Graduating to globalisation

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Part I

The puzzle of outbound FDI by developing countries

Traditional investment theory

Five stages of development (World Investment Report, 2006)

1. Very little inward and outward FDI
2. Inward FDI starts to rise, little or no outward FDI
3. Growth of inward FDI starts to decline, while outward FDI picks up
4. Outward FDI equals or exceeds inward FDI
5. Net investment position of the country fluctuates around zero

Puzzle: Outbound FDI from developing countries

- Rapid rise of outbound FDI from developing countries is a challenge to this framework.
- Countries at similar levels of income have dissimilar levels of net outbound investment per capita.
- Brazil, India, China, Mexico, South Africa, Turkey have begun outward FDI at stages earlier than that predicted by theory.
- Traditional theory does not explain this puzzle.

Other explanations offered

- Government policy encourages outbound FDI *but why would governments in poor countries push investment out*
- Small home markets push firms out *but most of these are large economies*
- Strategic and knowledge based foreign assets are being acquired by firms in some sectors *but investment is taking place across many different sectors*
- So, the puzzle remains.

The behaviour of firms

- The traditional framework ignores the role that firms play in outbound FDI by a country
- If firms become more productive firms they would invest abroad

Conceptual framework

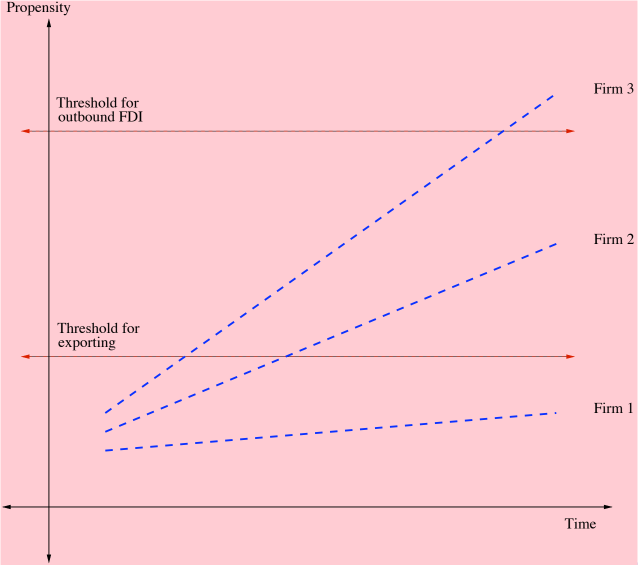
Helpman, Melitz, Yeaple (2004): a firm can serve foreign markets through export or outbound FDI. In equilibrium, only the more productive firms export, and the most productive firms do outbound FDI.

In a developing country context

Applying the HMY model to a developing country:

Tendency for firms to become more productive (eg. due to factors such as competetion induced by trade liberalisation, learning by exporting, improvements in physical and human capital and other economy-wide factors), we will see more firms doing outbound FDI. This would increase outbound FDI by a country, even if it is a poor country.

Analytical framework



Outbound FDI from a developing country

- Suppose firms are becoming more productive.
- As firms become smarter, they start exporting.
- As they become even smarter, they start investing abroad.
- As firms get smarter, the country sees larger amount of outbound FDI.

Part II

India

Studying India as an example

- The puzzle of the sharp increase in outbound FDI from India cannot be explained by traditional theories.
- Have more firms in India become smarter and crossed the thresholds for exporting and then for investing abroad?
- What changed, or, what were the firm characteristics that they improved in?

Our dataset

- CMIE Cospi index: all firms with trading frequency of over 66% over the last six months.
- We take all non-financial firms which are in this index in March 2008.
- We track them from 2001 till 2007 – 7 years of data. Firm-years with sales or assets below Rs.10 million are dropped.
- This yields unbalanced panel data.
- In 2006-07, these firms have $0.5 trillion in total assets (50% of GDP) and have exports of $87 billion (37% of total exports of goods and services).

A firm and foreign customers

Four cases;

D Domestic firm (in tradables and non-tradables)

DX Domestic production + exports (in tradables)

DXI Domestic production, exports and outbound FDI (in tradables)

DI Domestic production + outbound FDI(in non-tradables)

