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Evaluating economic stimuli in SIDS: A CGE analysis of tourism, remittances, and hotel investments in Fiji

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ABSTRACT

Small Island Developing States (SIDS) face many economic challenges. Economic stimuli such as tourism expenditures, remittances, and hotel investment, can address some of these challenges. This research seeks to quantify and compare the economic effects of these three primary injections into a SIDS economy, that of Fiji. Utilizing a Computable General Equilibrium model, the study simulates the outcomes of a standardized \$FJ 200 million injection into each sector. The results indicate that while remittances significantly boost GDP and consumer welfare, tourism expenditures contribute positively to economic growth, particularly in the hospitality and service sectors, but have the least impact compared to the other injections. The findings suggest that policymakers should strategically enhance sectoral linkages and attract investments that foster sustainable economic growth while mitigating risks associated with increased import demand and the Dutch Disease.

1. Introduction

Tourism is often lauded for its ability to generate income for the host economy and improve balance of payments (Pratt, 2015). In national accounting data, international tourism expenditure is recorded as an export of services and hence an external injection into the economy. Investment and remittances are other injections into an economy. While all these are injections into the economy, the way they influence different parts of the economy will vary. Their transition mechanisms are different. These three injections are not mutually exclusive. It is not the case where policymakers need to choose one type of injection over another. However, it is important for policymakers to be aware, not only of the overall economic impact but also, how these injections flow through the economy; which economic sectors benefit the most and by how much.

Small Island Developing States (SIDS) face many economic challenges due to their environmental and geographical characteristics (Feeny et al., 2014). These challenges result in economic vulnerability and threaten residents' standard of living. These island states are, by definition, small, meaning land and fresh water supplies are in limited supply (McGillivray et al., 2010). This means that they have a limited ability to diversify their economic base and hence have a strong dependence on a narrow range of exports. It also means that they have a high import propensity, particularly of strategic goods such as food and

fuel, whose prices have exhibited high volatility (AusAid, 2006). They tend to be geographically remote, away from major markets and trading partners. This means what their exports are subject to high transportation costs, weakening their competitiveness (United Nations, 2017). Their ecology tends to be fragile and they are often located in areas that experience a high rate of natural disasters and are threatened by climate change (Robinson, 2018). These countries also have low populations, especially the working adult population, so that they are unable to leverage economies of scale.

Tourism has long been seen as a passport to development (De Kadt, 1979). Tourism is a competitive advantage as many SIDS, blessed with white sandy beaches, warm climates and hospitable local cultures (Cheer et al., 2018). Out-migration in many SIDS, where an educated workforce seek better opportunities abroad, has resulted in, not only brain drain, but also, significant remittances back to these countries (R. P. Brown, 2008; Connell & Brown, 2005). Dwyer and Forsyth (1994) highlight the advantages of inward investment in fostering economic development in an economy. These advantages include aiding economic growth and development by enhancing productivity and boosting competitiveness and entrepreneurship (Selaya & Sunesen, 2012). In sum, all three of these injections can benefit the economy.

Since tourism, remittances, and investment, can be susceptible to both internal (political unrest, security concerns, and natural disasters) and external shocks (currency fluctuations, health crises and recessions

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in major source markets), it is important to understand the extent of the impact and the vulnerability of these sectors for the economy (Jackman, 2014). For example, tourism direct GDP comprises 9.9 % of total GDP in Fiji in 2020 and 43 % of total exports for all SIDS, excluding Singapore (UN Tourism, 2024). Similarly, personal remittances accounted for 8.6 % of GDP in SIDS (United Nations, 2023). As a result, prudent policy measures can be taken to minimize their potential adverse effects, to maintain macroeconomic stability, and achieve long-term sustainable development of the economy.

Given the above, the research objectives of this paper are 1) to examine the economic impact of three different injections into an economy for a SIDS, and 2) to outline the transition mechanism for each of the injections: tourism, remittances and hotel investment. We will achieve these objectives using a Computable General Equilibrium (CGE) model. CGE models are particularly beneficial for this type of analysis as they allow for the simulation of economy-wide impacts of policy or external shocks, capturing inter-industry linkages, resource constraints, and distributional effects in a way that partial equilibrium or econometric models cannot (Dwyer, 2015). We choose one Pacific SIDS, namely, Fiji, as our case study.

There are few studies on the role of tourism, remittances and hotel investment in the same piece of research to allow direct comparisons. Therefore, this paper contributes to the research gap and the discussion on the role of these injections to an economy, using a CGE model. The research is relevant for Fiji and SIDS more generally. Fiji's unique economic structure, marked by high tourism dependency, a large diaspora contributing remittances, and a growing focus on infrastructure-led development, makes it an ideal setting to assess the comparative value of these stimuli (Harrison & Prasad, 2013). Understanding how each injection flows through such a vulnerable and concentrated economy offers valuable insights for policymakers in similarly structured SIDS. The selection of tourism expenditures, remittances, and hotel investment is based on their dominant role in driving economic activity in small island economies. These factors have significant multiplier effects, influencing employment, consumption, and capital formation. While hotel investment is often driven by tourism growth (since increased tourist arrivals create demand for more accommodation), it also acts as an independent capital injection. For instance, governments or investors may proactively fund hotel construction to stimulate tourism or regional development, even in anticipation of future demand. Thus, hotel investment influences supply-side dynamics and infrastructure expansion independently of existing tourism flows. To account for this, our model separately identifies tourism-driven demand shocks and investment-led supply expansions. The CGE model for Fiji has been revised with the newly estimated input-output table (Oum & Singh, 2019). We conduct simulations whereby there is a \$FJ 200 million injection of tourism expenditures, remittances and hotel investment.

Unlike previous studies that examine these economic factors separately, this paper uniquely integrates tourism expenditures, remittances, and hotel investment within a CGE framework to assess their simultaneous and interactive effects on a small island economy. This approach provides a more holistic understanding of how different economic injections influence sectoral growth and overall welfare, offering novel insights for both researchers and policymakers.

2. Literature review

The studies on how tourism, remittances and hotel investment impact economic growth are numerous and an exhaustive review of this literature is beyond the scope of this paper. Therefore, the review will report exemplar findings.

2.1. Tourism expenditures

The economic benefits of tourism have been well articulated. The impacts of tourism on economic growth are conditional of the type of

tourism and the prevailing characteristics of the economy. Li et al. (2018) and Dogru and Bulut (2018), for example, provide a good summary of the literature. Benefits include the generation of income for the local community, creation of new opportunities for employment, fostering of entrepreneurial activity, improvements to the balance of payments and the construction or upgrading of infrastructure (Goeldner & Ritchie, 2012 pp. 308–315; Page & Connell, 2009, pp. 391–394). Tourism can also be used as a tool for economic development (Walpole & Goodwin, 2000). Tourism is often promoted by a destination as it is seen to be able to spread economic development and reduce inequalities in income distribution by providing employment to people in a particular geographical area (Zhang & Yang, 2023). Attracting tourists to a destination is obviously important but additionally the destination needs to offer attractions and activities as well as amenities, such as transportation systems and accommodation places that can facilitate tourists' experiencing the destination. To draw tourists, it may be necessary to have a minimum threshold of economic development (Eugenio-Martin et al., 2008). Quantifying the tourism development is useful for policy makers, such as government and the public sector so that tax revenues can be estimated. Growth in taxes, as a result of tourism development, can lower the tax burden on residents (Chen et al., 2023).

Tax revenues raised from tourists are also spent on capital infrastructure which is used in varying degrees by residents and tourists, such as the distribution and maintenance of water supply, airports, roads, bridges, and electricity generation (Adedoyin et al., 2023). Tourism has provided an alternative economic option for countries that previously relied on agriculture. Due to declining terms of trade, fluctuating primary commodity prices and high levels of protection against manufactured goods, tourism has been targeted as an alternative source of foreign exchange (Sinclair, 1998). Yet, for both developed and developing countries, there has been considerable debate over the pros and cons of tourism.

Not all tourism is economically beneficial. The negative impacts include the increased local cost of living and land costs as a result of the increased tourism demand for these resources resulting in inflationary effect; opportunity costs of time and money spent on tourism at the expense of other activities or areas of investment; economic dependency on tourism leaves economies vulnerable to external shock; and seasonality of income and employment means that labor and capital are underutilized for parts of the year (Breda & Costa, 2013; Mathieson & Wall, 1982; Page & Connell, 2009).

Leakages are also another significant problem, especially for developing countries (Oppermann & Chon, 1997). Leakages can occur through imported goods and services, payments of holidays made in the tourist-generating country, especially package tours, foreign ownership of transportation, and repatriation of profits generated from foreign capital investments. Copeland (1991) outlines the conditions under which an increase in tourism can benefit the local economy. In the absence of market imperfections, an increase in tourism demand will increase welfare only if the price of non-tradable goods and services increase. Further, factor mobility and foreign ownership tend to reduce the gains from tourism, while commodity taxes tend to increase the gains from tourism (Copeland, 1991).

Wickramasinghe and Naranpanawa (2022) provide a recent review of CGE applications in tourism. The author notes that CGE models have been used to assess a wide range of issues. However, the economic impacts of policy decisions (e.g. Pham et al., 2018) or external shocks have focused on specific tourism policies or how external shocks have affected the tourism sectors as well as the overall economy (e.g. Meng et al., 2021). There are few studies examining the tourism impacts in comparison to other types of impacts. This research contributes to filling this gap.

