

ARTNeT Conference on Empirical & Policy
Issues of Integration in Asia & the Pacific

Assessing the Spillover Effects of FDI: Case of the Philippines

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FDI spill-over may be transmitted

Horizontal linkages

- connections bet. MNCs & local firms within the same sector
- Spill-over: dom. firms copy technology

Vertical linkages

- Forward: for. firms supply inputs to dom. firms
- Backward: local firms supply inputs to foreign firms
- Spill-over: technical assistance, information

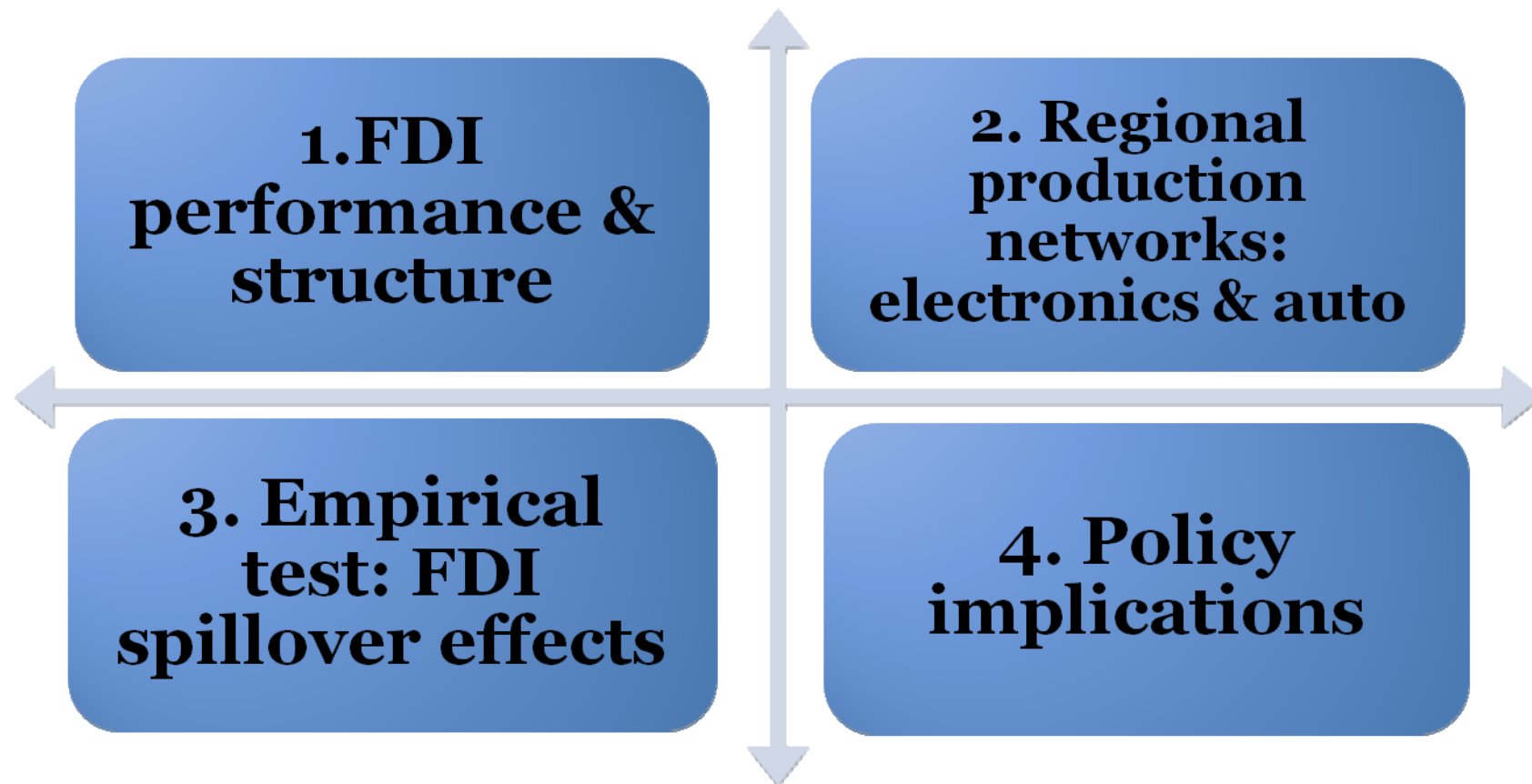
Main Objective

Does FDI generate spillover effects (horizontal or vertical) to domestic firms?

