



# **What's Gender Got to Do with Firm Productivity?**

*Evidence from Firm Level Data in Asia*

Conference on Gender and Macroeconomics

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# Outline

- Context & Objective
- Brief Literature Review
- Methodological Issues
- Key Data Patterns
- Empirical Results
- Conclusion and Summary
- Policy Recommendations



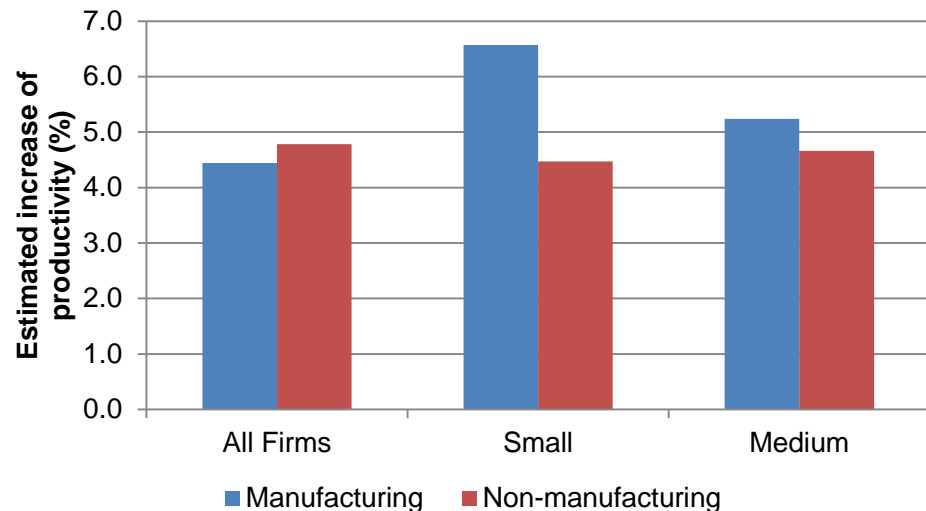
# Context & Objective

- Recent decline of growth rate and productivity growth in the region: worrying for the achievement of 2030 Agenda.
- Importance of financing to increase productivity.
- **However**, the role of female-owned firms was not examined.

Trend in total factor productivity growth, by region

Regions	1990s	2000s	2000-2007	2008-2014	1990-2014
Developing AP economies	1.42	1.93	2.79	0.96	1.74
Africa	-0.28	0.85	0.28	1.49	0.42
Latin America	0.02	0.07	0.38	-0.29	0.05
Developed economies	0.37	0.32	0.68	-0.09	0.34
Developing economies	1.16	1.64	2.32	0.86	1.46

Impact of an improvement in the access of finance on the level of productivity in selected Asian countries





# Context & Objective

- Female-owned firms are less productive than male-owned firms (Coleman, 2000; Du Rietz & Henrekson, 2000; Sabarwal & Terrell, 2008)
- Female entrepreneurs are generally more credit-constrained than their male counterparts (Coleman & Robb, 2009; Tur-Pocar, Mas-Tur, & Belso, 2016; Mijid & Bernasek, 2013)
- Scarce empirical evidences in the Asian region on productivity, finance and gender. *Our hypothesis...*
- Data from 23 countries, representing 86% of the regional output; & usage of objective measure of financial constraints.





# Brief Literature Review

- Financial constraints & productivity.
- Gender & financial constraints (supply-side):
- Female-owned activities are perceived as risky: higher collateral / interest rates.
- Underperformance hypothesis: expected lower profitability & unfavorable conditions.
- Treatment of loan applications:
  - Sectors of the production unit (service) and low level of returns and assets
  - Location of activities: home and concern on the efficiency to operate them





# Brief Literature Review

- Gender & financial constraints (demand-side): self-discriminatory factors.
- Women could be more risk adverse and reluctant to apply to loans.
- Women may not need loans because of the scale of the activities.
- Explanations can be related to structural discrimination related to educational choices, different employment choices or access to social networks.





# Methodological Issues

- Firm-level data from 23 Asian countries: most recent year only & pooled.
- Productivity measured as sales per worker.
- Financial constraint measured as: an **objective** measure – *the share of assets purchased without support from financial institutions.*
- Gender variables: female ownership (%), female-owned firms, and firms with female shareholders.





# Methodological issues

- Linear model:

$$\theta_{ijk} = \alpha + \beta_1 \text{gender}_{ijk} + \beta_2 \text{finance}_{ijk} + \beta_3 \text{gender}_{ijk} \times \text{finance}_{ijk} + \beta \mathbf{X}_{ijk} + \mu_i + \gamma_k + \varepsilon_{ijk}$$

- $i$ =country,  $j$ =firm and  $k$ =industry
- $X$ =firm age, size, export status, share of foreign ownership in the capital of the firm and year dummies.
- Estimation methods: OLS / Two-step approach with correction of selection biases.

