

Aid, domestic and foreign direct investment in small states

Sampson B. Narteh-Yoe, Justice G. Djokoto & Paragon Pomeyie

To cite this article: Sampson B. Narteh-Yoe, Justice G. Djokoto & Paragon Pomeyie (2023) Aid, domestic and foreign direct investment in small states, Economic Research-Ekonomika Istraživanja, 36:3, 2160998, DOI: [10.1080/1331677X.2022.2160998](https://doi.org/10.1080/1331677X.2022.2160998)

To link to this article: <https://doi.org/10.1080/1331677X.2022.2160998>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 28 Dec 2022.



Submit your article to this journal [↗](#)



Article views: 360



View related articles [↗](#)




View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

Aid, domestic and foreign direct investment in small states

Sampson B. Narteh-Yoe^a, Justice G. Djokoto^b  and Paragon Pomeyie^c

^aDepartment of Banking and Finance, University of Professional Studies (UPSA), Madina, Ghana;

^bDepartment of Agribusiness Management, Central University, Accra, Ghana; ^cDepartment of Economics, Central University, Accra, Ghana

ABSTRACT

Small States (SS) are economies whose population barely exceeds 1.5 million. Their small population size, small land size and location, mostly on coastal or Islands may act as a disadvantage to their rapid economic growth and makes them susceptible to the effects of external economic issues. Notwithstanding the disadvantages, some of them have enjoyed rapid growth over time and are classified as developed nations. This study examines the effect of aid, foreign direct investment (FDI) and domestic investment (DI) on economic growth in SS. Among SS, aid hurts the economic progress in underdeveloped countries. However, DI and FDI have a favourable impact on economic growth. In developed SS, aid, DI and FDI independently do not positively influence economic growth, however, aid with FDI, aid with trade openness and aid with domestic investment and FDI promoted growth. In the total sample (developed and developing SS), aid discourages economic growth, but FDI and DI enhance economic growth. Also, aid together with FDI positively affects economic growth. Policies should therefore be directed at moving from accepting 'consumption aid' to 'productive aid', increasing the amount of net FDI and increase in DI.

ARTICLE HISTORY

Received 28 September 2022
Accepted 8 December 2022

KEYWORDS

Aid; domestic investment; economic growth; foreign direct investment; Small States

JEL CODES

F21; F35; F43; H84; P45

1. Introduction

Small States (SS) tend to be predisposed to external shocks over which they have little or no control (World Bank, 2022a). The significant dependence of SS on a small number of exports and the structural openness to trade are the key causes of their susceptibility (Baldacchino, 2020; Briguglio et al., 2006; Keane et al., 2020). As a result, SS have been recipients of aid (AID) (Collier & Dollar, 2002). In 1990, AID as a percentage of GDP was 10.3%. This declined to 4.3% by 2003 and 2.3% in 2020. The aid-growth nexus is heterogenous (Chauvet, 2015; Glennie & Sumner, 2016; Edo et al., 2022; Shaibu & Shaibu, 2022). Awunyo-Vitor and Sackey (2018), Mahembe and

CONTACT Justice G. Djokoto  dgamei2002@gmail.com

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

Odhiambo (2013) and Ssozi et al. (2019) found that aid promotes growth. However, Shimada (2022) and Tefera and Odhiambo (2022) found that aid discourages growth.

SS has attracted foreign investment in reaction to globalization (FDI). In 1990, FDI in SS was 1.4% of GDP. This increased to 4.9% in 2000 and 36% in 2007. Despite a drop since 2007, these levels have remained above 5% of GDP. While studies demonstrate that FDI promotes growth (Asamoah et al., 2022; Roudi et al., 2019; Tandrayen-Ragoobur & Fauzel, 2021), Murphy-Braynen (2019) discovered that FDI does not. Colen et al. (2012), Fan and Dickie (2000), Mahembe and Odhiambo (2013), Ozdemir and Koyuncu (2020), and Wan (2010) have all written reviews that highlight the inconclusive effect of FDI on economic growth.

Unlike AID and FDI, which are external, domestic investment (DI) originates from the economy. In 1991, SS had the greatest DI as a percentage of GDP, at 23.2%. This declined to 0.91% in 2012. Despite a recovery afterwards, the 2020 rate of 21.3% was still below the 1991 level. The trend over the period showed a decline. Notwithstanding the preponderance of the positive effect of DI on growth (Brito, 2015a, 2015b; Cannonier & Burke, 2019; Murphy-Braynen, 2019), Asamoah et al. (2022) reported a negative effect of DI on economic growth.

Economic growth is an indicator of economic success since it is measured as the yearly growth rate of the inflation-adjusted GDP growth rate. Increased growth implies an increase in national revenue, resources to spend on goods, and savings, among other things. SS, like AID, FDI, and DI, has faced difficulties with economic growth. In 1990, SS growth averaged 25%. This dropped dramatically to 5% by 1997, with a further drop to 0.84% in 1998. Despite a comeback to 4.5% by 2000, this was still lower than in 1997. Except for a 5.4% increase in 2007, SS growth has stayed below 5%, with negative growth in 2009 (-1.4%) and 2020 (-5.1%). This scenario depicts a declining trend in SS growth from 1990 to 2020. Given the importance of growth to economies, and the inconclusive outcomes of AID, FDI and DI on economic growth, what policy options are available to SS to instigate economic growth?

Some studies have reported evidence on the drivers of growth in SS (Armstrong & Read, 2003; Brito, 2015a, 2015b; Cannonier & Burke, 2019; Collier & Dollar, 2002; Fagim, 2019; Murphy-Braynen, 2019; Gani, 2011; Roudi et al., 2019; Tandrayen-Ragoobur & Fauzel, 2021; Zammit, 2017). Whilst Brito (2015a, 2015b), Cannonier and Burke (2019) and Murphy-Braynen (2019) provided evidence on the growth effects of domestic investment, Murphy-Braynen (2019), Roudi et al. (2019) and Tandrayen-Ragoobur & Fauzel (2021) reported on the growth effects of FDI. Collier and Dollar (2002) presented evidence on the role of aid on growth in SS based on data from 1990 to 1996 and published before the turn of the century. Also, none of the studies examined the effects of the trio; AID, DI and FDI. We fill these gaps by making some contributions to the literature on economic growth in SS. First, we updated the data from 1990 to 2020, to provide aid-economic growth nexus for SS. Secondly, we investigated the trio effects of AID, DI and FDI in one model. Thirdly, we addressed the policy options for the combinations of AID, DI and FDI. In the *ex ante* literature, the effects of AID, DI and FDI on growth in SS have been inconsistent across studies over time. In our analyses of the total sample of SS and their bifurcation into developing and developed countries, we found similar inconsistencies

between the two groups and between our study and existing studies. Aid discouraged economic growth in developing SS and the combined sample of SS. Foreign direct investment promoted growth in the combined sample of SS but not in the developed or developing SS separately. Aid impeded growth in developing SS, whereas local investment encouraged growth. In the case of the combined sample of SS, only foreign direct investment solely, domestic investment, or both, boosted growth.

