The Effect of Economic Globalization on the Islands of the Indian Ocean:

An Econometric Analysis

Pamukkale University

Institute of Social Sciences

Master's Thesis

Department of International Trade and Finance

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Denizli

FOREWARD

Globalization is an international phenomenon that has evolved and developed the world. Several massive transformations have occurred since its inception, ranging from the discovery of new methods of production to the introduction of the internet. Globalization's effects are pervasive not only in the economy as a whole but also in people's daily lives.

However, this concept has primarily been studied in the context of larger, more developed countries. Island economies are much smaller in size, to the extent of being unseen on a world map. Moreover, they are isolated from other countries. Hence, they have been largely ignored in the process of assessing the impacts of globalization.

Coming from a small island, named Mauritius, even though its main industry is tourism, it is relatively unknown to most people. Similarly, while conducting research, the existing literature on the effects of globalization on island economies is scant. As a result, the main goal of this thesis is to contribute to the lack of studies by drawing more attention to the neglected island economies because all countries are affected by globalization in one way or another.

As a source of income, island states rely heavily on international trade and tourism. They rely on foreign direct investment to help promote their domestic development and boost their economy. In other words, the islands exhibit a very high level of openness. Hence, they are deeply affected by the effects of globalization.

Through this thesis, the islands of the Indian Ocean will be investigated and the impact of economic globalization on these islands will be assessed through an econometrical analysis. The factors contributing to their growth engine will be identified and the methods through which they can enhance their economy will be examined.

ACKNOWLEDGEMENT

"In normal life, we hardly realize how much more we receive than we give, and life cannot be rich without such gratitude. It is so easy to overestimate the importance of our own achievements compared with what we owe to the help of others."

Dietrich Bonhoeffer, 1953. Letters and Papers from Prison

I am grateful to my supervisor, Professor Yaşam Demir, from whom I've learned beyond the subject area of my research. With your constant encouragement and reassurance, you have helped me a lot throughout my master's academic journey. You have given me the perfect balance between perseverance and freedom. Writing this thesis has been a pleasure and not a pressure.

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I am also utterly thankful for the inexhaustible support of my family who has always encouraged me in pursuing and realizing my dreams. Even though my field of study is different from theirs, they have always shown keen interest in my academic area. I'm proud to be surrounded by all these people in my life. And I know they are proud of me as well, especially my mother.

Student Declaration

I hereby declare that this study titled "The Effect of Economic Globalization on the Islands of the Indian Ocean: An Econometric Analysis", which I submitted as my master's thesis was written by me following academic rules and ethical conduct. I have fully cited and referenced all materials and results that are not original to this work.

…../…./2022

Zafiira Beeharry

ABSTRACT

The Effect of Economic Globalization on the Islands of the Indian Ocean:
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Zafiira Mehreen Bint Hafiza BEEHARRY
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Although economic globalization is a fervent topic, its impacts on islands is rarely discussed. Isolated island economies receive little attention due to their unique characteristics. While some researchers debate the benefits and costs of globalization for developed and developing countries, this study uses a co-integration and causality approach to look at the economic impact of globalization on the Indian Ocean islands from 1980 to 2020.

The panel data analysis shows that trade openness has a negative effect on growth. Thus, islands should prefer an import-substitution policy over an export-promotion policy. Both foreign direct investment and population growth are beneficial to the economy. Hence, FDI restrictions should be reduced, and the educational system should be improved. Finally, financial assistance has a negligible impact on growth.

For the island of Comoros, only population affects growth. Thus, a continuous learning advancement should be promoted. Since trade has an impact on Madagascar and Sri Lanka's growth, trade barriers should be lowered. For Maldives, the higher the GDP, the greater the inflows of foreign investment. Mauritius should focus on a diversification policy that emphasizes promoting disruptive ideas. Seychelles demonstrates that growth attracts financial aid.

Globalization is a fast-growing process. Countries employ efficient production techniques and competitive strategies to capture the markets. Islands can invest in technology to maintain their global connection and use a diversification policy so that the economy does not collapse in times of crisis.

Keywords: Islands, Indian Ocean, Economic Globalization, Trade, FDI

ÖZET

Ekonomik Küreselleşmenin Hint Okyanusu Adalarına Etkisi: Ekonometrik Bir Analiz

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Ekonomik küreselleşme, malların, hizmetlerin, sermayenin, finansın, emeğin ve bilgi birikiminin serbest akışına izin vermek için ticaret engellerini kaldırarak ekonomiyi serbestleştirme ve kuralsızlaştırma sürecidir. Literatürde, küreselleşme kavramını ve küreselleşmenin ekonomik etkilerini inceleyen çok sayıda çalışma bulunmakta olup, ada ülkelerini konu alan araştırmaların kısıtlı kaldığı görülmektedir. Özellikle Hint Okyanusu adalarını inceleyen çalışma sayısı oldukça yetersizdir. Bu bağlamda çalışma, GSYİH, dış ticaret, Doğrudan Yabancı Yatırım (DYY), işgücü ve mali yardımları inceleyerek 1980-2020 dönemi için Hint Okyanusu adalarında ekonomik küreselleşmenin etkilerini analiz etmeyi amaçlamaktadır.

Küreselleşme kavramını ekonomik, politik, ve kültürel küreselleşme olarak sınıflandırmak mümkündür. Yatırıma dayalı ekonomik küreselleşme kavramı gelişen teknolojiyle birlikte önce ticarete dayalı küreselleşmeye ve sonrasında teknolojiye dayalı küreselleşmeye dönüşmüştür. Devlet politikalarındaki değişiklikler, uluslararası anlaşmalarla ticaret birliklerinin oluşturulması, ikili anlaşmaların uygulanması, teknolojinin ve yeni üretim tekniklerinin geliştirilmesi gibi etkenler ekonomik küreselleşmeyi beraberinde getirmektedir. Bu küreselleşme süreci bilgi yayılımı, bilgi edinimi ve birikimi yoluyla ülkelerin büyümelerini teşvik etmektedir.

Küreselleşmenin ülkeler üzerindeki etkileri birbirinden farklıdır. Gelişmiş ülkeler, teknolojiye kolay erişimleri olduğu için küreselleşmeden daha fazla yararlanmaktadır. Ancak, En Az Gelişmiş Ülkeler (EAGÜ) ara ürünlerini satın almak için gelişmiş ülkelere bağımlı olmak zorunda kalmaktadır. Bu durum dengesiz bir ticari ilişkiye neden olmakta ve EAGÜ nün ekonomik gelişimini olumsuz etkilemektedir. Ayrıca bu ülkeler, OECD ülkeleri için 11 saate kıyasla ortalama 65,4 saat sürebilen daha uzun sınır denetimi gibi engellerle karşı karşıyadır. Aynı şekilde, liman altyapısı gelişmemiş ve dolayısıyla daha az gemi barındırmaktadır. Bu olumsuzluklara karşın ada ülkeleri ittifaklar kurarak ve e-ticareti teşvik ederek küreselleşme sürecinde etkin olmaya çalışmaktadır. Bu ekonomik küreselleşme sürecinde en önemli iki bileşen uluslararası ticaret ve doğrudan yabancı yatırımlardır.

Ekonomik küreselleşmenin bileşenlerinden biri olan uluslararası ticaret kavramı 16. yüzyılda Merkantilizm ile başlamıştır. Uluslararası serbest ticaretin, belirli koşullar

altında, ülkeler için önemli refah artışları sağlayacağı varsayımı ile ülkelerin doğal ve kazanılmış üstünlükleri dikkate alan "Mutlak Üstünlükler Teorisi", "Karşılaştırmalı Üstünlükler Teorisi", "Faktör Donanımı Teorisi", gibi teoriler geliştirilmiştir. Daha sonrasında ise bu teoriler ülkelerin coğrafya konuları, uzmanlaşma alanları ve demografik özellikler gibi faktörleri dikkate alan yeni ticaret teorileri oluşturulmuştur. Ülkeler uluslararası ticarete katılarak, teknolojik transferi kolaylaştırarak ve getirileri artırarak üretkenliklerini ve işbölümünü geliştireceklerdir. Ayrıca yönetsel yetenek, teknolojik bilgi ve girişimcilik kazandırılabilir. Dış pazarların daha iyi anlaşılması ve daha verimli bir üretim süreci ile firmalar uluslararası pazarda daha etkin rekabet edebileceklerdir. Ayrıca sürekli eğitim yatırımı ile insan sermayesi teknolojik ilerlemeyi daha hızlı kavrayabilecektir. Hint Okyanusu'ndaki ticaretin gelişimi Avrupa emperyalizminin hâkimiyetiyle beraber köle ticareti ve deniz korsancılığının artmasıyla açıklanabilmektedir. Hint Okyanusu birçok doğal kaynağa ve dünya ticaretinin yapıldığı yedi boğazdan üçü olan Malakka Boğazı, Hürmüz Boğazı ve Bab-ul-Mendeb Boğazı sahiptir.

DYY, sermayenin bir ülkeden diğerine hareketinin yanı sıra bilgi ve teknolojik uzmanlığının paylaşımı olarak tanımlanır. Mikro ekonomik DYY teoriler, firmaya özgü faktörleri dikkate alarak eklektik paradigma teorisi benimseyen yatırımları geliştirmeye odaklanan teorileri içermektedir. Makroekonomik DYY teorileri ise ülkeye özgü faktörleri dikkate almaktadır. DYY, ülkelerin yeterli üretim faktörü kapasitelerine sahip olduğunda dış ticaretin teşvik edilmesiy büyümeyi olumlu etkilemektedir. Adalar, stratejik konumları ve sahip oldukları doğal kaynaklar nedeniyle doğrudan yabancı yatırımlar için caziptir. Özellikle coğrafi konum açısından en önemli sektörü turizm sektörüdür. Dolayısıyla adayı ziyaret etmek isteyen turist sayısındaki artışın sürekliliği artan talebi karşılamaya yönelik otel yatırımlarının artmasına neden olmaktadır. Hint Okyanusu adalarına yapılan yabancı yatırımlar özellikle birkaç ülke üzerinde yoğunlaşmaktadır. Örneğin Hindistan askeri ve sağlık sektörlerine yatırım yapmakta ve ayrıca ticaret ittifakları kurmaktadır. Çin ise yoğunluklu olarak inşaat sektörüne yatırım yaptığı, ve İslami bankacılık, petrol ve telekomünikasyon sektörlerinde ise Arap ülkelerin hakim olduğu görülmektedir.

Çalışmada incelenmiş olan adaları, Hint Okyanusu'nun batı ve doğu adaları olarak 6 ana ada ülkesi olarak sınıflandırılmak mümkündür. Doğu bölgesi, önemli bir ekonomik etkiye sahip olamayacak kadar küçük adalardan oluşmaktadır (Sri Lanka hariç). Batı bölgesi ise değerli kaynaklara sahip ve ekonomik olarak gelişen adalardan oluşmakta olup Komorlar, Madagaskar, Maldivler, Moritus ve Seyşeller Adaları'nı içermektedir. Komor Adası, 2007 yılında ticareti serbestleştirmeye başlamıştır. Buna rağmen ana sektörleri olan tarım, turizm ve balıkçılık istenilen ve beklenen düzeyde gelişim sağlayamamıştır. Ülke ekonomisi ağırlıklı olarak dış yardımlara bağlı olup 2010 yılında Yüksek Borçlu Yoksul Ülke olarak belirlenmiştir. Madagaskar ise 1980'lerin ortalarında serbest dış ticaret politikasını uygulamaya başladı. Uluslararası ticareti teşvik etmek için e-ticareti tanıttı ve liman altyapısını geliştirdi. Ancak, ülkede yaşanan siyasi istikrarsızlıklar ekonominin büyümesini olumsuz etkilemiştir. Maldivler, stratejik ortaklarla ticaret ittifakları kurarak yoğun

ticari serbestleşmeyi teşvik etmektedir. Ancak enflasyon ve finansal kriz ticareti olumsuz etkilerken, DYY girişleri artma eğilimindedir. Moritus, iki ülke arasında mal ve hizmet alışverişini teşvik edecek ikili bir ticaret politikasını teşvik ederek ticaretin serbestleştirilmesine ve yatırıma büyük ölçüde destek vermektedir. Bununla birlikte DTÖ, COMESA ve SADC gibi çeşitli ticaret bloklarına katılarak ve daha düşük bir vergi oranı sağlayarak ihracat için mal üretimini teşvik eden bir ihracat bölgesi oluşturmaktadır. Seyşeller, serbest ticaret bölgeleri oluşturarak, dış ticaretin artmasına yönelik kanunlar çıkararak dış ticareti teşvik etmektedir. Bütün bu olumlu yaklaşımlarına karşın adaya oaln DYY girişlerinin seviyesi oldukça yetersiz kalmaktadır. Sri Lanka ise ekonomide ciddi bir bozulmaya neden olan çeşitli siyasi darbeler ve doğal felaketlerden zarar görmektedir.

Çalışmada, küreselleşmenin büyüme üzerindeki etkisini değerlendirmekten ve değişkenler arasında nedensel bir ilişki olup olmadığı amprik olarak araştırılmıştır. Ampirik çerçevede, analizde neo-klasik büyüme modeli kullanılmış olup bağımlı değişken olarak GSYİH ve bağımsız değişkenler; DYY, ticari açıklık, nüfus ve finansal yardımlar olarak belirlenmiştir. Çalışmada, öncelikle değişkenlerin durağanlığını belirlemek için birinci ve ikinci nesil birim kök testlerini kullanılmıştır. Yatay kesit bağımsızlık testi, birinci nesil birim kök testlerinin daha verimli olduğunu göstermektedir. Analizin diğer aşamasında, değişkenler arasında uzun dönemli bir ilişki olup olmadığını araştırmak için panel eş bütünleşme testi kullanılmıştır. Ardından, bağımsız değişkenlerin bağımlı değişken üzerindeki etkisini belirlemek için nedensellik testleri gerçekleştirilmiştir. Analiz bulguları, homojen bir nedensellik olduğunu, GSYİH'nın dış ticareti, DYY ve nüfusu etkilediğini göstermektedir; aynı şekilde, mali yardımların da nüfusu etkilediği görülmektedir. Dolayısıyla daha eğitimli bir nüfusun daha üretken olacağı ve yabancıların karlı bir ülkeye yatırım yapmaya daha istekli olabileceklerini söylemek mümkündür. Heterojen nedensellik sonuçlarında ise dış ticaretin hem GSYİH'yi hem de ticaret yardımı etkilediği, sırasıyla DYY ve nüfusu etkilediği sonucuna ulaşılmıştır. Böylebir durumda ithal ikamesi politikasının ihracatı teşvik politikasından daha etkili olacağını söylemek mümkündür. Bu analizlerin yanısıra her ülke için nedensellik testleri yapılmıştır. Analiz sonuçlarına göre Komorlar adası için nüfusun GSYİH, DYY ve yardımları etkilediğini görülmektedir. Ayrıca yardımların GSYİH ve DYY'yi etkilediği ve GSYİH'nın DYY'yi etkilediği sonucuna ulaşılmıştır. Madagaskar için dış ticaret, nüfusu ve yardımları etkilemekte; yardımlar DYY'yi ve nüfusu etkilemektedir. Maldivler için GSYİH, DYY ve dış ticareti etkilemekte ve DYY'nin ayrıca dış ticareti etkilediği sonucuna ulaşılmıştır. Moritus için sadece dış ticaret DYY'yi etkilemektedir. Seyşeller için GSYİH yardımları etkilediği ve nüfusun DYY'yi etkilediği görülmektedir. Son olarak ise Sri Lanka için dış ticaret GSYİH'yi ve yardımları etkilediği ve GSYİH'nın da yardımları etkilediği sonucuna ulaşılmıştır.

Analiz bulguları değerlendirildiğinde ada ülkeler için uygulamasının etkili olacağı düşünülen bazı öneriler yapmak mümkündür. Örneğin Komor Adaları için, kredi olanaklarına erişimi olan ve ülke nüfusunun eğitim seviyesinin arttırlmasına yönelik çabaların arttırılması ve iş kurmak için güvenli bir ortamın sağlaması ülke ekonomisini olumlu etkileyeceği söylemek mümkündür. Madagaskar'ın, tarife dışı

engellerini azaltması KOBİ'leri desteklemesi ve çalışanlarına becerilerini geliştirmeleri için eğitim olanakları sağlaması önerilmektedir. Maldivler ise yabancı yatırımın önündeki engelleri azaltarak ve yeniliği teşvik ederek aktif yabancı katılımı teşvik etmesi ekonomi için büyük katkılar sağlayabilir. Moritus adasının daha fazla araştırma kurumu kurarak ar-ge çalışmalarına önem vermesi yeni ve yaratıcı fikirleri teşvik etmekte büyük rol oynayacaktır. Seyşeller ada ülkesinde ise bankalarının sağlamlığının iyileştirilmesi, iş kurma maliyetlerinin düşürülmesi ve teknolojik bilgi birikiminin arttırılmasıyla ekonomik büyümeye katkı sağlanabilinir. Son olarak, Sri Lanka ticaret engellerini azaltmaya, finansal sistemi iyileştirmeye ve işgücü hareketliliğini kolaylaştırmaya yönelik politikalar oluşturması ülkenin büyümesi için önemli adımlar olacaktır.

Anahtar Kelimeler: Adalar, Hint Okyanusu, Ekonomik Küreselleşme, Ticaret, DYY

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AAGC	Asia-Africa Growth Corridor
ADF	Augmented Dickey-Fuller
AEC	African Economic Community
AML/CFT	Anti-Money Laundering and Combating the Financing of Terrorism
ARDL	Autoregressive Distributed Lags
BIT	Bilateral Investment Agreement
BRI	Belt and Road Initiative
COI	Indian Ocean Commission
COMESA	Common Market for Eastern and Southern Africa
ECF	Extended Credit Facility
EPZ	Export Processing Zone
FDI	Foreign Direct Investment
FMOLS	Fully Modified Ordinary Least Square
FTA	Free Trade Agreement
GDP	Gross domestic product
GTTA	General Trade and Tariff Agreement
HIPC	Heavily Indebted Poor Countries
IDP	Investment Development Cycle
ILO	International Labor Organization
IMF	International Monetary Fund
IPS	Im, Pesaran and Shin

ITA	International Trade Administration
LDC	Least Developed Countries
LLC	Levin, Liu, and Chu
MEDIA	Mauritius Export Development and Investment Authority
MNC	Multinational Company
MW	Maddala & Wu
OECD	Organization for Economic Development and Cooperation
OLI	Ownership, Location, and Internalization Benefits
OLS	Ordinary Least Square
R&D	Research & Development
RCF	Rapid Credit Facility
SAARC	South Asian Regional Cooperation Association
SADC	Southern African Development Community
SAPTA	South Asia Preferential Trade Agreement
SGS	Société Générale de Surveillance
SITZ	Seychelles International Trade Zone
SUR	Seemingly Unrelated Regression
UN	United Nations
VECM	Vector Error Correction Model
WB	World Bank
WTO	World Trade Organisation

INTRODUCTION

1.1. Background

Globalization has been a fervent and highly debated topic in a plethora of literature for the past decades. Globalization is classified into three main categories: cultural, political, and economic. The economic aspect of globalization, however, remains at its core (Obadan, 2008:16). Economic globalization is the process of liberalizing and deregulating the economy by removing trade barriers, enabling the free movement of commodities, services, finance, labour, and technological know-how across borders. (Samimi & Jenatabadi, 2014:1).