If yes, how can this be strengthened?

If no, what are the major constraints & how can these be addressed?

Outline



1. FDI Policy, Structure, Performance

Prior to 1990s

- restrictive & complicated investment incentive system

Early 1990s

- Foreign Investment Negative List
- New Omnibus Investments Code
- Philippine Economic Zone Authority

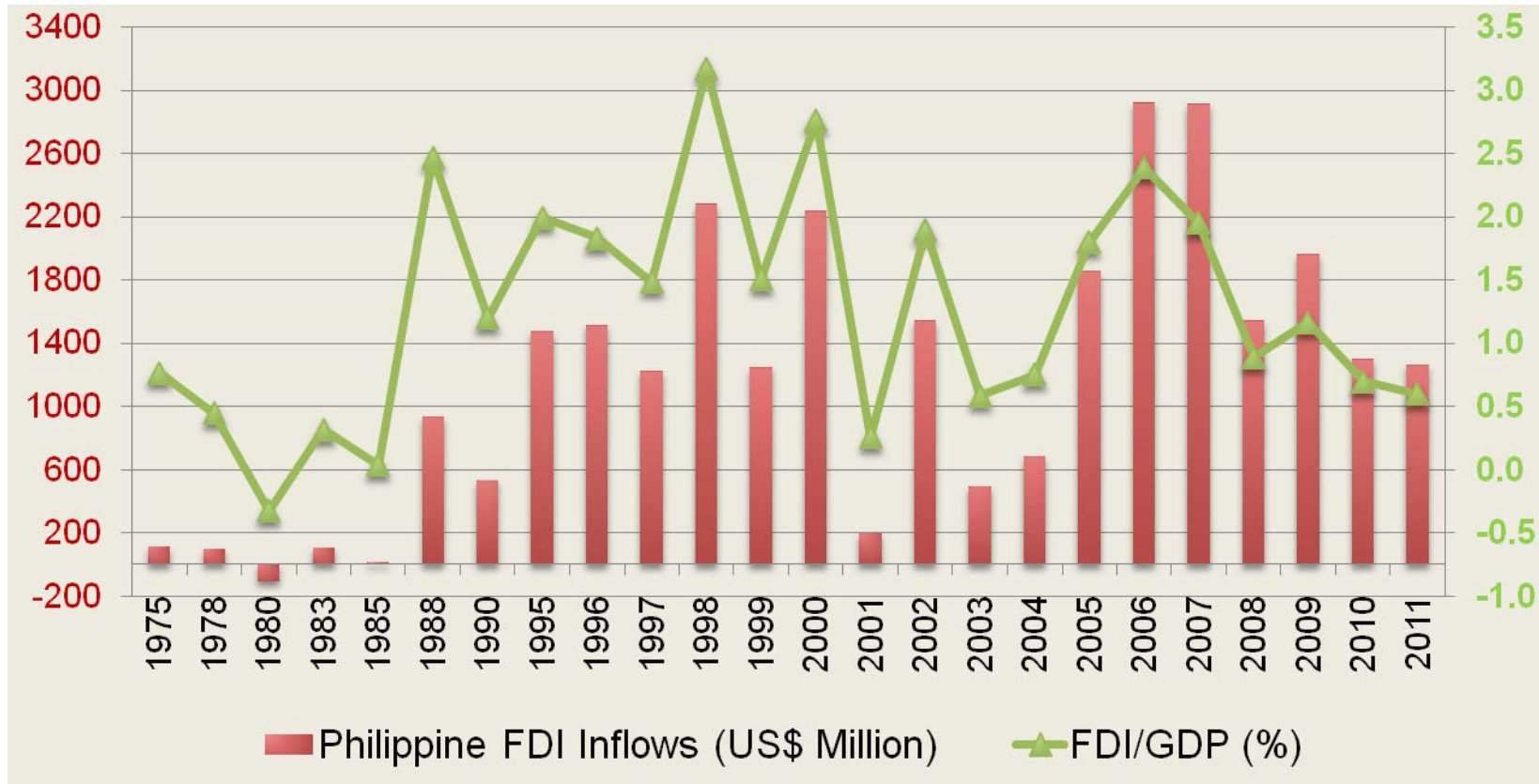
2000s

- banking, retail trade
- Remaining restrictions – mass media, land ownership, public utilities