Economic growth is an important macroeconomic goal. The Sustainable Development Goal (SDG) 8.1 requires sustained per capita economic growth per national circumstances. Thus, gross domestic product (GDP) growth per annum is not only a national goal for SS economic managers but also a regional and global development goal. As previously stated, SS are susceptible due to their unique circumstances and so rely on AID. Whilst DI is a traditional determinant of economic growth, globalisation has necessitated the receipt of FDI which plays an investment-augmenting role as well. How AID, DI and FDI impact growth is important for economic policy management. The combination of these in promoting growth is paramount.

In the subsequent sections, we first present further context of SS. This is followed by a theoretical and empirical review. The data fitted to the model is described next. The result of the modelling is presented and discussed in the fifth section. Conclusions and recommendations constitute the last section.

2. The context of small states

As economies with populations that scarcely exceed 1.5 million, SS confront unique development challenges (Baldacchino, 2020; Djokoto, 2021; World Bank, 2022a). The small population, land area and location mostly within the oceans and the economic foundation, subject these countries to devastations such as natural disasters and climate change that are not under their control. Also, the restrained economic prospects and substantial migration result in significant capacity limitations (Baldacchino, 2020; Keane et al., 2020; Sanches & Seibert, 2020; World Bank, 2022a). These notwithstanding, SS are varied in geography, isolation, land area, fragmentation and spread, as well as debt encumbrance. Whilst scattered across all regions of the world, two-thirds of SS are islands, some are coastal countries on the mainland and a third includes five land-locked countries (Bhutan, Botswana, Eswatini, Lesotho, and San Marino) (Long, 2020; Sulg, 2020; World Bank, 2022b). The islands especially, those in the Pacific, are among the most inaccessible regarding distance to the nearest international markets. In terms of land area, Nauru, the smallest SS has a land area of 20 square kilometres whilst non-island states such as Botswana and Namibia are 3.1 and 4.5 times larger than all small island states (SIS) combined, respectively. Regarding fragmentation, for example, Guinea-Bissau and Kiribati, are archipelagos. Whilst the former is coastal to the mainland, the African continent, the latter is scattered over a broad ocean space of 810 square kilometres (World Atlas, 2020a, 2020b, 2020c; World Bank, 2022a). Differences in economic growth rates, somewhat slower growth and weak fiscal management have resulted in substantial debt accrual in many SS. Although considerably varied across individual SS, the level of debt in SS is typically

higher than in some developing countries (Alichu et al., 2019; IMF, 2016; Tumbarello et al., 2013; World Bank, 2022a).

3. Literature review

3.1. Theoretical review

There are several competing theories of economic growth. However, this review focuses on the new growth theories: the endogenous growth theory (Romer, 1994), and the neo-classical growth theory (Solow, 1956; Swan, 1956) as these have featured in the SS's literature on economic growth (Armstrong & Read, 2003; Murphy-Braynen, 2019). Although the Lewis model of industrialisation (Lewis, 1955) also featured in the economic growth literature on SS, Armstrong and Read (2003) observed that the Lewis model could not explain economic growth in SS, but that economic growth in SS fitted the endogenous growth theory. Therefore, the Lewis theory would not be given further space here.

Solow's growth model stated that long-term economic growth depends on savings and investment. The model is based on the rapid convergence of income between developed and developing countries. But the neoclassical growth models could not explain the reason for the huge gap between incomes in developed and developing countries. However, the theory of convergence of per capita income of countries showed that incomes have converged for some countries (Maddison, 1982; Summer & Heston, 1991; Romer, 1996).

Romer (1994) is often acknowledged as an important contributor to modern endogenous growth theory. Endogenous growth notes that the long-run economic growth rate is determined by internal forces of an economic system, particularly those forces governing the opportunities and incentives to create technological knowledge. This long-run economic growth rate, as measured by the rate of growth of output per person, depends on the growth rate of total factor productivity which is influenced by the rate of technological progress. As the endogenous growth model relates to investment in human capital, economies can increase the productivity of labour through improvement in education, investment in research and development and learning by doing. Expenditures on these could reflect in the domestic investment flow and stock. The elimination of the assumption of decreasing returns to 'capital' was the main reasoning behind endogenous growth theory.

3.2. Empirical review

Informed by the theory, that is, growth depends on economic factors in an economy, some studies have investigated the effect of diverse variables on economic growth in SS (Armstrong & Read, 2003; Brito, 2015a, 2015b; Cannonier & Burke, 2019; Collier & Dollar, 2002; Fagim, 2019; Gani, 2011; Murphy-Braynen, 2019; Roudi et al., 2019; Tandrayen-Ragoobur & Fauzel, 2021; Zammit, 2017). These studies have addressed SS (Armstrong & Read, 2003; Collier & Dollar, 2002; Fagim, 2019), Small and large States (Brito, 2015a, 2015b), Caribbean Small Island Developing States (SIDS) (Cannonier & Burke, 2019; Tandrayen-Ragoobur & Fauzel, 2021; Zammit, 2017), as well as SS in Oceania (Gani, 2011). All the studies used panel data except Armstrong

and Read (2003) which is a review paper. The earliest data started in 1970 (Brito, 2015a) with the latest ending in 2018 (Tandrayen-Ragoobur & Fauzel, 2021).

Murphy-Braynen (2019) on one hand and Roudi et al. (2019) and Tandrayen-Ragoobur & Fauzel (2021), on the other, respectively, found significant negative and positive effects of FDI on the economic growth of SIDS. The studies adduced no reasons for their results. The observation that the former used FDI as a control variable whilst the latter used FDI as a correction for omitted variables could be the reason for not assigning economic reasons for the findings. Although the period of the data for both studies started in 1995, that for the former ended in 2007 involving 69 countries whilst the latter's data ended in 2014 for 10 countries.

Except for Collier and Dollar (2002) that found a statistically significant negative effect of AID on economic growth, none of the studies reviewed examined the role of AID on the economic growth of SS. Whilst the authors did not explain this conclusion, attention was given to the interaction of AID and the policy environment, which turned out to be positive. They argued that countries with a good policy environment experienced a positive effect of AID on economic growth.

All studies reviewed that used DI as an explanatory variable found the DI to have a positive effect on economic growth in SS, SS in Oceania, and SIDS (Brito, 2015a, 2015b; Cannonier & Burke, 2019; Murphy-Braynen, 2019). As in the case of FDI, DI has been used as a non-key variable; hence, reasons for the findings on DI were not provided.

The effect of trade on the economic growth of SS is mixed. Cannonier and Burke (2019), Murphy-Braynen (2019) and Zammit (2017) found a significant negative effect of trade on economic growth. Zammit (2017) who examined the effect of the post-2008 financial crisis on the growth of Caribbean SS explained that openness to trade increased the exposure to economic shocks that brought about a larger effect than the increased competitiveness and specialisation that is associated with trade openness. However, a review paper by Armstrong and Read (2003) on the economic growth of SS concluded that trade positively influenced economic growth. Some recent studies also confirm this (Fagim, 2019; Tandrayen-Ragoobur & Fauzel, 2021) although Murphy-Braynen (2019) acknowledged some inconsistencies in the effect of trade on economic growth in SS and noted it is a lively yet unsettled debate.