Economic globalization has evolved over time, incorporating all new developments discovered. Although there is no consensus on when it began, much of the literature points to the aftermath of World War II (Scholte, 1996:584). The extraction of primary resources was the main focus (Gereffi et al., 2011:234). Then it became more centred on international trade and sourcing (Dickens, 2003:10). Communication and transportation were facilitated by technological advancements, and exchanges became easier and faster. When assessing economic globalization today, new concepts such as geography and dematerialization are being considered. The world has become more connected than ever before, and international competition has continued to increase.

In contrast, the net impact of economic globalization on development is inconclusive and perplexing. There is no evidence of a consistent positive or negative influence in the literature (Samimi & Jenatabadi, 2014:1). The proponent of globalization reinforces the benefits of economic growth in terms of job creation, innovation, and poverty reduction (Stiglitz, 2006:9). Critics of globalization, on the other hand, emphasize its negative consequences, such as the unequal commercial relationship between advanced and developing nations and the marginalization of some regions around the world (Ibrahim, 2013:87).

1.2. Research Problem

Despite the abundance of literature on the subject of globalization, there is a dearth of comprehensive research on island economies, with almost none on the Indian Ocean islands. Most of the literature focuses on the effects of globalization on OECD or LDC

countries, with little attention paid to islands. Furthermore, the majority of the literature is theoretical rather than quantitative. As a result, they do not provide clear empirical evidence to back up their claims. In other words, there is a significant void in the existing literature in terms of giving a deep and comprehensive research study on island economies to better understand the impact of economic globalization and determine whether it is beneficial or detrimental.

1.3.   Aim and Scope

The aim of this research is to study the effect of globalization on the economic development of Indian Ocean islands from 1980 to 2020 by analyzing trade openness, foreign investment inflows, labour contribution, and foreign aid receipt. The hypothesis that will be tested is whether there is a constant beneficial linkage between economic globalization and growth in the Indian Ocean islands and determining which proxies have a greater impact on the islands' growth and development. The study is aiming in specifically achieve the following:

-    Assessing how the mentioned variables will impact the growth performance of the island economies,

-    Ascertaining the direction of a possible causal relationship between the variables to make the appropriate policy recommendations.

1.4.   Outline of the Study

The concept of economic globalization is developed, and its drivers are identified in the following chapter, Chapter 2. It then goes on to investigate the link between economic globalization and economic growth, as well as how global trade and foreign investment interact. It has also been expanded to include the influence of economic globalization on the international economy, the Indian Ocean, and islands.

Given that there are two major economic components of globalization, Chapter 3 examines the first, which is international trade. The theories and models of trade are thoroughly explained, and both the micro and macroeconomic benefits of trade are examined.

The explanation of the second economic component, foreign direct investment, continues in Chapter 4. The theories that surround the concept of FDI are depicted. In addition, the effect of FDI on development in the Indian Ocean and the islands is investigated.

The countries chosen for this study are Comoros, Madagascar, Maldives, Mauritius, Seychelles, and Sri Lanka, which are discussed in Chapter 5. Their economic status and progress during the globalization process, as well as their recovery performance during the COVID-19 pandemic crisis, are discussed.

With a detailed theoretical description of the concepts of economic globalization, international commerce, and foreign investment, and a preview of the selected countries' economic performance, Chapter 6 presents the research methodology thoroughly. The econometric analysis is explained in detail.

The empirical analysis is interpreted and discussed in Chapter 7, and the concluding remarks and possible policy recommendations are drawn up in Chapter 8.

ECONOMIC GLOBALIZATION

This chapter's objective is to explore the concept of economic globalization. Globalization has evolved over time and now encompasses multiple dimensions. The beginning of this chapter sheds light on the meaning of economic globalization in contrast to the other types of globalization, followed by a brief explanation of the advances made in the field of economic globalization. The factors that have assisted in the advancement of economic globalization are explored. To effectively understand the economic impact of globalization on different types of countries, an explanation of its connection with economic growth, trade, and FDI is provided. Finally, the impact on the global economy, the Indian Ocean, and the island nations are discussed.

2.1. Definition of Economic Globalization

Since the first great globalization era, which lasted from 1870 to 1914 (O'rourke & Williamson, 2002:39); globalization has evolved into a multi-dimensional concept that embodies several disciplines and is composed of a dynamic interaction of the cultural, political, and economic spectrum. Cultural globalization explains how "contacts between people and their cultures – their ideas, their values, their way of life – has been growing and deepening in unprecedented ways" (United Nations Report, 1999:33), resulting in unique opportunities and obstacles to cultural growth and identity (Kumaravadivelu, 2008:146). Political globalization, on the other hand, refers to the regional and global emergence of international organizations (such as the World Trade Organization) that have an explicitly or implicitly influence on economic and political power. In other words, political power extends beyond the borders of states (Woods, 2017:4). However, as Obadan (2008) points out, the economic aspect of globalization remains at its core. The world economies have become more interdependent as cross-border trade and capital have grown significantly and technology has advanced (Shangquan, 2000:1). Granato et al. (1996) go on to say that cultural and political values are fundamental to economic development. Countries with similar cultures are more likely to implement policies based on similar values. As a result, cultural and political proximity can lead to economic integration. And this study focuses on the economic consequences of globalization by looking at how the two main aspects of globalization, trade flows, and investment, have impacted small economies.

Economic globalization has undergone several transformations over the years. After World War II, from 1950 to 1970, transnational corporations concentrated more on investing in the extraction of natural resources. Gereffi, Humphry, and Sturgeon (2011) named this period the investment-based globalization period. Then came the period of trade-based globalization, whereby the emphasis was more on exportation from developing countries and international sourcing (Dicken, 2003:10). With the advent of the digital era in 1995, technological advancements shifted the focus to international integration of demand and production (Gereffi et al., 2011:235). Several economists have identified new aspects of globalization activities in recent years. As per Krugman (2009), new models of international trade have been developed that consider geography, as well as a boost in the trade of similar goods (Krugman et al., 1995:332). Hyper-globalization (rapid growth in market integration), dematerialization (recognizing the importance of services in globalization), and mega-traders (such as China), according to Subramanian & Kessler (2013), have emerged.

2.2.   Drivers of Economic Globalization

Several drivers are identified by expanding on the concept of economic globalization. Politics, according to J. Stiglitz (2006), has become a major force in empowering economic integration. The change of government and international institutions' ideologies has bolstered the process of economic globalization tremendously. The transition from communism to a free-market economy after the Cold War, along with state alliances established by the World Trade Organization (WTO) or the International Monetary Fund (IMF), has led to a higher level of international economic cooperation.

Moreover, to promote globalization, several countries have approved the General Agreement on Trade and Tariffs (GATT) Act, which whittled down trade barriers and encouraged international trade. Countries have also joined trading blocs to make trade easier. International organizations like the IMF and the WTO now ensure that world trade is expanding by lowering trade barriers and opening up to foreign investments and technology.

Furthermore, due to the rapid advancement of technology, economic globalization has been growing at a faster pace. The importance of information regarding production activities has increased, enabling its massive expansion. The market economic system has enlarged with the rise in the cross-border division of labour at all levels of production.

Production activities have been optimized as a consequence of the rapid spread of information, as has the expansion of global supply chains. As a result, ensuring the ongoing integration of market economies is vital (Shangquan, 2000:1).

Due to the interdependence of countries, producers seek to incur the lowest costs possible to gain from globalization. They employ a variety of strategies, including locating closer to markets to reduce transportation costs, seeking new markets, quickly adapting to customer changes and innovations, and value chain specialization (Goeltz, 2014:13). Individuals, and the international community, encourage economic globalization, through consumption.

2.3. The link between Economic Globalization and Growth

According to Grossman and Helpman (2015), globalization and growth are linked in a multitude of ways. Economic globalization stimulates the development of a country by promoting foreign ideas and maximizing economies of scale. However, the outcomes are often not favourable since they are influenced by an abundance of factors that affect the impact of globalization on economic progress.

The most obvious globalization effect on growth is the global knowledge spillover which occurs through international conferences, business transactions, and visits to host countries. Romer (1990) explained that R & D leads to knowledge accumulation, which in turn boosts innovation productivity. Grossman and Helpman (2015) analyzed the global flow of knowledge, which implies that innovation happens both at home and abroad. Since all countries take part in innovation, their costs are reduced. As a result, knowledge spillover around the world is incentivized, which boosts growth. Grossman and Helpman (2018) came up with a theory that says that country obtains a partial amount of knowledge spill-over because it contributes a limited amount of R&D to other countries. However, even though knowledge spillover is enhancing growth rates, there is still room for global progress (Coe and Helpman, 1995:875).

Knowledge acquisition is bumped up as an outcome of knowledge spillover. Firms learn new manufacturing techniques, develop new products, or upgrade existing ones; leading to a global competition effect. Grossman and Helpman (2015) built a model that incorporates innovators with varying levels of technology and the low level of fixed costs in

both production and export. As aggregate demand expands, profit opportunities grow, encouraging foreign producers to enter the market. Similarly, Baldwin and Robert-Nicoud (2008) and Melitz (2003) demonstrated that lower trade costs increase the productivity of existing businesses while lowering the productivity of new businesses entering the export market. As a result, in both models, the chances of making a profit are offset. Feenstra (1996) elaborated that a country, in autarky, which encourages innovation grows at a faster rate. While in a trade liberalization environment, competitors increase in the developed country, and innovation profitability decreases in the developing country, widening the innovation gap. Hence, the slow-growing country specializes in an industry where there are few opportunities for innovation.

It is essential to accumulate knowledge to engage in innovation. Human capital is endogenous, and R&D is achieved through the buildup of human capital (Grossman and Helpman, 1991:11). The global knowledge spillover is proportional to the number of nations. A country with a higher human capital stock of the finest educational system is a country that excels at knowledge generation. Since human capital is inexpensive, the cost of innovation is low. The country enjoys a competitive edge in the manufacture of specialized goods. It will trade differentiated products for homogenous ones, hence promoting growth.

The degree to which nations are integrated globally has an impact on technology diffusion, which influence growth rates. Heterogeneous enterprises have to choose between investing in technology and product differentiation, according to Perla, Tonetti, and Waugh (2014). Firms that have a low level of productivity prefer to enhance their technologies. Therefore, enterprises with high productivity that choose to differentiate their products to compete in the export market see a reduction in trade expenses. With the premise of free entry for new firms producing differentiated items, Sampson (2014) elaborated that firms build their updated technology on top of current ones, allowing them to expand. Globalization and economic progress, according to Alvarez, Buera, and Lucas (2014), is a learning process through business partners, that is, managers adopt their foreign business partners' technologies.

Grossman and Helpman (2015) identified possible linkages between economic globalization and growth. To begin with, a flow of global ideas aids in the invention of new

items, the enhancement of current ones, and the reduction of manufacturing costs. Second, international commerce replaces inefficient home enterprises with more capable foreign ones, creating competition and forcing current firms to improve their efficiency. Third, as the global market integrates, the pricing of factors and products improves, which in turn reduces the costs of innovation. Finally, not only is new information gained, but it also leads to technical dissemination, which is necessary for growth.

2.4.   Economic Globalization: The Interactions between Foreign Trade and FDI

Globalization is characterized by the liberalization of commerce and the free flow of capital across borders, which is aided by international organizations and economic policies, as well as government laws and labour mobility (Aramberri, 2009:368). To fully integrate the global economy, trade, communication, and financial barriers should be removed, with special attention paid to their effects on the environment and social issues.

Trade and FDI have a two-way relationship. According to Rajan and Zingales (2003), to reap the benefits of globalization, the economy's domestic financial development and cross-border trade should be positively correlated. Furthermore, Anderson et al. (2017) found that free trade increases spending and lowers costs in the home nation. Low trade costs encourage the accumulation of technology capital and contribute to the global positive spillover effect. Coe and Helpman (1995) went on to say that a significant level of bilateral trade volume in partnerships promotes knowledge transmission. MNCs share their manufacturing and management practices with their international partners, who acquire fresh ideas in the process.

Blonigen (2005), on the other hand, found a contradictory relationship between FDI and commerce. Foreign investors create replicated versions of their enterprises in the home nation to avoid the trade restrictions imposed by the home country's government (such as regulations, distance, and expenses). Hence, horizontal FDI is used to replace trade. Similarly, firms seeking to reduce costs may divide their manufacturing process, moving labour-intensive phases to low-wage nations and capital-intensive stages to industrialized ones. Thus, investing in vertical FDI generates commerce.

Simmons and Elkins (2004) emphasized the necessity of global policy dispersion to ensure the efficacy of trade liberalization. Policymakers learn from the execution and efficiency of foreign economic policies to maximize the success of their policies. It is necessary to develop an effective communication network among government entities (Axelrod, 1997:204). Similarly, trade and investment alliances help nations overcome economic barriers. Positive outcomes of the integration agreements result in a more favourable international business and investment climate.

2.5. Effects of Economic Globalization on the International Economy

The global economy has been impacted by economic and financial integration, as well as a high level of trade liberalization. Globalization, according to J. Stiglitz (2006), helps to raise living standards by increasing access to new markets and attracting FDI, which allows for the transfer of knowledge and finance. Even though most economists feel that the advantages of globalization outweigh the drawbacks (Dreher, 2006:2), various research has revealed that the consequences of globalization differ across the economy. Countries vary in terms of their degree of development, and thus, they go through different economic changes.

In terms of globalization, rich countries profit more than underdeveloped nations. The higher the rate of openness to commerce and capital, the faster the country's growth will be (Dreher, 2006:14). With the continual flow of information, businesses can react considerably more quickly to global economic changes; they can rapidly adopt updated technology to meet new trends, even across national borders. Less developed nations (LDCs), on the other hand, depend more on developed countries. According to Ibrahim (2013), LDCs generate mostly intermediate inputs which make them reliant on richer economies for final products, creating an uneven commercial relationship. Furthermore, LDCs suffer from a high level of brain drain due to unrestricted labour mobility across borders; trained labour relocates to neighbouring nations in quest of a better working environment. Likewise, with capital control liberalization, LDCs experience large currency fluctuations (Goldberg & Pavcnik, 2007:14). Consequently, all these inhibit LDCs' growth.

Fortunately, the risks brought by economic globalization can be minimized through several measures. Even though agreements such as the Basel Accords have greatly contributed to financial transparency, a cross-border financial regulatory organization

dealing with the international financial flow and crisis situation can be set up (Shangquan, 2000:6). Alongside, the economic interests of the LDCs should not be overshadowed by those of the developed countries. Since the process of economic globalization is worldwide, the benefits gained should not be exclusive to a specific group of countries. Finally, developing countries should undertake an economic reform whereby government improves its corporate governance while encouraging competition to stimulate growth. Subsequently, LDCs would not be stuck behind in the game of globalization.

2.6.   The Indian Ocean in the Era of Globalization

Historians like Chaudhuri and Chaudhuri (1985) identified India and Babylonia as productive countries during the first global economy due to their well-organized marine trading system. African and Asian countries, on the other hand, were regarded as uncivilized. Their power was dispersed and concentrated in the hands of elders from several tribes who were unable to create a complex agricultural practice and confined their trading to small distances. The Europeans and Arabs took advantage of the tribes' complacency to extort ivory and trade in slaves to the industrialized countries' primary production centres.

The Indian Ocean is regarded as the birthplace of globalization (Davis and Balls, 2019:1). Foreign commerce began in the 1400s with the Portuguese, who approached the southern tip of Africa (the Cape of Good Hope) in 1497 and was followed by a slew of European immigrants in the early 1600s with the Dutch East India Companies. Trading routes were already established by that time. Spices and textiles, for example, were traded between India and the African and European continents. The expansion of trade has accelerated. From 2000 to 2009, the Indian Ocean's commerce volume rose at a 9.4% yearly pace. It declined after the financial crisis of 2009, rising by 4.8% between 2011 and 2017. China has invested a huge amount of money in the Indian Ocean as part of the Belt and Road Initiative (BRI) to foster global economic cooperation. The Asia-Africa Growth Corridor (AAGC) was created to route infrastructure investments from India, Africa, and Japan. According to Sri Lanka's Lakshman Kadirgamar Institute, the Indian Ocean economies would account for 20% of global GDP by 2025.

However, there are several impediments to the Indian Ocean's commerce expansion. Border inspections in the Indian Ocean take an average of 65.4 hours, compared to 11 hours

in OECD nations. It varies depending on the country. The average time in Tanzania is 402 hours. The quality of the port differs too. In comparison to Tanzania, Myanmar, and Yemen, Australia, South Africa, and Singapore have more developed port infrastructure. Similarly, tariffs imposed by nations in South Asia, Africa, and the Middle East are relatively high (Davis and Balls, 2019:12). Thus, hindering the Indian Ocean's ability to further expand trade.

2.7. Effects of Economic Globalization on Islands

Despite their tiny size, island states are nonetheless active participants in the globalization process. They have demonstrated that size is not a major impediment to their reaping the benefits of globalization in terms of improving their economic development. They do, however, suffer challenges due to distance because they are geographically stranded and isolated from other countries.

As is commonly assumed, the remoteness of islands results in increased transportation costs which have a negative impact on their economic progress. However, research by Armstrong et al. (1998) and Armstrong & Read (2000) indicate that isolation does not have a significant influence on island growth. Distance and location have become less significant because of technological advancements and the arrival of e-commerce. They even exhibit a high level of openness. They tend to export commodities in which they have a comparative advantage, such as high-value-added specialized products and services, to be internationally competitive.

Furthermore, despite their relative accessibility, they attempt to form regional alliances to get access to a wider market. The viability of such coalitions is also determined by the collaborating country's trade policy, such as the cross-border spice partnership between Mauritius and India. However, due to their pivotal locations and environmental sensitivity, they are frequently vulnerable to exogenous shocks (Read, 2004:369) which cause economic or political pressures. As a result, they should begin implementing sustainable economic practices and increase regulatory oversight.

TRADE THEORIES

The concept of economic globalization was discussed in the previous chapter, as well as its effects on international and island economies. As previously stated, trade and investment are the two major economic factors of globalization. The concept of trade is the main focus of this chapter. The theories surrounding the trade doctrine are examined, as well as the potential link between trade and economic growth and the increasing importance of trade in the history of the Indian Ocean.

3.1. A comparison of old and new trade theories

Theoretical frameworks for international trade have come a long way in recent years. From traditional to modern theories, the concept of trade has evolved. Factors such as trade patterns and directions are now being taken into account.

Mercantilism was the first school of thought developed by the bourgeoisie to increase their wealth and power in the sixteenth century. They were primarily concerned with maintaining a positive trade balance by enacting strict protectionism to prevent import competition, thereby ensuring gold inflows and domestic employment (Cohen et al., 2019:50). However, Adam Smith, in his book "The Wealth of Nations" (1776, p. 391), criticized it as follows:

"*A revolution of the greatest importance to the public happiness was in this manner brought about by two different orders of people, who had not the least intention to serve the public. To gratify the most childish vanity was the sole motive of the great proprietors. The merchants and artificers, much less ridiculous, acted merely from a view of their own interest, and in pursuit of their own pedlar principle of turning a penny wherever a penny was to be got. Neither of them had either knowledge or foresight of that great revolution which the folly of the one and the industry of the other was gradually bringing about.*"

The folly described was that of merchants who have a thorough understanding of the trade ideology but are forced to follow the ruling classes despite not having a complete understanding of the trade doctrine. In his book, Adam Smith emphasized the importance of capital accumulation in industry, encouraging labour division and market expansion while also abolishing the feudal system. By promoting free trade, countries will specialize in the

cheapest production, and increased competition will motivate workers to be more productive while also offering consumers a wider range of products at lower prices.

