Global value chains in the Pacific island countries: Patterns and structure

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Workshop #2 on Pacific Development Research
Asian Development Bank Institute and Development Policy Centre, the Australian National University

Tokyo, Japan
9-10 January 2023

Background

- The Pacific island countries (PICs) face several issues in their quest for economic and sustainable development due to their characteristic of "**islandness**" (e.g. Juswanto and Ali, 2016; Malua, 2003; UNESCAP, 2006; World Bank, 2021):
  - **Economic and geographical smallness**
    - Small domestic markets constrain their economic activities and, in turn, discount the possibilities of realising economies of scale, specialisation, and industrialisation (Kumar and Stauvermann, 2021).
  - **Remoteness**
  - **Dispersion**
    - Remoteness and dispersion imply high transportation and, in turn, production costs, whereas smallness indicates a small domestic market size and a hurdle to realise economies of scale.
- **The characteristics of islandness make the region unattractive to foreign direct investment (FDI), posing challenges to the PICs in joining global value chains (GVCs).**
- Without FDI and GVC participation, the PICs' domestic firms and industries lose several opportunities (Korwatanasakul and Paweenawat, 2021):
  - Capabilities and competitiveness enhancement
  - Product quality improvement
  - Financial stability
  - Market expansion
- **Consequently, the manufacturing sector is underdeveloped, and the PICs have become detached from the global market and value chains.**

Background

- Even though GVC participation is significant for economic development (e.g. Korwatanasakul and Baek, 2021; Korwatanasakul, Baek, and Majoe, 2022), **there is very little stand-alone literature regarding GVCs in the PICs.**
- Most discussions are in the context of Asia and the Pacific and, in turn, offer thin analyses and policy implications which may **not be specific to the PICs' context.**
- On the one hand, the literature provides macro-level descriptive analyses of the PICs' GVCs covering the issues such as:
  - The importance of the services sector in GVCs (Anukoonwattaka, Mikic, and Zhang 2017)
  - The benefits and the drivers of GVC participation (Sawada et al., 2020)
  - Connectivity and GVCs (Shepherd 2016; Vickers, Keane, and Palit 2019)
- On the other hand, Chand (2017) and Angelucci and Conforti (2010) employ case studies at the firm and industry levels to examine the characteristics of garment and food value chains in Fiji and Vanuatu.

Research significance

- To address the gap in the literature, this study investigates the patterns of GVC participation of the PICs at the country, industry, and firm levels.
- It also examines the relationship between firm and country characteristics and GVC participation of firms in the PICs.
- The study utilises:
  - UNCTAD-Eora industry-level and country-level GVC data of Fiji, Papua New Guinea (PNG), Samoa, and Vanuatu, for 1999 – 2018
  - Pooled cross-sectional data from the World Bank's Enterprise Surveys, covering 245 firms from seven PICs (namely Federated States of Micronesia, Fiji, PNG, Samoa, Solomon Islands, Tonga, and Vanuatu) for 2009 and 2015.
- To the best of the author's knowledge, this study is the first empirical study to employ firm-level, industry-level, and country-level data to examine GVC participation patterns and structure in the context of the PICs.
- It provides a novel analysis through the lens of the GVC framework with empirical data of trade in value-added.
- Matching GVC trends at the firm, industry, and country levels with the economic development path help identify the linkage between firm-level GVC participation patterns and different stages of industry-level and country-level GVC integration.
- Hence, the study contributes to more solid findings on the issues related to GVCs and provides relevant policy recommendations that potentially help support the Pacific firms and industries in smoothly integrating into GVCs and improving market access.

