

# Changing GVCs in Asia with Nearshoring and Reshoring:

## *Implications for Innovation policy*

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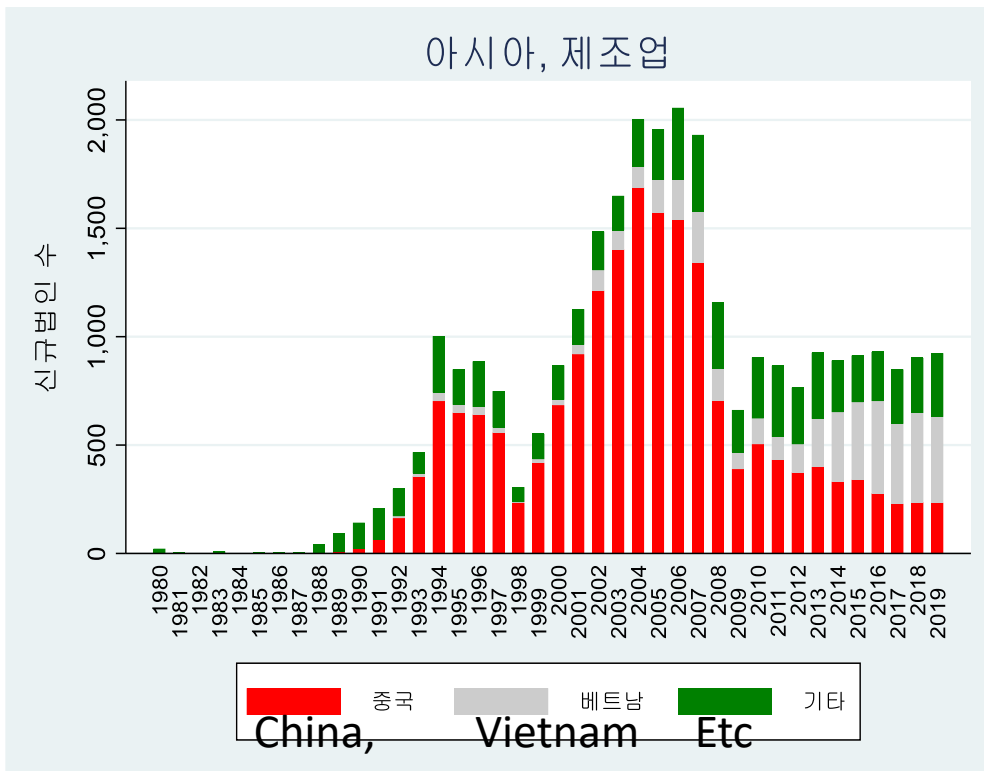
**Editor, Research Policy**

**Three new factors determining GVC in Asia:  
Digitalization, US-China Conflict, and Covid-19  
=> De-globalization ->reshoring/nearshoring**

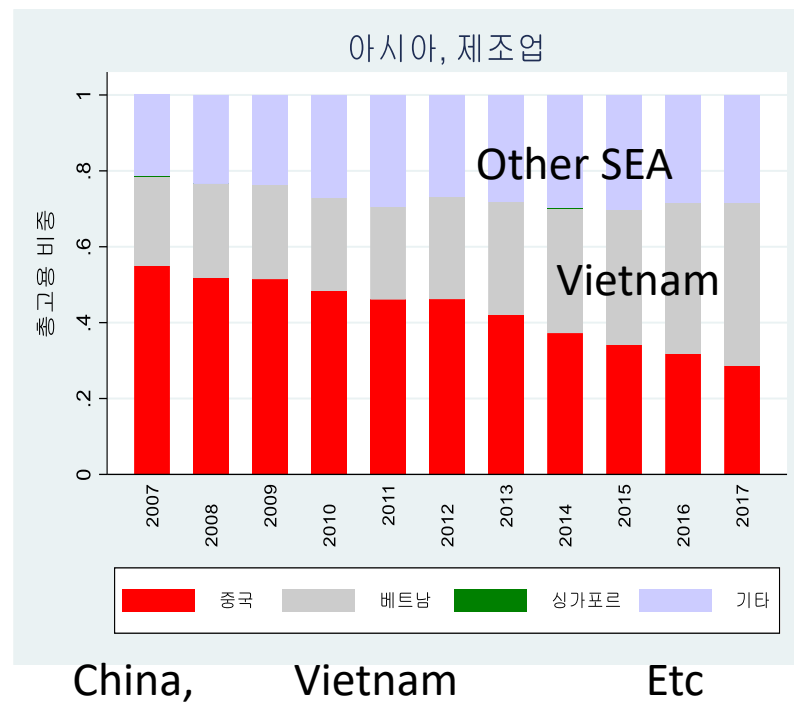
- **US-China trade conflicts ( tariffs against China):**  
=push factor for trade/FDI diversion  
(out of China to Southeast Asia: nearshoring)
- **Digitalization (automation, smart factory)**  
= enabling factor for reshoring back home
- **Covid-19 + incentives:**  
= expediting factor for reshoring or nearshoring

