INTERNATIONAL MONETARY FUND

Growth Strategies and Diversification in the Pacific Islands Countries

Gabriela Cugat

WP/25/111

2025
JUN

WORKING PAPER

 WP/25/111

IMF Working Paper
Asia and Pacific Department and Research Department

Growth Strategies and Diversification in the Pacific Islands Countries

Prepared by Gabriela Cugat*

Authorized for distribution by Alaisdar Scott and Petia Topalova
June 2025

ABSTRACT: We examine growth strategies for the Pacific Island Countries (PICs) focusing on the role of tourism and diversification. First, we quantify the contribution of tourism to growth using panel regressions and we compute how much additional tourism would be needed for PICs to sustain comparators' growth rates. Given the sizable scaling ups in tourism required, we consider the benefits of an alternative growth strategy based on diversification. We identify diversification episodes in the PICs and quantify their benefits using the synthetic control method. Such episodes have had mixed results for PICs. Finally, we outline a framework for designing growth strategies in the PICs, based on diagnosing the binding constraints to their economic expansion and working around these limitations.

RECOMMENDED CITATION: Cugat, Gabriela. 2025. "Growth Strategies and Diversification in the Pacific Islands Countries." IMF Working Paper.

JEL Classification Numbers:	O40, O56
Keywords:	Tourism; diversification; growth; Pacific Islands countries
Author's E-Mail Address:	gcugat@imf.org

* The author would like to thank To-Nhu Dao for assistance with the UN value added data, Mouhamadou Sy for sharing data on progress towards Sustainable Development Goals, and Rafael Machado Parente, Marshall Mills, Manuel Rosales Torres, Tahsin Saadi Sedik, Todd Schneider, Nikola Spatafora, Petia Topalova, and Masafumi Yabara for useful comments and discussions. This paper is part of a research project on "Macroeconomic policy in low-income countries" supported by the U.K.'s Foreign, Commonwealth and Development Office (FCDO) and "Macroeconomic research on climate change and emerging risks in Asia" supported by the Government of Korea. The views expressed herein are those of the author and should not be attributed to the IMF, its Executive Board, its management, or the supporting partners. All errors remain ours.

WORKING PAPERS

Growth Strategies and Diversification in the Pacific Islands Countries

Prepared by Gabriela Cugat

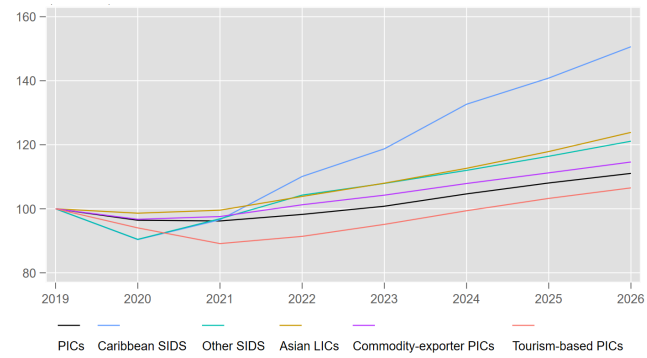
CONTENTS

I. Introduction

The COVID-19 pandemic highlighted the importance of a diversified growth strategy, both to weather a crisis and to entrench the recovery. Both travel and supply chain disruptions during the pandemic showed that robust growth strategies are key to minimize output losses and establish a solid recovery. Tourism-reliant Pacific Islands Countries (PICs) suffered larger GDP losses during the pandemic than other PICs (Figure 1). More broadly, PICs suffered larger output losses than Emerging Market and Developing Economies (EMDEs) and recovered, on average, at a slower pace than their comparators.[1]

Figure 1: Real GDP path

Real GDP index, 2019=100.

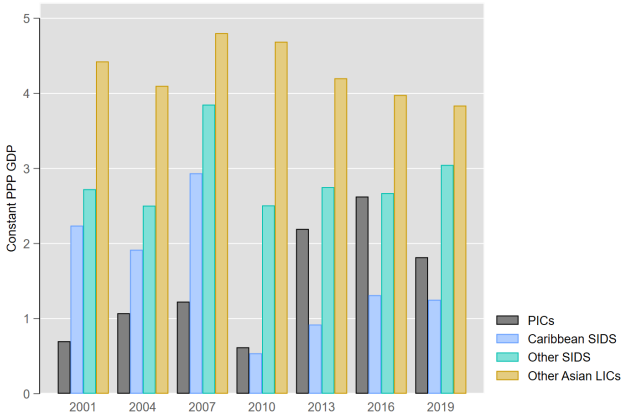


Source: World Economic Outlook (October 2024 vintage) and IMF staff estimates.

PICs have been stuck in a low growth path even before the pandemic (Figure 2). Their stagnant growth performance can be explained both by their unique characteristics as well as by policy choices. The PICs have small and isolated domestic markets, due to their small populations and extreme geographic dispersion, making monopolies and lack of competition more likely. Their geographic conditions – remote and highly dispersed – also create a more challenging environment for investment since transportation and raw material costs are higher than in other regions. PICs are also more vulnerable to climate change and suffer natural disasters with high frequency and rising severity. PICs have been dependent on tourism and natural resources, and they are reliant on both food and capital imports, as well as on official aid. Some of them have weaknesses in their macroeconomic policy frameworks and tight capacity constraints, which has led to weak policy implementation and/or unsustainable exploitation of natural resources.[2]

Figure 2: Historical GDP growth

Annualized 3-year growth rate of Real GDP, percent.



Source: World Economic Outlook (October 2024 vintage) and IMF staff estimates.

We study growth strategies in the PICs by focusing on the effects of tourism and diversification. We focus on a tourism-led strategy since this has been considered a key growth driver in PICs to overcome their small, remote, and dispersed markets, and it is a strategy that has had some success for a few PICs and other comparators. An alternative to specializing in tourism would be to follow the path of some Asian LICs: diversification, either of their exports base or domestic production. While a number of papers have examined the economic impact of tourism and the benefits of diversification, a robust growth strategy for the PICs needs to consider the unique dynamics of this

[1] See Annex I for a list of countries included in the analysis and definitions of country groupings.

[2] See Ho, Tumbarello and Kronenberg (2016) for an in-depth analysis of the growth challenges for the Pacific Islands and the policy options to address them.

group of countries. To tackle this, first we quantify the contribution of tourism to growth in the PICs using panel regressions over the 1990-2019 period. We use the estimates based on historical data to project by how much tourism would need to increase in order to sustain the annual average growth of a set of comparator economies. Our findings suggest that while a tourism-based strategy can be a good fit for some of the PICs, the scaling up necessary to sustain growth with a tourism-based strategy is too high for others. We then quantify the benefits of diversification in the PICs using the synthetic control method. We identify diversification episodes in PICs and estimate their impact on growth, volatility, and the imports ratio. Our analysis suggests that an exports diversification-based growth strategy could lift growth and reduce its volatility in the the PICs. Finally, we outline a framework for designing growth strategies in the PICs. The framework proposed adapts the conceptual framework for industrial policy proposed by Cherif and others (2022) and focuses on how to detect the binding constraints for PICs and work around their limitations. We present a potential application by implementing the framework to promote a sector of interest for the PICs and what policy tools are more suited for the PICs.

II. Related Literature

This paper builds upon three different strands of literature: (i) quantifying the relation between growth and tourism, (ii) quantifying the benefits of diversification, and (iii) the design of growth strategies. Empirical assessments of the contribution of tourism to growth typically find a positive relation between them (Sequeira and Nunes 2008, Arezki, Cherif and Piotrowski 2009, Cannonier and Burke 2019). However, they also find limited room for tourism specialization to drive sustained growth, due to the limitations on the constant creation of new "products" in the tourism space.[3] We reexamine the link between tourism and economic growth using cross-country panel regressions that include a larger sample of PICs than typically used in the literature.

In relation to the diversification literature, this paper builds on previous work on the benefits of diversification and its contribution to growth. Papageorgiou and Spatafora (2012) and IMF (2014a, 2014b) present a detailed stocktaking and quantification of the role of structural transformation and diversification in sustaining long-run growth in low-income countries. Using cross-country regression analysis, they find that diversification, particularly in exports, is correlated with higher economic growth and lower output volatility. Papageorgiou, Spatafora and Wang (2015) focus on Asian economies (including five PICs in their sample), and they find the region has successfully diversified its exports, especially when compared with other regions like Sub-Saharan Africa. The success of the Asian region, particularly Frontier Asia (Bangladesh, Bhutan, Cambodia, Lao PDR, Maldives, Mongolia, Myanmar, Nepal, Papua New Guinea, and Vietnam) is underpinned by diversification along new products and by climbing the quality ladder. McIntyre and others (2018) find that more diversified small states experience lower output volatility and higher growth than other small states. They also find that diversification efforts have proven elusive in small states. Our paper provides quantitative case studies that measure the returns of diversification episodes for PICs, beyond cross-country averages that can hide systematic differences of PICs.

Finally, on the design of growth strategies, Rodrik (2005) argues that while successful strategies tend to be context-specific, there are broad principles common to such strategies. First, good institutions that foster the protection of private property rights, contract enforcement, market competition, aligned incentives and sustainable public sector are key for successful growth strategies, but can be achieved through different

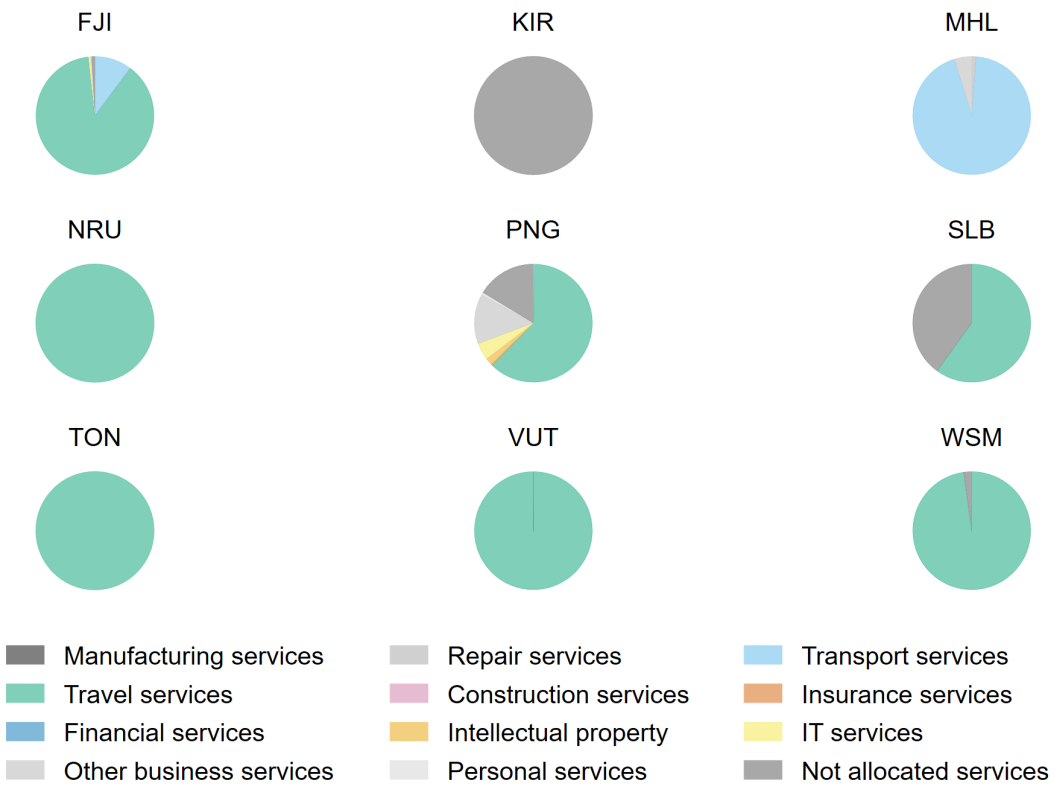
[3] See Comerio and Strozzi (2019) for a comprehensive literature review on the economic impact of tourism and the diverse methodologies and hypotheses around this topic.

arrangements that incorporate domestic conditions (culture, geography, etc). Second, igniting and sustaining growth are two separate tasks that require different strategies. Recently there has been a revival of industrial policy as a growth strategy, as surveyed in Lane and Rodrik (2023). Cherif and others (2022) present a conceptual framework for using industrial policy to promote growth and diversification. This paper proposes how to adapt the Cherif and others (2022) framework to the challenges and constraints faced by PICs.

III. On the potential and limitations of tourism-led growth strategies

Tourism has been considered a promising sector for PICs given their geographic location, characteristics, and the success of comparators in other regions. For most PICs with data available, tourism represents a large share of exports of services (Figure 3). Before estimating the benefits of diversification, it is worth estimating the contribution of tourism to growth and quantifying how much it would need to scale up in order to drive growth sustainably in PICs.

Figure 3: Distribution of Services Exports in PICs
Percent.



Source: IMF staff estimates and Li and others (2025).

We estimate the contribution of tourism to growth through panel growth regressions in the spirit of Solow's growth model. The empirical model is given by:

$$y_{i,t} = \alpha + \beta * tourism_{i,t} + X_{i,t} * \Gamma + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

in which the dependent variable is the annualized growth rate of per capita GDP in constant 2011 PPP dollars for country i at period t, *tourism* denotes a measure of tourism specialization described below, $X_{i,t}$ is a set of control variables that includes per capita GDP level at the start of the period, a measure of trade openness, net FDI flows, and the number of natural disasters in the period. The equation includes both country and period fixed effects, γ_i and δ_t respectively, to capture idiosyncratic factors that are constant over time and global time-specific factors. Due to data availability, the horizon covered is from 1990 until 2019, and the sample includes about 180 countries, including 11 of the 12 PICs. We use non-overlapping three-year periods to bypass business cycle fluctuations and average all variables over the three years unless otherwise noted. We use a parsimonious specification in order to include as many of the dozen PICs as possible in the regression.

We also explore whether the contribution of tourism is different in the PICs than in other countries by estimating a model with an interaction variable:

$$y_{i,t} = \alpha + \beta_1 * tourism_{i,t} + \beta_2 * tourism_{i,t} * PICs_i + X_{i,t} * \Gamma + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

in which all the variables are as previously specified, and $PICs_i$ is a dummy variable that assumes the value one for the PICs in our sample.

Tourism specialization is arguably an endogenous variable due to reverse causality or omitted variable concerns, making causal interpretation of β difficult. For example, there might be other factors that drive both growth and tourism specialization, such as managerial skills, health concerns, or political instability. To address this issue, we instrument the tourism variable in equation (1) using three alternative instruments: first, the lagged value of the tourism average variable; second, the period-start value of the tourism variable; and third, the average tourism variable of each country's neighbors. While the first two tend to pass the weak identification test, the latter instrument generally cannot be rejected as being a weak instrument.[4]

We present the estimation results in Tables 1 to 3. We use three variables to capture tourism specialization: first, international tourism receipts as percentage of total exports (Table 1); second, the logarithm of the level of international tourism receipts (Table 2); and third, the logarithm of the number of international tourist arrivals (Table 3). The first variable considers the effect of increasing the share of tourism exports, while the other two look into increasing the value spent by tourists (which could be considered a proxy for the intensive margin) or increasing the number of tourists (extensive margin). The first two columns in all tables present the OLS estimation of equations (1) and (2), while the rest of the columns present the IV estimation of equation (1). All control variables have the expected signs, while the tourism variable is positively correlated with growth.[5] In some of the IV regressions, for some of the tourism variables, the coefficient is not statistically different from zero.

[4] Other instruments that have been used for tourism in growth regressions are either constant over time, with very limited time variation (for example: World Heritage Foundation sites, coastline kilometers, latitude and longitude, language) or not available for most PICs (fractionalization index), which limit their use in the current setting.

[5] Lee and others (2018) find a negative association of natural disasters and output for PICs when considering severe natural disasters. In our case, we consider all types of disasters and we do not consider their intensity in terms of costs, which explains the sign obtained. This is still the case when considering the interaction of natural disasters with PICs.

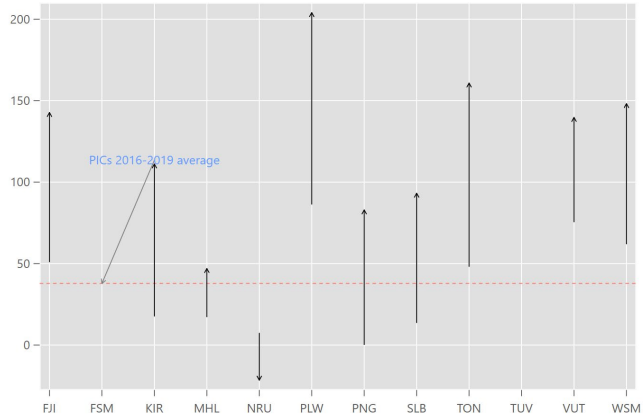
The regression results suggest that a tourism-led strategy is correlated with higher economic growth and that when it comes to the benefits of tourism, PICs are not significantly different from other countries (the interaction term is insignificant for all tourism variables, in line with the finding of Sequeira and Nunes 2008 of tourism not being more relevant for growth in small states than in other countries). When it comes to intensive versus extensive margins, on average, one percent increase in tourist arrivals (extensive margin) has a larger impact on growth than a one percent increase in tourism receipts (intensive margin). The results suggest that a tourism-led strategy should focus on increasing the exports share of tourism through any of the two margins, depending on the marginal cost of increasing the number of tourists relative to increasing the amount spent by each tourist. Increasing the exports share could be achieved by focusing on international tourism instead of domestic one and by increasing the domestic value added in the tourism sector. The latter has the potential to not only raise the value of tourism exports but also build more inclusive value chains and benefit underserved communities and groups.[6]

How far can tourism-led strategies go?

