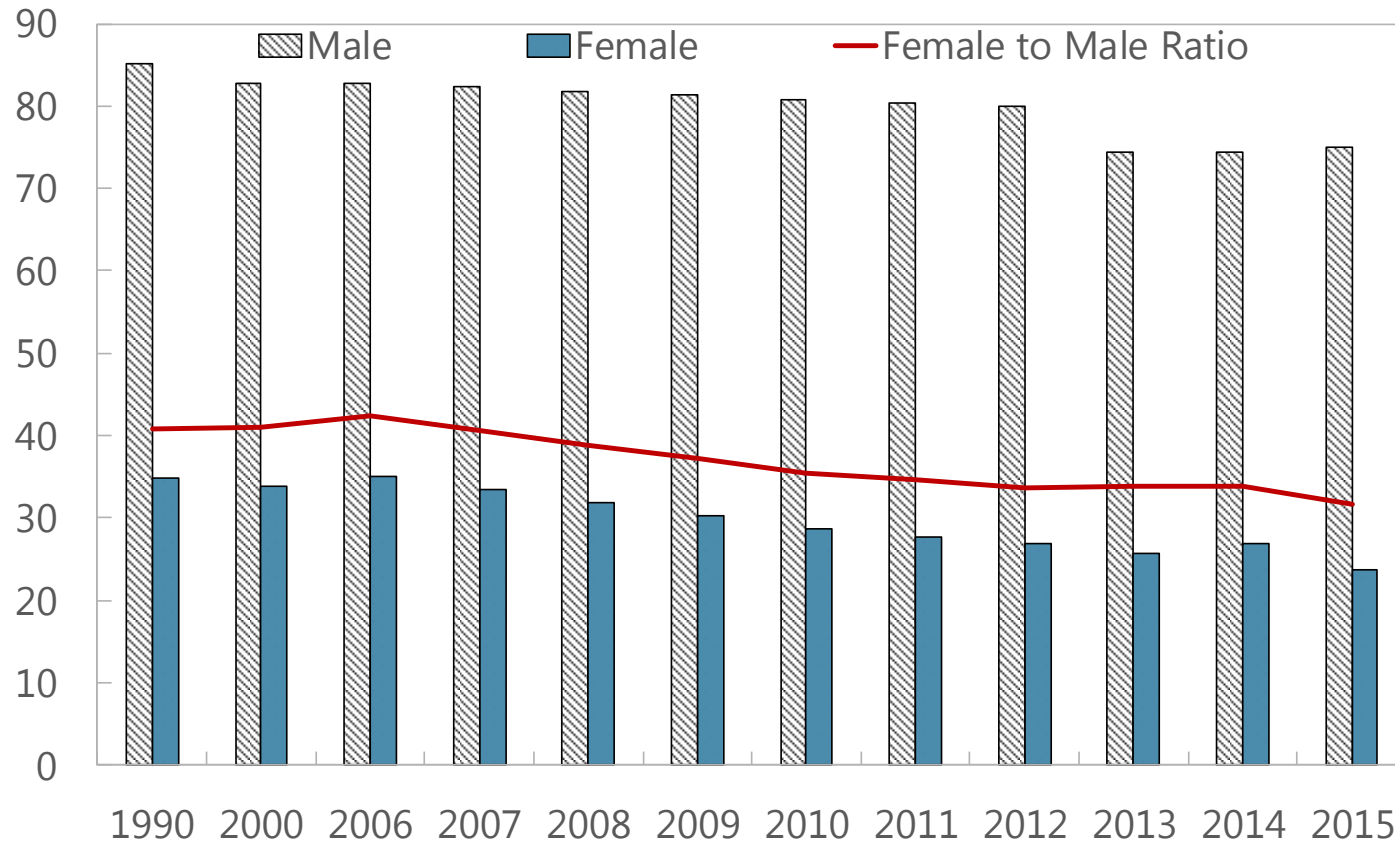


Source: World Bank

...and has been declining over time.