# Changing Locations of Korean FDI in Asia: from China to Vietnam and others; + some reshoring

No of FDI cases, 1980-2019

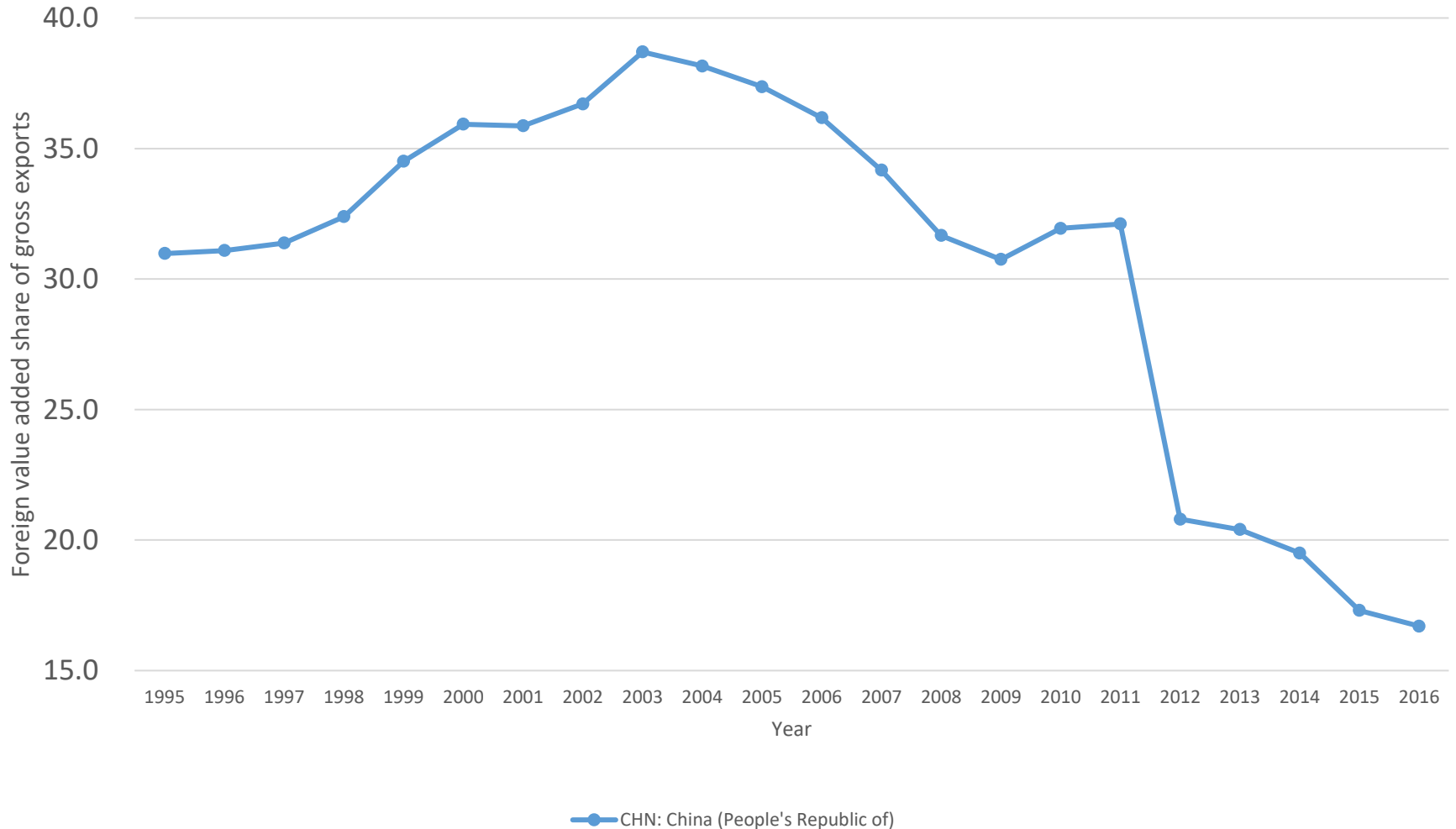


Share in Employment



출처: 수출입은행 해외직접투자 통계 자료 이용 박지형/안재빈 계산; <https://stats.koreaexim.go.kr/main.do>

**China's GVC (FVA= share of foreign value-added in gross exports)  
=> All Made in China => Replace foreign intermediates by domestic  
Peak at 37% in early 2000s decrease to 17% In late 2000s  
(Lee et al 2018)**



## Exit from China:

rise of local firms' competitiveness; rising wages  
=> Many case of nearshoring and reshoring

1) 19 cases of nearshoring to SEA (south east Asia):  
mostly due to the US-China Conflicts

eg) Sharp (Japan) : LCD screen subject to the US tariffs;  
moving factory from China to Vietnam

2) 8 cases of reshoring back to home:

owing to incentives for reshoring; smart factory; near to markets

Eg) Intel: owing to reshoring incentives (corporate taxes)

3) Remaining case of Chinese firms investing in Korea  
or other firm investing in Mexico or E Europe:  
due to rising wages in China

# Nearshoring from China to SEA; due to the US-China trade dispute

Firm	Home country	Item	Moving to
Hasbro, Inc	U.S.	Toy	Vietnam
Brooks Sports Inc.	U.S.	Sports shoes	Vietnam
Apple	U.S.	Electronics	Indonesia
Ever Win International Co.	U.S.	Smartphone & PC components	Philippine
Head International	Austria	Sports equipment	Philippine
Delta	Taiwan	Electronics & IT H/W	India
Ricoh	Japan	Camera & office equipment	Thailand
Sharp	Japan	LCD display	Vietnam
Olympus	Japan	Optics & camera	Vietnam
<b>Kyocera</b>	<b>Japan</b>	<b>Copier &amp; multi-function printer</b>	<b>Vietnam</b>
Sony	Japan	Smartphone	Thailand
Panasonic	Japan	Car audio	Thailand & Mexico
Nidec	Japan	Electronics/ car components	Mexico

# Reshoring back to home due to incentives, smart factory, and seeking high quality & customer satisfaction

Firm	Home country	Item	From China Moving back to
Intel Co.	U.S.	Semiconductor	U.S.
Apple Inc.	U.S.	Smartphone	U.S.
Schaeffler AG	Germany	Car components	Germany
Adidas AG	Germany	Sportswear	Germany
Electrostar GmbH	Germany	Electronics	Germany
Autec AG	Germany	Adventure toy	Germany
Piquadro	Italy	Luxury leather bags	Italy
Mitsubishi Electric Co.	Japan	Electronics	Japan

## Chinese firms out of China to foreign countries : due to the trade conflicts and rising wages in China

Firm	Home country	Item	Moving to
Xinlong Car Materials	China	Bike components	Vietnam
Shandong Linglong Tire	China	Tire	Serbia
Mingtai	China	Aluminum	South Korea
Tshingshan Iron & Steel	China	Iron & steel	South Korea

Source: KOTRA(2019), "신남방 주요국 가치사슬 활용전략", Global Market Report 19-100. ; recited from Jung (2020)

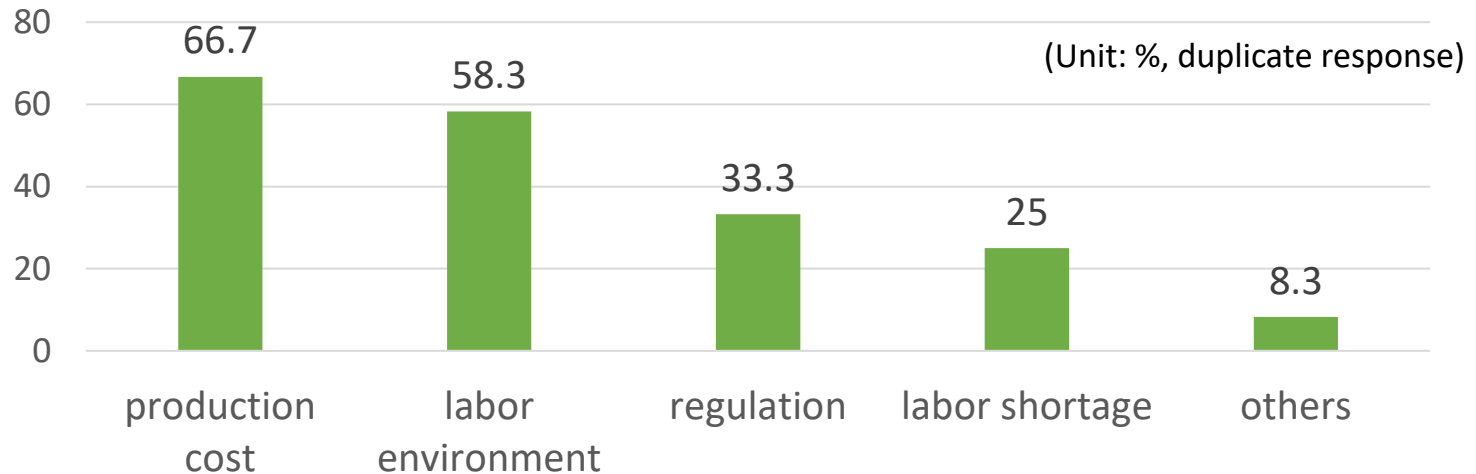


# Cases of Disruption by Covid 19: auto sector in Korea

- Eg) Hyundai Motors:
    - Wiring harness = an assembly of electric cables that transmits all the necessary information for cars to function.
    - Most of the car manufacturers in Korea used to have their wiring harnesses produced in factories that are located in China;
    - as the Covid-19 struck China, wiring harness factories in China had to shut down.
    - Consequently, car factories couldn't operate since wiring harnesses are necessary for earlier processes of car production;
- ⇒ Now being reshored back to Korea,  
by policy initiatives combined with digitalization  
( a package combining reshoring incentives + digitalization)

# Korean firms cases of reshoring now increasing

- Earlier Survey results: Reasons of being reluctant to reshoring



But, since 2019; the no of reshoring kept increasing

2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
-	-	20	3	12	4	9	16	16	80

## Reshoring after the Covid-19: two types in Korea

	Definition	Cases	Needed Intervention
1	Reshoring by flattening of GVC ; domesticizing a segment in GVC by process innovation; From foreign processing & domestic assembly to domestic processing & assembly	Aju Steel Solgent (virus testing kit) OTOS (PAPR) Mask factories	Financial Assistance plus Technical Assistance (help from gov't agency and other firms/experts)
2	Reshoring accompanied by: large scale automation of manufacturing process or smart factorization.	G&G Enterprise (apparel) Treksta (Shoes) Hyundai Mobis	Financial Assistance + technical help