Inflation negatively affected economic growth in SS (Cannonier & Burke, 2019; Fagim, 2019). Although Armstrong and Read (2003) found a less significant effect of location, isolation, or remoteness of Small Island States on economic growth, World Bank (2022b) maintains this is a relevant distinguishing factor among SS.

Only Tandrayen-Ragoobur and Fauzel (2021) examined the role of human capital on growth in SS. Fitting data on 19 SIDS from 1995 to 2018 to a Vector Error Correction Model (VECM), they found that human capital positively influenced economic growth in SS. No reasons were adduced for the positive outcome.

From the empirical review, whilst a couple of studies addressed the effect of FDI and DI on growth in SS, only one study examined the effect of AID on growth in SS and was published before the turn of the century. Whilst providing additional evidence regarding the growth effects of FDI and DI, we provide current evidence on the growth effects of AID in SS. More importantly, we show what policy options are available to SS and those that are growth-inducing in line with SDG 8.1.

4. Data and methods

4.1. Data

The data for the study is a balanced panel of 16 countries ([Appendix](#)) from 1990 to 2020, yielding 496 observations. The number of countries and the period were influenced by the availability of data from the source, World Development Indicators (WDI) of the World Bank.

4.2. Modelling

Based on the stated objectives, the relation of the key variables is

$$GR = f(AID, FDI, DI) \quad (1)$$

Following the endogenous and the neoclassical growth theories (Romer, 1994; Solow, 1956; Swan, 1956) as well as evidence from economic growth studies on SS (Armstrong & Read, 2003; Brito, 2015b; Cannonier & Burke, 2019; Fagim, 2019; Murphy-Braynen, 2019; Read, 2002; Roudi et al., 2019; Tumbarello et al., 2013; Tandrayen-Ragoobur & Fauzel, 2021; Zammit, 2017), Eq. (1) can be augmented to Eq. (2).

$$GR = f(AID, FDI, DI, HC, INFLA, TRADE) \quad (2)$$

Our data consist of the island and non-island SS as well as developed and developing SS. Thus, we incorporate these into Eq. (2).

$$GR = f(AID, FDI, DI, HC, INFLA, TRADE, ISLAND, DVD) \quad (3)$$

The estimable equation is specified as

$$\begin{aligned} GR_{it} = & \alpha_0 + \alpha_1 AID_{it} + \alpha_2 FDI_{it} + \alpha_3 DI_{it} + \alpha_4 HC_{it} + \alpha_5 INFLA_{it} + \alpha_6 TRADE_{it} \\ & + \alpha_7 ISLAND_{it} + \alpha_8 DVD_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

where α_i are parameters to be estimated, i and t are the cross-section and time dimensions of the data respectively. α_k are parameters to be estimated, i and t are the cross-section and time dimensions of the data, respectively, whilst ε is the idiosyncratic error term. As the list of the 16 countries ([Appendix](#)) consists of both developed and developing countries, we contend that the effects of our key variables on growth may be different. Hence, we respecify Eq. (4) to consider the level of development of the SS.

$$\begin{aligned} GR_{it} = & \beta_0 + \beta_1 AID_{it} + \beta_2 AID_DVD_{it} + \beta_3 FDI_{it} + \beta_4 FDI_DVD_{it} + \beta_5 DI_{it} \\ & + \beta_6 DI_DVD_{it} + \beta_7 HC_{it} + \beta_8 INFLA_{it} + \beta_9 TRADE_{it} \\ & + \beta_{10} ISLAND_{it} + \beta_{11} DVD_{it} + \epsilon_{it} \end{aligned} \quad (5)$$

where β_k are parameters to be estimated, i and t are the cross-section and time dimensions of the data, respectively. β_i are parameters to be estimated, i and t are the cross-section and time dimensions of the data respectively whilst ϵ is the idiosyncratic

Table 1. Effects of aid, foreign direct and domestic investments on growth (The Wald).

Options	Developing countries	Developed countries	Small States
Aid only (AID)	β_1	$\beta_1 + \beta_2$	α_1
Foreign direct investment only (FDI)	β_3	$\beta_3 + \beta_4$	α_2
Domestic investment only (IDI)	β_5	$\beta_5 + \beta_6$	α_3
Openness (AID + FDI)	$\beta_1 + \beta_2$	$\beta_1 + \beta_2 + \beta_3 + \beta_4$	$\alpha_1 + \alpha_2$
Aid and domestic investment (AID + IDI)	$\beta_1 + \beta_3$	$\beta_1 + \beta_2 + \beta_5 + \beta_6$	$\alpha_1 + \alpha_3$
Investments (FDI + IDI)	$\beta_2 + \beta_3$	$\beta_3 + \beta_4 + \beta_5 + \beta_6$	$\alpha_2 + \alpha_3$
Aid and investment (AID + FDI + IDI)	$\beta_1 + \beta_2 + \beta_3$	$\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6$	$\alpha_1 + \alpha_2 + \alpha_3$

Source: Authors.

error term. *GR* is economic growth, measured as the annual growth rate of GDP at constant 2015 prices in per cent. *AID* is the net official development assistance and official aid received measured as per cent of GDP. *AID_DVD* is the net official development assistance and official aid received by developed countries. The net inflow of foreign direct investment as a per cent of GDP is *FDI*. The corresponding variable for developed countries is *FDI_DVD* measured similarly. *DI* is domestic investment measured as gross fixed capital formation less *FDI*, as per cent of GDP. The corresponding variable for developed countries is *DI_DVD*. Gross secondary school enrolment as a per cent of total enrolment is human capital, *HC*. Inflation, designated as *INFLA*, is the annual growth rate of the consumer price index in per cent. *TRADE* refers to trade openness. This is measured as imports and exports as per cent of GDP. *ISLAND* representing island SS is a dummy such that *ISLAND* = 1 and 0 otherwise. *DVD* is developed country, where *DVD* = 1 and 0 otherwise. All the data was extracted from the WDI of the World Bank.

We envisaged seven policy options, listed in column 1 of Table 1. The accompanying Wald is presented in the second, third and fourth columns of Table 1.

4.3. Estimation procedure

We applied linear fixed effect (FE) and random effect (FE) estimators to Eqs. (4) and (5) as the data is a panel. We chose between these using the Hausman test (Hausman, 1978). The variance in the estimable models violated the homoscedasticity requirement, and so did the non-correlation of the errors. Consequently, the Feasible Generalised Least Squares (FGLS) estimation was applied (Baltagi, 2013; Greene, 2018). We suspected the endogeneity of our key variables, *AID*, *FDI* and *DI* and we performed the endogeneity test. Consequently, we estimated the estimable equation with a Two Stage Least Squares (2SLS) estimator (Anderson & Hsiao, 1981; Balestra & Varadharajan-Krishnakumar, 1987; Baltagi, 2013).

5. Results and discussions

5.1. Background of the data

Economic growth in SS ranged from -28% (Guinea-Bissau in 2020) to an astronomical 321% (Estonia in 1990) (Table 2). The average of 4% is about a fourth of the standard deviation (17%).