2.2. Remittances

Remittances are “the money and goods that are transmitted to households by migrant workers working outside of their origin countries” (Adams Jr & Cuecuecha, 2010, p.1626). There has been extensive migration from small island states to metropolitan countries, resulting in absolute population decline in some states and new socioeconomic and cultural relationships between the island states and the host nations (Connell & Conway, 2000). Migrants are primarily motivated to remit funds based on altruistic family support from labor scarce richer countries to poorer, labor-exporting less developed countries (R. P. C. Brown, 1997; Connell & Conway, 2000). In the development literature, there are three different ways these remittances have been spent by households. The additional income may be spent like any other income the households have earned; proportionally more remittances may be spent on consumption rather than investment goods or remittances might be spent at the margin on investment goods such as human and physical capital goods (Mishra et al., 2022). Each different spending composition has empirical support.

In Ghana, household expenditures change proportionately with income so there is no change in marginal budget shares for households receiving income from international remittances (Adams Jr. et al., 2008). Several scholars have pointed out that remittances, while being central to small island states, may cause economic distortions because they are fueling conspicuous consumption. Remittances can be used as compensatory income and therefore spent more on consumption rather than investment goods, which may result in expansion of domestic production and have an indirect effect on inflation. The additional income remitted has been spent on imported goods and marginally productive non-agricultural enterprises (Chami et al., 2005; Connell & Conway, 2000). Randazzo and Piracha (2019) suggest that, under the permanent income hypothesis, remittances are transitory income and therefore are spent on more ‘productive’ activities like human and physical capital, leading to a long-term impact on economic growth and development of the recipient country. In El Salvador more remittances are spent at the margin on education (Edwards & Ureta, 2003) and in Nigeria more remittances are spent at the margin on housing (Osili, 2004). Expenditure of this kind can theoretically contribute the most to economic development.

Azizi (2018) notes that remittances can lift budget constraints, thereby providing children in remittance-receiving households the opportunity to go to school (raising school enrolment, school completion rate, and private school enrolment) or have better health outcomes (reducing undernourishment prevalence, depth of food deficit, prevalence of stunting, and child mortality rate). Remittances can also significantly reduce the level, depth, and severity of poverty in developing countries. They can be counter-cyclical and very effective in helping to smooth a household’s consumption, and enhance welfare especially for disadvantaged groups of people (Mamun et al., 2015).

Bahadir et al. (2018) posit that remittances can have both an expansionary and contractionary effect. Remittances can expand aggregate economic activity, by increasing investment and the demand for labor, if remittances are sent to entrepreneurs. By contrast, remittances can cause a contraction in aggregate economic activity. With the extra income, household may decide to work less resulting in a decline in the labor supply, which, in turn, lowers the return on investment, if hand-to-mouth wage earners are the principal recipients.

In Adam’s review Adams Jr. (2006), he concludes that more recent studies conclude that households receiving international remittances spend less, at the margin, on consumption, food and more on investment, education and housing than other types of households. Households receiving more remittances are able to invest in local entrepreneurial activities because they no longer face a liquidity constraint that previously inhibited these investments (Adams Jr., 2006). Connell and Conway (2000) note that in both the Pacific and the Caribbean, remittances have made a substantial contribution to

households’ basic needs and household development but less so to national development.

In the context of Fiji, Gosai and Deo (2023) note that remittances contribute to poverty alleviation, as it has been used for personal consumption. N. N. Kumar and Patel (2022) take a more nuanced approach. They note that, for per-worker real GDP above US\$5891, remittances have positive impact on economic growth but for per-worker real GDP below that threshold, remittances have a deleterious effect on income. The authors attribute this to higher propensities for imported goods at lower levels of income. Also in the context of Fiji, Kakhkharov et al. (2022) demonstrate that, compared to households that do not receive remittances, those households who receive remittances are more likely to invest in property, capital and money markets, fueling further developments in these markets.

2.3. Hotel investment

Hotel investment plays a crucial role in driving economic growth by generating a variety of economic benefits. Firstly, hotel investment creates employment opportunities in various sectors such as tourism, hospitality, and construction, thereby reducing unemployment rates and stimulating the local economy (Lei et al., 2021). Dogru et al. (2020) explore the effects of different types of hotel investments, such as economy-scale, midscale, luxury-scale, and independent, on overall employment and specific sectors like tourism, hospitality, arts, entertainment, and food services, in the US. The authors find that midscale hotel investments have the most significant positive impact on employment, followed by luxury-scale investments. The study also highlights the importance of understanding the nuances of job growth in the hotel industry and the factors that encourage or discourage that growth.

Hotels attract tourists and business travelers (Nguyen, 2021), leading to an increase in consumer spending on accommodations, food, transportation, and shopping (Robles Teigeiro & Díaz, 2014). This boost in tourism expenditure contributes significantly to the GDP of the region and supports small businesses in the area. Moreover, hotels often serve as venues for conferences, events, and meetings, further stimulating economic activity (Doggrell, 2020). Hotel investment also enhances the overall competitiveness of the region in the global market (Nguyen, 2021).

Entrepreneurship plays a vital role in economic development by fostering job creation, alleviating poverty, and driving innovation (Booth et al., 2020). This is particularly relevant in the context of hotel investments, where the hospitality industry is a significant contributor to employment generation (Njorge et al., 2020).

Niewiadomski (2023) notes how international hotel groups can significantly impact regional development in Central and Eastern Europe through several key mechanisms. Hotels provide direct investment and infrastructure upgrading. Hotel groups generate employment opportunities, both directly in hotels and indirectly in related sectors (Melián-González & Bulchand-Gidumal, 2020). They create demand for local products and services, supporting supplier networks. International hotels facilitate technology transfer and staff training, upgrading local skills and knowledge (Orfila-Sintes et al., 2005). However, the degree of impact depends on the business model used, with management contracts and franchising generally having less economic embeddedness than direct ownership (Sangster et al., 2001).

Dai et al. (2017) examine the economic impact of large hotel investments in China’s Hainan province using a CGE model. The findings reveal that hotel investment moderately boosts all industry sectors, improving economic output and employment in Hainan. However, the hotel industry in Hainan has faced profitability issues, with low occupancy rates and returns on investment. While hotel investment can potentially stimulate growth in developing economies, its benefits are not guaranteed. The “big push” theory suggests that simultaneous investments across sectors can kickstart economic development, but

implementation is challenging. The study highlights the need for careful policy considerations to ensure hotel investments meet tourism demand, maintain profitability, and achieve sustainable development. Overall, the research underscores the complex relationship between hotel investment and economic growth, emphasizing the importance of balanced and strategic approaches to tourism development in regions like Hainan.

Little research has examined these factors together. One notable exception is [Takahashi \(2019\)](#), who modeled the impact of migration on tourism demand for 10 SIDS and found that migration may have resulted in Visit Friends and Relatives tourism to these Pacific countries. Elsewhere, [Hasan et al. \(2022\)](#) negative found that remittances have a negative impact on international tourism in South Asia, as recipients of remittances tend to spend most of it on their basic level consumption needs, rather than tourism.

2.4. Fiji: tourism, remittances and hotel investment

Tourism, remittances and hotel investment have been the Fiji's largest engines of economic growth. In 2023, 929,740 international tourists visited Fiji spending \$FJ 3.22 billion ([Australia - Fiji Business Council, 2024](#)). Tourism contributes about 40 % of GDP ([Export Finance Australia, 2022](#)). The tourism sector provides 41,338 jobs or 35.5 % of the total workforce ([SPTO, 2019](#)). The top source markets for Fiji's tourists in 2023 are Australia, accounting for 46.7 % of the total number of arrivals, followed by New Zealand (23.8 %), United States (10.7 %), and other Pacific Islands (5.8 %) ([Fiji Bureau of Statistics, 2023](#)).

Remittances, which have been vital in enhancing domestic consumption and supporting low and middle-income households during the post-COVID-19 recovery period, have continued to increase due to substantial out-migration over the past few years in Fiji. Facilitated by mobile digital wallets, remittances reached \$FJ 1.04 billion in 2022, an increase of 25 % from the previous year ([Fiji Times, 2023](#)). This equates to 9.4 % of nominal GDP. Remittances increased again to \$FJ 1.25 billion in 2023, another 20.4 % annual increase ([Xinhua, 2024](#)).

In terms of hotel investment, over the decade before COVID-19 (2009–2019), licensed lodging room supply in Fiji grew at an average annual rate of 1.2 % ([JLL, 2023](#)). Historically, the Fiji hotel market showed steady growth. Occupancy rates hovered around 50 % for much of 2010–2019, with the average daily rate (ADR) growing at 6.1 % per annum. In 2019, the Fiji Bureau of Statistics reported a total of 10,818 rooms in hotels, resorts, and other licensed accommodations. However, COVID-19 led to hotel closures and refurbishment projects, reducing the number of rooms to 6584 in 2021. Before COVID-19, many projects were in the planning stages, which could quickly proceed if market conditions remain strong.

The majority of Fiji's hotels and resorts are small, with 50 rooms or fewer, comprising 71 % of total hotels but only 28 % of the total room count. These small, independent boutique hotels dominate the market, representing 83 % of all hotels ([JLL, 2023](#)). In contrast, international brands operate 17 % of the market, with larger properties (200+ rooms) making up 9 % of hotels but 38 % of the total room count. Major brands include Shangri-La, Hilton, Sofitel, Sheraton, InterContinental, Outrigger, and Warwick.

There are few studies collectively examining tourism, remittances and hotel investment and even fewer looking at Fiji. Using an econometric analysis, [Makun \(2018\)](#) found a long-run positive correlation between FDI, remittances, and economic growth in Fiji, with the FDI-growth elasticity at 0.011 and the remittance-growth elasticity at 1.036. However, econometric studies cannot take into account the economic impact of simulated changes in different sectors of the economy ([Pratt, 2013](#)), nor can econometric models include resource constraints and feedback effects ([Dwyer, 2015](#)).

We contribute to the literature as one of the first studies to compare three injections into the economy to assess the economic contribution of each and the way these exogenous stimuli flow through the economy.

