THE REPUBLIC OF TURKEY
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DEPARTMENT OF ECONOMICS

IMPACT OF CAPITAL FLIGHT ON ECONOMIC PERFORMANCE OF SELECTED DEVELOPING ECONOMIES: A COMPARATIVE ANALYSIS

SHAHANARA BASHER

DOCTORAL THESIS

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Shahanara Basher

ÖZET

SERMAYE KAÇIŞLARININ SEÇILMIŞ GELIŞMEKTE OLAN ÜLKELERDE EKONOMIK PERFORMANS ÜZERINE ETKILERI: KARŞILAŞTIRMALI BIR ANALIZ

SHAHANARA BASHER

Doktora Tezi, İktisat Ana Bilim / Ana Sanat Dalı
Danışman: Prof. Dr. Harun BAL
Hazıran 2019, 297 Sayfa

Sermayenin kıt olduğu ülkelerden sermaye kaçışı sorunsalı son yıllarda ampirik literatürde yoğun bir şekilde ele alınmaktadır. Bu kapsamda yapılan eski çalışmalar sermaye kaçışının ölçümü ve belirleyicileri üzerine odaklanırken, son yıllarda yapılan çalışmaların sermaye kaçışının ilgili gelişmekte olan ülkelerin çeşitli makroekonomik göstergeleri üzerindeki etkileri üzerine yoğunlaştığı gözlenmektedir. Literatürde genellikle ülkeye özgü ya da bölgeye özgü çalışmaların yürütülürken, sermaye kaçışının olduğu ve olmadığı durumlar altında ülkeler arası ve bölgeler arası karşılaştırmalı analizler yeterince ele alınmamıştır. Bu bağlamda bu çalışma bu boşluğu doldurma arayışındadır. Bu arayış bağlamında çalışmada 1981-2019 dönemi kapsamında dünya civarındaki dört gelişmekte olan bölgeden (Asya, Afrika, Latin Amerika ve Geçiş Ekonomileri) 38 gelişmekte olan ülkenin sermaye kaçışı serilerini elde etmek için gerekli modifikasyonlarla birlikte Dünya Bankası'nın kalıntı yaklaşımı kullanılmaktadır. Elde edilen sermaye kaçışı serileri sermaye kaçışının bu ülkelerin bireysel olarak kişi başına çıktı büyümeleri üzerindeki etkisini incelemek için ARDL Sınır Testi yaklaşımı kullanılarak analiz edilmektedir. Bu yaklaşım, gelişmekte olan ülkelerdeki sermaye kaçışının bu ülkelerin kişi başına çıktı büyümesi üzerindeki etkisinin ülkeler arası ve bölgeler arası karşılaştırmasını mümkün kılmaktadır. Gelişmekte olan ülkelerden sermaye kaçışları her ne kadar Latin Amerika ülkelerinde çok yüksek olsa da, bu problem sermaye kaçışının milli gelir içerisindeki payı bakımından Afrika ülkelerinde daha yoğun gözükmektedir. Sermaye kaçışının kişi başına çıktı büyümesi üzerindeki etkisi, farklı bölgelerden gelişmekte olan ülkelerin dikkate alınarak yapıldığı karşılaştırmalı analizlerde de benzerdir. Analiz bulguları,

sermaye kaçışının büyümeyi yavaşlatıcı etkisinin Afrika ülkelerinde çok daha şiddetli olduğunu göstermektedir. Buna göre sermaye kaçışının Afrika ülkelerinin ekonomik büyümeleri üzerindeki negatif etkisi Asya ülkelerininkinden yaklaşık bir buçuk kat ve Latin Amerika ülkelerininkinden yaklaşık iki kat daha fazladır. Sermaye kaçışının Geçiş Ekonomilerinin kişi başına çıktı büyümesi üzerindeki negatif yönlü etkileri tespit edilmiştir. Çalışmada ayrıca sermaye kaçışıyla birlikte reel döviz kuru sapmasının ekonomik büyüme üzerindeki etkileri Türkiye özelinde analiz edilmiştir. Buna göre Türk Lirası çalışma dönemi boyunca altı defa aşırı değerlenme ve eksik değerlenme evreleri geçirmiştir. Bir ülke parasının eksik değerlenmesinin o ülkede yaşayan yerleşiklerin varlıklarını yurtdışında tuttuklarını ve dolayısıyla sermaye kaçışının ortaya çıktığını öne süren yaygın argümana göre, Türk Lirası'nın eksik değerlendiği dönemler boyunca Türkiye en büyük miktarda sermaye kaçışını 2010'lu yıllarda tecrübe etmiştir. Sermaye kaçışı ve reel döviz kuru sapmasının Türkiye'nin kişi başına çıktı büyümesi üzerinde ters yönde etkileri öngörülmektedir. Daha da önemlisi, bir yandan ekonomik büyümeyi pozitif yönde etkileyen eksik değerlenme diğer yandan sermaye kaçışını teşvik etmesi nedeniyle ekonomik büyüme üzerinde negatif etki yaratmaktadır. Bu bağlamda gelişmekte olan ülkelerdeki sermaye kaçışının bu ülkelerin kalkınma hedeflerinin önünde ciddi bir engel oluşturduğu söylenebilir. Bu yüzden çalışmanın bulguları önemli politika çıkarımlarını da mümkün kılmaktadır. Buna göre hükümet ve para otoritelerinin, beşeri sermayenin gelişimiyle birlikte elverişli yatırım ortamını ve iyi yönetişimi teşvik eden politikalar benimsemeleri önerilmektedir. Bu durum sadece sermayenin yurtiçinde kalmasına yol açmayacak, aynı zamanda sermayenin kıt olduğu bu bölgelere yeni sermaye akımları yaratarak sermaye rezervinin artmasını da sağlayacaktır.