Country-level analysis

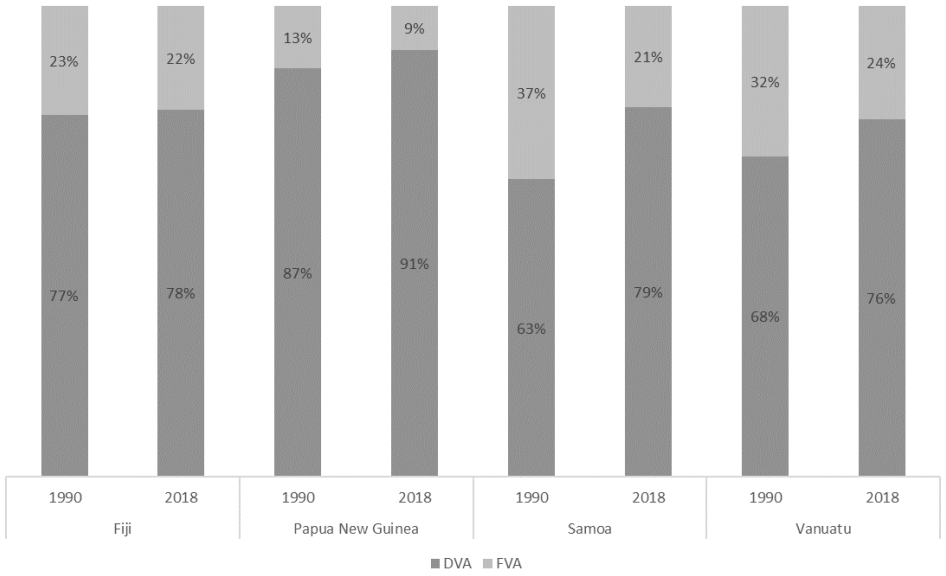
- This section utilises an UNCTAD-Eora database on GVCs, employing value-added trade data derived from the Eora global multiregional input-output table to empirically examine the patterns and structure of the PICs' GVCs at the country level.
- The data includes information on foreign value-added content of exports (FVA), domestic value-added content of exports (DVA) , value added integrated into other countries' exports (DVX), and gross exports in Fiji, PNG, Samoa, and Vanuatu, covering the period of 1990–2019.

Country-level analysis

- The UNCTAD-Eora GVC data manifests that, in general, the PICs' FVA share is smaller than that of DVA and has been declining between 1990 and 2018,
  - Implying limited and diminishing participation in backward GVCs
  - Without sufficiently engaging in backward linkage, the PICs lost opportunities to gain from foreign technology and knowledge and, in turn, faced timid economic growth (Korwatanasakul and Intarakumnerd, 2020; Korwatanasakul and Paweenawat, 2021).

Figure 1. Trade in value-added of the Pacific Island countries

A. Value-added content of exports (%)



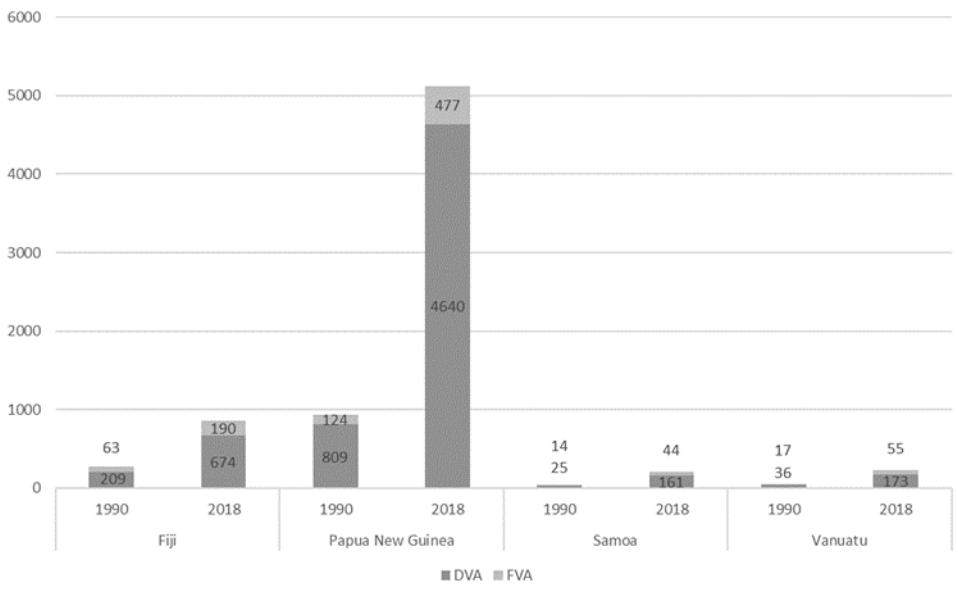
Notes: DVA = domestic value-added content of exports; FVA = foreign value-added content of exports; Total exports = DVA + FVA; USD = United States dollar
Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

Country-level analysis

- Figure 1.B shows that the PICs' volume of value-added content of exports (both DVA and FVA), except that of PNG, has grown slightly during the past three decades
  - Reinforcing the argument regarding the adverse effect of underutilisation of backward linkage.
  - Limited backward GVC participation leads to the underdevelopment of local workers, firms, industries, and sectors, particularly the manufacturing sector.
  - Therefore, it explains the slow development of trade in value added among the PICs.