Counts of firms in the four categories

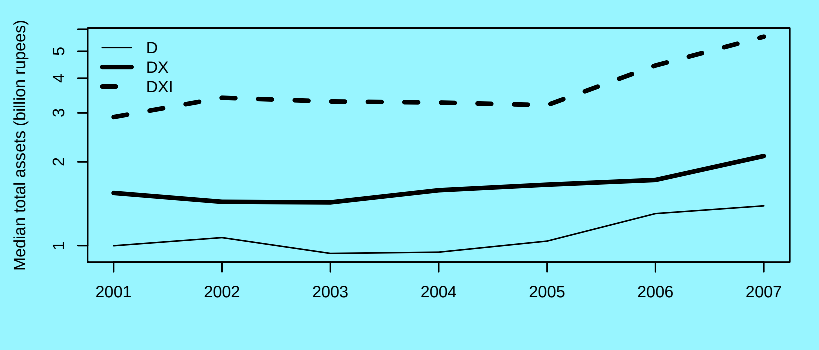
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
D	656	696	761	741	736	733	753	737	747	679
DI	1	1	4	6	13	16	20	24	22	21
DX	959	1003	1013	1009	972	1028	1043	1059	1077	1072
DXI	1	3	23	87	129	147	170	196	233	250
Sum	1617	1703	1801	1843	1850	1924	1986	2016	2079	2022

Table: Count of firms classified into four categories

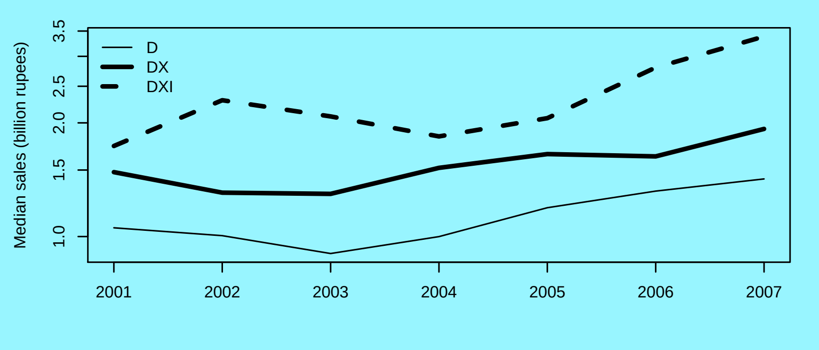
Firm characteristics

- Total assets
- Sales
- Gross value added
- Year of incorporation
- R&D to sales ratio
- Gross fixed assets
- Return on equity

Total assets

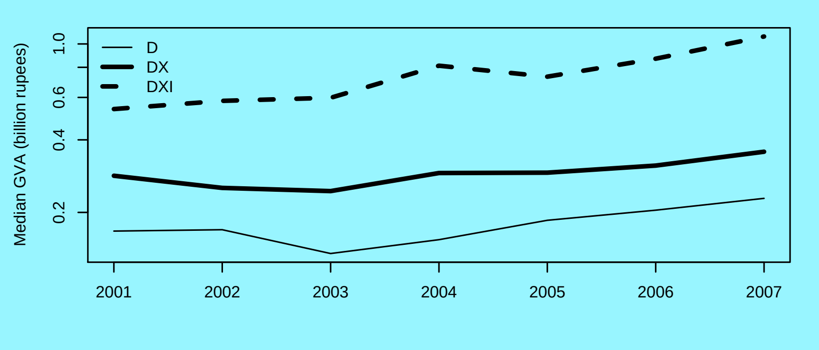


Total Sales

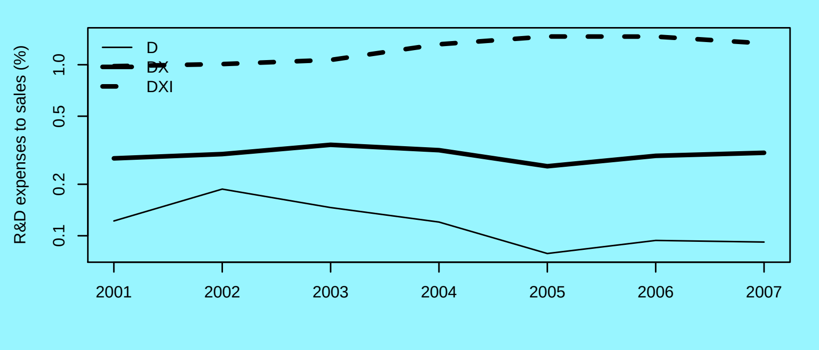


Median sales (billion rupees)
1.0
1.5
2.0
2.5
3.5
D
DX
DXI
2001
2002
2003
2004
2005
2006
2007