To put the regression results into perspective and analyze the potential of a tourism-led strategy for PICs, we compute the increase in tourism as a share of exports necessary for each PIC to achieve the average per capita growth rate of comparators. We use as comparator the average annualized 3-year growth rate of other Asian LICs between 1999 and 2019 (4.3 percent). Figure 4 summarizes the results for tourism exports. To catch up to the growth of other Asian LICs using a tourism-led strategy, PICs would need on average to more than double their tourism exports share. This is in line with the findings of Arezki, Cherif and Piotrowski (2009) for the average developing economy to achieve 6 percent growth of Asian “miracles”. Among the non-tourism specialized PICs, the scaling-up needed varies. While for some of them there might be potential in a tourism-led strategy and the scaling-up necessary remains within the range of the tourism-specialized PICs, for most PICs the scaling-up necessary would put them in the upper range of tourism-specialization, requiring the corresponding investment in infrastructure, connectivity and advertising, which might be sizeable depending on the initial conditions of the country.

Figure 4: Change in tourism exports necessary to achieve average growth of other Asian LICs

Tourism receipts as share of exports, percent.



Source: IMF staff estimates.

Note: The arrows denote the actual 2016-19 average share of tourism in exports and the counterfactual required to achieve the same average annualized growth as other Asian LICs of 4.3 percent using the estimated elasticity of growth to tourism in column (4), Table 1.

The counterfactual presented shows that tourism-dependent PICs would need to scale up tourism by more than other PICs to reach the growth rate of comparators. For those PICs already specialized in tourism (like Fiji, Palau, Tonga, Vanuatu and Samoa), not even having a tourism export share of 100 percent would allow them to reach the average growth of other Asian LICs, pointing to the limits of tourism specialization to sustain

[6] For more detailed work see: World Bank (2017) on women and tourism, World Bank (2022) on blue tourism, and World Bank (2023) on tourism in the Pacific.

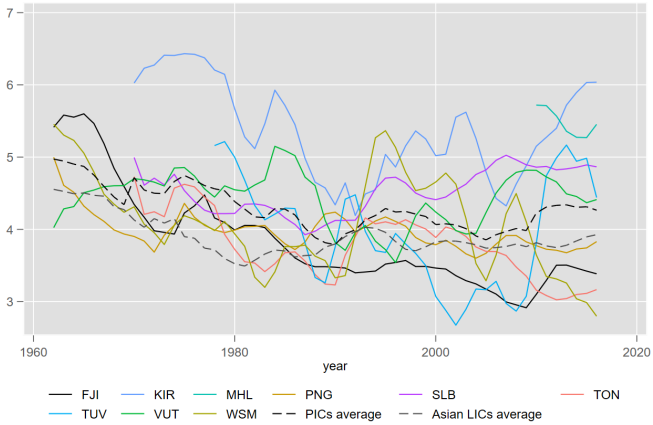
higher growth rates and the need of additional growth strategies to complement a tourism-led strategy. This means that PICs already specialized in tourism will need to seek additional strategies if they want to further boost their growth rates. This could refer to diversifying within the tourism sector, by increasing the value added of tourism (providing meals with higher local content, "experience" tourism packages, etc), or it could mean diversifying away from a primary focus on tourism.

IV. On the benefits and limitations of diversification for PICs

The previous section highlights the potential and limitations of a tourism-led strategy. While the scaling up necessary to sustain growth might be attainable for some PICs, our empirical analysis shows that for most of them the benefits of a traditional tourism-led strategy are limited and exploring alternative growth strategies would be valuable.

Figure 5: Exports Diversification in PICs

Theil index, 3-year moving average.



Source: IMF Exports Diversification toolkit and IMF staff estimates.
Note: A lower value of the index represents an increase in diversification.

What can PICs do then? Empirical analysis using cross-country data has shown that diversification has benefits in terms of higher growth and lower volatility, both for LICs in general (Papageorgiou and Spatafora, 2012) and for small states in particular (McIntyre and others, 2018). This section looks specifically at the benefits of diversification for PICs, by identifying diversification episodes and applying a quantitative case study technique to measure this benefit. First, we identify diversification episodes in PICs along two dimensions: exports diversification and domestic diversification. Then, we apply the synthetic control method (Abadie and Gardeazabal 2003; Abadie, Diamond and Hainmuller 2010) to quantify the benefits of such episodes for PICs.

Measuring diversification and diversification episodes

Diversification can have different meanings for different audiences, and it can be defined based on different outcomes. Here we work with three dimensions of diversification: in exported goods and services, in trading partners, and in domestic production. For every variable, we use a Theil index of diversification according to:

$$Theil = \frac{1}{N}\sum_{s}\frac{x_s}{\mu}\ln\left(\frac{x_s}{\mu}\right)$$

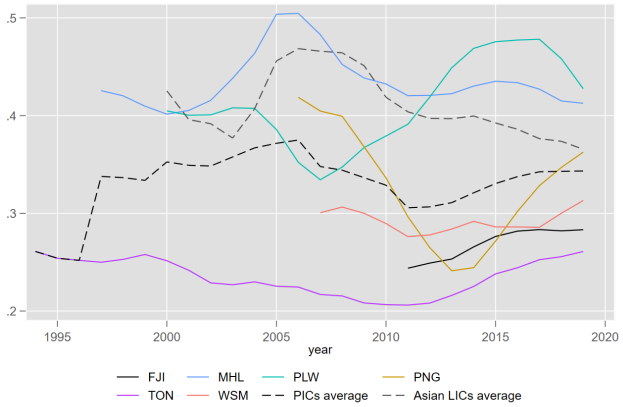
in which s represents the product/services categories or productive sectors, x_s represents the value of exports, output share, or exports share, and μ is the mean of the corresponding x_s values. A decrease in the index

represents an increase in diversification.[7] Figures 5 and 6 show the evolution of the different diversification dimensions for PICs compared to the Asian LICs average, both as a group and individually. PICs on average lag their peers in terms of diversification across all measures considered. Within PICs, there is considerable variation in diversification levels and trends, with some of them even displaying consistent specialization in the late 2000s. In terms of exports diversification, their comparators have stagnated on average in the 2000s after consistent diversification during 1960-80, while the average PIC has become more specialized. For domestic diversification, which tends to be harder to measure due to data availability, we consider two measures: the first based on value added data from ten economic sectors (UN value added data) and the second based on 3-sector data from the WB's WDI. In both cases PICs display a trend opposite to their comparators, with stagnant composition or specialization being more common among PICs.

Figure 6: Domestic Diversification in PICs

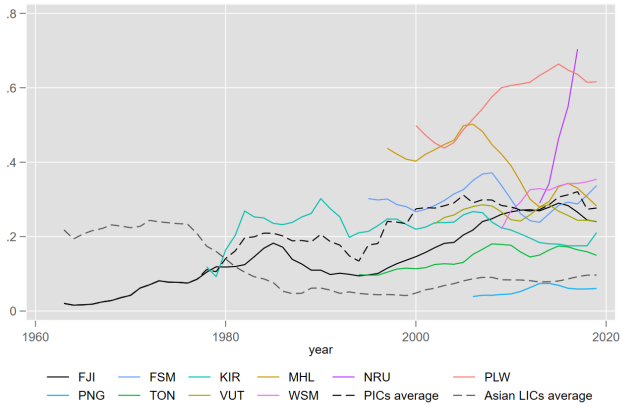
Panel A: Theil (value added)

Theil index, 3-year moving average.



Panel B: Theil 3-sector

Theil index, 3-year moving average.



Source: IMF Staff estimates based on UN and WB WDI data.

Note: A lower value of the index represents higher diversification. For Panel A, Asian LICs average corresponds to Lao PDR, Nepal, Timor-Leste, and Vietnam; for Panel B, Bangladesh, Bhutan, Cambodia, Lao PDR, Myanmar, Nepal, Timor-Leste, and Vietnam.

We identify diversification episodes separately for each measure. First, we apply the Hodrick-Prescott (HP) filter to the diversification index to separate trend from cycle. Then, using the trend filtered series, we estimate the number of unknown breaks using Bai and Perron (1998)'s methodology, following Berg, Ostry and Zettelmeyer (2012)'s strategy to identify growth episodes. A diversification episode starts when there is a break that moves the average of the filtered data downward. The episode ends when: there is a break upwards (moving to less diversification); another downbreak but small (less than 5 percent); the filtered data reaches a valley preceding a reversal in the trend; or the end of the sample. See Annex II for details on the algorithm and the whole sample of diversification episodes identified for PICs. Figures AII.1-AII.4 in the annex show the diversification (and specialization) episodes found for PICs for all dimensions considered.

We summarize the diversification episodes found for PICs and comparators in Table 4. Almost all PICs for which data are available have experienced at least one exports diversification episode, but half of those were reversed. Compared to Caribbean small states and other Asian LICs, diversification episodes in PICs are shorter. Per country, PICs have experienced fewer domestic diversification episodes than comparators, but

[7] The exports diversification index is computed using goods trade data from COMTRADE. For more details about the exports diversification index, see Papageorgiou, Spatafora and Wang (2015).

more (albeit shorter) exports diversification episodes. In terms of timing, PICs have started their diversification efforts later than their comparators, with Caribbean small states experiencing more episodes starting in the 1990s and Asian LICs having had a large number of episodes in the 1970s. If the returns to diversification are persistent, this difference in the timing of diversification waves can have a lasting impact on GDP growth across PICs and their comparators.

We focus on diversification episodes that were not reversed and quantify the effect on real GDP per capita, output volatility, and imports share by applying the synthetic control method (SCM). The SCM, developed by Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmuller (2010), is a quantitative case study technique that builds a synthetic country made up of a linear combination of comparators that can replicate the country of interest before the diversification episode. The synthetic control serves as the counterfactual of how the outcome variable of interest would have looked in the absence of diversification. For each country-episode, we fit a growth model with a single covariate (average number of natural disasters) and lags of the outcome variable to avoid additional reductions in the donor pool given the data available. See Annex III for technical details and the specific model fitted in each case.

Table 4. Total diversification episodes, PICs and comparators.

Country group	Total	1962-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019	Number of episodes by type		Average duration per type of episode (years)	
		(All types of episodes)						Exports	Domestic	Exports	Domestic
PICs	26	3	3	6	2	7	5	18	8	5	4.5
Caribbean Small States	33	3	6	5	9	5	5	24	9	7.8	5.5
Other SIDS	20	3	4	2	3	5	3	11	9	7.4	3.9
Asian LICs	20	1	8	1	4	3	3	10	10	6.6	7.6

Note: Episodes include exports diversification and domestic diversification, see Annex II for a breakdown by type of episode. Asian LICs excludes PICs, Other SIDS excludes PICs and Caribbean SIDS. See Annex I for the list of countries considered.

Quantitative case studies[8]

We discuss the findings from the SCM analysis for 4 of the 26 diversification episodes identified in PICs, namely the export diversification episode of Fiji (2001-07) and Samoa (2008-14) and the domestic diversification of Marshall Islands (2010-13) and Samoa (2011-10i). These episodes were selected mostly due to data availability and minimal overlap with other types of diversification episodes The main lessons from the quantitative case studies are:

- Exports diversification has some potential to raise output and reduce its volatility.
- Domestic diversification has had small to no impact on output, and limited impact on volatility.
- Domestic specialization episodes tend to occur after natural disasters when reconstruction takes place.

[8] Annex IV presents additional case studies considering exports partner diversification.

a. Fiji, exports diversification episode, 2001-2007. Only diversifying exports.

Diversification episode and impact

Our algorithm identifies three exports diversification episodes for Fiji: 1969-1972, 1985-1991, and 2001-2007. We apply the synthetic control method to the latest episode, during which the average level of the exports diversification index improved by 9.5 percent (the index declined from 3.49 to 3.16). Compared with synthetic Fiji, actual Fiji has higher GDP after the diversification episode. The effect on GDP peaks 2 years after the event, at about 0.4 percent of GDP per one percent improvement in diversification. GDP volatility is also lower shortly after the event, while the effect on imports over GDP is mixed.

We compute dynamic p-values of the estimated effects on GDP and volatility constructed based on in-space placebo experiments, where we estimate the SCM for the other members of the donor pool assuming they had the timing of Fiji's diversification episode. The dynamic p-value indicates how likely it is to obtain an estimated effect at least as large as the one obtained for the treated country. For GDP, in the first two years after the start of the event, about 40 percent of placebos result in an effect at least as large as the one estimated for Fiji (Figure 7). For volatility at least 50 percent of the of placebos result in an effect at least as large, while for imports only in the first year 20 percent of placebos have an effect at least as large as the one obtained for Fiji. Given the limited number of placebos available, our results tentatively suggest that the diversification episode had a short-term positive impact on GDP and no clear impact on GDP volatility and imports to GDP ratio.[9]

Macroeconomic context

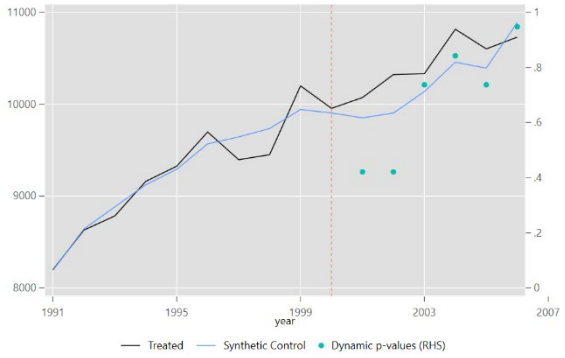
Raising Fiji's growth rate was a key concern around the time of the diversification episode we examine, and IMF staff recommendations during the 1998, 2002 and 2004 Article IV consultations reflect this. The diversification episode from 2001-2007 started after Fiji went through political turmoil in early 2000 when the elected government was overthrown by a coup, which might explain the slowdown in implementing the structural agenda and reforms to raise growth. One of the key goals was to restructure the sugar industry, plans for such restructuring were established by 2004. Costly public utilities and limited/deteriorated infrastructure were also constraining growth. This diversification episode might have been due to the decline in the sugar industry rather than due to specific policies promoting exports from other sectors. This might explain the relatively limited and imprecisely estimated growth impact.

[9] See Annex III for a more technical description of p-values, and their advantages and limitations in the current context application.

Figure 7: Fiji, 2001 exports diversification episode

Panel 1: Gross Domestic Product

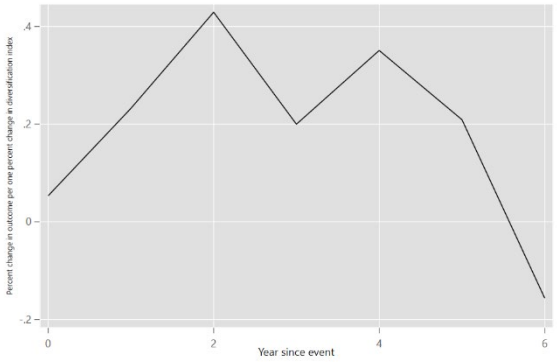
PPP 2011 international dollars, per capita.



Note: Dashed line represents the year before the event. Synthetic Fiji is made up of Guyana (41%), St. Lucia (26%), Jamaica (21%), Cabo Verde (9%), Trinidad and Tobago (2%), and Bahrain (1%).

Panel 2: GDP Impulse Response Function

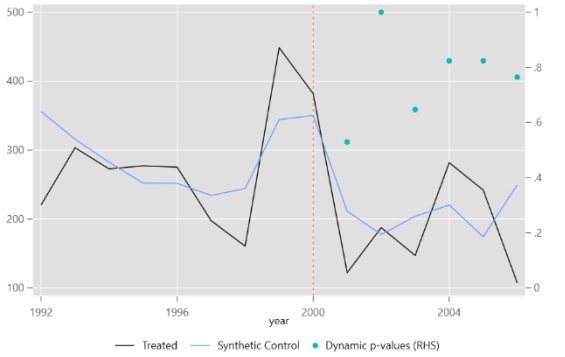
Percent change in GDP per one percent change in diversification index.



Note: year zero is the year before the event.

Panel 3: Gross Domestic Product volatility

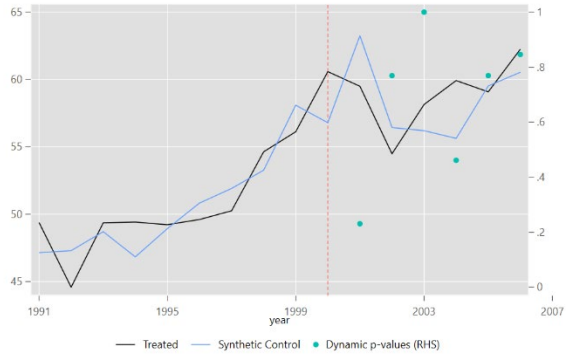
PPP 2011 international dollars, per capita



Note: Synthetic Fiji is made up of Cabo Verde (40%), Haiti (42%), The Bahamas (12%), Suriname (4%) and Bahrain (2%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio

Percent



Note: Synthetic Fiji is made up of Vanuatu (38%), Seychelles (24%), Dominican Republic (20%) and Cabo Verde (18%).

b. Samoa, exports diversification episode, 2008-2014. Second diversification episode in a row.

