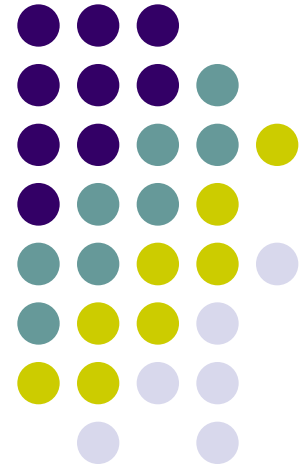


Backward Linkages from Foreign Direct Investment: The Role of Investors' Origins

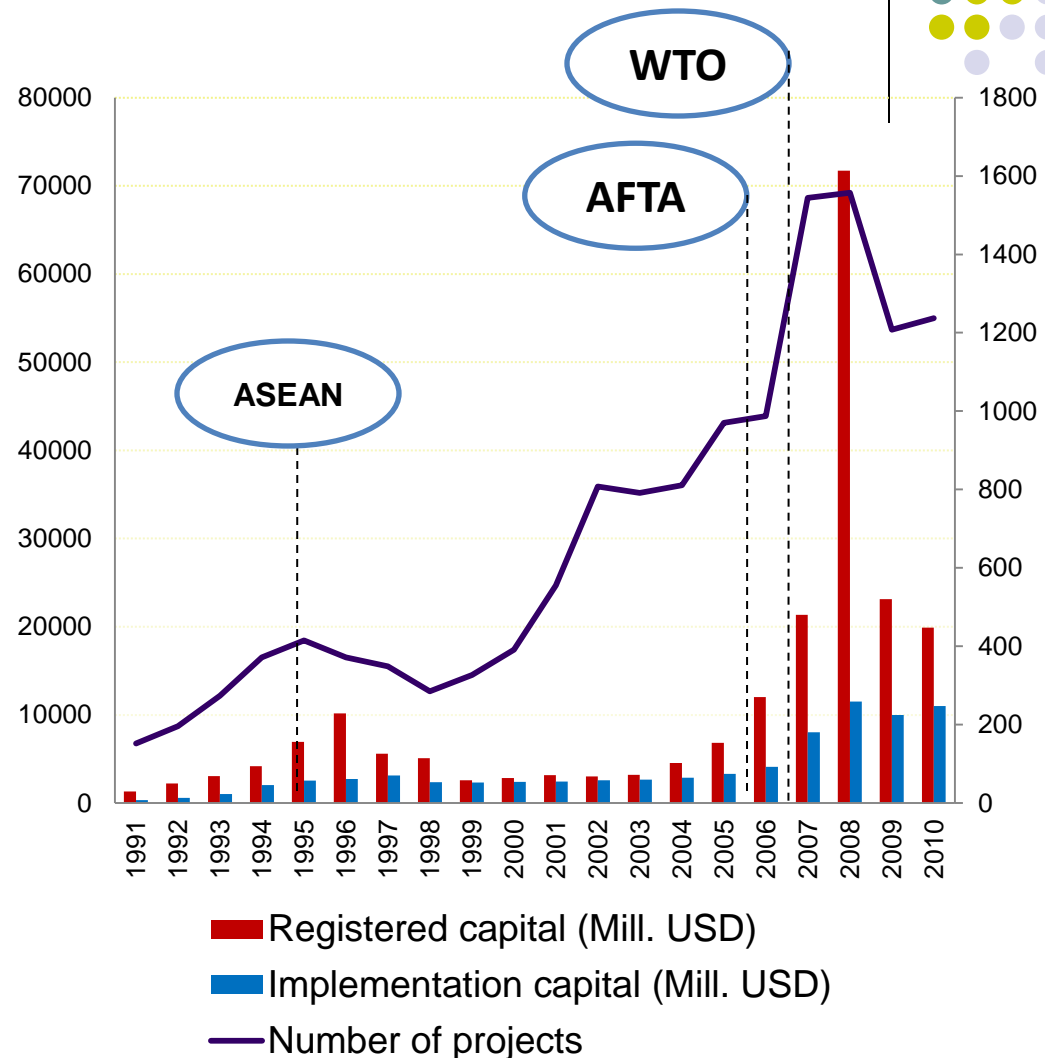
Presented by Pham Thi Bich Ngoc
Hoa Sen University, HCMC - Vietnam

Macau, 09-12 December 2013



FDI in Vietnam - WHY?