Female versus male labor force participation

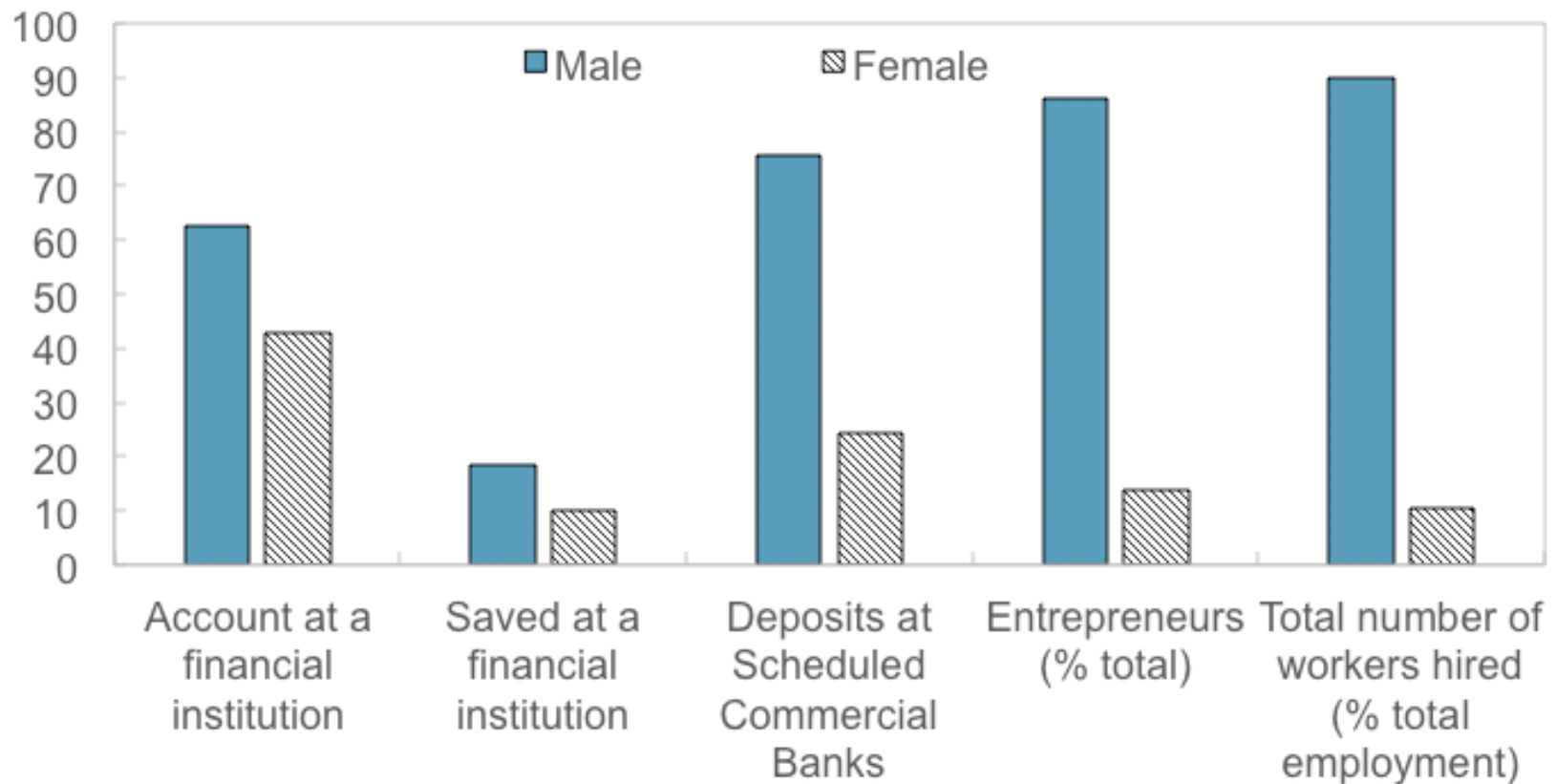
(in percent)



Source: NSSO

Gender gaps in entrepreneurship and access to formal finance remain high...

Entrepreneurship & Access to Finance (In percent)

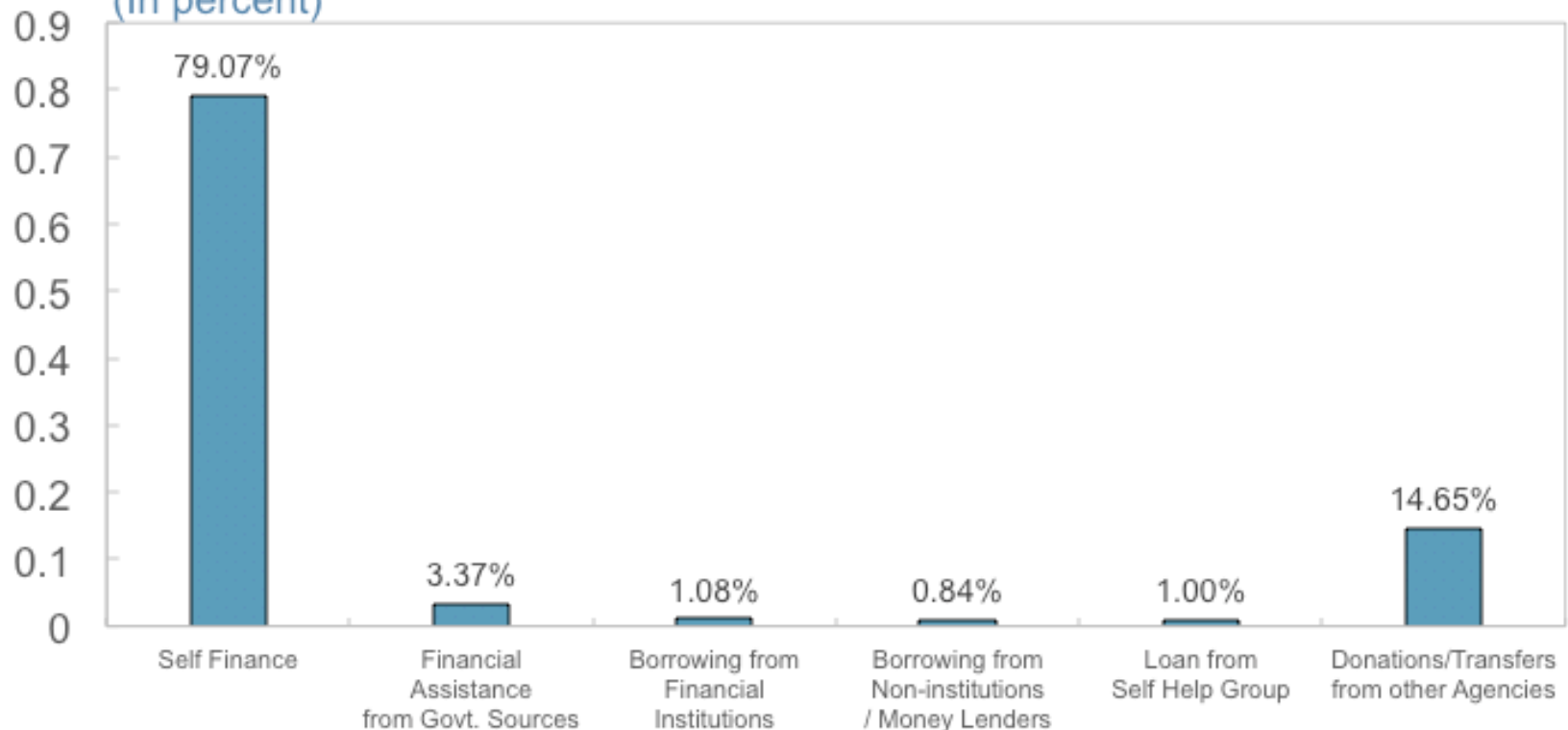


Sources: World Bank, Sixth Economic Census (2014)

...leaving female entrepreneurs to rely on their own resources and/or informal sources of finance.