ABSTRACT

IMPACT OF CAPITAL FLIGHT ON ECONOMIC PERFORMANCE OF SELECTED DEVELOPING ECONOMIES: A COMPARATIVE ANALYSIS

SHAHANARA BASHER

Ph.D. Thesis, Department of Economics Supervisor: Prof. Dr. Harun BAL

June 2019, 297 Pages

Capital flight from the capital-scarce developing economies has been found to be very extensive in the empirical literature over the last few decades. While earlier studies have focused on the measurements and determinants of capital flight, there has been a growing interest in recent years in analyzing the impact of capital flight on the macroeconomic performance of these developing economies. Most of the recent studies are country-specific or region-specific, and consequently, cross-country and inter-regional comparison of the extent and impact of capital flight relying on a unique approach of capital flight is absent. The study is an attempt to approach this gap. It uses the World Bank's residual approach with necessary modifications to appear at the capital flight series of 38 developing economies from four developing regions, namely Asia, Africa, Latin America, and transition economies during 1981-2019. It then proceeds to examine the impact of capital flight on the per capita output growth of these economies individually resorting to the ARDL Bounds Testing approach which facilitates both the inter-country and inter-regional comparison of the impact of capital flight on the per capita output growth of developing economies. The study suggests that though capital flees from the developing economies is very high in the Latin American economies, the problem is acute in developing Africa in terms of the share of capital flight in GDP. The scenario does not alter when the impact of capital flight on the per capita output growth of different developing regions is compared based on the selected economies. In terms of the mean value of negative significant coefficients of capital flight, the growth faltering effect of capital flight is found to be very severe in developing Africa, which is nearly one and half times higher than developing Asia and two times higher than developing Latin America. The overall impact of capital flight on

the per capita output growth of Transition economies is negative. The study performs a separate growth regression for Turkey incorporating RER misalignment along with capital flight. It finds the RER of Turkey misaligned throughout the sample period producing six alternating periods of overvaluation and undervaluation. According to the commonly accepted argument that anticipated undervaluation of currency of a country motivates domestic residents to hold their assets abroad and thereby causes capital flight, Turkey experiences the largest amount of capital flight during the 2010s throughout which its RER remains undervalued. It is obvious from the findings that RER misalignment and capital flight have an adverse impact on the per capita output growth of Turkey. Most importantly, undervaluation that promotes per capita output growth also gives incentive to capital flight that has an adverse impact on per capita output growth. Clearly, capital flight is working as an obstacle to achieving the desired development goals of capital-scarce developing countries. Therefore, results of the study have important policy implications. Government and monetary authorities should pursue policies that will confirm a favorable investment climate and good governance along with the development of domestic human capital which will not only retain domestic capital but also create a reverse flow of capital to these capital-scarce regions.

ACKNOWLEDGMENT

All praise to Allah (SWT) the Almighty, for giving me the blessing and strength to complete this doctoral dissertation successfully.

I am ineffably indebted to my Supervisor Professor Dr. Harun BAL for his conscientious guidance and encouragement to accomplish this Thesis. I would like to express my sincere gratitude to Prof. Dr. Neşe ALGAN and Prof. Dr. Mehmet ÖZMEN for their advice and for serving as a member of the Thesis Examination Committee. My sincere gratitude goes to Assoc. Prof. Dr. Mehmet DEMİRAL and Assoc. Prof. Dr. Ali Eren ALPER for their role as Juries of my dissertation defense. Besides, I would like to thank Ms. Esma ERDOĞAN for her eternal support whenever she is approached. All my teachers, friends, and colleagues deserve special thanks for their ceaseless encouragement throughout this entire process.

I would like to acknowledge the financial support from the Cukurova University Scientific Research Projects (BAP) Coordination Unit (Project Type: Doctorate, Project ID: SDK-2018-10826) during the dissertation period.