Many SMEs capability too low to do this themselves

-> Room for Improvement but they don't know how to do it => need for help

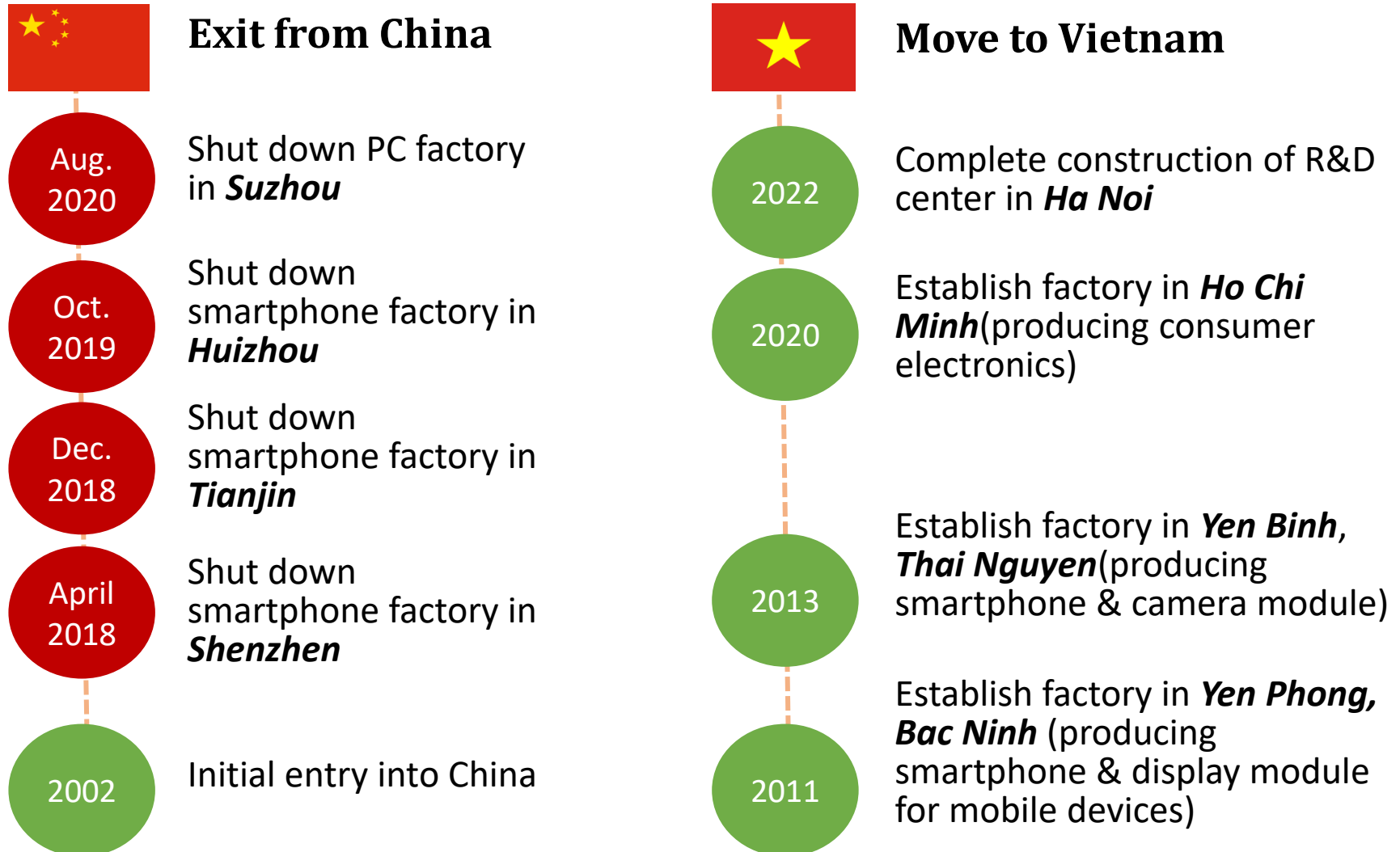
# Nearshoring as an alternative of reshoring

## ■ Nearshoring?

- The practice of transferring a business operation to a nearby country, especially in preference to a more distant one
  - Practice of locating a business to places with better business conditions even if they are not the nearest countries
  - Some Korean firms adopted nearshoring rather than reshoring by moving their factories and facilities from China to Southeast Asian countries (e.g., Vietnam, Indonesia, Philippine and Cambodia) and India
- \* Samsung: moved all final assembly out of China to SEA but kept only three intermediate parts (memory chips, electric batteries, and MLCC);
- Eg) M/S of cell phone in China: 20% in 2010s to 0.5% in 2020

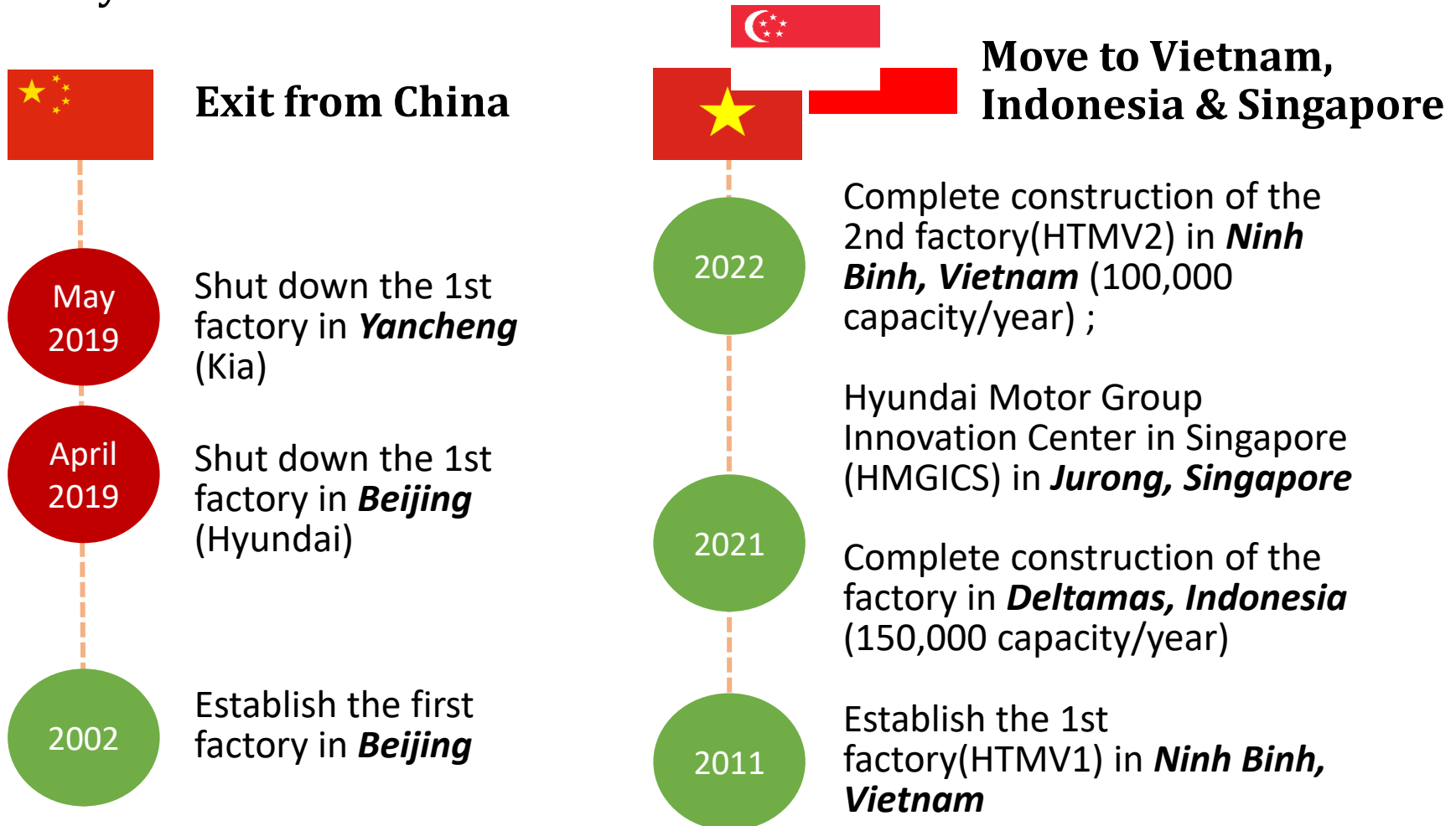
# Korean cases of nearshoring: Samsung

- Samsung is producing almost 60% of the smartphone in Vietnam



# Korean cases of near-shoring: Hyundai-Kia

- Hyundai's sales of the 1st quarter in 2020 first beats the sales of Toyota in the Vietnam market



Source: Joongangilbo (news article on 14 October 2020); Chosunilbo (news article on 26 November 2019); Naeil (news article on 4 April 2019).