Figure 1. Trade in value-added of the Pacific Island countries

B. Value-added content of exports (Value in million USD)



Notes: DVA = domestic value-added content of exports; FVA = foreign value-added content of exports; Total exports = DVA + FVA; USD = United States dollar
Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

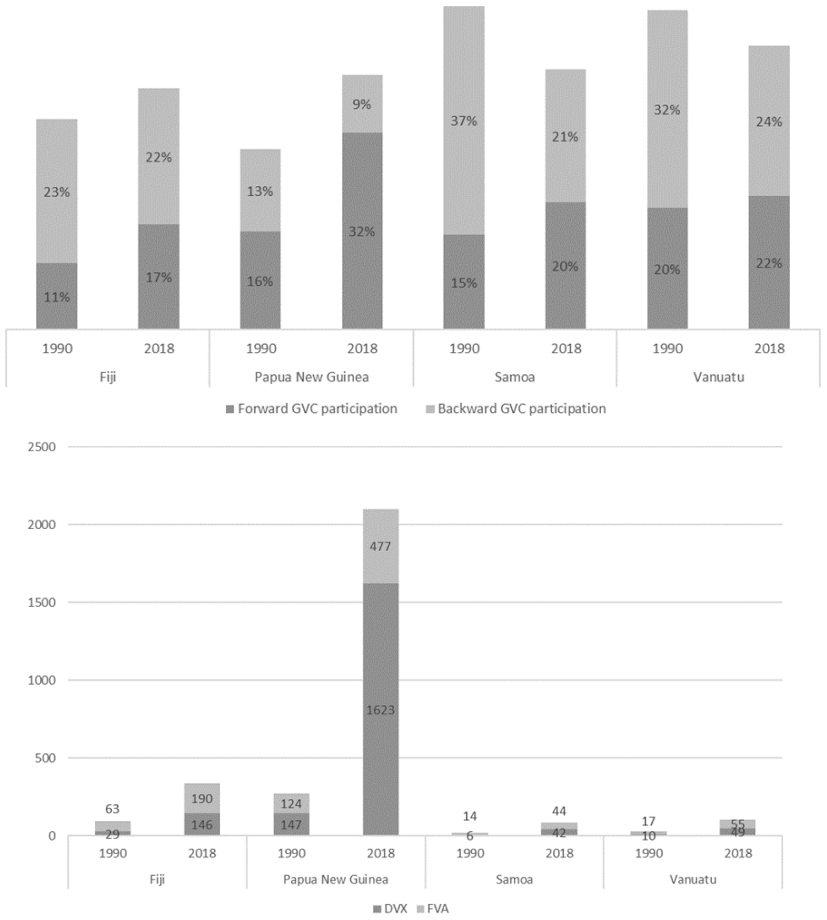
Country-level analysis

- Regarding the PICs' forward GVC participation, except PNG, the share of DVX is smaller than that of FVA but has been rising over time (Figure 2.A).
- Similar to the DVA and FVA volumes, the volume of DVX, however, has not increased much during the same period (Figure 2.B).
- The relatively low DVX share and volume indicate a **restricted role of the PICs in a global production network where other countries do not rely on the PICs' raw and intermediate materials.**
- In other words, **the PICs have an insignificant influence on other countries' trade and production.**

Figure 2. Global value chain participation of the Pacific Island countries

A. Backward and forward GVC participation (%)

B. Backward and forward GVC participation (Value in million USD)



Notes: DVX = domestic value-added content of exports used in other countries' exports; FVA = foreign value-added content of exports; GVC participation = FVA + DVX; USD = United States dollar

Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

Country-level analysis

Table 1. Foreign value-added content of exports (FVA) by destination countries and its growth between 1990 and 2019