Fiscal Incentives

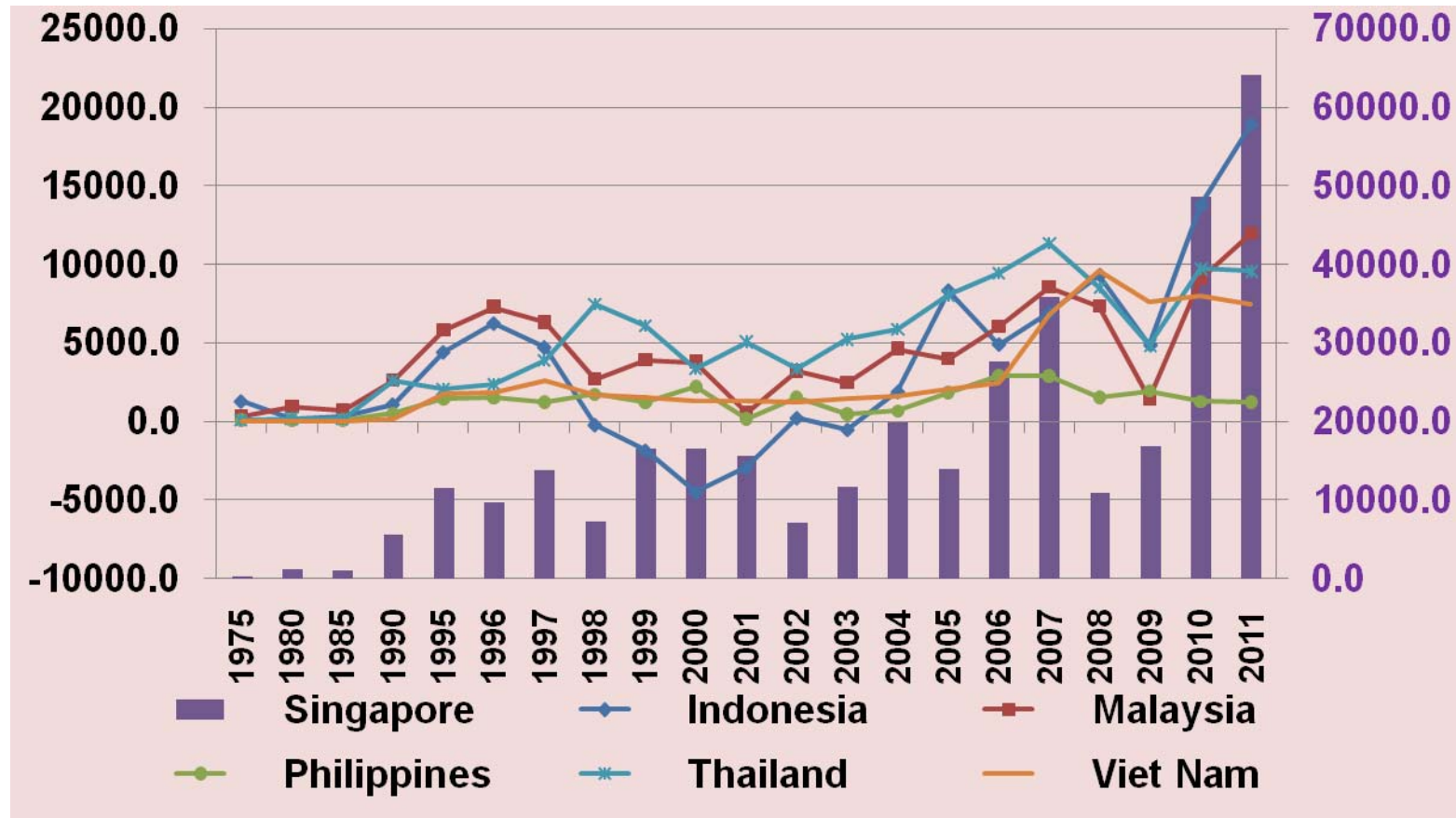
Incentive	BOI OIC	PEZA	SBMA & CDC
Income Tax Holiday (ITH)	3-8 years ITH	3-8 years ITH	No ITH
Others: After ITH	Payment of the regular corporate tax rate of 30%	Special rate of 5% tax on gross income	5% tax on gross income
Importation of raw materials	Tax credit	Tax & duty exemption	Tax & duty exemption
Imported capital equipment	Tax & duty exemption on spare parts	Tax & duty exemption	Tax & duty exemption
Additional deductions	Training expenses	Training expenses	Training expenses

