

How global or regional are value chains in East Asia?

Evidence from an input-output analysis in total industries, textile, electronics, and automobile sectors

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Outline

1. Research problem
2. Research design: examining the value chains for production
3. Findings
4. Summary and implication

Research problem (1/3)

How global or regional are value chains in East Asia?
Total industry, textile, automobile and electronics
1995 – 2015

- Export-led industrialization
 - 1960s-1990s: Regional-globalization (Japan-led FG Model)
 - 1990s-2010s: Global-regionalization (the role of US and China)
- Input-output data: investigating domestic, regional, and global connectivity
- Implications for trade policy

Research problem (2/3)

Why focus on East Asia?

- Great contrast between weak regionalism and strong production linkages
- Hybridization of domestic, regional, and global production forces



Research problem (3/3)

1. DVA and FVA:

How **international** are value chains for each East Asian economy?

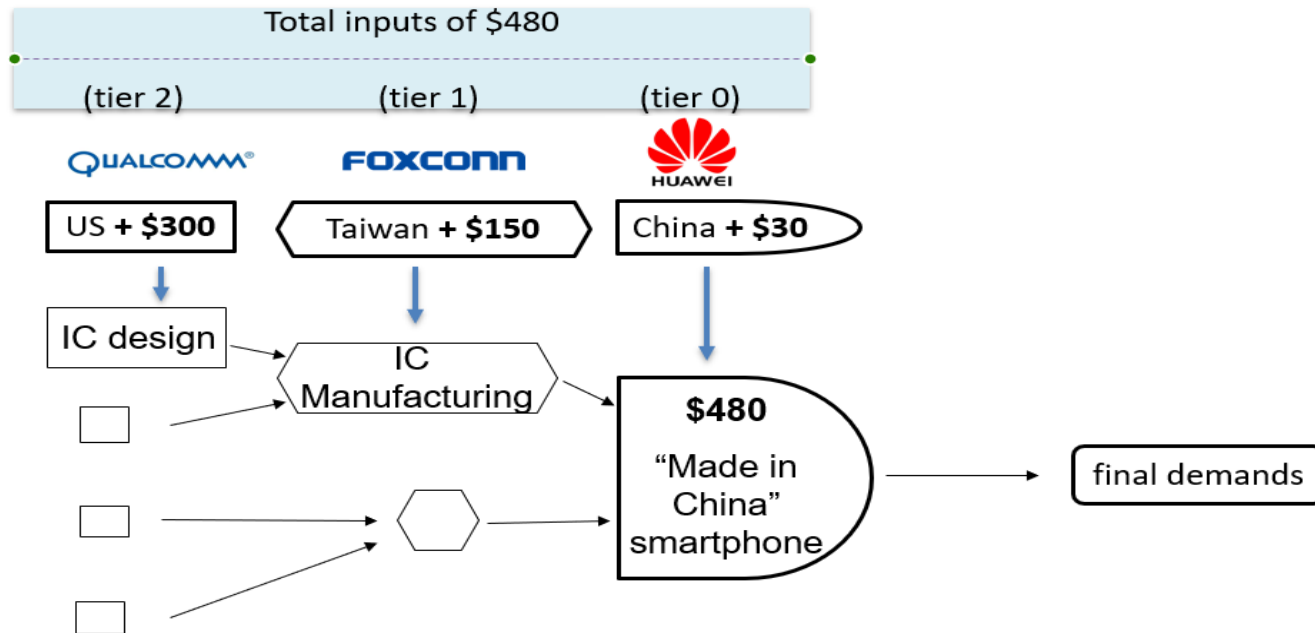
2. Origins of FVA:

Where do FVA of each economy come from?

- mostly **within the region** (ASEAN and Northeast Asia)?
- or **more global** (NAFTA, EU-28, and rest of the world)?