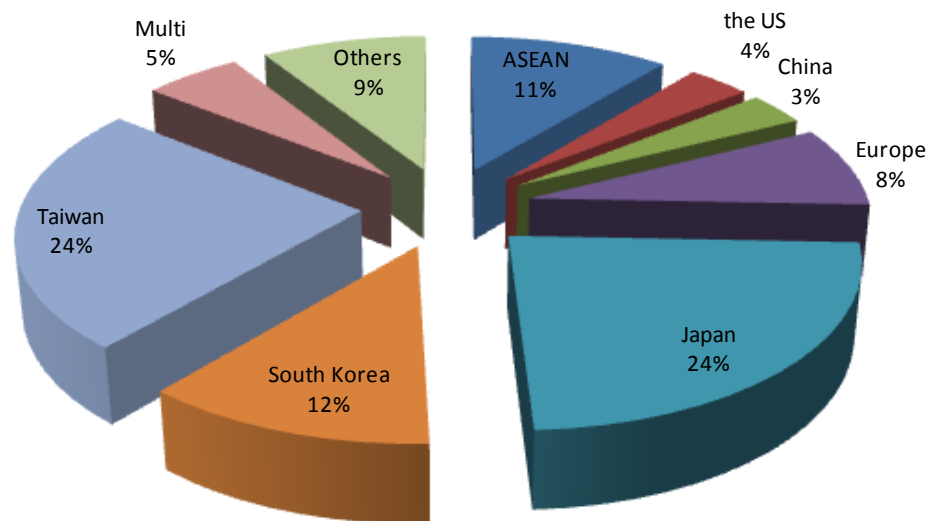
- Vietnam is one of the top 6 destinations for FDI in 2008-2010 (UNCTAD, 2008)
- FDI inflows increased from \$1.3 billion in 1991 to \$19.9 billion in 2010
- Two peaks:
\$10.16 billion in 1996
\$71.73 billion in 2008



FDI by origin:

- App. 70 countries and territories invest in manufacturing sectors
- Asian economies account for the major part of FDI inflows.
- A strong wave of FDI from ASEAN, Europe, Japan, and Taiwan in 2008.

The Investors' Shares in Manufacturing by Nationality, 2007 - 2010



Productivity spillovers – the framework



- **Horizontal linkages**

FDI spillovers from MNEs entering in the same industry.

Demonstration/Competition/Labor mobility effects/ Market stealing effects

(Wang and Blomström, 1992; Haacker, 1999; Aitken and Harrison, 1999; Javorcik, 2004).

- **Backward linkages**

FDI spillovers from MNEs in downstream/buying industries.

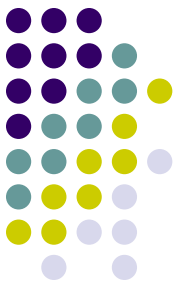
- Knowledge transfer & technical assistance
- High requirement / Increased demand

(Dunning, 1993; Munday *et al.*, 1995; Imrie and Morris, 1992)