Distribution of Number of Establishments under Women Entrepreneurs by Major Source of Finance

(In percent)



Sources: Sixth Economic Census (2014)

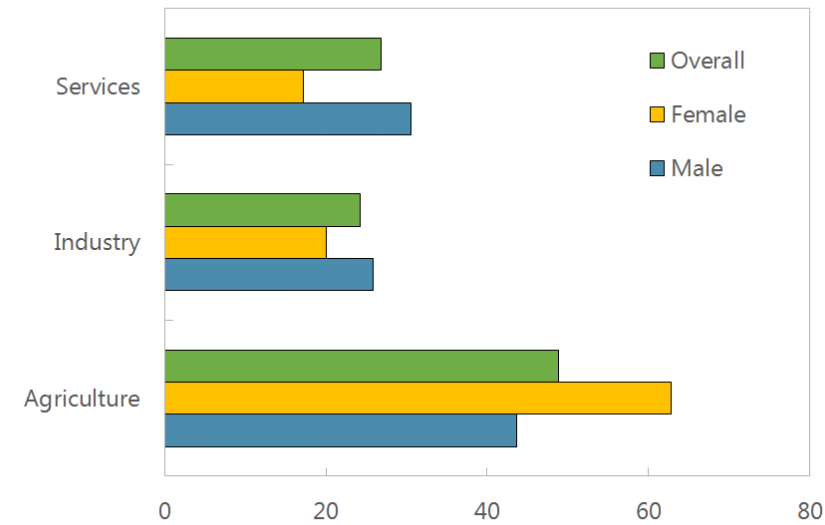
India also has a large informal (unorganized) sector with higher female representation than male.

Share of informality in labor market
(In percent)



Sources: NSSO, ILO

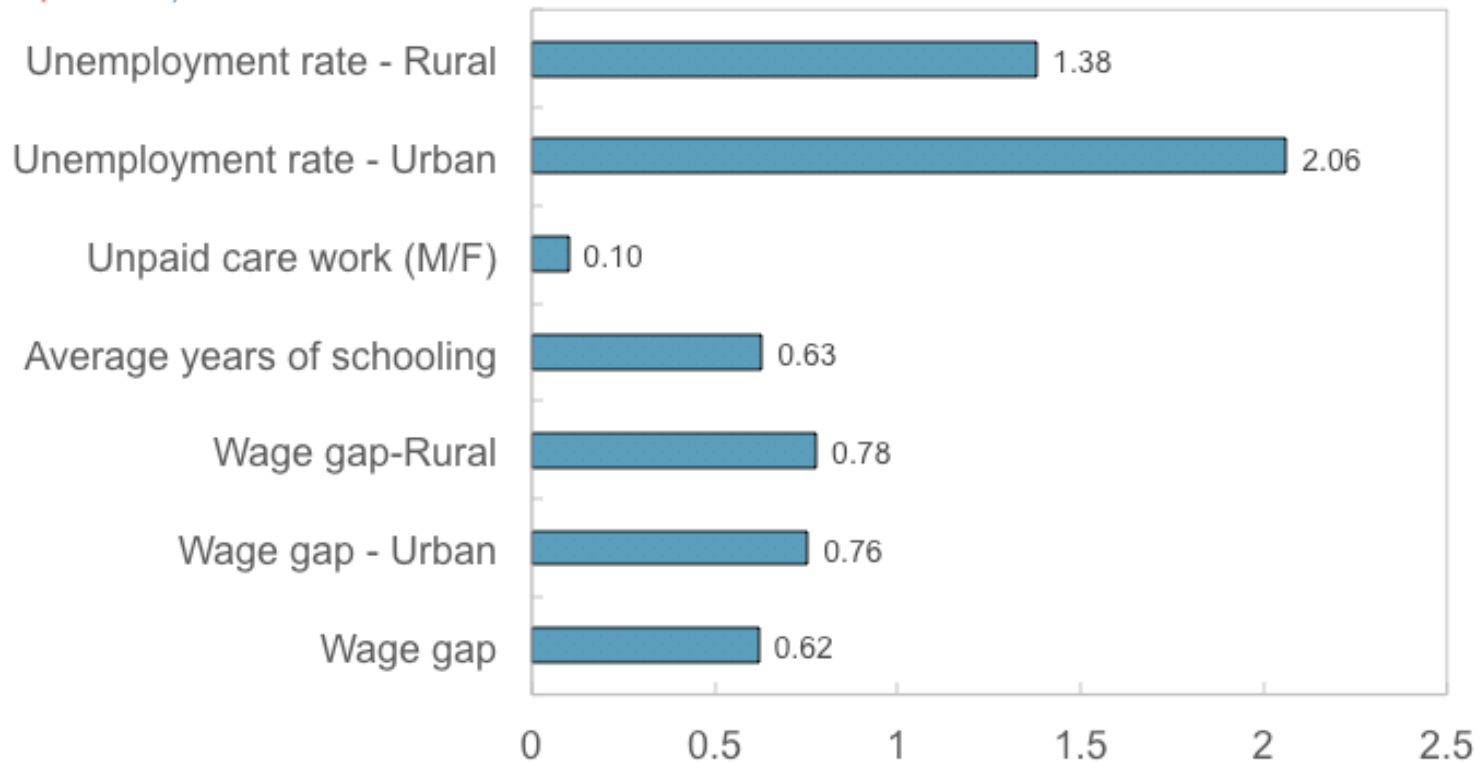
Sectoral Composition of Employment
(In percent)



Sources: NSS, 68th round, 2011-12

In addition, there are gender gaps in wages, education, and unpaid care work.