Research design (1/4)

Product-level production decomposition of final products



$$\begin{aligned} & g(\text{tier 2}) + g(\text{tier 1}) + g(\text{tier 0}) \\ &= \$300 + \$150 + \$30 \\ &= \$480 \end{aligned}$$

Research design (2/4)

Sector/economy-level production decomposition of final products

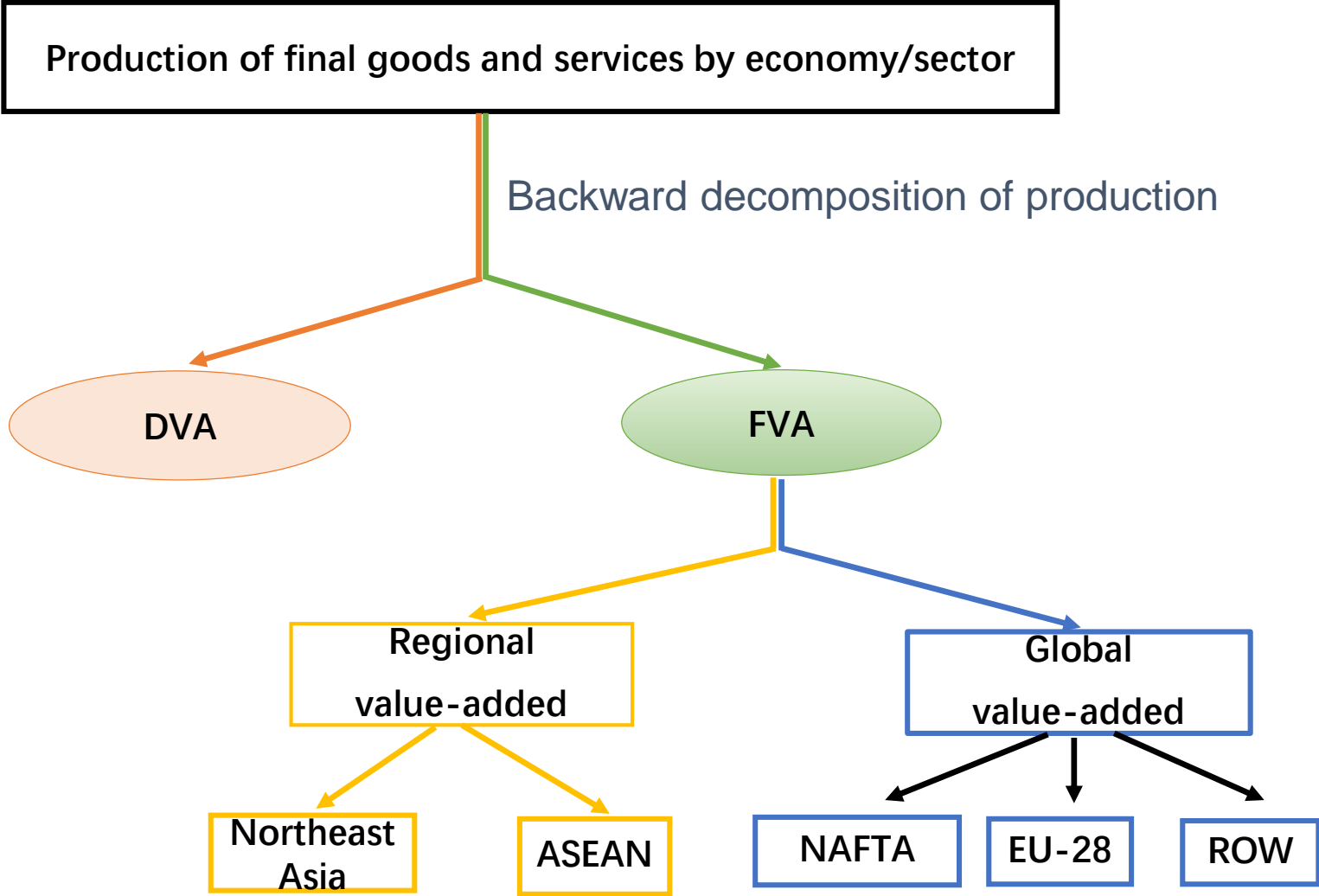
Los, Timmer and Vries (2015)