# Korean cases of nearshoring: Underwear brands

- Goodpeople Co.
  - Decrease the Chinese production capacity up to 20% and increase Cambodian production volume in 2012
  - Plan to build a 9.9 billion won factory in ***Hai Phong, Vietnam***, and a 5 billion won factory ***in Phnom Penh, Cambodia***
- BYC Co.
  - Shut down the Chinese factories step by step and establish a factory ***in Jakarta, Indonesia*** in 2013
  - Shut down Jeonju in Korea in 2018 for integrating into a factory in Jakarta, Indonesia
- Cotton-Club Co.
  - Shut down the Chinese factories step by step and significantly reinforce production bases in ***Philippine, Cambodia, and Indonesia***.

# Implications for Southeast Asia (SEA): New Opportunity for onshoring/nearshoring

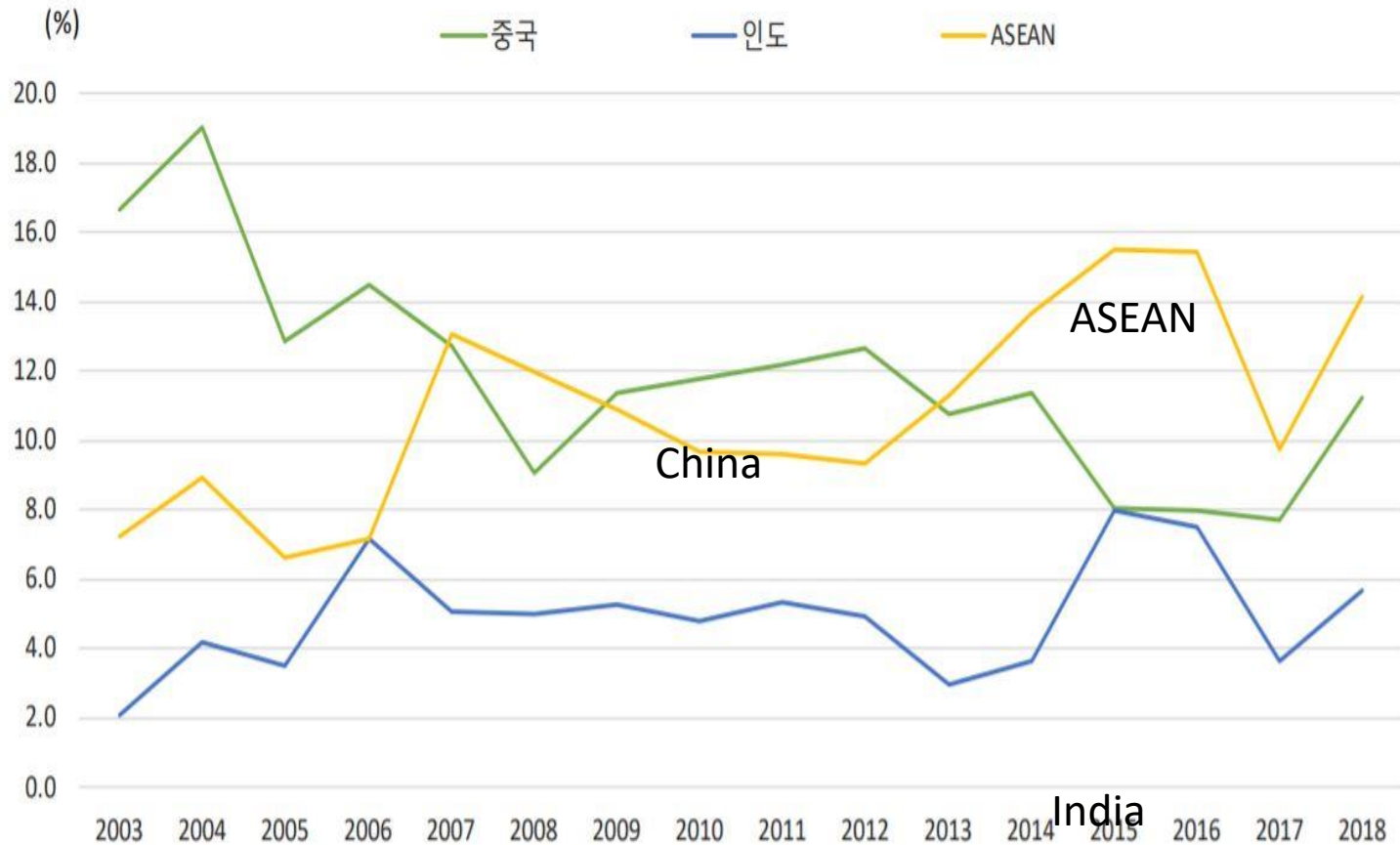
- China exodus
  - = new opportunity for SEA to overcome the challenges posed by 4IR to keep onshoring (existing FDI) or attract new nearshoring out of China

cf) The Earlier Challenges from the 4iR

- 1) With automation, low-cost labour is less effective strategy to attract manufacturing investment
  - 2) A trend towards re-shoring of manufacturing back to the rich world (eg Apple in the US and Adidas making shoes in Germany)
  - 3) GVC or global supply chains to become flatter:
    - ( leave less room for some intermediate producers)
- But grabbing this new opportunity requires upgrade human capital; reskilling/up skilling