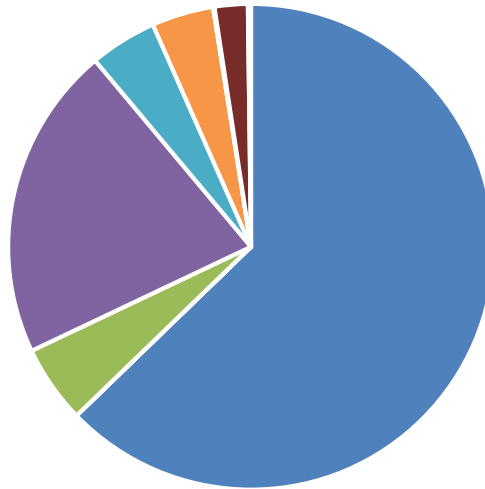




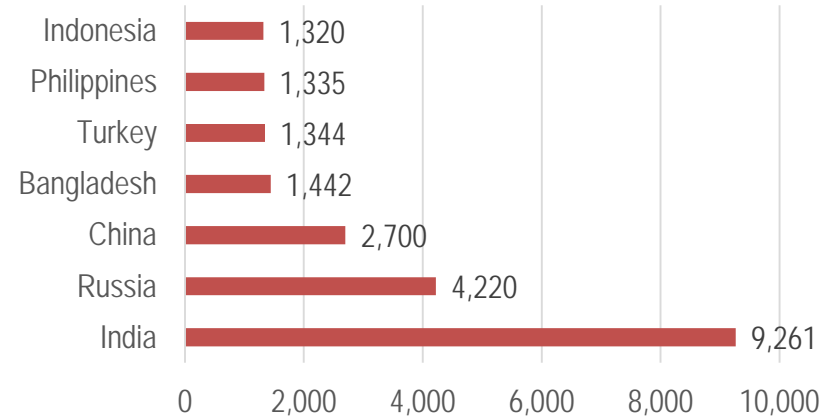
# Key Data Patterns

- Manufacturing
- Utilities
- Construction
- Wholesale and Retail
- Hotel and Restaurant
- Transportation, Storage and Communication
- Financial Intermediation
- Real Estate

Sampling structure by industry



Sample structure by country



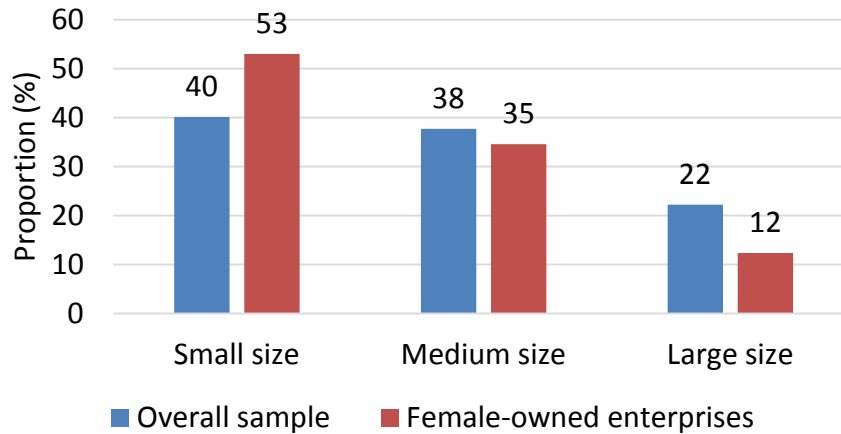
29,312  
Firms

Gender gap by industry

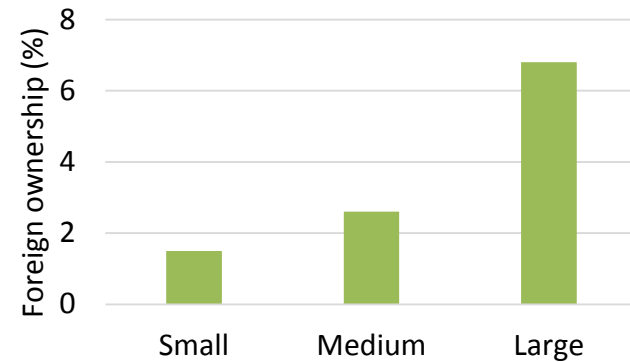


# Key Data Patterns

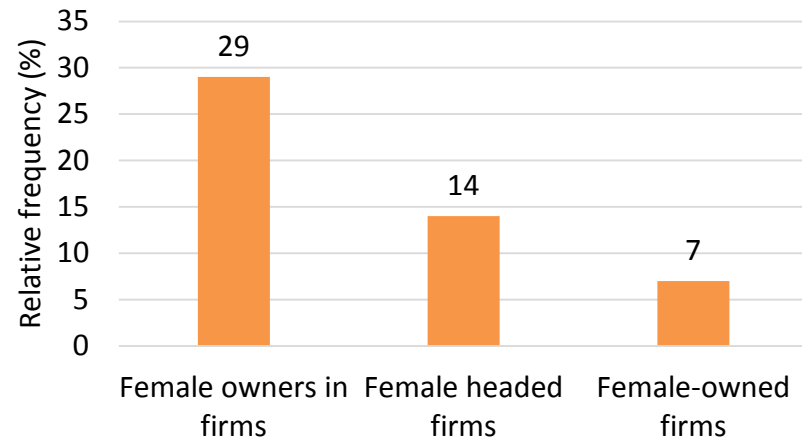
**Distribution of the sample by firm size  
[gender]**