Female-to-Male Ratio (In percent)



Sources: Census (2011); NSS (68th round)

B. Empirical evidence & Macroeconomic relevance

Empirical evidence: what explains these gender gaps?

- Gender gaps driven by 3 main factors:
 - **Access to productive inputs:**
 - Education (Eckstein and Lifshitz 2011, Steinberg and Nakane 2012)
 - Lack of control over household financial resources (Gonzales et al. 2015)
 - **Time use:** Domestic responsibilities (Eswaran et al. 2013)
 - **Institutional failure and social norms:**
 - Infrastructure/ Public provisions (Norado 2010, Ghani 2013)
 - Safety and mobility (World Bank, 2011)
 - Discrimination (DFiD-GIZ 2013; Campbell and Ahmed, 2012)
 - Availability of decent formal employment (Das et al. 2015, Chatterjee et al. 2015)
- What explains large informality?
 - largely driven by strict regulations in the formal sector in India (Besley-Burgess 2004, Sharma 2009).

Macroeconomic relevance: why should policymakers care?

Agenor (2012,2013), Cavalvanti and Tavares (2008), Klansen (2006)

Sahay et al (2015), Gonzales et al (2015)

FLFP ↑ Fertility and child mortality rates ↓ Income per household ↑



Positive impact on growth

Entrepreneurship ↑

Greater gender equality in education, employment, finance and wages



Negative impact on growth

Less gender wage gap may ↓ exports

Male participation may ↓

Seguino (2000), Busse and Spielman (2006)

Motivation & contribution

- Gender differences in a macro context have been examined more recently:
 - Policy recommendations based on policies that increase FLFP and growth. Do not take into account informality of female employment and wages.
 - Literature linking financial resource restrictions & LFP is limited (Babilla et al 2016; Gonzales et al. 2015).
- We study the macroeconomic inter-linkages between:
 - Gender inequality in the labor market, access to finance, and in entrepreneurship.
 - Informality and gender inequality.

C. Theoretical Framework

Structure of the economy

- New Keynesian SOE-DSGE model (build on Khera, 2016):
 - 2 sectors: formal (F) and informal (I) labor, goods and financial markets
- Households: males and females
 - participate in the labor market: formal, informal or unemployed
 - entrepreneurs: formal or informal
 - stay at home: home-production (unpaid, unaccounted in GDP) and leisure
 - intra-household bargaining power related to income
 - maximize utility (consumption, home production, leisure)