## % Shares in total Green field FDI to Emerging Economies: ASEAN > China, India

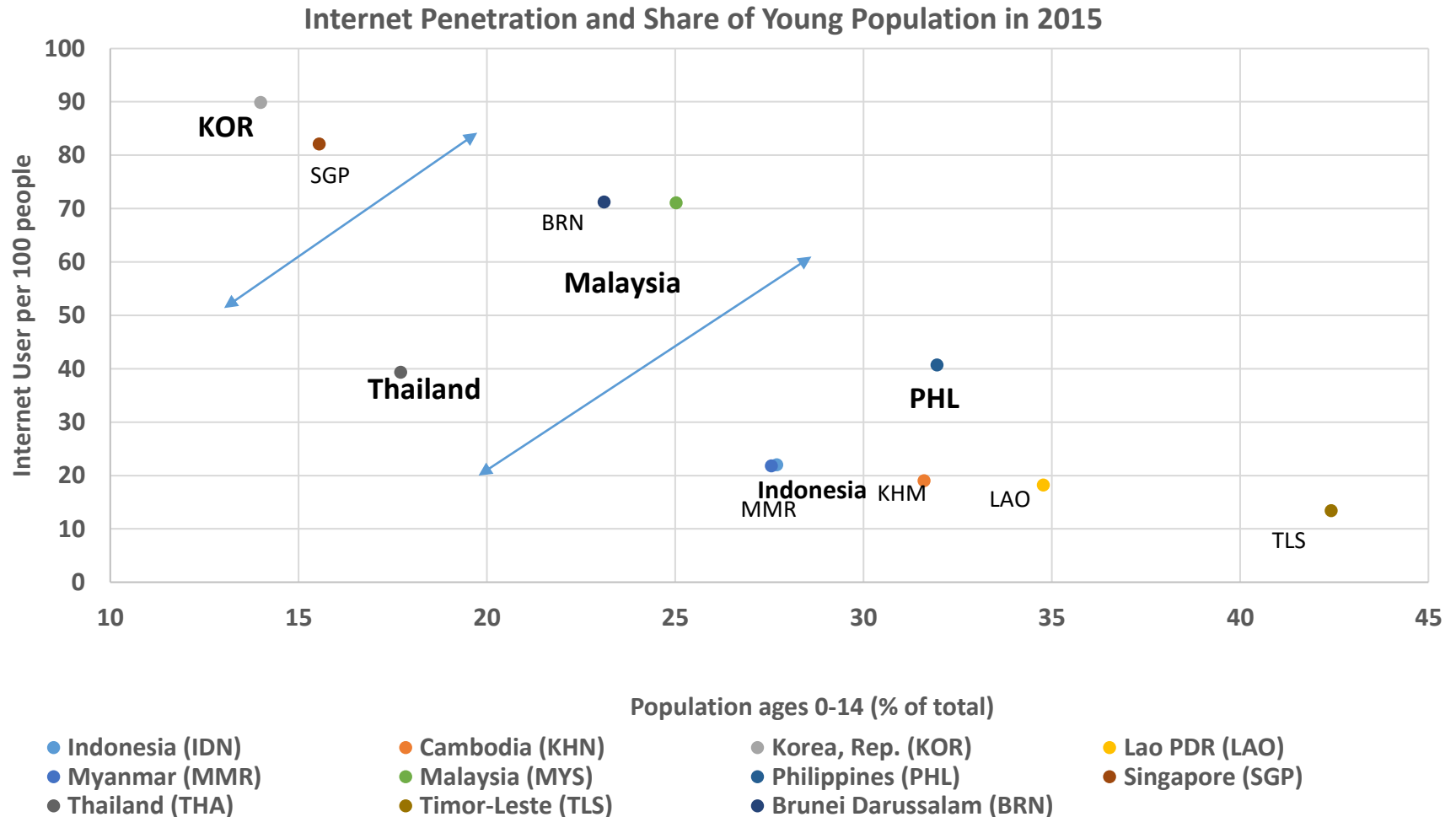


### ➔ “Double Dividends” of ASEAN (SEA)

- 1) Demographic dividends of young population
- 2) Digital dividends: high digital literacy.

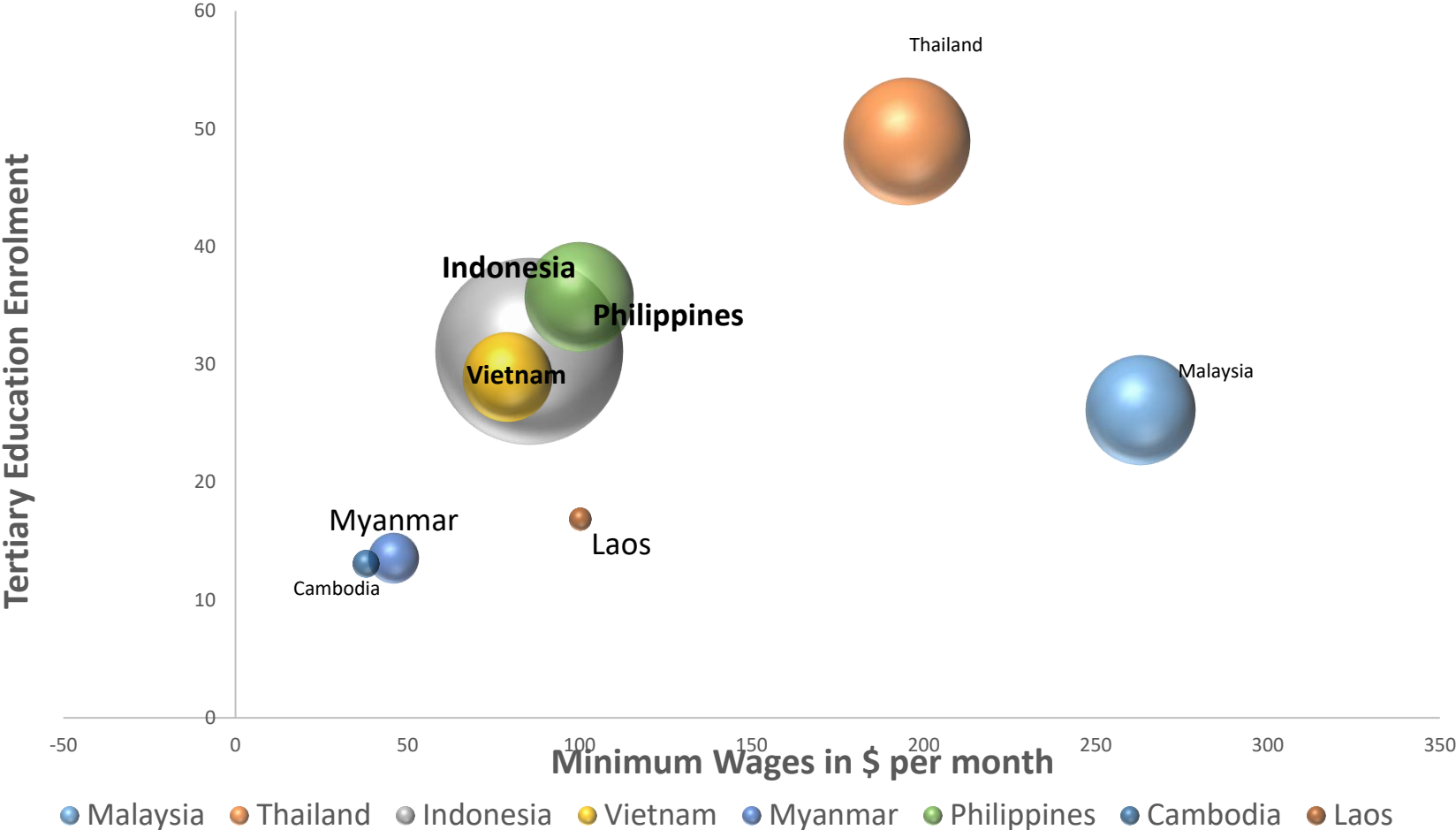
# But, ASEANs are heterogenous:-> Diverse Risk and Opportunities;

eg) Malaysia, Thailand = labor shortage;  
Indonesia, Vietnam = large young populations.



Source: (Lee et al 2019)

# Three factor model ( Lee et al 2019): Minimum wage, college education, and Market(GDP) size (in circles)



## Two Groups: Onshoring group vs. Nearshoring Group

1) Onshoring for Group 1 (Thailand, Malaysia):

: High Wage, High Skilled/Internet, big GDP

=> Keep existing FDI by upskilling + digital transformation (4IR)

- Opportunity (and pressure) to upgrade embracing 4IR/digitalization utilizing both domestic and regional (ASEAN) markets

2) New Nearshoring for Group 2 (Vietnam, Indonesia, Philippines):