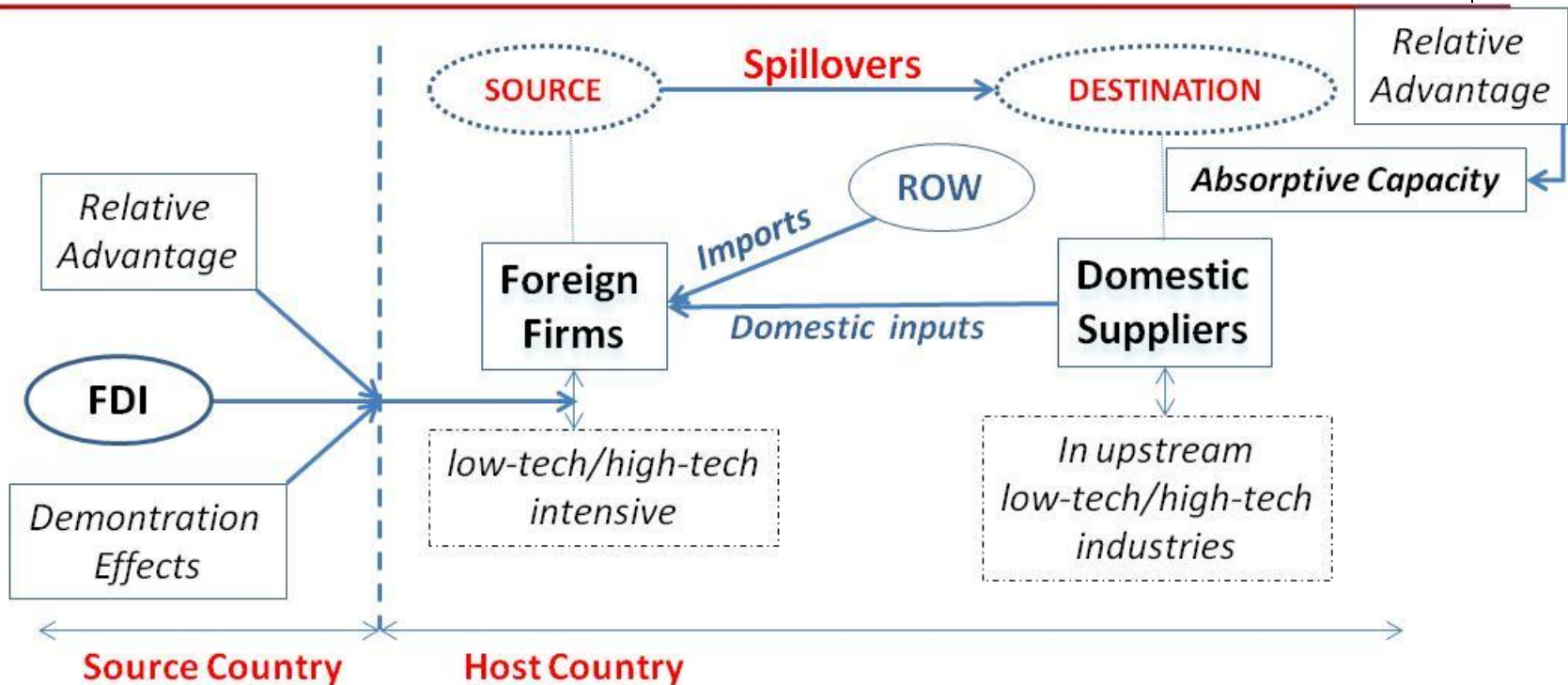
FDI and The Role of Investors' origins



- Development distance between two economies (Findlay, 1978)
 - Technology gap between the host and home countries (Glass and Saggi, 1998)
 - Geographical distance between the host and home countries (Rodrigues-Clare, 1996)
 - Sourcing countries in or out of the agreement association (Regional preferential trade agreements) (Javorcik and Spatareanu , 2011)
- backward spillovers from investors from EU (-), America (+), and Asia(not significant) to the Romanian firms.

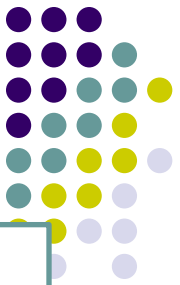


HYPOTHESIS



- FDI from one source economy could be low-tech or high-tech intensive
- FDI from origins that the investors demand more low-tech products possibly bring higher potential of backward spillovers to local suppliers

MODEL AND ESTIMATION STRATEGY:



$$\ln Y_{ijt} = \alpha + \beta_1 \ln K_{ijt} + \beta_2 \ln L_{ijt} + \beta_3 \ln M_{ijt} + \beta_4 \text{Horizontal}_{jt} + \beta_5 \text{Backward}_{mjt} + \varepsilon_{ijt}$$



$$\text{Horizontal}_{jt} = \frac{\sum_{i \in j} \text{Foreignshare}_{it} * Y_{it}}{\sum_{i \in j} Y_{it}}$$