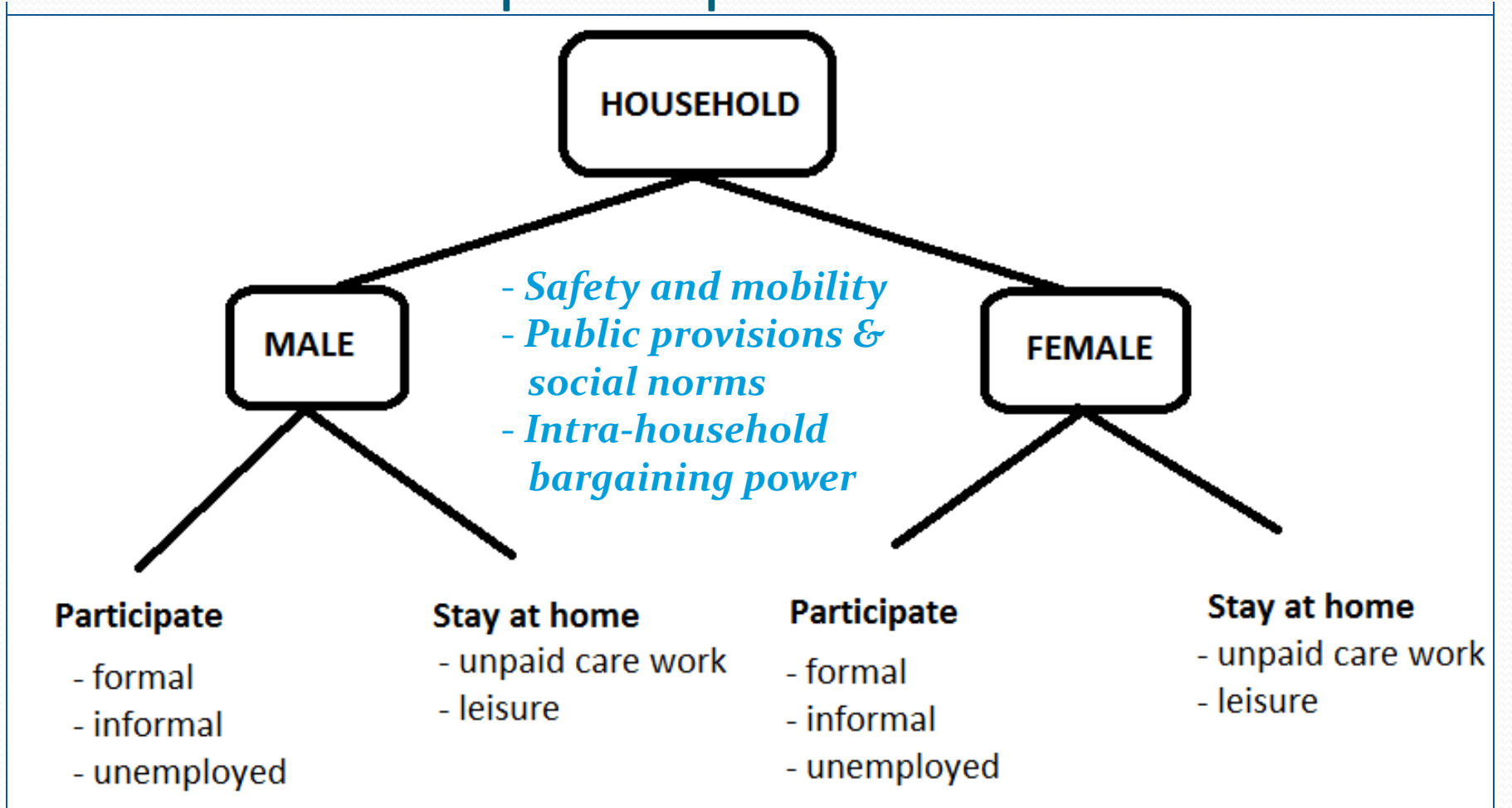
Structure of the economy 1

- Perfectly competitive wholesale good producers (F and I):
 - male and female owners (Babilla et al, 2016)
 - produce intermediate goods that are sold to the retailers
 - hire male and female workers (CES), rent capital
 - financial frictions: collateral constraint when borrowing from bank (Kiyotaki-Moore, 1997)
 - wage bargaining and hiring cost (Blanchard and Gali, 2006)
- Monopolistically competitive retailers (F and I):
 - short run price rigidity
 - sell goods domestically and F-sector firms also export
 - firm entry and exit, sunk entry cost (product market regulation)
 - competition and price mark-ups related to number of firms

Structure of the economy 2

- Banks (F and I):
 - receive deposits from households
 - issue loans to entrepreneurs based on the value of their collateral
 - maximize dividends paid to households
- Capital Producers:
 - invest to produce new capital and supply it to wholesale producers
 - costs to adjusting investment
- Government:
 - collects wage income taxes from the formal sector to finance government consumption
 - distributes unemployment (social) benefits
 - sets interest rate using a standard Taylor-type rule

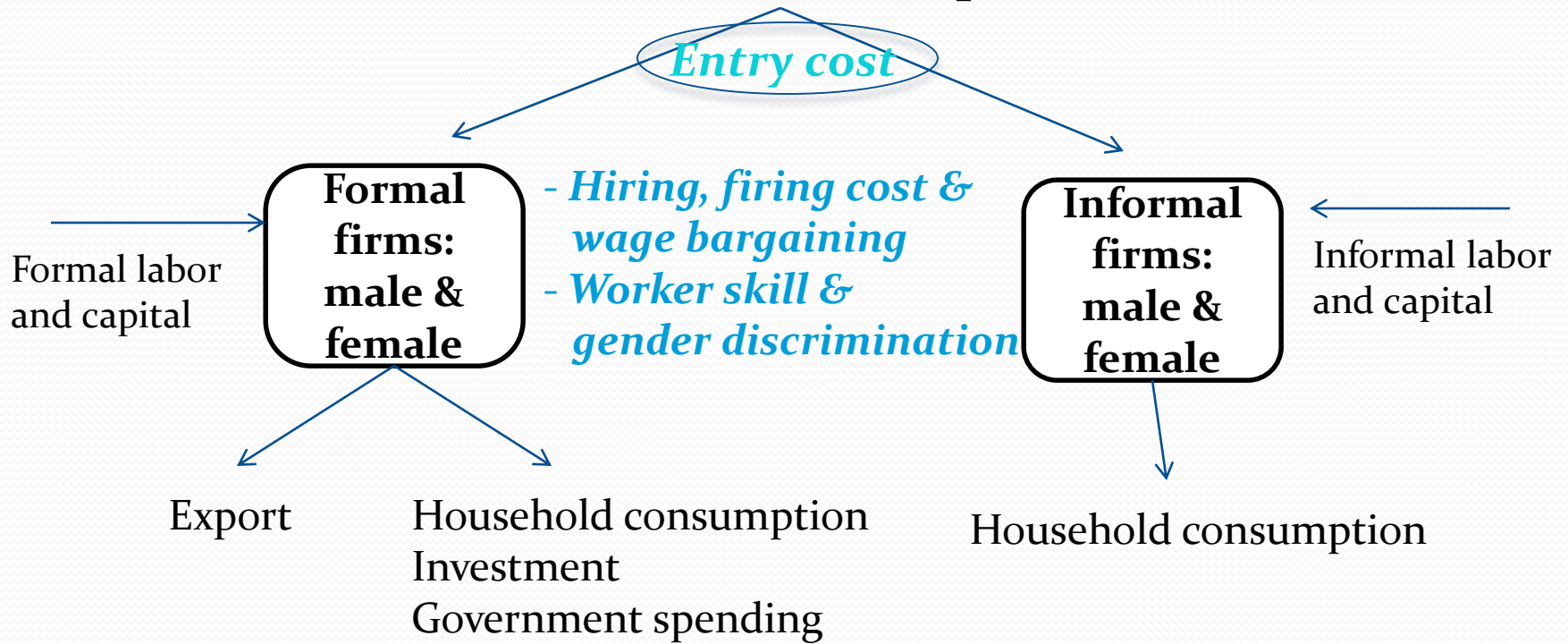
Labor force participation



- Income from wages, shares in firms and banks, interest income from domestic & foreign bond holdings is used to finance consumption, and investment in bonds