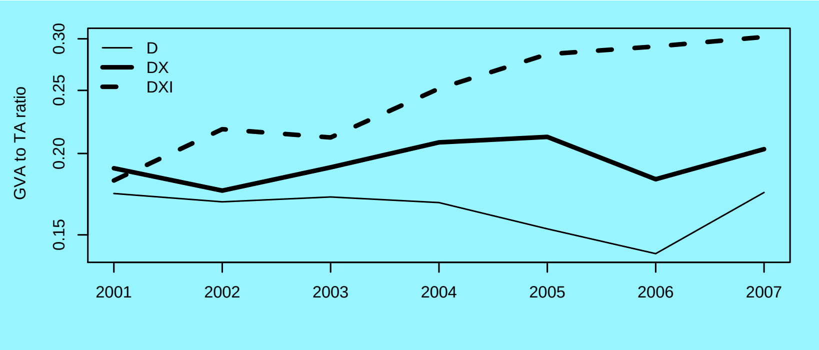
Gross value added



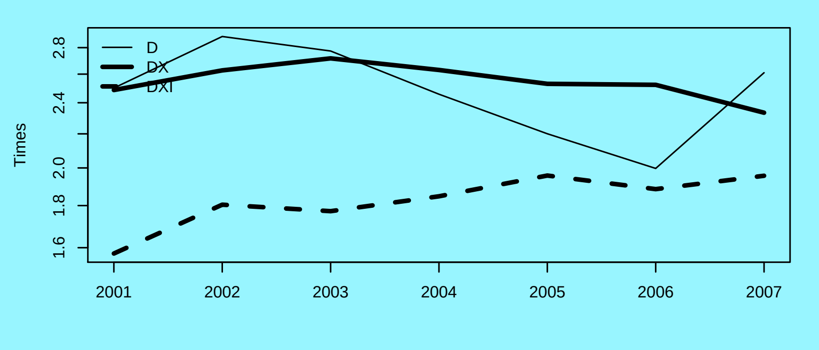
R & D to sales ratio



Gross value added/total assets



Leverage



Probit models for exporting and outbound FDI

	Probit for exports		Probit for FDI	
	Coefficient	t	Coefficient	t
Industry fixed effects	Present		Present	
Year fixed effects	Present		Present	
Year of incorporation	0.0018	2.23	0.0043	3.56
Log value added	0.2687	10.48	0.1480	3.81
Log total assets	-0.0789	-3.07	0.1441	3.73
Asset tangibility	-0.0058	-11.09	-0.0101	-12.07
R&D to sales	0.0997	5.32	0.1129	8.27
Return on equity	-0.0013	-2.13	-0.0035	-3.47
LogL	-4415.38		-2080.10	
AIC	8878.76		4208.21	

Table: Probit models for exporting and outbound FDI

Ordered probit

$$
\begin{aligned}
y^* &= \beta' X + u & u \sim N(0, \sigma^2) \\
y &= \begin{cases} \mathbf{D} & \text{if} \quad y^* < \tau_1 \\ \mathbf{DX} & \text{if} \quad \tau_1 \leq y^* < \tau_2 \\ \mathbf{DXI} & \text{if} \quad \tau_2 \leq y^* \end{cases}
\end{aligned}
$$

Ordered probit for exporting and outbound FDI

	Coefficient	t
Industry fixed effects	Present	
Year fixed effects	Present	
Year of incorporation	0.0026	76.86
Log value added	0.2207	10.17
Log total assets	0.0037	0.17
Asset tangibility	-0.0069	-15.24
R&D to sales	0.1160	10.46
Return on equity	-0.0017	-3.27
τ cutoffs		
τ_1	4.8112	4181.02
τ_2	6.9420	272.39
LogL	-6539.89	
AIC	13129.77	

Table: Ordered probit model for exporting and outbound FDI

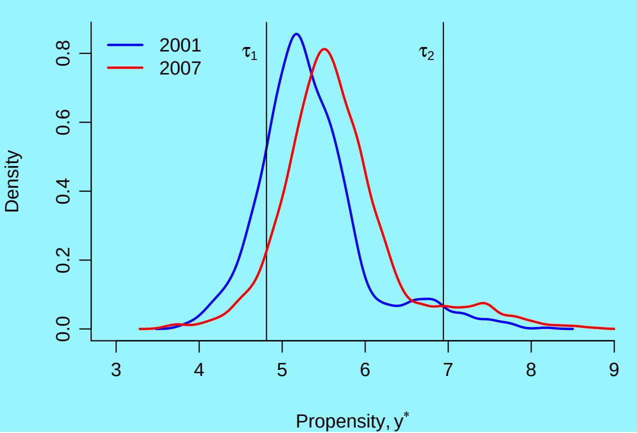
Distribution of estimated tau

Transition matrix

	D	DX	DXI
D	86.45	13.32	0.23
DX	7.08	89.63	3.30
DXI	0.32	8.47	91.22

Table: Transition probabilities across firm categories

Shifting density plots



Key results

- A single measure, the internationalisation propensity explains both exports and outbound FDI.There is a hierarchy where firms go from autarchy to exports to outbound FDI.
- This propensity has increased over time leading to an increase in outbound FDI by Indian firms.
- More firms have crossed the threshold of investing abroad in recent years. This has lead to a sharp increase in outbound FDI by India.

Contribution of this paper

- Key contribution of this paper: Explaining outbound FDI from a developing country, a puzzle not explained by the traditional literature.
- Studying the HMY model in a dynamic devloping country framework.
- First study of outbound FDI explained by firms, using firm level data, from a developing country.

Thank you.