**Foreign ownership by size of  
firms (%)**



**Gender in Asian firms**



# Empirical Results

Countries	FIRMS WITH WOMEN OWNERS			FEMALE-OWNED ENTERPRISES		
	Equal financial constraints	High financial constraints	Low productivity	Equal financial constraints	High financial constraints.	Low productivity
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Afghanistan</b>	0,061*	0,030**	0,955	0,061*	0,030**	0,497
<b>Azerbaijan</b>	0,002***	0,001***	0,053*	0,002***	0,001***	0,000***
<b>Bangladesh</b>	0,006***	0,997	0,728	0,587	0,293	0,000***
<b>Bhutan</b>	0,424	0,788	0,000***	0,099*	0,049**	0,431
<b>Cambodia</b>	0,917	0,542	0,050**	0,735	0,368	0,029**
<b>Georgia</b>	0,018**	0,009***	0,171	0,025**	0,012**	0,013**
<b>India</b>	0,000***	1,000	0,000***	0,792	0,604	0,000***
<b>Indonesia</b>	0,145	0,928	0,013**	0,169	0,084*	0,256
<b>Viet Nam</b>	0,591	0,705	0,350	0,045**	0,023**	0,065*
<b>Full sample</b>	<b>0,000***</b>	<b>1,000</b>	<b>1,000</b>	<b>0,019**</b>	<b>0,009***</b>	<b>0,000***</b>



# Empirical Results

Variables	OLS	Women inv.	Foreign invest.
<b>Female owned-firms</b>	-0.181 (0.132)	-0.152 (0.150)	-0.112 (0.208)
<b>Financial constraint</b>	-0.305*** (0.0398)	-0.310*** (0.044)	-0.192** (0.077)
<b>Gender*Financial constraint</b>	-0.0182 (0.138)	-0.073 (0.156)	-0.094 (0.218)

Countries	Female owned-firms	Financial constraints	Interaction term	Method
<b>AFGHANISTAN</b>	0.350 (0.431)	-0.057 (0.777)	0.000 (0.000)	Women inv.
<b>BANGLADESH</b>	0,120 (1,324)	0,421** (0,199)	-0,506 (1,687)	MNE inv. (1)
<b>CAMBODIA</b>	-1.315* (0.714)	-0.122 (0.735)	1.189 (0.746)	Women inv. (2)
<b>GEORGIA</b>	-1.555 (2.180)	-0.454* (0.265)	1.223 (2.207)	Women inv. (2)
<b>INDIA</b>	-0.189 (0.220)	-0.336*** (0.056)	0.004 (0.241)	Women inv.
<b>INDIA</b>	-0,534*** (0,186)	-0,164** (0,066)	0,304 (0,216)	MNE inv.
(1) Correction women selection bias not conclusive.				
(2) Not significant for MNE correction.				



# Empirical Results

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Female owners	Female-owned	Female ownership	Female owners	Female-owned	Female ownership
<b>Financial constraint</b>	-0.313***	-0.310***	-0.313***	-0.187**	-0.192**	-0.193**
	(0.049)	(0.044)	(0.046)	(0.090)	(0.077)	(0.082)
<b>Firm age</b>	0.003***	0.002***	0.002***	0.006***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
<b>Exporting status</b>	0.268***	0.274***	0.276***	0.144***	0.152***	0.154***
	(0.026)	(0.029)	(0.029)	(0.042)	(0.047)	(0.047)
<b>Small size</b>	-0.213***	-0.255***	-0.259***	-0.337***	-0.330***	-0.333***
	(0.025)	(0.028)	(0.028)	(0.041)	(0.044)	(0.044)
<b>Medium size</b>	-0.085***	-0.114***	-0.115***	-0.156***	-0.150***	-0.151***
	(0.023)	(0.026)	(0.026)	(0.036)	(0.039)	(0.039)
<b>Size of foreign ownership</b>	0.003***	0.002***	0.002***	0.003***	0.002***	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
<b>Observations</b>	22,277	19,466	19,466	18,273	16,449	16,449
<b>R-squared</b>	0.247	0.234	0.234	0.212	0.210	0.210
<b>Type of bias correction</b>	Women inv.	Women inv.	Women inv.	MNE selection	MNE selection	MNE selection





# Conclusion & Summary

- Overall, gender is not directly associated to productivity levels in the region.
- Gender is not found to be an additional constraint to the existing financial constraints for private firms, particularly SMEs.
- Access to finance is critical issue for productivity.
- Key drivers of innovation and productivity are more likely to be part the of explanation of contrast: **indirect effect of gender inequality**.