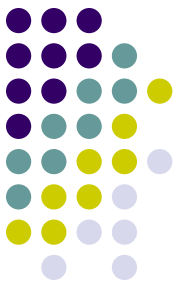
$$\text{Backward}_{mjt} = \sum_{k \text{ if } k \neq j} a_{jk} \text{Horizontal}_{mkt}$$

● where

$$\text{Horizontal}_{mjt} = \frac{\sum_{i \in j} \text{Foreignshare}_{it} * D_m * Y_{imt}}{\sum_{i \in j} Y_{it}}$$

a_{jk} - the proportion of sector j 's output supplied to sector k

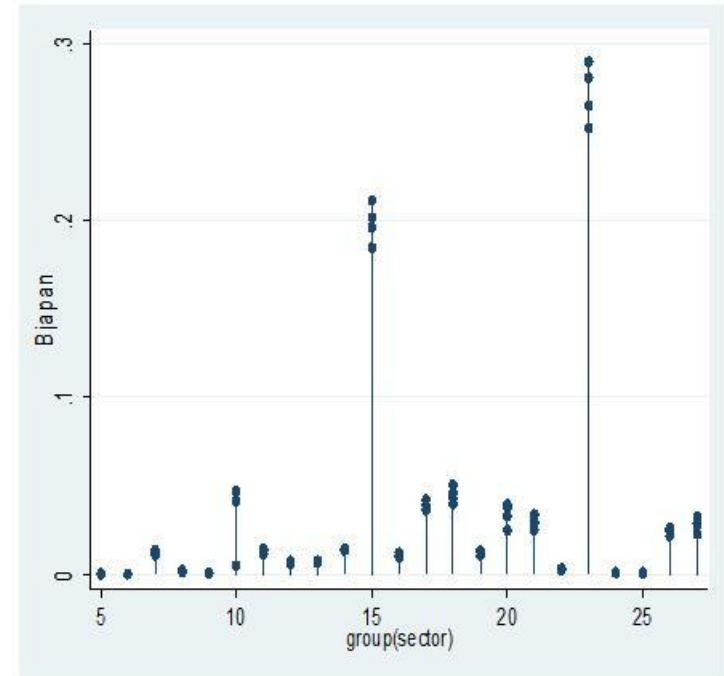
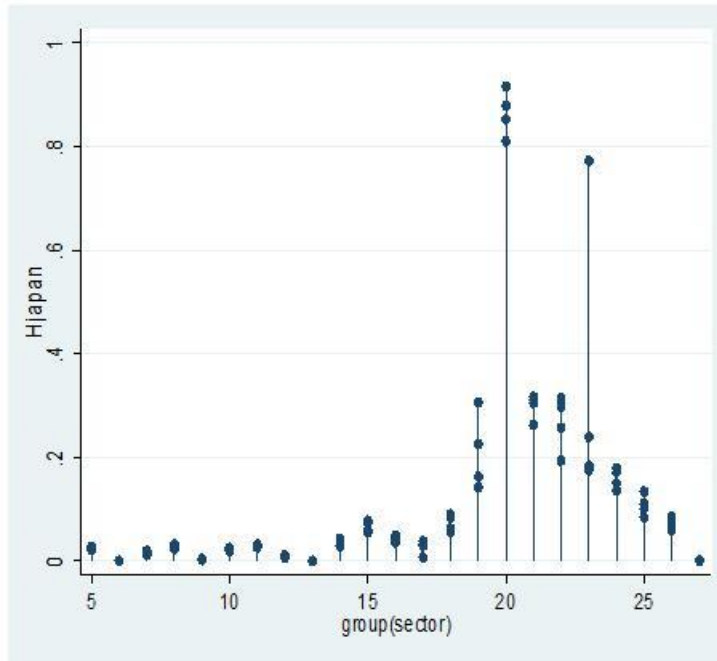
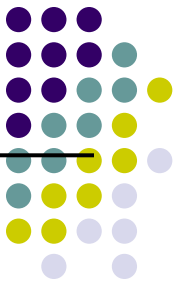
m – Origins: Japan, Taiwan, South Korea, US, China, ASEAN, EU, Multi.