- GVC backward decomposition of production
- Different from trade decomposition - Koopman et al. (2014, AER)
- Leontief equation

$$\begin{aligned}g &= g(\text{tier0}) + g(\text{tier1}) + g(\text{tier2}) + \dots \\ &= \hat{V}(I + A + AA + \dots) Y \\ &= \hat{V}(I - A)^{-1} Y \\ &= \hat{V}BY\end{aligned}$$

Research design (3/4)

Data transformation



Research design (4/4)

Data source

OECD-Inter-Country Input-Output Database

- Economy dimension

Northeast Asia 5 : China, Taiwan(China), Hong Kong(China), Japan, South Korea

Southeast Asia 6: Singapore, Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam

- Sector dimension

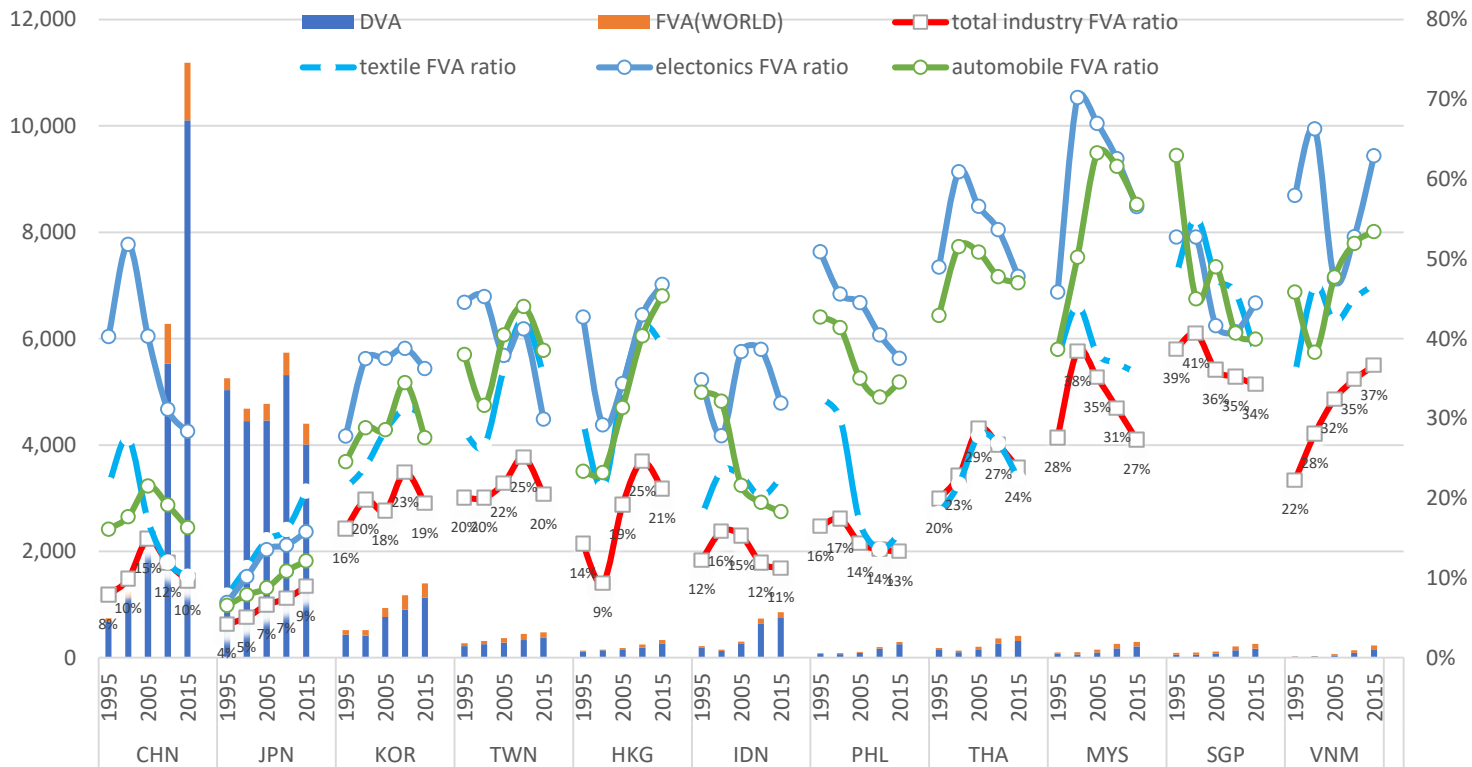
Sector in general & textile, electronics and automobile

- Benchmark years

1995, 2000, 2005, 2010, 2015

Findings (1/4) How international?