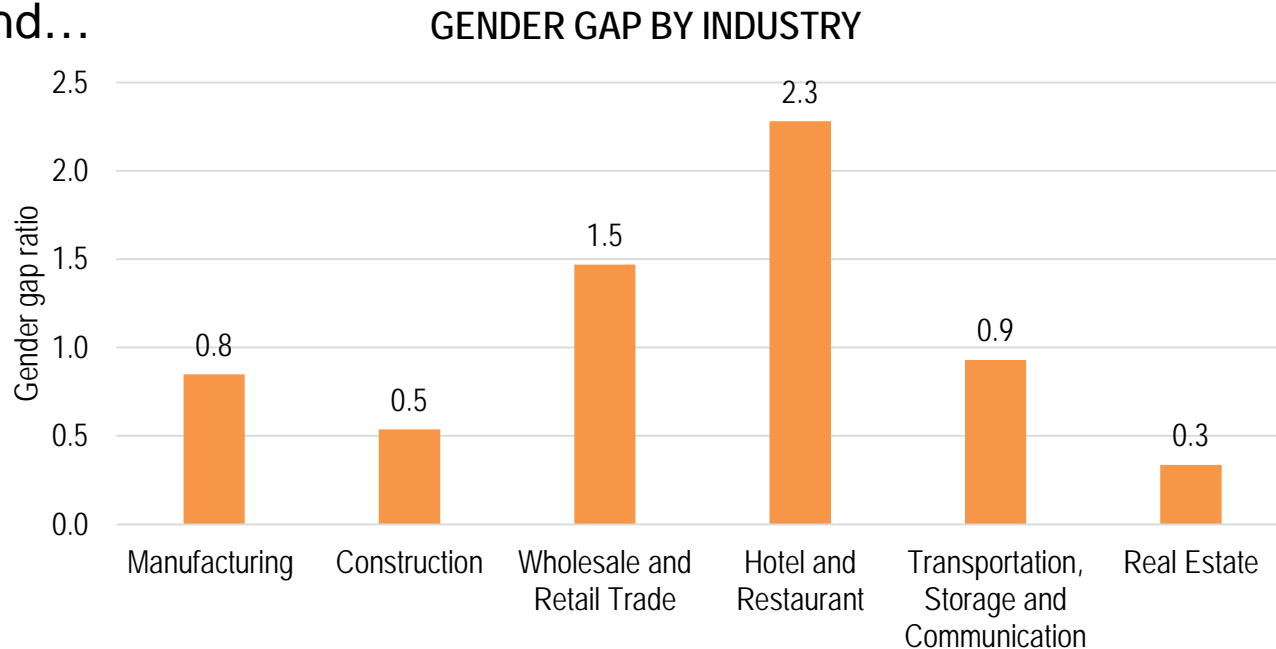
# Policy Recommendations

- **Addressing informal sector**

- Size of female-owned firms & proportion of these firms in this sample

- **More efforts are required to empower economically women:**

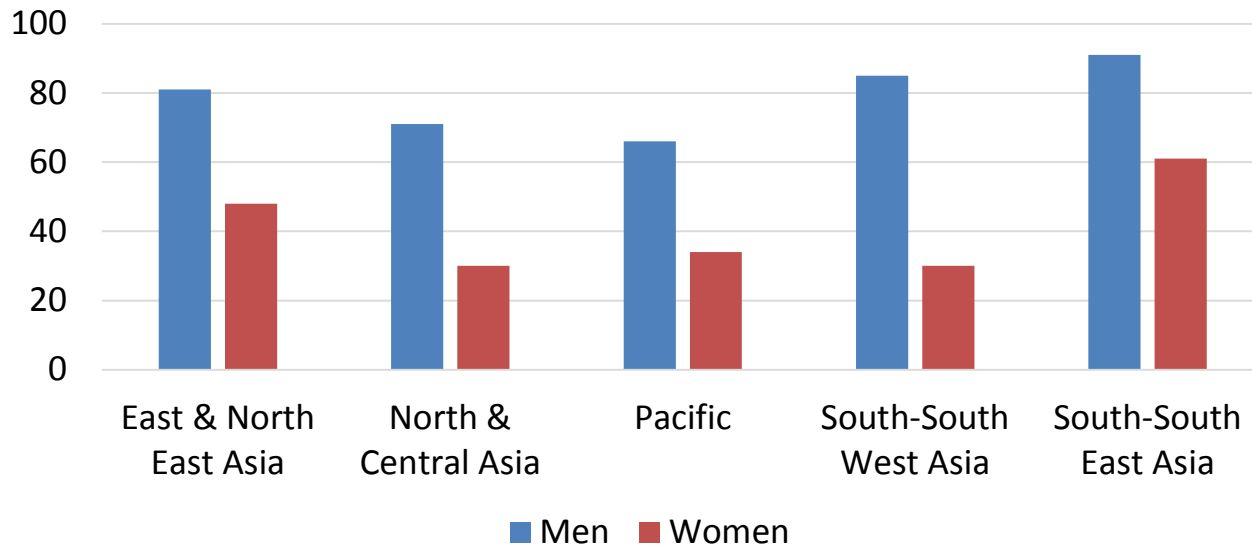
- Sectoral segregations exist and they are important: social norms and beyond...