The average also coincides with data for Mauritius in 1995. The mean *AID* is about 4% of GDP. The minimum is a negative of 0.25% of GDP. This is because

Table 2. Descriptive statistics.

VARIABLE	Observations	Mean	Standard Deviation	Minimum	Maximum
<i>GR</i>	496	4.2794	17.0866	−28.1000	321.3455
<i>AID</i>	496	4.19	8.75	−0.2500	74.00
<i>AID_DVD</i>	496	0.0700	0.2800	0	2.0400
<i>FDI</i>	496	10.6391	39.5973	−28.3072	449.0828
<i>FDI_DVD</i>	496	7.9273	39.9121	−28.3072	449.0828
<i>DI</i>	496	13.4033	41.5660	−426.1341	76.8886
<i>DI_DVD</i>	496	−2.2464	38.1398	−426.1341	50.0797
<i>HC</i>	496	80.0462	27.2266	5.5056	169.0499
<i>INFLA</i>	496	9.0724	31.0774	−18.1086	415.8905
<i>TRADE</i>	496	113.1756	56.9244	39.0891	322.6765
<i>ISLAND</i>	496	0.5000	0.5005	0	1
<i>DVD</i>	496	0.2500	0.4334	0	1

Source: Authors' computations.

some of the *AID* involved overseas development assistance (ODA) some of which required repayment. According to the WDI of the World Bank, the net official aid refers to aid flows, net of repayments, from official donors to countries and territories in more advanced countries in Central and Eastern Europe, the countries of the former Soviet Union, and certain advanced developing countries and territories. The developed countries did not post negative aid. The highest *AID* for developed countries is less than the mean for all SS in the sample. The low mean *AID_DVD* can be attributed to the many zeros constituting the dummy as well as the period of zero *AID* observed between 2005 and 2020 for Cyprus, Estonia, and Malta received aid from 1990 to 2004 as well as 1990 to 2020 for Iceland. The mean *FDI* is 11% of GDP with a standard deviation of 40%. The negative 28% of *FDI* to GDP is due to the divestment of *FDI*. Although developed countries posted a lower mean *FDI*, the minimum and maximum values were the same as those of the total sample. This is indicative that developed countries reported extreme values for the sample. The *DI* was constructed as gross fixed capital formation (GFCF) less *FDI*. That is, $DI = GFCF - FDI$. Therefore, the negative minimum for *DI* for both the total sample and the developed countries implies that *FDI* exceeded GFCF.

5.2. Results

Following the panel structure of the data, we estimated both FE and RE models. FE was preferred to the RE because the Hausman test statistics are statistically significantly different from zero in model 1 (Table 3). For Eq. (5), the FE was preferred as well, model 3 (Table 3). Due to the presence of heteroscedasticity and serial correlation among the errors, FGLS was applied (Baltagi, 2013; Greene, 2018). However, the estimates of *AID*, *FDI* and *DI* appear consistent across models 1–4. This appears to be the case for all other estimates including the control variables.

We proceeded to examine the robustness of the estimates of our key variables to the control variables. The estimates of Eq. (4) are reported in Table 5. The coefficients of *AID* are mostly negative and range from 0.003 to 0.4. Whilst all the coefficients of *FDI* are positive, the magnitudes are 0.10. The same goes for the estimates of *DI*. Thus, the estimates of the key variables are robust to the control variables.

Table 5 contains the estimations of Eq. (5). Whilst the sign of *AID* is split equally between negative and positive, the magnitude of the estimates also ranges between

Table 3. Model selection.

VARIABLES	(1) GR	(2) GR	(3) GR	(4) GR
<i>AID</i>	-0.8670*** (0.1089)	-0.3931*** (0.0484)	-0.7374*** (0.1057)	-0.3673*** (0.0415)
<i>AID_DVD</i>			16.2350*** (2.4561)	11.3361*** (1.0939)
<i>FDI</i>	0.0618 (0.0735)	0.0849*** (0.0149)	0.1270 (0.1477)	-0.0027 (0.0282)
<i>FDI_DVD</i>			-0.7026** (0.3094)	0.1007*** (0.0341)
<i>DI</i>	0.0724 (0.0719)	0.0895*** (0.0145)	0.0778 (0.0775)	0.0832*** (0.0130)
<i>DI_DVD</i>			-0.6595** (0.2791)	0.0095 (0.0257)
<i>HC</i>	-0.0502 (0.0327)	-0.0366*** (0.0087)	-0.0286 (0.0320)	-0.0202** (0.0083)
<i>INFLA</i>	0.4388*** (0.0181)	0.3940*** (0.0067)	0.3790*** (0.0192)	0.3562*** (0.0065)
<i>TRADE</i>	0.0625** (0.0269)	-0.0056* (0.0032)	0.0807*** (0.0279)	-0.0050 (0.0039)
<i>ISLAND</i>		-3.1471*** (0.4719)		-2.5617*** (0.4149)
<i>DVD</i>		4.3576*** (0.5336)		
<i>CONSTANT</i>	-0.7424 (4.2383)	4.6497*** (0.9562)	-2.3737 (4.8175)	3.6943*** (0.8750)
Model diagnostics				
Observations	496	496	496	496
R-squared	0.5551		0.5988	
Countries	16	16	16	16
F/Wald statistics	98.56	4051.48***	78.10***	4534.56***
Hausman	20.04***	-	57.50***	-
Heteroscedasticity test	4818.37***	-	3125.67***	-
Autocorrelation test	13.111***	-	13.37***	-
Estimator	FE	FGLS	FE	FGLS

Notes: 1. Standard errors in parenthesis. 2. ***, ** and * are $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively.

Source: Authors' estimations.

0.003 and 0.40. In the case of *AID_DVD*, all the coefficients are positive and similar across models 4 and 11 - 15. The magnitudes of the coefficients *FDI*, *FDI_DVD* on one hand and *DI* and *DI_DVD*, on the other hand, are also consistent across models in Table 5. Not only are the coefficients similar across models in Tables 4 and 5, but the estimates are also similar across tables. Thus, the estimates of the key variables in Eqs. (4) and (5) are consistent across models and equations and are, therefore, robust.

We suspected *AID*, *FDI* and *DI* are endogenous. So, we regressed each of them on the exogenous variables and predicted the respective idiosyncratic error terms. We then used the predicted errors as an additional explanatory variable in models 16–18 (Table 6). The *F* test of the idiosyncratic error variables, *_eu* are all statistically significantly different from zero (Table 6). This confirms the variables suspected to be endogenous are indeed endogenous. Consequently, we corrected for the endogeneity using the 2SLS accounting for both heteroscedasticity and correlation among panels, models 19 and 20 (Table 7). Comparing models 2 and 19, although the 2SLS produced corresponding slightly higher coefficients than the FGLS, the standard errors were even higher than those for the FGLS, hence, many of the hypothesis tests were invalidated. Similar observations can be made for models 4 and 20. The presence of endogeneity contributed to the many statistically significant coefficients in models 2 and 4. Further, the estimates of models 19 and 20 are similar not only in magnitude but also in sign and statistical significance for all the coefficients of the corresponding variables.