Performance: FDI Inflows (in US\$m)



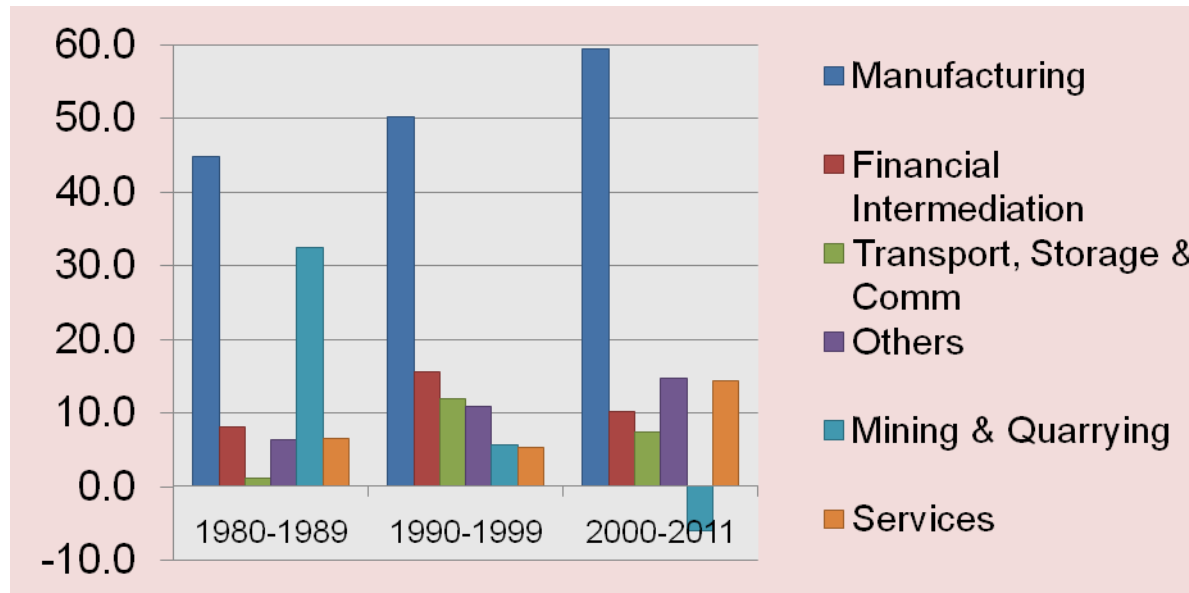
- FDI flows: erratic
- By source country, Japan & the US account for the largest shares

ASEAN FDI Inflows (in US\$m)

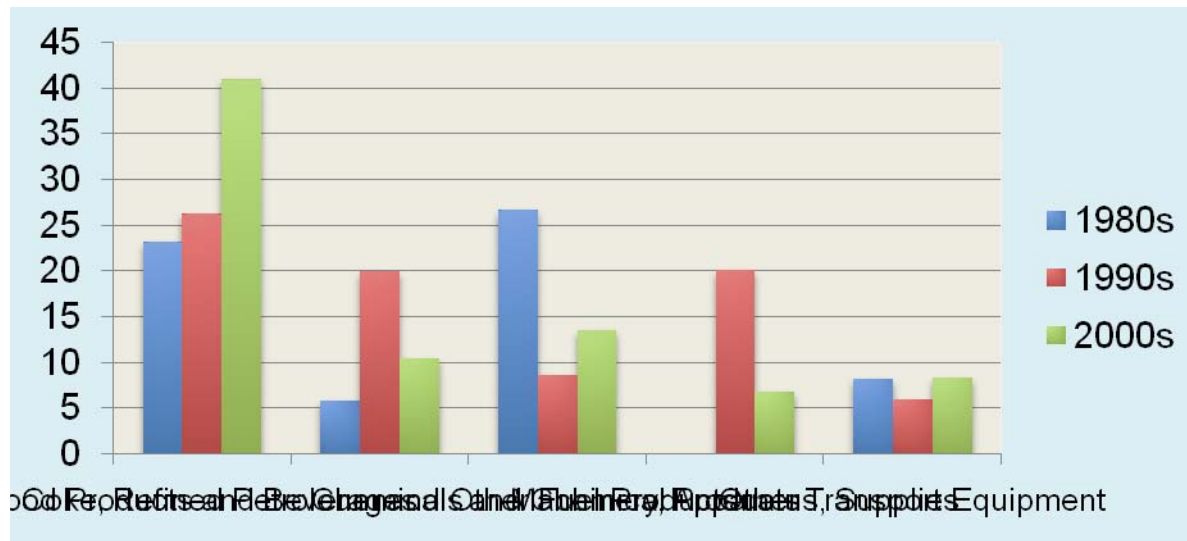


- Philippines lagged behind its neighbors in attracting FDI inflows

Distribution of FDI by Sector (in %)