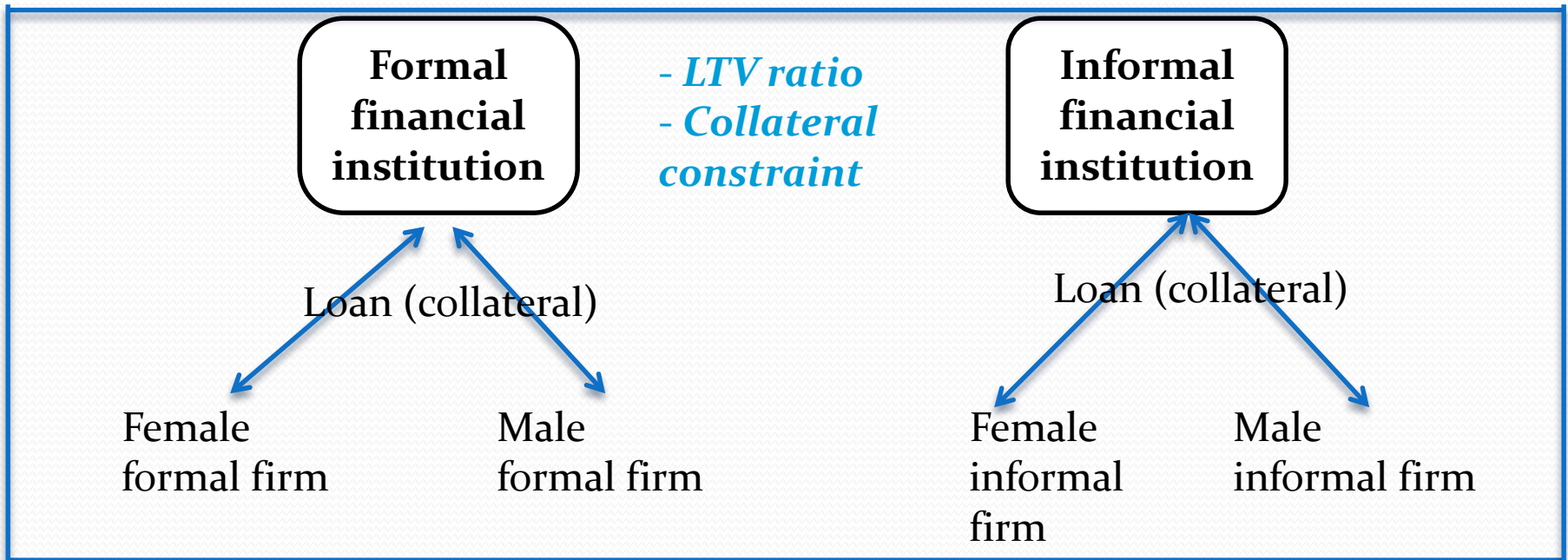
Entrepreneurship & labor demand

Male and female entrepreneurs



- Number of male and female firms in each sector determined by cost of starting business.
- Firms determine how much labor to employ, new hires, capital and loans consumption.
- Maximize profits = Revenue – Labor wage cost – Labor hiring cost – Cost of capital (loans from banks).

Financial constraint



- Firms face collateral constraint for loans from banks (Kiyotaki-Moore, 1997).
- Physical capital used as collateral.
- Loans = $f(\text{value of collateral}) = g(\text{banks' minimum loan return})$
- Amount of loan = $f\{\text{LTV ratio (+), expected future value of collateral (+), real interest rate on loans (-)}\}$

D. Method of analysis

Characterizing gender inequality & gender-based reforms

	Male	Female	Gender Reform
Access to productive inputs:			
- Credit	High	Low	↑
- Skill	High	Low	↑
Time use: household care	Low	High	
Institutional failure & social norms:			
- Workers' wage bargaining	High	Low	
- Safety/ mobility outside home	High	Low	
- Discrimination in employment	✘	✓	

- Increase in female financial inclusion: no gender gaps in access to credit
- Increase in female skill: no gender gaps in skills

Characterizing informality, regulations & labor market reforms

	Formal (Regulated)	Labor Market Reform	Informal (Not regulated)
Labor & Product			
- Workers' bargaining	High	↓	Low
- Labor hiring/ firing cost	High	↓	Low
- Firm entry cost	High		Low
Financial Market			Low
- LTV ratio	Low		High
Traded good	✓		✗
Taxation	✓		✗

High vs. low labor market flexibility:

➤ Eg.: Permanent fall in labor hiring/ firing costs.

Method of analysis

Calibrate parameters in the model
to match Indian data
(initial steady state)



Run policy experiments
(new steady state)

Steady state

Variable	Data (%)	Steady (%) State
$\frac{G}{GDP}$, $\frac{Export}{GDP}$, $\frac{Import}{GDP}$	11; 19; 21	11; 19; 21
Labor formality	8 - 19	25
Unemployment rate	5 - 22*	13
Share of female-firm output	3.09	6
Share of female-formal finance	5 - 27*	23
Share of empl. in female-firm	3	12
Female LFP	25	20
Male LFP	80	85
Share of female-informal emp	86	80
Share of male-informal emp	74	70
Gender wage gap	1.62	1.4

* range of estimates from various sources.

How to calibrate informality & labor market reform?

	Source	Evidence	Calibration
		India (US)	
Regulations	2014		
- Labour hiring cost	Redundancy cost (weeks of salary, WEF)	15.8 (0)	$F \left(\frac{\text{hiring cost}}{\text{wage}} \right) > I \left(\frac{\text{hiring cost}}{\text{wage}} \right)$
- Firm entry cost	Starting firm cost (% lost loutput, WB)	13.8 (1.1)	$F \left(\frac{\text{entry cost}}{\text{output}} \right) > I \left(\frac{\text{entry cost}}{\text{output}} \right)$
- Firm exit rate - Prob. of fired - Bargaining		calibrated to match key statistics relating to the F and I sector	

How to calibrate gender inequality & reforms?