Features found from DVA and FVA ratios by sector/economy



FVA: Northeast Asia < ASEAN

Sector in general < textile, electronics, and automobile

NIEs presenting inverted-U shape

Findings (2/4) How regional?

Intra-regional: ASEAN, NEA and ASEAN+NEA

Economies	ASEAN			Northeast Asia			ASEAN+NEA		
	1995	2015	change	1995	2015	change	1995	2015	change
CHN	7.5	9.1	↑	41.8	22.8	↓↓↓	49.3	31.9	↓↓↓
JPN	13.1	12.3	↓	13.7	24.9	↑	26.8	37.2	↑↑
KOR	8.5	7.9	↓	29.2	31.9	↑	37.7	39.8	↑
TWN	8.5	10.7	↑	37.4	33.2	↓	45.9	43.9	↓
HKG	8.3	9.2	↑	48.9	35.6	↓↓	57.2	44.8	↓↓
IDN	8.1	16.9	↑↑	32.1	35.8	↑	40.2	52.7	↑↑
PHL	10.1	16.0	↑↑	40.4	37.7	↓	50.5	53.7	↑
THA	10.9	11.5	↑	36.2	37.8	↑	47.1	49.3	↑
MYS	11.4	16.0	↑	37.1	35.4	↓	48.5	51.4	↑
SGP	13.1	10.6	↓	32.4	24.5	↓↓	45.5	35.1	↓↓
VNW	17.6	11.0	↓↓	47.0	52.4	↑↑	64.6	63.4	↓

Notes: ↑/↓ (< 5%); ↑↑/↓↓ (5%-15%); ↑↑↑/↓↓↓ (>15%)



Findings (3/4) How global?

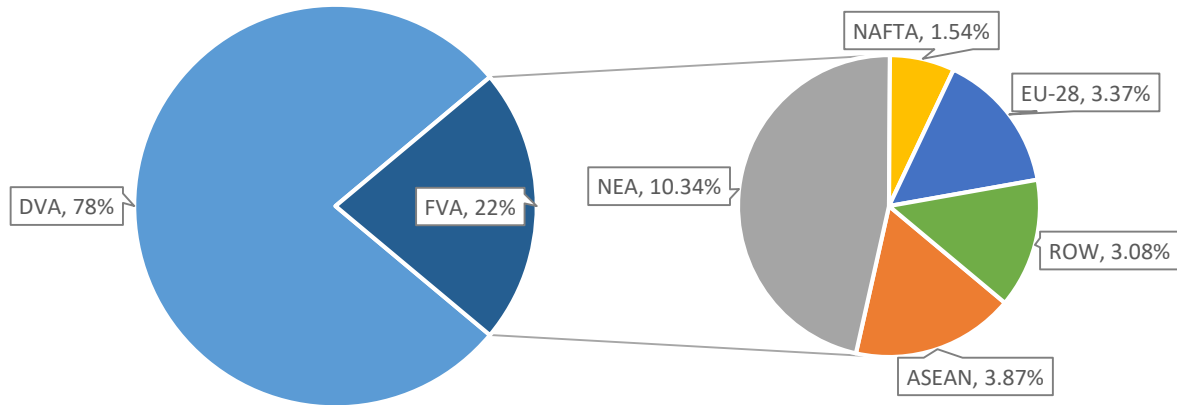
Extra-regional: NAFTA, EU-28, rest of world