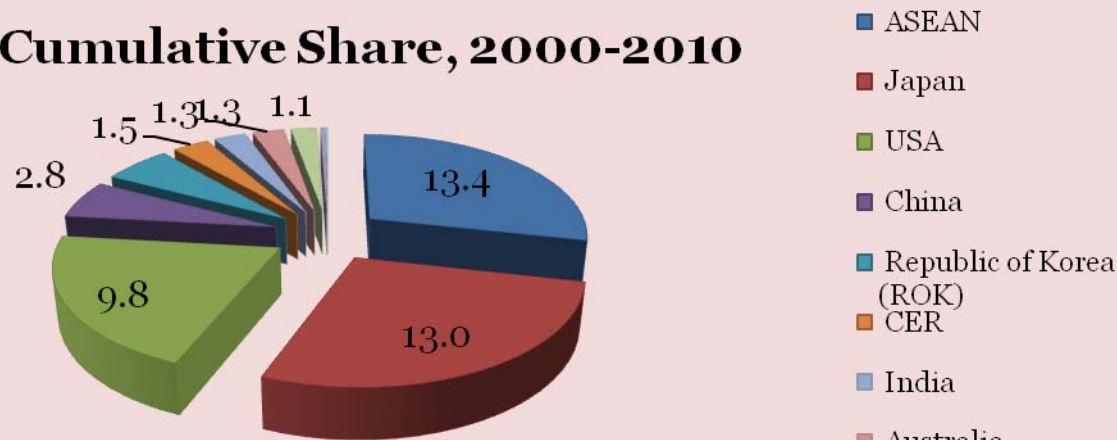


- Manufacturing accounted for 59.5% in '00-'11 period
- Food, chemicals, machinery & other transport