I owe a lot to my parents and family members for their gracious support throughout the course of my study. The path was not that easy, and Covid-19 Pandemic made it even harder to finish it on time. Heartiest thanks to my husband Dr. Abdullahil MAMUN for being with me with his generous support throughout this arduous journey. Lots of love to my son Ahnaf Tajwar ARAB who was extremely supportive in this process; otherwise the dream would have remained unrealized.

Last but not least; I would like to thank all concerned who help me with technical and administrative issues to make this endeavor a success.

Shahanara Basher

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ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
ASEAN	Association of Southeast Asian Nations
BEER	Behavioral Equilibrium Exchange Rate
BIS	Bank of International Settlements
BOP	Balance of payment
BPG	Breusch-Pagan-Godfrey
CAD	Current Account Deficit
CF	Capital flight
CHEER	Capital Enhanced Equilibrium Exchange Rate
CIF	Cost, Insurance, Freight
CPI	Consumer Price Index
CRNR	Cumulative recorded non-FDI of non-residents (CRNR)
CSP	Center for System Peace
DAC	Development Assistance Committee
DEBT	Debt services
DED	Adjusted external debt
DF	Debt Flow
EA	External Assets
ECB	European Central Bank
ECM	Error Correction Mechanism
EO	Errors and Omissions
FA	Foreign Asset
FEER	Fundamental Equilibrium Exchange Rate
FMOLS	Fully Modified Least Squares
FOB	Free-on-Board
FP	Fiscal Policy
FRED	Federal Reserve Economic Data
G	Government Final Consumption Expenditure
GDP	Gross domestic product
GFI	Global Financial Integrity
GKO	Gross capital outflow

GMM	Generalized Method of Moments
HC	Human Capital
HMM	Hot Money Measure
H-P	Hodrick and Prescott
I	Investment Spending
ICOR	Incremental Capital Output Ratio
IMF	International Monetary Fund
INT	Interest Earned and Retained Abroad
LDC	Least Developed Countries
MENA	Middle East and North Africa
MP	Monetary Policy
NATREX	Natural Real Exchange Rate
NFA	Net financial assets position
NFDI	Net Foreign Direct Investment
NPI	Non-portfolio investment
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
OPEN	Trade openness
PEER	Permanent Equilibrium Exchange Rate
PP	Phillips-Perron
PROD	Productivity Differentials
RER	Real Exchange Rate
SDR	Special Drawing Right
SKF	Short term capital outflows
SSA	Sub-Saharan African Countries
TOT	Terms of Trade
UNCTAD	United Nations Conference on Trade and Development
VAR	vector autoregressive model
VECM	vector error correction mechanism
WB	World Bank
WDI	World Development Indicator
WDR	World Development Report

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CHAPTER I

INTRODUCTION

1.1. Background of the Study

One of the major challenges in strengthening the productive capacity of developing economies is the scarcity of capital owing to the low level of domestic saving. Experts argue that by attracting foreign capital flows easing the constraints on capital mobility, developing countries can achieve their financing obligations, which in turn can help boost their investment (Sinn, 1992; Fischer 2003; Summers 2000). Capital mobility also helps improve resource allocation both domestically and globally (Yalta, 2006) and promotes financial development (Bailliu, 2000). Therefore, developing economies should give more importance to enticing capital flows from developed economies to stimulate their macroeconomic performance. Accordingly, developing countries are advised to adopt policies to liberalize their financial system since the 1990s. This helps them to attract a significant volume of foreign capital inflows which plays a critical role in the development of these economies. However, in contrast to that, capital flight, particularly, fleeing domestic capital from the capital scarce developing and emerging economies to the capital haven developed economies, is a critical concern for many of the developing economies as it tones down the growth performance of the economies reducing domestic investment and deteriorating their financing problems (Epstein, 2005).

In general, developing countries are characterized as economies with a lower level of per capita capital. Being scarce relative to labor, the marginal productivity of capital is higher in developing countries compared to the developed economies and thus capital should flow from the developed economies to the developing economies until the capital-labor ratios become equal given that trade in capital goods is free and competitive (Lucas, 1990). In other words, capital should flow from countries with more physical capital per worker and hence where the returns to capital are lower to those with relatively less capital and hence greater unexploited investment opportunities. In principle, this movement of capital should make poorer countries better off by giving them access to more financial resources that they can then invest in physical capital, such as equipment, machinery, and infrastructure. Such investment

should improve their levels of employment and income (Prasad et al., 007). In contrast to the above, the capital-scarce developing economies are experiencing a huge amount of capital flight towards the capital-rich developed economies which is well known as the Lucas Paradox in economic literature which has broadly been recognized by studies dedicated to the explanation of the paradox (Azémar & Desbordes, 2013; Goktan, 2015).