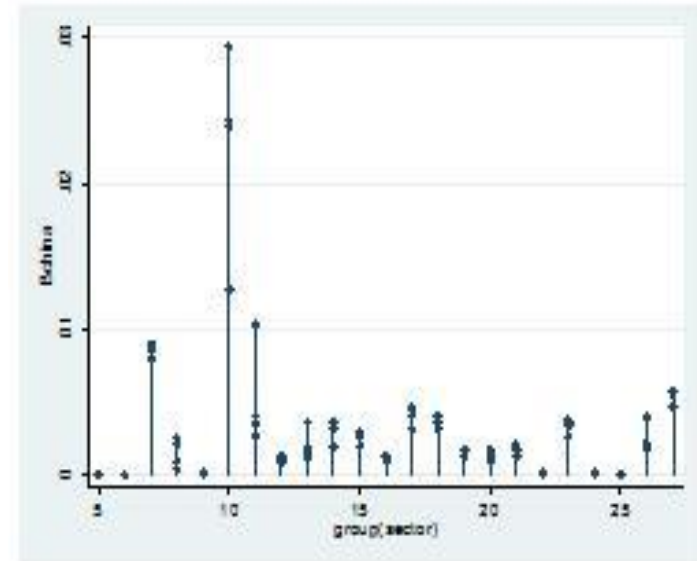
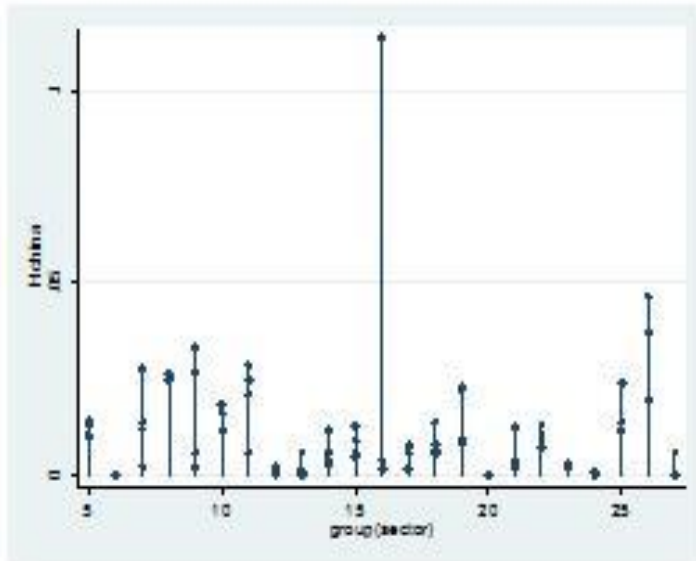
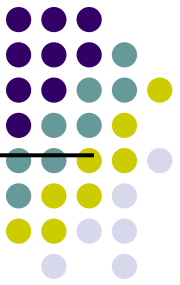
	Low Tech	High Tech	
1.	X		D15. Manufacture Of Food Products And Beverages
2.	X		D16. Manufacture Of Tobacco Products
3.	X		D17. Manufacture Of Textiles
4.	X		D18. Manufacture Of Wearing Apparel; Dressing And Dyeing Of Fur
5.	X		D19. Tanning And Dressing Of Leather ...
6.	X		D20. Manufacture Of Wood And Of Products Of Wood ...
7.	X		D21. Manufacture Of Paper And Paper Products
8.	X		D22. Publishing, Printing And Reproduction Of Recorded Media
9.	X		D23. Manufacture Of Coke, Refined Petroleum Products And Nuclear Fuel
10.		X	D24. Manufacture Of Chemicals And Chemical Products
11.	X		D25. Manufacture Of Rubber And Plastics Products
12.	X		D26. Manufacture Of Other Non-metallic Mineral Products
13.	X		D27. Manufacture Of Basic Metals
14.	X		D28. Manufacture Of Fabricated Metal Products ...
15.		X	D29. Manufacture Of Machinery And Equipment N.e.c.
16.		X	D30. Manufacture Of Office, Accounting And Computing Machinery
17.		X	D31. Manufacture Of Electrical Machinery And Apparatus N.e.c.
18.		X	D32. Manufacture Of Radio, Television And Communication Equipment And
19.		X	D33. Manufacture Of Medical, Precision And Optical Instruments ...
20.		X	D34. Manufacture Of Motor Vehicles, Trailers And Semi-trailers
21.		X	D35. Manufacture Of Other Transport Equipment
22.	X		D36. Manufacture Of Furniture; Manufacturing N.e.c.
23.	X		D37. Recycling