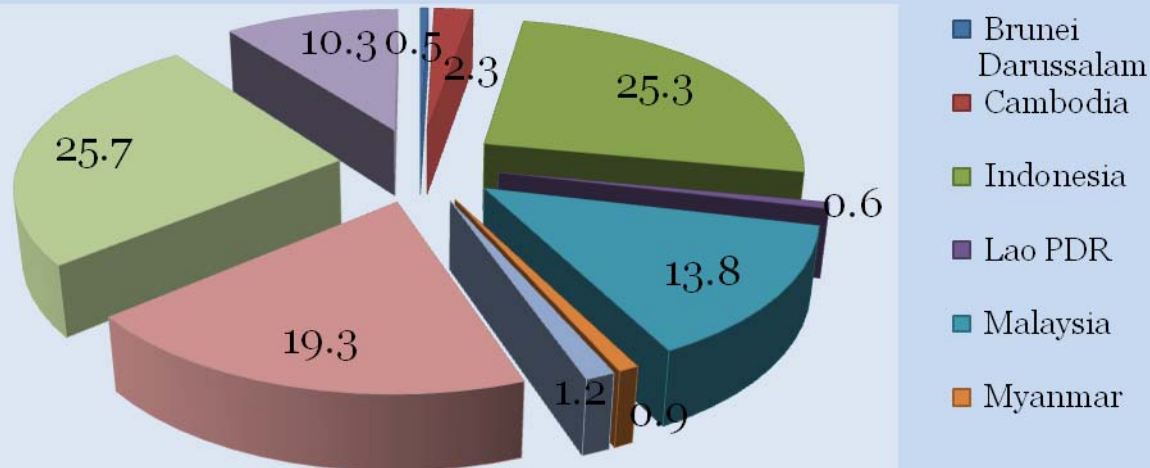
ASEAN FDI by Host Country

% Cumulative Share, 2000-2010

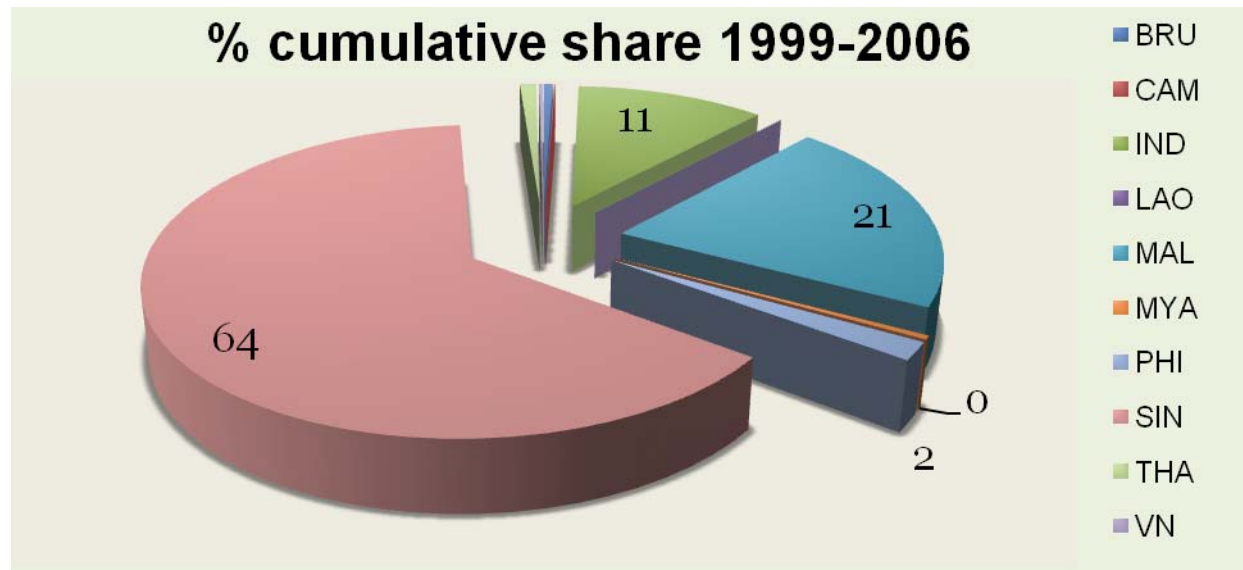


- ASEAN accounts for 13.4% of total FDI inflows
- Within ASEAN, largest recipients are Thailand (26%), Indonesia (25%), & Singapore (19%)

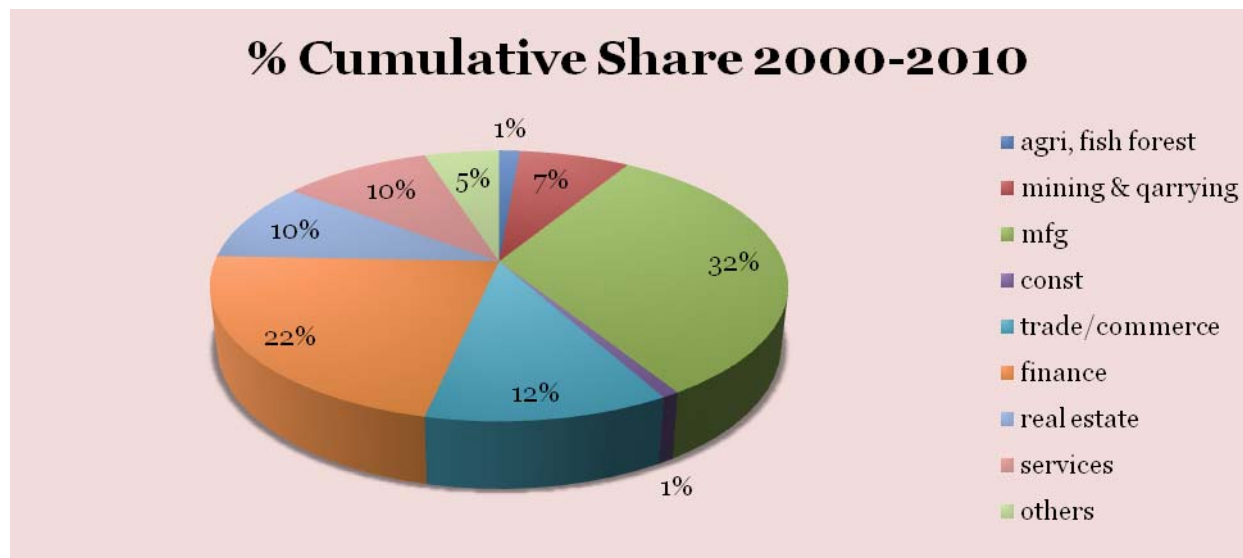
% Cumulative Share, 2000-2010



Intra ASEAN FDI by Source & Sector



- For 1999-2006
Largest source is SIN (64%)
MAL (23%)
- For 2000-2010
Mfg (32%)
Trade (11.5%)
Finance (22%)
Real Estate (9.9%)