Diversification episodes

For Samoa our algorithm identifies two exports diversification episodes, which were not reversed, one in 2001-2004 followed closely by another one in 2008-2014. Due to data limitations, we focus on the second episode. The exports diversification index improved by 14.8 percent, from 3.98 to 3.39, during the second episode. Actual Samoa has a slightly higher GDP than the synthetic one, with an average improvement of 0.2 percent of GDP per one percent improvement in the exports diversification index. The dynamic p-values lie between 60-80 percent, indicating that the measured effect is likely to be random. For volatility, we do find some evidence of lower volatility after the diversification episode, with

the effect likely being significant in the first three years after the event. This episode also shows a sustained reduction in the imports to GDP ratio of about 5 percentage points, or on average about 1 percent per one percent improvement in diversification, likely significant with most p-values in the 20-40 percent neighborhood.

Macroeconomic context

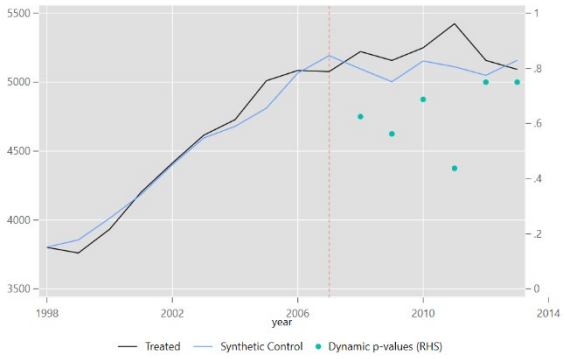
In the late 1990s/early 2000s, Samoa was considered a success story in the Pacific in terms of growth performance due to the structural transformation toward a service-based economy, mostly through commerce and tourism. The major constraints to growth identified by IMF staff were related to the use of customary land (namely land governed by the community-based rules and norms of the indigenous population), finance to the private sector, and ease of doing business.

At the end of 2009, Samoa was affected by a tsunami with physical damage estimated at around 10 percent of GDP. The impact of this natural disaster could be dampening the estimated benefits from the diversification episode.

Figure 8: Samoa, 2008 exports diversification episode

Panel 1: Gross Domestic Product.

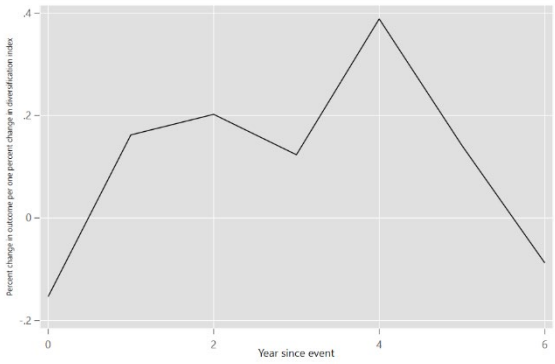
PPP 2011 international dollars, per capita.



Note: Dashed line represents the year before the event. Synthetic Samoa is made up of Marshall Islands (56%), Kiribati (30%), Trinidad and Tobago (8%), and Belize (6%).

Panel 2: GDP Impulse Response Function.

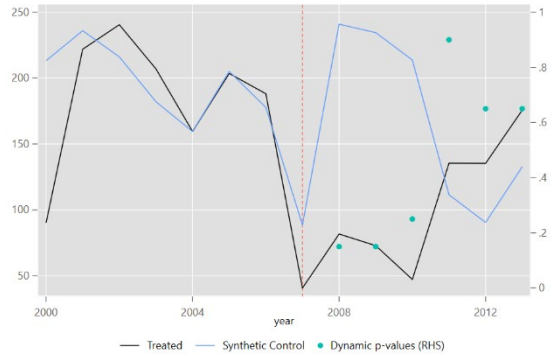
Percent change in GDP per one percent change in diversification index.



Note: year zero is the year before the event.

Panel 3: Gross Domestic Product volatility.

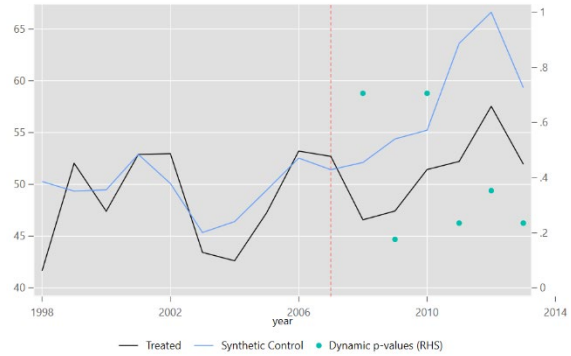
PPP 2011 international dollars, per capita



Note: Synthetic Samoa is made up of Marshall Islands (68%), Fiji (12%), Grenada (7%), St. Kitts and Nevis (9%), and Guinea-Bissau (4%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio.

Percent



Note: Synthetic Samoa is made up of Papua New Guinea (42%), Trinidad and Tobago (39%), Seychelles (17%) and Maldives (2%).

c. Marshall Islands, domestic diversification episode, 2010-2013.

Diversification episode and impact

We identify one domestic diversification spell for Marshall Islands, using either of the domestic diversification indicators. Domestic diversification improved by 29.5 percent using the 3-sector index and by 8.9 percent using the value-added index. For the SCM analysis, we use 2010 as the beginning of the episode, the year identified with the 3-sector index. After a small positive effect in the year the episode started, actual Marshall Islands had lower GDP than the estimated counterfactual. The estimated effect is likely to be insignificant, with p-values laying in the 60-90 percent range. For output volatility and the imports ratio, the estimated effect is volatile (changing from positive to negative) and likely insignificant given the high and volatile p-values.

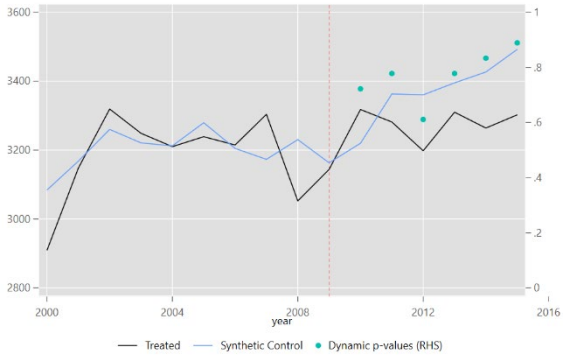
Macroeconomic context

The economy was recovering from the 2008 recession triggered by a commodity-price shock. The political environment was challenging, marked by instability and high government turnover, which made it difficult to agree to a reform agenda. The tapering in foreign grants was slowing momentum for recovery. The high import-dependence was an unaddressed source of vulnerability. Private sector growth was assessed to be hindered by inadequate infrastructure and lack of access to domestic financing. The main advice in terms of supporting private sector growth was geared towards implementing broad-based policies such as efficient infrastructure services, strengthening education, and improving access to secured commercial lending. During this period, commercial fisheries expanded and diversified their operations in harvesting, processing, transshipment, and exports. Participation in the Parties to the Nauru Agreement (PNA) was considered a positive factor for long-term growth as it would foster the sustainability of the industry.

Figure 9: Marshall Islands, 2010 domestic diversification episode

Panel 1: Gross Domestic Product.

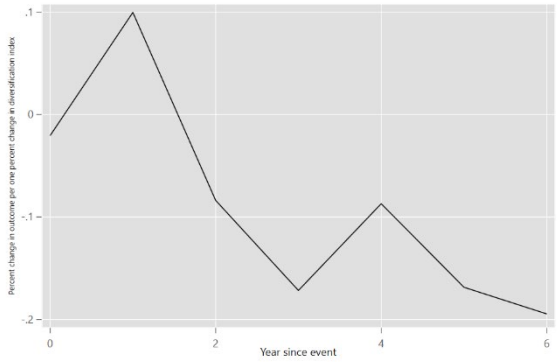
PPP 2011 international dollars, per capita.



Note: Dashed line represents the year before the event. Synthetic Marshall Islands is made up of Micronesia (52%), Comoros (40%), and Samoa (8%).

Panel 2: GDP Impulse Response Function.

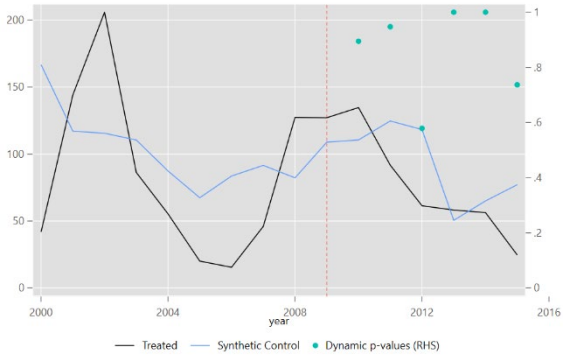
Percent change in GDP per one percent change in diversification index.



Note: year zero is the year before the event.

Panel 3: Gross Domestic Product volatility.

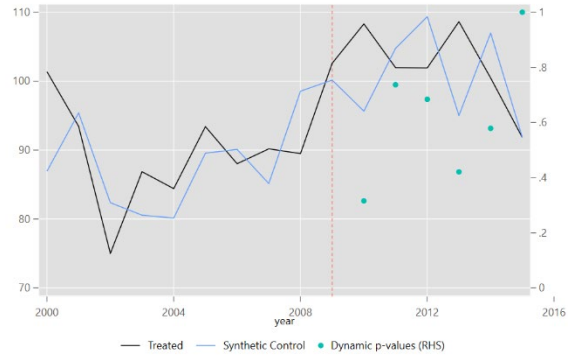
PPP 2011 international dollars, per capita



Note: Synthetic Marshall Islands is made up of Vanuatu (63%), Micronesia (32%), St. Lucia (4%) and Belize (1%). Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio.

Percent



Note: Synthetic Marshall Islands is made up of Seychelles (40%), Kiribati (30%), and Micronesia (30%).

d. Samoa, domestic specialization, 2011-2019.

Specialization episode and impact

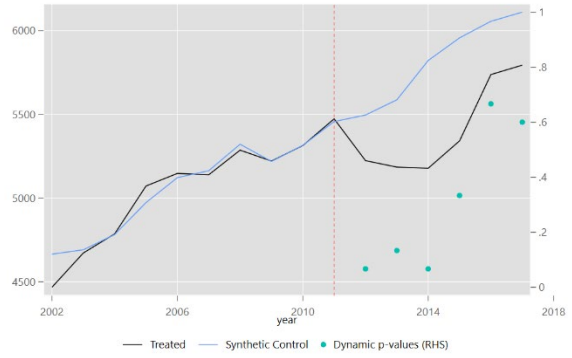
Our algorithm identifies one domestic specialization episode for Samoa, from 2011-2019. During this episode, the average level of the domestic diversification index went up from 0.29 to 0.34, a worsening in diversification of 20.2 percent. Compared with its synthetic control, Samoa has lower GDP, and the effect is significant the first three years after the start of the episode. The estimated effect bottoms out 3 years after the start at about -0.6 percent per percentage worsening in diversification. In terms of volatility, there is a significant reduction estimated during years 3-4 after the start of the event, while the effect is unlikely to be signficant in the rest of the evaluation period. For the imports ratio the estimated effect is small and insignificant.

Macroeconomic context

The end-2009 tsunami led to long-lasting scarring of the economy of Samoa and a slowdown in growth compared to the previous 10 years. Reforming state-owned enterprises was considered a priority for restoring growth, and some progress was achieved in 2011 with the privatization of the telecom company and other institutional reforms. Regarding the use of customary land, identified as another key growth impediment, the authorities took important steps to update the institutional framework between 2009-2010. At end 2012, the country suffered a cyclone that caused further destruction and required extensive reconstruction, potentially further concentrating activity in the construction sector and reducing the extent of diversification. The post-2012 estimates cannot be separated from the effect of this second natural disaster.

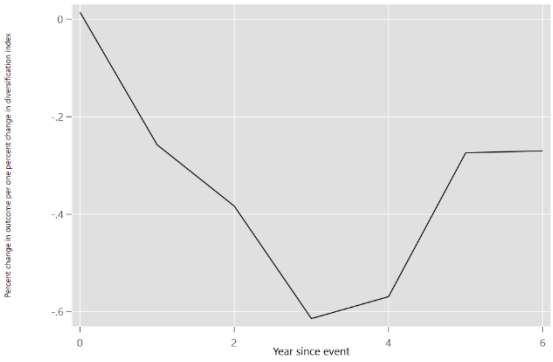
Figure 10: Samoa, 2011 domestic specialization episode

Panel 1: Gross Domestic Product.
PPP 2011 international dollars, per capita.



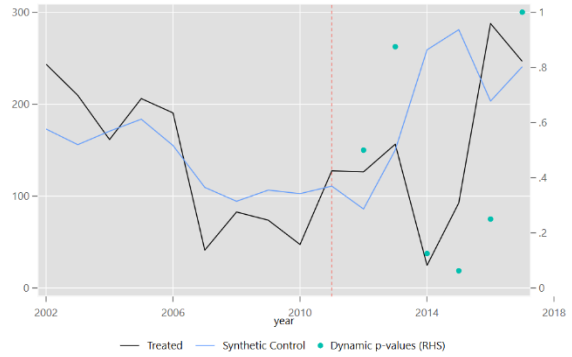
Note: Dashed line represents the year before the event. Synthetic Samoa is made up of Sao Tome and Principe (58%), Vanuatu (13%), Micronesia (11%), Palau (8%), Fiji (5%), St. Kitts and Nevis (4%), and Grenada (2%).

Panel 2: GDP Impulse Response Function.
Percent change in GDP per one percent change in diversification index.



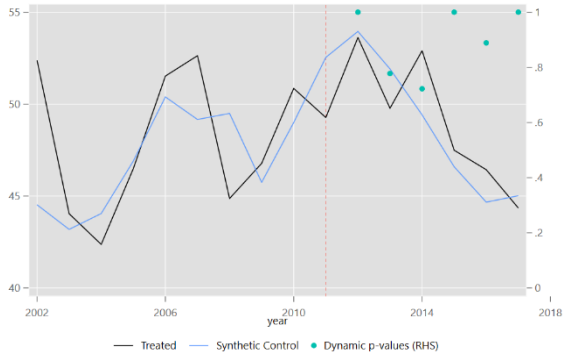
Note: year zero is the year before the event.

Panel 3: Gross Domestic Product volatility.
PPP 2011 international dollars, per capita



Note: Synthetic Samoa is made up of Vanuatu (54%), Fiji (40%), and Grenada (7%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio.
Percent



Note: Synthetic Samoa is made up of Mauritius (35%), Dominican Republic (26%), Trinidad and Tobago (19%), The Bahamas (12%), and Marshall Islands (8%).

V. Policy Framework

In this section we sketch a framework for designing growth strategies for PICs. First, we revisit the role of broad-based policies and the potential benefits for PICs. Second, we propose how PICs can use the industrial policy conceptual framework proposed by Cherif and others (2022), with the specific goal of designing growth strategies that incorporate PICs' unique characteristics. We briefly sketch how to apply the framework to a sector of interest for the PICs (Box 1).

Horizontal versus vertical policies: what to prioritize and how?

When it comes to policies supporting structural change and diversification, it is useful to define two types of policies, which can be complementary or substitutes depending on the expected returns for each and the stage of development. Horizontal policies refer to broad policies that aim to create an enabling environment and benefit almost every sector in the economy. These policies can range from strengthening human capital, to improving physical infrastructure and access to finance, improving governance and institutions, and reducing trade barriers. Vertical policies, on the other hand, are targeted to specific sectors of the economy, for example FDI promotion in a specific sector, production subsidies, or public investment in R&D.

Given their slow progress towards achieving the sustainable development goals (SDGs), PICs should continue engaging in horizontal policies with broad-based benefits (Figure 11). Within PICs there is considerable heterogeneity in how well they perform in terms of some key SDGs, with the higher-income PICs performing on average better (Figure 12). Improving access to water and sanitation, electricity, and human capital are key areas that are likely to increase productivity across the board. Focusing on vertical policies without improvement in these key areas is unlikely to yield high and sustained returns.[10]

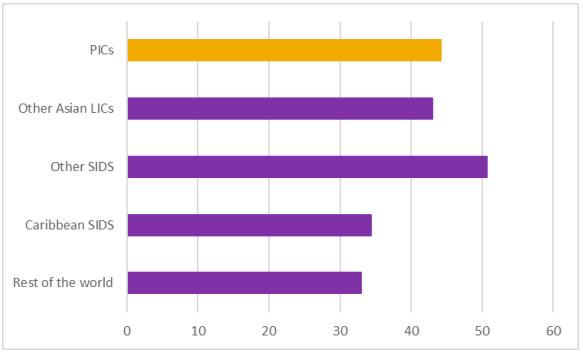
PICs are highly vulnerable to natural disasters (tropical cyclones, tsunamis, earthquakes, volcano eruptions), as well as to the impact of climate change on rising sea levels and temperatures and their effects on weather-related events, such as changing rain patterns. Reducing such vulnerabilities is a medium-term policy priority that would allow for fewer disruptions in human and physical capital accumulation, likely improving potential growth. The case study analysis of Samoa shows that natural disasters often disrupt the path of the economy, making it look like it is specializing when it is actually rebuilding. Investing in resilient infrastructure early on and anticipating such challenges would allow for a smoother reaction to future natural disasters and minimize disruptions to the economy's development.

