Asia-Pacific Regional Cooperation and Integration Index Enhancing Measures of RCI in the Pacific

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ADB-Asian Think Tank Development Forum 2023 Pacific Island Economies: Aiming for Sustainable Economic Development in the Midst of Growing Uncertainties Suva, 26-27 September 2023



Asia's regional integration has been resilient amid the pandemic



Notes:

*Data as of 2021

**Values represent intraregional shares for developing Asia



New dimensions

Why a RCI index?



Enhanced ARCII Index: Improved data coverage in the Pacific

Current data coverage for Pacific economies

Good	Complete data or <3 e	economies w/o	Medium Patchy between	PediumPatchy data for some economies; between 3 to 5 economies w/o dataDeficientPatchy data			Patchy data for some economies; between >5 economies w/o data	
Trade and Investment Integration	Money and Finance Integration	Regional Value Chain	Infrastructure and Connectivity	People and Social Integration	Institutional Arrangements	Technology and Digital Connectivity	Environmental Cooperation	
Exports	Equity Liabilities	Trade Complementarity Index	Trade Costs	Outbound Migration	Free Trade Agreements Signed	ICT goods	Environmental	
Imports	Bond Liabilities	Trade Concentration	Liner Shipping Connectivity	Tourists	Embassy Presence	Research outputs	Environmental	
Trade Intensity	Deposit Rates	Intermediate	Passenger seats	Remittances	Business	applications	agreements	
Index		Good Exports		Proximity	Treaties Signed	Persons using internet	Environmental health score	
FDI Inflows	Chinn-Ito Index	Good Imports	Performance	Cultural goods	Double Taxation Treaties Signed	Mobile subscriptions		
FDI Outflows	Exchange rate	Value-added Contributions	Doing Business Index	Trademark applications	IGO	Internet bandwidth	Ecological footprint	

Example. Data gaps in regional indicators in the Money & Finance dimension

Data coverage for Pacific Economies – Money and Finance Dimension (2006 – 2021)



Comparison of Exchange Rate Correlation Indicator: Pegged with one or multiple currencies



Note: The currency for several economies in the Pacific are tied to those of other economies (e.g., USD, AUD, NZD), including Cook Islands, Kiribati, Marshall Islands, Micronesia, Fed. States, Nauru, Niue, Palau, Timor-Leste, and Tuvalu. The rest of the Pacific economies' currencies are pegged to a weighted basket of currencies, except for Papua New Guinea.

Note: The x-axis labels correspond to the five indicators in ARCII money and finance dimension.

Integration in Asia and among subregional initiatives progressed steadily in key dimensions



Notes: Worldwide normalization is used for all estimations, where the indicators are normalized using global maximum and minimum values across all regions. Estimates represent integration within the region (*intraregional*) or within each subregional initiative (*intrasubregional*). Higher values denote greater regional integration. Values for the Pacific subregion are partial due to data coverage. Source: ADB. Asia-Pacific Regional Cooperation and Integration Index Database (accessed August 2023).

Drivers of RCI in Asia underscore several areas for improvement



Infrastructure and connectivity and **people and social integration** sustained integration in Asia in 2021

Dimensional Contributions to RCI index by Region (2021)





RVCs, **infrastructure and connectivity** and **institutional arrangements** are the largest contributing dimensions to RCI among subregional initiatives

Dimensional Contribution to Intrasubregional Integration (2021)



Note: Dimensional contributions are computed as the weight of a dimension (indicator) multiplied by the dimensional index (indicator). The totals represent overall integration within the subregional initiatives. Source: Asian Development Bank. Asia-Pacific Regional Cooperation and Integration Database. https://aric.adb.org/database/arcii.

Subregional clusters show different trajectories in RCI

Intra-subregional integration offers **economies of scale** while inter-subregional integration encourages **diversification**



Intra-subregional vs Inter-subregional Integration

Notes: Worldwide normalization is used for all estimations, where the indicators are normalized using global maximum and minimum values across all regions. Estimates represent integration within the subregional initiative (intrasubregional) and with other Asian economies outside the subregional initiative (intersubregional). Higher values denote greater regional integration. Source: ADB. <u>Asia-Pacific Regional Cooperation and Integration Index Database (accessed August 2023)</u>.

Pacific's integration with Asia has improved in infrastructure, social, digital integration





Pacific - 2006 vs. 2021



By subregion

Integration within Pacific economies offers a contrasting picture

Integration within subregions (Intra-subregional RCI)

Pacific, 2006 vs. 2021 0.19 Trade and Investment 0.19 0.37 Money and Finance 0.24 0.42 Regional Value Chain 0.23 Infrastructure and 0.44 Connectivity 0.47 People and Social 0.11 Integration 0.09 0.16 Institutional Arrangements 0.17 0.01 Technology and Digital Connectivity 0.15 0.32 **Environmental Cooperation** 0.37

2021

2006

Trade and investment Money and finance Infrastructure & connectivity Regional value chain 7-7-.1 -2006 2012 2015 2018 2021 2006 2012 2018 2021 2006 2018 2021 2006 2009 2012 2015 2018 People & social integration Institutional arrangements Technology* Environment .6 -.5-2006 2009 2012 2015 2018 202 2006 2009 2012 2006 2009 2018 2021 2006 2009 2012 2015 2018 2021 2015 - Pacific Central Asia East Asia Southeast Asia South Asia

By subregion

At the economy level, integration within the Pacific remains limited



Notes: Worldwide normalization is used for all estimations, where the indicators are normalized using global maximum and minimum values across all regions. Source: ADB. <u>Asia-Pacific Regional Cooperation and Integration Index Database</u> (accessed August 2023).