This type of analysis has rarely been done for SIDS, and particularly Fiji, where these injections are an important impetus to their economies. Fiji serves as an ideal case study due to its economic reliance on tourism and remittances, making it particularly susceptible to external shocks ([Gounder & Cox, 2022](#)). As one of the largest economies in the South Pacific, Fiji provides a representative context for examining the broader economic implications of tourism-dependent island nations (R. R. Kumar & Stauvermann, 2023). Additionally, unlike other SIDS where there is scant national accounts and economic data, Fiji has the data to allow for robust modeling and validation of CGE simulations. This research employs a Computable General Equilibrium (CGE) model to examine the impacts of an increase in tourism, remittances, and hotel investment. CGE models are a standard tool of empirical analysis, and are widely used to analyze the aggregate welfare and distributional impacts of exogenous shocks or policies whose effects may be transmitted throughout the economy ([Blake et al., 2006](#); [Dwyer et al., 2004](#)).

3. The Fiji CGE model

3.1. Data

The underlying data for the model is an input-output table based on Fiji's latest Supply-Use Table (SUT), supplied by the Fiji Bureau of Statistics. The original SUT consists of 56 industries and 114 products. The supply table contains both multi-products and joint-production possibilities, and is valued at basic and purchasers' prices, whereas the use table is valued only in purchasers' prices. We adjusted the SUT table by creating a balanced input-output table with the diagonal supply matrix, and matrices for trade and transport margins, taxes on products by domestic and imported sources and updated to newly rebased national account data in 2019 ([Oum & Singh, 2019](#)).

Although the COVID-19 pandemic altered some economic structures, the use of 2019 national accounts remain valid for this study as it provides a benchmark of normal economic conditions. Given the volatility of pandemic-related shocks, using a stable pre-pandemic dataset allows for clearer insights into the structural impacts of tourism, remittances, and investment without confounding short-term disruptions. It is important to note, however, that since 2019, structural changes have emerged that could influence the magnitude or pathways of each economic stimulus. For instance, the proliferation of mobile digital wallets has significantly enhanced the speed and volume of remittance transfers, potentially increasing their liquidity effects in recipient economies ([Hahm et al., 2021](#)). Similarly, the pandemic has reshaped labor markets through increased international out-migration and changes in domestic employment patterns, which may influence both remittance-sending capacity and the labor supply responses to tourism and investment stimuli ([Doan et al., 2023](#)). While these developments do not undermine the comparative static approach used here, they should be kept in mind when interpreting the simulation results in a post-pandemic context. All relevant elasticities are taken from the Global Trade Analysis Project (GTAP) due to the lack of data for econometrically estimated parameters ([Aguiar et al., 2016](#)).

The final input-output table consists of 22 sectors in the Intermediate Demand block, labor, capital, taxes and imports in the Value-Added Block and Household Consumption, Government Consumption, Investment, Tourism and non-tourism Exports in the Final Demand Block.

[Table 1](#) shows the sectoral shares of various elements of inputs and outputs. Agriculture, hunting, forestry, and fishing dominate in household consumption (19.0 %) and labor input (9.6 %), while the hotels and restaurants sector contributes significantly to tourism consumption (39.0 %). Air transport has a notable tax contribution (14.1 %) and tourism consumption (19.8 %), indicating its strong sectoral output in these areas. Other industries like financial intermediation and public administration also have substantial outputs, while sectors like mining and quarrying have minimal overall impact.

[Table 2](#) classifies industries based on different economic

Table 1
Fiji economy characteristics I.

Industry	Labor input	Capital input	Tax Contribution	Household Consumption	Tourism Consumption	Total Output
Agriculture, hunting, forestry, and fishing	9.6 %	14.7 %	7.6 %	19.0 %	0.0 %	10.1 %
Mining and quarrying	0.6 %	0.7 %	1.3 %	0.1 %	0.0 %	1.3 %
Food, beverages, and tobacco	3.5 %	8.4 %	7.8 %	18.1 %	1.0 %	9.3 %
Other Manufacturing	7.4 %	6.6 %	11.5 %	8.3 %	0.0 %	8.9 %
Electricity, gas, and water supply	0.5 %	2.6 %	5.3 %	1.9 %	0.0 %	2.7 %
Construction	4.5 %	0.5 %	2.8 %	0.1 %	0.0 %	3.9 %
Sale, maintenance, & repair of motor vehicles & motorcycles; retail sale of fuel	0.2 %	0.3 %	0.1 %	0.3 %	0.2 %	0.2 %
Wholesale trade except motor vehicles and motorcycles	6.2 %	12.2 %	5.2 %	6.5 %	9.4 %	7.5 %
Retail trade, except motor vehicles; repair of household goods	3.0 %	5.9 %	2.5 %	9.0 %	3.0 %	3.5 %
Hotels and restaurants	5.7 %	7.3 %	10.4 %	2.9 %	39.0 %	7.6 %
Inland transport	2.5 %	1.4 %	2.7 %	3.3 %	2.5 %	1.9 %
Water transport	0.7 %	0.4 %	1.9 %	1.3 %	1.3 %	0.8 %
Air transport	3.4 %	1.9 %	14.1 %	1.6 %	19.8 %	5.1 %
Other supporting and auxiliary transport activities; activities of travel agencies	5.1 %	2.8 %	4.5 %	1.2 %	10.4 %	3.0 %
Post and telecommunications	5.3%	5.2 %	4.0 %	3.4 %	3.3 %	4.3 %
Financial intermediation	8.3 %	8.2 %	4.9 %	8.9 %	0.2 %	6.8 %
Real estate activities	1.2 %	6.8 %	1.5 %	5.6 %	0.0 %	3.0 %
Renting of Machine & Equipment and other business activities	6.7 %	4.7 %	3.4 %	4.2 %	8.7 %	6.0 %
Public administration and defense; compulsory social security	10.8 %	7.1 %	3.6 %	0.0 %	0.5 %	6.5 %
Education	10.9 %	0.3 %	1.9 %	3.6 %	0.6 %	5.2 %
Health and social work	3.5 %	1.7 %	0.9 %	0.6 %	0.0 %	2.0 %
Other community, social, and personal services	0.4 %	0.2 %	2.1 %	0.2 %	0.0%	0.5 %

Table 2
Fiji economy characteristics II.

Industry	CI	LI	EI	II	DI	TR
Agriculture, hunting, forestry, and fishing	✓			✓		
Mining and quarrying	✓		✓			
Food, beverages, and tobacco	✓			✓		
Other Manufacturing		✓	✓	✓		
Electricity, gas, and water supply	✓			✓		
Construction		✓		✓		
Sale, maintenance, & repair of motor vehicles & motorcycles; retail sale of fuel	✓		✓	✓		
Wholesale trade except motor vehicles and motorcycles	✓			✓		✓
Retail trade, except motor vehicles; repair of household goods	✓				✓	✓
Hotels and restaurants	✓			✓		✓
Inland transport		✓		✓		
Water transport		✓		✓		
Air transport		✓		✓		✓
Other supporting and auxiliary transport activities; activities of travel agencies		✓		✓		✓
Post and telecommunications		✓		✓		✓
Financial intermediation		✓		✓		
Real estate activities	✓		✓			
Renting of Machine & Equipment and other business activities		✓	✓	✓		✓
Public administration and defense; compulsory social security		✓			✓	
Education		✓			✓	
Health and social work		✓			✓	
Other community, social, and personal services		✓		✓		

CI: Capital-Intensive; LI: Labor-Intensive; EI: Export-Oriented - Exports >5 % of Total Sales; II: Import-Substituting - Imports >10 % of Domestic Demand; DI: Domestic-Oriented; TR: Tourism-Related (> 3%).

characteristics. Capital-intensive (CI) industries include agriculture, mining, and real estate, with several others like food, beverages, and retail also falling into this category. Labor-intensive (LI) sectors are dominant in manufacturing, construction, education, and health, indicating a high reliance on human capital. Export-oriented (EI) industries such as manufacturing, water, and air transport show a strong international market presence, while import-substituting (II) industries like manufacturing and transport are possible sections that are open to

import substitution.

Tourism-related (TR) industries include hotels and restaurants, wholesale trade, retail, and transport sectors, reflecting their significant role in tourism. Meanwhile, domestic-oriented (DI) industries like agriculture, food, and health focus mainly on serving the local market.

3.2. Model description

A CGE model is a comprehensive economic framework that describes the behaviors of all economic agents, including producers and consumers, as well as the interconnections among them (Burfisher, 2011). CGE models are acknowledged to be state-of-the-art in assessing the economy-wide impacts of various policies. Models of this type have been used to quantify a large range of tourism-related impacts (Wickramasinghe & Naranpanawa, 2022), remittances (Fowowe & Shuaibu, 2021) and hotel investment (Dai et al., 2017). These models are perceived as less constrained in their assumptions regarding economic mechanisms compared to input-output multiplier analysis (Dwyer et al., 2004).

The CGE model utilized in this research facilitates a comparative analysis of an economy's state before and after the introduction of a scenario or "shock", which induces the economy to reallocate its productive resources (Burfisher, 2011). The model adheres to fundamental microeconomic behavioral assumptions, positing that firms aim to maximize profits while consumers, including resident households and tourists, seek to maximize their utility. CGE models require the specification of utility and production functions. While econometric models estimate local characteristics of technologies or preferences from data, CGE models use functional forms to represent technologies and preferences globally. As is custom, the production of goods is modeled using a nested Leontief-Cobb-Douglas production function. So, output can either go to domestic or export markets, according to the constant-elasticity-of-transformation function. Intermediate inputs are modeled using a Leontief function, while labor and capital are incorporated as a Cobb-Douglas value-added aggregate. The factors of production are combined via a Leontief aggregation, with capital and labor entering as a Cobb-Douglas value-added aggregate. Intermediate inputs from various sectors are integrated as a Leontief aggregate into each sector's production function.

An Armington aggregate (Armington, 1969) is employed for

household consumption, government consumption, investment, and as an intermediate input for production. The trade-off between domestically produced and imported goods and services is influenced by price fluctuations. Resident households are endowed with capital and labor, demanding investment, private, and government goods. The investment and government sectors' output are exogenous. Consumer utility is represented by a nested Cobb–Douglas utility index, with the top level being a Cobb–Douglas function of aggregate composite consumption and savings. The second level nest is defined over an Armington aggregation of domestic and imported commodities. A visual depiction of the model can be seen in Fig. 1.

The CGE model includes three closures: Government closure, External closure (current account balance, including trade balance), and Savings–Investment closure. Production follows neoclassical economic underpinnings, with fixed factor quantities and variable prices to achieve equilibrium. The government closure allows a flexible fiscal stance with fixed tax rates. This model is characterized by fiscal neutrality so that public consumption remains constant (Blake, 2000). Any changes in tax revenues or changes in the prices paid by the government for public consumption goods result in changes in the level of transfers. This is done so that welfare calculations are based solely on households' utility. Government consumption is fixed in real terms. Government savings is a flexible residual.

For the external closure, the real exchange rate varies while keeping foreign savings (the current account deficit) fixed. Foreign savings is the difference between foreign currency spending and receipts. The Savings–Investment closure is investment-driven, with fixed real investment quantities and adjusted savings rates. These three closures are standard in CGE models. The model, developed in GAMS (General Algebraic Modeling System), provides relative prices only, with the consumer price index as the numeraire. MPSGE, a GAMS subsystem, offers a concise representation of Arrow–Debreu economic equilibrium models (Rutherford, 1999). For specific model equations and functional forms to clarify how the tourism, remittance, and investment injections are represented, as well as the general structure of key equations, as well as parameter values, see the Appendix.

While this model is calibrated using Fiji-specific data, several features make it well-suited to the characteristics of SIDS more broadly. First, the model explicitly incorporates imports by sector, reflecting the reliance of SIDS on imported goods, especially for food, fuel, and capital inputs (Niles & Lloyd, 2013). Second, the model includes relatively inelastic labor supply and limited inter-sectoral mobility of factors, which mirrors the constraints typical of small labor markets in SIDS. Third, we maintain a fixed current account balance and allow the exchange rate to adjust, capturing the external vulnerability of these economies

(McGillivray et al., 2013). Fourth, the sectoral disaggregation places emphasis on tourism-related industries, public services, and primary sectors, which are commonly dominant in SIDS. These calibrations ensure that the economic linkages and feedback mechanisms captured by the model are reflective not just of Fiji, but also of other SIDS that share similar structural traits. Consequently, the results offer broader policy insights for other island economies facing analogous development challenges.

3.3. Simulations

This CGE model can be termed a 'comparative static' model. The model was calibrated to the base year of 2019, the year of the input–output data. The model was then 'shocked' by introducing a scenario to an exogenous variable in the model. The model re-calibrated to a different equilibrium after the initial shock.

The simulations will involve setting three different counterfactuals and assessing how these different injections result in a change in a range of economic variables. Each simulation will consist of a \$FJ 200 million injection. Even though tourism, remittances and hotel investment currently have differing contributions to the economy of Fiji, we use a standard dollar increase as the counterfactual in the model so as to compare like with like. \$FJ 200 million was deemed to be a realistic amount. For example, in 2019, international tourism expenditures totaled \$FJ 3.03 billion (MCTTT, 2020). Therefore, an injection of \$FJ 200 million in tourism expenditures equates to 6.6 %. In 2019, total remittances for Fiji totaled \$FJ 587.5 million (Narayan, 2021), so a \$FJ 200 million injection equates to 34.0 %. While for hotel investment, a \$FJ 200 million injection is the equivalent to the construction of a 258-room 5-star luxury hotel in Nadi, the tourist area of Fiji (FBC News, 2024).

4. Findings

The following section describes the results of the CGE simulations, that have been calibrated to the base year of 2019.

4.1. Macroeconomic impacts

Table 3 outlines the macroeconomic impacts of tourism, remittances, and hotel investment, with each counterfactual producing distinct effects on the economy. Remittances increase consumer welfare the most (8.66 %), followed by hotel investment (6.60 %) and tourism (2.37 %). Aggregate GDP follows a similar trend, with the injection of remittances contributing the most (7.51 %), while hotel investment (5.77 %) and

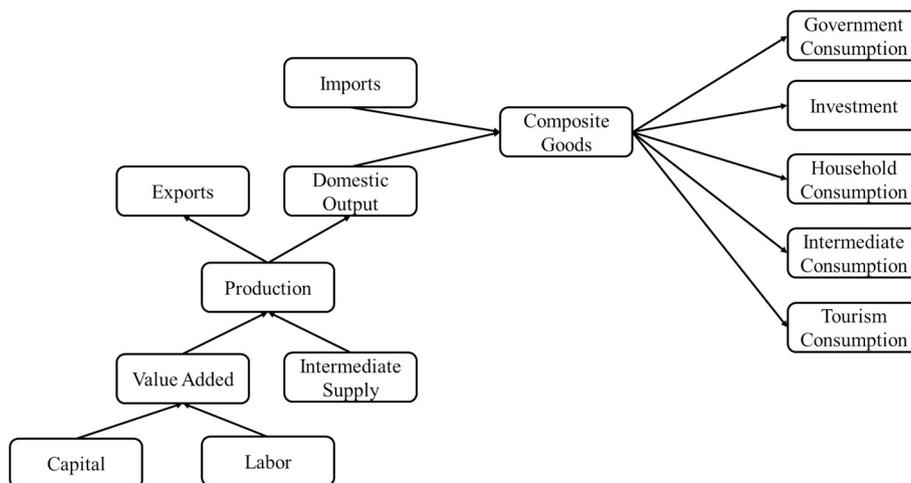


Fig. 1. Computable general equilibrium model (CGE) components.

Table 3
Macroeconomic results (percentage from the baseline).

	Tourism Expenditures	Remittances	Hotel Investment
Welfare	2.37	8.66	6.60
Aggregate GDP	1.99	7.51	5.77
Aggregate Consumption	2.75	10.31	7.66
Aggregate Investment	3.46	11.57	9.92
Aggregate Exports	-3.87	-4.38	-3.86
Aggregate Imports	14.28	23.20	20.36
Domestic Demand	1.49	1.72	-2.67
Tourism Expenditure	24.53	21.34	18.10
Investment Price	-0.69	-1.13	-2.06
Price of Foreign Exchange	-3.80	-5.48	-4.10
Price of Government Good	0.31	0.69	-0.99
Wage Rate	1.67	3.15	-1.43
Return to Capital	1.21	2.72	4.36
Price of Exports	-3.80	-5.48	-4.10
Price of Imports	-3.80	-5.48	-4.10

Source: Simulations from Fiji CGE model.

tourism (1.99 %) have more modest effects. Consumption and investment levels see the highest growth under remittances (10.31 % and 11.57 %, respectively), with tourism expenditures contributing a smaller but positive impact.

On the other hand, all scenarios show a decrease in aggregate exports, with the largest decline occurring with the injection of remittances (-4.38 %). Import levels rise significantly across all factors, with remittances driving the largest increase in imports (23.20 %), reflecting heightened demand for foreign goods. Price effects are consistent across the board, with decreases in the prices of exports, imports, and foreign exchange, particularly in the remittances scenario.

Hotel investment has a unique impact on certain variables, with a notable decrease in domestic demand (-2.67 %) and a reduction in wage rates (-1.43 %), contrasting with tourism and remittances, where wages and demand rise. Hotel investment, however, leads to the highest return on capital (4.36 %), suggesting it boosts profitability in the capital markets more than other factors. Overall, while remittances lead to the most pronounced effects in several key areas, hotel investment shows specific strengths in capital returns, while tourism expenditure

Table 4
Simulated sectoral results (percentage changes from the baseline).

Percentage Change in ...	GDP			Net Value Added		
	Tourism	Remit	Hotel	Tourism	Remit	Hotel
Agriculture, hunting, forestry, and fishing	2.24	9.05	7.27	-3.8	-2.4	-3.4
Mining and quarrying	-0.25	3.87	2.15	-99.6	-99.8	-99.4
Food, beverages, and tobacco	1.61	8.59	6.70	-6.7	-7.6	-8.9
Other Manufacturing	2.58	9.97	8.50	-10.0	-11.2	-7.1
Electricity, gas, and water supply	3.91	11.74	8.53	-7.4	-9.6	-12.6
Construction	3.41	11.48	9.85	0.0	5.7	7.3
Sale, maintenance, & repair of motor vehicles & motorcycles; retail sale of fuel	3.01	10.60	8.41	3.0	5.3	3.3
Wholesale trade except motor vehicles and motorcycles	3.12	10.81	8.76	2.3	2.6	1.2
Retail trade, except motor vehicles; repair of household goods	2.95	10.49	8.20	4.2	8.3	6.2
Hotels and restaurants	2.94	10.45	-15.66	18.3	14.7	12.4
Inland transport	3.83	12.14	10.42	-0.7	-2.7	2.7
Water transport	3.44	10.53	8.79	-0.1	-2.2	3.0
Air transport	3.66	12.07	9.47	4.3	-3.9	2.5
Other supporting and auxiliary transport activities; activities of travel agencies	2.34	9.59	9.01	9.7	5.9	7.9
Post and telecommunications	2.65	9.53	8.04	2.6	2.8	1.4
Financial intermediation	2.47	9.14	7.78	-1.0	0.5	-1.4
Real estate activities	2.77	10.14	7.16	1.1	4.4	1.3
Renting of M&Eq and other business activities	1.17	4.16	3.46	5.2	4.9	4.4
Public administration and defense; compulsory social security	-0.02	-0.02	-0.01	-1.2	-2.2	-1.0
Education	1.37	5.31	5.53	0.2	2.9	4.8
Health and social work	0.60	2.65	2.58	-2.0	-1.8	0.1
Other community, social, and personal services	3.12	10.12	7.95	0.3	-4.9	-20.2

Source: Simulations from Fiji CGE model.

growth is significantly driven by the tourism scenario.

4.2. Simulation results - sectoral impacts

Table 4 illustrates the percentage change in GDP and net value added across various industries due to injections of tourism expenditures, remittances, and hotel investment. In terms of GDP growth, remittances consistently generate the highest increases across most sectors, particularly in electricity, gas, and water supply (11.74 %) and construction (11.48 %). The injection of tourism expenditures and hotel investment also show positive impacts on GDP, though hotel investment stands out for having a strong effect on construction (9.85 %) and inland transport (10.42 %). However, hotel investment negatively affects the GDP of the hotels and restaurants sector (-15.66 %), reflecting a sector-specific challenge.

In terms of net value added, several industries experience declines across all three scenarios. Mining and quarrying experiences near-total losses in value added (-99 % across the board, coming from a very small base). Similarly, sectors like food, beverages, and tobacco, and other manufacturing show significant declines in value added, especially under the remittances and hotel investment scenarios. Notably, construction benefits with positive net value added from remittances (5.7 %) and hotel investment (7.3 %), while the retail trade and transportation sectors show moderate positive gains across all scenarios.

Overall, while GDP increases for most industries, net value added results vary widely, with notable declines in key sectors such as agriculture and manufacturing. Sectors like hotels, restaurants, and construction are more sensitive to hotel investment, which shows mixed outcomes depending on the sector.

To help understand how these injections affect different economic variables and sections of the economy, it can be useful to examine the output, income and import multipliers as well as the backward and forward linkages indices (Pratt, 2011). These have been calculated in Table 5. Output multipliers, which measure the total output generated per unit of final demand, are relatively high across most industries, with the food, beverages, and tobacco sector showing the highest output multiplier (1.65). Construction and hotels/restaurants also have strong output multipliers (1.61 and 1.51, respectively), indicating their significant contributions to economic output. Income multipliers, reflecting the income generated from each unit of output, are highest in real

Table 5
Multipliers and linkages by sector.

Industry	Output	Income	Import	BL	FL
Agriculture, hunting, forestry, and fishing	1.31	0.78	0.154	0.99	0.11
Mining and quarrying	1.53	0.50	0.400	1.15	0.10
Food, beverages, and tobacco	1.65	0.68	0.232	1.24	0.09
Other Manufacturing	1.45	0.64	0.248	1.10	0.17
Electricity, gas, and water supply	1.39	0.47	0.388	1.05	0.13
Construction	1.61	0.67	0.252	1.21	0.08
Sale, maintenance, and repair of motor vehicles and motorcycles; retail sale of fuel	1.30	0.81	0.124	0.98	0.08
Wholesale trade and commission trade, except of motor vehicles and motorcycles	1.31	0.78	0.153	0.98	0.14
Retail trade, except of motor vehicles and motorcycles; repair of household goods	1.30	0.81	0.120	0.98	0.08
Hotels and restaurants	1.51	0.69	0.190	1.14	0.08
Inland transport	1.03	0.59	0.319	0.78	0.09
Water transport	1.15	0.50	0.339	0.87	0.08
Air transport	1.19	0.38	0.440	0.89	0.10
Other supporting and auxiliary transport activities; activities of travel agencies	1.10	0.77	0.130	0.83	0.09
Post and telecommunications	1.26	0.79	0.137	0.95	0.14
Financial intermediation	1.28	0.80	0.142	0.96	0.16
Real estate activities	1.37	0.85	0.093	1.04	0.10
Renting of M&Eq and other business activities	1.49	0.78	0.154	1.12	0.11
Public administration and defense; compulsory social security	1.21	0.85	0.099	0.91	0.08
Education	1.36	0.83	0.121	1.03	0.08
Health and social work	1.23	0.84	0.117	0.93	0.08
Other community, social, and personal services	1.17	0.43	0.301	0.88	0.09

BL = Backward linkages; FL = Forward linkages.

estate (0.85) and public administration (0.85), suggesting that these sectors contribute notably to income generation.

Import dependency varies across sectors, with air transport showing the highest import multiplier (0.440), followed by electricity, gas, and water supply (0.388) and water transport (0.339). These sectors rely more on imported inputs compared to others like real estate (0.093) and public administration (0.099), which have lower import multipliers. The backward linkages (BL) reveal that most industries have moderate to strong connections with their suppliers, with food, beverages, and tobacco showing the highest BL (1.24), indicating its significant reliance on upstream industries. Forward linkages (FL), which indicate an industry's role as a supplier to other industries, are generally lower, with most industries around 0.08 to 0.17, suggesting a more modest role in supplying inputs to other sectors.

5. Discussion and conclusions

5.1. Economic transition mechanisms

When tourism expenditures are injected into an economy, the economic transmission mechanism unfolds through a series of stages, each impacting various sectors and economic indicators. Initially, tourism spending directly boosts demand for goods and services in sectors such as hotels, restaurants, transportation, entertainment, and retail (Dogru & Bulut, 2018). This surge in demand leads to immediate revenue growth for businesses within these industries, potentially increasing their output and encouraging them to hire more staff or extend operating hours to meet the rising demand.

As these tourism-related businesses expand, they require additional inputs such as food, beverages, fuel, utilities, and maintenance services. This heightened demand for inputs benefits suppliers in other sectors, including agriculture, manufacturing, and construction, thereby

spreading the economic impact across the supply chain (Singh et al., 2015). This supply chain effect stimulates further production, employment, and income growth in these upstream industries, amplifying the initial economic impact of tourism spending.

The increased employment and income in tourism-related and supporting sectors result in higher household income, which in turn boosts consumption. The additional household spending generates a multiplier effect, where successive rounds of spending further amplify the overall economic impact of the initial tourism expenditure (Pratt, 2015). This process contributes to GDP growth as the increased output across various sectors accumulates, reflecting the broad-based economic benefits of tourism. Moreover, the influx of foreign tourists brings foreign currency into the economy, improving the balance of payments, though this may be partially offset by a rise in imports due to higher consumption and input needs (Pratt et al., 2018). Evidence of Dutch Disease is apparent, which has been found in other studies, as tourism demand increases leads to the appreciation of the real exchange and traditional exports decline (Inchausti-Sintes, 2015).

When remittances flow into an economy, they serve as a substantial financial boost that influences various sectors and economic indicators through several stages of transmission. Initially, remittances directly increase household income, leading to higher consumption, especially in essential sectors like food, beverages, retail trade, and housing (Adams Jr., 2006). This surge in household spending drives up demand for local goods and services, stimulating economic activity in sectors such as retail trade, health and social work, and construction. The tables reveal significant positive effects on GDP in sectors like retail trade, construction, and food, beverages, and tobacco, reflecting the immediate impact of remittances on the economy (Mishra et al., 2022).

As household spending increases, the demand filters through to other sectors that supply goods and services to these areas, causing a ripple effect throughout the economy. This leads to growth in output and income across various industries, such as manufacturing and utilities, as businesses respond to the heightened demand. The tables indicate substantial GDP growth in sectors like electricity, gas, and water supply, and construction, driven by the increased consumption from remittance-receiving households. This broader economic activity further stimulates employment and income growth, reinforcing the initial economic impact of remittances.

The multiplier effect generated by remittance inflows amplifies the overall economic impact, as higher business revenues lead to more hiring, wage increases, and further household spending. However, the increased demand also raises imports significantly, as households and businesses consume more foreign goods, while exports may decline slightly due to the appreciation of the local currency (Chami et al., 2005). The effects of the injection of remittances are of a higher magnitude than for tourism as consumers are impacted directly, as opposed to having the expenditures filter through to the rest of the economy via the tourism-oriented sectors.

When hotel investment is injected into the economy, it initiates a complex transmission mechanism. Increased investment leads to a decrease in the price of investment, which triggers two primary effects. First, resources are reallocated from other sectors to the hotel industry, causing a decline in the output of those other sectors (Dai et al., 2017). Second, this investment affects the supply chain of the hotel sector (Dogru & Bulut, 2018). The lower prices of hotel-related goods and services reduce costs in sectors that depend on these services, such as travel agencies, commercial trade, and other service industries, thereby boosting demand and output in these areas. Additionally, the increased investment in hotels drives sectoral growth along the supply chain. As the demand for hotel goods and services rises, it also elevates the demand for goods and services in sectors that supply the hotel industry, including construction and commercial trade (Robles Teigeiro & Díaz, 2014).

As hotels are built and become operational, there is an increase in the supply of hotel rooms, which can drive the price of hotel rooms down.

Like tourism expenditures and remittances, there is an increase in imports and a decrease in non-tourism exports (Dai et al., 2017). As hotels become operational, tourism-related industries like air transport and travel agencies experience increased demand, further boosting economic activity in these areas. In the longer term, hotel investments contribute to significant macroeconomic outcomes, including an overall increase in GDP and welfare.

Fig. 2 shows the economic transition mechanisms for the three scenarios.

6. Conclusions

The paper provides an empirical analysis on the impacts of three potential injections into the Small Island Development State of Fiji, namely, tourism expenditures, remittances and hotel investment. The analysis was undertaken with CGE modeling calibrated to the base year of 2019. This research contributes to the literature in terms of understanding the impacts of different external economic injections into a SIDS economy. This research has provided a better understanding of the role and sensitivity of these sectors on the economy so that prudent policy measures can be taken to minimize its potential adverse effects, to maintain macroeconomic stability, and achieve long-term and sustainable development of the economy (AusAid, 2006; United Nations, 2017).

This analysis contributes uniquely to the literature by offering a direct comparison of multiple external economic injections within a single, calibrated CGE framework tailored for a SIDS context. It also provides actionable insights for policymakers by quantifying how different stimuli propagate through a vulnerable, tourism-dependent economy, supporting more targeted and resilient development strategies. Tourism, remittances, and hotel investment each have distinct impacts on the economy, reflecting their unique transmission mechanisms within Fiji’s economic structure. Tourism stimulates immediate demand in sectors like hospitality, transportation, and retail, leading to widespread short-term economic benefits. However, it can also increase import dependency and expose the economy to external shocks, such as global recessions or pandemics (Inchausti-Sintes, 2015). Remittances directly boost household income, leading to increased consumption and investment in sectors like housing and education, but they may also reduce labor supply as households rely more on external income (N. N. Kumar & Patel, 2022). Hotel investment, on the other hand, generates

long-term economic gains through increased capital formation and job creation in both construction and hospitality, though it can lead to resource reallocation that may negatively impact other sectors (Dai et al., 2017). These differing impacts highlight that it is not a matter of choosing one type of injection over another, but rather understanding how each can complement the others to create a balanced and resilient economic strategy.

Our findings align with prior research indicating the strong multiplier effects of tourism (Wickramasinghe & Naranpanawa, 2022) while highlighting the distinct role of remittances in stabilizing household consumption, as noted by Mishra et al. (2022). Our simulations demonstrate the tangible, quantifiable impact of each injection on key macroeconomic indicators. For instance, remittances led to the highest increase in both aggregate welfare (8.66 %) and GDP (7.51 %), followed by hotel investment (6.60 % welfare, 5.77 % GDP) and tourism (2.37 % welfare, 1.99 % GDP). These results not only reflect the direct economic boost each injection provides but also highlight differences in the breadth and depth of their economy-wide effects. In terms of sectoral outcomes, hotel investment significantly increased GDP in construction (9.85 %) and inland transport (10.42 %), while remittances had the most pronounced effects on electricity, gas and water supply (11.74 %), and construction (11.48 %). Tourism injections, while having the smallest macroeconomic impact, drove substantial growth in the tourism-related sectors, such as hotels and restaurants (18.3 % increase in net value added). These quantifiable findings, derived through CGE modeling, provide nuanced insights for policymakers on how each injection can be strategically leveraged to maximize economic returns and resilience.

From a policy perspective, governments should aim to maximize the synergies between these economic injections while mitigating their potential downsides. Strengthening backward and forward linkages in the tourism sector can enhance its multiplier effects and reduce import leakages, making the industry more resilient to external shocks (Pratt, 2015). To maximize the benefits of remittances, policies could focus on creating favorable conditions for investment in productive sectors, such as providing incentives for remittance-receiving households to invest in local businesses or education. Hotel investment should be encouraged in a way that aligns with broader development goals, such as by attracting projects that promote sustainable tourism and involve significant technology and skills transfers to the local workforce. Additionally, vocational training programs could be expanded to ensure a skilled labor supply that can meet the demands of a growing hospitality sector

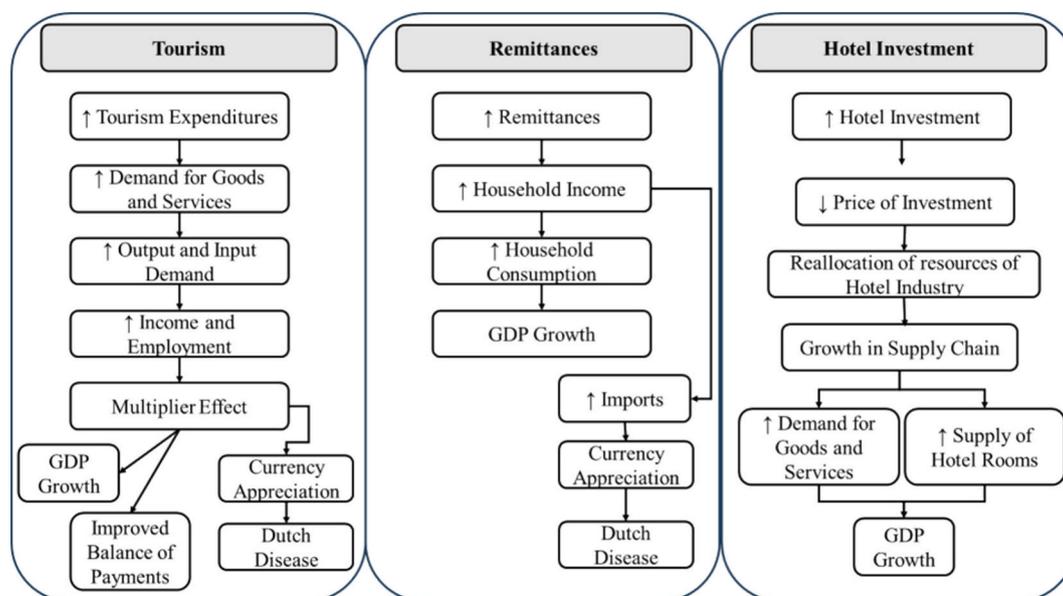


Fig. 2. Economic transition mechanisms.

without negatively impacting other parts of the economy.

A key policy implication arising from this study is the potential risk of Dutch Disease, where economic injections from tourism and remittances contribute to currency appreciation, potentially hampering the competitiveness of traditional export sectors (Inchausti-Sintes, 2015; Nowak & Sahli, 2007). While all three injections carry the potential for Dutch Disease effects, the transmission channels differ in important ways. In the case of tourism, Dutch Disease primarily operates through increased foreign exchange inflows tied to service exports, which may lead to real exchange rate appreciation and reduce the competitiveness of traditional export sectors. By contrast, remittances typically exert their influence through a consumption channel; elevated household spending, particularly on non-tradables, can drive up domestic prices and contribute to inflationary pressures, disproportionately affecting the tradable sector. Understanding these differentiated pathways is crucial for designing targeted macroeconomic policies that mitigate unintended structural distortions. Policymakers should consider implementing macroeconomic strategies such as exchange rate adjustments, diversification policies, and investment in productivity-enhancing infrastructure to mitigate these risks.

Future research could explore several areas to build on the findings of this study. One area of interest could be a more detailed sectoral analysis of how these injections interact with each other, particularly in the context of different economic scenarios, such as global economic downturns or climate-related events. Another avenue for research could involve longitudinal studies that examine the long-term impacts of these injections, particularly how they influence structural changes in the economy over time. Additionally, comparative studies that look at other Small Island Developing States could provide insights into how different economic structures and policy environments influence the effectiveness of tourism, remittances, and hotel investment as drivers of economic growth. In terms of limitations, while hotel investment captures many of the key characteristics of capital inflows in SIDS, such as infrastructure development, employment generation, and foreign currency earnings; it may not reflect the full diversity of FDI types. As such, FDI could be worthy of further examination. Further, the base year was calibrated to 2019. This means that changes in the underlying structure of the data since then have not been accounted for. Future researchers would be advised to use the most recent underlying input-output table, when it becomes available.

CRedit authorship contribution statement

Stephen Pratt: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.annale.2025.100193>.