[10] See McMillan, Rodrik and Sepulveda (2016) for discussions on the role of improving fundamentals such as institutions and human capital.

Figure 11: Selected SDGs Performance, PICs and comparators

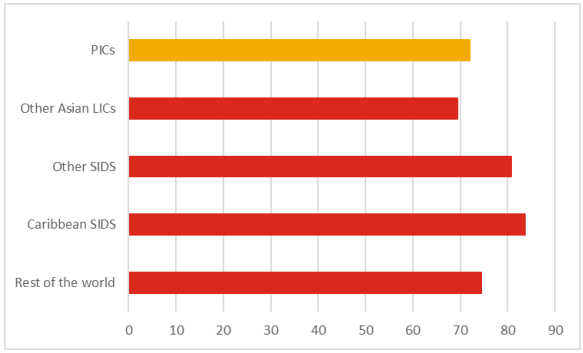
Panel A: Infrastructure Vulnerability

100 = Maximum vulnerability, 2019



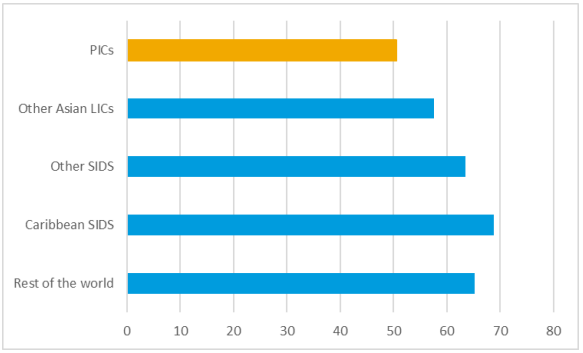
Panel B: Access to Sanitation

Percentage of population, 2019



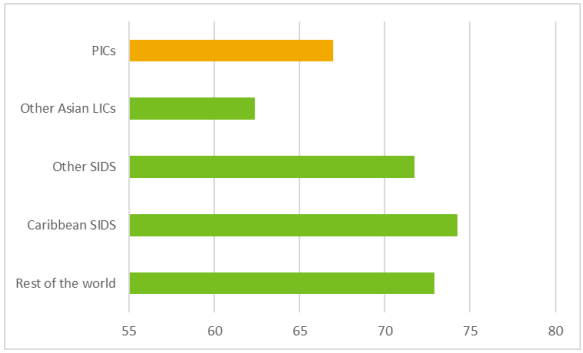
Panel C: Universal Health Coverage Index

100 = Best outcome, 2019



Panel D: Human Capital Index

100 = Best outcome, 2019



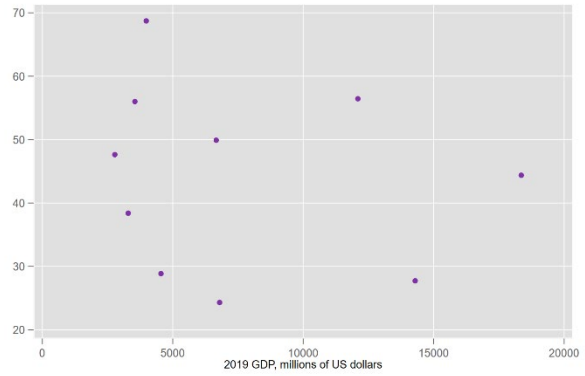
Source: Notre Dame Global Adaptation Initiative Index, United Nations and WB WDI.

Horizontal policies should continue to be prioritized, while there could be additional engagement through complementary vertical policies to start setting up the field for achieving sustained growth. The additional spending needed to meet the SDGs and to reduce climate-related vulnerabilities will require boosting tax revenues to create additional fiscal space. Sy and others (2022) outline a set of fiscal reforms that would allow PICs to improve their revenue mix, increase tax revenue by an additional 3 percent of GDP, and resolve bottlenecks that prevent them from boosting their tax revenue collection. Vertical policies have been found to have a stronger effect on economic performance in countries with better policy fundamentals (Baquie and others 2025).

Figure 12: Selected SDGs Performance, PICs performance

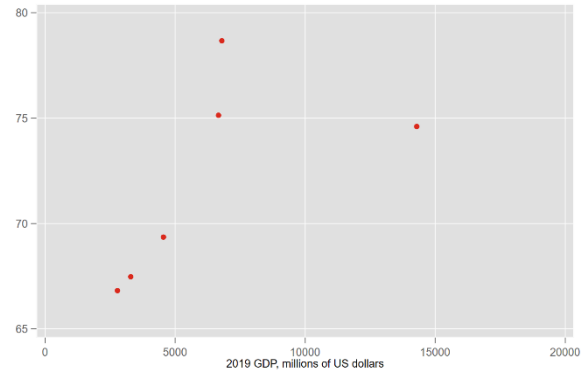
Panel A: Infrastructure Vulnerability

100 = Maximum vulnerability, 2019



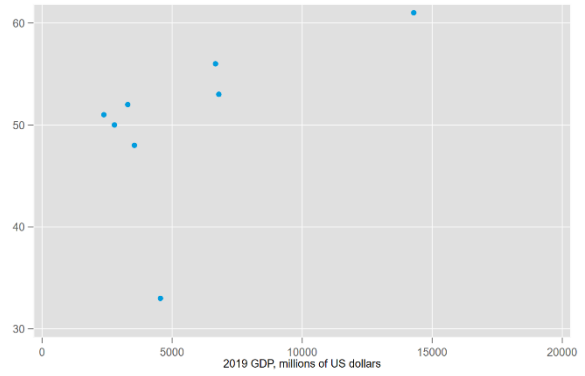
Panel B: Access to Sanitation

Percentage of population, 2019



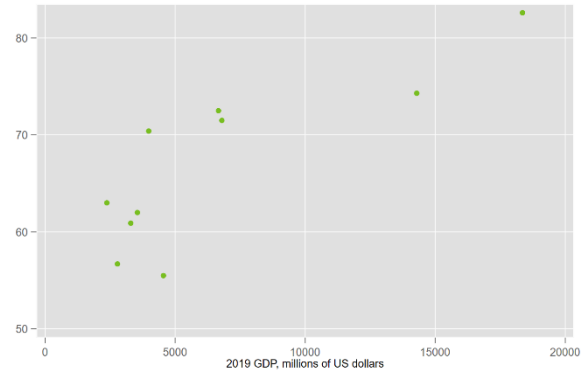
Panel C: Universal Health Coverage Index

100 = Best outcome, 2019



Panel D: Human Capital Index

100 = Best outcome, 2019



Source: Notre Dame Global Adaptation Initiative Index, United Nations, WEO and WB WDI.

A roadmap for implementing vertical policies

The IMF departmental paper by Cherif and others (2022) outlines guiding principles for policymakers to design sectoral policy interventions and provides a taxonomy of policy tools available. The guiding principles are based on the distinction between market failures and government failures. A successful intervention uses the policy tools available to reduce market failures while mitigating government failures.

The first principle focuses on identifying what is the externality that a vertical policy aims to address, its nature, magnitude, and intervention required to be resolved. Supporting this principle, Baquie and others (2025) find empirically that targeting sectors with higher levels of distortions is associated with stronger economic performance. For example, coordination failures and learning externalities prevent firms from fully internalizing the productivity gain of certain activities; this is particularly acute for new sectors as they require a critical scale to be viable. Policies that promote the formation of sectoral clusters and innovation labs may boost productivity by encouraging scale and facilitating knowledge spillovers. Regional agencies to promote knowledge-sharing, build capacity and provide certifications could reduce fiscal costs by sharing the fiscal burden. Some market failures, for example, lack of competitiveness due to small scale of the domestic market, might not be possible to avoid for PICs. Regional initiatives can effectively expand domestic markets and might improve

competitiveness. In other cases, in which market failures cannot be avoided, policy tools should be used to discipline market players.

The second principle states that the intervention should pass a cost-benefit analysis. This implies quantifying the social benefits and costs of the policy, considering the alternative use of resources (capital, labor, and tax revenue), the potential spillovers, the reduction in volatility achieved, and distributional implications. The social rate of return of the project must be higher than the best alternative return. While this principle is difficult to implement in practice, it represents a key step when resources are limited and, as for many PICs, there are still substantial benefits to reap from horizontal policies. At the very least, costing exercises should be carefully performed to quantify the resources at stake if the expected benefits do not materialize.

The third principle focuses on government failures, recognizing that government officials also respond to incentives. Rent-seeking, corruption, and mercantilist pressures can lead to government capture by special interest groups. As a result, programs might not be implemented optimally or as originally conceived. Proper monitoring of programs at each stage (conception, execution, and conclusion) requires extensive information that is difficult to gather precisely because it can threaten the profit of special interest groups. Baquie and others (2025) find that good governance is key for the effectiveness of vertical policies, particularly in developing countries. Continuing improvement of institutional quality and capacity in PICs would reduce the likelihood of government failures by improving transparency, establishing clear mandates, and building the ability to provide timely data to improve accountability.

Finally, the fourth principle states that policy design should strike a balance between addressing the underlying market failures while mitigating the risks of government failure. Interventions should incorporate specific performance targets and exit strategies, while maintaining competition and focusing on exports potential. In parallel, governments should implement reforms that strengthen governance to reduce the risks of state capture.

Policy tools: what is the scope for PICs?

Cherif and others (2022) provide a taxonomy of policy tools commonly employed to implement sectoral interventions. The main categories are: 1. Product market tools; 2. Capital market tools; 3. Labor Market tools; 4. Land market tools; and 5. Technology-related tools. These tools can complement or offset one another, and they can also be used for other purposes. Given the unique characteristics of PICs, some of these policy tools are more appropriate than others. Annex V summarizes some of the available instruments and the scope and limitations for PICs. For references on the cross-country evidence for each instrument, please see Cherif and others (2022). Baquie and others (2025) find that the link between vertical policies and competitiveness is stronger for products with higher initial competitiveness, suggesting that distance to the technological frontier is key. This suggests that understanding the competitiveness of PICs' export baskets could also matter for the design of vertical policies.

Given their size and location, PICs have limited financing options and narrow tax bases (see Sy and others, 2022). Policy initiatives with a fixed cost and horizon, for example a credit line for exports, could be more beneficial than broad tax exemptions that erode the tax base. Regional initiatives to promote knowledge spillovers and share the fiscal burden have potential when there is a common interest, for example in developing the Blue Economy (see Box 1). Thinking outside of the box, for example National Provident Funds acting as (or funding) venture capital firms, can promote growth in domestic start-ups, if well-designed to limit

the risk to the NPF while diversifying their portfolio. Improving SOEs' mandates and governance can boost their role in domestic production. Some of the PICs are pursuing novel approaches to foster innovation; for example, Solomon Islands recently implemented a regulatory sandbox that could promote innovation in the financial inclusion space. PICs are also exploiting synergies and working together in certain areas, for example in the cooperative management of oceanic fisheries through the Pacific Islands Forum Fisheries Agency and the PNA, and the Pacific Islands Forum efforts on governance and the 2050 Strategy.

Decision-making framework

Even within the PICs, there is no appropriate one-size-fits-all growth strategy. Differing available resources, institutional capacity, political priorities, etc, all need to be considered. Cherif and others (2022) suggest addressing three set of questions (Table 5): 1. Targeting; 2. Implementation; and 3. Governance. Following the proposed decision framework, in Box 1 we sketch its application to a target sector of interest for PICs: fisheries and the blue economy. We follow four steps, in which the central questions related to Targeting, Implementation, and Governance are addressed.

Table 5: Decision-making framework, main questions.

Targeting	Implementation	Governance
Which sectors to assist? Identify market failures and social costs. What resources are available? What are the country's priorities?	How to assist the sectors? How to implement public support to minimize government failures? How to structure, monitor and evaluate interventions? For how long?	Who decides which sectors to assist? How is informational uncertainty reduced? How do governance structures proposed minimize government failure?

Source: Cherif and others (2022)

Box 1: An illustrative application of the decision-making framework to the Fisheries sector and the Blue Economy

Step 1: Identify Market Failures and Externalities

- The tragedy of the commons: if the use of a common resource is left unregulated, individual users do not internalize the effect of their own exploitation on its depletion. In the case of fisheries, this can lead to overfishing, catching more fish than what the population can replace naturally, and the loss of marine life, endangering the sustainability of marine food supply.
- Learning by doing: firms do not internalize the benefits from experimentation to find out what type of value addition can be achieved locally, researching alternative energy programs to increase efficiency and reduce dependence on imported fuel.
- Learning externalities: for example, in developing market relationships for new fishing products with increased value-added.
- Technology upgrades: limited access to R&D and new technologies to increase value-added and upgrade subsistence fishing, limited financing available for new projects.
- Connectivity: proximity to processing facilities, limited connectivity to fish markets.

Step 2: Identify Sector-Specific Policy Failures

- Trade policy: identify if there are high tariffs on critical inputs that would promote fish processing, reassess trade agreements and their impact on promoting the development of the fishing sector, assess whether the exchange rate is overvalued.
- Infrastructure: limited infrastructure available to support higher value-added enterprises, lack of climate-proofed infrastructure to improve connectivity across local and external markets.
- Regulations: reexamine regulations related to fishing practices, and subsistence and industrial fisheries. Evaluate regulations related to the allocation of land to factories and look to expedite the process of clearing customs.
- Skills: scarce labor supply specialized in sustainable fisheries management and new value-adding techniques.
- Monitoring: lack of data available regarding employment by fishery (some available related to tuna) and subsistence fishing. Lack of data on sustainability of harvest levels of coastal fisheries. Difficulty monitoring fishing vessels.

Step 3: Coordinated Action Plan to Tackle Market and Policy Failures

- Promote climate-proofed infrastructure and improvement of existing infrastructure to encourage industrial fishing operations, this could be done with tax holidays or credit-guarantees against infrastructure updates.
- Enhancing the role of FFA, PNA and TVMA in improving cooperation and sharing knowledge regarding sustainable practices, developing export market relationships, and monitoring fishing vessels.
- Promoting Economic Partnership Agreements (EPA) with potential export markets to develop fish processing operations (as done by PNG and Fiji with the EU). This could concentrate processing in a few countries with the appropriate infrastructure while guaranteeing supply from other countries that might not have the scale to support canneries.
- Performing regular HIES (household income and expenditure surveys) to evaluate the progress and effect on big and small-scale fisheries.
- Create a regional incubator to develop pond aquaculture and diversify coastal fisheries.
- Create mobile training institutes to improve post-harvest methods to extend the shelf-life of fish from coastal areas and promote domestic fish trade.
- Improve transparency of fisheries-related subsidies, implementing an exit-strategy when adequate.
- Continue implementing horizontal policies that would improve infrastructure, access to electricity, governance, and transparency. Streamline regulations and look to simplify procedures.

Step 4: Market Signal Feedback to update the Coordinated Action Plan

- Set up how the program will be evaluated before start implementation, to make sure the required data is produced. Assess program performance at regular intervals, based on objective market signals, such as production and exports growth. When targets are not being met, consider if there are specific bottlenecks that are preventing it or there is an inadequate design of incentives.
- Continuously adapt policy tools to changing local and international environment conditions.

VI. Conclusion

Successful growth strategies in the PICs represent a challenge for policymakers. While PICs have some common characteristics, there is no appropriate one-size-fits-all strategy that can sustain long-term growth. Our results indicate that for some PICs a tourism-led strategy could provide good results in terms of achieving higher growth rates, if centered around increasing value-added and the exports share of tourism. But for most of them, this strategy would have some limitations arising either from the large investment needs required or previous tourism-specialization. In these cases, the benefits of diversification-based strategies are potentially larger. Our quantitative case studies point to exports diversification strategies as the ones with the most impact, both in terms of lifting growth and reducing volatility. There is little evidence that strategies that diversify only domestic output have a favorable impact on growth, although in some cases they could reduce output volatility, and they could have benefits in terms of variables we did not consider due to data limitations (such as food security). Finally, the case studies also show the importance of building resilience to climate change as a pre-condition for any diversification-based growth strategy, as the damage and reconstruction linked to natural disasters tend to disrupt diversification efforts.

Our analysis and the policy framework presented show how to start the analysis for PICs, by considering both horizontal and vertical policies. Most PICs can still reap benefits from horizontal policies, such as improvements in education, health, and infrastructure, particularly by building resilience to natural disasters. Such policies do not directly increase diversification but increase the human and physical capital available across the board. Targeted vertical policies that would have the most growth impact are those related to diversifying exports; these policies should be view as complements to horizontal policies. Setting up a coordinated action plan, with clear measurement, evaluation and exit strategy would be central for avoiding past pitfalls of diversification strategies. Joint action and promoting common areas of interest would also help PICs overcome some of the market failures that constrain their growth prospects, such as geography and small domestic markets.