**Notes: Manufacturing industries classified according their global technological intensity (OECD, 1993)*

Distribution of Horizontals and Backwards - Japan



Distribution of Horizontals and Backwards - China



Low-tech Intensity Indicator (LTI)



For backward linkages:

- If $j = 15$ low-tech industries: $B_{m_lowtech} = \frac{\sum_j B_{mjt}}{15}$
- If $j = 8$ high-tech industries: $B_{m_hightech} = \frac{\sum_j B_{mjt}}{8}$

$$LTI = 100 * B_{mt_lowtech} / B_{mt_hightech}$$

- If **LTI > 100%**: the buyers from country or association **m** purchase more local low-tech products.
- If **LTI <= 100%**: the buyers from country or association **m** purchase more local high-tech products.

For horizontal linkages:

$$LTI = 100 * H_{mt_lowtech} / H_{mt_hightech}$$

- If **LTI > 100%**: foreign affiliates from country or association **m** appear more in low-tech industries.
- If **LTI <= 100%**: foreign affiliates from country or association **m** appear more in high-tech industries.

Low-tech Intensity for Backwards and Horizontals



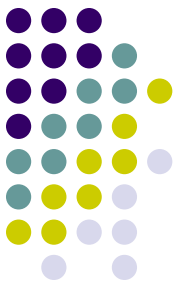
	<i>Backwards- LTI</i>					<i>Horizontals- LTI</i>
	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>Avr.</i>	<i>Avr.</i>
<i>%</i>						
The US	258.9	200.5	235.6	202.6	224.4	99.3
ASEAN	268.2	194.2	190.6	183.2	209.1	108.9
China	217.3	292.6	301.3	319.5	282.7	218.6
Europe	201.8	193.8	192.5	158.9	186.8	83.2
Japan	63.1	60.3	63.2	57.6	61.1	9.0
South Korea	110.1	112.9	111.7	150.2	121.3	105.7
Taiwan	242.3	241.3	232.4	242.5	239.6	192.9
Multinationals	117.9	121.5	104.3	131.4	118.8	13.6

BACKWARD SPILLOVERS BY ORIGIN, 2007-2010



Variables	<i>Dependent Var._ lnTFP</i>		
	<i>OLS</i>	<i>FE (JVs+100%FIEs)</i>	<i>FE (100% FIEs)</i>
Btaiwan	2.139*** (0.429)	1.866*** (0.315)	2.276*** (0.321)
Bchina	3.014*** (1.036)	-1.901*** (0.714)	-1.678** (0.740)
Bamerica	9.481*** (2.080)	2.565* (1.504)	4.230** (1.692)
Basean	-6.802*** (1.422)	-8.226*** (1.202)	-8.510*** (1.135)
Beurope	2.677*** (0.701)	2.591*** (0.712)	1.221* (0.635)
Bsouthkorea	0.203 (0.882)	0.200 (0.350)	-0.186 (0.363)
Bmulti	-0.246 (0.371)	0.343 (0.325)	0.203 (0.326)
Bjapan	1.356*** (0.350)	-0.402*** (0.112)	-0.323*** (0.108)
<i>Year dummies</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>
<i>Observations</i>	<i>114,733</i>	<i>114,733</i>	<i>114,733</i>
<i>R-squared</i>	<i>0.076</i>	<i>0.085</i>	<i>0.086</i>

F_tests (P_ values): **0.000** (Btaiwan=0, Basean=0, Beurope=0, Bjapan=0), **0.007** (Bchina=0), **0.088** (Bamerica=0), **0.568** (Bsouthkorea=0), **0.291** (Bmulti=0).