5.3. Discussion of control variables

In models 19 and 20, the coefficient of human capital is not statistically significantly distinguishable from zero (Table 7). This finding departs from the conclusions of

Table 4. Feasible GLS estimations for the robustness of estimates of key variables.

VARIABLES	(2)	(5)	(6)	(7)	(8)	(9)	(10)
	GR	GR	GR	GR	GR	GR	GR
AID	-0.3931*** (0.0484)	-0.0325* (0.0196)	0.0029 (0.0219)	-0.3428*** (0.0366)	0.0073 (0.0213)	-0.1231*** (0.0245)	0.0361* (0.0202)
FDI	0.0849*** (0.0149)	0.0900*** (0.0114)	0.0879*** (0.0114)	0.0849*** (0.0133)	0.0499*** (0.0131)	0.0747*** (0.0118)	0.0783*** (0.0112)
DI	0.0895*** (0.0145)	0.0993*** (0.0109)	0.0979*** (0.0109)	0.0877*** (0.0130)	0.0670*** (0.0123)	0.0783*** (0.0114)	0.1038*** (0.0107)
HC	-0.0366*** (0.0087)		0.0182*** (0.0066)				
INFLA	0.3940*** (0.0067)			0.4030*** (0.0056)	0.0232*** (0.0027)		
TRADE	-0.0056* (0.0032)						
ISLAND	-3.1471*** (0.4719)					-4.0161*** (0.3869)	
DVD	4.3576*** (0.5336)						6.0795*** (0.5124)
CONSTANT	4.6497*** (0.9562)	1.9563*** (0.3078)	0.3805 (0.5700)	0.1470 (0.3468)	-0.1261 (0.3873)	4.7656*** (0.4448)	0.1452 (0.2872)
Model diagnostics							
Observations	496	496	496	496	496	496	496
Countries	16	16	16	16	16	16	16
Wald	4051.48***	96.38***	103.89***	5644.50***	200.51***	175.73***	271.40***

Notes: 1. Standard errors in parenthesis. 2. ***, **, and * are $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively.

Source: Authors' estimations.

Table 5. Robustness of key variables in the level of development model.

VARIABLES	(4) GR	(11) GR	(12) GR	(13) GR	(14) GR	(15) GR
AID	-0.3673*** (0.0415)	-0.0029 (0.0192)	0.0168 (0.0223)	-0.2992*** (0.0354)	0.0132 (0.0219)	-0.0560*** (0.0216)
AID_DVD	11.3361*** (1.0939)	23.8232*** (2.4247)	22.5214*** (2.6042)	12.5239*** (1.1572)	23.5482*** (2.4228)	23.8684*** (2.3000)
FDI	-0.0027 (0.0282)	0.0763*** (0.0272)	0.0687** (0.0298)	-0.0338 (0.0292)	0.0484* (0.0283)	0.0531* (0.0279)
FDI_DVD	0.1007*** (0.0341)	-0.1366*** (0.0371)	-0.1240*** (0.0389)	0.0585* (0.0319)	-0.1228*** (0.0387)	-0.0837** (0.0424)
DI	0.0832*** (0.0130)	0.0884*** (0.0110)	0.0898*** (0.0112)	0.0867*** (0.0116)	0.0768*** (0.0121)	0.0835*** (0.0115)
DI_DVD	0.0095 (0.0257)	-0.1579*** (0.0290)	-0.1549*** (0.0316)	-0.0629*** (0.0224)	-0.1586*** (0.0306)	-0.1269*** (0.0314)
HC	-0.0202** (0.0083)		0.0087 (0.0068)			
INFLA	0.3562*** (0.0065)			0.3532*** (0.0063)		
TRADE	-0.0050 (0.0039)				0.0090** (0.0036)	
ISLAND	-2.5617*** (0.4149)					-2.2407*** (0.3083)
CONSTANT	3.6943*** (0.8750)	0.9193*** (0.3076)	0.1541 (0.6044)	0.2315 (0.3258)	0.1248 (0.5036)	2.3408*** (0.3363)
Model diagnostics						
Observations	496	496	496	496	496	496
Countries	16	16	16	16	16	16
Wald	4534.56***	170.34***	148.68***	4550.64***	175.60***	182.06***

Notes: 1. Standard errors in parenthesis. 2. **, * and * are p < 0.01, p < 0.05 and p < 0.10 respectively.

Source: Authors' estimations.

Table 6. Test for the endogeneity of *AID*, *FDI* and *IDI*.

VARIABLES	(16) GR	(17) GR	(18) GR
<i>AID</i>	3.9129** (1.7801)		
<i>AID_ue</i>	-4.6028*** (1.7811)		
<i>FDI</i>		1.(0.1164)	
<i>FDI_ue</i>		-0.2349** (0.1174)	
<i>DI</i>			-0.1650* (0.0868)
<i>DI_ue</i>			0.1807** (0.0878)
<i>INFLA</i>	0.1692* (0.0992)	0.3852*** (0.0179)	0.3812*** (0.0178)
<i>HC</i>	0.6237** (0.2618)	0.0400 (0.0273)	0.0460* (0.0263)
<i>TRADE</i>	0.0957*** (0.0358)	-0.0197 (0.0245)	0.0046 (0.0155)
<i>ISLAND</i>	14.0772* (7.2335)	-4.0890* (2.1431)	-4.1392* (2.1471)
<i>CONSTANT</i>	-81.4670** (34.8649)	-0.4871 (3.4334)	0.9038 (3.9863)
Model diagnostics			
Observations	496	496	496
Countries	16	16	16

Notes: 1. Standard errors in parenthesis. 2. ***, ** and * are $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively. Source: Authors' estimations.

Table 7. Corrections for the endogeneity of *AID*, *FDI* and *IDI*.

VARIABLES	(2) GR	(19) GR	(4) GR	(20) GR
<i>AID</i>	-0.3931*** (0.0484)	-0.8856*** (0.3342)	-0.3673*** (0.0415)	-0.7438** (0.3456)
<i>AID_DVD</i>			11.3361*** (1.0939)	6.0752** (3.0942)
<i>FDI</i>	0.0849*** (0.0149)	0.1643* (0.0983)	-0.0027 (0.0282)	-0.2820 (1.2351)
<i>FDI_DVD</i>			0.1007*** (0.0341)	0.2318 (1.4538)
<i>DI</i>	0.0895*** (0.0145)	0.1745* (0.0918)	0.0832*** (0.0130)	0.2539* (0.1528)
<i>DI_DVD</i>			0.0095 (0.0257)	-0.3020 (0.2949)
<i>HC</i>	-0.0366*** (0.0087)	-0.0690 (0.0445)	-0.0202** (0.0083)	-0.0318 (0.0879)
<i>INFLA</i>	0.3940*** (0.0067)	0.4176*** (0.1499)	0.3562*** (0.0065)	0.3812** (0.15750)
<i>TRADE</i>	-0.0056* (0.0032)	-0.0172 (0.0310)	-0.0050 (0.0039)	0.0041 (0.0452)
<i>ISLAND</i>	-3.1471*** (0.4719)		-2.5617*** (0.4149)	
<i>DVD</i>	4.3576*** (0.5336)			
<i>CONSTANT</i>	4.6497*** (0.9562)	7.4696 (5.8197)	3.6943*** (0.8750)	2.5396 (12.5847)
Model diagnostics				
Observations	496	480	496	480
Countries	16	16	16	16
Wald	4051.48***	43.62***	4534.56***	2125.45***
Estimator	FGLS	2SLS	FGLS	2SLS

Notes: 1. Clustered standard errors in parenthesis. 2. ***, ** and * are $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively. Source: Authors' estimations.