Economies	NAFTA			EU-28			ROW		
	1995	2015	change	1995	2015	change	1995	2015	change
CHN	14.8	15.1	↑	17.8	15.3	↓	18.1	37.7	↑↑↑
JPN	26.3	15.1	↓↓	18.2	13.3	↓	28.6	34.4	↑↑
KOR	21.1	14.1	↓↓	15.9	14.6	↓	25.3	31.5	↑↑
TWN	19.4	10.0	↓↓	15.8	9.8	↓↓	19.1	36.4	↑↑↑
HKG	14.5	16.0	↑	16.5	17.9	↑	11.8	21.4	↑↑
IDN	13.7	8.4	↓↓	21.2	10.6	↓↓	24.9	28.3	↑
PHL	19.9	11.9	↓↓	14.3	10.7	↓	15.3	23.7	↑↑
THA	11.9	8.7	↓	19.1	11.0	↓↓	21.9	30.9	↑↑
MYS	12.7	10.9	↓	20.2	14.0	↓↓	18.6	23.7	↑↑
SGP	20.3	17.7	↓	17.4	18.8	↑	16.8	28.4	↑↑
VNW	6.1	7.0	↑	15.3	9.1	↓↓	14.0	20.6	↑↑

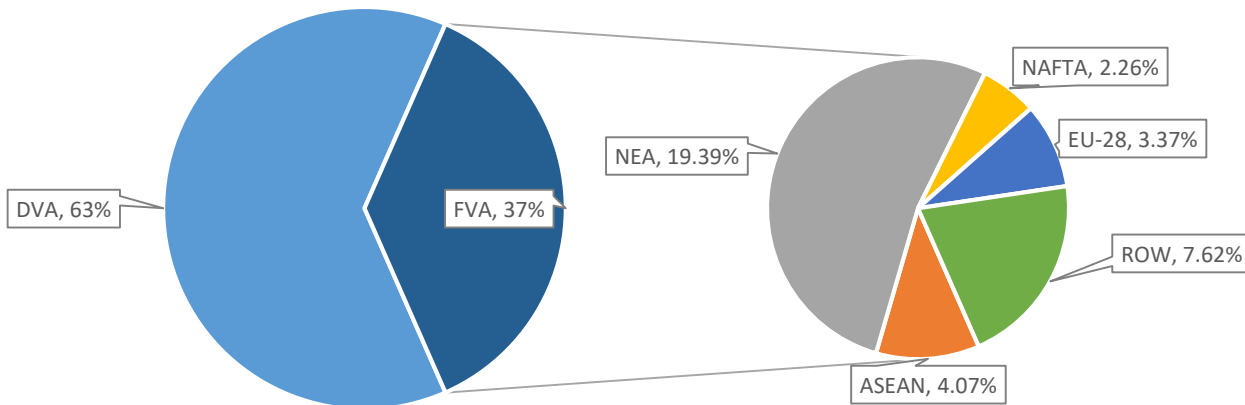
Notes: ↑/↓ (< 5%); ↑↑/↓↓ (5%-15%); ↑↑↑/↓↓↓ (>15%)

Made in Viet Nam: 1995 and 2015

VNM 1995



VNM 2015



Findings (4/4)

Sectoral features

- Textile: China-centred and globally dispersed
- Electronics: concentrated in ASEAN+3
- Automobile: more domestically-oriented; ASEAN members tend to source more within the sub-region

Summary and implications (1/2)

How global or regional are value chains in East Asia?

Economy-sector level

- The extent of internationalization: FVA 
similarity: firstly ↑ and then ↓
difference: turning points
- Complexities in global, regional and domestic connectedness
 - ? : ASEAN+3
 - ↑↑↑: Rest of the world
 - ↓↓↓: EU-28; NAFTA

Summary and implications (2/2)

The value chains in East Asia are global as well as regional.

Linking up to RVCs can be an important avenue for developing economies in East Asia to build domestic productive capacity and integrate into the wider GVCs.

- Textile
- Electronics

Develop multitrack trade policies with multilateral, regional, and bilateral negotiation fronts and use these agreements to push for needed domestic reforms.

Thank you!
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