	Fiji				Papua New Guinea				Samoa				Vanuatu		
	1990	2019	Growth		1990	2019	Growth		1990	2019	Growth		1990	2019	Growth
Australia	26.4%	20.8%	2.6%	Australia	35.8%	18.9%	5.9%	New Zealand	5.9%	8.6%	10.6%	India	1.0%	8.5%	-0.4%
New Zealand	16.1%	15.3%	3.2%	China	2.0%	14.7%	3.4%	USA	11.1%	8.0%	1.9%	Australia	9.4%	7.0%	9.0%
China	1.7%	9.4%	9.8%	Indonesia	2.8%	7.2%	9.2%	China	1.7%	6.3%	7.9%	China	1.7%	6.7%	5.2%
India	1.4%	8.6%	10.0%	Singapore	6.3%	6.8%	4.0%	Australia	6.3%	5.4%	2.0%	Japan	8.7%	6.7%	2.1%
USA	7.3%	4.1%	1.3%	Japan	7.0%	5.9%	2.8%	Japan	7.0%	4.3%	4.0%	New Zealand	4.1%	5.5%	1.2%
Japan	6.2%	4.0%	1.9%	Malaysia	2.2%	4.9%	4.0%	UK	3.9%	3.4%	6.3%	South Korea	1.0%	2.5%	4.5%
Indonesia	2.0%	3.4%	5.3%	USA	6.5%	4.9%	4.6%	Germany	2.2%	2.2%	1.5%	UK	3.6%	2.4%	0.7%
Singapore	2.2%	2.6%	4.1%	New Zealand	4.6%	3.3%	5.1%	Thailand	1.5%	1.8%	-1.2%	USA	7.8%	2.4%	0.7%
Thailand	1.9%	2.2%	3.9%	Thailand	2.0%	3.3%	6.8%	India	0.9%	1.8%	2.8%	Germany	2.2%	2.2%	3.6%
South Korea	1.0%	2.1%	6.0%	Germany	2.0%	2.6%	6.0%	South Korea	1.0%	1.5%	3.8%	Thailand	1.6%	2.0%	2.6%
Other	33.7%	27.4%		Other	28.9%	27.4%		Other	58.6%	56.8%		Other	59.0%	54.0%	

Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

Country-level analysis

Table 2. Domestic value-added content of exports used in other countries' exports (DVX) by destination countries and its growth between 1990 and 2019

	Fiji				Papua New Guinea				Samoa				Vanuatu		
	1990	2019	Growth		1990	2019	Growth		1990	2019	Growth		1990	2019	Growth
Australia	12.0%	16.9%	6.6%	Australia	16.4%	22.5%	10.8%	Australia	7.2%	15.7%	9.5%	Germany	23.4%	7.5%	1.7%
Japan	18.2%	12.9%	4.1%	Germany	20.2%	14.1%	8.3%	Russia	4.4%	7.2%	8.4%	Russia	2.8%	6.9%	9.1%
UK	12.2%	11.3%	5.0%	South Korea	7.5%	8.9%	10.3%	Germany	4.2%	5.6%	7.6%	Belgium	17.7%	5.9%	1.8%
New Zealand	5.3%	7.6%	6.7%	Belgium	5.9%	8.7%	11.1%	Belarus	2.7%	4.8%	8.7%	Indonesia	1.3%	5.4%	11.0%
Germany	5.4%	6.4%	5.9%	Japan	16.1%	7.8%	6.9%	China	0.7%	3.5%	12.8%	Belarus	1.8%	4.7%	9.2%
USA	3.7%	4.5%	6.1%	China	1.4%	6.1%	15.3%	Japan	2.4%	3.0%	7.3%	Japan	3.2%	4.6%	7.1%
Netherlands	2.7%	3.5%	6.2%	Netherlands	4.3%	4.1%	9.5%	Belgium	8.0%	2.9%	3.0%	Singapore	1.4%	3.5%	9.2%
China	0.4%	2.7%	12.6%	Italy	2.1%	3.5%	11.6%	UK	4.2%	2.6%	4.8%	Netherlands	3.3%	3.1%	5.5%
Singapore	1.5%	2.0%	6.3%	UK	4.2%	2.9%	8.2%	New Zealand	2.2%	2.6%	7.2%	China	0.0%	3.0%	22.7%
South Korea	1.6%	1.9%	5.8%	Singapore	1.4%	1.9%	10.7%	Singapore	2.2%	2.3%	6.8%	UK	2.9%	2.5%	5.2%
Other	37.0%	30.4%		Other	20.5%	19.4%		Other	61.7%	49.8%		Other	42.2%	52.9%	

Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

Country-level analysis

- This observation, together with the fact that the PICs' backward linkage partner countries are those outside the region, points out **low intraregional connectivity among the PICs**.
- Table 3 reinforces that trade in value added among the PICs is insignificant, with 0.1% in 1990 and 0.05% in 2019.
  - In contrast, they rely more on GVCs, where their participation was 32% in 1990 and 52% in 2019.
- In other words, **the role of regional value chains (RVCs) among the PICs has declined despite the increase in GVC participation.**
  - The low connectivity results from lacking industrial agglomeration and production networks, unlike other economic blocs, e.g. the Association of Southeast Asian Nations (ASEAN) and the Southern Common Market (Mercosur).

Year	FVA			DVX			GVC participation	RVC participation
	Non-PICs	PICs	Total	Non-PICs	PICs	Total		
Volume (Million USD)								
1990	219.41	0.63	220.04	194.01	0.63	194.65	414.69	1.27
2019	459.87	1.45	461.31	2,343.39	1.45	2,344.83	2,806.15	2.89
Share (%)								
1990	17%	0.05%	17%	15%	0.05%	15%	32%	0.10%
2019	9%	0.03%	9%	44%	0.03%	44%	52%	0.05%

Table 3. The PICs' GVC and RVC participation

Notes: DVX = domestic value-added content of exports used in other countries' exports; FVA = foreign value-added content of exports; GVC = global value chain, GVC participation = Total FVA volume/share + Total DVX volume/share; PICs = Pacific island countries (Fiji, Papua New Guinea, Samoa, and Vanuatu); RVC = regional value chain; RVC participation = FVA volume/share by the PICs + DVX volume/share in the PICs; USD = United States dollar.
Source: Author, based on the UNCTAD-Eora Global Value Chain Database

Country-level analysis (Conclusion and discussion)

- **The country-level analysis reveals that the role of the PICs in global and regional production networks is limited, hampering foreign technological and knowledge transfer, industrialisation, and economic development.**
- **Thus, there is a need to boost the level of GVC and RVC participation among the PICs.**
- Building economic and political coordination among the PICs, together with foreign investment promotion measures, may help overcome the challenges of islandness through the realisation of production networks, economies of scale, specialisation, and industrialisation.

Industry-level analysis

- The top industries that rely on foreign materials and technology are textiles, wearing apparel, metal products, and transport equipment.
- However, **the degree of industrial FVA shares varies across the PICs**, implying different degrees of industrial development.
- On the one hand, **more advanced economies, i.e. Fiji and PNG, show the highest FVA shares in industries utilising medium-high technology**, such as transport equipment and electrical and machinery.
- On the other hand, **smaller economies, i.e. Samoa and Vanuatu, demonstrate the largest FVA shares in the low-technology industrial groups**, such as textiles and wearing apparel and other manufacturing.
- **Overall, the PICs' strategic industries are primarily concentrated in the middle of global value chains.**
    - The countries engage in low-value-added activities, including supplying raw materials (upstream industry) and sourcing parts and components (e.g. Samoa's automotive wiring harness).

Figure 3. Share of foreign value added in exports by sector, industrial group, and industries, 2017

Source: Author, based on the UNCTAD-Eora Global Value Chain Database.

Industry-level analysis (Conclusion and discussion)

- **The industry-level analysis shows that the PICs' strategic industries engage in low-value-added activities.**
- Therefore, policy measures, e.g. capacity building programmes, research and development for domestic technology, potentially help the PICs gradually achieve different stages of upgrading, including process upgrading, product upgrading, functional upgrading, and, ultimately, chain upgrading.
- Moreover, the analysis indicates different degrees of industrial development among the PICs from the degree of industrial FVA shares.
- This information is necessary when considering regional coordination since it informs policymakers regarding the specialisation and division of labour among the PICs.
- Better industrial coordination among the PICs may contribute to greater GVC and RVC participation levels, reinforcing the first policy suggestion regarding integration and regional cooperation.