Tandrayen-Ragoobur and Fauzel (2021) that human capital has a positive and statistically significant effect on growth in SIDS. The inclusion of non-island and developed SS may have influenced the departure of our results from those of Tandrayen-Ragoobur and Fauzel (2021).

The coefficients of inflation are statistically significantly distinguishable from zero and positive (0.4176*** and 0.3812**). The positive sign suggests that over the period 1990 to 2020, whilst SS experienced growth, this occurred in the presence of inflation. By extension, the economy of SS can grow whilst inflation occurs. Our finding departs from Cannonier and Burke (2019) and Fagim (2019) who found a statistically significant negative effect of inflation on growth.

Trade did not significantly influence growth in SS (models 19 and 20). Whilst the sign was negative in model 19, it was positive in model 20. Cannonier and Burke

Table 8. Estimated effects: Policy options for aid and investment in the Small States.

Options	Developing countries	Developed countries	Small States
Aid only (AID)	-0.7438 [4.63]**	5.3314 [2.69]	-0.8856 [7.02]***
Foreign direct investment only (FDI)	-0.2820 [0.05]	-0.0502 [0.03]	0.1643 [2.79]*
Domestic investment only (DI)	0.2539 [2.76]*	-0.0481 [0.03]	0.1745 [3.61]*
Openness (AID + FDI)	-1.0258 [0.94]	5.2812 [2.84]*	-0.7213 [5.64]**
Aid and Domestic investment (AID + DI)	-0.4900 [1.34]	5.2833 [2.84]*	-0.7111 [5.37]**
Investments (FDI + DI)	-0.0281 [0.00]	-0.0983 [0.03]	0.3388 [3.18]*
Aid and investment (AID + FDI + DI)	-0.7719 [0.67]	5.2331 [2.95]*	-0.5468 [3.23]*

Notes: 1. Chi-square statistics in square brackets. 2. ***, ** and * are $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively. Source: Authors' estimations.

(2019), Murphy-Braynen (2019) and Zammit (2017) found a significant negative effect whilst Armstrong and Read (2003), Fagim (2019), Gani (2011) and Tandrayen-Ragoobur and Fauzel (2021) report a significant positive effect. Our result of the statistically insignificant effect of trade and the statistically significant positive and negative effects in the literature fit into the conclusions of Murphy-Braynen (2019) about the inconsistency in the effect of trade on economic growth in SS.

5.4. Discussion of aid, foreign direct investment, and domestic investment effects on growth

The chi-square statistic for aid is statistically significantly different from zero for developing countries and SS (Table 8). The Wald for developed countries is, however, statistically significantly indistinguishable from zero. The effect of developing countries appears to have influenced that of the developed SS, hence, the overall negative effect for SS. It must be noted that some developed SS; Cyprus, Estonia, and Malta received aid from 1990-2004. Only Iceland did not receive aid during the period from 1990 to 2020. According to the World Bank (2022a), official aid provided to Central and Eastern Europe, the countries of the former Soviet Union, was abolished in 2005. The statistically significant negative finding is consistent with the significantly negative result reported by Collier and Dollar (2002) for all SS. The more than two decades period between the study of Collier and Dollar (2002) and this study did not seem to cause a change in the growth effect of aid in SS. As Collier and Dollar (2002) had shown that aid had a positive effect in a good governance policy environment, the negative effect can be attributable to a poor governance policy environment in developing SS. Where aid is not channelled into production, but directly to households which do not feature markedly in the national income equation, the effect may not encourage growth. Availability of aid may also discourage production. For example, food 'aid for consumption' would substitute for domestic food production. However, agricultural 'aid for production' would promote agricultural production, hence increasing agricultural growth. Similarly, 'aid for production' in the non-farm sectors of the SS would induce growth rather than discourage growth.

The Wald for the effect of foreign direct investment on growth is statistically indistinguishable from zero for developing and developed SS when disaggregated. However, the total sample of SS posted a statistically significant but weak positive effect. This is so because the Wald for a total sample of SS is not the summation of the Wald for developing and developed SS. Rather, these were computed based on

different estimations, Eqs. (4) and (5). Whilst the result of SS is consistent with Roudi et al. (2019) and Tandrayen-Ragoobur and Fauzel (2021), it diverges from that of Murphy-Braynen (2019). Foreign direct investment contributes to increasing employment, augmenting domestic investment and technology enhancement (de Mello, 1997; Farla et al., 2016; Hine, 2015; Kosova, 2010; Primanthi, 2015; UN, 2015, 2017). These would increase output and ultimately economic growth.

The Wald for domestic investment is positive and statistically significant for developing countries and the combined sample of SS. Domestic investment is an additive constituent of the GDP. Thus, an increase in domestic investment must add to GDP and ultimately increase GDP. We are unable to explain the statistically insignificant and negative signs for developed countries.

5.5. Policy options

The three key variables can be combined in four ways. Added to the key variables yields seven policy options. However, following the statistically insignificant Wald for developing countries, the plausible options for developing countries are two whilst those for developed countries are three. It is only the combined SS that has seven feasible options.

The coefficient of aid for developing countries is negative. This means that aid discourages growth in developing countries. In the case of domestic investment, it encourages growth. Indeed, an increase in domestic investment by 1% will increase economic growth by 0.25%. Although this effect is inelastic, nevertheless, it is positive. Developing SS are better off promoting domestic investment to increase growth. Whilst aid is sourced externally, domestic investment is internal. To a large extent, this is under the control of economic managers of developing SS.

For developed countries, aid, foreign direct investment, and domestic investment independently do not promote growth. However, aid with foreign direct investment, aid with domestic investment, and aid with foreign direct investment and domestic investment promoted growth. The results imply that aid together with domestic investment or aid together with domestic investment and foreign direct investment promoted growth in developed SS. Although all three options have similar Wald, aid and domestic investment have a slightly higher value. Whilst all three are plausible, aid, the domestic and foreign direct investment would require managing at least three policies jointly. However, using aid and foreign direct investment, and aid and domestic investment would require managing at least two policies jointly. Developed SS stands to gain if they pursue aid and domestic investment policies. Combining all three policies will result in slightly lower growth, but foreign direct investment, for example, comes at a cost to recipient countries. This includes tax breaks and foreign exchange market shocks from profit repatriation, which could cause an economic shock. Despite these analyses, developed-country aid receipts ceased in 2004, making these analyses retrospective and impractical for the future.