Table 1. Growth regressions, tourism variable: international tourism receipts as percentage of total exports

(Fixed effects, 3-year average, 1990-2019)

	(1) Annualized 3-year growth rate, per capita GDP 2011 PPP	(2) Annualized 3-year growth rate, per capita GDP 2011 PPP	(3) Annualized 3-year growth rate, per capita GDP 2011 PPP	(4) Annualized 3-year growth rate, per capita GDP 2011 PPP	(5) Annualized 3-year growth rate, per capita GDP 2011 PPP
Logarithm of per capita GDP 2011 PPP, period start	-3.124*** (0.693)	-3.079*** (0.706)	-3.168*** (0.534)	-3.127*** (0.635)	-1.743 (1.229)
International tourism, receipts (% of total exports)	0.0305* (0.0182)	0.0279 (0.0201)	0.0429 (0.0313)	0.0355** (0.0175)	-0.261 (0.274)
Trade of goods as percent of GDP	0.0205** (0.00973)	0.0202** (0.00974)	0.0183*** (0.00626)	0.0210*** (0.00775)	-0.0118 (0.0317)
Net FDI as percent of GDP (+=inflows)	0.0220 (0.0185)	0.0221 (0.0185)	0.00633 (0.00796)	0.0218 (0.0153)	0.0255 (0.0186)
Number of natural disasters, excludes biological disasters.	0.0379** (0.0189)	0.0364* (0.0189)	0.0461*** (0.0159)	0.0364** (0.0166)	0.0324* (0.0189)
Tourism interaction w/PICs		0.0183 (0.0349)			
Country and time fixed effects	Yes	Yes	Yes	Yes	Yes
R2 within	0.157	0.157	0.214	0.157	.
Instrumental variable			Lagged	Period start	Neighbors average
F-statistic weak identification test			155.68	693.86	3.59
Observations	1238	1238	1057	1235	1212
Countries/PICs	178/10	178/10	175/9	178/10	176/10

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: IMF staff estimates based on WEO, WB WDI, EM-DAT.

Table 2. Growth regressions, tourism variable: logarithm of international tourism receipts.

(Fixed effects, 3-year average, 1990-2019)

	(1) Annualized 3-year growth rate, per capita GDP 2011 PPP	(2) Annualized 3-year growth rate, per capita GDP 2011 PPP	(3) Annualized 3-year growth rate, per capita GDP 2011 PPP	(4) Annualized 3-year growth rate, per capita GDP 2011 PPP	(5) Annualized 3-year growth rate, per capita GDP 2011 PPP
Logarithm of per capita	-2.957**	-2.956**	-2.825***	-2.659**	-6.106***
GDP 2011 PPP, period start	(1.375)	(1.413)	(0.745)	(1.130)	(2.164)
Logarithm of International	0.631**	0.631**	-0.336	0.404*	3.162**
Tourism Receipts	(0.292)	(0.304)	(0.302)	(0.212)	(1.417)
Trade of goods as percent	0.0205*	0.0205*	0.0155**	0.0207**	0.0173**
of GDP	(0.0109)	(0.0109)	(0.00652)	(0.00837)	(0.00831)
Net FDI as percent of GDP	0.0225	0.0224	0.00809	0.0223	0.0208
(+=inflows)	(0.0170)	(0.0170)	(0.00848)	(0.0151)	(0.0149)
Number of natural	0.0340*	0.0329*	0.0470***	0.0343**	0.0163
disasters, excludes	(0.0198)	(0.0198)	(0.0165)	(0.0170)	(0.0231)
biological disasters.					
Tourism interaction w/PICs		-0.0706			
		(0.359)			
Country and time fixed effects	Yes	Yes	Yes	Yes	Yes
R2 within	0.130	0.130	0.162	0.128	.
Instrumental variable			Lagged	Period start	Neighbors average
F-statistic weak identification test			182.39	1068.85	10.84
Observations	1319	1319	1136	1316	1296
Countries/PICs	183/11	183/11	180/11	183/11	182/11

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: IMF staff estimates based on WEO, WB WDI, EM-DAT.

Table 3. Growth regressions, tourism variable: logarithm of international tourism arrivals.

(Fixed effects, 3-year average, 1990-2019)

	(1) Annualized 3-year growth rate, per capita GDP 2011 PPP	(2) Annualized 3-year growth rate, per capita GDP 2011 PPP	(3) Annualized 3-year growth rate, per capita GDP 2011 PPP	(4) Annualized 3-year growth rate, per capita GDP 2011 PPP	(5) Annualized 3-year growth rate, per capita GDP 2011 PPP
Logarithm of per capita	-4.217***	-4.198***	-2.898***	-4.021***	-3.411*
GDP 2011 PPP, period start	(0.648)	(0.655)	(0.659)	(0.551)	(1.953)
Logarithm of International	0.973***	0.985***	-0.144	0.815***	0.226
Tourism Arrivals	(0.279)	(0.283)	(0.247)	(0.211)	(1.871)
Trade of goods as percent	0.0143**	0.0143**	0.0157***	0.0142***	0.0140**
of GDP	(0.00698)	(0.00700)	(0.00603)	(0.00541)	(0.00554)
Net FDI as percent of GDP	0.0217	0.0216	0.0148	0.0217*	0.0229*
(+=inflows)	(0.0137)	(0.0137)	(0.00921)	(0.0115)	(0.0122)
Number of natural	0.0414**	0.0388**	0.0567***	0.0396**	0.0425**
disasters, excludes	(0.0180)	(0.0182)	(0.0155)	(0.0171)	(0.0183)
biological disasters.					
Tourism interaction w/PICs		-0.0911			
		(0.834)			
Country and time fixed effects	Yes	Yes	Yes	Yes	Yes
R2 within	0.174	0.176	0.181	0.175	0.159
Instrumental variable			Lagged	Period start	Neighbors average
F-statistic weak identification test			379.22	3664.93	3.92
Observations	1394	1394	1223	1392	1382
Countries/PICs	181/11	181/11	180/11	181/11	180/11

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: IMF staff estimates based on WEO, WB WDI, EM-DAT.

References

Abadie, Alberto. 2021. "Using Synthetic Controls: Feasibility, Data Requirements, and Methodological Aspects." *Journal of Economic Literature*, 59 (2): 391-425b.

Abadie, Alberto and Javier Gardeazabal. 2003. “The Economic Costs of Conflict: A Case Study of the Basque Country.” *American Economic Review*, 59:2, 495-510.

Abadie, Alberto, Alexis Diamond, and Jens Hainmueller. 2010. “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program.” *Journal of the American Statistical Association*, 105:490, 493-505.

Adhikari, Bibek, Romain Duval, Bingjie Hu, and Prakash Loungani. 2018. “Can Reform Waves Turn the Tide? Some Case Studies using the Synthetic Control Method.” *Open Economies Review*, 29:4, 879-910, September, Springer.

Arezki, Rabah, Reda Cherif, and John Piotrowski. 2009. “Tourism Specialization and Economic Development: Evidence from the UNESCO World Heritage List.” IMF Working Paper WP/09/176.

Bai, J., and P. Perron. 1998. “Estimating and Testing Linear Models with Multiple Structural Changes.” *Econometrica* 66, 47–78.

Baquie, Sandra, Yueling Huang, Florence Jaumotte, Jaden Kim, Rafael Machado Parente, and Samuel Pienknagura. 2025. “Industrial Policies: Handle with Care”. IMF Staff Discussion Note SDN/2025/002. International Monetary Fund, Washington, DC.

Bell, J.D. and others (2011). “Adapting tropical Pacific fisheries and aquaculture to climate change: management measures, policies and investments.” p. 803-876. In: Bell, J.D. ; Johnson, J.E. ; Hobday, A.J. (eds.) Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change. Secretariat of the Pacific Community, Noumea, New Caledonia.

Berg, Andy, Jonathan D. Ostry and Jeromin Zettelmeyer. 2012. “What makes growth sustained?” *Journal of Development Economics,* 98, 149-166.

Cannonier, C., and Burke, M. G. 2019. “The economic growth impact of tourism in Small Island Developing States—evidence from the Caribbean.” Tourism Economics, 25(1), 85–108.

Cherif, Reda, Fuad Hasanov, Nikola Spatafora, Rahul Giri, Dimitre Milkov, Saad Quayyum, Gonzalo Salinas and Andrew Warner. 2022. “Industrial policy for growth and diversification: a conceptual framework”. IMF Departmental Paper DP/22/15.

Comerio, Niccolo and Fernanda Strozzi. 2019. “Tourism and its economic impact: a literature review using bibliometric tools.” *Tourism Economics*, 25(1), 109-131.

Ditzen, J., Karavias, Y. & Westerlund, J. 2021. “Testing and Estimating Structural Breaks in Time Series and Panel Data in Stata.” arXiv:2110.14550

Ferman, Bruno, Cristine Pinto, and Vitor Possebom. 2020. “Cherry Picking with Synthetic Controls.” *Journal of Policy Analysis and Management*, 39:2, 510-532, Spring.

Galiani, Sebastian, and Brian Quistorff. 2017. “The Synth_Runner Package: Utilities to Automate Synthetic Control Estimation Using Synth.” *The Stata Journal*, 17:4, 834-849.

Lane, Juhász and Dani Rodrik. 2023. “*The New Economics of Industrial Policy*.” Mimeo.

Lee, Dongyeol, Huan Zhang, and Chau Nguyen. 2018. “The Economic Impact of Natural Disasters in Pacific Islands Countries: Adaptation and Preparedness.” IMF Working Paper WP/18/108.

Li, Nan, Meleshchuk, Sergei, Yin, Qiuyan and Zymek, Robert. 2025. “Understanding Global Bilateral Services Trade: Insights from a New Dataset,” *Forthcoming*.

McMillan, Margaret, Dani Rodrik and Claudia Sepulveda. 2016. “Structural change, fundamentals and growth” in Structural Change, Fundamentals and Growth: a framework and case studies, edited by Margaret McMillan, Dani Rodrik and Claudia Sepulveda, International Food Policy Research Institute Washington, DC.

McIntyre, Arnold, Mike Xin Li, Ke Wang, and Hanlei Yun. 2018. “Economic Benefits of Export Diversification in Small States.” IMF Working Paper WP/18/86.

Kaul, Ashok, Stefan Klößner, Gregor Pfeifer & Manuel Schieler (2022) Standard Synthetic Control Methods: The Case of Using All Preintervention Outcomes Together With Covariates, Journal of Business & Economic Statistics, 40:3, 1362-1376.

Khor, Hoe Ee and Tumbarello, Patrizia and Kronenberg, Roger (editors). 2016. Resilience and Growth in the Small States of the Pacific. Washington DC.

International Monetary Fund (IMF). “Fiji Staff Report for the Article IV consultation.” Various issues: 1998, 2002, 2004, 2009, Washington, DC.

IMF. “Marshall Islands Staff Report for the Article IV consultation.” Various issues: 2008, 2009, 2011, 2013, 2016, Washington, DC.

IMF. “Samoa Staff Report for the Article IV consultation.” Various issues: 2007, 2010, 2012, 2015, 2017, Washington, DC.

IMF. 2014a “Sustaining long-run growth and macroeconomic stability in Low-Income Countries – The role of structural transformation and diversification.” IMF Policy Paper.

IMF. 2014b “Sustaining long-run growth and macroeconomic stability in Low-Income Countries – The role of structural transformation and diversification.” Background notes.

Papageorgiou, Chris and Nikola Spatafora, 2012. “Economic Diversification in LICs: Stylized Facts and Macroeconomic Implications.” IMF Staff Discussion Note SDN/12/13.

Papageorgiou, Chris, Nikola Spatafora and Ke Wang, 2015. “Diversification, Growth and Volatility in Asia.” World Bank Policy Research Working Paper 7380.

Rodrik, Dani, 2005. “Growth Strategies” in Handbooks in Economics 22: Handbook of Economic Growth, Volume 1A. Ed. Philippe Aghion and Steven N. Durlauf. Elsevier North-Holland, 967-1014.

Sequeira, Tiago Neves and Paulo Maçãs Nunes. 2008. “Does tourism influence economic growth? A dynamic panel data approach.” Applied Economics, 40:18, 2431-2441.

World Bank. 2017. Women and Tourism: Designing for Inclusion. Washington DC.

World Bank. 2022. Blue Tourism in Islands and Small Tourism-Dependent Coastal States: Tools and Recovery Strategies. Washington, DC.

World Bank. 2023. The Future of Pacific Tourism. Washington DC.

Annex I. Country samples.

Table A.I.1. Countries included in the sample of PICs and comparators.

Pacific Islands Countries	*PICs Sub groups:*	Caribbean Small States
Fiji	*Tourism-based*	Antigua and Barbuda
Kiribati		Bahamas, The
Marshall Islands		Barbados
Micronesia, Fed. States of		Belize
Nauru		Dominica
Palau	*Tourism-based*	Dominican Republic[11]
Papua New Guinea	*Commodities exporter*	Grenada
Samoa	*Tourism-based*	Guyana
Solomon Islands	*Commodities exporter*	Haiti
Tonga	*Tourism-based*	Jamaica
Tuvalu		St. Kitts and Nevis
Vanuatu	*Tourism-based*	St. Lucia
		St. Vincent and the Grenadines
		Suriname
		Trinidad and Tobago
Other SIDS		**Other Asian LICs**
Bahrain		Bangladesh
Cabo Verde		Bhutan
Comoros		Cambodia
Guinea-Bissau		Lao P.D.R.
Maldives		Myanmar
Mauritius		Nepal
Seychelles		Timor-Leste, Dem. Rep. of
Singapore		Vietnam
São Tomé and Príncipe		

[11] While the Dominican Republic is larger in terms of GDP and more diversified than other SIDS, we kept it in the comparator sample since the analysis is performed in per capita terms, for which Dominican Republic is not an outlier in the SIDS group.

Annex II. Diversification Episodes.

We identify diversification episodes using an algorithm based on Bai and Perron (1998)'s technique for identifying unknown breaks, similar to the algorithm used by Berg and others (2012) to identify growth spurts. The algorithm has the following steps:

1. Apply an HP filter to the corresponding diversification index, using a smoothing parameter equal to 100 for annual data.
2. Identify and estimate the number of unknown breaks using Bai and Perron (1998)'s algorithm, as implemented in Stata by `xtbreak` (Ditzen and others, 2021).
    a. The trimming options is set to 0.15, which corresponds to the inverse of the interstitiary period (minimum number of years between breaks).
    b. Only breaks in the constant are assumed, no covariates are used.
3. Classify a break that goes to a higher constant as an upbreak, and a break that goes to a lower constant and a downbreak.
4. Define a diversification (specialization) episode as:
    a. It starts with a downbreak (upbreak).
    b. It ends with:
        (1) A downbreak (upbreak) of less than 5%; or
        (2) An upbreak (downbreak); or
        (3) A through in the HP filtered data; or
        (4) The end of the sample.

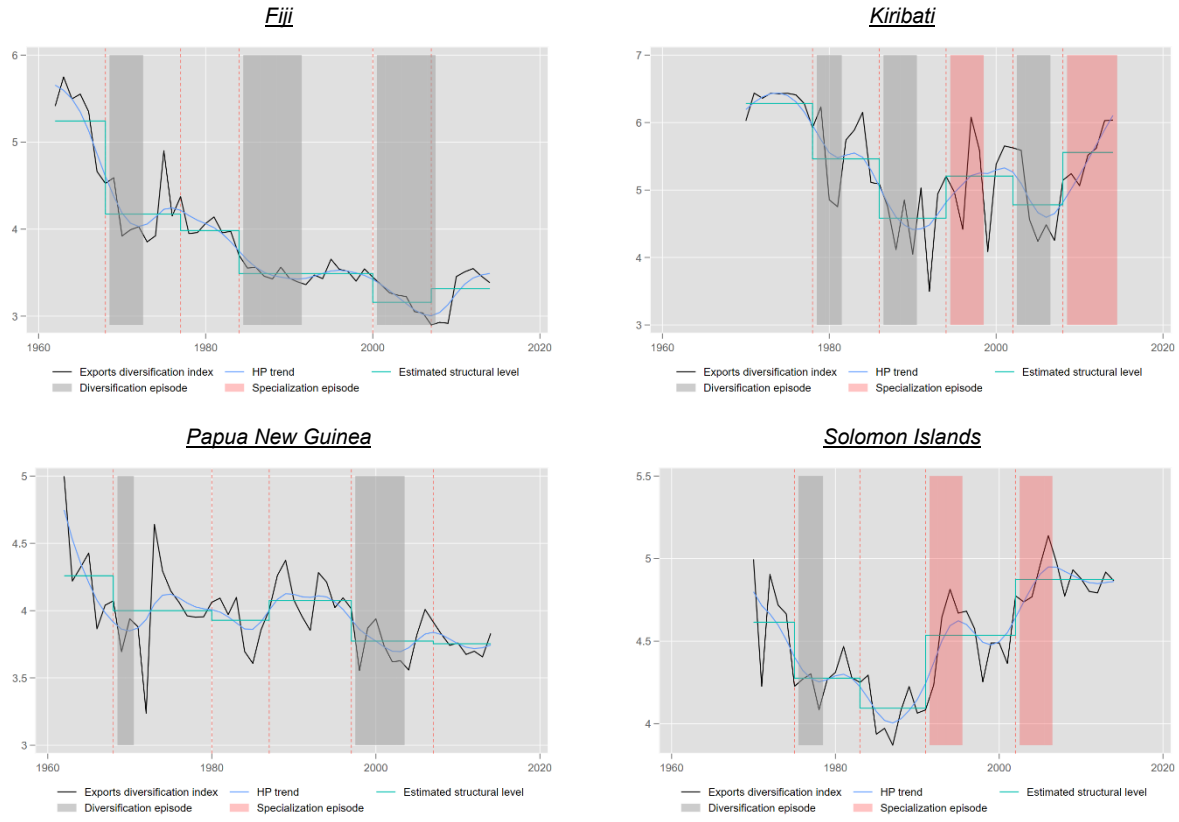
Table A.II.1: All diversification episodes identified for PICs.