	Evidence	Initial SS	Reform Scenario
Entrep' discount factor	calibrated to match Indian evidence on gender	$m > f$	$m = f$
LTV ratio in F-sector	gaps in entrepreneurship & financial access	$m > f$	$m = f$
Skills	avg. years of schooling (NSSO)	$m > f$	$m = f$
Rest of parameters	calibrated to match Indian statistics on gender gaps in the labor market		

E. Results

Impact of an increase in female entrepreneurs' access to formal finance under baseline scenario

- **Long-run gains**: lower gender gaps in entrepreneurship and LFP; lower unemployment; increase in output, cons. & investment
 - Higher access and lower cost of formal credit for females=> increases female entrepreneurship & investment in the F-sector => raises value of collateral which further increases access to finance for both males and females => higher overall entrepreneurship => formal hiring & employment goes up => increasing both male & FLFP => lower unemployment, higher cons. & GDP.
 - **However**, given the rigidities in the formal labor market, a larger share of workers get employed in low productivity informal jobs => lower formality in the labor market. Moreover, gender wage gaps do not improve.

Impact of an increase in female entrepreneurs' access to formal finance under higher labor market flexibility

- **Long-run gains** of lower regulations in the formal labor market:
 - Lower cost of hiring formal workers => increases formal employment and LFP => higher profits as lower wage and hiring costs => firm entry in the formal sector => increases competition and competitiveness => higher exports, investment, cons. & GDP.
 - **Combined** with the long-run impact of higher female formal financial access leads to a:
 - Larger increase in output, cons., LFP & employment.
 - Formality in the labor market is now higher.
 - **However**, given the gender-specific constraints faces by females in access to labor market opportunities, male workers gain more => wider gender gaps in formal employment and LFP.

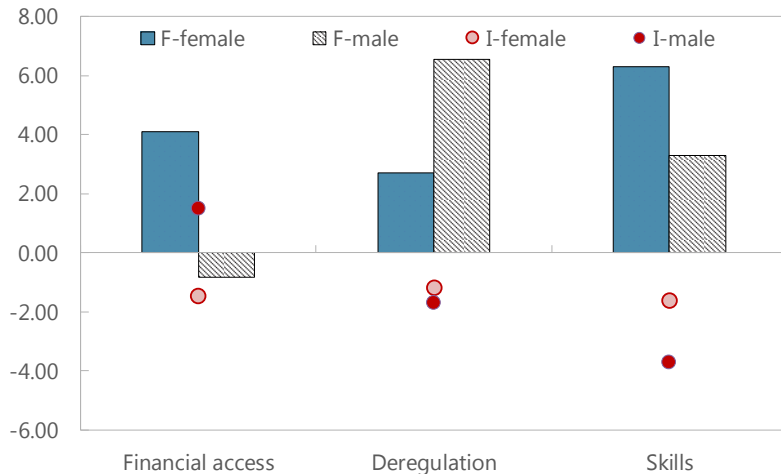
Impact of an increase in female entrepreneurs' access to formal finance under higher female worker skill

- **Long-run gains** of no gender gaps in worker skills:
 - Higher female worker skill => increases female workers' efficiency => more number of females get employed formally => lowers gender wage gaps & increases FLFP => improves overall efficiency and size of the formal sector => higher output, lower unemployment
- **Combined** with the long-run impact of higher female formal financial access leads to a:
 - Larger increase in output, cons. & employment.
 - Larger fall in gender gaps in LFP and wages.
 - Formality in the labor market is now higher.

Results

Entrepreneurship

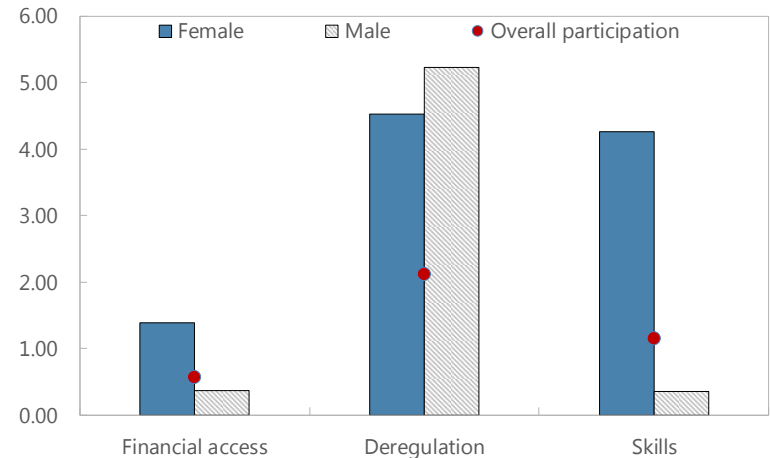
(in percent)



Sources: Author's calculations

Labor force participation

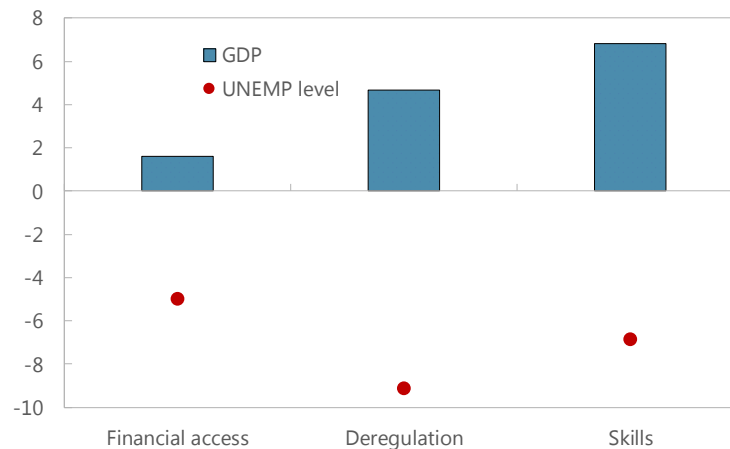
(in percent)



Sources: Author's calculations

GDP & unemployment

(in percent)