Although the combined SS has seven realistic policy options, four of them are unacceptably restrictive to growth. Those that encourage growth are foreign direct investment only, domestic investment only as well as the combination of foreign direct investment and domestic investment. An increase in foreign direct investment by

1% will induce growth of 0.16% whilst increasing domestic investment by 1% will induce growth of 0.17%. It must be noted that the cost involved in foreign direct investment, is almost non-existent in the case of domestic. Thus, if the cost of attracting foreign direct investment can be accommodated, then the SS together should consider focusing on investments. This is because an increase in investments by 1% will increase growth by 0.34%.

6. Conclusion and recommendations

Aside from contributing to the literature on the effects of aid, foreign direct investment, and domestic investment on growth in SS, we provide policy options regarding these key variables. This is unparalleled in the SS literature on economic growth. In doing so, we fitted a balanced panel data of 16 countries from 1990 to 2020 to a 2-Stage Least Squares estimator.

Aid discouraged economic growth in developing countries and the combined sample of SS. In the long term, the composition of aid should be shifted from ‘aid for consumption’ to ‘aid for production’. Foreign direct investment promoted growth in the combined sample of SS but not in the developed or developing SS separately. Like aid, the effect of domestic investment is statistically significant. However, unlike aid, foreign direct investment had positive effects on growth for developing and the combined sample of SS. SS collectively should promote foreign direct investment and domestic investment. Together, these would increase gross fixed capital formation leading to increased GDP and ultimately growth.

Developing SS has only two plausible policy options, aid, and domestic investment. However, aid discouraged growth whilst domestic investment promoted growth. We recommend that developing SS consider pursuing domestic investment through enhancing savings and inducing domestic investment through fiscal incentives. Savings would be available to deficit financing units that can be channelled into domestic investment.

Developed SS have three plausible policy options: aid and foreign direct investment; aid and domestic investment as well as aid, foreign direct investment, and domestic investment. The second has a slightly higher Wald. Moreover, this could be achieved without significant fiscal incentives unlike the first and the third. However, as developed SS are no longer recipients of aid, they must explore other sources of growth.

In the case of the combined sample of SS, notwithstanding the seven options, four of them discouraged growth whilst three; foreign direct investment only, domestic investment only and the combination of the two, encouraged growth. The combination of the two yields a higher Wald. For SS, growth lies in investment, not aid or any combination of policies involving aid. In as much as foreign direct investment should be promoted jointly with domestic investment, SS would have to assess the cost of promoting foreign direct investment compared to domestic investment. If the benefit of the promotion of foreign direct investment outweighs the cost, then, we recommend the option of promoting foreign direct investment together with domestic investment.

Our study considered total aid to the SS. Future studies may segregate aid based on sectors such as agriculture and others; types of aid such as aid-for-trade in SS.

Disclosure statement

No conflict of interest has been reported by the authors.

ORCID

Justice G. Djokoto  <http://orcid.org/0000-0002-2159-2944>

References

- Aliche, A., Shibata, M. I., & Tanyeri, K. (2019). *Fiscal policy multipliers in small states*. International Monetary Fund.
- Anderson, T. W., & Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of the American Statistical Association*, 76(375), 598–606. <https://doi.org/10.1080/01621459.1981.10477691>
- Armstrong, H. W., & Read, R. (2003). The determinants of economic growth in small states. *The Round Table*, 92(368), 99–124. <https://doi.org/10.1080/750456745>
- Asamoah, M. E., Alagidede, I. P., & Adu, F. (2022). On the allocation puzzle and capital flows: Evidence from foreign direct investment and real sector growth in Africa. *African Development Review*, 34(3), 370–380.
- Awunyo-Vitor, D., & Sackey, R. A. (2018). Agricultural sector foreign direct investment and economic growth in Ghana. *Journal of Innovation and Entrepreneurship*, 7(1), 1–15. <https://doi.org/10.1186/s13731-018-0094-3>
- Azam, M., & Feng, Y. (2022). Does foreign aid stimulate economic growth in developing countries? Further evidence in both aggregate and disaggregated samples. *Quality & Quantity*, 56(2), 533–556. <https://doi.org/10.1007/s11135-021-01143-5>
- Baldacchino, G. (2020). Small States: challenges of political economy. *Handbook on the Politics of Small States*. Edward Elgar Publishing.
- Balestra, P., & Varadharajan-Krishnakumar, J. (1987). Full information estimations of a system of simultaneous equations with error component structure. *Econometric Theory*, 3(2), 223–246. <https://doi.org/10.1017/S0266466600010318>
- Baltagi, B. H. (2013). *Econometric analysis of panel data* (5th ed.). Wiley.
- Briguglio, L., Cordina, G., Farrugia, N., & Vella, S. (2006). *Conceptualizing and measuring economic resilience*. Building the economic resilience of small states, Malta: Islands and Small States Institute of the University of Malta and London: Commonwealth Secretariat, 265–288.
- Brito, J. A. (2015a). Environmental vulnerability and economic growth: Small states vs large states. MPRA Paper No. 65694. Available at <https://mpra.ub.uni-muenchen.de/65694/>.
- Brito, J. A. (2015b). Social cohesion and economic growth: Small states vs large states. MPRA Paper No. 66118. Available at <https://mpra.ub.uni-muenchen.de/66118/>
- Cannonier, C., & 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. <https://doi.org/10.1177/1354816618792792>
- Chauvet, L. (2015). On the heterogeneous impact of aid on growth: A review of the evidence. In B. Mak Arvin & Byron Lew (Eds.), *Handbook on the Economics of Foreign Aid*, 350–374.
- Colen, L., Maertens, M., & Swinnen, J. (2012). Foreign direct investment as an engine for economic growth and human development: a review of the arguments and empirical evidence. *Foreign Direct Investment and Human Development*, 80–125.
- Collier, P., & Dollar, D. (2002). Aid allocation and poverty reduction World Bank. *Development Economics Research Group*, 46(8), 1475–1500.
- de Mello, L. R. Jr. (1997). Foreign direct investment in developing countries and growth: a selective survey. *Journal of Development Studies*, 34(1), 1–34. <https://doi.org/10.1080/00220389708422501>
- Djokoto, J. G. (2021). The investment development path theory and small states. *Research in Globalization*, 3, 100048. <https://doi.org/10.1016/j.resglo.2021.100048>