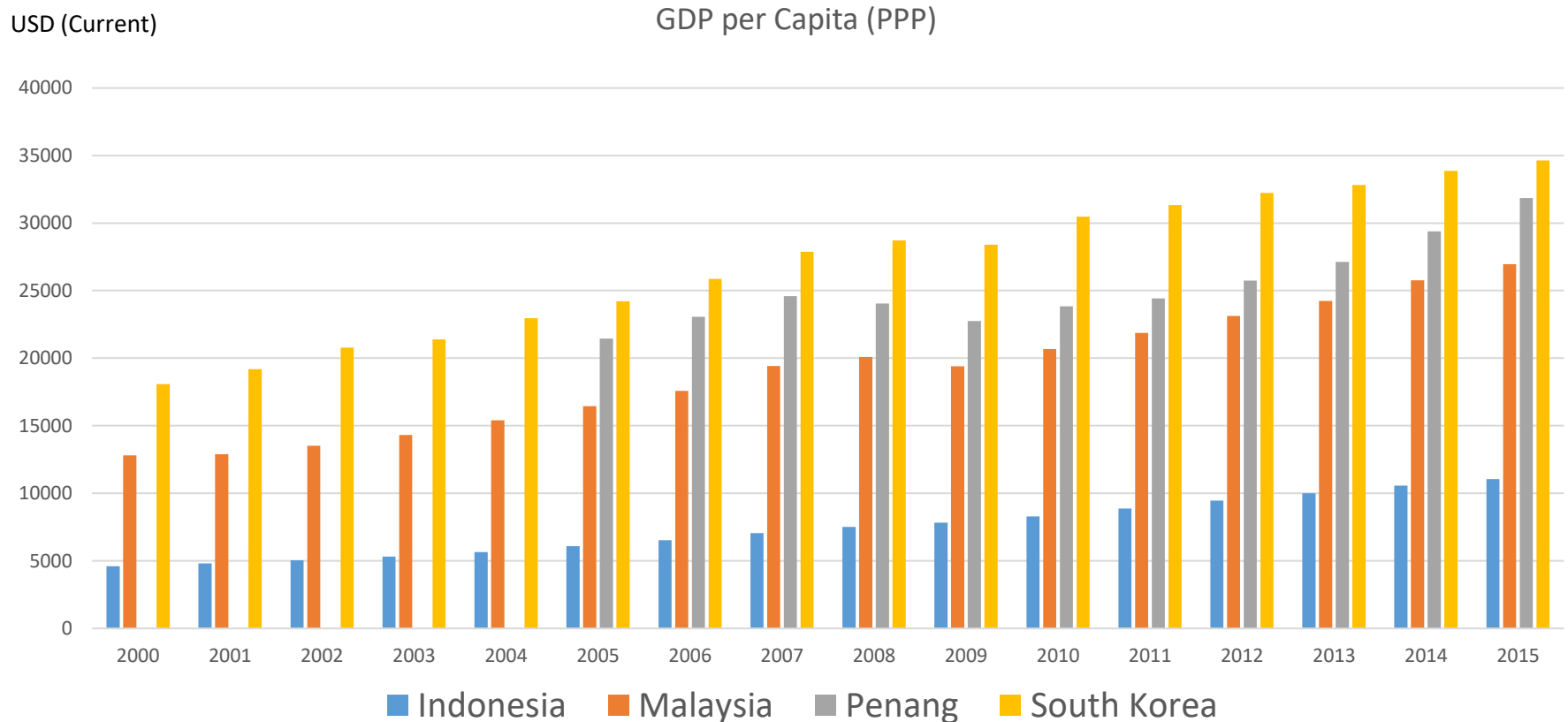
-- Med. Wage, med skilled, med/big GDP

but, should upgrade human capital

and build up domestic value chains to hold factories;  
or to develop more niches in diverse sectors

# Case of Promising Upgrading Penang in Malaysia = over the MIT (mid income trap)

- Penang = manufacturing hub for MNCs since 1972
- MNCs were attracted to the low cost wages and tax haven.
- Upgrading and developing new niches
- High income level = South Korea => Over the middle income trap.



## Penang = Some Hollowing out, Upgrading, and Local Spillovers (spinoffs)

- 1) Some Signs of Downsizing of MNCs with rising wage;  
to rationalise their resources and reduce redundancies over the past few years.  
-- eg) Amphenol, Hitachi Global Storage Technologies (HGST).
- 2) Also, some strong signs of Adjustment and upgrading  
MNCs (Intel) reducing in low value adding operation,  
for more R&D, prototyping and servicing centre;  
b/c Penang = a strong supply chains that enable state-of-the-art technologies & services.

⇒ **Penang evolving towards a cluster that provides software, engineering design, R&D and industrial system-based services.**

- 3) Also, some spillover leading to emergence of Local Firms
  - Local firms defining niches and new industries for Penang.
  - - committed to advance their highly value added activities in Penang.

Eg) a) Vitrox (a spin-off from HP producing automated machine inspection vision system);

B) Globetronics (a spin off from Intel providing semiconductor process services);

C) EngTek (from a humble workshop in 1970s providing services to MNCs to producing hard disk drive components, precision tooling).

# How to respond to the Challenge of 4IR: Up- and Re-skilling Training Center = Penang Skill Development Centre (PSDC)

- Penang Development Centre (PDC) = a state established in 1969
- => HP, Intel and Motorola founded Penang Skill Development Centre (PSCD) in 1989;  
-- a non-for-profit institution to provide technical knowledge and training program to engineers in the industrial park for advanced manufacturing operations.
- Now serving about 200 member firms;
- trained 7,048 individuals as certified skilled workers.
- PSDC, playing a significant role in developing competencies for 4IR, such as:
  - I4.0: the idea, architecture, demand and approach
  - Embedded Systems for IoT
  - Cloud Architectures & Technologies
  - Cybersecurity Fundamentals for I4.0
  - Big Data: Methods and Solutions
  - The Robot Operating System

## How to respond the Challenge of 4IR (2): R&D and Education = CREST; Coping with brain drain

### 1) CREST in Penang

- established an R&D consortium (CREST) hosting MNCs and local firms, universities and research institute
  - to perform R&D; and provide research training to talented individuals to achieve critical mass of skilled human workforce for Industry 4.0.
- CREST formed research areas that define explicitly the domains of Industry 4.0.
  - creating a collaborative scheme to promote co-patenting activities among its members.

### 2) Coping with Brain drain

- The state government has acknowledged the issue of brain drain.
  - number of programs to reverse the phenomenon.
    - a) scholarship (Penang Future Foundation) to those who pursue higher degrees
    - b) a state agency, Penang Career Assistance and Talent Centre :
      - informing talents the needs and knowledge gaps of the industries.
    - c) offer space for talented young people for start-up businesses, such as creative animation services and APP development.
- -- Singapore talented personals moved to Penang: enjoy lower cost of living.



# Another alternative since the Pandemic: Resource-based development which requires less integration to GVCs

- Disruption of GVC in the post-pandemic era posts both additional difficulties and new opportunities for emerging countries  
=> new modes of development relying more on domestic resources for a more resilient pattern of GVC and development
- Further, given a high entry barrier for high end manufacturing; high-value-addition in resource-based sectors should be tried.

- Lebdioui et al (2020): Malaysia and Chile = beyond the middle income trap, => owing to their success not in manufacturing but in several resource-based sectors :

Malaysia: petroleum, rubber and palm oil sectors

Chile: salmon, fruits, wine and wood products in Chile.

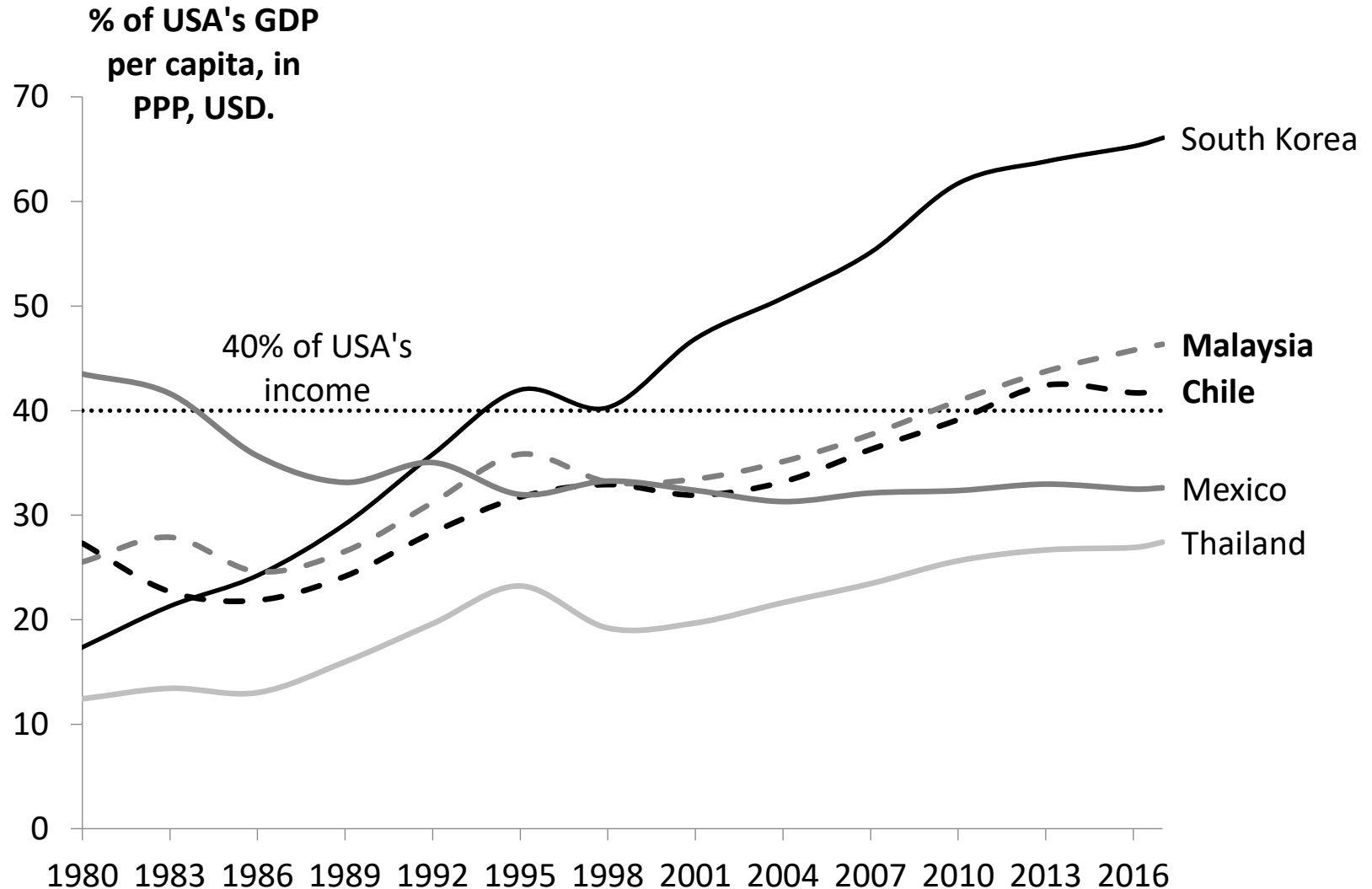
A case in Indonesia: eFisheries (Lee 2021)