2. Regional Production Networks

FDI flows to ASEAN

- closely associated with intra-regional trade in East Asia

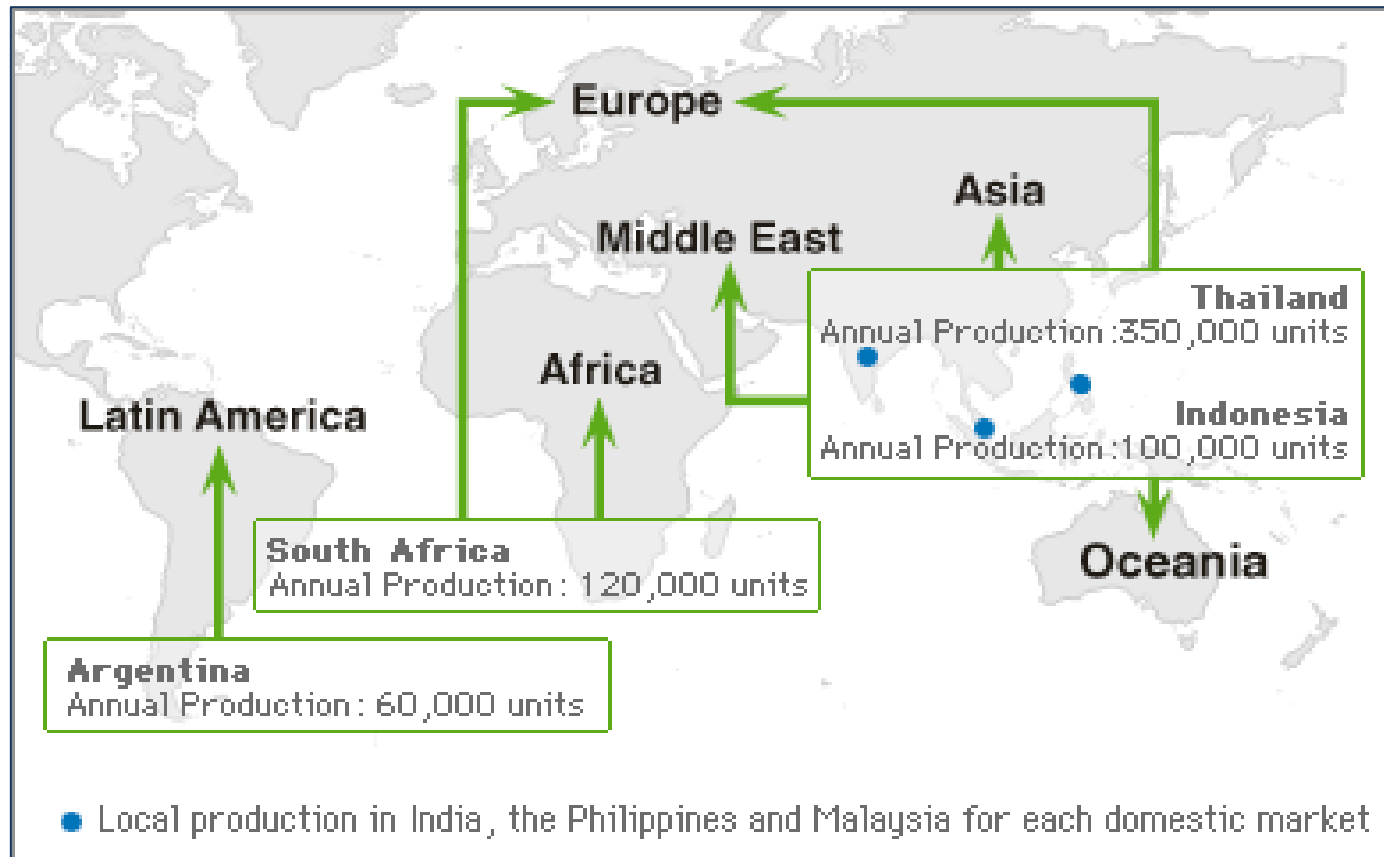
Regional Production Networks (RPNs)

- export of parts, components, & capital equipment for assembly into finished product & export
- one of the key drivers of ASEAN growth