Country	*Exports diversification*	*Domestic diversification (UN)*	*Domestic diversification (WDI)*	*Exports partner diversification*
Fiji	1969-1972			
			1971-1984*	
	1985-1991		1989-1992	
	2001-2007		1998-2014*	
				2006-2014
Kiribati	1979-1981			
	1987-1990			
	1995-1998*			
	2003-2006			
	2009-2014*		2010-2015	
Marshall Islands		2002-2005*		
		2009-2011	2010-2013	
				2015-2019
Micronesia			2003-2006*	
			2009-2012	
			2017-2019*	
Nauru				2003-2010*
				2017-2019
Palau		2011-2015*	2005-2014*	
Papua New Guinea	1969-1970			
	1998-2003			
		2009-2012	2010-2013*	2009-2019
		2016-2018*		
Samoa	1969-1972			
	1980-1982			

	1992-1995* 2001-2004 2008-2014	2018-2019*	2011-2019*	2002-2004 2014-2018
Solomon Islands	1976-1978 1992-1995* 2003-2006*			2012-2015
Tonga	1978-1982 1991-1995* 2002-2012	2002-2009 2015-2019*	2000-2008*	
Tuvalu	1984-1987 1998-2002 2005-2014*			2013-2015 2018-2019*
Vanuatu	1969-1974* 1988-1994 2005-2009*		2016-2018	2004-2006

Note: * refers to a specialization episode.

Figure A.II.1. Exports diversification and specialization episodes for PICs



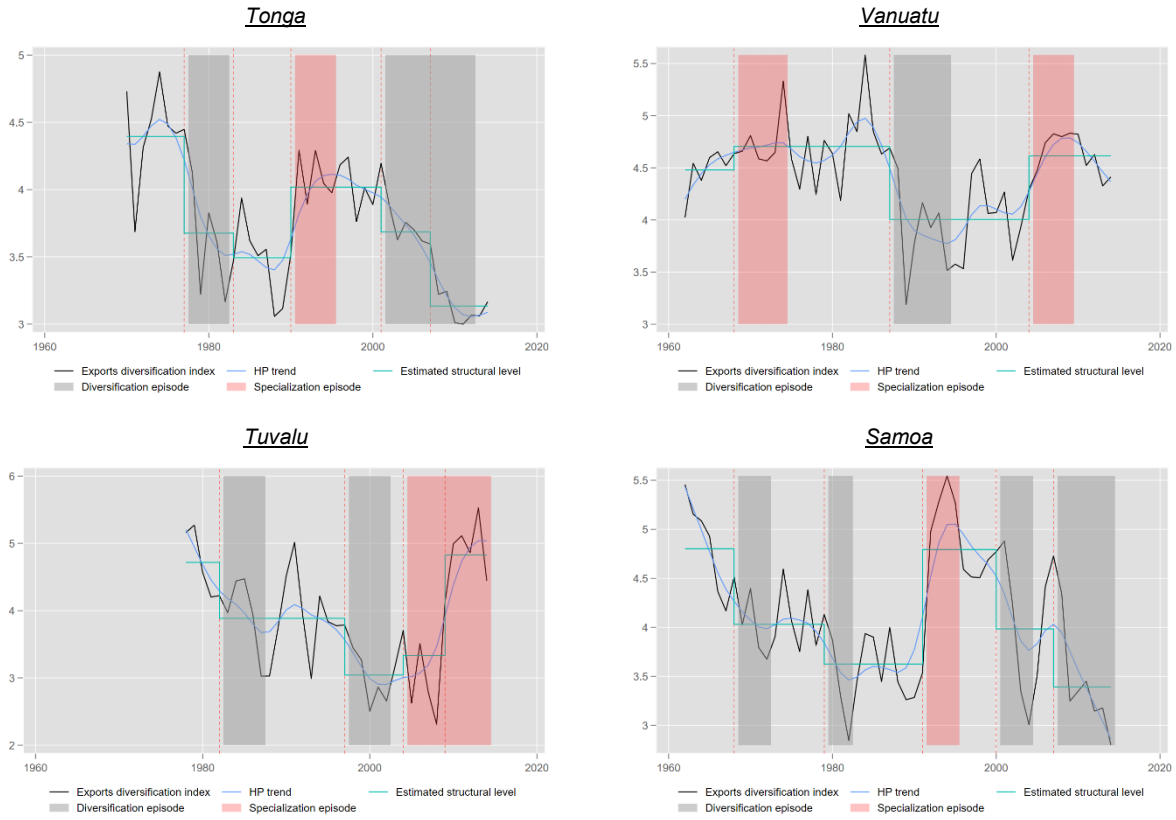
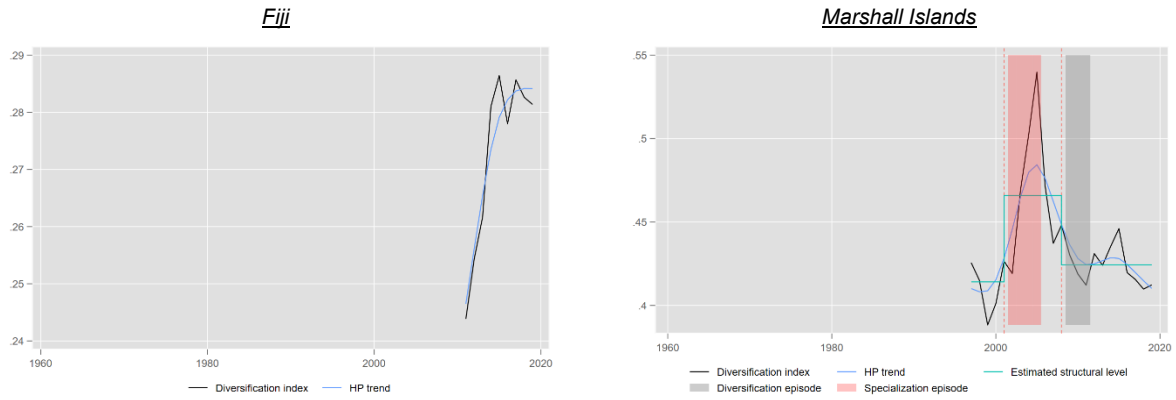


Figure A.II.2. Domestic output diversification and specialization episodes for PICs (UN-data)



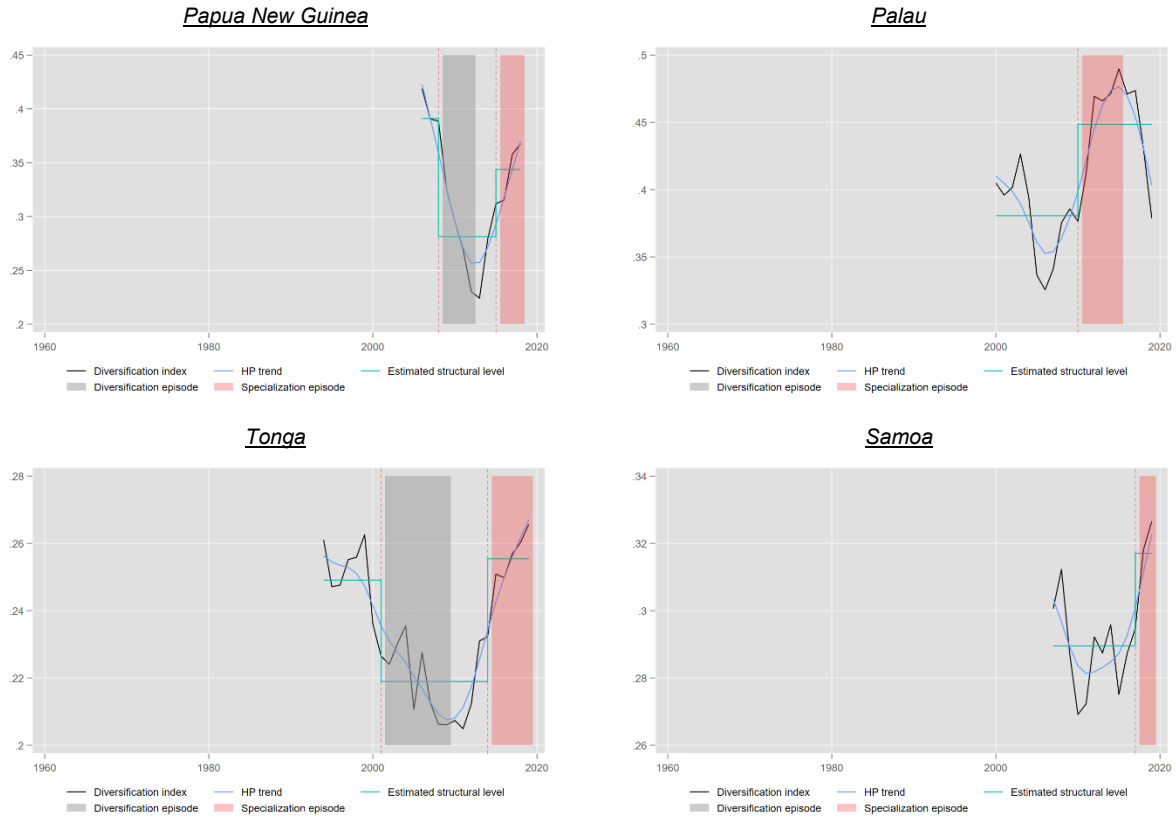
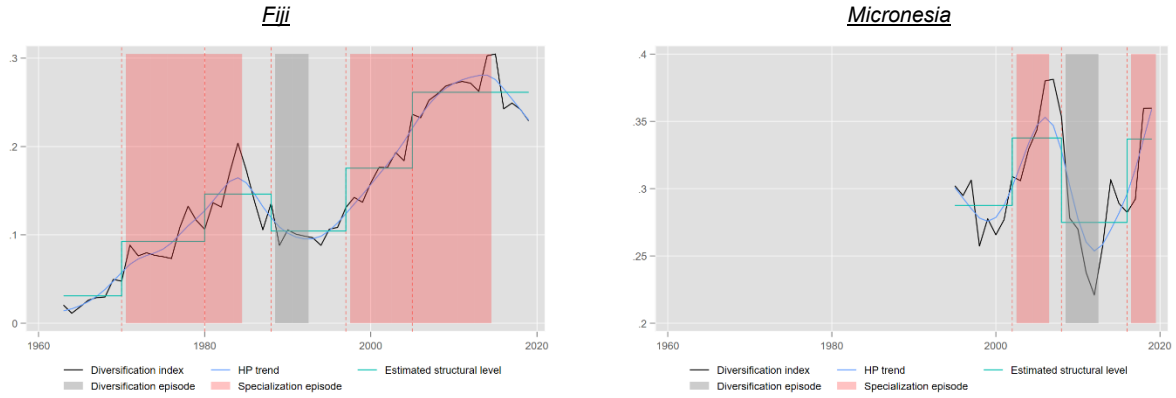
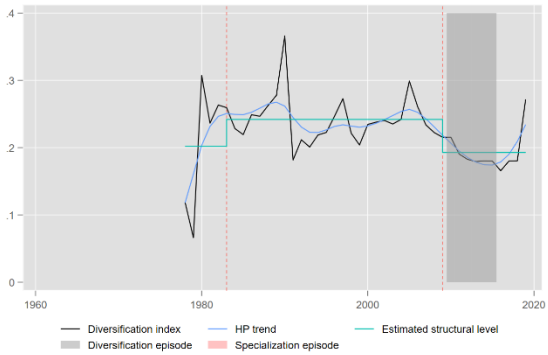


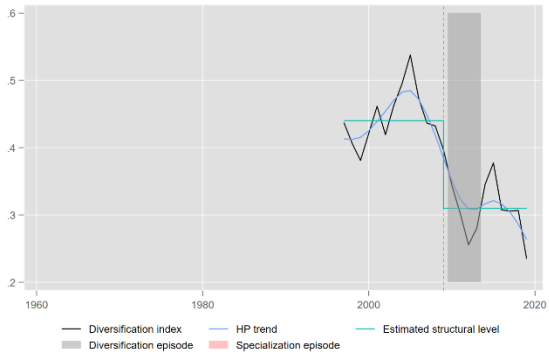
Figure A.II.3. Domestic output diversification and specialization episodes for PICs (WDI-data, 3 sectors)



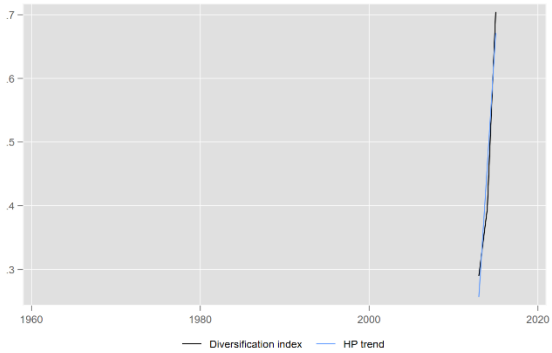
Kiribati



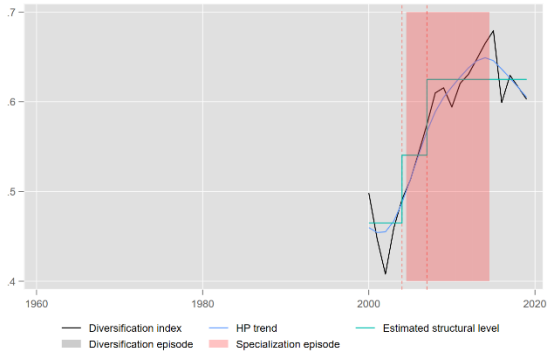
Marshall Islands



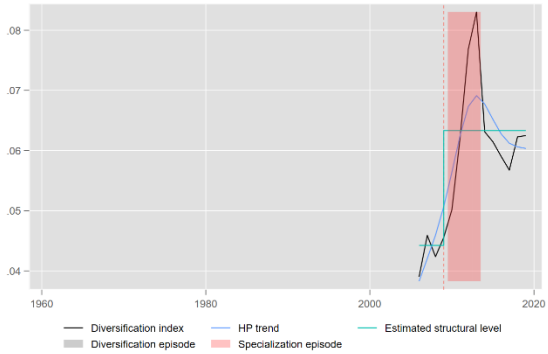
Nauru



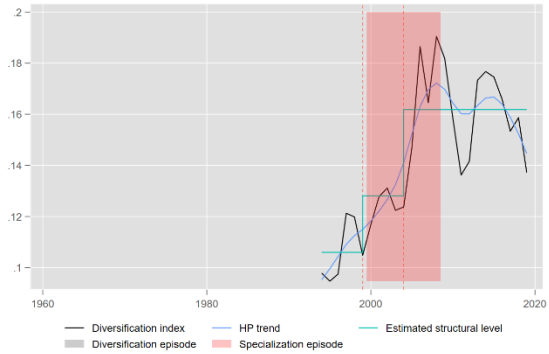
Palau



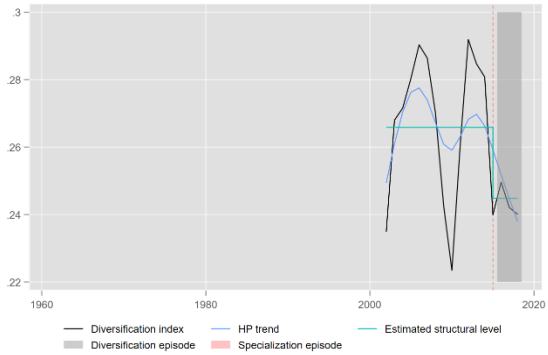
Papua New Guinea



Tonga



Vanuatu



Samoa

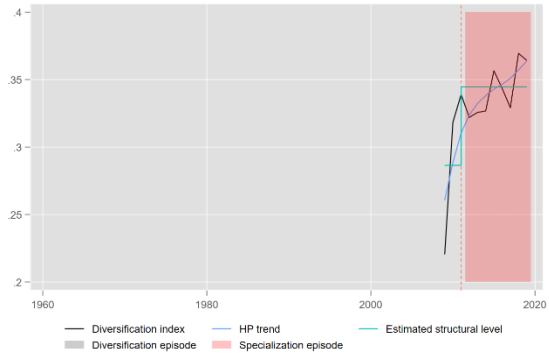
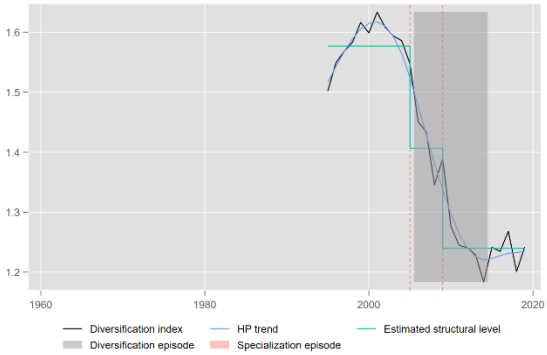
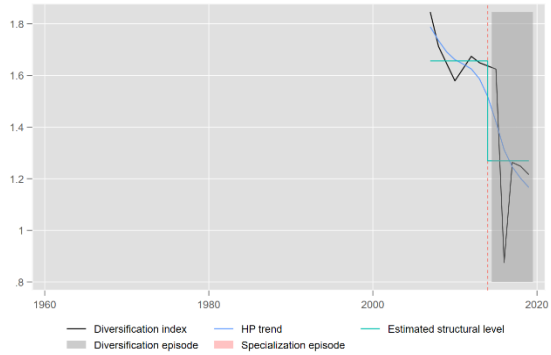