# Policy Recommendations

- Gender-based discriminations are to be addressed: restrictions to open bank accounts, sign contracts, or register business contribute to informality.
- Mechanisms to redistribute unequal burdens placed on women & impact on capacity building.

**SHARE OF TIME SPENT ON PRODUCTIVE ACTIVITIES**





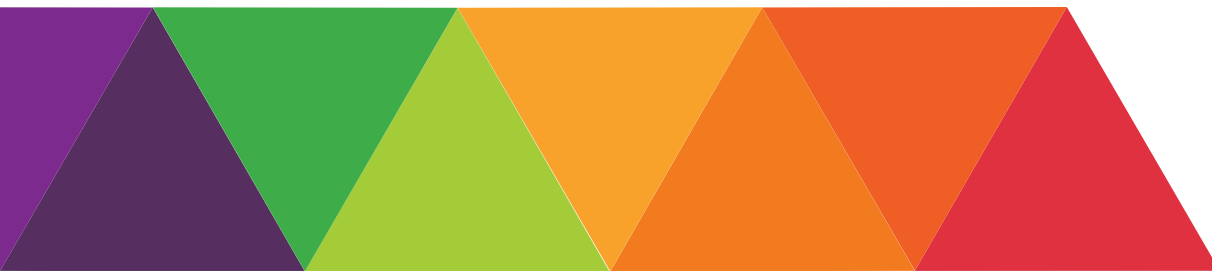


# Thank you



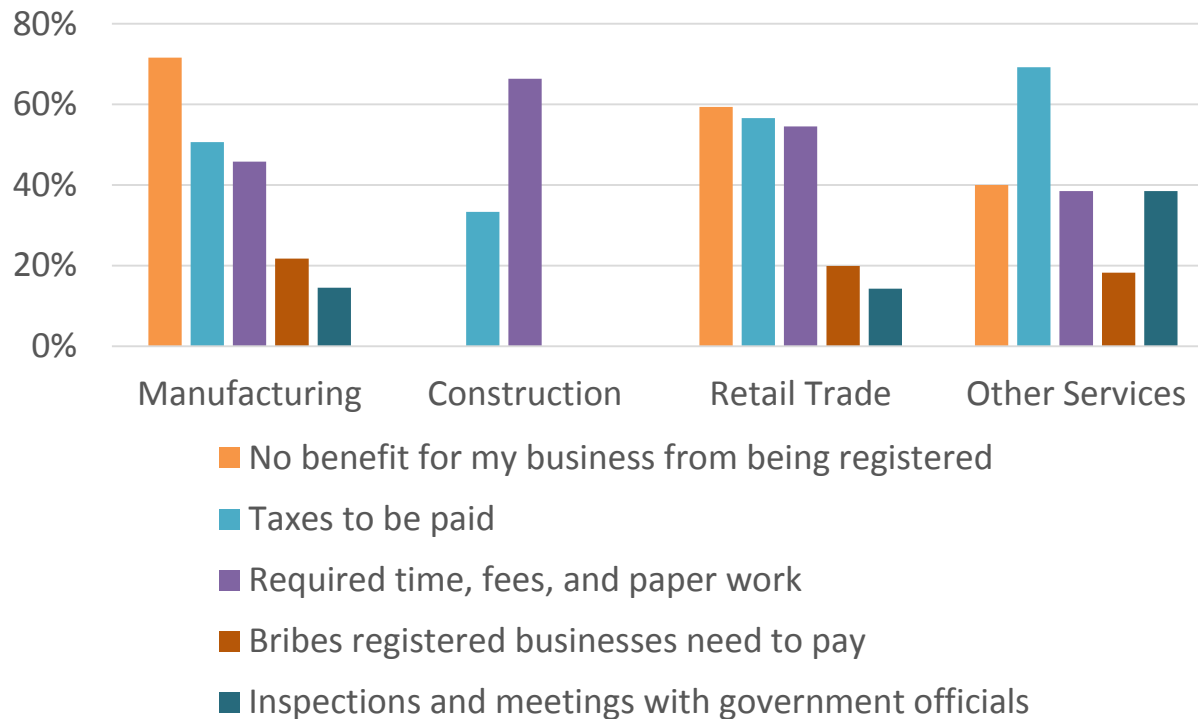


Why not Registering?  
Gains for Registration?