Most developing countries often experience loss of domestic capital due to the increased effects of financial liberalization (Adekunle, 2011). Financial liberalization that has contributed to the efficient allocation of capital across the economies of the world has also created avenues for capital flight from developing countries (Bredino, Fiderikumo, and Adesuji, 2018). It slows down the economic growth of these developing economies by checking their ability to generate domestic saving and thereby worsening investment. Capital flight can influence the economic growth of the developing countries positively if and only if the invested capital flows from the developed to developing countries (Olasunkanmi, 2015). Instead, investors in the developing countries are actively engaged in transferring funds abroad not only to take the profitable investment opportunities but also to escape mistreatments to domestic capital (Pastor, 1990). Hence, Lucas Paradox is an extreme reality for developing countries. The imbalance of capital inflows and outflows in these economies caused by capital flight leads to insufficient internal capital formation in developing economies and thereby limits the productive capacity of these economies. A shift of saving away from financing the domestic investment of an economy to foreign one results in lower economic growth (Gachoki & Nyang'oro, 2016).

Despite the enormous significance of capital flight in terms of its impact in drawing the attention of foreign capital, domestic investment, and economic growth, there is no agreement in literature in defining the term due to its complex nature. Differences in views among experts lead them to define the term differently. Consequently, capital flight figures for an economy or a group of economies depend on the particular approach adopted and thus vary across definitions. Capital flight is regarded as an indicator of the investment climate of an economy. It is often resulting from discriminatory treatment of domestic capital that could occur for a variety of reasons like inappropriate taxation, real interest rate differentials, and weak exchange rate policy. Capital is responsive to the change in the tax structure. An increase in tax on income from domestic capital usually leads capital to fly towards low-tax destinations.

Again, countries offering a higher rate of interest in real terms are often able to draw the attention of investors from countries where the interest rate is low. A balance of Payments crisis, for example, a large current account deficit (CAD) can cause depreciation in the exchange rate and create a motive for capital flight. Schneider (2001) shows that capital flight from a highly indebted economy with poor economic performance gravely constrained its economic development. Studies find that many of the developing countries that were unable to meet their external debt servicing obligations were also experiencing capital flight in the early 1980s (Tiruneh, 2004; Ajilore, 2010; Ampah and Kiss, 2019; Menbere, 2003). Hence, the ability to repay the external debt of a country is largely reflected by its capital flight measures. It is a signal to the international financial organizations of the possible risk and thus restrains them not to lend further to a flight burdened economy.

Capital flight is a persistent phenomenon for developing countries. It first gained prominence in the 1970s when many of the least developed economies received a significant amount of foreign capital together with an extensive outflow of domestic capital. Morgan Guaranty (1986) measures the capital flight from 18 of the most heavily indebted Least Developed Countries (LDCs) during the 1976–85 period. The study identifies that capital flight from these economies amounts to $198 billion against the concurrent increase in their gross external debt by $451 billion. Cumby & Levich (1987) examine the capital flight situation of LDCs over the same period from the mid-1970s to the mid-1980s. Depending on the measure of capital flight employed, the study identifies the total amount of capital flight ranges between a minimum of $50 billion to over $200 billion. In a study by Henry (2012), it is found that capital flight only in terms of unrecorded capital outflow representing 39.5 percent of GDP as of 2010 in Africa which is nearly 12 percent in East and Southern Asia. Boyce and Ndikumana (2012) cover a group of 33 Sub-Saharan African Countries (SSA) intending to offer an updated estimate of capital flight for the period 1970-2010. Their study reports that these economies lose a total of $814 billion which is fairly higher than the amount of official development assistance of $659 billion and foreign direct investment of $306 billion received by these countries. There is no recent study that compares the capital flight situation of the developing economies. This study offers a comparative analysis of the extent of capital flight from different developing regions. It covers a total of 32 developing economies- 11 from Asia, 10 from Latin America, 11 from Africa, and 5 transition economies. The estimate suggests that the total amount of capital flight from

these developing economies is nearly $18505 billion during 1981-2019. During the period, the Latin American countries experience the highest level of capital flight amounting to $9027 billion. The problem is less severe in developing Asia, then in developing Africa, and least in transition countries. The capital flight figures from these three regions are roughly $4843 billion, $3433 billion, and $1202 billion, respectively. Though capital flight from Asia and Latin America declined in the 2000s, it increased sharply in the following decade, that is, in the 2010s from these two regions. Clearly, capital flight is a widely prevalent phenomenon in developing economies.

Table 1
Capital Flight from Developing Economies

Period	Asia	Africa	Latin America	Transition Economies
1980s	529.36	676.68	3530.08	--
1990s	619.96	834.78	2319.66	150.82
2000s	-611.80	1071.79	348.33	521.92
2010s	4305.54	850.07	2828.72	529.06
Total	4843.06	3433.32	9026.78	1201.80

Source: Author's estimate using World Bank's Residual Method
(Billion, Constant 2010 USD)

As table 2 demonstrates, the amount of capital flight was significantly higher than Foreign Direct Investment (FDI) and even expressively more than the Official Development Assistance (ODA) over the last four decades except in the 2000s in which capital flight falls short of net foreign direct investment. However, its dampening effect on domestic investment by constraining domestic saving is one of the major concerns for achieving the desired level of output growth. Capital flight accounts for about 24 percent of domestic savings during the sample period which clearly indicates that capital flight limits the productive capacity of these economies making capital scarce.

Table 2
Capital Flight in comparison with GDP, Domestic Saving, FDI and ODA

Period	Capital Flight	Capital Flight (% of GDP)	Capital Flight (% of Saving)	Foreign Direct Investment	Official Development Assistance
1980s	4736.12	12.43	47.33	228.53	564.46
1990s	3925.21	5.48	34.13	1006.45	442.00
2000s	1330.23	1.10	11.26	1556.04	144.49
2010s	8513.40	4.04	21.37	4826.57	365.51
Total	18504.96	4.19	23.87	7617.59	1516.47

Source: Author's calculation based on data from WDI, World Bank, 2021
(Billion, Constant 2010 USD)

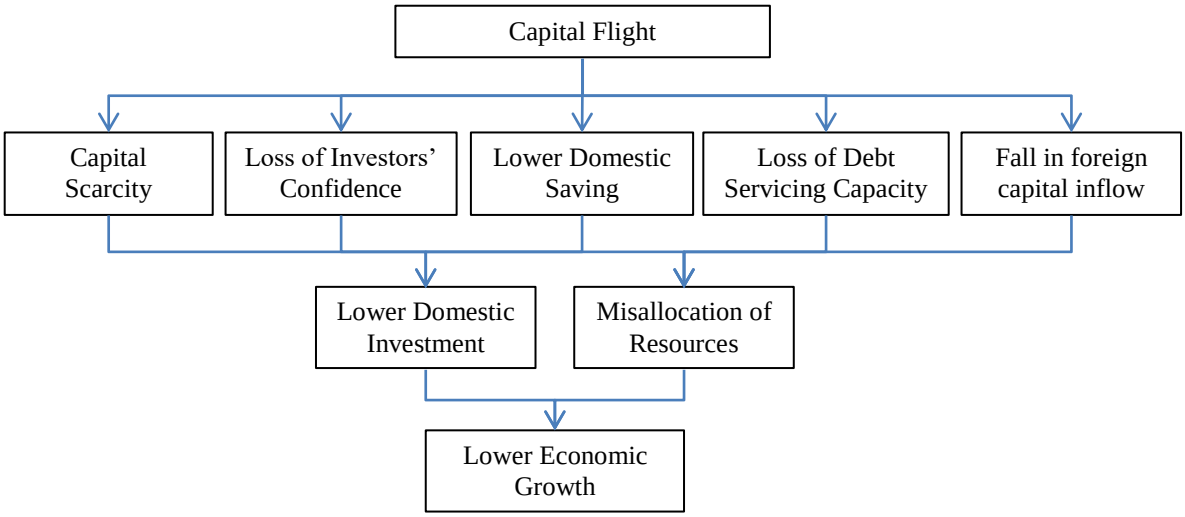

Figure 1 The Link between Capital Flight and Macroeconomic Performance
Source: Author's construction

Figure 1 explains different channels through which capital flight exerts an adverse impact on economic growth. Capital flight can be viewed as a response to discriminatory treatment of domestic capital or can be viewed as an illegal transection (Schneider, 2001). Whatever be the case, it tones down the pace of development in many ways. First, capital flight reduces the domestic level of capital per worker, which is one of the most important sources of economic growth; second, capital abroad is difficult to tax, as the domestic fiscal authority has little information regarding investment abroad and no legal power to enforce the law in other countries; and finally, capital flight produces an unequal welfare distribution because large amounts of money and a good knowledge of investment abroad are required to open off-shore bank accounts (Pastor, 1990). Hence, flight of capital, reducing the availability of resources for domestic investment, and impeding capital formation, acts as a crucial barrier in achieving desired goals of an economy envisaged in its development objectives.

Capital flight from the developing countries that fell both in importance and amount between the second half of the 1990s and 2000s have been marked a sharp rise in recent years. Considering the extent of capital flight from developing countries, its relative consequences on the aggregate economy of different developing regions bears utmost importance from the policy perspective particularly because of the recent surge of capital flight from the developing economies.

1.2. Rationale of the Study

There is no dispute among experts and policymakers that capital plays an indispensable role in achieving sustainable growth and development in any economy. Though the capital inflow to the developing economies has been increased markedly throughout the last few decades, the capacity of retaining this capital for long-run economic growth appears to be weak due to the high incidence of capital flight from these economies.

In a recent study, Global Financial Integrity (GFI) reports that developing countries lost US$7800 billion of their capital that increased at an average inflation-adjusted rate of 6.5% per year between 2004 and 2013- significantly outpacing GDP growth (Kar and Spanjers, 2015). On the other hand, almost over the same period, there was a rising trend in net borrowing by the government of these countries. Net debt flows to developing countries increased by 20 percent in 2012 with long-term debt flows 14 percent higher and short-term debt flows 55 percent higher than in 2011 (World Bank, 2012). Therefore, it is evident that capital flees from the developing countries while their governments largely depend on external borrowing to finance their investment projects. The flight capital that could have been invested to contribute to the economic growth of developing countries rather exerts detrimental impacts through various channels.

Considering the severity of capital flight, there was a surge in the literature on the measures and magnitude of capital flight from the developing countries immediately after the 1980s debt crisis. It fell both in importance and amount between the second half of the 1990s and 2000s. However, capital flight remains a major concern in most developing economies which has been revealed by its sharp rise in the 2010s. Consequently, a strand of literature devoted to this issue has emerged in recent years.

Studies can broadly be categorized into three major groups. A group of studies discusses the concepts and measurements of capital flight (Cuddington, 1987; Morgan Guaranty Trust Company 1986; Schneider 2003, 2003b; World Bank 1985, for example). Several studies investigate the factors that determine capital flight concerning their impact on domestic investment climate (Lessard and Williamson 1987; Pastor, 1990). Another group of studies examines the impact of capital flight on different macroeconomic outcomes including financial liberalization (Lensink et al. 1998),

increased aid flows (Collier et al. 2004), high external debt (Boyce and Ndikumana 2001; Demir 2004; Cerra et al. 2008), financial markets (Loungani and Mauro 2001), domestic investment (Fofack and Ndikumana, 2010; Yalta, 2010), and economic growth (Cervena' 2006; Beja, 2007; Lan, 2007; Gusarova, 2009; Gautier and Luc, 2020, just the name but a few). While earlier studies paid attention to the concepts, measurements and determinants of capital flight, recent studies are devoted to examining the macroeconomic consequences of capital flight.

The empirical literature on the relationship between capital flight and economic growth is extensively large. Most of these studies have attributed sluggish economic growth to capital flight. Earlier studies can be criticized from the following grounds: Firstly, recent estimates of capital flight for a large group of countries classifying them in different developing regions will be useful to compare the extent of capital flight among the regions. Numerous studies on the determinants and magnitude of capital flight are mostly country-specific or region-specific and consequently, they do not offer a comprehensive up-to-date estimate of capital flight for different developing regions. Secondly, being country-specific or region-specific, studies on the relationship between capital flight and economic growth are unable to compare the growth effect of capital flight for different developing regions.

Apart from offering an up-to-date estimate of capital flight from developing economies grouping them into four major developing regions, namely- Asia, Africa, Latin America, and Transition countries, the study will also examine the anti-growth phenomenon of capital flight for individual economies separately. Hence, it will enable to provide a cross-country and cross-regional comparison on the impact of capital flight on economic growth which is very crucial for international communities and organizations in setting their policies for controlling capital mobility for the developing economies.

1.3. Objectives of the Research

Capital flight has undesirable consequences for the economic performance and well-being of the source economy. Commonly, capital flight slowdowns investment and leads to weaker economic performance along with the dejection of the effectiveness of policies to reduce poverty. With this backdrop, the main purpose of the study is to

examine the relative impact of capital flight on the economic performance of different developing regions. Most of the earlier studies on the impacts of capital flight on the economic performance of developing economies are time series in nature. Very few of them are panel studies that largely cover countries in Sub-Saharan Africa (SSA) and Latin America and mostly cover the period until late the 2000s. In view of the recent swelling of capital flight from developing countries, this is an extensive study considering selected countries from all regions covering the period 1981-2019.

The study sets the following specific objectives to arrive at the main objective: Firstly, it measures the extent of capital flight from developing economies for which delineating the capital flight series is inevitable. Capital flight can be measured in numerous ways. Consulting with available definitions of capital flight, the study adopts the residual method which is deemed to be suitable to arrive at the estimates of capital flight for the selected economies. Secondly, it then proceeds to examine the relative impact of capital flight on the economic growth of different developing regions.

The study identifies a total of 38 developing economies that are encountering extensive capital flight throughout the sample period. The countries are listed below in table 3. The study deals with Turkey separately. It considers the real exchange rate misalignment of Turkey together with capital flight to determine their impact on economic growth along with other growth and policy determinants.

Table 3
Leading Developing and Transition Economies Encountering Capital Flight

Developing Asia	Developing Africa	Latin America	Transition Economies
Bangladesh	Benin	Argentina	Albania
China	Cameroon	Bolivia	Armenia
Fiji	Egypt	Brazil	Kyrgyzstan
India	Kenya	Colombia	Russian Federation
Indonesia	Madagascar	El Salvador	Kazakhstan
Jordan	Morocco	Guatemala	
Nepal	Nigeria	Haiti	
Pakistan	Rwanda	Honduras	
Philippines	Sierra Leone	Mexico	
Sri Lank	South Africa	Peru	
Thailand	Togo		

Source: Author’s construction

1.4. Organization of the Study

Following the background and rationale of the study in chapter one, the rest of the study is organized as follows:

There is no consensus among experts on the definition of capital flight. Consequently, estimates of capital flight differ markedly across definitions. Chapter two examines various definitions and measures of capital flight along with the evolution of capital flight from different developing regions considered for this study.

The study aims to investigate the extent and impact of capital flight on the economic growth of developing economies. It, therefore, conducts a brief review of the literature of earlier studies and summarizes the theoretical abstracts and empirical results in chapter three to derive an ideal framework for the study.

Chapter four is devoted to the development of the methodological framework for the study to examine the anti-growth effect of capital flight. It delineates the theoretical as well as the empirical model for the study and explains the empirical strategies of the study. The chapter also describes the data set and justifies the choice of growth determinants for the study.

The empirical findings on the relationship between capital flight and economic growth are summed up in chapter five in four different sections, one for each of the developing regions considered for the study. It also presents a cross-country and cross-regional comparison concerning the impact of capital flight on economic growth.

The study ends with conclusion that summarizes key findings, offers policy recommendations of the results along with major limitations. It finishes with some directions for future research.

CHAPTER II

CAPITAL FLIGHT: MEANING AND MEASURES

2.1. Introduction

There is no consensus among experts regarding the definition of capital flight. The estimates of capital flight depend on which definition one uses and consequently, it varies across definition markedly. Therefore, one must have a clear idea of which definition is being used while measuring capital flight in order to understand its constituents. This chapter examines various definitions of capital flight along with the alternative measures derived based on these definitions to grasp the texture of the notion. Besides, it also assesses the evolution of capital flight from countries of different developing regions selected for the study to comprehend the severity of capital flight from these regions.

2.2. Capital Flight Definition

Due to its complex nature, there is no generally accepted definition of capital flight. Authors have different views that drive them to define capital flight differently. It has an ambiguous disposition as it is often difficult to distinguish whether the outflows of capital are normal like taking positive position on foreign assets or a pure flight like trade misinvoicing. Capital outflows are the anticipated outcome of open and integrated economies while capital flights are not. Scholars apply different approaches to differentiate capital flight from capital outflows. An approach suggests that capital outflows are reported while the capital flight is not. Another approach describes capital flight as the illegal counterpart of legal capital outflows. Hence, scholars adopt some principles in terms of motive and context of capital flows to set capital flight apart from normal capital outflows.

2.2.1. Motivational Definition of Capital Flight

A good part of the literature focuses on the motive of capital flight to distinguish it from normal capital outflows. Whale & Kindleberger (1938) first use the motivational definition of capital flight while he examines the nature of the movements of short-term capital where he identifies a set of fears and suspicions that causes abnormal outflows of

capital from a country. Referring to the short-term capital outflows, Cuddington (1986) considers only the speculative outflows of capital which is highly sensitive to the risk of investment be it political or financial or it may appear due to the change in policy associated with capital controls and hence suggests to observe the movement in hot money, surges of which refers to capital flight. In contrast to the general portfolio adjustments, capital flight occurs in response to the perceived worsening risk-return profiles associated with assets located in a particular country (Walter, 1987). Distortions persuaded by change of policies, namely, expected tax hikes, anticipated depreciation and improper appropriation of assets are also found to be responsible for pushing flight of capital (Lessard and Williamson, 1987).

Answers to the question "Why is it that when an American puts money abroad it is called normal capital outflow and when an Argentinian does the same it is called capital flight?" raised by Brazilian Economist Kanitz (1984) shows the way to keep capital flight distinct from normal capital outflows. Dooley's (1986) response to this question in view of the purpose of capital outflows offers a logical guide to identifying capital flight. He describes flight capital as the outflows of capital from home with the intention of placing wealth overseas so that authorities at home cannot control it. Hence, reported outflows of funds often observed in developed or advanced economies are normal outflows of capital. Capital flight only occurs when domestic residents transfer capital abroad to escape government regulation on it which is a common phenomenon in the least developed and developing economies. Lessard and Williamson (1987) argue that unusual risk at home perceived by domestic residents motivates them to transfer funds from home to abroad. Some scholars argue that the conflict of interest and defilement of social contract in the country concerned impose additional costs on the economy as a whole that might contribute to capital flight. It is not that capital flees from home to abroad in pursuit of better opportunities rather in fear of higher perceived risks at home (Ali, 2013). To sum up, the motivational definition views capital flight as the result of the discriminatory treatment of domestic capital. These discriminations motivate investors from least developed and developing capital-scarce countries to transfer their capital abroad in a capital haven country to avoid risk.

The problem with the motivational definition of capital flight is that it is by and large difficult to comprehend the motive of capital outflows. Capital in today's world has become more mobile owing to increased opportunity and integration of world financial markets and evolution of modern financial instruments. Residents in open

economies are actively involved in the transfer of funds internationally in the normal course of business activities, which makes it illusive to keep capital outflows distinct from capital flight on the basis of motives empirically. Moreover, What is meant by "normal" when one treats the capital flight as a concept distinct from normal capital outflows is ambiguous.

Commonly researchers agree to distinguish it from "ordinary" portfolio diversification and business activities of domestic residents. However, the approaches they follow in doing this vary in two alternative ways. Firstly, identifying the normal outflows of funds namely, portfolio investment, firms' working capital of held in foreign currency, trade credits, etc. and deducting it from any estimate of capital flight. However, very few of the authors who have applied this idea were not successful in handling this issue in their estimates of flight capital (Eggerstedt and Wijnbergen, 1995). Secondly, as Deppler and Williamson (1987), Khan and Haque (1987) and Dooley (1988) do, one can define normal outflows of capital from a more general perspective like holding of foreign assets associated with recorded interest income. Assets held abroad that generate reported interest income are to be regarded as normal outflows of funds and hence assets that correspond to unrecorded income must be stared as capital flight as it is originated from the intention of evading regulations on domestic capital. Eggerstedt and Wijnbergen (1995) identify three major limitations of defining capital flight in this approach. Firstly, interests earned from investment abroad is not reported adequately and often markedly stated as being smaller for most of the developing economies. Secondly, the composition of assets held abroad, the maturity of these assets and the composition of currencies change across years and consequently, it is not difficult to determine the mean rate of the market return. Finally, it, by definition, excludes all noninterest-bearing financial contracts from the normal flows of funds abroad and thus treating them as capital flight.

Furthermore, defining capital flight confining it to the short-term outflows of capital from the domestic economy as Cuddington (1986) and Grria and Fad1 (1991) do is often criticized as a narrow measure of capital flight by many economists. Consequently, many studies suggest not to distinguish capital flight from normal capital outflows (Erbe 1985; World Bank 1985; Morgan Guaranty 1986, Gordon and Levine 1989) which contribute significantly to the development of the contextual definition of capital flight.

2.2.2 Contextual Definition of Capital Flight

Contextual definition of capital flight does not necessarily view it as illegal transfer of domestic capital abroad. It is regarded as an outcome of private portfolio choices in response to certain or expected changes in a country's macroeconomic policies or general business conditions. Detaching capital from "normal" portfolio diversification and trade transactions is full of complications. In particular, such segregation has little value for countries maintaining intimate relationships with neighboring countries and trading partners which makes it almost impractical to arrive at the capital flight figure rectifying the "normal" capital flows. In addition, rectification components are theoretically unsettled. Considering these circumstances, a broad definition of capital flight covering the capital flows of all kinds by domestic residents abroad would be justified.

The first contextual definition offered by the World Bank (1985) views capital flight from a broader sense as it comprises all reported and unreported surges in foreign assets of the public and private sector. It identifies capital flight as the residual between sources and uses of capital flows. As the sources of capital inflows, the measure considers a net increase in external debt and a net inflow of foreign direct investment. The uses of funds include the current account deficit and additions to foreign reserves. This broader definition of capital flight refers to an aggregate measure of capital flight that comprises both short-term as well as long-term capital outflows (Claessens, 1997).

From the theoretical perspective, the residual is covered by the errors and omissions entry in the balance-of-payments. In the balance-of-payments statistics, the errors and omissions item take the gap between debit and credit entries of current and capital accounts into account. When the balance is large and negative, it refers to unaccounted outflows of capital. Eggerstedt, Hall, and Wijnbergen (1995) observe a significant development in the value of the errors and omissions in many developing economies with the change in general economic conditions to precipitate capital flight. It does not necessarily mean that the errors and omissions item is alike to unrecorded capital flows. It encompasses the entries like errors, unrecorded imports and lagged registration that are not related to the flight of capital and could change the value of errors and omissions in terms of magnitude and directions (Duwendag, 1987). Consequently, it fails to provide a representative figure for the residual. Though the contextual definition does not take the motive as a source of capital flight, the inclusion

of unaccounted flows resulting from the intention of avoiding risk arising from mistreatment to domestic capital comprehends some motivational attributes.

World Bank (1985) argues that servicing the external debt is one of the vital challenges for highly indebted developing economies due to capital flight, it weakens their capability to repay their debt. Alesina and Tabellini (1989) identify a positive association between external debt and external assets. Accumulation of external debt of many of the developing countries is associated with the accumulation of large external assets. The uncertainty associated with political power along with future fiscal policies causes over-accumulation of public debt and private capital flight. Empirical evidence on the relationship between foreign direct investment and capital flight is mixed. Kant (1996) finds that inflows of foreign direct investment lead to a fall in capital flight. Harrigan, Mavrotas, and Yusop (2002) approve Kant's (1996) observation while they investigate the determinants of capital flight for developing countries like Malaysia. However, Hermes, Lensink, and Murinde, (2004) and Collier, Hoeffler, and Pattillo (2001) do not find a significant relationship between foreign direct investment and capital flight. