

Global Value Chains and Asia: Implications and Challenges

By: Cynyoung Park
The SEACEN Center
August 21, 2025

(based on the paper co-authored with David Kim, University of Sydney, and Hyeon-seung Huh, Yonsei University)

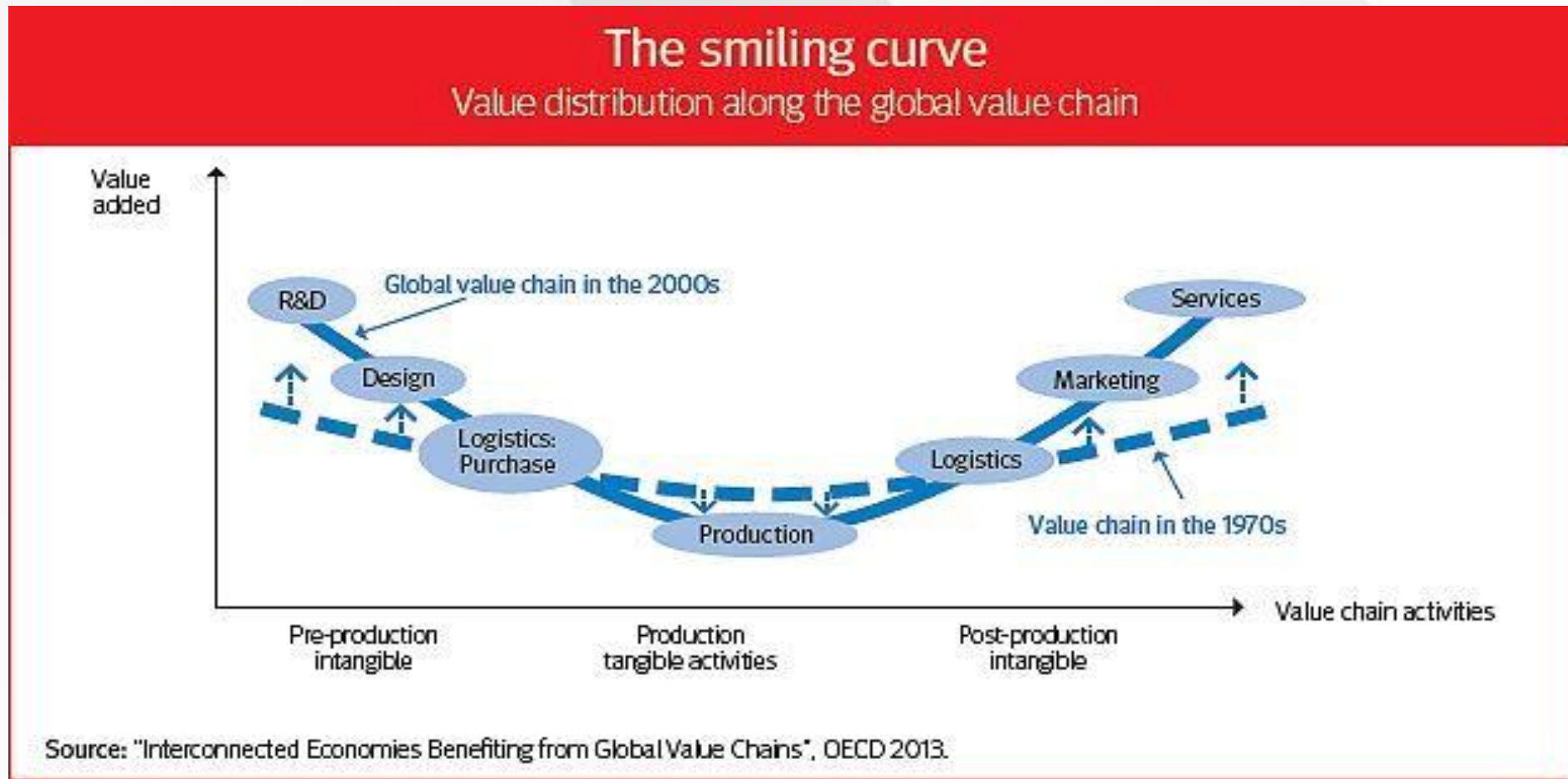
Background and Motivation

- ❖ Global trade landscape is shifting drastically with a series of major global events affecting global supply chains
- ❖ Geopolitical factors shaping global and regional trades since 2016: Trump 1.0 and 2.0.
- ❖ Increased regionalization of trades: RCEP and CPTPP.
- ❖ New drivers of global trade: How resilient is the regional trade to various shocks, including geopolitical events?
- ❖ Warrants an empirical study using bilateral value-added trade data.

GVC 'Stylized Facts'

- Almost two thirds of the global trade involve intermediate goods or inputs (Johnson and Noguera, 2012).
- There is a U-shaped relationship (known as the 'smile curve' as per Stan Shih, 1992) between firm-level value added and the upstreamness of their main industries of activity with respect to final demand.
- GVC participation has declined since the 2008 GFC.
- Gains from trade increase with input (intermediate goods) and multi-stage production trade than without, e.g., semiconductor industry (Antràs and de Gortari, 2020).

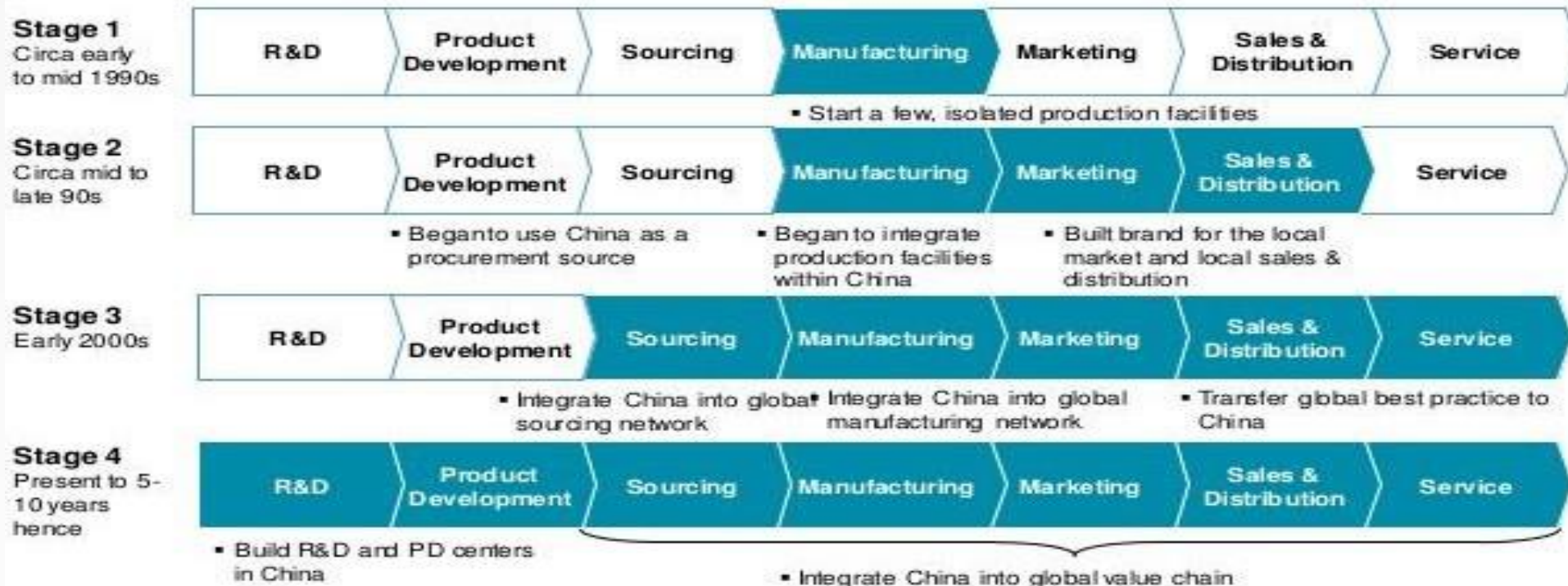
Where do Asian countries stand on the Smile Curve?



Implications of China's GVC participation strategy for Asia

AUTOMOTIVE VALUE CHAIN

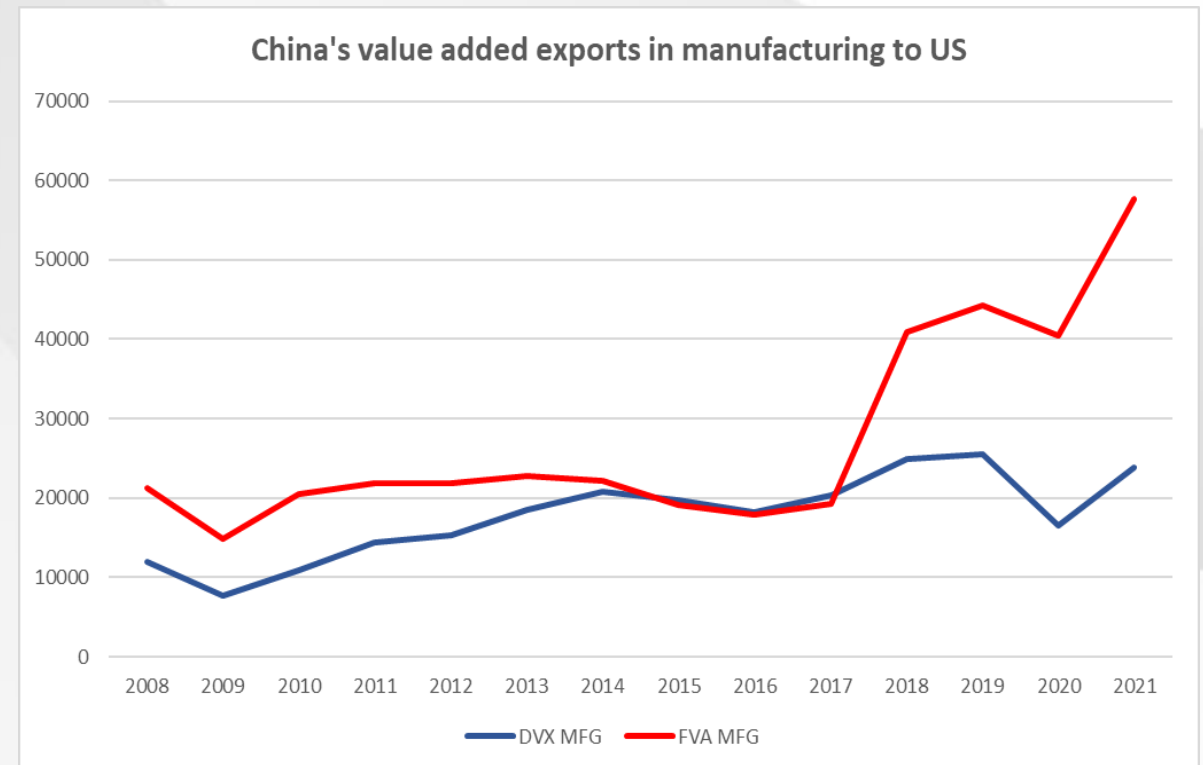
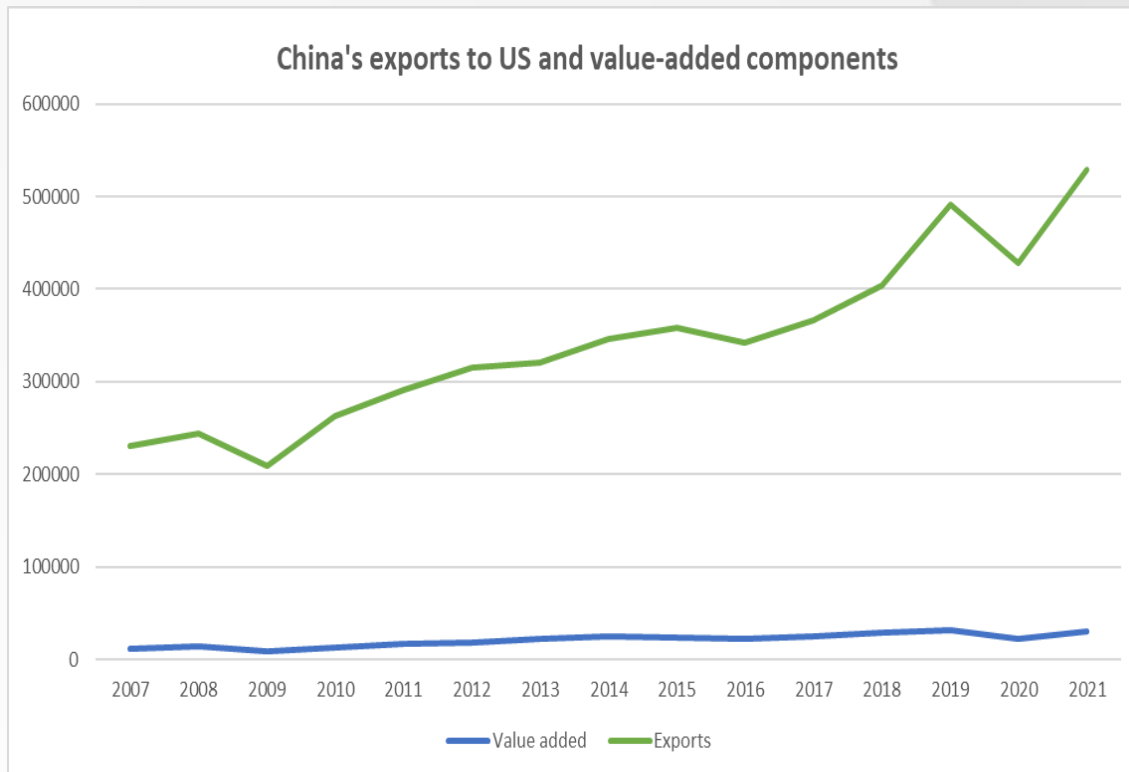
Even as China builds a full set of capabilities, new "internet of mobility" entrants are disrupting the value chain