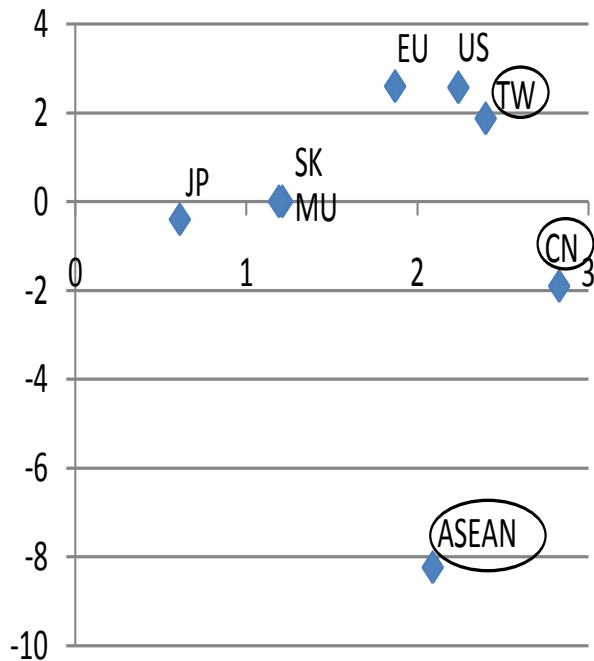


CRI ENGLISH

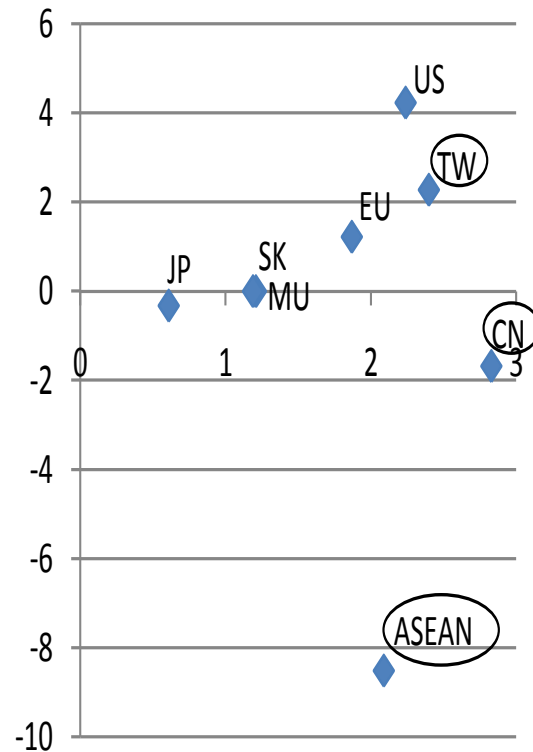


The Relation between Backward Spillover and LTI

All foreign firms by origin



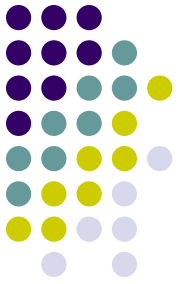
Wholly foreign firms by origin





CONCLUSION:

- ✿ Investments from one origin and their demand have specific characteristics: low-tech or high-tech intensive.
- ✿ The origins of which foreign firms demand more low-tech products possibly bring higher backward spillovers to domestic suppliers.
- ✿ Lower backward spillovers from FDI originating from countries which are located nearby Vietnam due to high potential of imports.
- ✿ Local high-tech manufacturers should promote themselves to meet the demand from FDI customers.



THANK YOU FOR YOUR ATTENTION!

The Levinson and Petrin method



$$y_t = \alpha + \beta_1 k_t + \beta_2 l_t + \beta_3 m_t + \omega_t + \varepsilon_t$$

$$m_t = m_t(k_t, \omega_t)$$

$$\omega_t = \omega_t(k_t, m_t)$$

$$\omega_t = E[\omega_t | \omega_{t-1}] + \xi_t$$

$$y_t = \beta_l l_t + \varphi_t(k_t, m_t) + \varepsilon_t$$

$$\widehat{\varepsilon_t + \xi_t} = y_t - \hat{\beta}_l l_t - \beta_k^* k_t - \beta_m^* m_t - E[\widehat{\omega_t} | \widehat{\omega_{t-1}}]$$

$$\text{tfp}_t = y_t - \beta_k k_t - \beta_l l_t - \beta_m m_t$$