Participation in RPNs

- access to export markets
- newer technologies
- spillover effects
- ASEAN Economic Community, deepen integration through RPNs

Philippine participation in auto networks



- Limited participation in Toyota's IMV Project: transmission (Phils. & India), diesel engine (Thai), gas engine (Indonesia)

Participation in electronics value chain

Value added activity	% VA globally	Philippines
Production equipment	7	none
Semiconductors	35	5% (assembly, packaging & testing)
Passive components	5.5	minimal
Printed circuit board	7.5	minimal
Displays	11	minimal
Connectors/cables	6	minimal
Batteries	11	none
Enclosures	7	6%
Assembly services	6.5	6%
Others: design services	3.5	minimal
Total	100%	≤15%

- Narrow participation (Agarwalla, 2005) limits spillovers
- Issues: how to improve linkages & move up VA chain to deepen participation in electronics production networks

Reasons for limited linkages in electronics & auto industries

Electronics: few local suppliers

- Unavailability & high cost of raw materials
- unreliability of local suppliers
- failure to meet required quality standards

Auto: limited supply base, particularly SMEs

- lack of access to capital and technology
- low productivity & lack of skilled workers
- unavailability of raw materials

3. Empirical test: FDI spillovers

$$\begin{aligned}\log VApw_{jt} = & \beta_0 + \beta_1 \log Capw_{jt} + \beta_2 \log TR_{jt} + \beta_3 \log CR4_{jt} \\ & + \beta_4 HL_{jt} + \beta_5 BL_{jt} + \beta_6 FL_{jt} + \omega_{jt}\end{aligned}$$

VApw: Value added per worker constant 1985 prices

Capw: Capital per worker

TR: Total revenue

CR4: Four-firm concentration ratio

HL: Horizontal linkages

BL: Backward linkages

FL: Forward linkages

ω : Error term; j: sector; t: time

Data Sources

1988 & 1998
Census & Survey
of Establishments



5-digit product
code Sectoral
Panel data



4-firm concentration
ratios, value added per
worker, capital per
worker, total revenue

1994 and 2000
Input-Output
Tables



Horizontal
linkages



Vertical linkages:
forward &
backward

Summary Statistics

Variable	Description	No.	Mean	SD
VApw	VA per worker 1985 prices	537	234483	1146030
CApw	Capital per worker 1985 prices (value of fixed assets)	537	169102	512921
TR	Total revenue 1985 prices (in million pesos)	537	1800	7800
EMPT	Employment	537	3713	8129
CR4	4-firm concentration ratio	537	86	21
HL	Horizontal linkages	537	0.283	0.341
FL	Forward linkages	537	0.120	0.080
BL	Backward linkages	537	0.143	0.233

Does FDI generate spillovers that benefit domestic firms?

	All Firms		Domestic Firms Only	
	Fixed-effects	Random-effects	Fixed-Effects	Random-effects
HL	0.31** (-0.14)	0.24** (-0.11)	0.08 (-0.20)	0.12 (-0.10)
FL	0.95 (-1.57)	-0.02 (-0.46)	0.46 (-2.00)	-0.25 (-0.44)
BL	0.33 (-0.46)	0.18 (-0.17)	0.14 (-0.48)	0.10 (-0.16)
LogTR	0.32*** (-0.05)	0.25*** (-0.02)	0.35*** (-0.06)	0.26*** (-0.02)
LogCapw	0.10** (-0.05)	0.25*** (-0.03)	0.09 (-0.06)	0.23*** (-0.04)
LogCR	0.28** (-0.12)	0.70*** (-0.12)	0.32** (-0.15)	0.79*** (-0.13)

- Horizontal: positive and significant
- Forward & backward: positive but not significant

4. Policy Implications: summing up

Empirical tests:
weak linkages

Productivity spillovers
take place horizontally
between MNCs and
domestic firms

Weak evidence of
productivity spillovers
either forward or
backward

Electronics & auto: limited
linkages

Exports concentrated in labor
intensive, import-dependent,
low value added activities

Narrow RPN participation
limits opportunities for
spillovers into local economy



To increase spillover effects & profitability from RPNs, need to move up value chain

Develop parts & suppliers sector

- Industrial & technology upgrading
- SME support programs, financing
- Subcontracting & outsourcing
- Human resource development & training

Improve investment climate

- Infrastructure, logistics, address low institutional quality & inefficient bureaucracy
- Capacity building & adequate funding for BOI/DTI



Thank you