# *Using IoT technologies for fish farming in Indonesia*

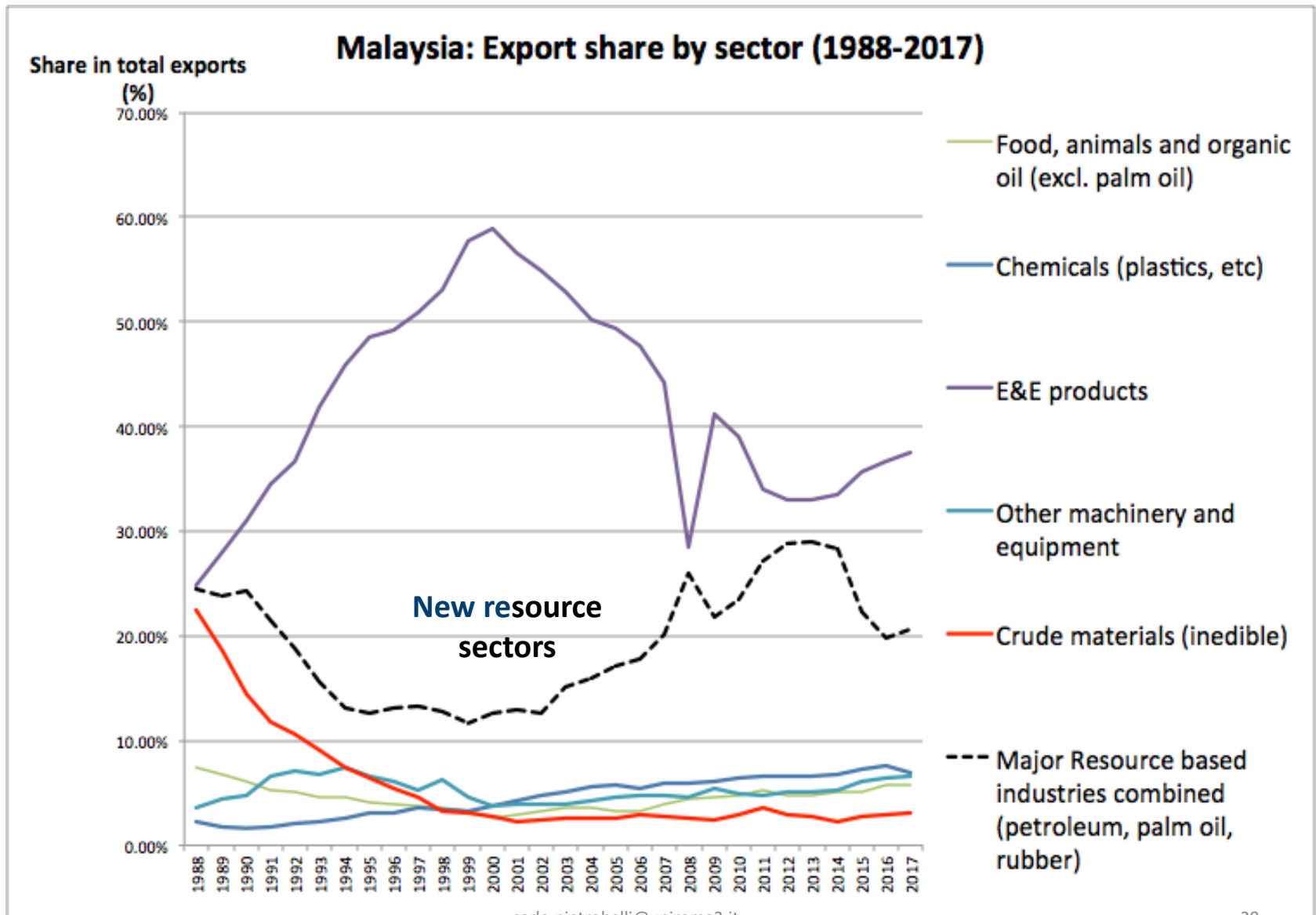
- Founded in 2013, eFishery is one of the first “fishtech” start-ups in Indonesia.
- It provides an IoT solution for fish and shrimp farming businesses.
  - feeding costs account for around 80 per cent of total expenses;
  - feeding is inefficiently carried out by unskilled labour
- eFish- created a device that enables automated feeding of stock in fish farms, which results in reducing feeding costs, better feed performance, fish growth, water quality
  - reduce the amount of feed used by farmers by around 21 per cent.
- Ranked first in start-up competitions. : raised 5.2 million\$ in total funding.
  - to become a platform: connects the entire ecosystem of fish farming
- Impact on Indonesia’s aquaculture industry;
  - help enhance the lives of more than 3.3 million Indonesian fish farmers;
  - 3.3 million fishponds and 2.7 million fish farms: big industry;