Pacific's integration with AUS-NZ and USA is strong in some dimensions and has increased over time

Pacific integration with Australia & New Zealand, Developing Asia, and the USA







Notes: Worldwide normalization is applied for comparability. Estimates represent integration of the Pacific separately with: 1) Australia and New Zealand, 2) developing Asia, and the 3) USA. Money and finance dimension was included to improve covered of the overall index. Source: ADB. Asia-Pacific Regional Cooperation and Integration Index Database.

Some caveats and alternatives for Pacific indicators

SIZE OF PACIFIC ECONOMIES

• The ARCII indicators may underrepresent or overrepresent regional integration levels for certain economies due to their size, geographical location, or economic structure.



DENOMINATOR CHOICE

 Alternative denominators can be applied to address under and over representation of economies, particularly in small and least developed economies.

DATA AVAILABILITY

• Using international data sources to ensure comparability in ARCII created some possible data deficiencies on some of the indicators included.



INDEX CUSTOMIZATION

 The index could be calibrated according to the socio-economic context and data availability of Pacific economies.

REGIONALIZATION BIAS

• By construction, ARCII focuses on intraregional flows, without sufficient consideration of the extraregional linkages economies have outside their region.



EXTRA-REGIONAL LINKAGES

 A broader measure of integration (capturing both extra and intra regional linkages) would provide a comprehensive picture of the overall degree of economic integration.

Can high-level RCI indicators capture RCI spillovers?

RCI spillovers	Example of ARCII indicators
Funding and technology transfer through FDI	FDI flows, intrareg. research outputs
Improved transport and communications	Trade costs, liner shipping, LPI
Agglomeration effects through linking of urban centers	Air transport, SEZs, migration/tourism flows
Economies of scale through specialization	Value chain participation, trade concentration, trade intensity
Mitigation of cross-border environmental and public health risks	Environmental goods trade, env. health score
Institutional support for regional collaboration	FTAs, IGOs, BITs

Extraregional linkages are increasingly important in the current context



Trade and Investment Index

Correlation of Global Integration with growth, inequality and inclusive growth



Notes: Dots describe regression coefficients assessing the association of global integration index with GDP growth, income inequality (using the Gini Index developed by the World Inequality Database) and inclusive growth (defined by growth adjusted for income inequality). Hollow dots denotes coefficients not significant at 10% level. *Upper and lower-middle income; **Lower-middle and low income

Notes: Developing Asia excludes the PRC. As such, the lines represent integration of developing Asia excluding the PRC within the region, with the PRC, and with the USA.

Conclusion

- Standardized RCI measures across economies and dimensions, beyond infrastructure, can strengthen RCI strategies
- Taking stock in the Pacific:
 - Keep plugging the gaps do not forget the importance of basic data
 - Enhance finance indicators to better reflect the level of dof financial integration in the Pacific
 - Institutional regulatory cooperation is key → Education and research collaboration has strong RCI element
- **Customization** of indicators can better reflect RCI progress
 - Potential areas: fisheries, labour mobility, environmental cooperation
 - Synergies among dimensions (e.g. institutional arrangements and tourism)
- Extraregional linkages are increasingly relevant to explain RCI (e.g. value chains). ARCII can
 inform how

Thank you!



Imputation of missing data

Cold deck imputation	• Copying the closest available observation (e.g., carrying over the value of 2018 to 2019 (if missing)			
Averaging	• Taking the average value between two years (e.g., if 2015 is missing, average 204 and 2015 values)			
Linear interpolation	 Assumes a linear relationship between data points – straight line between two given points 			
Regression imputation	• Replaces missing data with the predicted values based on a regression equation. $DBI_j = 3.216 + 19.83LPI_j + \varepsilon_j$ $LPI_j = 0.912 + 0.032DBI_j + \varepsilon_j$			

Example of indicators

Capital Account Openness





Exchange rate correlation





Economic corridors facilitate regional integration

Intraregional integration index – 2022



- Location. Geography affects economies' ability/potential to forge linkages with other economies.
- **Network effects**. Degree of regional integration is influenced by neighbors, but channels can vary across clusters.
- Emerging trends
 - Supply chain reconfiguration
 - Harmonization of regulatory frameworks
 - Alignment with NDPs and subnational strategies

Notes: Worldwide normalization is used for all estimations, where the indicators are normalized using global maximum and minimum values across all regions. Estimates represent integration within the subregional initiative (intrasubregional) and with other Asian economies outside the subregional initiative (intersubregional). Higher values denote greater regional integration. Source: ADB. <u>Asia-Pacific Regional Cooperation and Integration Index Database</u> (accessed August 2023).

Higher integration of the Pacific with Asia tends to be fueled by its linkages to other Asian economies outside the subregion

Integration of Pacific economies with the rest of Asia



By selected Asia economies



Extraregional linkages are increasingly important for development outcomes

Assessing the impact of global economic integration



Promotes economic growth across all income groups



Induces income inequality in several income groups



Fosters inclusive growth for high income group

Global Integration Estimates (2021), By subregion



Correlation of Global Integration with growth, inequality and inclusive growth



Notes: Dots describe regression coefficients assessing the association of global integration index with GDP growth, income inequality (using the Gini Index developed by the World Inequality Database) and inclusive growth (defined by growth adjusted for income inequality). Hollow dots denotes coefficients not significant at 10% level. *Upper and lower-middle income; **Lower-middle and low income

By region