Source: Gao Feng analysis

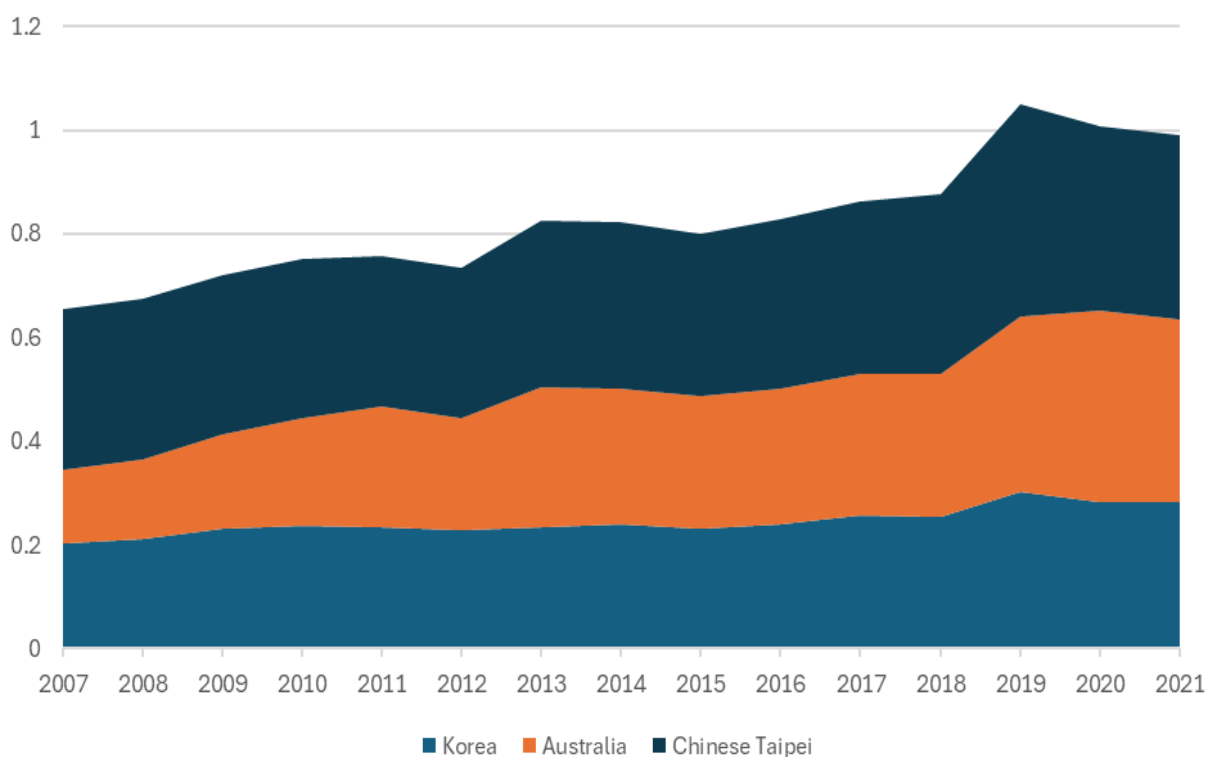
3

Did China's accession to WTO affect Asia's participation in GVC?