References

- Adams, R. H., Jr., & Cuencuecha, A. (2010). Remittances, household expenditure and investment in Guatemala. *World Development*, 38(11), 1626–1641.
- Adams, R. H., Jr. (2006). International remittances and the household: Analysis and review of global evidence. *Journal of African Economies*, 15(2), 396–425.
- Adams, R. H., Jr., Cuencuecha, A., & Page, J. (2008). Remittances, consumption and investment in Ghana. In *The World Bank policy research working paper 4515*. <https://doi.org/10.1596/1813-9450-4515>. Retrieved 7th January 2014, from.
- Adeyoyin, F. F., Seetaram, N., Disegna, M., & Filis, G. (2023). The effect of tourism taxation on international arrivals to a small tourism-dependent economy. *Journal of Travel Research*, 62(1), 135–153.
- Aguiar, A., Narayanan, B., & McDougall, R. (2016). An overview of the GTAP 9 data base. *Journal of Global Economic Analysis*, 1(1), 181–208.
- Armington, P. S. (1969). A theory of demand for products distinguished by place of production. *IMF Staff Papers*, 16, 159–178.
- AusAid. (2006). Pacific 2020 : Challenges and opportunities for growth. Retrieved 26th May, 2015, from <http://www.ausaid.gov.au/publications/pdf/pacific2020.pdf>.
- Australia - Fiji Business Council. (2024). Tourists boost Fiji's local economy with more experiential spending. Retrieved July 16, 2024, from <https://afbc.org.au/news/tourists-boost-fijis-local-economy-with-more-experiential-spending/#:~:text=In%202023%2C%20out%20of%20the,60%20per%20cent%20of%20spending.>
- Azizi, S. (2018). The impacts of workers' remittances on human capital and labor supply in developing countries. *Economic Modelling*, 75, 377–396. <https://doi.org/10.1016/j.econmod.2018.07.011>
- Bahadir, B., Chatterjee, S., & Lebesmuehlbacher, T. (2018). The macroeconomic consequences of remittances. *Journal of International Economics*, 111, 214–232. <https://doi.org/10.1016/j.jinteco.2018.01.010>
- Blake, A. (2000). *The economic effects of tourism in Spain*. University of Nottingham. Retrieved March 23 from https://www.academia.edu/375557/The_Economic_Effects_of_Tourism_in_Spain.
- Blake, A., Gillham, J., & Sinclair, M. T. (2006). CGE tourism analysis and policy modelling. In L. Dwyer, & P. Forsyth (Eds.), *International handbook on the economics of Tourism* (pp. 301–315). Cheltenham: Edward Elgar Publishing.
- Booth, P., Chaperon, S. A., Kennell, J. S., & Morrison, A. M. (2020). Entrepreneurship in island contexts: A systematic review of the tourism and hospitality literature. *International Journal of Hospitality Management*, 85, Article 102438. <https://doi.org/10.1016/j.ijhm.2019.102438>
- Breda, Z., & Costa, C. (2013). Tourism development, conflicts and sustainability: The case of Goa. In C. Tisdell (Ed.), *Handbook on Tourism economics: Analysis, new applications and case studies* (pp. 683–704). Singapore: World Scientific Publishing.
- Brown, R. P. (2008). Remittances and development in the Pacific: Effects on human development in Fiji and Tonga. In *EGM Meeting on Migration and Development*. Retrieved August 21, 2019, from https://www.un.org/en/development/desa/population/events/pdf/expert/14/P03_Brown.pdf.
- Brown, R. P. C. (1997). Estimating remittance Functions for Pacific Island migrants. *World Development*, 25(4), 613–626.
- Burfisher, M. (2011). *Introduction to computable general equilibrium models*. Cambridge, UK: Cambridge University Press.
- Chami, R., Fullenkamp, C., & Jahjah, S. (2005). Are immigrant remittance flows a source of capital for development? *IMF Staff Papers*, 52(1), 55–81. http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/2030/Fullenkamp_are_immigrant_remittances.pdf?sequence=1.
- Cheer, J. M., Pratt, S., Tolkach, D., Bailey, A., Taumoepeau, S., & Movono, A. (2018). Tourism in Pacific island countries: A status quo round-up. *Asia & the Pacific Policy Studies*, 5(3), 442–461.
- Chen, J. J., Qiu, R. T. R., Jiao, X., Song, H., & Li, Y. (2023). Tax deduction or financial subsidy during crisis?: Effectiveness of fiscal policies as pandemic mitigation and recovery measures. *Annals of Tourism Research Empirical Insights*, 4(2), Article 100106. <https://doi.org/10.1016/j.annale.2023.100106>
- Connell, J., & Brown, R. P. (2005). Remittances in the Pacific: An overview. Retrieved August 21, 2109, from <https://www.adb.org/sites/default/files/publication/28799/remittances-pacific.pdf>.
- Connell, J., & Conway, D. (2000). Migration and remittances in island microstates: A comparative Perspective on the South Pacific and Caribbean. *International Journal of Urban and Regional Research*, 24(1), 52–78.
- Copeland, B. (1991). Tourism, welfare and de-industrialization in a small open economy. *Econometrica*, 58(232), 515–529.
- Dai, S., Xu, H., & Pratt, S. (2017). Too much of a good thing? The economic impact of Hotel Investment in Hainan. *Journal of China Tourism Research*, 13(1), 26–45. <https://doi.org/10.1080/19388160.2017.1304862>
- De Kadt, E. (1979). *Tourism: Passport to development. (Perspectives on the social and cultural effects of tourism in developing countries)*.
- Doan, D., Dorman, M., Doyle, J., & Petrou, K. (2023). Migration and labor mobility from Pacific Island countries. In *Background paper for the world development report*. Retrieved August 3, 2025, from <https://thedocs.worldbank.org/en/doc/511bd7fb799a3379242b5c151b2a14d5-0050062023/original/WDR-Pacific-Islands-case-study-FORMATTED.pdf>.
- Doggrell, K. (2020). *Checking out: What the rise of the sharing economy means for the future of the hotel industry*. USA: Bloomsbury Publishing. <https://books.google.com/books?id=a8yEAAAQBAJ>.
- Dogru, T., & Bulut, U. (2018). Is tourism an engine for economic recovery? Theory and empirical evidence. *Tourism Management*, 67, 425–434. <https://doi.org/10.1016/j.tourman.2017.06.014>
- Dogru, T., McGinley, S., & Kim, W. G. (2020). The effect of hotel investments on employment in the tourism, leisure and hospitality industries. *International Journal of Contemporary Hospitality Management*, 32(5), 1941–1965.
- Dwyer, L. (2015). Computable general equilibrium modelling: An important tool for tourism policy analysis. *Tourism and Hospitality Management*, 21(2), 111–126.
- Dwyer, L., & Forsyth, P. (1994). Foreign Tourism investment: Motivation and impact. *Annals of Tourism Research*, 21(3), 512–537.