- Edo, S., Matthew, O., & Ogunrinola, I. (2022). Bilateral and multilateral aid perspectives of economic growth in sub-Saharan Africa. *African Journal of Economic and Management Studies*. <https://doi.org/10.1108/AJEMS-02-2022-0047>
- Fan, X., & Dickie, P. M. (2000). The contribution of foreign direct investment to growth and stability: A post-crisis ASEAN-5 review. *ASEAN Economic Bulletin*, 17(3), 312–323.
- Fagim, J. G. (2019). *Trade Openness and Economic Growth of Small States: The Mediating Role of Human Capital and Structural Change*. Dissertation: Universidade Do Porto.
- Farla, K., De Crombrughe, D., & Verspagen, B. (2016). Institutions, foreign direct investment, and domestic investment: Crowding out or crowding in? *World Development*, 88, 1–9. <https://doi.org/10.1016/j.worlddev.2014.04.008>
- Gani, A. (2011). Remittances and growth in small states of Oceania. *Journal of Money, Investment and Banking*, 20, 3–11.
- Glennie, J., & Sumner, A. (2016). Aid, growth, and poverty: An empirical review of cross-country research. In J. Glennie & A. Sumner (Eds.), *Aid, Growth and Poverty*, 49–74.
- Greene, W. H. (2018). *Econometric Analysis* (8th ed.). Pearson.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251–1271. <https://doi.org/10.2307/1913827>
- Hine, J. (2015). Trends: Investment in food manufacturing needed. *Food Australia*, 67(6), 22–23.
- International Monetary Fund (IMF). (2016). Small States' resilience to natural disasters and climate change—Role for the IMF. *IMF Policy Paper*
- Keane, J., Cadogan, R., & Enos-Edu, H. (2020). Effectively governing the ocean economy and boosting the trade performance of commonwealth small states. Retrieved from <https://policycommons.net/artifacts/1159867/effectively-governing-the-ocean-economy-and-boosting-the-trade-performance-of-commonwealth-small-states/1718022/> on 13 Nov 2022. CID: 20.500.12592/90k54f.
- Kosova, R. (2010). Do foreign firms crowd out domestic firms? Evidence from the Czech Republic. *The Review of Economics and Statistics*, 92(4), 861–881.
- Lewis, W. A. (1955). *The theory of growth and development*. Allen & Unwin.
- Long, T. (2020). Small states in Central America. *Handbook on the Politics of Small States*. Edward Elgar Publishing.
- Maddison, A. (1982). Macroeconomic policies for growth and stability: A European perspective. *Journal of Economic Literature*, 20(3), 1081–1083.
- Mahembe, E., & Odhiambo, N. M. (2013). An exploratory review of foreign direct investment and economic growth in four SSA countries. *Corporate Ownership and Control*, 11(1), 213–220. <https://doi.org/10.22495/cocv11i1c1art7>
- Murphy-Braynen, M. B. (2019). The relationship between export diversification & economic growth: A comparative analysis with a focus on Small Island States. *International Journal of Trade, Economics and Finance*, 10(4), 73–84. <https://doi.org/10.18178/ijtef.2019.10.4.641>
- Ozdemir, O., & Koyuncu, F. T. (2020). Foreign direct investment and economic growth: A literature review. *Economics Literature*, 2(1), 34–56.
- Primanthi, M. (2015). *Foreign direct investment-productivity growth nexus: evidence from food and beverages, textiles and garments subsectors manufacturing subsectors in Indonesia* [Paper presentation]. Advances in Business-Related Scientific Research Conference 2015 in Rome (ABSRC 2015 Rome), Rome, Italy. October 14–16, 2015
- Read, R. (2002). Growth, economic development and structural transition in small vulnerable states. *Globalization, Marginalization and Development*, 187–200.
- Romer, P. M. (1994). The origins of endogenous growth. *Journal of Economic Perspectives*, 8(1), 3–22. <https://doi.org/10.1257/jep.8.1.3>
- Romer, P. M. (1996). *Why, indeed, in America? Theory, history, and the origins of modern economic growth* (No. w5443). National Bureau of Economic Research.
- Roudi, S., Arasli, H., & Akadiri, S. S. (2019). New insights into an old issue—Examining the influence of tourism on economic growth: Evidence from selected small island developing states. *Current Issues in Tourism*, 22(11), 1280–1300. <https://doi.org/10.1080/13683500.2018.1431207>

- Sanches, E. R., & Seibert, G. (2020). Politics and economy in small African island states: Comparing Cabo Verde and São Tomé and Príncipe. *Handbook on the politics of Small States*. Edward Elgar Publishing.
- Shaibu, A. F., & Shaibu, M. H. (2022). Agricultural aid and growth in sub-Saharan Africa: A review of empirical evidence. *Agris on-Line Papers in Economics and Informatics*, 14(2), 97–109. <https://doi.org/10.7160/aol.2022.140208>
- Shimada, G. (2022). The impact of climate-change-related disasters on Africa's economic growth, agriculture, and conflicts: Can humanitarian aid and food assistance offset the damage? *International Journal of Environmental Research and Public Health*, 19(1), 467. <https://doi.org/10.3390/ijerph19010467>
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65–94. <https://doi.org/10.2307/1884513>
- Ssozi, J., Asongu, S., & Amavilah, V. H. (2019). The effectiveness of development aid for agriculture in Sub-Saharan Africa. *Journal of Economic Studies*, 46(2), 284–305. <https://doi.org/10.1108/JES-11-2017-0324>
- Sulg, M. L. (2020). Handbook on the politics of Small States. *Global Affairs*, 6(3), 311–312. <https://doi.org/10.1080/23340460.2020.1822752>
- Summer, R., & Heston, A. (1991). A new set of international comparisons of real product and price levels estimates for 130 countries. *Quarterly Journal of Economics*, 106, 327–368.
- Swan, T. W. (1956). Economic growth and capital accumulation. *Economic Record*, 32(2), 334–361. <https://doi.org/10.1111/j.1475-4932.1956.tb00434.x>
- Tandrayen-Ragoobur, V., & Fauzel, S. (2021). Climate change, governance and economic growth: the case of small island developing states. *Small States & Territories*, 4(2), 245–258.
- Tefera, M. G., & Odhiambo, N. M. (2022). The impacts of foreign aid on growth among low-income countries in Africa. *Forum for Development Studies* (pp. 1–36). Routledge.
- Tumbarello, M. P., Cabezon, E., & Wu, M. Y. (2013). *Are the Asia and Pacific Small States different from other Small States?* (No. 13-123). International Monetary Fund. <https://doi.org/10.5089/9781484339190.001>
- United Nations. (2015). Resolution adopted by the General Assembly on 25 September 2015, Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1 Archived 28 November 2020 at the Wayback Machine).
- United Nations. (2017). Resolution adopted by the General Assembly on 6 July 2017, Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development (A/RES/71/313 Archived 28 November 2020 at the Wayback Machine).
- Wan, X. (2010). A literature review on the relationship between foreign direct investment and economic growth. *International Business Research*, 3(1), 52–56.
- World Atlas. (2020a). Nauru. <https://www.worldatlas.com/webimage/countrys/oceania/nr.htm>
- World Atlas. (2020b). Botswana. <https://www.worldatlas.com/maps/botswana>
- World Atlas. (2020c). Namibia. <https://www.worldatlas.com/maps/namobia>
- World Bank. (2022a). World Development Indicator (WDI) of the World Bank: <https://data-bank.worldbank.org/source/world-development-indicators>
- World Bank. (2022b). The World Bank in Small States. Overview. <https://www.worldbank.org/en/country/smallstates/overview/>
- Zammit, M. (2017). A study of post-2008 growth in Caribbean small island states. Occasional Papers on Islands and Small States, Occasional Paper Number: 04/2017.

Appendix. Countries in the sample

Bahamas	Cyprus	Gabon	Iceland
Barbados	Estonia	Gambia, The	Jamaica
Bhutan	Eswatini	Guinea-Bissau	Malta
Botswana	Fiji	Guyana	Mauritius

Source: Authors' compilation.