According to MacDonald (1912), David Ricardo's 1817 theory of comparative advantage arose from the latter's criticisms of Adam Smith's notion of absolute advantage. According to Ricardo, a country's focus should be on producing more efficient goods. Even if the price of a country rises, the ratio of commodities exchanged between the two countries remains unchanged. Instead, the export rate will be maintained until the currency's value is restored. This theory does, however, have some limitations. It is based on perfect competition, full employment, and factor immobility in the market. Similarly, a country's trade balance is always assumed to be balanced because a trade surplus implies that the country is exporting goods in which it has no comparative advantage (Cohen et al., 2019:51). Thus, new international trade theories have emerged.

Neoclassical economists Heckscher (1919) and Ohlin (1933) improved the theory of comparative advantage by considering countries' factor endowments. To increase its gains from trade, a country should specialize in the production of which it will use a relatively larger proportion of its abundant factors of production. Developed countries will specialize in capital-intensive production since they have skilled labour and capital. While developing countries have a primarily land and unskilled labour resource endowment, they will produce agricultural and labour-intensive goods. Island states have a competitive advantage in tourism due to their natural resources (Jensen and Zhang, 2005:6). In addition, the country's production has an impact on its economic development, which will be discussed in significant detail in the next section.

Paul A. Samuelson contributed to neoclassical trade theory by proposing the factor-price equalization theorem (1948), which assumes that factor prices in all countries will be the same due to factor mobility; and the Stolper-Samuelson Theorem (1941), which states that a rise in the relative price of the intensively used factor will lead to a rise in the factor's returns. Similarly, the Rybczynski (1955) theorem shows that at full employment, an increase in factor endowment contributes to greater output in sectors that utilize that factor heavily while lowering production in other sectors.

Even though the aforementioned theories are forerunners of international trade, they lack certain stylized facts such as production patterns and growth rates. Specialization occurs as a result of imperfect competition and increasing returns to scale, according to new trade theories (Krugman, 1979:469). The country with the highest returns will be the product's net exporter, and producers will locate near the market to save on transportation costs and increase demand, resulting in the home-market effect. Furthermore, geography has become an important consideration when deciding where plants should be located. Cost savings, knowledge spillover, and labour market pooling are all major benefits of agglomeration economies (Krugman, 2009:567). International trade is influenced by economies of scale, transportation costs, and demand and supply patterns.

Moreover, trade occurs in both horizontally and vertically differentiated products, and production patterns influence the gender of the workforce. Vertical international trade, according to Blanes and Martin (2000:432), has a higher technological intensity and lower product standardization than horizontal international trade. Developed countries, as previously stated, invest more in high-tech industries. It is easier for men to find work in advanced industries because they have better access to education. Women, on the other hand, work in labour-intensive industries (Çağatay & Berik, 1991:155). The defeminization of labour has decreased as industrialization has progressed, and gender equality is being promoted.

The effects of trade and development on developing countries are ataken into account in the new trade theories. In terms of technology and trade, Krugman (1979) demonstrated the North-South relationship. The North, as a developed economy, is an innovator, whereas the South, as a developing country, is a follower of new technologies to stay competitive. Through contact with advanced countries and foreign investment, capitalists can successfully industrialize the least developed countries. Additionally, the government's policies can influence the country's strategic trade position by imposing import protection measures and export promotion policies on specific lucrative industries. However, there are concerns about the actions of businesses and consumers, as well as the threat of retaliation.

3.2.   Assessing the benefits derived from global trade

International trade, according to Robertson (1938), has served as a growth and development elixir for several countries, including Denmark and Sweden, which have gone from underdeveloped to developed economies, and trade also promotes the growth of newly industrializing countries like Thailand and the Philippines. "Countries that have adopted an outward-oriented development strategy have grown faster and achieved a higher level of economic well-being than those that have chosen a more protectionist trade stance," according to Grossman and Helpman (1990).

There are two types of benefits derived from trade: static and dynamic. Myint (1977) looked at Adam Smith's static gains, which he dubbed the "productivity doctrine," and concluded that trade openness improves productivity and division of labour by facilitating the technological transfer and increasing returns. For the static gains from trade, he identified three key areas. To begin with, obtaining foreign products to compensate for those that cannot be produced locally. The ability to produce more efficiently at a lower cost is the second factor. Finally, a country's ability to trade its production surplus. Further to that, Haberler (1964) defined dynamic benefits as factors such as knowledge dissemination, technology, managerial talent, and entrepreneurship that improve production and expand production possibility frontiers. International trade participation also boosts foreign investment. In terms of knowledge and cooperation, such as infrastructure and export assistance, developing countries benefit from developed countries. Subsequently, by encouraging global competition, international trade acts as an anti-monopoly policy.

International trade, on the other hand, does not always promote growth. It can sometimes stifle economic development, particularly in LDCs. As the Prebisch-Singer hypothesis says, "the foreign sector is doomed to lag behind domestic growth partly due to insufficient demand for the primary products of LDCs from industrial countries, and partly because of the necessity of LDCs to buy capital goods from the industrialized countries" (UNECLA, 1950). This adverse raw material demand effect, according to Nurkse (1952), occurs for a variety of reasons. To begin with, advanced economies are shifting toward the service sector and heavy industries (such as chemicals) with low raw material elements. Second, trade barriers in the agricultural sector of advanced economies have had a negative

impact on import rates. Agricultural products, on the other hand, have a low-income elasticity of demand. Finally, the major industrial nations (like South Korea, Singapore, Hong Kong, and Taiwan) use man-made substitutes for raw materials. Furthermore, the economy's trade policy should be transparent and consistent, with a stable macroeconomic environment supporting investments in human capital, infrastructure, and the export sector itself. Even though a well-planned trade policy may not contribute to economic growth and development, an ill-conceived trade policy may harm other sectors.

3.3. Does openness trade boost economic growth?

The trade-growth nexus has long been a contentious topic, with economists coming to differing conclusions about the relationship's outcome. According to the comparative advantage theory, specialization enables more effective resource allocation and utilization. The surplus from production will be traded internationally (Salvatore, 2011:34). The world's competitiveness will rise. Firms will improve the quality of their products as well as their productivity. As a result, putting in place an efficient production and management process, as well as investing in research and development, are essential (Herzer et al., 2006:310).

International trade, on the other hand, is not always beneficial to all countries. When developing countries concentrate their efforts on trade, they encounter difficulties. They are extremely vulnerable to international trade disruptions, putting their economies at risk (Moon, 1997:9). Rather than relying on an export-led growth strategy, as Palley (2002) suggests, countries should focus on domestic market growth.

Different growth models will be illustrated, and previous studies on the topic will be reviewed, to assess the effect of trade on growth. Since international trade has an impact on the domestic economy also, its microeconomic impact will be examined.

3.3.1. Growth Models

Throughout the years, economists have worked on growth models to prove the link between trade and growth by considering different assumptions such as exogenous and endogenous factors. Some of these models are elaborated on below.

3.3.1.1.   Harrod–Domar model

The Harrod-Domar model, proposed by F. Harrod in 1939 and E. Domar in 1946, claims that growth may be sustained provided the actual, projected, and endogenous growth rates are all equivalent and capital and labour are fully utilized. The model assumes a constant capital-to-labour ratio and an optimal level of savings. Srinivasan and Bhagwati (1980:14) show that trade policy can influence the equilibrium growth balance in developing countries where labour is in excess supply. However, a capitalist economy will always experience involuntary unemployment, which is a flaw in this model. As a result, without an equilibrating force, there would be no convergence towards a balanced growth rate (Pitak, 2014:52).

3.3.1.2.   Solow model and Ramsey growth model

In response to the criticisms of the Harrod-Domar model, Robert Solow proposed the Solow growth model in 1956, which stated that the issues of economic instability and full employment could be solved by introducing factors of production substitution. In addition, the Ramsey growth model (created by Frank Ramsey in 1928 and expanded by David Cass and Tjalling Koopmans in 1965) included saving as an endogenous factor. As a result, the Harrod-Domar model's flaws are addressed. The rate of growth of inputs and technological progress will grow exogenously at a steady pace in both neo-classical models for closed economies, equaling the exogenous rate of growth of output. Therefore, trade policies will have no effect. Even in the extended versions of the Solow model (Srinivasan and Bhagwati, 1980:13), moving from autarky to free trade will only cause a temporary growth in output rate because it is assumed that as the capital-labour ratio grows, the marginal product of capital falls.

3.3.1.3.   Endogenous Growth Model

The factors affecting the rate of economic growth in endogenous models are generated from within the economy itself. It considers physical and human capital and the positive externalities that come with it (López, 2005:625).

Romer and Rivera-Batiz (1991) investigated the link between economic integration and development using an endogenous growth model in which technological progress is the

main contributor to the growth and economic growth is dependent on the amount of human capital available. In other words, countries with abundant human capital develop much faster. As a result of international economic integration, there will be a scale effect, with large markets conducting more research. Further, technological spillovers will enhance productivity. Thus, raising the level of economic growth. Young (1991) used the endogenous growth model to demonstrate the learning-by-doing effect across production. Developed countries, on the other hand, grow faster than developing countries in a free trade environment. Because of this static comparative advantage, the LDC focuses on traditional goods where progress has been exhausted.

3.3.2. Review of Previous Studies

The relationship between trade and growth has been studied extensively using time series analysis, panel data, and cross-section approaches. Even though most empirical findings are ambiguous, it has been demonstrated that the conclusion varies depending on the type of economy.

Tyler (1981) conducted an overall analysis of data from 55 countries and concluded that open countries experience faster economic growth. For data on 93 countries, Edwards (1998) found strong evidence in favour of this theory. Kugler (1991) examined the validity of the relationship for developed countries and found that the results for America, Japan, Switzerland, and England are inconclusive, except for France and West Germany. For the period 1966 to 1996, Siddique and Selvanathan (1999) demonstrated that trade does not cause growth in Malaysia. From 1870 to 1991, Henriques and Sardorsky (1996) concluded that there is no causal relationship between the export-led growth hypothesis in Canada. For least developed countries, Ram (1985) looked at 73 LDCs and discovered that trade stimulates growth. Economidou and Bahmani-Oskooee (2009) investigated the robustness of the trade-growth relationship for 61 LDCs and found that patterns differed by country.

3.3.3. Macro and Micro economic impacts of trade

The macro and micro aspects of the economy are both influenced by the impact of trade openness on growth. On a macroeconomic level, disparities in human capital abundance affect countries' technological progress. Hence, education should be prioritized, and a

diversification strategy should be implemented. To keep up with global competition and maintain a continuous learning effect, new technologies should be introduced regularly to upgrade the economy's production. Because skilled labour will be required to use sophisticated technology, advanced countries should design policies that synchronize technological progress with the accumulation of human capital. Developing countries should begin by ensuring that all citizens have access to education and promoting agricultural research. This way, they can maximize their endowed resources to reap the benefits of international trade (López, 2005:624).

Firms that enter the export industry are thought to be more productive than non-exporters on a microeconomic level. The learning-by-exporting hypothesis suggests that firms involved in international trade improve their productivity. They gain a better understanding of foreign markets as well as ways to improve their manufacturing process and product quality. In other words, they choose to compete in the fierce international competition rather than being forced to do so. Firms that willingly enter the export industry are those which can afford to invest in technology, have a competitive management style, and skilled labour. It explains the positive correlation between trade and growth because the most productive firms participate in global trade (López, 2005:629).

3.4.   Trade in the Indian Ocean: A historical perspective

The Indian Ocean has been a strategic place for economic development and dominance as early as 5000 BCE. It has been a forum for trade, transfer of technologies, and flow of money between geographically remote groups of countries. With time, it has gained more importance due to the countries' factor endowments and position.

The imperialistic power of British industrialization dominated the late 18th century and early 19th century. In the Indian Ocean, their economic focus was on expanding colonial dominance and establishing cash crop economies. The economic activity in the Indian Ocean was dictated by the rise and fall of British dynasties and changes in the ruling body. The increase in piracy rates, on the other hand, has been a never-ending struggle for the colonizers, whose trade was deteriorating as their trading vessels were plundered. Furthermore, Islamic law was bringing changes to the legal framework of trade in several Indian Ocean regions. European politics had "imposed new territorial borders that artificially

cut through the historic or fluid frontier and frequently divided ethnically discrete societies" by the nineteenth century (Alpers, 2014:68).

The slave trade flourished during the period of European imperialism. The rate of slave imports from East Africa increased after the 1769 decree encouraging islands to participate in free trade. Slave trade monopolists like Jean-Vincent Morice formed alliances with African tribe leaders in exchange for a predefined number of slaves per year. According to Campbell (1981), the unlawful slave trafficking from Madagascar to Mauritius and Seychelles was a significant source of income for Radama I, the ruler of Madagascar, and it allowed Britain to recognize his status in the country. European colonists exploited the cheap African countries' resources for their financial gain. The slave trade was in decline at the time (as shown in Table 1 below), and it was affecting regional political and economic interests. Illicit slave trafficking was abolished in 1820 with the Anglo-Merina Treaty.

Table 1: Exports of Slaves to the Indian Ocean, 1670 - 1848

Period	Source	% of Trade
1670-1769	Madagascar	70
	Eastern Africa	19
1770-1810	Madagascar	31
	Eastern Africa	60
1811-1848	Madagascar	38
	Eastern Africa	59

Source: Allen, R. B. (2003:41). The Mascarene slave trade and labour migration in the Indian Ocean during the eighteenth and nineteenth centuries.

Maritime commerce is another important industry in the Indian Ocean. Fast-growing nations with significant maritime activity in terms of volume, resources, and economic expansion occupy the ocean. Fisheries, which provide a living, and fossil fuels, which provide energy, are both important components of security for those countries. As a result of the fierce competition for those marine resources, inter-state competition and conflicts over fishing grounds and fossil fuel locations have arisen. Local fishermen are facing poverty as the fishing industry is industrialized by foreign companies. Piracy arose because of a combination of poverty and their sailing abilities. Somali pirates have a significant impact on the security of the seaborne trade. Likewise, the introduction of new marine technology, shifts in commercial power, and changes in port infrastructure result in a new geographical

commercial advantage. As a result, the strategic anxieties and vulnerability of economies reliant on maritime commerce are heightened (Pandya et al., 2011:19).

Almost all world superpowers, according to the Carnegie Endowment for International Peace, have a strong commercial or military interest in the Indian Ocean. In the Chagos Archipelagos which belongs to Mauritius, more precisely on the island of Diego Garcia, the United States has erected a military post. The United Kingdom disputed the sovereignty of that island from Mauritius but the United Nations General Assembly passed a resolution in support of Mauritius in 2019. Reunion island, being a French state, provides France with the ability to oversee the economic activity in the region. France formed key alliances with French-speaking countries such as Madagascar, Comoros, and Mauritius through the Indian Ocean Commission. In contrast, India has established itself as a key partner for Sri Lanka, Seychelles, the Maldives, and Mauritius. China has also interacted with the six island states over the years, with the diplomatic goal of developing economic and investment strategies.

Despite competing for economic interests in the Indian Ocean; India, China, Japan, America, NATO allies, and the United Nations collaborate on specific issues. The Indian Ocean has three of the world's seven choke points: The Malacca Strait, which connects Malaysia, Singapore, and Indonesia to the Indian Ocean; the Strait of Hormuz, which connects the Persian Gulf to the Indian Ocean; and the Bab-el-Mandeb Strait, which connects Eritrea, Djibouti, and Yemen. There's also the Mozambique Channel, which connects the Cape of Good Hope to the rest of Africa. A map of the choke points is illustrated below. Alternative routes will be slower, more expensive, and inaccessible for large tankers if these key trading routes are unavailable. Hence, powerful countries compete for access and influence at these choke points. They'll be able to command the entrance and exit of any navy vessel, and thus can serve as a deterrent to submarine warfare by detecting the adversary's seaborne movement. Hence, igniting the utmost interest of powerful nations in the Indian Ocean, according to Carnegie Endowment for international peace. Further, the littoral states of the Indian Ocean possess an array of non-renewable resources. It contains oil and gas reserves, uranium, gold, diamond deposits, lithium, beryllium, zirconium, thorium, coal, iron,

copper, manganese, tin, bauxite, chromite, nickel, cobalt, vanadium, and phosphates (Michel, Fuller & Dolan, 2012:17).

Graph 1: The choke points of the Indian Ocean

FOREIGN DIRECT INVESTMENT

"*Foreign direct investment (FDI) is an integral part of an open and effective international economic system and a major catalyst to development. [...] With most FDI flows originating from OECD countries, developed countries can contribute to advancing this agenda. They can facilitate developing countries' access to international markets and technology.*" OECD (2002:3)

"*Today, FDI is not only about capital, but also –and more important– about technology and know-how, [...] International patterns of production are leading to new forms of cross-border investment, in which foreign investors share their intangible assets such as know-how or brands in conjunction with local capital or tangible assets of domestic investors.*" World Bank

FDI, according to the International Monetary Fund (2005), is an international investment made from one country's resident entity to another to establish a long-term business relationship. The WTO defines FDI as an investor purchasing an asset in a host country to manage and handle the asset. The OECD (1996) established a 10% threshold in the voting stock to assess the extent of investor control on the firm's management to assure statistical consistency worldwide.

The concept of international investment is thoroughly examined in this chapter. Both the country and the firm/industry are affected by FDI. FDI theories are examined from both a macroeconomic and a microeconomic standpoint. The effect of FDI on development is discussed in detail. The growth-enhancing effect of FDI is elaborated; however, foreign investment can also immiserate growth. The FDI issues faced by island states due to their unfavourable characteristics are elaborated. Finally, the economic impact and ramifications of foreign investments in the Indian Ocean are investigated.

4.1. Theories of FDI

The international capital movement theory, which states that FDI is caused by differences in capital rates of return between countries, was used to explain FDI. Afterwards, several other FDI theories were developed over time, taking into account various aspects of the economy such as market failure, firm growth, investment portfolios, and location. The

Eclectic Paradigm, developed by John H. Dunning in 1979, is the FDI theory that has gained the most traction. It considers the advantages of ownership, location, and internalization (OLI) (Boddewyn, 1983:347). The FDI theories are based on three main theories, according to Popovici and Calin (2014). Firstly, the international capital movement theory assumes a differential in the rate of capital return and risk diversification by investing in portfolios. Secondly, the international trade theory encompasses three models: (i) Mundell and the Heckscher-Ohlin model (1957) where it is assumed that capital and trade are perfect substitutes; (ii) Kojima's 'Macroeconomic Approach' (1982) which says that FDI should come from a relatively disadvantaged industry to a relatively advantaged one in another host nation; and (iii) The Product Cycle theory by Vernon (1966) which explains the role of FDI in enhancing the diffusion of knowledge and promoting technological innovations. In this section, other FDI theories will be analyzed from a macroeconomic and microeconomic perspective.

4.2.1. Macroeconomic FDI theories

They are country-specific factors that will impact the host country's ability to attract FDI, such as growth rate, market size, and transparency, among others. It can take the form of capital stock value, financial capital flow, and investment income.

