The Role of Gender Composition in Performance of a Public-Private Partnership in the Digital Service Sector in Bangladesh

Wahid Abdallah, BIGD
M. Wasiqur Rahman Khan, BRAC University
Jaideep Prabhu, Cambridge University

Public Private Partnership (PPP)

- A public-private partnership (PPP) is a long term contractual arrangement between a government agency and a private supplier for the delivery of some services.

- The supplier takes responsibility for building infrastructure, financing the investment and then managing and maintaining this facility.

- Usual Interventions: Infrastructure, transport, energy, water

- Recent Interventions: IT services, accommodation, leisure facilities, prisons, training, waste management, schools and hospitals

PPP around the world

- As of December 2006, 794 PFI projects had been signed for a capital value of £ 55 billion in Europe Alone

- In US, $1.6 trillion between 1985 and 2004, averaging $80 billion annually
  - By October 2006, the annual PPP funded projects totalled about $48 billion

PPP in Bangladesh

- Establishment of Public Private Partnership Authority at Prime Minister's Office
  - PPP Law, 2015
  - Currently 44 projects

- The Power sector has a number of PPP initiatives in generation activities

- The Access to Information has established Union Digital Centres in all the Unions in a PPP model

The Case of UDC as PPP

- The Union Digital Centres are PPPs
  - Govt. provided infrastructures partially
  - A one female-one male team of entrepreneurs run the UDC
  - Govt. requires them to provide a few public services
  - Various Govt. agencies run various projects through UDCs
    - Computer training for the youth by Bangladesh Computer Council

The role of Entrepreneurs

- Make Investments
- Can initiate public services in collaboration with local public offices
- Are allowed to offer private services
  - Photocopying
  - Internet Browsing
  - Skype Call
  - Computer Training

Research Question

- How is Gender Composition associated with entrepreneurial activities and performance of the UDCs?

- Entrepreneurial and other business activities
  - Promotional Activities: Number of ways the team promotes
  - Access to Finance: Whether the entrepreneurs managed to generate outside finance
  - Investment: Amount invested and Number of pvt. equipments
  - Working Hours

- Performance Measures
  - Innovation: Number of services provided
  - Customer Satisfaction measured in a 5 point scale

Research Question

Gender Composition of the Team

- Whether the team is composed of two females
- Whether the team is composed of one female-one male
- Whether the team is composed of two males
- (In comparison to one male team)

Literature Review: Theories

- Public Private Partnership: Hart (2003), Maskin and Tirole (2008), Dewetripont et Al. (2005), Auriol et al. (2009), Zang et al. (2009), Iossa and Martimort (2013), Iossa and Martimort (2014), Iossa and Martimort (2015)
  - General understanding is that significant commitment is required from the government

Gender in Teams

- Godwin et al. (2006)
  - Female-male teams can be a successful strategy in male-dominated business environments to increase participation of women in business activities

Literature Review: Empirics

PPP: Engel et al. (2014)

- The success of PPP in infrastructure industries in developed countries is not warranted

Gender in Teams: Yang et al. (2010), Xue (2011), Zhao et al. (2013)

- The benefits of mixed gender teams in new ventures is in innovation

The Contribution of the Paper

- No other paper empirically investigates the effect of gender composition on entrepreneurial activities in
  - Development country context
  - Public Private Partnership
  - Similarity in the unit of analysis (Previous analyses considered entrepreneurship in all sorts of industries, ignoring industry heterogeneity)
  - Scale of study is Large (previous studies looked into at most 150 ventures)

Data

- Census Data conducted on Union Digital Centre in 2013 by Bangladesh Bureau of Statistics
- 4547 Observations
  - 46 Inactive UDCs
  - 34 Missing data for a few more UDCs
- Final count: 4,467.

Descriptive Statistics

Gender Composition

Distribution of Gender Composition	Mean	S.d.
One Female-One Male Team	54%	50%
Two Female Team	2%	13%
Two Male Team	20%	40%
One Male Team	24%	43%

Descriptive Statistics: Entrepreneurship

Variable	Mean	SD
Number of Hours per week	57.77	19.68
Promotional Activities	4.29	1.37
No. of Equipments Purchased by Entrepreneur	3.65	4.20
Investment	39209.05	72575.66
Services	16.80	4.81
Public Services	6.39	2.06
Private Services	10.41	3.31

Econometric Strategy

- Ordinary Least Square:

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \epsilon_i$$

Where

- y_i : The activity/performance variable of UDC i
- X_{1i} : A Vector of dummy variables on Gender Composition the entrepreneurial team of UDC i
- X_{2i}: A Vector of control variables at UDC i
- Negative Binomial or Ordered probit

Control Variables

- Government Inputs
  - Number of Services UP Secretary collaborates with the Entrepreneur
  - Number of Equipments received from the government through various projects
  - Degree of cooperation from the UNO
  - Number of ways govt. undertaken to promote UDCs
- Location of the UDC
- Internet using capability of the Entrepreneurs
- The Cost of running the UDC
- The Year it was established
- Whether the UDC is supported by a solar system

Results

VARIABLES	Number of Hours per week	Promotional Activities	No. of Equipments Purchased by Entrep.	Investment
One Female-One Male team	5.0536***	0.1240*	0.7900***	6,178.19**
	(1.4554)	(0.0648)	(0.1574)	(2,673.14)
Two Female team	-5.0658***	-0.0871	-0.1371	-3,015.52
	(1.9059)	(0.1552)	(0.3571)	(7,173.91)
Two Male Team	5.5922***	0.1202*	1.0689***	12,584.89***
	(1.4830)	(0.0631)	(0.2137)	(3,592.84)
R^2	0.0596	0.2934	0.1847	0.1837
Observations	4,467	4,467	4,467	4,467

Results

	All Service	Public Services	Private Services	Customer Satisfaction
One Female-One Male team	1.0791***	0.3526***	0.7265***	-0.0698***
	(0.2532)	(0.1146)	(0.1677)	(0.0255)
Two Female team	0.6756	0.1642	0.5115	0.0019
	(0.5110)	(0.2203)	(0.3732)	(0.0795)
Two Male Team	0.9193***	0.2909**	0.6285***	-0.0744**
	(0.2568)	(0.1134)	(0.1669)	(0.0311)
R^2	0.4277	0.2904	0.3944	0.0362
Observations	4,467	4,467	4,467	8,933

Conclusion

- The one female – one male team performs no worse than a two-male team and much better than two women team, both in terms of entrepreneurial activities, innovation and customer satisfaction

- This is despite that one-female one-male team has potential social constraints, e.g., access to finance and Investment

Conclusion

- Whereas government's decision of the gender composition has positive results, the government needs to ensure access to finance to the entrepreneurs
- Future Work: What kind of role can government play to improve performance of the UDCs?