Figure A.II.4. Exports partner diversification and specialization episodes for PICs (WDI-data)

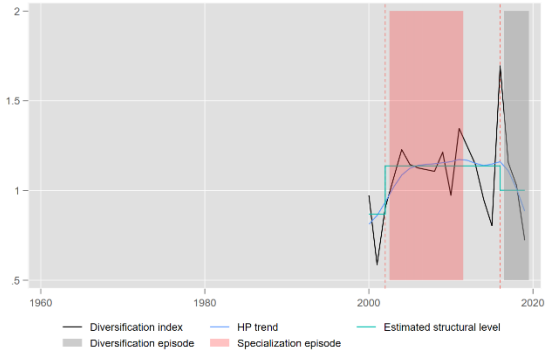
Fiji



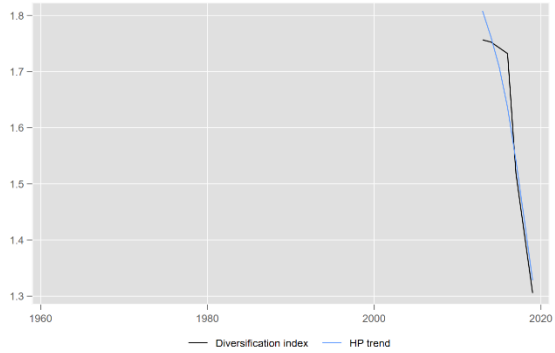
Marshall Islands



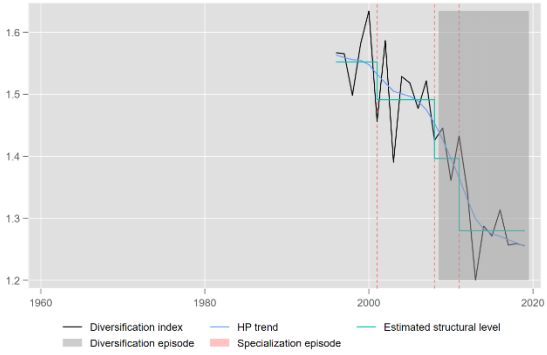
Nauru



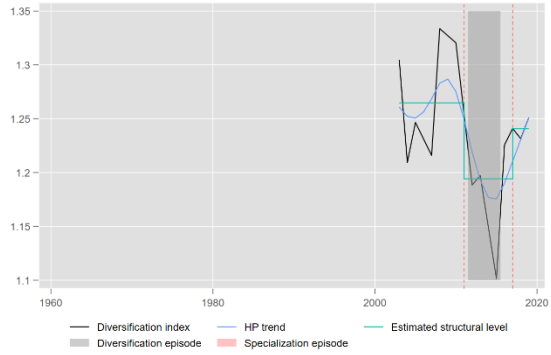
Palau



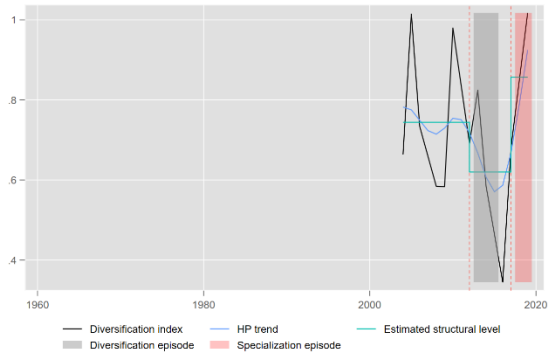
Papua New Guinea



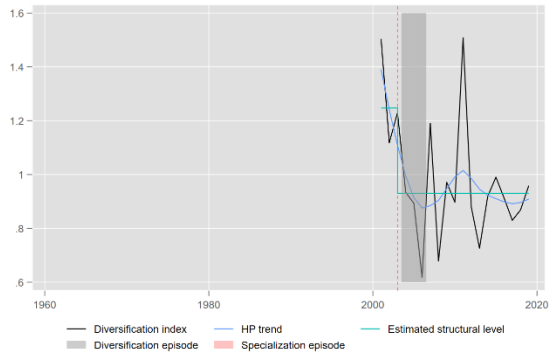
Solomon Islands



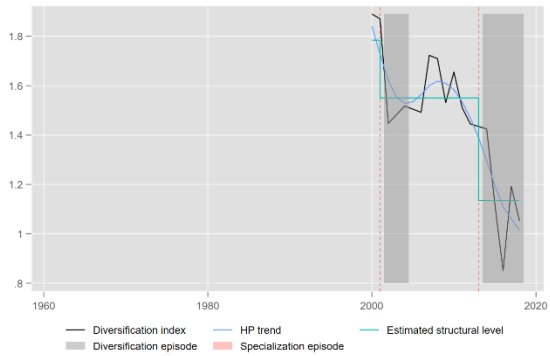
Tuvalu



Vanuatu



Samoa



Annex III. Synthetic Control Method.

The Synthetic Control Method (SCM) is used to estimate the effect of diversification episodes. The SCM is a quantitative case study technique that builds a synthetic control using data before the diversification episode that can replicate the treated country in the pre-treatment period.[12] Using the synthetic control, a counterfactual path is built for how the outcome variable of interest would have looked in the absence of the diversification. We consider the effect on real GDP per capita, its volatility, and the imports/GDP ratio.

We apply the SCM to countries with diversification episodes that were not followed by a specialization one, using as donor pool a sample of countries in Small Islands Developing States (see Annex I). We remove countries that also started a diversification episode within a 3-year window of the start of the episode of interest, as well as countries that were affected by conflict (either internal or international). For pre-treatment fit, we target the average number of natural disasters in the pre-treatment period, and each of the $T_{pre} - 1$

[12] See Abadie (2021) for a comprehensive survey on the SCM.

outcome variable realizations in the pre-treatment period.[13] We try to maximize the number of pre-treatment years used: we use 10 pre-treatment years, while we keep constant the number of post-treatment years at 5. For some volatility counterfactuals, we use the maximum number of pre-treatment years available if those are less than 10 but there were 10 years of pre-treatment data to estimate the effect on GDP (see Table AIII.1).

We follow Abadie, Diamond and Hainmuller (2010) and compute inference based on permutation method. For each diversification episode, we estimate the SCM for each of the donor pool countries, assuming the same timing for an episode as the one for the treated country. Each of these is called a "placebo". The effect of the treatment on the unit affected is considered significant when its magnitude is extreme compared to the placebos. We compute adjusted p-values to account for the quality of pre-treatment fit for the placebos.

We present two measures of quality of fit. The first one is the fit index, as in Abadie, Diamond and Hainmuller (2010) and Adhikari and others (2018), that compares the quality of fit against a zero-fit model for the treated country, the closer to 0 the better the fit. The second one is the relative fit index, which indicates the proportion of placebos that have a pre-treatment root mean square prediction error (RMSPE) at least as large as the treated unit; the farther towards 1 the better the fit.

Table A.III.1. Goodness of fit measure and fitted model for each episode.

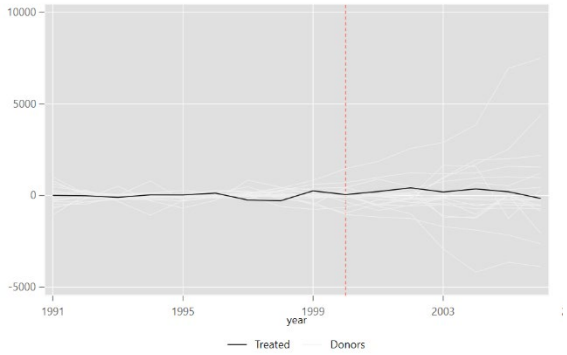
Episode	Variable	Pre-RMSPE	Fit index	Relative fit	Model
Fiji, 2001	GDP, 2011 PPP dollars, per capita	154.4978	0.0158	0.6842	Average natural disasters. 10 pre-years.
Fiji, 2001	GDP volatility, 3-year rolling window	66.8338	0.2587	0.4118	Average natural disasters. 9 pre-years.
Fiji, 2001	Imports to GDP ratio	2.0972	0.03855	0.8462	Average natural disasters. 10 pre-years.
Samoa, 2008	GDP, 2011 PPP dollars, per capita	84.6961	0.0177	0.6875	Average natural disasters. 10 pre-years.
Samoa, 2008	GDP volatility, 3-year rolling window	48.7015	0.3108	0.50	Average natural disasters. 8 pre-years.
Samoa, 2008	Imports to GDP ratio	3.4359	0.0690	0.5294	Average natural disasters. 10 pre-years.
Marshall Islands, 2010	GDP, 2011 PPP dollars, per capita	88.1608	0.0276	0.6471	Average natural disasters. 10 pre-years.
Marshall Islands, 2010	GDP volatility, 3-year rolling window	47.1609	0.4827	0.5789	Average natural disasters. 10 pre-years.
Marshall Islands, 2010	Imports to GDP ratio	7.9032	0.0833	0.1667	Average natural disasters. 10 pre-years.
Samoa, 2011	GDP, 2011 PPP dollars, per capita	72.4981	0.014	0.7333	Average natural disasters. 10 pre-years.
Samoa, 2011	GDP volatility, 3-year rolling window	43.4618	0.2640	0.6875	Average natural disasters. 10 pre-years.
Samoa, 2011	Imports to GDP ratio				Average natural disasters. 10 pre-years.

[13] Following Kaul and others (2021), when covariates are included, all pre-treatment outcome variables are not included as matching targets. The match is done on the most recent T-1 pre-treatment observations. Ferman, Pinto, and Possebom (2020) present some rules of thumb for pre-treatment specification to avoid cherry-picking of results. We follow their recommendation. Results for a model with no covariates are available upon request. There are small changes in the available donor pool between models, as countries with all missing values for the covariates must be excluded from the sample. Other than those small changes, the main difference between models is on the allocation of weights to different countries to achieve the best covariate balance possible in the pre-treatment period. While a model with no covariates achieves the best pre-treatment fit, including covariates can improve the quality of the counterfactual created through the synthetic control.

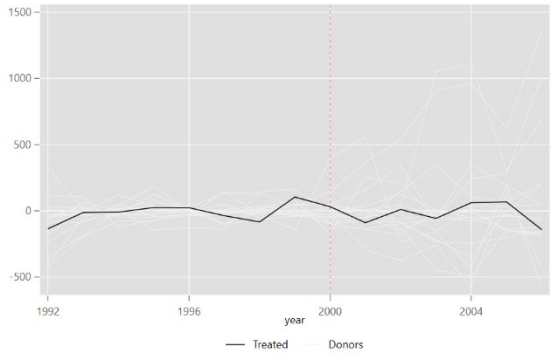
Figure A.III.1. Placebo experiments.

Fiji, 2001 exports diversification episode

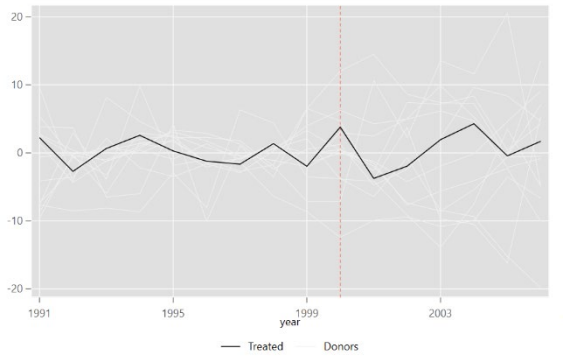
a. GDP



b. Volatility

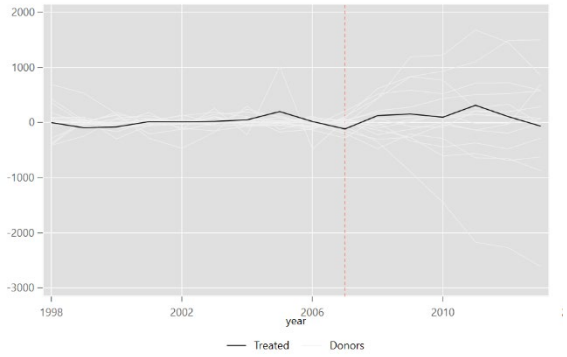


c. Imports/GDP

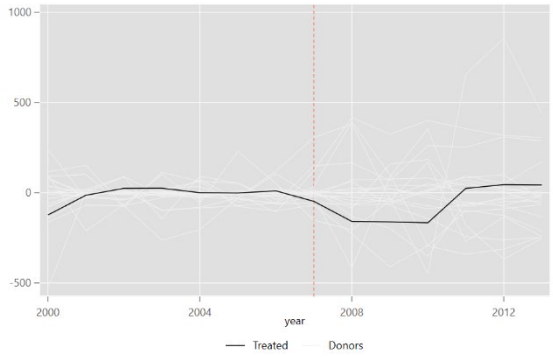


Samoa, 2008 exports diversification episode

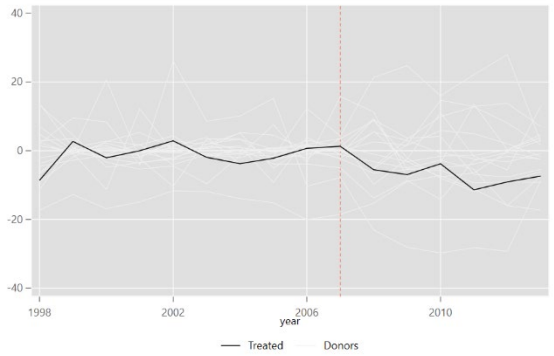
a. GDP



b. Volatility

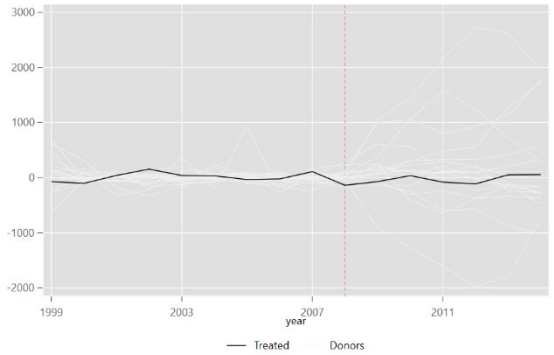


c. Imports/GDP

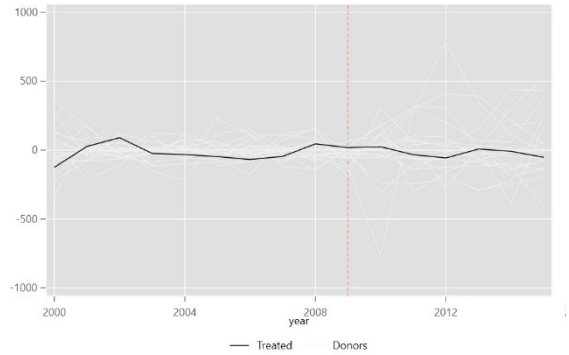


Marshall Islands, 2009 domestic diversification episode

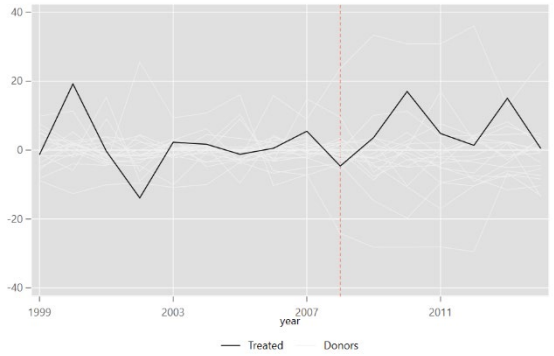
a. GDP



b. Volatility



c. Imports/GDP



Annex IV. Exports Partner Diversification Episodes

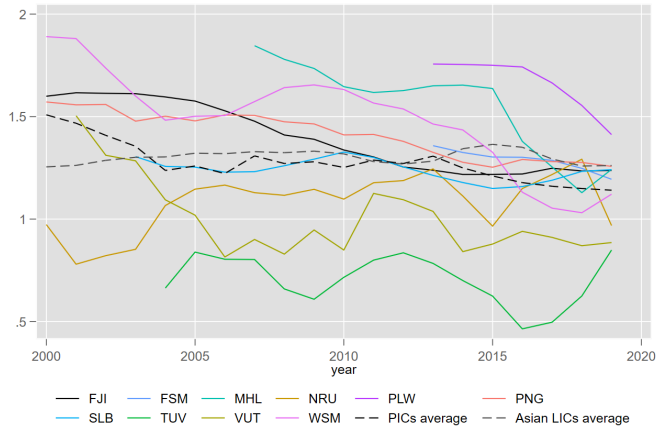
This annex presents the results for another measure of diversification, based on exports partners. We follow the methodology described in Section IV in the main text, applied to the corresponding Theil index of exports partner diversification. Diversification in trading partners can potentially reduce the transmission of international shocks and the dependence of PICs on specific counterparts. Figure 8 presents the evolution of exports partner diversification for PICs, on average and individually, compared to the average of Asian LICs. In terms of

trading partners, PICs show little improvement although this is similar to the average behavior of other Asian LICs.