4.2.1.1. Currency Area Theory

Developed by Aliber in 1970, it states that weaker currencies attract more FDI since a higher market capitalization rate will be obtained. Additionally, multinational corporations (MNCs) are more likely to be based in hard currency countries because their subsidiaries can access cheaper capital with lower interest rates. This theory, however, does not apply to LDCs due to their highly imperfect capital markets (Lall, 1979:66). Similarly, Nayak and Choudhury (2014) pointed out that countries with similar currency strength and multinational corporations (MNCs) with weaker currencies investing in countries with stronger currencies are overlooked.

4.2.1.2. Location-based theory

According to this theory, a country with abundant natural resources, skilled labour, good infrastructure, and an open government will attract more FDI. It is linked to economic

geography and can be explained using the gravity approach, in which two countries that are economically and geographically similar in terms of size and distance, as well as speaking the same language, have a high FDI flow (Popovici & Calin, 2014:4).

4.2.1.3.   Institutional FDI Fitness Theory

Wilhems and Witter invented this theory in 1998. It asserts that a country must be able to attract and maintain FDI by meeting or exceeding the expectations of investors. Four pillars must be met. Firstly, the government should implement a transparent strategy that encourages economic transparency and a low rate of corruption. Secondly, to stimulate MNC investment, the market should be wealthy in both physical and financial capital. Thirdly, human capital investment should be made to boost innovation and creativity. Finally, encouraging a socio-cultural system is important. The four criteria must work together to attract greater FDI.

4.2.2.   Microeconomic FDI Theories

Microeconomic FDI theories were defined by Makoni (2015) as investment choices made at the business or industry level. Stock and capital movements, employment, and profitability all have an impact on them. FDI choices are dependent on a variety of factors, including the availability of raw materials and labour, economies of scale, and patents, according to the firm-specific advantage hypothesis. In the oligopolistic reaction theory, MNCs tend to follow the market leader. The eclectic paradigm, proposed by J.H. Dunning in 1979, is the FDI theory that has acquired the greatest notoriety.

4.2.2.1.   The Eclectic Paradigm

According to this theory, enterprises must meet the OLI conditions of ownership, location, and internalization advantages to attract FDI. Ownership refers to a company's exclusive physical and intangible benefits, such as innovation and copyrights, which can lower costs and thereby improve the company's competitive edge. Internalization of benefits means that the advantages of ownership are not sold or leased to other companies. Finally, the corporation should place its manufacturing in nations where resources and labour are more profitable to fully benefit from the ownership and internalization elements. As a result, FDI and international commerce and manufacturing are encouraged.

4.2.2.2.   Investment Development Cycle or Path (IDP) theory

To address the shortcomings of the eclectic paradigm theory, the investment development cycle hypothesis was developed by Dunning (1981). He explains that FDI follows the same pattern as the product life cycle. In the introduction stage, there is no FDI. The growth stage is characterized by location advantages that attract FDI. The maturity stage is where the local firms benefit from the ownership factor and hence start investment abroad. And the decline stage is reached when the country becomes a net outward investor.

4.3.   Does FDI enhance or immiserate growth?

Even though the majority of research has demonstrated that FDI has a positive influence on a country's economy, some empirical investigations have found that its impact cannot be identified and must be further investigated. Policymakers support FDI inflows to obtain expertise and technological transfer, which will boost the competitiveness and productivity of domestic enterprises. However, foreign investment does not guarantee economic growth.

The growth-improving effect of FDI is dependent on several factors, including the host country's trade policies, economic state, and absorptive ability. According to Bhagwati (1973), an open trade policy draws higher FDI. He showed that an import substitution program attracts considerably less foreign direct investment than an export promotion approach. Chowdhury and Mavrotas (2003) agreed that the degree of openness influences the level of FDI contribution. Similarly, Alfaro (2003) asserted that FDI has a larger effect on industrial growth than in the primary sector. Further, several absorptive capacity factors of the host country have been identified that stimulate the FDI-growth relationship such as trade liberalization and human capital (Borensztein et al., 1998:126); developments in the financial markets (Alfaro et al., 2004:108); quality of the institutions (Jude and Levieuge, 2015:18) and low level of corruption rate (Freckleton et al., 2012:650).

FDI, on the contrary, might also deter growth. In Venezuela, for example, companies receiving FDI gain from a relatively small spill-over effect compared to local enterprises' productivity, which suffers (Aitken and Harrison, 1999:616). Similarly, Hanafy (2015) analyzed the Egyptian economy and discovered a positive FDI spill-over impact in the

manufacturing sector, no influence in the service sector, and a negative FDI effect in the agricultural sector. Furthermore, Bhagwati (1958) demonstrated that FDI might have a negative impact on growth. Because FDI increases productivity, labour-force expansion means that payments to foreign investors rise. It occurs when the host nation has a low supply elasticity of foreign capital and a low substitution elasticity of labour and capital.

Previous research has found that the link between FDI and growth differs by country. De Mello (1999) investigated OECD and non-OECD nations and concluded that FDI encourages technological transfers and spillovers. On the other hand, to boost development and reduce the technology gap, African nations compete for FDI, where their incentives outweigh the returns from investment, leaving them worse off (Mwilima, 2003:4). Moreover, Kumar and Pradhan (2002) and Hansen and Rand (2004), showed that the direction of causation between the two variables is unclear. Sometimes, rather than FDI causing growth, growth causes FDI. Chowdhury and Mavrotas (2003) observed that growth attracted foreign direct investment to Chile from 1969 to 2000. The direction of causality is important to policy leaders in formulating economic policies. With a lack of significant information, the economy may worsen in the long run.

4.4.   Investments in island states

Small island economies, as underlined by Armstrong and Read (2003), are distinguished by a scarcity of natural resources and labour supply, a small domestic and export market, a high rate of trade liberalization, and significant transportation and communication costs. Consequently, the absolute value of FDI inflows to small states tends to be low. Nonetheless, these infusions of cash, talent, and technology contribute significantly to their economic progress and worldwide competition. Their strategic position and domestic economic activities have encouraged their expansion. Despite their economic features, the policies they have designed have successfully increased growth (Read, 2002:30). However, as a result of the COVID-19 outbreak, the tourism sector has collapsed, and production has been shifted to safer nations, resulting in a 40% decrease (to $2.6 billion) in FDI flows to island economies in 2020. (UNCTAD Report, 2021:98).

R. Read (2008) examined the variances in FDI inflows based on five criteria: size, income, location, trade openness, "islandness," and economic sector structure. Even though

islands are small in size, it has been demonstrated that they are not a substantial impediment to FDI inflows. In terms of location, it has been demonstrated that FDI inflows are highly favourable, particularly for islands located in Western Europe which promotes an open trade policy. Trade liberalization is a crucial inducement for FDI. As a result, the structural openness of the islands invites greater investment. On the other side, "islandness" is determined to be positive but insignificant, similar to the economy's sectoral structure.

So, how do island states attract FDI despite their negative characteristics? It can be explained by their particular benefits and motivations. First and foremost, their strategic position and natural resource endowments, such as the abundance of marine resources. Global monopoly profit maximization businesses will be driven to invest to get access to valuable natural resources. Additionally, tourism is the primary development engine for the islands (Craigwell, 2007:1). FDI and tourism have a bidirectional causation connection, as demonstrated by Craigwell and Moore (2008). As more visitors visit the islands, hotel demand rises, encouraging international hotel companies to invest in the country (Selvanathan et al., 2012:3). As a result, tourism products should be heavily promoted. FDI not only brings capital but also the sharing of expertise from global brands. Furthermore, technological advancements and quality control will boost tourist growth and promote the image of host countries. Furthermore, international investors will visit the host country frequently to study the cultural and economic institutions, as well as to monitor company success (Selvanathan et al., 2012:4).

4.5.   FDI in the Indian Ocean

India, China, Africa, and the Middle East have all contributed significantly to investment in the Indian Ocean in recent years. Walker (2008) elaborated on their major contributions to the development and progress of the Indian Ocean. India has used its membership in the British Commonwealth to create trade connections with African countries. It has helped the military development of Nigeria and Ghana by giving military training; it has established enterprises such as Tata Group in Sub-Saharan Africa and Egypt; it has implemented medical institutions and promoted the Bollywood film industry. China participated in African infrastructure development, such as the construction of resource processing plants, power plants, and ports. China also provides training and scholarships to

African professionals and students. The Arabs' investments were mostly in the construction of banks that adhered to Islamic principles, which forbade the payment of interest. They also made significant contributions to the real estate, oil, and telecommunications industries. However, all these contributions made by those countries have resulted in an arms race in the Indian Ocean. China has constructed ports in the Persian Gulf (Gwadar, Pakistan) and the Bay of Bengal (at Sittwe in Myanmar). In reaction, India created a submarine and aircraft carrier force. Hence, making the Indian Ocean the battleground of economic supremacy.

Similarly, regulatory rules in the Indian Ocean hinder FDI. A range of operations is included in service trade such as the establishment of subsidiaries and tourism, among others. Service trade barriers can also take the form of licensing, taxes, and limitations on foreign firms. According to the Services Trade Restrictiveness Index 2018, the constraints to service trade in the Indian Ocean are 36.7, which is higher than the OECD average of 19.5. It has been noted that, on average, establishing a firm in the OECD takes 8 days, however, it might take up to 22 days in the Indian Ocean. Additionally, foreign investors can only acquire a restricted amount of shares in locally controlled enterprises, and foreign employment is carefully scrutinized.

Furthermore, due to the COVID-19 pandemic, FDI flows have declined. South-South investment is advocated each year in the UNCTAD World Investment Report to foster collaboration. According to the World Investment Report 2021 (p.34), bilateral FDI investments between developing nations grew by 9.8% in 2019 compared to 2009. However, as a result of the epidemic, FDI flows to Indian Ocean islands have deteriorated. FDI into the Maldives has declined by 64% in 2020. Tourism investment has halted, and GDP has dropped precipitously. FDI into Mauritius has dropped by half, to $246 million. The real estate business is the most affected by the downturn. Similarly, FDI into Sri Lanka decreased by 43%. The impact on Seychelles has been limited, with a 15% drop in FDI (amounting to $122 million), primarily in the hotel industry. Comoros, on the other hand, saw an increase in FDI flows as a result of effective economic policies such as the FDI diversification strategy. In times of global crisis, policy actions have a vital role.

THE ISLANDS IN THE INDIAN OCEAN

Following a thorough examination of the principles of globalization, global trade, and foreign investment, this chapter examines the six island nations that are the focus of this research: Comoros, Madagascar, Maldives, Mauritius, Seychelles, and Sri Lanka. Due to their distinct attributes, islands confront particular challenges when it comes to engaging in trade liberalization and attracting FDI, as outlined in earlier chapters. Each island differs in terms of economic advancement, crisis survival strategies, and post-globalization performance. Understanding each country, including its domestic reform initiatives, trade regime, and foreign investment policies, will assist in evaluating the results of the econometric study conducted in the following chapters. Furthermore, the rationale for focusing on island nations is that it will greatly contribute to the shortage of research on these economies and increase awareness of the world's mostly forgotten countries owing to their economic specifics.

5.1. Country Review

The islands of the Indian Ocean can be divided into two parts: the western and the eastern islands. The eastern territory consists of very small islands which have little economic influence, except for Sri Lanka. On the other hand, the western region includes five out of the six main islands of the Indian Ocean that is, Comoros, Madagascar, Maldives, Mauritius, and Seychelles. According to the World Wide Fund (2017), the western area of the Indian Ocean can generate US$333.8 billion from its economic activities which comprise fisheries and marine tourism. Hence, initiatives such as the Western Indian Ocean Governance Initiative has been established to protect valuable marine assets, improve communication and collaboration among the stakeholders, and promote the blue economy. A detailed description of the economic development of the six main islands of the Indian Ocean is presented below.

5.1.1. Comoros

The Union of Comoros is made up of four small islands in the Mozambique Channel in southeast Africa: Great Comoros, Anjouan, Mayotte, and Moheli. Comoros has not seen major economic development since gaining independence in 1975. Agriculture, fisheries, and

tourism are its principal industries. It experienced a serious political crisis from 1997 until 2007, during which the presidential election was contested by the Comoros government and the island of Anjouan. In turn, it resulted in an economic downturn. The agricultural sector's performance has also been deteriorating because of a decrease in global demand, intense international competition, and more liberalized trade beginning in 2007. Similarly, despite the strong demand for tourist products in this geographical region, Comoros' market share is rather modest when compared to Mauritius and Seychelles. If these sectors are fully exploited, it could considerably contribute to the growth and employment of the economy (African Development Bank Group, 2011:1-2).

In 2009, the Paris Club offered bilateral financial assistance to Comoros, and in 2010 it received an Extended Credit Facility (ECF) from the IMF. Its growth rate climbed significantly from 1.8% in 2009 to 2.1% in 2010. However, it was designated as a Heavily Indebted Poor Country (HIPC) in the same year, with a debt/GDP ratio of 37.3% and a debt/export ratio of 308% (African Development Bank Group, 2011:4-5). To promote economic and financial stability, the authorities concentrated on improving economic infrastructure and governance, distributing resources more effectively, and boosting the tourist, agricultural, and fisheries sectors via investment. A diversification program will also help to enhance the country's industrial base, as well as create an atmosphere that will attract both international and local investment (African Development Bank Group, 2011:9). Figures 1 and 2 show the trends in Comoros trade and FDI inflows, respectively.
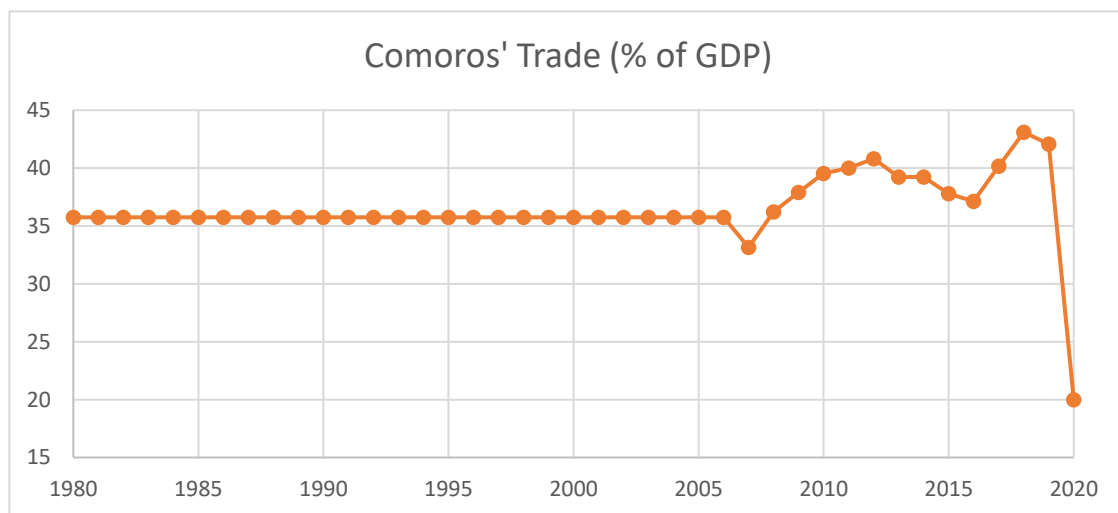

Figure 1: Comoros' trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020
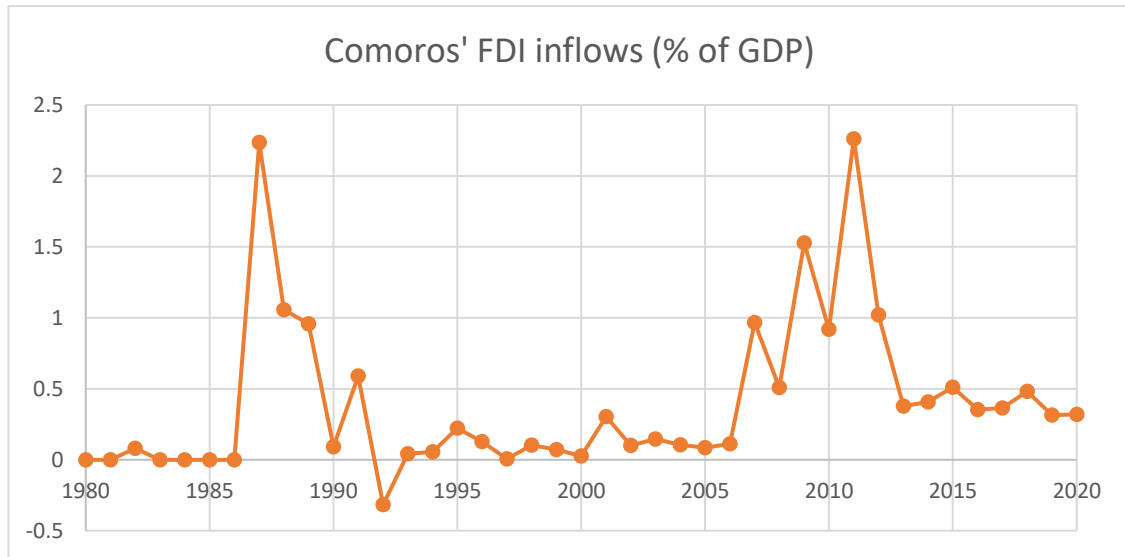
Figure 2: Comoros' foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

The first cases of COVID-19 appeared in Comoros during its recovery from Cyclone Kenneth in April 2019. GDP growth fell from 3.6% in 2018 to 1.9% in 2019 and further contracted to 1.4% in 2020. Remittances from the diaspora have decreased, tourist numbers have reduced, and the downturn in the global economy has resulted in a drop in commodity prices, which has harmed trade income (IMF Country Report, 2020:4). Comoros' government has made several steps to limit the impact of the COVID-19 outbreak. First and foremost, public health institutions have been better equipped for quarantine and capacity has been increased. Secondly, budgetary measures have been examined. Food and medical supplies have cheaper customs taxes, and tax reporting has been postponed by two months. Thirdly, monetary policies have been altered to manage inflation and regulate the peg to other currencies. To aid struggling borrowers and stabilize the banking system, the mandatory reserve amount has been reduced and the duration of debtor loans has been extended to help stabilize the banking system and ease liquidity stress (IMF Country Report, 2020:7-10). Comoros' economy can mitigate the devastating effects of the pandemic with a well-implemented and structured approach.

5.1.2. Madagascar

Since its independence from France in 1960, the Republic of Madagascar's economic development has gone through many stages. Its principal exports were vanilla, cloves, textiles, and fisheries. Madagascar's government held significant control over the market

from the start of its independence until the 1980s, when it was liberalized (Fafchamps & Minten, 1999:3). According to World Bank data, the level of trade contracted from 45% in 1979 to 19.29% in 1983; it later expanded to 50.18% in 2002 before reaching 34.03% in 2003 due to new agreements and legislations that were established. Fjeldsted (2009) explained that the Société Générale de Surveillance (SGS) reformed the customs department and designated independent ports. These commercial sector changes improved trade. E-commerce was launched through the TradeNet system, which created a unified online platform for both import and export enterprises. Trade as a proportion of GDP peaked at 74.36% in 2008 before plunging to 52.65% in 2012 owing to a political coup, as seen in Figure 3.

Figure 3: Madagascar's trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

Similarly, due to the political and economic instability, Madagascar was unable to attract FDI until 2003, when the Law on Commercial Enterprises was enacted. According to the International Trade Administration (ITA), it was supported by the Law on Large Scale Mining Investments in 2005, as well as the Law on Investments and the Law on Free Zone Companies in 2007. These laws attempted to attract foreign investment by streamlining administrative procedures and allowing for privatization. FDI increased momentum and peaked at 13.5% of GDP in 2009. (See Figure 4). However, because of political upheaval, the FDI rate was badly impacted, reaching 2.89% in 2015.

Figure 4: Madagascar's foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

Moreover, the COVID-19 epidemic exacerbated Madagascar's economic position. The economic repercussions were addressed in the April 2021 IMF Report (p.4). Real GDP fell by 4.2% in 2020, owing to contractions in the tourist, textile, and manufacturing industries. As a consequence, the current account deficit was 6.5% of GDP. Madagascar attempted to alleviate the epidemic's negative effects by concentrating on three critical areas utilizing IMF lending facilities. Firstly, improving the fiscal climate via quality expenditure will stimulate both physical and human capital investment. Secondly, strengthening governance by combating corruption, and improving the business climate by upgrading key economic sectors and encouraging diversification. Finally, reinforcing AML/CFT rules (Anti-Money Laundering and Counter Financing of Terrorism) to stabilize the financial development industry (IMF Country Report, 2021:8).

5.1.3. Maldives

The Maldives are an archipelago located in southwest India. It is made up of 1,190 very small islands, only 203 of which are inhabited. There are a total of 26 coral atolls. The coral atolls are organized into 20 administrative districts to oversee each island (Sathiendrakumar & Tisdell, 1989:255). Its primary trading sectors are fishing, textiles, and tourism. Since the 1980s, the Maldives' government has advocated for intensive commercial liberalization through alliances with strategic business partners such as the bilateral trade deal with India. However, the inflation rate soared to 23.76%, resulting in a drop in trade from 375.38% in 1981 to 128.82% in 1986, as seen in Figure 5 below. Following that, a consistent

trade level prevailed, with slight swings between 2001 and 2006. The Maldives faced a financial crisis in 2001, which was addressed by currency devaluation. In addition, it got international funding in 2006 to help rebuild its economy following the 2004 tsunami.
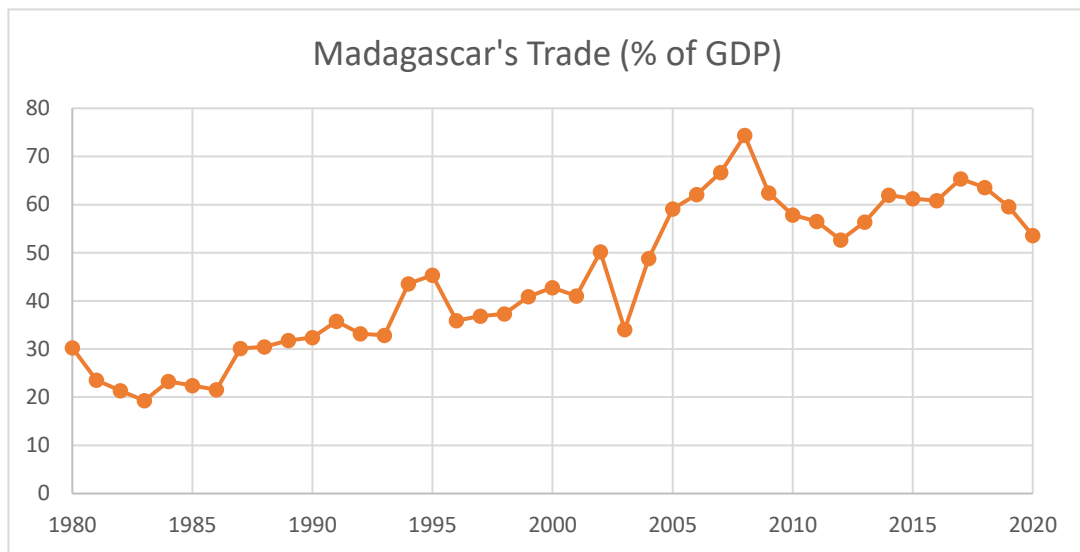

Figure 5: Maldives's trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators

In the 1980s, the Republic of Maldives began to open up to international investment, mostly in the tourist industry, telecommunications, and banking sectors. The Monetary Authority Act, however, was approved in 1981. The sub-section on remittance rules said that, although having no limits on the amount of profit repatriation, a 3% remittance tax on the amount moved by foreign employees out of the Maldives was enforced. In 1981, the rate of FDI received was lowered to -6.011. Furthermore, the Tourism Act was revised in 2010. Investors were granted a 50-year lease on an island. FDI as a proportion of GDP increased from 8.36% in 2010 to 15.27% in 2011, as illustrated in Figure 6.

Maldives has been infected with the COVID-19 pandemic since 2019. Due to travel prohibitions and visa restrictions, the IMF Report dated April 2020 (p.5) reported a considerable reduction in tourist arrivals, which is the Maldives' major source of income. It has resulted in a decrease in tax collections and company profit tax. The Maldivian economy was on the verge of collapse due to the increase in health expenditure. As a result, they have asked the IMF for a Rapid Credit Facility (RCF) in 2020 (IMF Country Report, p.4) to help them overcome their financial problems. Furthermore, the fiscal strategy will strive to reduce non-priority spending while focusing on crisis-affected industries (IMF Country Report,

2020:8). The monetary policy would aid the financial sector by providing banks with capital cushions and liquid availability (IMF Country Report, 2020:9).
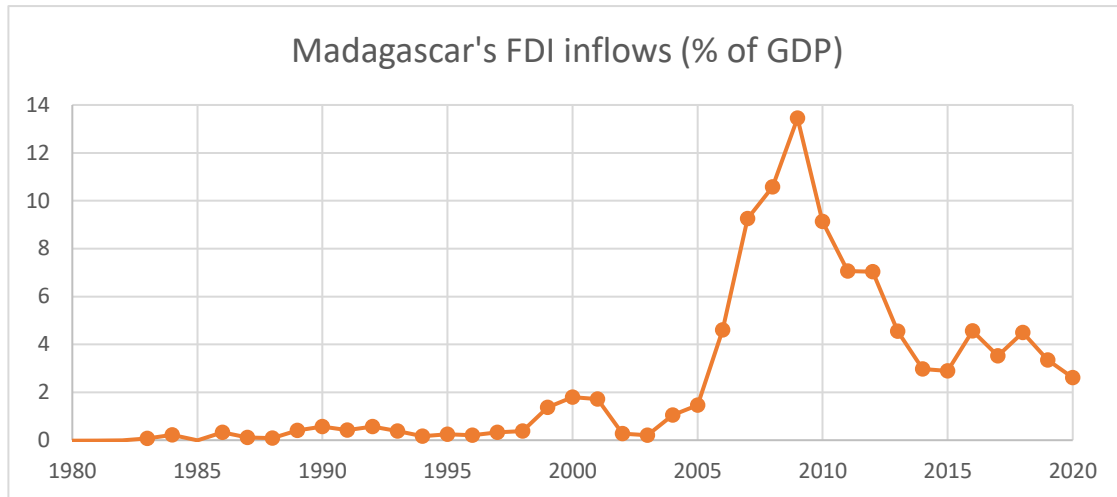

Figure 6: Maldives' foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

5.1.4. Mauritius

Several economic changes have occurred in the Republic of Mauritius over the years. It is located near Madagascar in the Indian Ocean. It has evolved from a mono-crop, sugar-based economy to a multi-sector, high-income country (Zafar, 2011:91). Mauritius was named the top-performing African country in the 19th edition of the World Economic Forum Global Competitiveness Report (2019:13). Despite the creation of the Export Processing Zone (EPZ) in the early 1970s, the volume of commerce took some time to expand. The trading regime was substantially liberalized in 1984. The export tax and pricing limitations were abolished. The value of trade increased from 93.64% in 1983 to 137.11% in 1990 (as shown in Figure 7). Mauritius implemented a dual trade policy in 1994, encouraging exports while imposing strict import regulations (Zafar, 2011:2). It also joined several trade blocs during this period, including the Indian Ocean Commission (COI) in 1982, the Southern African Development Community (SADC) in 1992, the African Economic Community (AEC) in 1994, the World Trade Organization (WTO) in 1995, and the Common Market of

Eastern and Southern Africa (COMESA) in 2009. Trade openness has significantly increased. Trade levels have changed dramatically throughout the years due to the numerous trade policies that have been introduced.
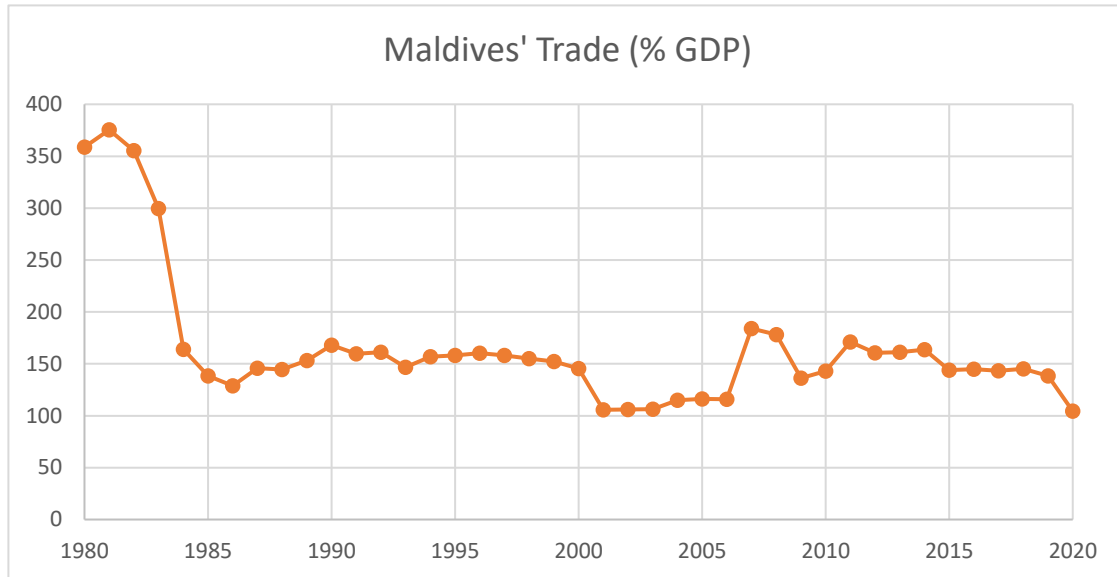

Figure 7: Mauritius' trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

With the EPZ, the designed incentives attracted a significant amount of FDI. The corporate tax, custom duties and sales taxes were reduced. Together with Mauritius Export Development and Investment Authority (MEDIA) and Export Credit Guarantee Scheme, foreign investments in the export industry escalated (Zafar, 2011:10). FDI (percentage of GDP) climbed from 0.292% in 1998 to 5.696% in 2000, before plunging to -0.6% in 2001 (as seen in Figure 8) owing to the Investment Promotion Act, which permits the government to review the degree of investment in enterprises on a case-by-case basis.

Mauritius has effectively contained the pandemic, according to the IMF Report (p.4), dated June 2021. However, tourism has declined dramatically, resulting in a deficit in the current account amounting to 12.6% of GDP. With a relatively steady economy, Mauritius' major macroeconomic problem remains the rehabilitation of the tourist industry, which is one of the country's main sources of income. To stimulate development and recover from the economic effects of the outbreak, the authorities acknowledged the need for budgetary consolidation and an accommodative monetary policy (IMF Report, 2021:6).
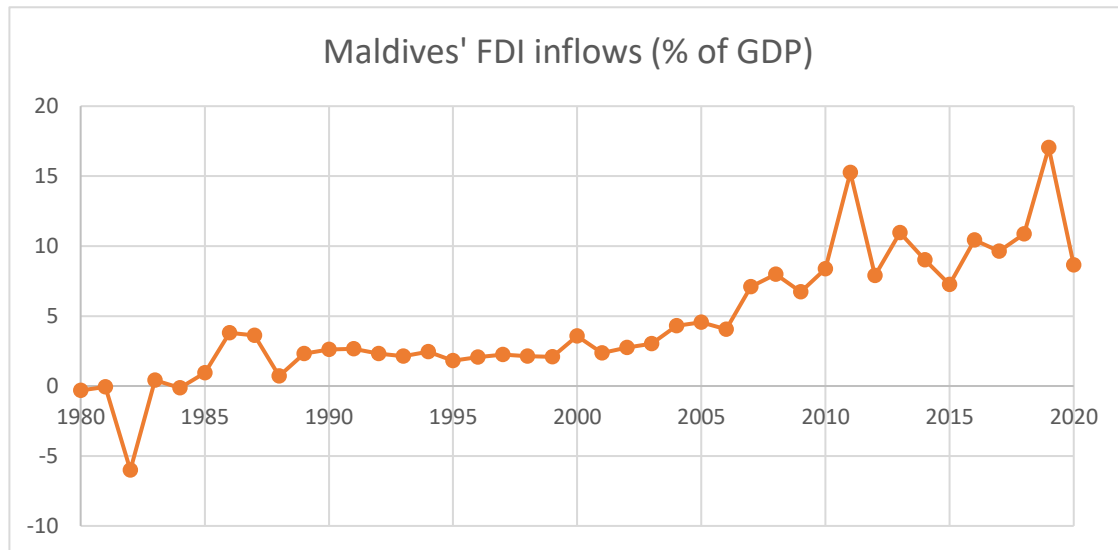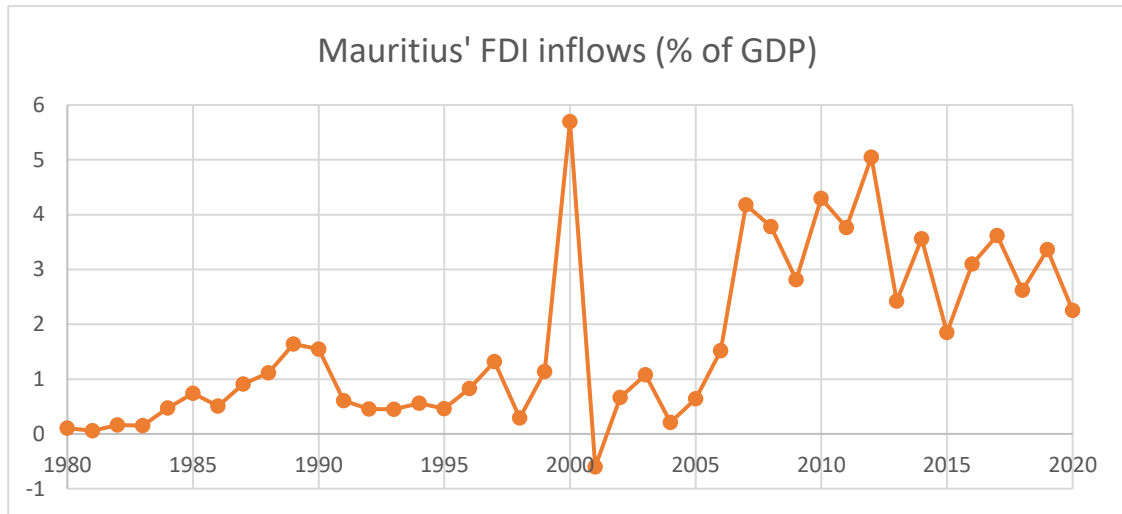
Figure 8: Mauritius' foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

5.1.5. Seychelles

The Republic of Seychelles is an archipelago comprising 115 islands, situated east of Kenya. Since its independence from the British in 1976, it has transformed its agricultural-based economy into a diversified sector that includes tourism, fishing, and outsourcing. The International Trade Zone Act was passed in 1995. It fostered the establishment of businesses in the Seychelles International Trade Zone (SITZ) by eliminating corporate taxes, social security payments, and foreign ownership constraints (Larose, 2003:7). In 1997, the legislation was revised to require a month's notice of employee dismissal. From 56.31% in 1995 to 187.39% in 2001, trade surged (see Figure 9).

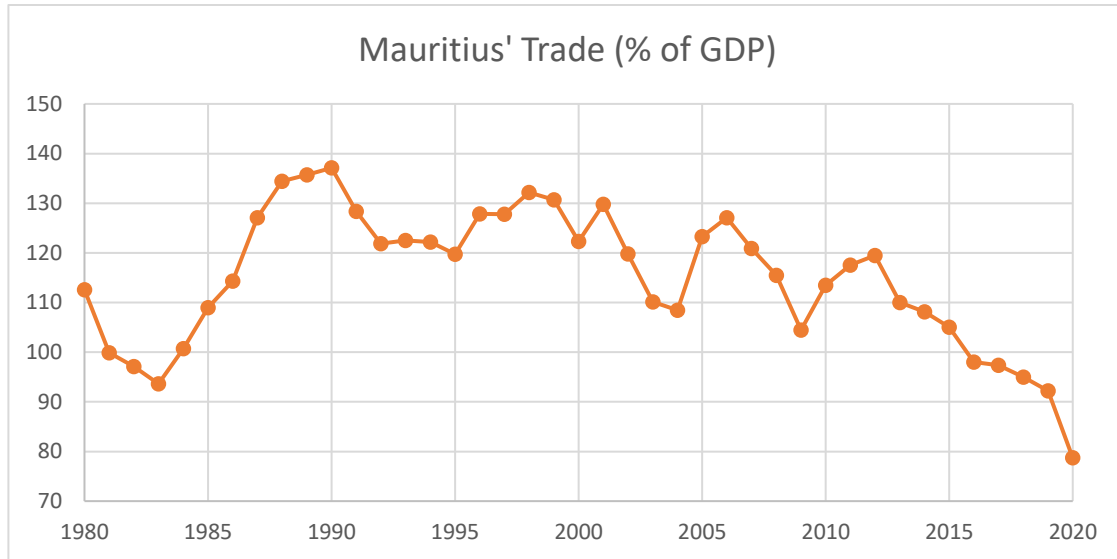Figure 9: Seychelles' trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

To encourage FDI inflows, the Seychelles government enacted several laws over the years, including the International Business Authority Act (1994), the International Business Companies Act (1994), the International Trusts Act (1994), the Investment Promotion Act (1994), and the Economic Development Act (1995). (P. Larose, 2003:8). The Seychelles Investment Act of 2010 had the greatest positive influence on FDI. The Seychelles Investment Board was established to promote investment and optimize FDI inflows. FDI rose from 13.44% in 2011 to 57.84% in 2012, as shown in figure 10. However, the Seychelles Investment (Economic Activities) Regulations 2014 imposed limitations on the economic activities in which foreign investments are permitted.

Figure 10: Seychelles' foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

With the COVID-19 pandemic, Seychelles' major source of income which is tourism, has dropped. According to the IMF Report (2021), real GDP declined by roughly 13%, and public debt reached nearly 100% of GDP. The economy has been stabilized owing to the IMF-funded Rapid Financing Instrument. Tourist arrivals have returned as of 2021, and GDP is predicted to improve. To properly recover from the outbreak, the Seychelles government is working on structural changes that will encourage stable development. The government's budget prioritizes debt and liability management as well as fiscal expansion.

5.1.6. Sri Lanka

The Democratic Socialist Republic of Sri Lanka, commonly known as Sri Lanka, is an Indian Ocean island separated from India by the Palk Strait. Since gaining independence from the British in 1948, Sri Lanka's trade policy has undergone significant changes. Until 1977, it was an inward-oriented, highly controlled economy (Abeyratne, 2004:1311). However, the country's economic progress was hampered by the country's severe political upheaval at the time. As seen in Figure 11, trade followed a downward-sloping pattern, reaching 59.05% (of GDP) in 1986. Sri Lanka's trade performance improved with the founding of the South Asian Association for Regional Cooperation (SAARC) in 1985, the South Asian Preferential Trade Agreement (SAPTA) begun by SAARC in 1993, and the Free Trade Agreement (FTA) with India in 1998. (Perera, 2009:538). Sri Lanka was struck by a major tropical cyclone in 2000, followed by a tsunami in 2004, causing significant economic devastation.
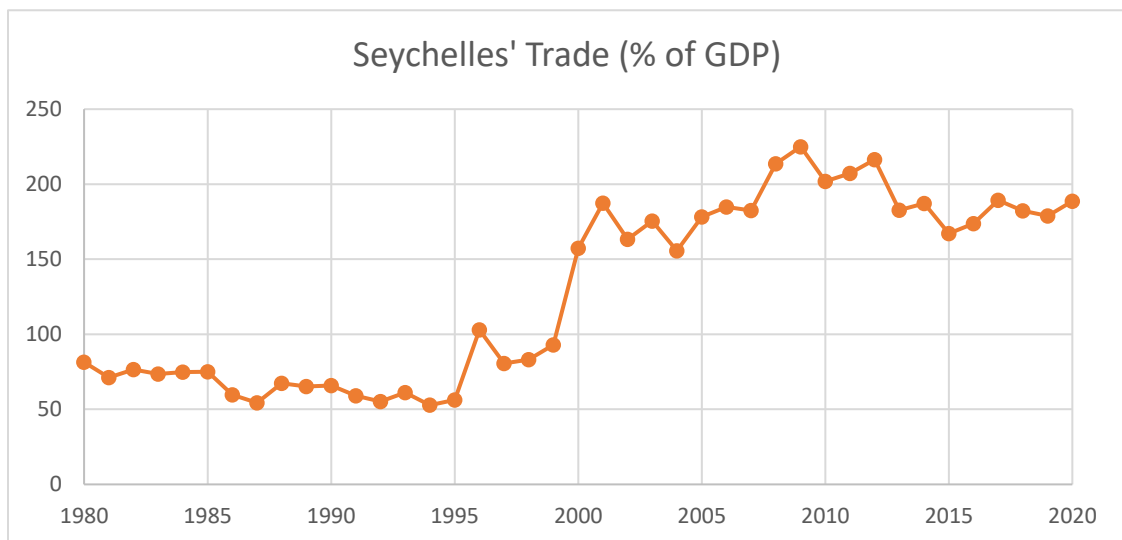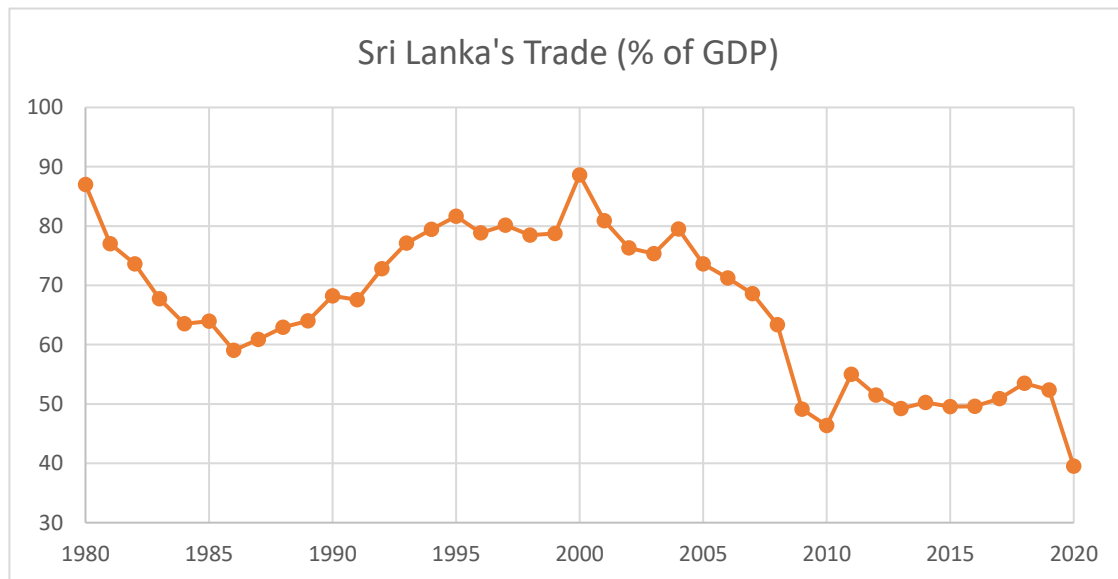

Figure 11: Sri Lanka's trade level for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

Sri Lanka's FDI inflows fluctuated considerably from 1980 to 2020, as seen in Figure 11. The Companies Act, adopted in 1982, consolidated business legislation (WTO, WT/TPR/S/6, p.27). The Securities and Exchange Commission Act was formed in 1987, expanding control over the stock exchange market, which was revised in 1991 and 2003. The termination of the Bilateral Investment Treaty (BIT) with one of its key partners, India, in

1997, had a substantial influence on the volume of FDI (investmentpolicy.unctad.org). Although the Sri Lankan government welcomes enterprises with 100% foreign ownership, has liberalized currency control, and has signed multiple investment treaties, variations in international investment inflows remain constant, as shown in figure 12.
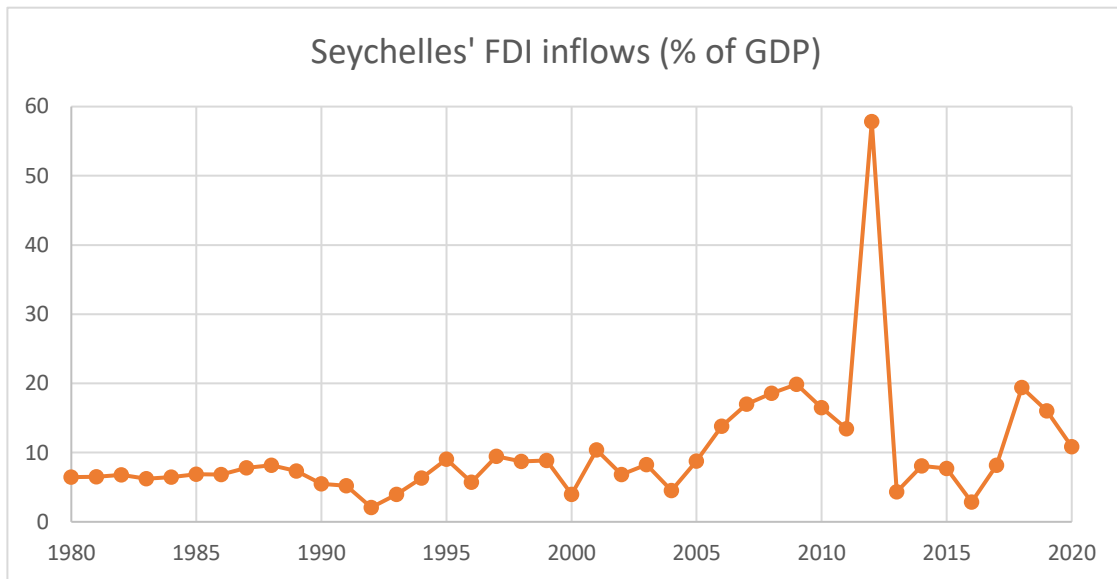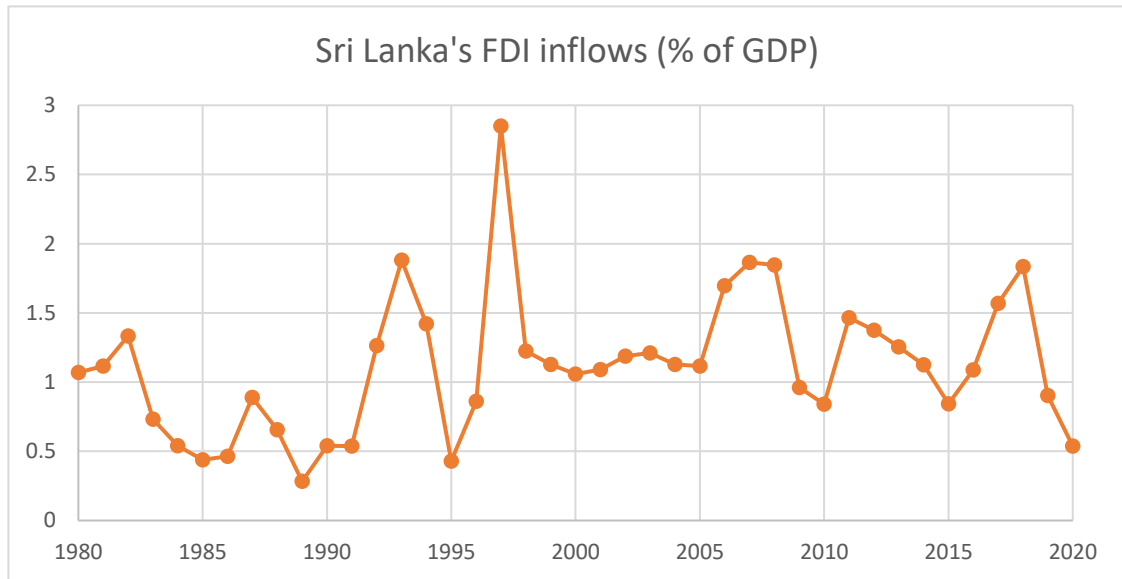

Figure 12: Sri Lanka's foreign direct investment inflows for the period 1980 to 2020
Source: Author's illustration based on World Bank Development Indicators, 2020

While recuperating from the Easter Sunday terrorist attacks, Sri Lanka's economy was hit by a second disaster: the COVID-19 pandemic. According to an IMF press release dated November 2019, GDP growth plummeted from 2.3% in 2019 to -3.6% in 2020. The performance of the tourist and financial industries has deteriorated. Following the premature cancellation of the IMF's extended fund program for Sri Lanka, the country was forced to seek loans from the governments of India and China. To effectively manage the country's debt and the economic consequences of the pandemic, the authorities established an independent public debt management institution, increased the capacity of the banking reserve to cushion against economic shocks and exchange rate fluctuations, and strengthened their AML/CFT regime.

EMPIRICAL FRAMEWORK

With the growth of technology, economies have grown more interconnected than ever before. International trade has been thriving, and foreign investment has been at an all-time high. However, economic globalization's influence varies according to the country's economic progress. The influence on a larger, industrialized nation is greater than on a tiny, isolated island. As a result, less research on the economic impact of globalization on island economies has been conducted. Given this context, the current study examines the extent to which the Indian Ocean islands have been impacted by the global phenomena of economic globalization.

Previous research examining the impact of economic globalization employed various econometric methodologies with multiple variables. Adams (2009) employed the ordinary least squares (OLS) approach and fixed effect estimation to study 42 Sub-Saharan African nations from 1990 to 2003. The dependent variable was GDP per capita, while the independent variables were trade openness, human capital, gross domestic investment, and FDI. He found that, while FDI is not intrinsically good, the host economy may suffer because of its absence. Chang and Lee (2010) examined the link between economic development and globalization in OECD nations using economic, political, and social globalization data from the KOF database. They demonstrated a long-run unidirectional causality between the overall globalization index and economic development using the vector error correction model (VECM). Similarly, Ying et al. (2014) used a panel fully modified OLS (FMOLS) to analyze the influence of globalization on the economic development of ASEAN nations from 1970 to 2008. They discovered that economic globalization has a significant positive effect on growth, but social and political globalization have a negative and minor impact on growth, respectively.

Most researchers incorporate financial aid in their models of island economies. Financial aid has been considered advantageous in supporting developing countries economic growth by both recipient and donor countries (Gounder, 1995:610). However, determining the goals and efficiency of financial aid remains a source of contention. The short- and long-term benefits of aid on output, poverty reduction, and health and education promotion have been well studied. However, the issue remains: can increased assistance flow

contribute to increased economic growth? White (1992b) examined the situation of Sri Lanka since its liberalization program began in 1977 and concluded that aid had a significant beneficial influence on the country's output. Furthermore, Gounder (2001) proved that from 1968 to 1996, foreign aid contributed more to Fiji's growth than investment, trade, and labour. She employed the Autoregressive Distributed Lag (ARDL) method. Also, Gounder (2019) investigated the Solomon Islands and discovered a bidirectional causal link between aid and growth, and a strong influence of aid on growth. Jayaraman and Ward (2006: 109), on the other hand, employed the ARDL approach and discovered no association between financial help and growth for the island of Vanuatu.

6.1.   Description of Model and Sources

This empirical study relied on a collection of panel data obtained from multiple sources for the six major Indian Ocean islands from 1980 to 2020: Comoros, Madagascar, Maldives, Mauritius, Seychelles, and Sri Lanka. The variables evaluated include the GDP, FDI, trade openness, population, and financial aid, according to data availability. The data came from the World Development Indicators, International Debt Statistics 2022, UNCTAD's World Investment Report 2021, Geographical Distribution of Financial Flows to Developing Countries 2021, and other supplementary sources from the statistical services and other departments of the selected countries.

GDP, the dependent variable, is used as a proxy for gauging the countries' degree of economic growth. The key elements driving economic globalization will be the independent variables, which include FDI, trade openness, population, and foreign aid. The population is used as a proxy for the actual labour force due to a lack of data for the set of countries selected. It is believed that a country which is abundant in skilled labour tends to innovate and grow at a faster rate. Aid is also considered since aid dependency to foster development financing is a major characteristic of island nations (Gounder, 2003:2). As explained in the previous chapters, islands rely heavily on financial assistance during the Coronavirus period to help them restore their economy.

The regression model in this study follows a neo-classical growth model, which is expanded with financial aid and population, as follows:

$$\ln GDP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 \ln TRA_{it} + \beta_3 \ln POP_{it} + \beta_4 AID_{it} + \mu_{it} \qquad (1)$$

where i represents each country and t represents each time period (with t=1,2,…,T); $lnGDP_{it}$ is the gross domestic product; FDI_{it} are the inflows of foreign direct investment, TRA_{it} is the degree of trade openness, POP_{it} is the population, AID_{it} is the amount of financial aid as a percentage of GDP and μ_{it} denotes the error term. β_0, β_1, β_2, β_3, β_4 are the estimated coefficients.

6.2. Econometric Methodology

This research employs a linear panel regression model to assess the influence of globalization on island economic performance. Using panel data offers various advantages and drawbacks, according to Baltagi (2008). Some of the advantages are control of individual heterogeneity; providing more information regarding collinearity, variability, efficiency, and degrees of freedom; allowing for the construction and testing of complicated behavioural models; and the testing procedures are more powerful. However, its limitations include potential cross-section dependency among variables, the requirement of balanced panels for some tests, and the risk of measurement errors owing to the assumption of pooled data (homogeneity). After discussing the advantages and disadvantages of panel data analysis, we will move on to the econometric technique.

6.2.1. Panel Unit Root Testing

The most fundamental starting point in analyzing data is determining whether the variables are stationary, that is, having a constant variance and mean. It should satisfy the following conditions (Hadri, 2000:152):

1. Mean: $E(y_t) = \mu$
2. Variance: $E\left(y_t - E(y_t)\right)^2 = \sigma^2$
3. Covariance: $E[(y_t - \mu)(y_{t+k} - \mu)] = y_k$

Otherwise, if the aforementioned characteristics are violated, the data is deemed non-stationary, resulting in a spurious regression. Non-stationary variables will be differenced n times until they become stationary in this situation. Hence, the testing of the unit root is performed to determine the variables' stationarity (Nason, 2006:137).

In panel analysis, two types of tests may be employed to determine the presence of a unit root in a time series analysis: first-generation generation unit root tests that presume cross-section independence and second-generation generation unit root tests that consider cross-section dependency (Breuer et. al, 2002:529-530). The first-generation tests can be divided into two groups. The first group employs the mean group method, which entails averaging the test data. It comprises the Levin, Lin, and Chu (LLC) test, which is a panel extension of the Augmented Dickey-Fuller (ADF) test proposed by Levin et al. (2002), as shown in equation (2.1). It assumes a homogeneous AR coefficient across individuals, that is, $p_1 = p$ for all i. Hence, the null hypothesis assumes the existence of a unit root for all cross-sections ($H_0: p_i = p = 0$), while the alternative hypothesis assumes stationarity for all i ($H_0: p_i = p < 0$).

$$\Delta y_{it} = p y_{it-1} + \sum_{j=1}^{p_i} \theta_{ij} \Delta y_{it-j} + \alpha_i z_{it} + \varepsilon_{it} \tag{2.1}$$

The second test using the mean group approach is the Im, Pesaran and Shin (IPS) test (2003). It is an expansion of the LLC test that accounts for heterogeneity on the AR coefficient, shown in equation (2.2), using the t-bar statistic (equation (2.3)) which is the average of the ADF test statistics. The null hypothesis is $H_0: p_i = 0$ for all i, against the alternative hypothesis $H_0: p_i < 0$ for at least one i.

$$\Delta y_{it} = p_i y_{it-1} + \sum_{j=1}^{p_i} \theta_{ij} \Delta y_{it-j} + \alpha_i z_{it} + \varepsilon_{it} \tag{2.2}$$

$\bar{t} = \frac{1}{N} \sum_{i=1}^{N} t(p_i)$, where t is the ADF test statistic and p_i is the lag order. $\qquad$ (2.3)

The second group uses the combination approach, that is, they combine the p-values of each unit root test for each i, rather than averaging the test statistics. It consists of Maddala and Wu (1999) and Choi (2001) who use a non-parametric Fisher test. Maddala and Wu (MW) test uses the Fisher statistic shown in equation 2.4;

$$P = -2 \sum_{i=1}^{N} \ln(P_i) \sim X_{2N}^2 \tag{2.4}$$

Choi test uses an alternative Fisher test which follows a normal statistics test, as shown in equation 2.5;

$$Z = \frac{1}{\sqrt{N}} \sum_{i=1}^{N} \phi^{-1}(pi) \sim N(0, \boldsymbol{i}) \tag{2.5}$$

where ϕ^{-1} is the inverse of the standard normal cumulative distribution function.

Both the mean group and combination approaches are effective. The Fisher test, on the other hand, does not need a balanced panel and accommodates varying lag durations in individual regressions. However, the Fisher test has the drawback of requiring p-values to be calculated by bootstrapping if cross-sectional dependence exists (Maddala and Wu, 1999:645).

When cross-section dependency exists, second-generation unit root tests are considered (Hurlin & Mignon, 2007:3). Panel analysis of non-stationarity in idiosyncratic and common components (PANIC) suggested by Bai and Ng (2004) will be utilized to test the common factors and idiosyncratic components individually rather than testing the unit root directly. It enables the pooling of individual statistics, the testing of unobserved data components, and the detection of non-stationarity in both ubiquitous and variable-specific series. It employs the following factor analytic model;

$$y_{it} = D_{it} + \lambda_i F_t + \varepsilon_{it} \tag{2.6}$$

where D_{it} is a polynomial time function, λ_i represents the factor loading and F_t the common factors.

Secondly, there are the cross-sectional augmented IPS (CIPS) by Pesaran (2007). The ADF regressions are extended by the cross-section averages of lagged levels and first differences. It uses a revised model of the IPS t-bar test which takes into account both the cross-section dependency and the serial correlation in residuals.

$$\bar{t} = \frac{1}{N} \sum_{i=1}^{N} t_i(N,T) \tag{2.7}$$

where (N,T) is the cross-sectionally augmented Dickey-Fuller statistic for the ith cross-section unit.

Shocks and unobserved components can cause cross-sectional dependence. Hence, testing for cross-sectional dependence is required to avoid significant bias and size distortions that might lead to measurement mistakes. Breusch and Pagan (1980) suggested a Lagrange Multiplier (LM) statistic that is valid for a fixed number of N as T approaches infinity. Similarly, Pesaran (2004) applied the LM statistic to determine cross-sectional dependence in a series with small T and large N. He also proposed the CD statistics, which have a zero

mean for constant N and T values and are hence suited for small N and T. Breush Pagan LM, Pesaran LM, and Pesaran CD tests are as follows;

$$\text{LM test (Breush Pagan)} = \sum_{i=1}^{N-1} \sum_{j+i+1}^{N} T_{ij}\hat{p}_{ij}^2 \sim X^2 \frac{N(N-1)}{2} \tag{2.8}$$

$$\text{LM test (Pesaran)} = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j+i+1}^{N} (T_{ij}\hat{p}_{ij}^2 - 1) \sim N(0,1) \tag{2.9}$$

$$\text{CD test (Pesaran)} = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j+i+1}^{N} T_{ij}\hat{p}_{ij}^2 \sim N(0,1) \tag{2.10}$$

Where $\hat{P}_{ij}$ is the sample estimate of the residuals' pair-wise correlation.

6.2.2. Panel Cointegration Tests

After assessing the order of variable integration, if the main variables are I(1), a panel co-integration test should be used to investigate whether a long-run equilibrium link exists among the non-stationary variables (Baltagi, 2008:250). Variables which are I(1) can be cointegrated given that their linear combination is I(0).

Pedroni (1999, 2004) extended his panel co-integration approach based on Engle and Granger (1987) by using the residuals from the long-run regression. He proposed seven-panel co-integration statistics which are classified into within-dimension tests and between-dimension tests. Within-dimension tests assume homogeneity and are computed by summing the numerator and the denominator over N cross-sections individually. It consists of panel v-statistic which is a long-run variance ratio, panel rho-statistic which is a semi-parametric test of rank correlation, and panel p-statistic which is a panel augmentation of non-parametric Phillips-Perron p-statistic and panel t-statistic is a panel extension of non-parametric ADF. On the other hand, the between-dimension tests assume heterogeneity and are computed by dividing the numerator and the denominator before summing over N cross-sections. In other words, they are a group mean approach of the within-dimension tests. It consists of the group rho-statistic, group PP-statistic and group ADF-statistic. The Pedroni co-integration tests are based on the following regression and residual equation, 3.1 and 3.2 respectively;

$$y_{it} = \beta_i x_{it} + \alpha_i + \theta_i t + \varepsilon_{it} \tag{3.1}$$

$$\text{and } \varepsilon_{it} = \delta_i \varepsilon_{it-1} + \varphi_{it} \tag{3.2}$$

The null hypothesis of no co-integration is the same for each statistic, that is,

$H_0: \delta_i = 1$ for all individuals

The alternative hypothesis is

$H_1: (\delta_i = \delta) < 1$ for all i (For within-dimension tests which assume homogeneity) or

$H_1: \delta_i < 1$ for all i (For between-dimension tests which assume heterogeneity)

Kao (1999:3) is a residual-based Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) test which considers only homogeneity among the variables. It is based on the following equation;

$$y_{it} = x_{it}\beta_i + \theta_i + \varepsilon_{it} \tag{3.3}$$

The estimated residuals are $\varepsilon_{it} = \phi\varepsilon_{it-1} + \alpha_{it}$ and follows a normal standard distribution.

6.2.3. Panel Data Estimators

After determining if the existence of a co-integrating relation among the variables, the point estimation should be derived to assess the impact of the dependent variables on the independent one (Lehmann & Casella, 2006:1). Various tests can be performed such as Pooled OLS (POLS), Fixed Effects Models (FEM) and Random Effects Model (REM).

Pooled OLS model is a constrained model, that is, $y_{it} = \beta_0 + \beta_1 x_{it} + \varepsilon_{it}$. The model assumes no autocorrelation among error terms in the data and thus, should be homoscedastic (Baltagi, 2008:202).

However, the data sample often shows the presence of heterogeneity which might lead to biased coefficients. Thus, to address the issue of heteroskedasticity, the fixed effects and random effects models are applied (Baltagi, 2008:79). They take the following equation form;

$$y_{it} = \beta_{x_{it}} + \alpha_i + \varepsilon_{it} \tag{4.1}$$

Where α_i is the unobserved individual-specific effect. In a random effect model, $\boldsymbol{\alpha_i}$ is not correlated with the independent variables. It is constant over time, individual-specific and captures unobserved characteristics of each country. On the contrary, in a fixed effect

model, α_i is correlated with the independent variables and is thus, considered as an unknown "disturbing" parameter which should not be ignored since it might cause biases.

Moreover, the problem of endogeneity among the variables might arise. In such a case, to ensure unbiasedness in the results, instrumental variables need to be employed.

Furthermore, to choose the appropriate model, the estimated coefficient vectors should be compared. To choose between FEM and REM, the Hausman (1978) test is utilized. The null hypothesis states that the coefficients of random effects are similar to the coefficients of fixed effects. If the null hypothesis is rejected, it indicates that FEM is more effective. Additionally, the Breusch-Pagan LM test will also be performed to choose between POLS and REM. If the null hypothesis is not accepted, it indicates that REM is more appropriate.

6.2.4. Panel Causality Tests

Causality tests are performed to assess the potential long-run and causal linkage between the variables, that is, the cause and effect relationship between two variables. However, in panel data analysis, the slope coefficients should be determined whether they are homogenous or heterogeneous. The homogeneity assumption in causality imposes a joint restriction for the panel as a whole; while a heterogenous causality test captures the country-specific characteristics.

Panel Granger causality test suggested by Emirmahmutoğlu-Köse (2011) assumes all series to be stable at the same level, that is; X_t is causing Y_t if we can use all the available information up to time t in predicting Y_t, other than the information from X_t. However, the series should be stationary and does not allow for different levels, as shown in equation 4.1.

$$y_{it} = \alpha + \beta_1 y_{it-1} + \cdots + \beta_p y_{it-p} + \varepsilon_t \tag{5.1}$$

On the other hand, the Toda-Yamamoto (1995) causality test considers the series to be stable at a different level in the panel. It minimizes the risk of misidentification of the integration order and co-integration and hence, provides for better observation and a lower loss of information. The first step of the Toda-Yamamoto causality test is to determine the lag length (p) for the VAR model and then, the highest degree of integration (d) of the

variable is added to the lag length (p). Thus, the VAR model will be estimated for a lag (p + d), as shown in equation 4.2.

$$y_{it} = \alpha + \beta_1 y_{it-1} + \cdots + \beta_{p+d} y_{it-(p+d)} + \varepsilon_t \tag{5.2}$$

Panel Granger causality test and Toda-Yamamoto causality test, both imply that all the coefficients across all cross-sections are the same.

Dumitrescu and Hurlin (2012) proposed an extended model of the Granger causality test which accounts for heterogeneity. It is suitable for a panel consisting of both I(0) and I(1) variables, as well as asymptotic (T > N) and semi-asymptotic (N > T) distribution. However, it ignores cross-section dependency and requires a balanced panel. It takes the form of the equation below;

$$y_{i,t} = \alpha_i + \sum_{k=1}^{k} \beta_{ik} y_{i,t-k} + \sum_{k=1}^{k} \theta_{ik} x_{i,t-k} + \varepsilon_{it} \tag{5.3}$$

Where coefficients can vary across i and lag order k is identical for all i. Hence, the null hypothesis, $H_0: \beta_{i1} = \cdots = \beta_{ik} = 0$ (no causality among individuals) and the alternative hypothesis is $H_0: \beta_{i1} \neq 0 \ or \ \beta_{ik} \neq 0$ (causality for some individuals but not for all).

The individual Wald statistics, represented in equation 5.3.1, are averaged across the cross-section units. Then, the panel standardized average statistic, Z^{DH}, converges in distribution, as shown in equation 5.3.2.

$$w_{it} = (T - 2K - 1) \left(\frac{\tilde{\delta}_{it} y_{it} \tilde{\varepsilon}_{it}}{\tilde{\delta}_{it} Y_{it} \tilde{\varepsilon}_{it}} \right) \tag{5.3.1}$$

Where T is the time period, K is the lag order, and δ, γ, and ε are the vector of parameters.

$$Z^{DH} = \frac{\sqrt{N} \left[w_{it} - N^{-1} \sum_{i=1}^{N} E(w_{it}) \right]}{\sqrt{N^{-1} \sum_{i=1}^{N} \text{var}(w_{it})}} \tag{5.3.2}$$

Where $E(w_{it})$ and var (w_{it}) denotes the mean and variance of w_{it}, respectively.

The Fisher causality test (Furuoka, 2018), which is derived from the Fisher formula stated in equation 4.4, combines the significance levels of the standard causality test such as the Granger-based causality tests. It is based on;

$$p_\lambda = -2 \sum_{i=1}^{N} ln(\pi_i) \tag{5.4}$$

Where p_λ represents the Fisher causality statistic which follows a chi-squared distribution; and π_i is the significance level of the Granger-based causality tests.

6.3.   Empirical Results and Discussions

This research paper uses panel data analysis to identify the determining factors which have an impact on the economic development of the island nations in the Indian Ocean. The main empirical study is concerned with estimating the required growth model in equation 1. It includes the logarithm of GDP which represents the economic growth of the islands; and the independent variables which consist of foreign direct investment, the logarithm of trade, the logarithm of population (which is used as a proxy for labour) and financial aids, in line with the empirical literature.

Since the macroeconomic variables are spanned over a relatively long period, the probability of non-stationarity is high. Therefore, a panel unit root test will first be undertaken to evaluate their integration order. It will be followed by a panel co-integration test to ascertain the existence of a long-run relationship among the variables and their point estimates will also be determined. In the final step, the cause-and-effect relationship between the variables will be assessed using panel causality tests for both the panel as a whole and the country individually.

6.3.1. Panel Unit Root Testing

First, the existence of a unit root in GDP, FDI, trade, population and financial aids has been verified by using the first-generation panel unit root tests proposed by Levin, Lin & Chu (2002), Im, Pesaran and Shin (2003), Maddala and Wu (1999) and Choi (2001) which considers cross-section independency. Table 2 shows the results of the tests. The result of LLC reveals that GDP is stationary at constant only, while IPS, MW and Choi, show that it is non-stationary at both constant, and constant and trend. At first difference, GDP is stationary at both constant, and constant and trend for all four tests. LLC, IPS, MW and Choi, all show that FDI is stationary at level. However, trade is non-stationary at level but when taking its first difference, it becomes stationary. LLC, IPS at constant and trend, MW at constant and trend, and Choi at constant and trend, reveal that population is stationary. At

first difference, all four tests show that population is stationary. Financial aid is stationary at level for all four tests.

Second generation panel unit root tests with cross-section dependency were performed. Table 2 also summarizes the findings. For both PANIC and CIPS, GDP and trade are non-stationary, but they become stationary at the first difference. At level, FDI is stationary. PANIC shows that the population is stationary at level only for constant and stationary at the first difference for constant and trend. CIPS indicates that the population is stationary at level for both constant and constant and trend; however, it is stationary only for constant at first difference. PANIC indicates that financial aids are stationary at first difference, whereas CIPS demonstrates that aid is stationary at both level and first difference.

Since both first- and second-generation panel unit root tests provided different results, cross-sectional dependence tests were carried out and the outcomes are shown in Table 3. Given the limited span of data and cross-sections, Pesaran CD (2004) would be most relevant. According to Pesaran CD (2004), it is significant at level but insignificant at level and trend. Hence, we follow the first-generation panel unit root tests, considering that the variables are cross-sectionally independent.

Table 3: Results from cross-sectional dependence tests

	Constant		*Constant and Trend*	
Test	*Statistic*	*p-value*	*Statistic*	*p-value*
Breusch-Pagan LM (1980)	74.79269***	0.0000	190.2508***	0.0000
Pesaran scaled LM (2004)	10.91660***	0.0000	31.99627***	0.0000
Pesaran CD (2004)	2.624589***	0.0087	-1.551307	0.1208

Note: ***(1%), **(5%), *(10%) level of significance

Table 2: Results from panel unit root tests

	Constant						Constant and Trend					
Level	LLC	IPS	MW	Choi	CIPS	PANIC	LLC	IPS	MW	Choi	CIPS	PANIC
Lngdp	-2.483***	0.932	7.845	0.927	-1.892	0.489	2.236	2.465	5.116	2.446	-1.604	-0.536
	[0.0065]	[0.8245]	[0.7971]	[0.8231]		[0.6246]	[0.9873]	[0.9932]	[0.9540]	[0.9928]		[0.5914]
Fdi	-3.305***	-4.283***	48.002***	-4.012***	4.152***	INF***	-5.437***	-7.351***	71.956***	-6.369***	4.811***	INF***
	[0.0005]	[0.0000]	[0.000]	[0.0000]		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]
Lntrade	1.051	-0.148	17.552	-0.089	-2.389	-0.819	1.707	-0.141	14.991	-0.146	-2.282	-0.881
	[0.8536]	[0.4409]	[0.1300]	[0.4643]		[0.4125]	[0.9561]	[0.4440]	[0.2419]	[0.4419]		[0.3784]
Lnpop	-4.002***	0.071	11.306	0.124	3.616***	1.650	-5.778***	-3.490***	68.043***	-2.307	-2.840**	0.852
	[0.0000]	[0.5283]	[0.5028]	[0.5496]		[0.0989]	[0.0000]	[0.0002]	[0.0000]	[0.0105]		[0.3939]
Aid	-4.292***	-4.251***	49.042***	-3.578***	4.006***	-1.308	-4.872***	-3.704***	54.719***	-2.769***	3.979***	-1.285
	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.1906]	[0.0000]	[0.0001]	[0.0000]	[0.0028]		[0.1985]
First Difference												
Lngdp	-7.664***	-8.719***	93.191***	-7.507***	4.984***	INF***	-8.025***	-8.207***	84.627***	-6.748***	5.235***	INF***
	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]
Fdi	-16.651***	-17.182***	175.787***	-11.465***	8.021***	INF****	-14.982***	-16.330***	238.988***	-12.927***	7.886***	INF***
	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]
Lntrade	-8.669***	-9.878***	107.091***	-8.335***	4.886***	3.490***	-8.060***	-8.726***	90.501***	-7.066***	4.958***	1.982**
	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0005]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0475]
Lnpop	-2.298**	-4.255***	57.145***	-3.543***	-2.348	-0.102	-4.004***	-6.275***	65.017***	-5.294***	3.413***	INF***
	[0.0108]	[0.0000]	[0.0000]	[0.0002]		[0.9188]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]
Aid	-10.099***	-10.232***	113.489***	-7.878***	8.022***	2.787***	-12.893***	-13.436***	163.325***	-10.284***	8.052***	INF***
	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0051]	[0.0000]	[0.0000]	[0.0000]	[0.0000]		[0.0000]

LLC refers to Levin, Lin & Chu (2002), IPS refers to Im, Pesaran and Shin (2003), MW refers to Maddala and Wu (1999), Choi refers to Choi (2001), CIPS refers to Pesaran (2007), and PANIC refers to Bai and Ng (2004). Maximum number of lags is set to 12 and the optimal number of lags is determined by Schwarz information criterion. Numbers in brackets are p-values. CIPS critical values are -2.56 (1%), -2.33 (5%), and -2.21 (10%) for constant model; and -3.08 (1%), -2.85 (5%), and -2.73 (10%) for constant and trend model. The number of common factors for PANIC test is determined by the IC_{p2} criterion of Bai and Ng (2002) by setting the maximum number of factors to 5. INF is a result from the fact that at least one individual statistic has zero p-value. ***(1%), **(5%), *(10%).

6.3.2. Panel Co-integration Tests

Then, we proceeded to test the possibility of the existence of a long-run relationship among the variables, using Pedroni's (1999) and Kao's (1999) cointegration tests. Table 4 illustrates the results of the tests. Kao cointegration test rejects the null hypothesis of no co-integration at 1% level of significance. Likewise, all of Pedroni's cointegration tests reject the null hypothesis, except panel v-statistic. Hence, 14 out of 15 tests rejected the null hypothesis which proved the existence of cointegration relationships among the variables.

Table 4: Results from panel co-integration tests

		Constant		Constant and Trend	
Study	*Test*	*Statistic*	*p-value*	*Statistic*	*p-value*
Kao (1999)	Panel ADF	-6.889***	0.0000	-	-
Pedroni (1999, 2004)	Panel v-Statistic	1.860**	0.0314	0.568	0.2848
	Panel rho-Statistic	-4.623***	0.0000	-3.213***	0.0007
	Panel PP-Statistic	-7.445***	0.0000	-8.563***	0.0000
	Panel ADF-Statistic	-7.403***	0.0000	-8.310***	0.0000
	Group rho-Statistic	-3.519***	0.0002	-1.939**	0.0262
	Group PP-Statistic	-7.185***	0.0000	-9.354***	0.0000
	Group ADF-Statistic	-7.047***	0.0000	-7.683***	0.0000

Maximum number of lags is set to 12 and the optimal number of lags is determined by the Schwarz information criterion for Kao (1999) and Pedroni (1999, 2004) tests. To construct the panel statistics, the individual statistics are obtained based on the long-run variance estimator by using the Barlett method with Newey-West automatic bandwidth selection for Kao (1999) and Pedroni (1999, 2004) tests. ***(1%), **(5%), and *(10%).

6.3.3. Panel Data Estimators

We moved on to determine the right estimator for the model, using Panel OLS (POLS), Fixed Effects Model (FEM) and Random Effects Model (REM). And to remove the issue of endogeneity, instrumental variables (IV) have been added in FEM and REM. Panel SUR models have been utilized for the tests since the error terms are assumed to be correlated. The results are illustrated in Table 5. Both POLS and REM indicate the same results. All the values are significant, except for trade. Trade's impact on GDP is positive but insignificant. FDI and population contribute positively to GDP while aid has a negative effect. On the contrary, FEM demonstrates a positive significant effect of FDI and population on GDP while aid has a negative significant influence on GDP. However, trade has a insignificant negative influence on the dependent variable. When adding the instrumental variables to the model, FEM indicates that FDI and population still have a positive significant effect on GDP while trade has a significant negative impact on GDP. Financial aid becomes

insignificant. IV REM also shows a significantly positive FDI and population, and a negative significant effect of aid while trade remains insignificant.

To choose among the models proposed above, Breusch-Pagan LM (BPLM) test and Hausman test were used and the results are presented in Table 6. BPLM test is performed to choose between POLS and REM. It concluded with the rejection of the null hypothesis and hence, shows that POLS is more appropriate. Hausman test was also carried out to choose between FEM and REM. It accepted the null hypothesis which indicates REM is more efficient. POLS and REM provided approximately the same results. However, after accounting for endogeneity with the incorporation of instrumental variables, the Hausman test rejects the null hypothesis and indicates that IV FEM is better than IV REM.

Table 5: Results from panel co-integration estimators

	POLS	FEM	REM	IV FEM	IV REM
C	11.202***	-8.382	11.301***	2.852	12.492***
	(20.101)	(-3.667)	(18.415)	(0.479)	(17.637)
	[0.0000]	[0.4261]	[0.0000]	[0.8210]	[0.0000]
Fdi	0.035*	0.032*	0.043**	0.167*	0.071*
	(4.301)	(4.026)	(5.946)	(2.485)	(3.562)
	[0.0777]	[0.0729]	[0.0436]	[0.0633]	[0.0788]
Lntrade	0.254	-0.451	0.147	-1.026**	-0.018
	(3.388)	(-4.060)	(1.853)	(-3.305)	(-0.185)
	[0.1423]	[0.3487]	[0.5753]	[0.0351]	[0.9235]
Lnpop	0.693***	2.278***	0.712***	1.623*	0.691***
	(30.352)	(13.542)	(24.506)	(4.096)	(23.525)
	[0.0000]	[0.0031]	[0.0000]	[0.0657]	[0.0000]
Aid	-11.401***	-4.742**	-10.091***	-4.639	-15.017***
	(-16.074)	(-6.138)	(-17.032)	(-1.847)	(-12.285)
	[0.0000]	[0.0368]	[0.0000]	[0.1586]	[0.0000]

POLS: Pooled Ordinary Least Squares, FEM: Fixed Effects Model, REM: Random Effects Model, IV: instrumental variables. One lagged value of dependent and independent variables is used as an instrument. The numbers in parentheses are the t-ratios, and in brackets are the p-values. ***(1%), **(5%), and *(10%).

Table 6: Results from the panel estimators' diagnostics

Test	Chi 2	Prob	Result
BP LM Test			
POLS vs. REM	50.893***	0.0000	Reject H_0
Hausman Tests			
FEM vs. REM	0.0000	1.0000	Accept H_0
IV FEM vs. IV REM	56.893***	0.0000	Reject H_0

BP LM Test: Breusch and Pagan (1980) cross-dependency test, and the Hausman test is the test for zero correlation between individual random effects and independent variables. ***(1%), **(5%), and *(10%).

6.3.4. Panel Causality Tests

Furthermore, the causal relationship among the variables was tested using the panel Granger causality test (Emirmahmutoğlu-Köse, 2011), and the panel Toda-Yamamoto test (1995) which assumes homogeneity among all coefficients, that is, the coefficients are the same across all cross-sections. Table 7 illustrates the results. Granger causality tests indicate a uni-directional causality from GDP to population, trade to FDI, trade to population and aid to population; and a bi-directional causality between FDI and population. For Toda - Yamamoto test, shows a uni-directional causality running from GDP to trade, GDP to population, trade to FDI, trade to population, and aid to population; and a bi-directional causality between FDI and population.

Additionally, heterogeneous panel causality tests have been performed to capture the country-specific effects. The results are illustrated in Table 8. The Dumitrescu and Hurlin Granger causality test, shows a uni-directional causality from FDI to GDP, trade to GDP, GDP to aid, aid to FDI, trade to aid and population to aid; and a bi-directional relationship between FDI and population. The Fisher panel causality test, shows a uni-directional causal relationship from trade to GDP, GDP to aid, aid to FDI, and trade to aid; and a bi-directional relationship between FDI and population.

Furthermore, a country-wise causality analysis is undertaken using the Todo-Yamamoto approach. The results are displayed in Table 9. For the island of Comoros, it indicates only uni-directional causal relationships running from population to GDP, to FDI and to aid; aid to GDP and FDI; and GDP to FDI. Likewise, the Republic of Madagascar also shows only unidirectional causal relationships. Trade causes population, and aid respectively while aid affects FDI and FDI influences population. As for the Maldivian economy, it demonstrates only uni-directional causal relationships running from GDP to FDI and trade; and from FDI to trade. The island of Mauritius indicates a single uni-directional causal relationship which occurs from trade having an impact on FDI. Similarly, Seychelles' population has an impact on the level of FDI and its GDP influences the amount of financial aid it receives. Finally, the Sri Lankan economy indicates a uni-directional causal relationship from trade to GDP and aid respectively, and from GDP to aid.

Table 7: Results from homogeneous panel causality tests

	Panel Granger causality test			Panel Toda - Yamamoto test		
	Wald	*p-value*	*Direction*	*Wald*	*p-value*	*Direction*
$Fdi \rightarrow lngdp$	28.165	0.1056	No Causality	20.164	0.3848	No Causality
$Lngdp \rightarrow fdi$	22.765	0.3005		22.450	0.2624	
$Lntrade \rightarrow lngdp$	14.470	0.8059	No Causality	14.072	0.7794	Uni-directional
$Lngdp \rightarrow lntrade$	27.337	0.1260		27.302	0.0978	
$Lnpop \rightarrow lngdp$	19.001	0.5217	Uni-directional	17.696	0.5428	Uni-directional
$Lngdp \rightarrow Lnpop$	36.205**	0.0145		27.589	0.0916	
$Aid \rightarrow lngdp$	18.179	0.5756	No Causality	17.033	0.5876	No Causality
$Lngdp \rightarrow Aid$	26.112	0.1621		26.094	0.1276	
$Lntrade \rightarrow fdi$	31.356*	0.0507	Uni-directional	30.440	0.0465	Uni-directional
$Fdi \rightarrow lntrade$	18.151	0.5774		13.846	0.7926	
$Lnpop \rightarrow fdi$	50.293***	0.0002	Bi-directional	50.222***	0.0001	Bi-directional
$Fdi \rightarrow Lnpop$	62.967***	0.0000		61.900***	0.0000	
$Aid \rightarrow fdi$	25.771	0.1735	No Causality	20.464	0.3672	No Causality
$Fdi \rightarrow Aid$	12.956	0.8793		11.755	0.8958	
$Lnpop \rightarrow lntrade$	11.204	0.9408	Uni-directional	10.794	0.9306	Uni-directional
$Lntrade \rightarrow Lnpop$	92.470***	0.0000		92.465***	0.0000	
$Aid \rightarrow lntrade$	11.023	0.9456	No Causality	9.760	0.9586	No Causality
$Lntrade \rightarrow Aid$	18.368	0.5632		15.972	0.6591	
$Aid \rightarrow Lnpop$	38.513***	0.0077	Uni-directional	36.703***	0.0086	Uni-directional
$Lnpop \rightarrow Aid$	16.443	0.6887		12.249	0.8747	

Note: Fdi → lngdp denotes causality running from fdi to lngdp. Lngdp → fdi denotes causality running from lngdp to fdi. The causal relationship between the two variables is shown in the direction column. The number of lags is set to 18 for panel granger causality tests and 19 for panel Toda-Yamamoto tests. The optimal number of lags has been selected as per autocorrelation. ***(1%), **(5%), *(10%).

Table 8: Results from heterogeneous panel causality tests

	DH heterogeneous panel causality estimate				Fisher panel causality estimate		
	$\bar{w}$	Z^{DH}	p-value	Direction	Fisher	p-value	Direction
Fdi → lngdp	1.12	2.02691**	0.0427	Uni-directional	5.3807	0.8643	No Causality
Lngdp → fdi	3.19	0.84073	0.4005		10.337	0.4113	
Lntrade → lngdp	2.85	2.47680**	0.0266	Uni-directional	17.065*	0.0729	Uni-directional
Lngdp → lntrade	2.76	-1.05718	0.2904		14.491	0.1517	
Lnpop → lngdp	2.73	-1.20018	0.2301	No Causality	14.330	0.1584	No Causality
Lngdp → Lnpop	2.50	0.72219	0.4702		9.6847	0.4685	
Aid → lngdp	1.89	0.32486	0.7453	Uni-directional	9.0665	0.5258	Uni-directional
Lngdp → Aid	3.51	1.80803*	0.0706		17.003*	0.0742	
Lntrade → fdi	2.70	0.05786	0.9539	No Causality	15.442	0.1167	No Causality
Fdi → lntrade	2.63	-0.30832	0.7578		13.274	0.2087	
Lnpop → fdi_per	3.61	3.90091***	0.0001	Bi-directional	19.399**	0.0354	Bi-directional
Fdi → Lnpop	3.59	3.52597***	0.0004		19.266**	0.0370	
Aid → fdi	3.43	2.86562***	0.0042	Uni-directional	19.111**	0.0388	Uni-directional
Fdi → Aid	1.01	1.28101	0.2002		5.3267	0.8683	
Lntrade → Lnpop	3.29	0.36406	0.7158	No Causality	6.8183	0.7424	No Causality
Lnpop → lntrade	2.44	0.18724	0.8515		14.221	0.1631	
Aid → lntrade	1.94	1.21948	0.2227	Uni-directional	11.395	0.3275	Uni-directional
Lntrade → Aid	2.99	2.46252*	0.0138		18.682**	0.0444	
Aid → Lnpop	1.20	-0.67619	0.4989	Uni-directional	5.3111	0.8694	No Causality
Lnpop → Aid	2.17	2.02951**	0.0424		5.4982	0.8555	

Note: Fdi → lngdp denotes causality running from fdi to lngdp. Lngdp → fdi denotes causality running from lngdp to fdi. The causal relationship between the two variables is shown in the direction column. $\bar{w}$ refers to the average of the wald statistic and Z^{DH} refers to the standardized average statistic. Fisher causality includes chi-squared distribution of fisher statistic. ***(1%), **(5%), *(10%).

Table 9: Results from the country-wise Toda-Yamamoto causality tests

	Comoros		Madagascar		Maldives		Mauritius		Seychelles		Sri Lanka	
Lags	3		2		3		2		2		1	
	Statistic	p-val	Statistic	p-val	Statistic	p-val	Statistic	p-val	Statistic	p-val	Statistic	p-val
$Fdi \rightarrow lngdp$	1.336	0.721	0.217	0.897	2.046	0.563	0.478	0.787	2.655	0.265	0.017	0.894
$lngdp \rightarrow Fdi$	8.023**	0.045	1.209	0.546	7.260**	0.064	0.536	0.764	2.111	0.348	0.031	0.861
$lntrade \rightarrow lngdp$	2.271	0.518	4.588	0.101	3.012	0.389	3.623	0.163	0.381	0.826	3.246*	0.071
$lngdp \rightarrow lntrade$	1.755	0.624	1.175	0.556	10.84**	0.013	1.889	0.388	0.557	0.756	0.349	0.554
$lnpop \rightarrow lngdp$	12.26***	0.006	0.833	0.659	2.262	0.519	0.194	0.907	0.237	0.888	0.620	0.431
$lngdp \rightarrow lnpop$	5.956	0.114	3.926	0.141	1.906	0.592	0.941	0.624	0.916	0.632	1.380	0.240
$Aid \rightarrow lngdp$	7.571*	0.056	0.972	0.615	1.388	0.708	0.573	0.750	0.882	0.643	0.011	0.915
$lngdp \rightarrow Aid$	4.689	0.196	2.212	0.331	4.460	0.215	0.429	0.806	6.25**	0.043	3.054*	0.080
$lntrade \rightarrow Fdi$	3.601	0.308	4.092	0.129	1.573	0.665	5.858*	0.053	0.203	0.903	0.884	0.346
$Fdi \rightarrow lntrade$	5.233	0.155	1.177	0.555	7.432*	0.059	1.561	0.458	0.134	0.934	0.278	0.597
$lnpop \rightarrow Fdi$	13.54***	0.004	0.639	0.726	1.100	0.776	0.464	0.793	5.762*	0.056	0.172	0.678
$Fdi \rightarrow lnpop$	3.676	0.299	9.960***	0.007	5.297	0.151	2.339	0.310	0.185	0.912	0.107	0.742
$Aid \rightarrow Fdi$	7.966**	0.047	6.859**	0.032	2.035	0.565	2.099	0.350	0.795	0.672	0.865	0.352
$Fdi \rightarrow Aid$	1.146	0.766	1.606	0.447	1.635	0.651	1.350	0.509	0.145	0.929	0.194	0.659
$lntrade \rightarrow lnpop$	0.695	0.874	13.42***	0.001	1.838	0.606	0.246	0.884	1.316	0.517	2.219	0.136
$lnpop \rightarrow lntrade$	0.573	0.903	3.038	0.218	5.828	0.120	1.134	0.567	2.527	0.282	1.543	0.214
$Aid \rightarrow lntrade$	0.226	0.973	3.668	0.159	2.582	0.460	3.868	0.144	0.911	0.634	0.432	0.511
$lntrade \rightarrow Aid$	1.946	0.584	8.663**	0.013	1.038	0.791	0.056	0.972	2.492	0.287	3.781*	0.051
$Aid \rightarrow lnpop$	2.129	0.546	0.498	0.779	2.471	0.480	1.151	0.562	0.967	0.616	0.0001	0.991
$lnpop \rightarrow Aid$	7.744*	0.052	1.942	0.378	0.776	0.855	1.352	0.508	1.071	0.585	0.188	0.663

Note: Fdi → lngdp denotes causality running from fdi to lngdp. Lngdp → fdi denotes causality running from lngdp to fdi. The optimal number of lags for each country has been selected as per autocorrelation. ***(1%), **(5%), *(10%).

6.4.   Discussions of the Results

As pointed out by Armstrong & Read (2000), despite being geographically isolated, distance and location do not have a significant impact on the growth of island economies. Thanks to technological advancements, they can easily interact and connect with the rest of the world. The results in this study indicate that FDI contributes positively to growth which corroborates with the studies carried out by Borensztein et al. (1998) who mentioned that several absorptive capacity factors such as trade liberalization and labour force should be in place. However, the causality test performed in this study, demonstrates that through the absorptive capacity factors of trade and population; GDP enhances FDI, which is similar to the study of Mwilima (2003) for the case of African countries in particular. Furthermore, population enhances growth, but trade and financial aids hinder growth. However, financial aids have an insignificant negative impact on growth.

Considering the homogeneous causality tests, GDP causes trade which in turn affects FDI and population. Since FDI and population have a bidirectional causal relationship, a more educated population will be more productive and likewise, foreigners will be more willing to invest in a profitable country. Thus, a higher level of GDP will encourage the inflow of foreign investments and produce more efficient labour. Contrary to the findings of White (1992b) and Gounder (2003), this study shows that financial aids have a negative effect on the economic growth of the islands of the Indian Ocean. However, financial aids affect the population only. On the other hand, when taking individual countries' characteristics into account, the heterogeneous causality tests show that trade influences GDP. Hence, an import-substitution policy will be more favourable than an export-promotion policy. Both GDP and trade have an effect on aid which in turn influence FDI and the bidirectional causal link between FDI and population remains. Thus, with an import-substitution policy, together with the help of financial institutions in assisting the local enterprises, the government should formulate effective strategies to attract foreign investors.

CONCLUSIONS AND RECOMMENDATIONS

In this study, we analyzed the impact of globalization on the economic development of the islands in the Indian Ocean for the period 1980 to 2020 using a neo-classical growth model. The sample consisted of the island of Comoros, Madagascar, Maldives, Mauritius, Seychelles, and Sri Lanka. Even though globalization affects all countries in the world, studies regarding its impact on island economies are limited, and scarcer for the islands in the Indian Ocean. Thus, examining the impact of economic globalization on those particular nations is crucial to assist in identifying the main contributors to economic growth.

For islands in this specific geographical area, the analysis has shown that an open trade regime will deter the growth of the islands while FDI and population have a positive influence on their development. Financial aids seem to have an insignificant effect on growth. Hence, on an overall basis, it is suggested that an import-substitution policy should be favoured with the implementation of appropriate strategies to encourage foreign investors and an enhancement of the educational system. However, the policy recommendations vary according to countries due to their different level of development and economical progress.

The island of Comoros has not witnessed major economic progress since its independence in 1975. Due to political crisis, extensive credit facilities and the COVID-19 pandemic; the economy has been having difficulties remedying the damages. The government is advised to promote a safe environment for business creation with facilities to credit and ease regarding regulations to enlarge the domestic market and promote domestic competition. A strong financing ecosystem and promotion of property rights, will both strengthen the local market and encourage foreign investment. Education should be easily accessible to the population to increase their academic and professional level. With a strong financial system and a skilful labour market, it will be better equipped to compete on international grounds.

The economy of Madagascar has been affected by several political coups throughout history. However, the reforms in the trade sector such as the introduction of e-commerce and the designation of autonomous ports have contributed enormously to its growth. Nevertheless, it remains close to the rest of the world. With a reduction in its non-tariff barriers and a more efficient border clearance system, it can open up to the world. Likewise,

with support to the small and medium enterprises such as credit facilities and availability of venture capital, its domestic market can prosper. With more foreign investments and financial aid, training can be provided to labour to enhance their professional and digital skills. Hence, it can effectively reap the benefits of globalization.

The Maldives archipelagos have been ranked 161st, making it totally at the bottom of the list in the Global Economic Freedom Index 2022. In other words, it has been considered one of the least free countries in the world. With the arrival of COVID, job loss has plummeted. Despite the worsening of the economy, tariffs and non-tariff barriers persist. Since the Maldives depend on the trade and tourism sector as a main source of income, promoting active foreign participation in the economy will be favourable in ameliorating the economic situation. Likewise, access to financial services and the availability of credit to innovative investors should be encouraged. In this way, jobs will be created, and growth will be stimulated.

Mauritius is a small island which has undergone several successful economic developments throughout the years, making it the best-performing country in Sub-Saharan Africa according to the Global Competitiveness Report (2019:18). The country's main focus is on promoting trade openness and tourism. However, it faces a high level of brain drain issue, making it hard to find skilled labour. Moreover, with the establishment of more research institutions, it can be more economically progressive and attracts more foreign investors. The growth of innovative companies with disruptive ideas can create new markets and a value network, propelling its growth further. A diversification policy will indeed contribute enormously to the growth of the economy.

The Seychelles archipelagos have witnessed several economic progressions since its independence in 1976. Its trade level keeps on thriving. However, despite several acts which have been enacted, its inflows of foreign direct investments remain at a very low level. With an improvement in the stability of the financial system, that is, improving the soundness of banks; and with better access to domestic credit, more foreign investors can be attracted. The cost of starting a business can be reduced and the length of the procedure can be shortened. With a higher level of FDI, it can broaden its technological know-how and improves the skills of its labour force.

Due to the geographical location of Sri Lanka, it is often subject to natural catastrophes such as the tropical cyclone in 2000 and the tsunami in 2004, which caused several damages to its economy. Furthermore, the prevalence of both non-tariffs and tariff barriers limits its interaction with other countries. Reducing its trade barriers would allow it to better compete in the global economy. Likewise, improving the soundness of banks can facilitate the provision of domestic credit to firms. Moreover, with lenient labour mobility and ease in hiring foreign labour, both the domestic population and foreign firms would have access to jobs and employees, respectively.

In the globalization process, countries compete against one other. In order not to be left behind in this race, countries should adapt their policies to be more competitive and efficient. They should identify the leads and lags in their economic system and make adjustments accordingly. Since islands are isolated, they should enhance their technical knowledge to keep them connected with the rest of the world. And at the same time, promoting a diversification program to generate productive employment, specifically in periods of economic crisis. Hence, with the collapse of one industry, the economy can still be kept afloat thanks to the surviving industry. Moreover, the financial aid received should be put to good use to alleviate the burden of a falling economy and allow growth to prosper.

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