# Why not registered?

Myanmar (2014) - Informal Enterprise Surveys - Why not registered? (%)



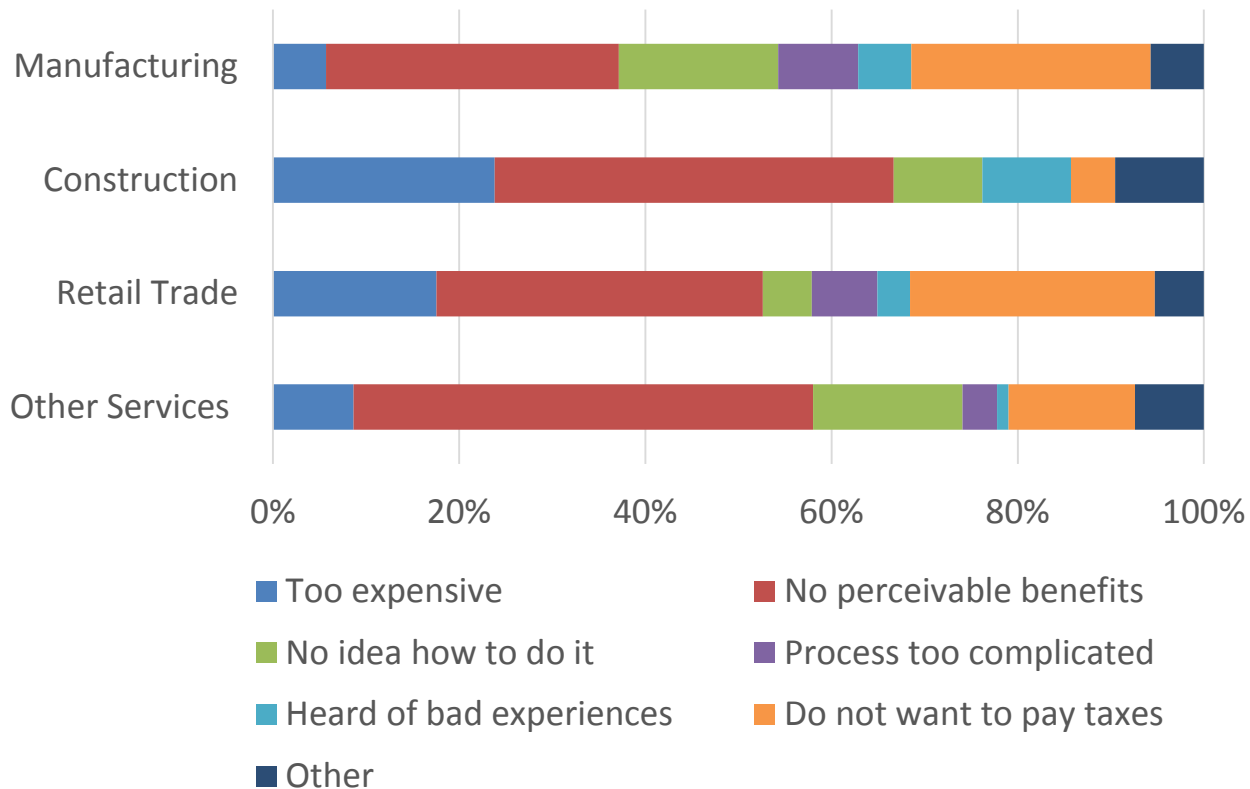
# Main Benefits of Registration

Myanmar (2014) - Informal Enterprise Surveys -  
Main Benefits of Registration



# Why Not Registered? [AFG]

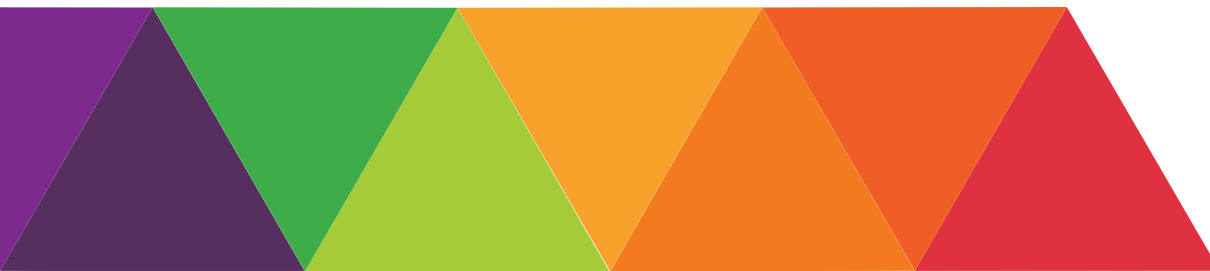
Afghanistan (2008) Informal Enterprise Survey: Why not Registered?





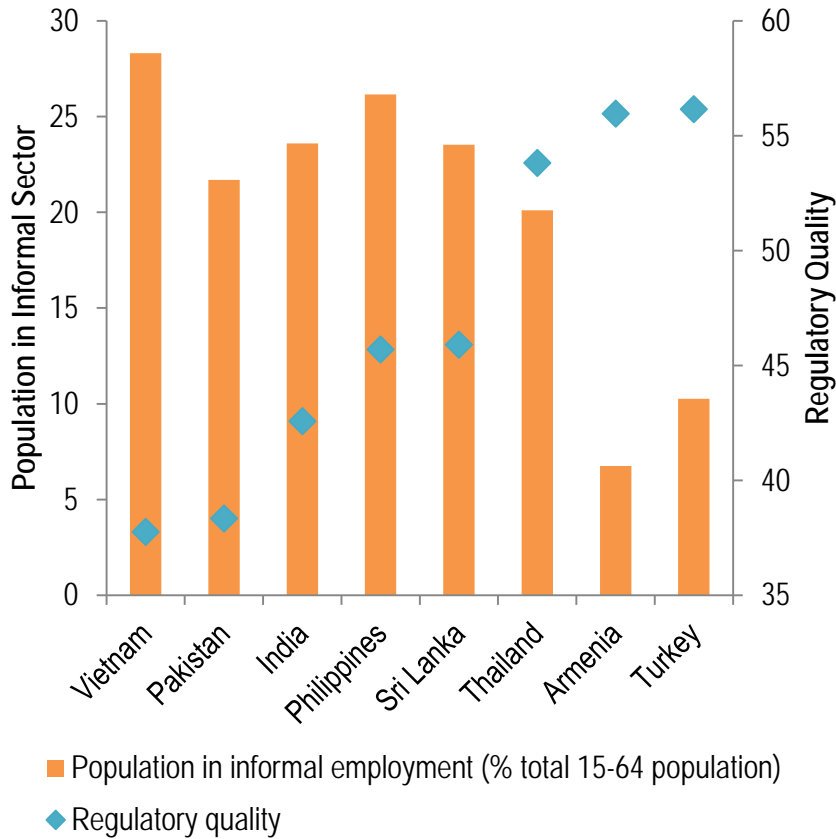
# Policy Options for the Formalization of the Informal Sector

**Policy tools No.1: Improving Governance**

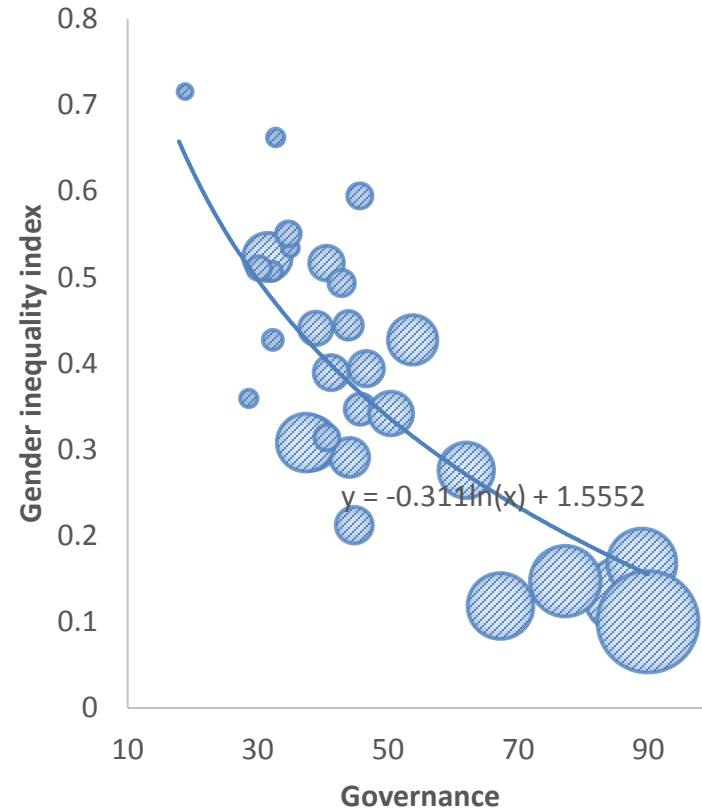


# Governance, informal sector & gender

- Countries with low regulatory quality have a significant size of informal jobs.