# Chile and Malaysia's growth in perspective

GDP per capita as % of US GDP per capita in selected countries



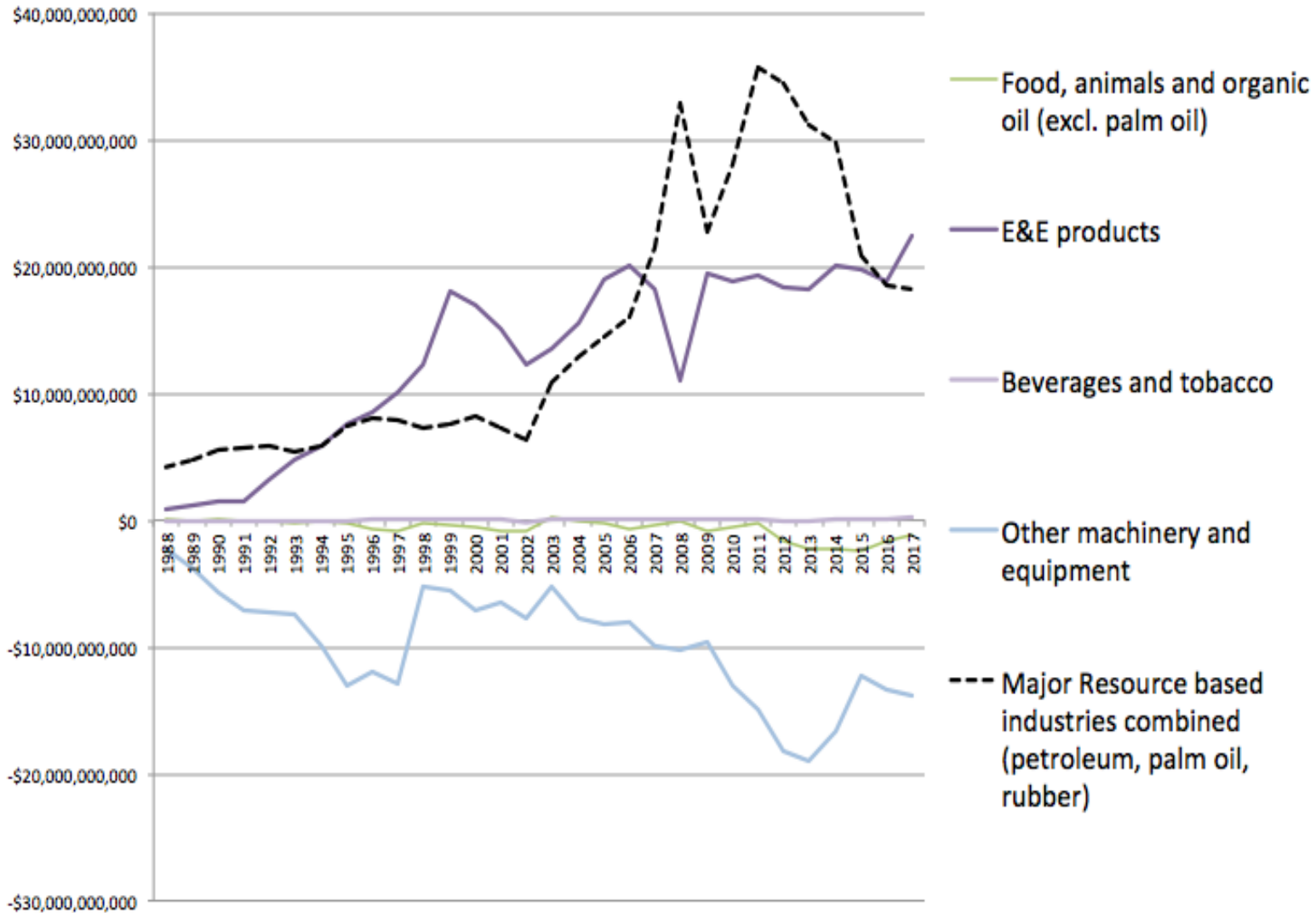
# Export Performance of the Leading Sectors in Malaysia



# Contribution to earning dollars (trade balance) in Malaysia

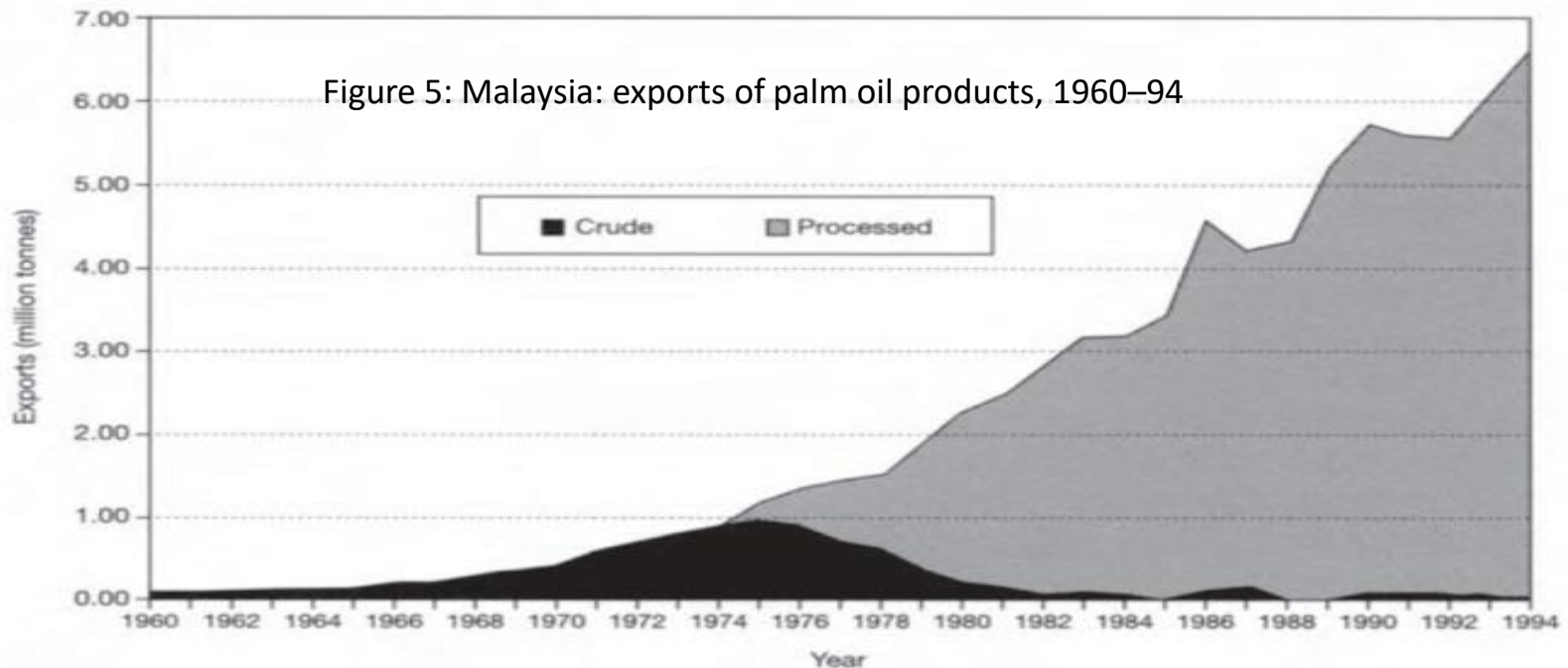
larger surpluses than E&E sector, especially since 2006.

Trade balance  
(USD)



## Upgrading in Palm Oil in Malaysia: from crude to processed: cf) Indonesia's' export of crude palm oil

- The palm oil industry = second largest contributor to trade;  
fourth-largest contributor to gross national income.
- Export earnings : from USD15 million in 1960 to USD27 **bil.** in 2011.
- **share of processed exports in total palm oil product exports;**
- **from 0% in 1974 to 99% by 1994.**



Source: Gopal (1999)

# Industrial/Innovation policy and local ownership to overcome latecomers' disadvantages in Palm Oil:

## **1) trade policy and promotion**

(to counter the European tariffs not on crude but on processed palm oil);  
imposed export taxes on crude palm oil

## **2) Nationalisation and takeover of foreign ownership:**

Hostile takeover in the London stock exchange of British owned plantations  
in Malaysia in 1981

## **3) R&D support and fiscal incentives for value addition**

Palm oil Research Council; Oil Palm Genetics Laboratory (OPGL)

Tax incentives for the utilization of oil palm biomass

Tax incentives for reinvestment in resource-Based industries

# Concluding Remarks

- Changing environment:  
Digitalization, Covid-19, high wages in China; US-China conflicts (tariffs on China)  
⇒ Both opportunity and threat, depending upon local responses and preparedness
- New Opportunity for Nearshoring and new sources and modes of growth
  - 1) Nearshoring + digitalization for manufacturing in SEA;
    - Need upskilling and reskilling and infrastructure
  - 2) New growth with resource-based sectors
    - for high value-added, export orientation,
    - by combining new technologies;
    - need targeted innovation policy and financing including P-P venture capital,
    - promoting new alliances (vertical and horizontal)



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*Gracias!*    **ස්තූතියි!**

*Obrigado!*

*Thank you!*

*amesege'nalo'*

**謝謝大家**

**감사합니다**

**Danke shon!**

**ありがとう**