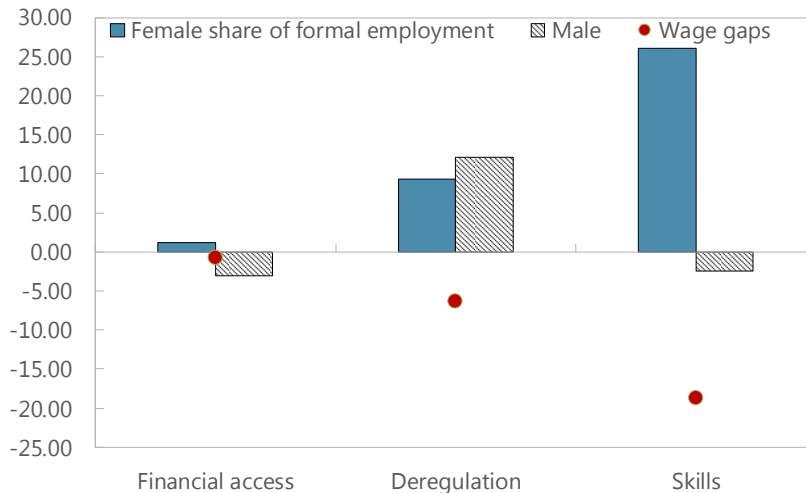


Sources: Author's calculations

Results (contd.)

Quality of employment & wages

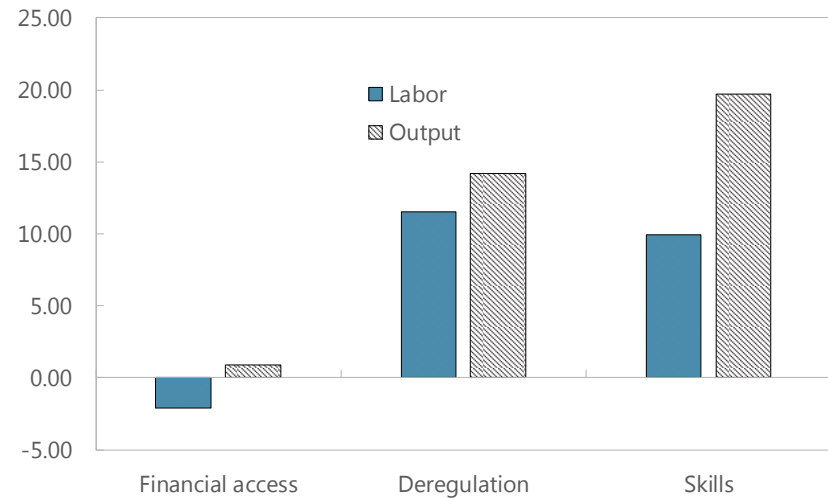
(in percent)



Sources: Author's calculations

Overall formality

(in percent)



Sources: Author's calculations

Note: Financial access in the figure refers to an increase in access to formal finance for female entrepreneurs (i.e. no gender gaps in access to formal finance); Deregulation refers to lower hiring costs in the formal labor market along with no gender gaps in financial access; Skills refers to an increase in females' average years of schooling (i.e. no gender gaps) along with no gender gaps in access to finance.

Conclusions and Policy Implications

Conclusion

Closing the gender gap in skills and access to formal finance increases female economic participation, which could boost the GDP of India by close to 6-7 percent.

- Single-sector interventions have limited impact, as women face multiple and intertwined constraints.
- Increase in female entrepreneurs' access to formal finance leads to an increase in their entrepreneurship and LFP, which leads to higher GDP and lower unemployment.
- However, unless accompanied by reforms to decrease labor market rigidities it does not generate sufficient formal sector job creation.
- Similarly, improved access to credit for females without their skills training will have limited positive impact.

Policy implications

- Various financial inclusion schemes have been implemented recently (Jan Dhan Yojana, MUDRA, Stand-Up India).
- However, a *multi-dimensional policy* approach is required for the success of these interventions.
- A range of fiscal & structural measures could be used.
 - To improve financial access & demand for formal finance:
 - ❖ Spreading awareness and strengthening the implementation of females' inheritance rights on land (Hindu Succession Act, 2005).
 - ❖ Financial literacy programs targeting women, especially in rural areas (Project Financial Literacy, RBI).
 - ❖ Establishing more women-only banks that cater to female entrepreneurs (Bharatiya Mahila Bank).
 - To improve employment in good-quality jobs:
 - ❖ Effective & more targeted implementation of skill training programs for women.
 - ❖ Labor market reforms: ease regulations.
 - ❖ Access to safe and affordable transportation to work.
 - ❖ Access to water, sanitation, cooking materials to reduce time spent in care work.

Thank you

Appendix

Results: Long-run impact on the overall economy

Table : Long-run impact on the overall economy

Case	GDP	Unemp.	Formality		LFP	Entrepreneurship	
			Labor	Product		Formal	Informal
Financial access	1.6	-5	-2.1	0.9	0.6	1.8	0.07
Deregulation	4.7	-9.1	11.5	14.1	2.1	4.5	-1.5
Skills	6.8	-6.8	10	19.7	1.1	4.9	-2.7

Note: All values are percentage deviations from steady state. Unemp. is unemployment, LFP is labor force participation, formality is the share of formal sector in each market.

Results: Long-run impact on gender gaps

Table : Long-run impact on gender gaps

Case	Entrepreneurship		LFP		Formal share of employment		Wage gap		
	Formal	Informal	M	F	M	F			
Financial access	-0.8	4	1.5	-1.5	0.4	1.4	-3	1.2	-0.8
Deregulation	6.6	2.7	-1.7	-1.2	5.3	4.5	12.1	9.3	-6.4
Skills	3.3	6.3	-3.7	-1.6	0.4	4.3	-2.5	26	-18.7

Note: All values are percentage deviations from steady state. LFP is labor force participation.

M and F correspond to male and female. Wage gap is male-to-female wage ratio.