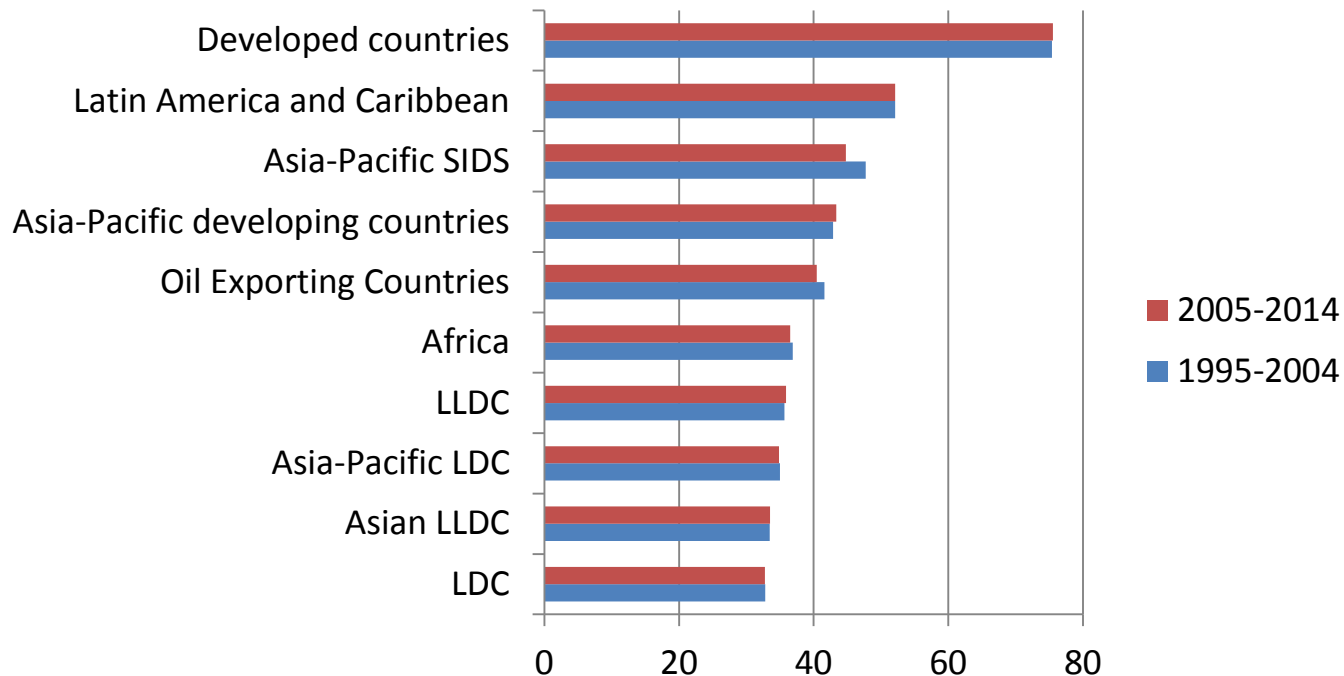


- Governance and gender inequality are negatively correlated.



# Trends in Governance

- Only marginal increases of governance have been observed.



- **FORTUNATELY**, improving governance can have an impact on different development objectives/outcomes: education and business skills, health, economic, and finance.







# Policy Options for the Formalization of the Informal Sector

**Policy tools No.2: Reforming the Business  
Environment**





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<b>DB Variables / Years</b>	<b>East Asia &amp; Pacific</b>	<b>South Asia</b>
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**2007**

Procedures to start business	53,2	54,4
Time required to start	52,9	67,7
Cost to start business	78,6	76,8
Procedures to register property	55,2	44,8
Time to register property	53,3	44,4
Cost to register property	62,1	48,1

**2017**

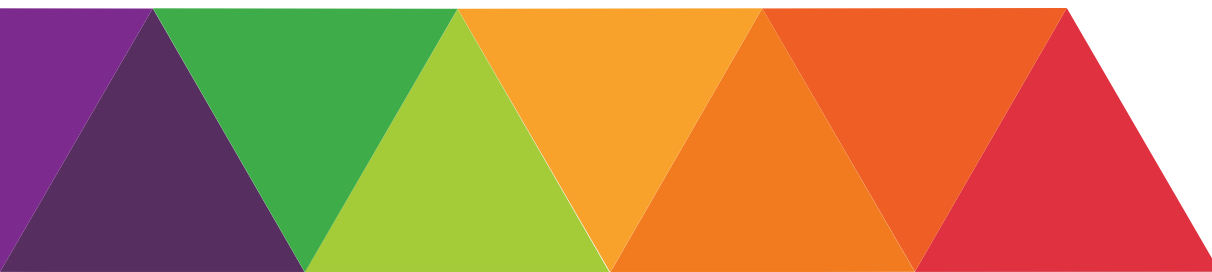
Procedures to start business	61,8	50,0
Time required to start	75,9	82,5
Cost to start business	91,1	93,3
Procedures to register property	58,0	50,2
Time to register property	67,9	46,2
Cost to register property	60,5	55,1

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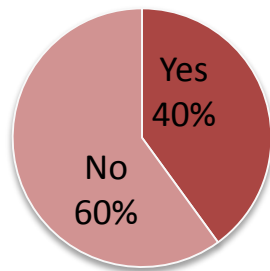


# Incentives to Work through Better Childcare

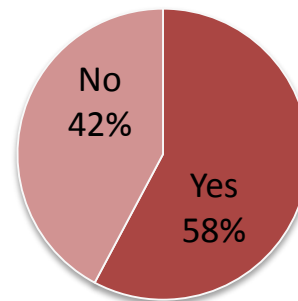




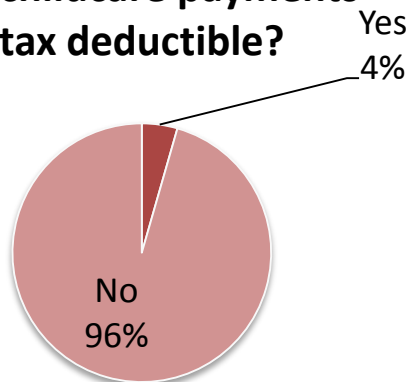
**Does the government provide a child allowance to parents?**



**Is childcare subsidized or publicly provided?**



**Are childcare payments tax deductible?**



# Laws