The main finding from these case studies is that trading partners diversification has had some effectiveness in reducing volatility in output, imports, and exports, but limited to no impact in terms of improving GDP.

Figure 8: Exports Partner Diversification in PICs

Theil index, 3-year moving average.



Source: WB WDI and IMF staff estimates.
Note: a lower value of the index represents an increase in diversification. Trading partners are: high income economies, and low and middle income economies in East Asia and Pacific, Central Europe, Latin America, Middle East and North Africa, South Asia, and Sub-Saharan Africa.

a. Fiji, exports partner diversification, 2006-2014.

Diversification episode and impact

Our algorithm identifies one exports partner diversification episode for Fiji, between 2006 and 2014. During this period, the exports partner diversification index improved by 11% from 1.57 to 1.41. Actual Fiji has a lower GDP than the synthetic one, however the estimated effect is inconclusive to insignificant. GDP volatility, on the other hand, is lower after the event, with p-values below 20%, likely significant for the small sample considered. There is no significant effect on the imports ratio or on imports volatility. Exports partner diversification had a very short-run significant reduction in exports volatility, however the effect is inconclusive or insignificant after the first year of the event.

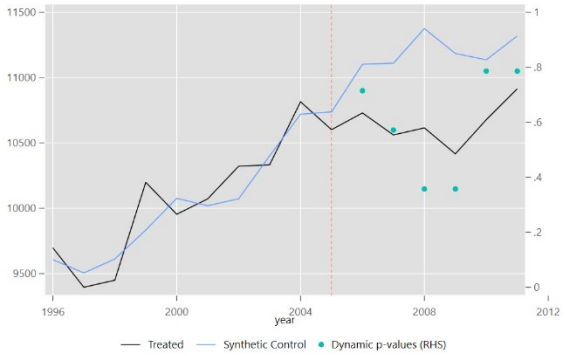
Macroeconomic context

Economic growth in Fiji had been sluggish due to political developments, delays in the implementation of structural reforms, and a worsening in the terms of trade. Two key sectors for the economy, sugar production and garments industry, were under pressure from declining trade concessions.

Figure A.IV.1: Fiji, 2006 exports partner diversification

Panel 1: Gross Domestic Product.

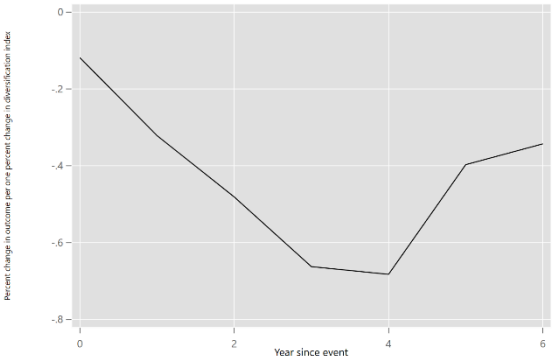
PPP 2011 international dollars, per capita.



Note: Dashed line represents the year before the event. Synthetic Fiji is made up of Belize (35%), Jamaica (29%), St. Lucia (29%), St. Kitts and Nevis (6%), and Maldives (1%).

Panel 2: GDP Impulse Response Function.

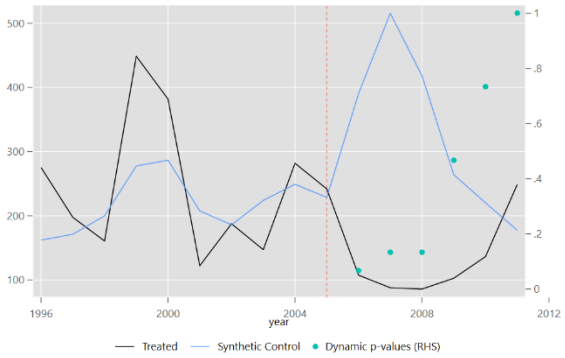
Percent change in GDP per one percent change in diversification index.



Note: year zero is the year before the event.

Panel 3: Gross Domestic Product volatility.

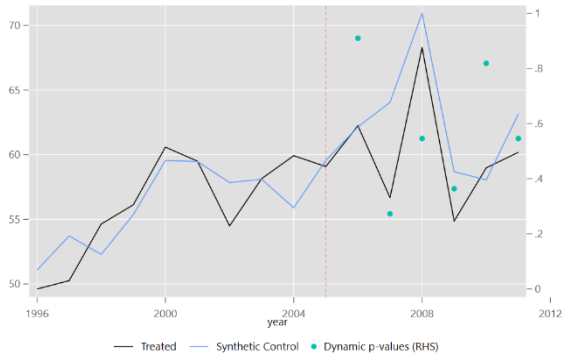
PPP 2011 international dollars, per capita



Note: Synthetic Fiji is made up of Cabo Verde (93%), Antigua and Barbuda (6%), and Maldives (1%)
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio.

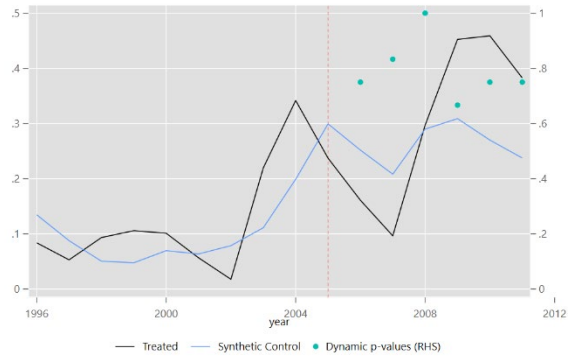
Percent



Note: Synthetic Fiji is made up of Belize (38%), Jamaica (31%), Guyana (19%), Sao Tome and Principe (7%), Micronesia (3%), and Seychelles (2%).

Panel 5: Imports volatility.

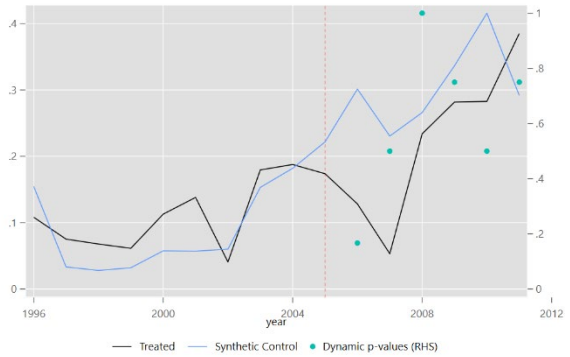
US dollars, billions



Note: Synthetic Fiji is made up of Barbados (42%), Suriname (33%), Cabo Verde (19%), and Jamaica (6%).
Volatility is computed as the rolling 3-year standard deviation of Imports in US dollars.

Panel 6: Exports volatility.

US dollars, billions



Note: Synthetic Fiji is made up of Suriname (41%), Jamaica (31%), and Seychelles (28%).
Volatility is computed as the rolling 3-year standard deviation of Exports in US dollars.

b. Marshall Islands, exports partner diversification, 2015-2019.

Diversification episode and impact

We identify one exports partner diversification episode for Marshall Islands, from 2015-2019, with an improvement of 23% in diversification. The event had some short-run significant effect on GDP volatility, but for the rest of the variables considered the effect is either inconclusive or insignificant.

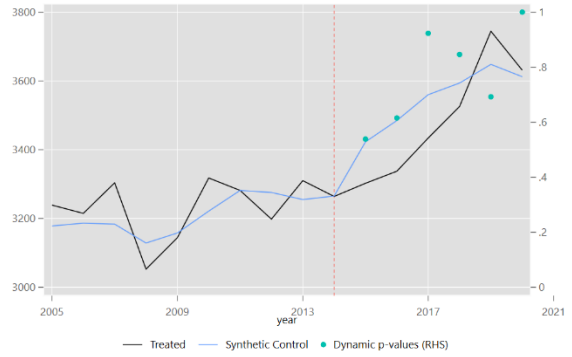
Macroeconomic context

The economy of Marshall Islands was heavily dependent on external aid, with sluggish private sector development due to remoteness, dispersion, and regulatory weaknesses. Growth was volatile and alternatively driven by fisheries and public administration services. The reform of state-owned enterprises and adaptation to climate change were some of the priorities at the time.

Figure A.IV.2: Marshall Islands, 2015 exports partner diversification

Panel 1: Gross Domestic Product.

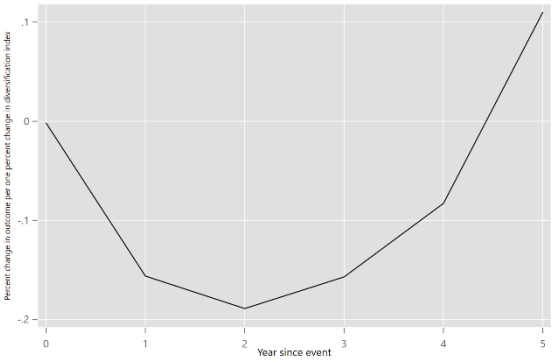
PPP 2011 international dollars, per capita.



Note: Dashed line represents the year before the event.
Synthetic Marshall Islands is made up of Micronesia (53%),

Panel 2: GDP Impulse Response Function.

Percent change in GDP per one percent change in diversification index.

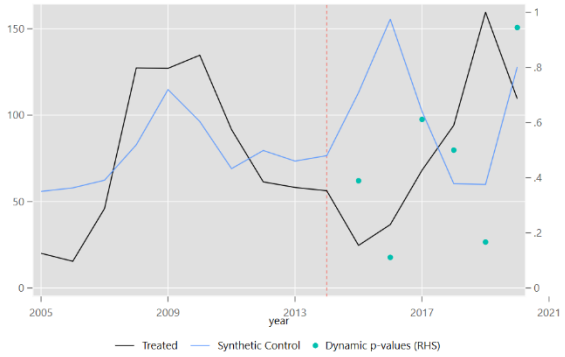


Note: year zero is the year before the event.

Kiribati (30%), Papua New Guinea (10%), Fiji (4%), Guyana (2%), and Palau (1%).

Panel 3: Gross Domestic Product volatility.

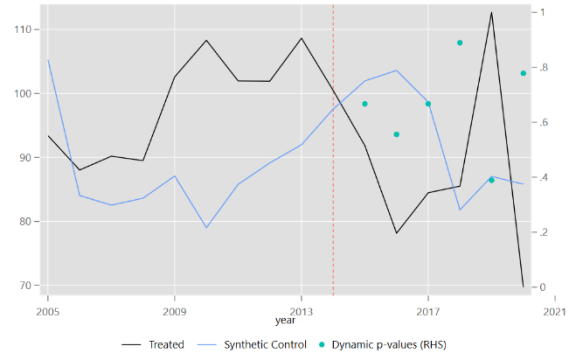
PPP 2011 international dollars, per capita



Note: Synthetic Marshall Islands is made up of Kiribati (72%), Tonga (18%), Papua New Guinea (7%), The Bahamas (2%), and Mauritius (1%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 4: Imports/GDP ratio.

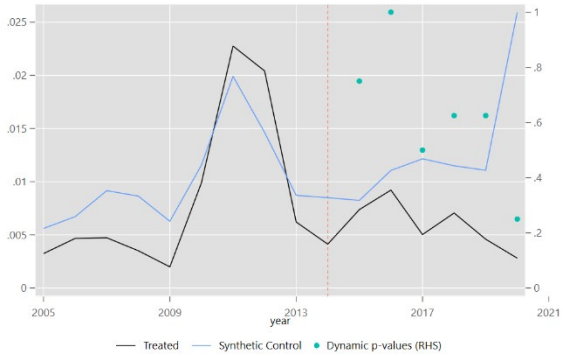
Percent



Note: Synthetic Marshall Islands is made up of Kiribati (83%) and Micronesia (17%).

Panel 5: Imports volatility

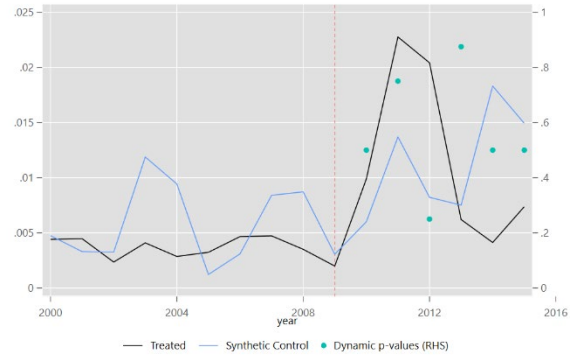
US dollars, billions



Note: Synthetic Marshall Islands is made up of Palau (72%) and Micronesia (28%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Panel 6: Exports volatility

US dollars, billions



Note: Synthetic Marshall Islands is made up of Kiribati (74%), Tonga (15%), Palau (10%), and Guyana (1%).
Volatility is computed as the rolling 3-year standard deviation of GDP per capita.

Annex V. Vertical Policy Tools, Scope and Limitations for PICs

The following table summarizes the main policy tools available for implementing vertical policies as described by Cherif and others (2022), and our interpretation of the scope and limitations for PICs.

Table A.V.1: Scope and limitations of policy tools for PICs

Type	Tool	Description	Scope and limitations for PICs
Product Market	Trade Policy: differential tax rates for profits from exports sales, import-tariff rebates, credit lines for exports, regional trade agreements.	Measures to promote exports, encourage participation, or promote import substitution. Must be carefully designed to ensure consistency with World Trade Organization Rules and other trade agreements. Industry case studies find that they often lead to net welfare losses, despite promoting growth. They can limit technology adoption and leapfrogging if tariffs applied on capital and intermediate goods.	Can entail a large fiscal cost in a limited tax base environment. Regional agreements can foster exports growth by virtually increasing the scale of the domestic market.
Product Market	Tax incentives to promote investment: tax holidays and exemptions, special corporate tax structures, targeted allowances, subsidized infrastructure.	Measures to ease the pressure of a high corporate income tax and attract Foreign Direct Investment. Realizing the full benefits from FDI requires other complementary policies in place (for example, macroeconomic stability, trade openness, stable financial markets, sound business environment).	Tax base erosion if not carefully designed and time-bound. PICs already need to rationalize tax exemptions. Not applicable for countries with no or very low corporate income tax.
Product Market	State as producer and consumer.	State-owned enterprises (SOEs) in key sectors that require large capital investments and fixed costs.	SOEs are already in place in key infrastructure sectors. Improving transparency by better governance and clear independent mandates would shield SOEs from misuse.
Product Market	Measures to reduce informational frictions.	Initiatives that match buyers and sellers, organize quality certifications etc. One-stop shops are more efficient than multiple agencies.	Regional agencies to share exports-related knowledge, build capacity and provide certifications could reduce fiscal costs by sharing the fiscal burden.
Capital Market	Directed and direct lending.	Government instructs banks to increase lending to certain sectors or lends directly through development banks. Can boost production if the targeted firms experience severe financial constraints.	Potential when development bank already exists and has a clear mandate. Can present fiscal risks if loans are made at subsidized rates.
Capital Market	Credit guarantees.	The government provides a loan guarantee to support credit flows. These programs tend to have high fiscal costs and there is reduced evidence of their effectiveness.	Creates contingent liability for the public sector. Potential when land reform and collateralized loans are not possible.
Capital Market	Venture capital and incubators.	Venture capital provides financing to start-up firms. Incubators provide a variety of services for start-ups, such as capital, physical space, expertise, promote knowledge spillovers.	Potential for National Provident Funds to act as Venture Capital firms, when portfolio diversification is needed.

Labor Market	Skills development.	Tax credits or subsidies to firms or industry associations that provide training. Creation of vocational training geared toward industry-specific skills.	Success requires strengthening primary and secondary education.
Labor Market	Labor taxes.	Lower labor costs in desired sectors by reducing payroll taxes; provide tax holidays or credits based on employment creation. Carefully designed to satisfy OECD and WTO regulations. Include sunset clauses to limit potential abuses.	Not compatible with informal labor markets.
Land Market	Cheap land.	Provide access to public land at below market rates. Attractive for foreign investors to bypass negotiation in the local land market. Well-defined land property rights would be preferred.	Potential when land tenure reform is hard to achieve.
Land Market	Special Economic Zones (SEZs).	Area in which business and trade regulations are different than in the rest of the country. Can provide firms with better infrastructure and public services, and more streamlined regulations. Mixed evidence related to their success.	Reduce incentives for comprehensive reforms that could benefit a broader base.
Technology	R&D incentives	Measures to promote R&D, such as tax incentives, subsidies, direct funding, or by setting up public-private research centers. Justified by the externalities created by new technology. Returns to R&D tend to be smaller in developing countries since they depend on the level of human capital. Technology-transfer instruments can prove more useful for developing countries. (government-purchased technology licenses, patent pools, training institutes).	Limited scope from direct R&D benefits if not complemented by education and infrastructure improvements. Potential for regional training institutes.

PUBLICATIONS

Growth Strategies and Diversification in the Pacific Islands Countries

Working Paper No. WP/2025/111