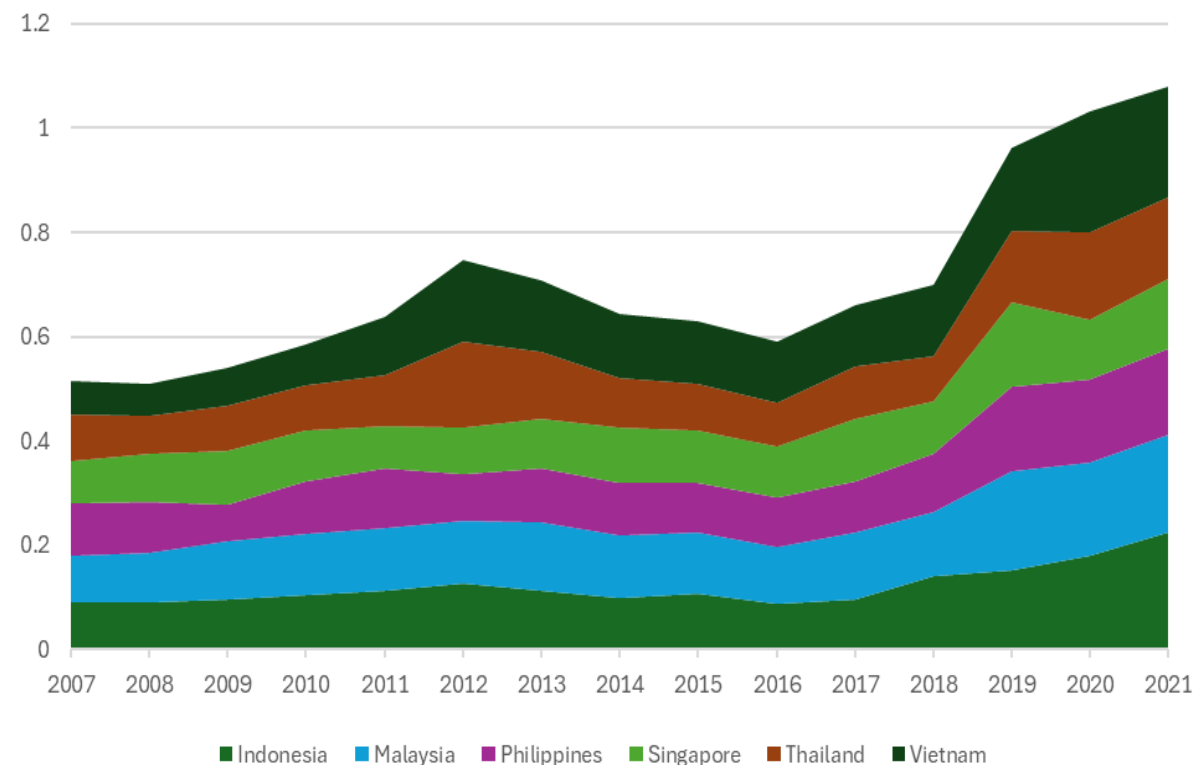


GVC evolution: Asia's China dependence has increased since 2008 and 2018

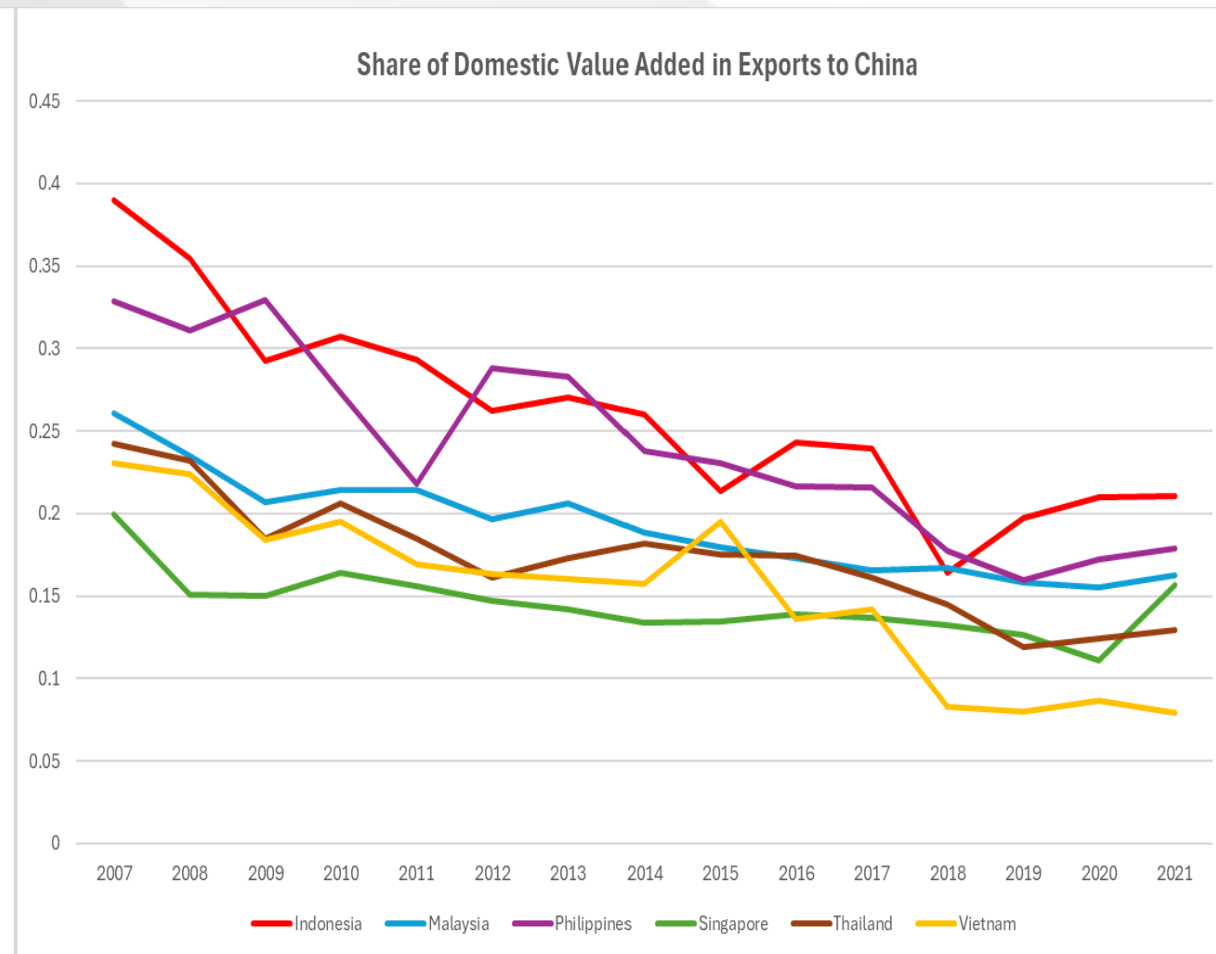
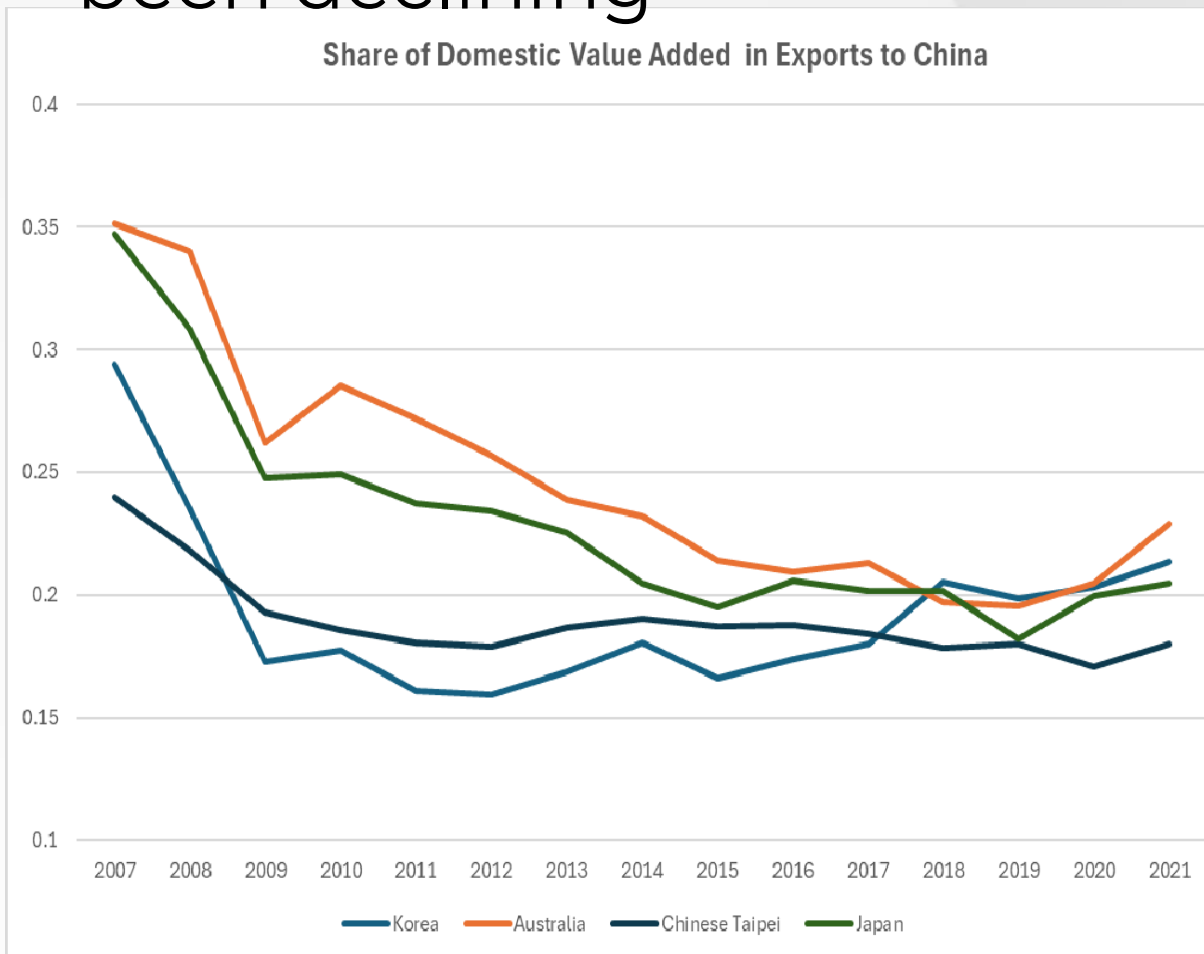
Top 3 AP economies with highest export dependence on China



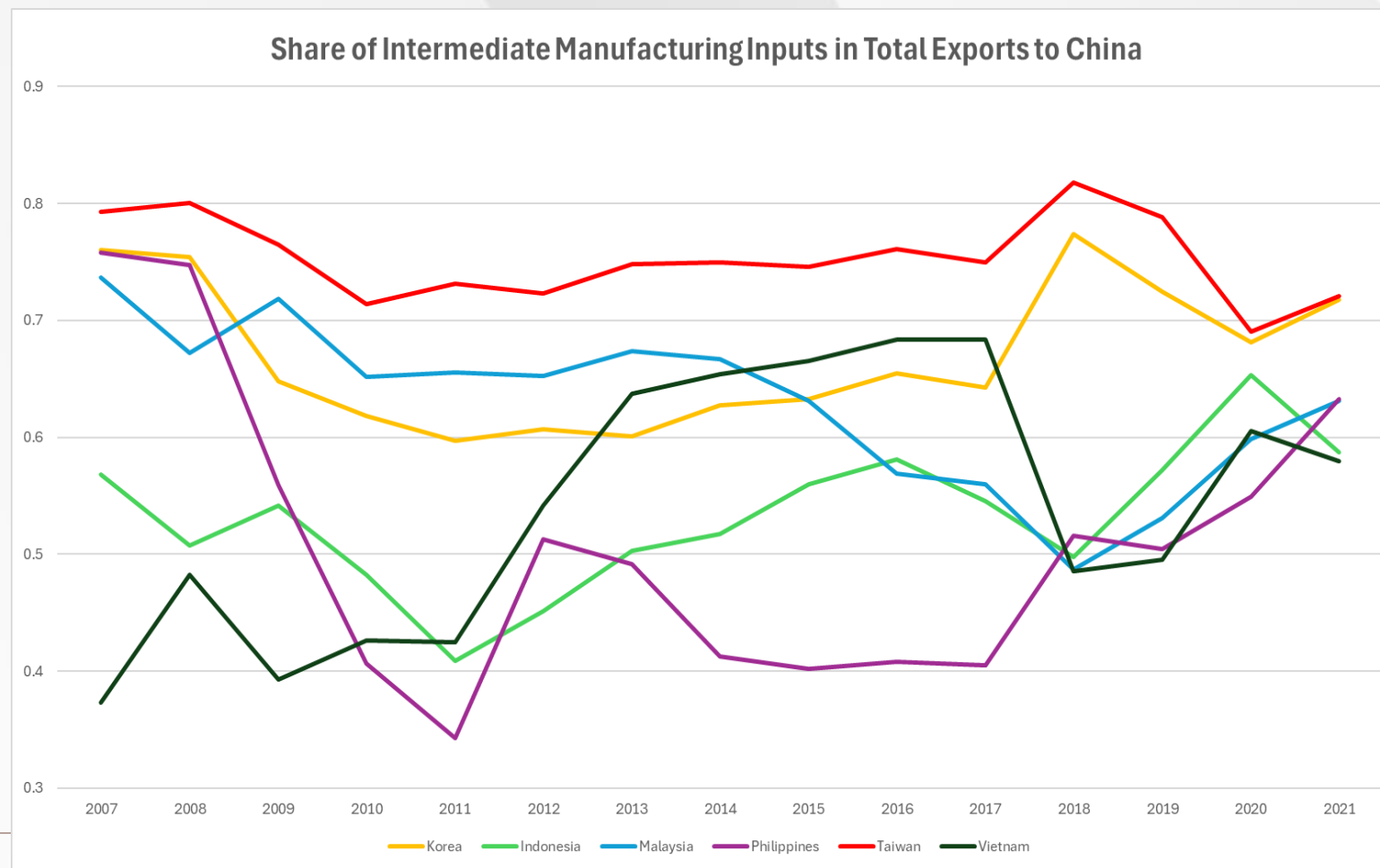
SEA's export dependence on China



Nevertheless, Asia's value-added exports to China have been declining



Asia's Intermediate manufacturing exports to China

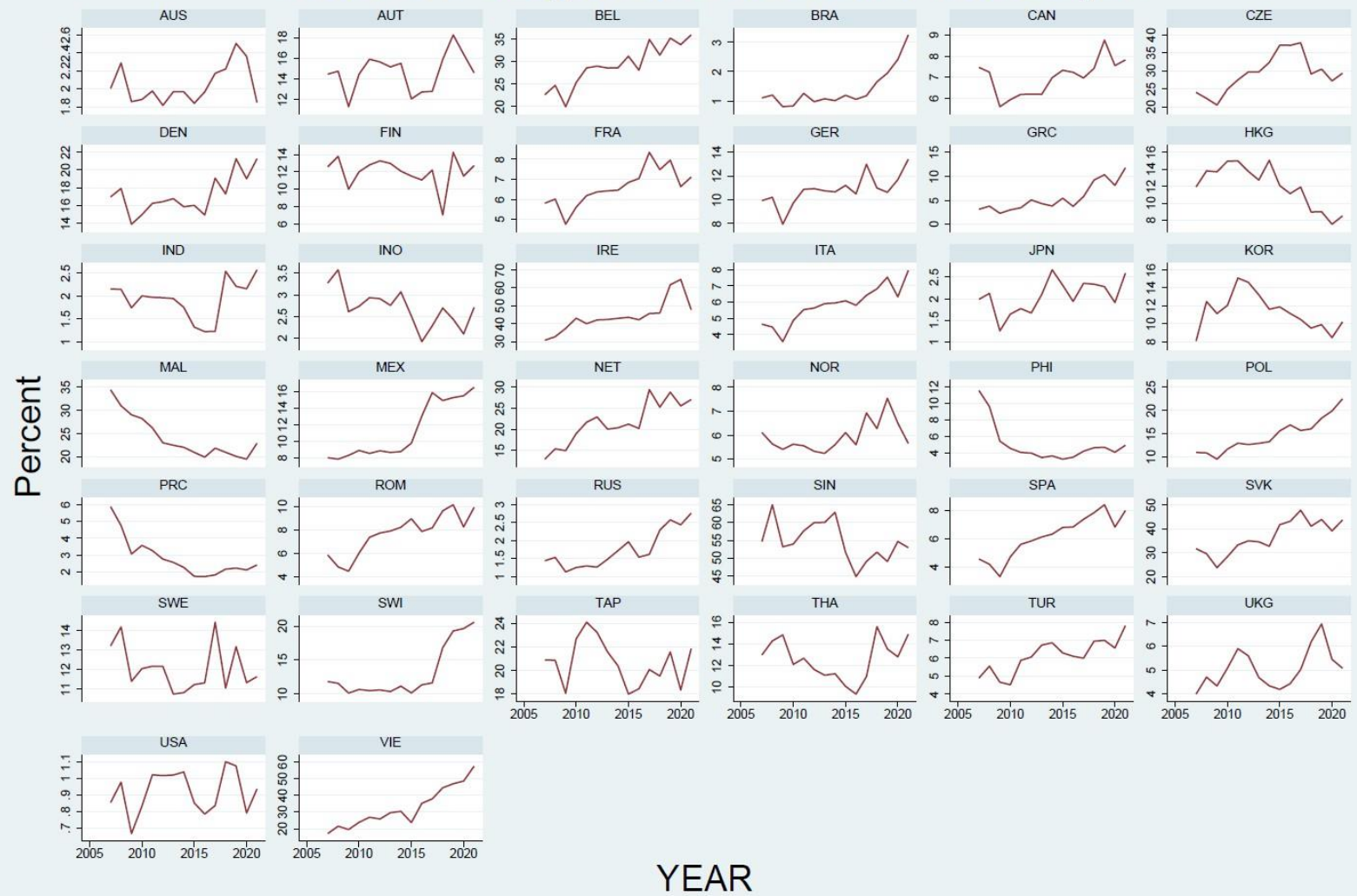


In search of more 'facts'

- Do the traditional gravity variables still explain participation in the GVC? Can economic fundamentals explain GVC activity?
- Do free trade agreements (FTAs) and regional trade arrangements promote participation in the GVC?
- Is the GVC network resilient to adverse shocks (e.g., the US-China trade conflict and the COVID-19 pandemic)?

Foreign Value Added in Final Output (GDP)

Share of Foreign Value Added in Final Output



Domestic and Foreign Value Added in GVC

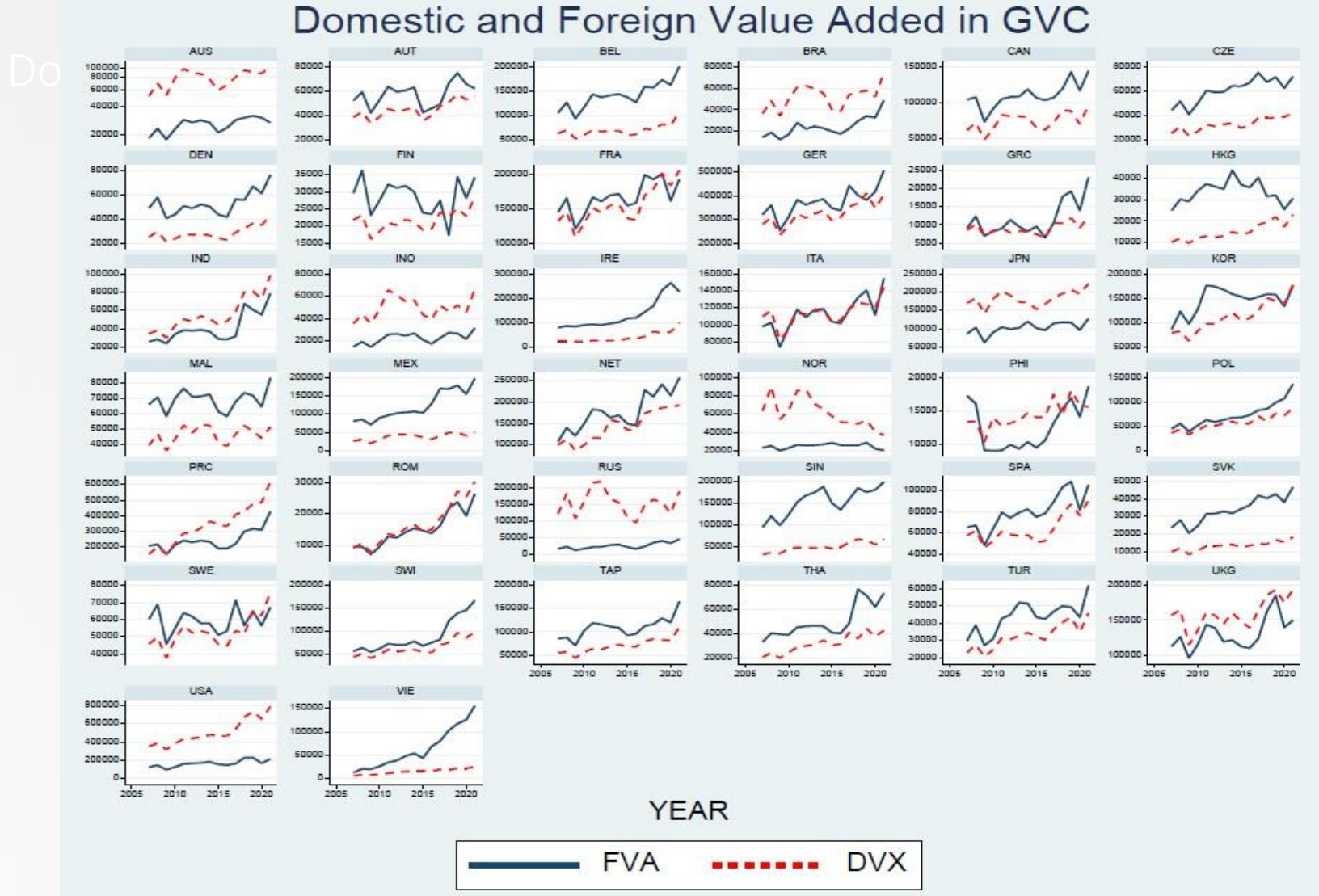


Table 1: GVC Gravity Equation Estimation for Asia

- Distance is correlated with an increase (decrease) in backward (forward) GVC activity.
- Economic size is correlated with an increase (decrease) in forward (backward) GVC activity.
- Trade cost is correlated with an increase in backward GVC activity but negatively correlated with foreign value-added exports in manufacturing.
- FDI is positively correlated with FVA but negatively with DVX. FDI offsets some DVX activities.
- RCEP is strongly positively correlated with foreign valued-added exports in manufacturing.

	(1)	(2)	(3)
	FVA	DVX	FVX_MFG
Distance	0.036*** (0.013)	-0.012** (0.005)	0.118*** (0.019)
Contig	0.057** (0.026)	-0.017 (0.012)	0.154*** (0.041)
language	-0.002 (0.015)	-0.014* (0.007)	0.058* (0.031)
Econ Size	-0.021*** (0.003)	0.009*** (0.001)	-0.049*** (0.006)
Trade Cost	0.029** (0.013)	0.010 (0.006)	-0.138*** (0.030)
FDI	0.003** (0.001)	-0.002*** (0.001)	0.001 (0.003)
EFI	0.042*** (0.007)	-0.002 (0.003)	0.177*** (0.014)
FTA	0.041*** (0.011)	0.018*** (0.005)	-0.120*** (0.028)
tariff	-0.001 (0.001)	-0.001 (0.001)	0.002 (0.002)
BIT	0.001 (0.012)	-0.003 (0.006)	0.018 (0.022)
RCEP	0.027* (0.016)	-0.004 (0.008)	0.129*** (0.035)
COVID	0.025*** (0.006)	0.002 (0.003)	-0.039*** (0.013)
Observations	2,471	2,471	2,471
R-squared	0.873	0.936	0.833

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: GVC Estimation for RCEP and CPTPP

	(1) RCEP FVA	(2) CPTPP FVA	(3) RCEP DVX	(4) CPTPP DVX
EconSize	0.009*** (0.001)	0.012*** (0.002)	0.008*** (0.001)	0.006*** (0.001)
Bilateral Trade share	0.945*** (0.170)	0.685*** (0.124)	-0.256*** (0.062)	-0.290*** (0.051)
FDI	-0.007*** (0.002)	-0.017*** (0.004)	-0.002* (0.001)	0.003* (0.002)
FTA	0.039** (0.016)	0.076*** (0.027)	0.014 (0.011)	0.020 (0.014)
tariff	-0.005*** (0.002)	0.002 (0.005)	-0.002** (0.001)	-0.003 (0.002)
BIT	-0.012 (0.016)	-0.038 (0.055)	-0.010 (0.010)	0.013 (0.031)
TradeWar	0.002 (0.005)	0.007 (0.011)	0.007** (0.003)	-0.004 (0.005)
Covid	-0.015* (0.009)	-0.005 (0.010)	-0.000 (0.005)	0.004 (0.004)
Observations	1,218	440	1,218	440
R-squared	0.846	0.850	0.916	0.929

Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

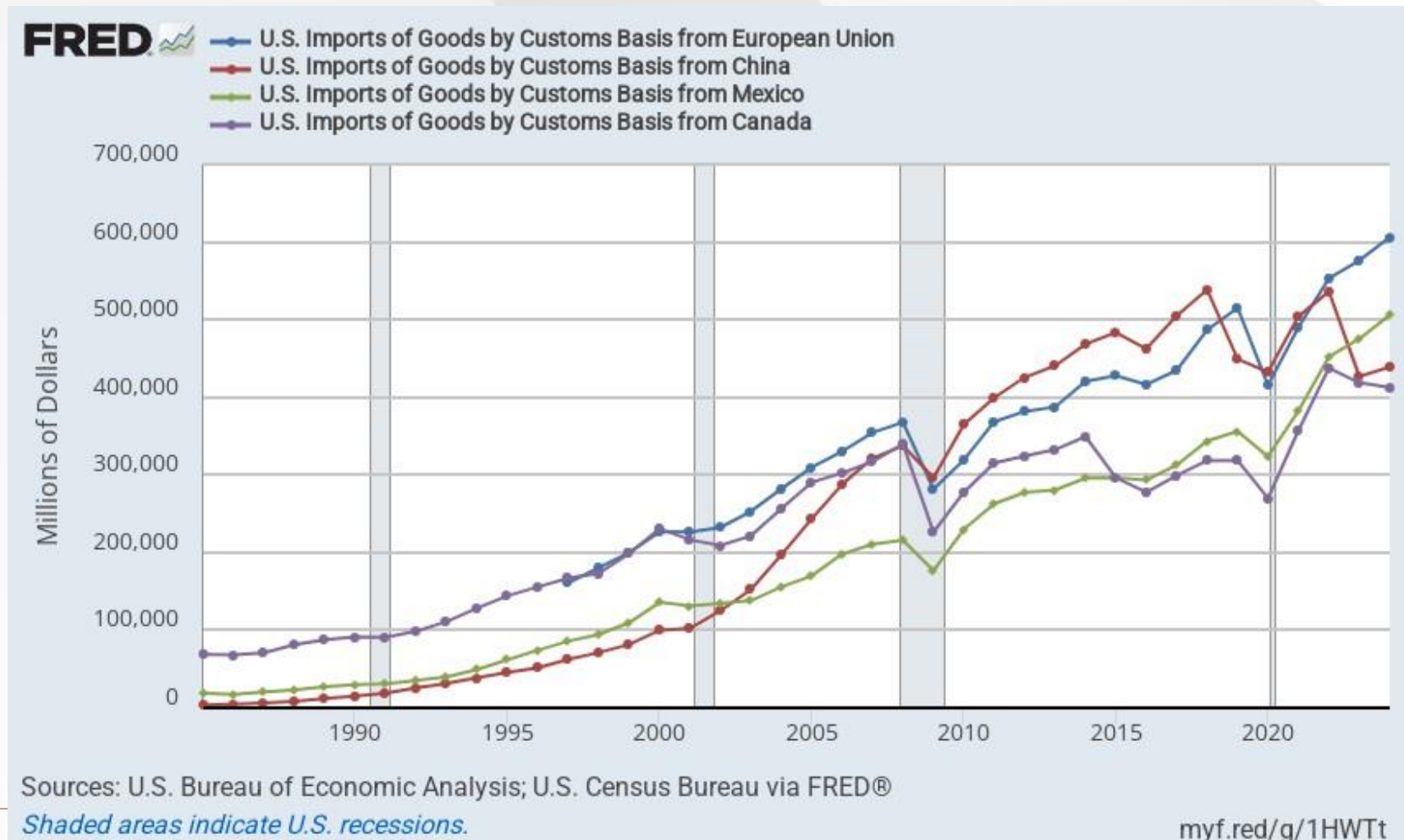
- Economic size is correlated with an increase in GVC activity for both RCEP and CPTPP groups.
- Bilateral trade intensity has a larger (smaller) positive (negative) impact on GVC as measured by backward (forward) measures for both RCEP and CPTPP groups.
- FDI is negatively, although small, correlated with backward measures of GVC activity. RCEP is strongly positively correlated with foreign valued-added exports in manufacturing.
- FTA has positive, although small, impacts on backward measures of GVC for both RCEP and CPTPP groups.
- Tariffs have an unambiguously negative impact on GVC activities (both forward and backward measures) for RCEP nations.

Table 4: A Difference-in-difference Regression

- *Trump 1.0* (a dummy variable) had a negative effect on high tech exports in GVC.
- *RCEP* is negatively correlated with domestic value-added exports but strongly correlated with trades in intermediate technology goods. *RCEP* may have boosted countries relying on intermediate technology goods.
- *DID* (*Trump 1.0* treated for *RCEP* members) had a negative effect on foreign value-added exports in both intermediate tech and overall manufacturing.

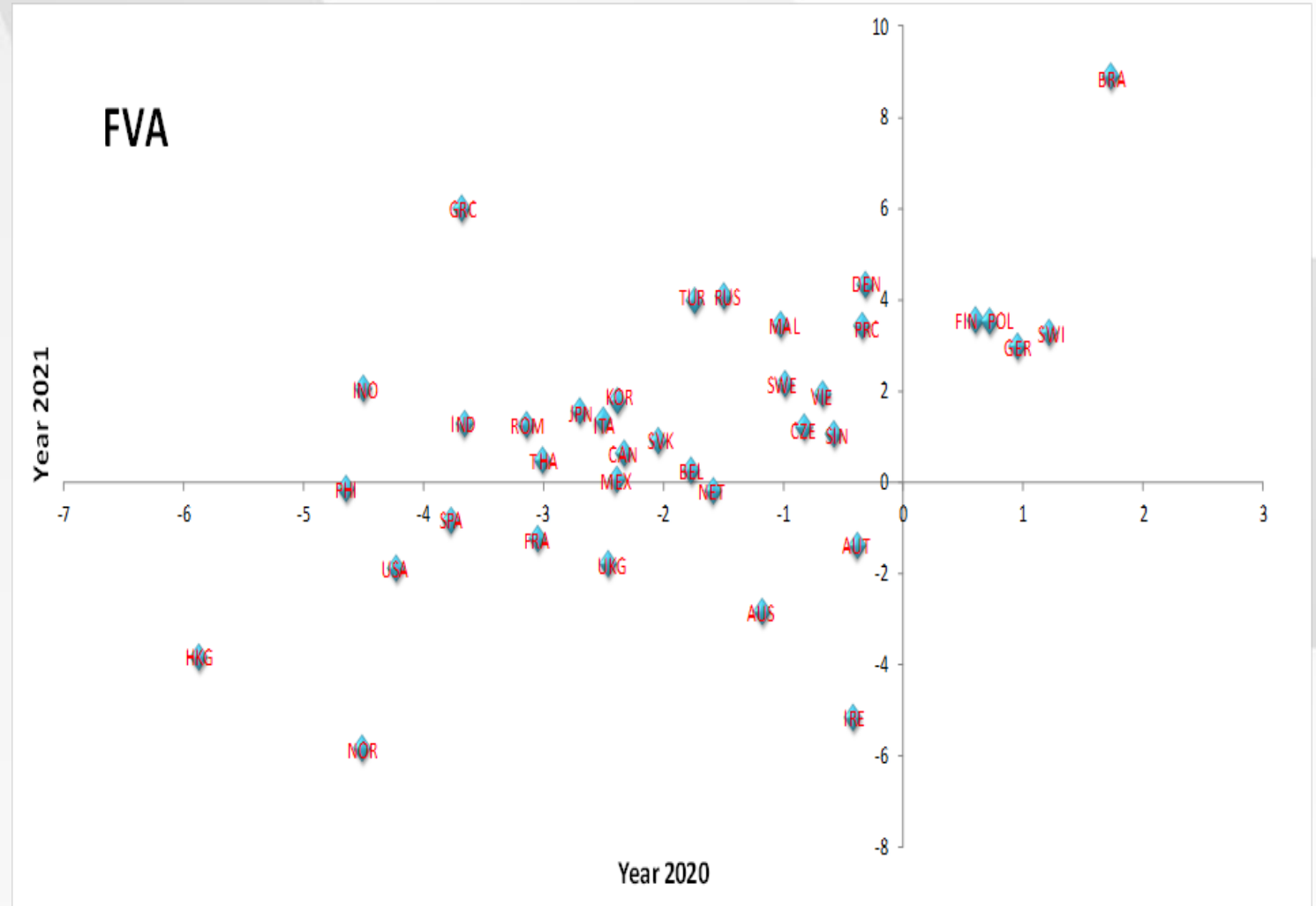
	(1)	(2)	(3)	(4)	(5)
	FVA	DVX	INTMED	HTX	FVX_MFG
Trump 1.0.	0.013***	0.003***	0.014***	-0.013***	0.021***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
RCEP	-0.009	-0.035***	0.350***	0.027**	0.051***
	(0.005)	(0.003)	(0.019)	(0.011)	(0.014)
DID	-0.003*	0.002	-0.075***	0.014***	-0.061***
	(0.002)	(0.002)	(0.006)	(0.003)	(0.007)
COVID	0.010***	0.011***	-0.026***	-0.002***	-0.011***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Constant	0.231***	0.203***	1.001***	0.437***	0.357***
	(0.003)	(0.002)	(0.006)	(0.004)	(0.004)
Observations	21,090	21,090	21,090	21,090	21,090
R-squared	0.013	0.074	0.243	0.018	0.014
Robust standard errors in parentheses:					
*** p<0.01, ** p<0.05, * p<0.1					

Did the Covid induce 'Nearshoring'?



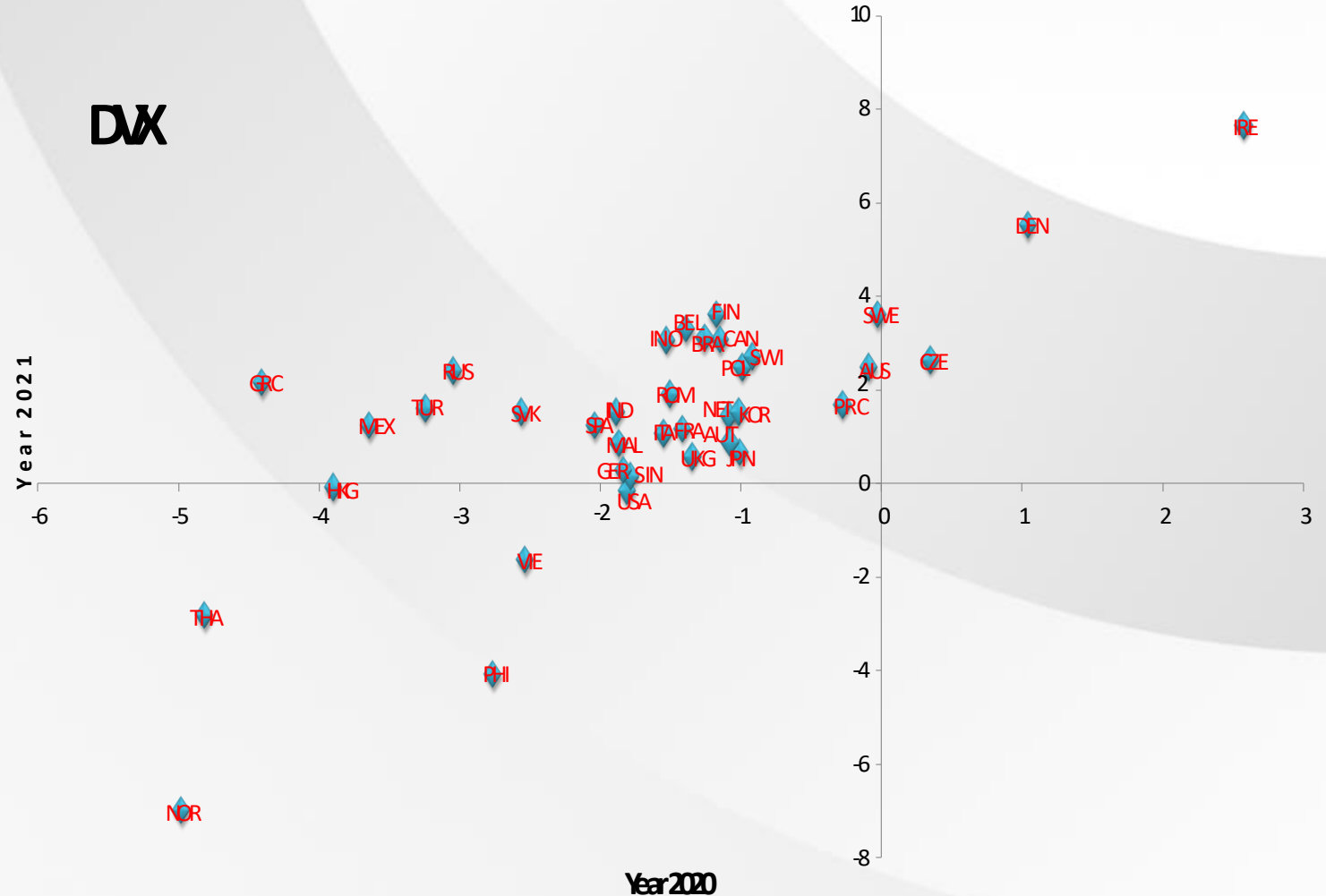
Deviations of actual FVA from projected FVA

- Backward GVC activities fell in 2020 in all except 5 countries.
- Many recovered in FVA activities in 2021.
- Still struggling to recover in 2021: Australia, Norway, Austria, France, Spain, UK, Ireland, USA, Hong Kong.



Deviations of actual DVX from projected DVX

- Forward GVC activities fell in 2020 in all except 3 countries.
- Many recovered in DVX activities in 2021.
- Still struggling to recover in 2021: Norway, Thailand, Philippines, Vietnam, USA, Hong Kong.



Key Findings

We examined data from 38 economies (including 12 Asian economies) by estimating pooled gravity equations, DID model, and panel vector autoregression model for each of the bilateral trade pairs (for a counterfactual analysis).

- **FTAs and bilateral trade intensity** explain **increased GVC participation** measured by the foreign value-added (**FVA**) contents of exports in Asia.
- **The US-China trade war (Trump 1.0)**
 - (i) Varied impacts on high-tech industry value-added trade; foreign value-added exports in manufacturing and intermediate goods exports.
 - (ii) For RCEP, there were negative impacts on intermediate goods trade and foreign value-added manufacturing exports.
- **COVID 19 shock:** Global supply chain rebounded in 2021, with most Asian economies recovering in GVC activities.

Implications

- Trade disruption by Covid 19 didn't have long-term impact, although adverse short-term impact was clear. Firms adjusted towards more domestic procurements (so FVA hit harder than DVX).
- Tariffs (moderate) clearly have a negative but quantitatively small impact on GVC activities. Regional supply chains appear to be quite resilient to transitory shocks.
- The impact on trade and supply chain will likely be through uncertainty though. Any permanent protectionist shift by major trading partners is likely to prompt a disruption in the supply chain.
- Geopolitics will likely matter for global trade. Even after Trump 2.0, Government policies on green energy and climate change responses can have an impact on the future of the GVC.

Discussion and Implications for Asia under Trump 2.0

- Geopolitical issues to affect GVC and Asia's trade:
 - High-tech manufacturing
 - Rare earth materials
 - Energy
 - Climate change
- Can regional cooperation as well as RTA/BTA help mitigate the impact of global
- tariff shocks on the region's trade?
- Will regional supply chains be enough to allow the region's low and middle income economies to leverage trade to boost economic growth and development, industrialization, and job creation?
- Will there be new export opportunities in Asia?