Firm-level analysis

- Table 4 categorises firms into six types based on domestic and international sales and input procurement.
- Data: Pooled cross-sectional data from the World Bank's Enterprise Surveys, covering 245 firms from seven PICs (namely Federated States of Micronesia, Fiji, PNG, Samoa, Solomon Islands, Tonga, and Vanuatu) for 2009 and 2015.
- The first column (Column 1) represents firms engaging entirely in domestic sales and procurement, accounting for 7% of the sample firms, whereas the largest share of firms, 51%, rely on foreign inputs for domestic sales (Column 2).
  - **This is consistent with the characteristic of islandness discussed in the introduction: a high degree of import dependence** (Bass and Dalal-Clayton, 1995; World Bank, 2021)
  - Showing a sharp contrast to the world average GVC participation pattern presented by Urata and Baek (2021) : 45.5% do not engage in foreign trade, and 24.4% engage in imports but not exports.
  - **The contrast of the results emphasises the unique characteristics of the PICs' foreign trade and GVC participation, which is worth further examination.**

Table 4. Patterns of Engagement in Foreign Trade for the Sample Firms in the Pacific Island countries, 2009 & 2015

		1	2	3	4	5	6	Missing	GVC firms (5+6)	Total
Sales	Domestic	O	O	X	O	X	O	.	X/O	
	Exports	X	X	O	O	O	O	.	O	
Inputs	Domestic	O	O	O	O	O	O	.	O	
	Imports	X	O	X	X	O	O	.	O	
Firm size	Small (<= 19)	13	97	1	6	3	38	23	41	181
	Medium (>= 20 & <= 99)	1	17	1	1	3	4	5	7	32
	Large (>= 100)	0	0	0	1	3	3	1	6	8
	Missing	3	12	0	0	3	5	1	8	24
	Total	17	126	2	8	12	50	30	62	245
Firm size	Small (<= 19)	76.5	77.0	50.0	75.0	25.0	76.0	76.7	66.1	73.9
	Medium (>= 20 & <= 99)	5.9	13.5	50.0	12.5	25.0	8.0	16.7	11.3	13.1
	Large (>= 100)	0.0	0.0	0.0	12.5	25.0	6.0	3.3	9.7	3.3
	Missing	17.6	9.5	0.0	0.0	25.0	10.0	3.3	12.9	9.8
	Total	100	100	100	100	100	100	100	100	100
Firm size	Small (<= 19)	7.2	53.6	0.6	3.3	1.7	21.0	12.7	22.7	100
	Medium (>= 20 & <= 99)	3.1	53.1	3.1	3.1	9.4	12.5	15.6	21.9	100
	Large (>= 100)	0.0	0.0	0.0	12.5	37.5	37.5	12.5	75.0	100
	Missing	12.5	50.0	0.0	0.0	12.5	20.8	4.2	33.3	100
	Total	6.9	51.4	0.8	3.3	4.9	20.4	12.2	25.3	100

Notes: GVC = global value chain; PICs = Pacific Island countries; O = Having exports of products/imports of foreign inputs; X = Not exports of products/imports of foreign inputs; . = not applicable (missing).
PICs include Fiji, Micronesia, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu.
Source: Author, based on the World Bank's Enterprise Surveys data.

Firm-level analysis

- Given the PICs' data limitation, this section investigates firm-level and country-level characteristics possibly correlated with the probability of participating in GVCs and the level of such participation.
- **Therefore, no causal relations are established behind those relationships.**
- A probit estimation (1) is performed for the GVC participation dummy, while a tobit estimation (2) is employed for the GVC participation index:

$$\begin{aligned}\Pr(GVC_{ict} = 1|Z_{ict}) &= \Phi\big(\alpha + \beta_1 Labour\ Productivity_{ict} + \beta_2 Firm\ Size_{ict} + \beta_3 Firm\ Age_{ict} \\ &+ \beta_4 Foreign\ Ownership_{ict} + \beta_5 Quality\ Certification_{ict} \\ &+ \beta_6 Financial\ Access_{ict} + \gamma_1 Tariffs_{ct} + \gamma_1 Tariffs_{ct} + \gamma_2 FDI_{ct} \\ &+ \gamma_3 Education_{ct} + \gamma_4 Logistics\ Performance_{ct} + \gamma_5 Governance_{ct} + \eta_c + \delta_k \\ &+ \mu_t + \varepsilon_{ijt}\big) \quad (1)\end{aligned}$$

$$\begin{aligned}GVCindex_{ict} &= \alpha + \beta_1 Labour\ Productivity_{ict} + \beta_2 Firm\ Size_{ict} + \beta_3 Firm\ Age_{ict} \\ &+ \beta_4 Foreign\ Ownership_{ict} + \beta_5 Quality\ Certification_{ict} \\ &+ \beta_6 Financial\ Access_{ict} + \gamma_1 Tariffs_{ct} + \gamma_1 Tariffs_{ct} + \gamma_2 FDI_{ct} \\ &+ \gamma_3 Education_{ct} + \gamma_4 Logistics\ Performance_{ct} + \gamma_5 Governance_{ct} + \eta_c + \delta_k \\ &+ \mu_t + \varepsilon_{ijt} \quad (2)\end{aligned}$$

Firm-level analysis

Table 5. Summary Statistics

Level	Variable	Description	Observation	Mean	Standard deviation	Min	Max
Firm	GVC participation	GVC participation dummy - whether firms join GVCs	215	0.2884	0.4541	0	1
	GVC participation index	A GVC index is computed as (exports/total sales)×(procurements from foreign countries/total procurements). It indicates the level of GVC participation	215	0.0821	0.2078	0	1
	Labour productivity	Logarithm of labour productivity based on value-added	191	12.3015	2.1801	7.87	19.8
	Firm size	Logarithm of total employees	221	2.1944	1.1078	0	8.01
	Firm age	Number of years in operation	235	20.9830	17.1776	0	116
	Foreign ownership	The share of equity owned by foreign firm (%)	240	0.2364	0.3732	0	1
	Quality certification	Ownership of internationally recognised quality certification	225	0.2444	0.4307	0	1
	Financial access	Proportion of external funds to purchase fixed assets	235	0.2370	0.3303	0	1
Country	Tariffs	Tariff rate, most favoured nation, simple mean, manufactured products (%)	245	10.3689	2.8944	2.46	13.9
	Foreign direct investment	Foreign direct investment, net inflows (% of GDP)	245	3.6091	4.0826	0.08	10.7
	Education	School enrollment, secondary (% gross)	245	78.4405	22.5372	42.8	103
	Logistics performance	Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high)	245	2.1455	0.1544	1.98	2.46
	Governance	CPIA property rights and rule-based governance rating (1=low to 6=high)	245	3.2102	0.5017	2	4

Note: CPIA = Country Policy and Institutional Assessment; GDP = gross domestic product; GVC = global value chain
Source: Author, based on the World Bank's Enterprise Surveys data and World Bank Open Data (World Bank, 2022).

Firm-level analysis

Table 6. Regression results - GVC participation (probit estimation) and GVC participation index (tobit estimation)

Note: GVC = global value chain; Robust standard errors are in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01. All models control for industry and year fixed effects.
Source: Author, based on the World Bank's Enterprise Surveys data and World Bank Open Data (World Bank, 2022).

Independent variables	Dependent variables			
	GVC participation (probit) 1	GVC participation index (tobit) 2	GVC participation (probit) 3	GVC participation index (tobit) 4
		Firm characteristics		
Labour productivity	0.0529***	0.00618	0.0321**	0.00194
	(0.00585)	(0.00920)	(0.0126)	(0.00898)
Firm size	0.116***	0.0681***	0.178***	0.0657***
	(0.0289)	(0.0129)	(0.0456)	(0.0141)
Firm age	0.00361	-0.000220	0.00983	-0.000145
	(0.0123)	(0.000191)	(0.0143)	(9.80e-05)
Foreign ownership	0.0924	0.0719***	0.149***	0.0691***
	(0.0790)	(0.00539)	(0.0150)	(0.00725)
Quality certificate	1.116*	-0.000965	1.083*	0.00428
	(0.628)	(0.00331)	(0.651)	(0.00273)
Finance access	-1.677	-0.0419	-1.374	-0.0412
	(1.429)	(0.0445)	(1.157)	(0.0471)
		Country characteristics		
Tariffs			-0.245***	-0.0178***
			(0.0142)	(0.00227)
Foreign direct investment			0.173***	0.00974***
			(0.0550)	(0.000334)
Governance			2.713***	0.172***
			(0.488)	(0.00995)
Logistics performance			2.121	-0.000174
			(2.069)	(0.0609)
Constant	-2.090***	-0.207**	-13.87**	-0.576***
	(0.310)	(0.0857)	(6.786)	(0.0346)
Observations	88	134	96	134

- Table 6 shows the regression results of both estimation models.
- The estimated coefficients for labour productivity, firm size, foreign ownership, and quality certification are positive and statistically significant for the probit estimation model, consistent with the existing literature.
- Nevertheless, labour productivity and quality certificate lose statistical significance in the tobit estimation model.
- Moreover, in both models, firm age, financial access, and logistics performance are not statistically significant, giving somewhat contrasting results to the previous studies.

Firm-level analysis (Conclusion and discussion)

- First, **the PICs' domestic firms, particularly SMEs, face difficulties joining value chains.**
  - SMEs may find it challenging to enter GVCs for several reasons, such as a lack of ability to meet international standards, managerial and human capital resources, limited access to credit and loans, and limited access to information and innovation.
  - Therefore, it is worth further examination of PIC SMEs' challenges to engage in GVCs and, in turn, formulate policies that can practically address the challenges to help local SMEs to enter GVCs smoothly.
- The estimated results also point out that **improvements in labour productivity and the acquisition of quality certification are essential for firms to engage in GVCs initially but insufficient to deepen their GVC participation level.**
  - Thus, a mix of policy tools to promote greater technology, managerial skills, and financial resources for domestic firms, especially SMEs, is necessary to ensure smooth value chain participation and upgrade domestic firms within and among value chains.
- The analysis stresses the significance of **macro-level business enabling environment factors, including good governance and openness to trade and FDI**.
  - A business-enabling environment does not only facilitate local firms to participate in GVCs but also encourages foreign investors to invest in the PICs.

Conclusion

- This study investigates the patterns of global value chain (GVC) participation of the Pacific island countries (PICs) at the country, industry, and firm levels and examines the relationship between firm and country characteristics and firm-level GVC participation.
- The study utilises UNCTAD-Eora industry-level and country-level GVC data for 1999 – 2018 and pooled cross-sectional data from the World Bank's Enterprise Surveys, covering 245 firms for 2009 and 2015.
- It provides a novel analysis through the lens of the GVC framework with empirical data of trade in value-added to examine GVC participation patterns and structure in the context of the PICs.
- **At the country level**, the study found a limited role of the PICs in global and regional production networks, hindering foreign technological and knowledge transfer, industrialisation, and economic development.
- Moreover, the PICs generally engage in low-value-added activities **at the industry level**, despite the different levels of the PICs' industrial development.
- In addition, **the firm-level analysis** reveals that:
  - The PICs' domestic firms, particularly SMEs, face difficulties joining value chains.
  - Although firm characteristics, i.e. labour productivity and quality certification, are essential for firms to engage in GVCs initially, they are insufficient to deepen their GVC participation level.
  - The analysis also emphasises the significance of macro-level business enabling environment factors, including good governance, trade openness, and foreign direct investment.
- In conclusion, sub-national and national industrial development and regional cooperation policy measures are critical for the PICs to participate in global and regional production networks, boost GVC and regional value chain participation levels, and overcome the challenges of islandness through the realisation of production networks, economies of scale, specialisation, and industrialisation.

Next steps

- Elaborating more on
  - the low level of FVA
  - Trends between emerging trade partners, e.g. China and India, and traditional trade partners, e.g. Australia and New Zealand
- Discussing potential areas of improvement, e.g. which industries and how to integrate in GVCs, and GVC data
- PACER Plus Implementation Unit: https://pacerplus.org/
- Checking estimation-related issues
  - Observations in the regression result table
  - High vs low migration countries
- Revising conclusion – specific to the analysis

Thank you very much

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