- Dwyer, L., Forsyth, P., & Spurr, R. (2004). Evaluating tourism's economic effects: New and old approaches. *Tourism Management*, 25(3), 307–317.
- Edwards, A., & Ureta, M. (2003). International migration, remittances and schooling: Evidence from El Salvador. *Journal of Development Economics*, 72(2), 429–461.
- Eugenio-Martin, J. L., Martin-Morales, N., & Sinclair, M. T. (2008). The role of economic development in tourism demand. *Tourism Economics*, 14(4), 673–690.
- Export Finance Australia. (2022). Fiji—Strong tourism recovery boosts growth prospects. Retrieved July 16, 2024, from <https://www.exportfinance.gov.au/resources/world-risk-developments/2022/july/fiji-strong-tourism-recovery-boosts-growth-prospects/>.
- FBC News. (2024). \$220 million hotel investment by Hari Punja Group. Retrieved July 18, 2024, from <https://www.fbcnews.com.fj/news/220-million-hotel-investment-by-hari-punja-group/>.
- Feeny, S., Iamsiraroj, S., & McGillivray, M. (2014). Growth and foreign direct investment in the Pacific Island countries. *Economic Modelling*, 37, 332–339. <https://doi.org/10.1016/j.econmod.2013.11.018>
- Fiji Bureau of Statistics. (2023). Visitor arrivals statistics. Retrieved May 2, 2023, from <https://www.statsfiji.gov.fj/index.php/statistics/tourism-and-migration-statistics/visitor-arrivals-statistics>.
- Fiji Times. (2023). Fiji increasingly becoming a remittance economy – Report. Retrieved July 16, 2024, from <https://www.fijitimes.com.fj/fiji-increasingly-becoming-a-remittance-economy-report/>.
- Fowowe, B., & Shuaibu, M. (2021). Impact of international remittance inflows on poverty in Nigeria. *The Journal of Developing Areas*, 55(1).
- Goeldner, C. R., & Ritchie, J. R. B. (2012). *Tourism: Principles, practices, philosophies* (12th ed.). Hoboken, New Jersey: John Wiley & Sons.
- Gosai, S. S., & Deo, A. (2023). Reduction of poverty via remittance: An analysis of Fiji's rural households. *Business and Management Horizons*, 11(1), 14–32. <https://doi.org/10.5296/bmh.v11i1.20650>
- Gounder, A., & Cox, C. (2022). Exploring the role of tourism dependency on COVID-19 induced economic shock in the Small Island developing states. *Current Issues in Tourism*, 25(7), 1151–1168. <https://doi.org/10.1080/13683500.2021.1989386>
- Hahm, H., Subhanij, T., & Almeida, R. (2021). Finteching remittances in paradise: A path to sustainable development. *Asia & the Pacific Policy Studies*, 8(3), 435–453. <https://doi.org/10.1002/app5.341>
- Harrison, D., & Prasad, B. C. (2013). The contribution of Tourism to the development of Fiji and other Pacific Island countries. In C. Tisdell (Ed.), *Handbook of Tourism economics* (pp. 741–761). Singapore: World Scientific.
- Hasan, M. A., Abdullah, H. M. A., & Sajid, A. (2022). International remittances and international tourism development in South Asia: The moderating role of political stability. *Journal of Economic Impact*, 4(3), 177–187. <https://doi.org/10.52223/jei4032204>
- Inchausti-Sintes, F. (2015). Tourism: Economic growth, employment and Dutch disease. *Annals of Tourism Research*, 54, 172–189. <https://doi.org/10.1016/j.annals.2015.07.007>
- Jackman, M. (2014). Output volatility and Tourism specialization in Small Island developing states. *Tourism Economics*, 20(3), 527–544. <https://doi.org/10.5367/te.2013.0289>
- JLL. (2023). Fiji hotel investment market. Retrieved July 16, 2024, from <https://www.jll.com.au/content/dam/jll-com/documents/pdf/research/apac/jll-fiji-hotel-investment-market-2023-new.pdf>.
- Kakhkharov, J., Archer, L., Tuisawau, M., Taito, A., Cama, M., & Sharma, P. (2022). Remittances vis-à-vis bank credit and investment: Evidence from Fiji. *Review of Pacific Basin Financial Markets and Policies*, 25(01), Article 2250003. <https://doi.org/10.1142/s0219091522500035>
- Kumar, N. N., & Patel, A. (2022). Income thresholds in the remittances-growth association? A case study of Fiji. *Applied Economics Letters*, 29(19), 1815–1823. <https://doi.org/10.1080/13504851.2021.1963402>
- Kumar, R. R., & Stauvermann, P. J. (2023). Tourism and economic growth in the Pacific region: Evidence from five small island economies. *Journal of the Asia Pacific Economy*, 28(3), 894–921. <https://doi.org/10.1080/13547860.2021.1944796>
- Lei, C., Hossain, M. S., Mostafiz, M. L., & Khalifa, G. S. A. (2021). Factors determining employee career success in the Chinese hotel industry: A perspective of job-demand resources theory. *Journal of Hospitality and Tourism Management*, 48, 301–311. <https://doi.org/10.1016/j.jhtm.2021.07.001>
- Li, K. X., Jin, M., & Shi, W. (2018). Tourism as an important impetus to promoting economic growth: A critical review. *Tourism Management Perspectives*, 26, 135–142. <https://doi.org/10.1016/j.tmp.2017.10.002>
- Makun, K. K. (2018). Imports, remittances, direct foreign investment and economic growth in republic of the Fiji Islands: An empirical analysis using ARDL approach. *Ksetsart Journal of Social Sciences*, 39(3), 439–447. <https://doi.org/10.1016/j.kjss.2017.07.002>
- Mamun, M. A., Sohag, K., Uddin, G. S., & Shahbaz, M. (2015). Remittance and domestic labor productivity: Evidence from remittance recipient countries. *Economic Modelling*, 47, 207–218. <https://doi.org/10.1016/j.econmod.2015.02.024>
- Mathieson, A., & Wall, G. (1982). *Tourism: Economic, physical, and social impacts*. London, England: Longman.
- McGillivray, M., Naudé, W., & Santos-Paulino, A. (2013). Vulnerability, trade, financial flows and state failure in small island developing states. In A. Santos-Paulino, M. McGillivray, & W. Naudé (Eds.), *Understanding Small-Island developing states* (pp. 1–13). London: Routledge.
- McGillivray, M., Naudé, W., & Santos-Paulino, A. U. (2010). Vulnerability, trade, financial flows and state failure in Small Island developing states. *The Journal of Development Studies*, 46(5), 815–827. <https://doi.org/10.1080/00220381003623822>
- MCTTT. (2020). International visitor survey Fiji. Retrieved October 20, 2021, from <http://www.mcttt.gov.fj/wp-content/uploads/2020/07/FIJI-2019-International-Visitor-Survey-1.pdf>.
- Melián-González, S., & Bulchand-Gidumal, J. (2020). Employment in tourism: The jaws of the snake in the hotel industry. *Tourism Management*, 80, Article 104123. <https://doi.org/10.1016/j.tourman.2020.104123>
- Meng, S., Pham, T., Dwyer, L., & Grant, B. (2021). Carbon price impacts on the Chinese tourism industry. *Journal of Travel Research*, 60(2), 370–383.
- Mishra, K., Kondratjeva, O., & Shively, G. E. (2022). Do remittances reshape household expenditures? Evidence from Nepal. *World Development*, 157, Article 105926. <https://doi.org/10.1016/j.worlddev.2022.105926>
- Narayan, V. (2021). Record remittances in 2020 as \$652.75 million was sent through to families in Fiji by Fijians abroad. Retrieved July 18, 2024, from <https://www.fijivilla.com/feature/Record-remittances-in-2020-as-65275-million-was-sent-through-to-families-in-Fiji-by-Fijians-abroad-5f9x48/>.
- Nguyen, Q. H. (2021). Impact of investment in tourism infrastructure development on attracting international visitors: A nonlinear panel ARDL approach using Vietnam's data. *Economies*, 9(3), Article 131. <https://www.mdpi.com/2227-7099/9/3/131>.
- Niewiadomski, P. (2023). International hotel groups and regional development in central and Eastern Europe. In *Tourism in post-communist states* (pp. 227–245). Routledge.
- Niles, K., & Lloyd, B. (2013). Small Island developing states (SIDS) & energy aid: Impacts on the energy sector in the Caribbean and Pacific. *Energy for Sustainable Development*, 17(5), 521–530. <https://doi.org/10.1016/j.esd.2013.07.004>
- Njoroge, M., Anderson, W., Mossberg, L., & Mbura, O. (2020). Entrepreneurial orientation in the hospitality industry: Evidence from Tanzania. *Journal of Entrepreneurship in Emerging Economies*, 12(4), 523–543.
- Nowak, J.-J., & Sahli, M. (2007). Coastal tourism and 'Dutch disease' in a small island economy. *Tourism Economics*, 13(1), 49–65. <https://doi.org/10.5367/00000007779784452>
- Oppermann, M., & Chon, K. (1997). *Tourism in developing countries*. London, UK: International Thomson Business.
- Orfila-Sintes, F., Crespi-Cladera, R., & Martínez-Ros, E. (2005). Innovation activity in the hotel industry: Evidence from Balearic Islands. *Tourism Management*, 26(6), 851–865. <https://doi.org/10.1016/j.tourman.2004.05.005>
- Osili, U. (2004). Migrants and housing investments: Theory and evidence from Nigeria. *Economic Development and Cultural Change*, 52(4), 821–849.
- Oum, S., & Singh, R. (2019). A new computable general equilibrium model for the Fiji economy. In *School of Economics Working Paper Series*. Retrieved May 22, 2019, from https://www.usp.ac.fj/fileadmin/files/schools/ssed/economics/working_papers/2019/Wroking_Paper_-_A_New_Computable_General_Equilibrium_Model_for_the_Fiji_Economy.pdf.
- Page, S., & Connell, J. (2009). *Tourism: A modern synthesis* (3rd ed.). Andover, Hampshire, UK: Cengage Learning EMEA.
- Pham, T. D., Nghiem, S., & Dwyer, L. (2018). The economic impacts of a changing visa fee for Chinese tourists to Australia. *Tourism Economics*, 24(1), 109–126.
- Pratt, S. (2011). Economic linkages and impacts across the TALC. *Annals of Tourism Research*, 38(2), 630–650.
- Pratt, S. (2013). Estimating Tourism impacts using CGE models: A historical review and future developments. In C. Tisdell (Ed.), *Handbook on Tourism economics: Analysis, new applications and case studies* (pp. 467–488). Singapore: World Scientific Publishing.
- Pratt, S. (2015). The economic impact of tourism in SIDS. *Annals of Tourism Research*, 52, 148–160. <https://doi.org/10.1016/j.annals.2015.03.005>
- Pratt, S., Sunkitkul, W., & Dorji, U. (2018). Economic sustainability? Examining the linkages and leakages between agriculture and hotels in Bhutan. *International Journal of Tourism Research*, 20(5), 626–636. <https://doi.org/10.1002/jtr.2211>
- Randazzo, T., & Piracha, M. (2019). Remittances and household expenditure behaviour: Evidence from Senegal. *Economic Modelling*, 79, 141–153. <https://doi.org/10.1016/j.econmod.2018.10.007>
- Robinson, S.-a. (2018). Climate change adaptation in small island developing states: Insights and lessons from a meta-paradigmatic study. *Environmental Science & Policy*, 85, 172–181.
- Robles Teigeiro, L., & Díaz, B. (2014). Estimation of multipliers for the activity of hotels and restaurants. *Tourism Management*, 40, 27–34. <https://doi.org/10.1016/j.tourman.2013.04.006>
- Rutherford, T. F. (1999). Applied general equilibrium modeling with MPSGE as a GAMS subsystem: An overview of the modeling framework and syntax. *Computational Economics*, 14(1–2), 1–46. www.gams.com/solvers/mpsge/syntax.htm
- Sangster, A., Wolton, J., & McKenney, S. (2001). *The international hotel industry—corporate strategies and global opportunities* (pp. 68–77). London: Travel and Tourism Intelligence.
- Selaya, P., & Sunesen, E. R. (2012). Does foreign aid increase foreign direct investment? *World Development*, 40(11), 2155–2176.
- Sinclair, M. T. (1998). Tourism and economic development: A survey. *Journal of Development Studies*, 34(5), 1–51.
- Singh, E., Milne, S., & Hull, J. (2015). Linkages between tourism and agriculture: Stakeholder perspectives and online marketing and promotion on the island of Niue in the South Pacific. In S. Pratt, & D. Harrison (Eds.), *Tourism in Pacific Islands: Current issues and future challenges* (pp. 165–180). Abingdon, Oxon: Routledge.
- SPTO. (2019). Annual review of tourist arrivals in Pacific Island countries 2018. Retrieved January 5, 2020, from <https://pic.or.jp/ja/wp-content/uploads/2019/07/2018-Annual-Visitor-Arrivals-ReportF.pdf>.
- Takahashi, K. (2019). Tourism demand and migration nexus in Small Island developing states (SIDS): Applying the tourism demand model in the Pacific region. *Island Studies Journal*, 14(1), 163–174.

- UN Tourism. (2024). International tourism in Small Island Developing States (SIDS). Retrieved August 9, 2024, from https://pre-webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2024-06/SIDS_data%20insights_May_2024_UNTourism.pdf.
- United Nations. (2017). United Nations Pacific strategy 2018–2022. Retrieved December 12, 2018, from https://www.unicef.org/about/execboard/files/Final_UNPS_2018-2022_Pacific.pdf.
- United Nations. (2023). INFFs and small island developing states (SIDS). Retrieved August 9, 2024, from https://sdgs.un.org/sites/default/files/2023-07/INFF%20Guidance_inffs-and-sids.pdf.
- Walpole, M. J., & Goodwin, H. J. (2000). Local economic impacts of dragon tourism in Indonesia. *Annals of Tourism Research*, 27(3), 559–576.
- Wickramasinghe, K., & Naranpanawa, A. (2022). Systematic literature review on computable general equilibrium applications in tourism. *Tourism Economics*, 28(6), 1647–1668. <https://doi.org/10.1177/13548166211006988>
- Xinhua. (2024). Fiji's personal remittances hit record high in 2023. Retrieved July 16, 2024, from <https://english.news.cn/20240503/0ab5a65bb7414d9da29cdb05dec eb44c/c.html>.
- Zhang, H., & Yang, Y. (2023). Is tourism growth able to shrink economic inequalities? A DSGE analysis. *Annals of Tourism Research Empirical Insights*, 4(1), Article 100089. <https://doi.org/10.1016/j.annale.2023.100089>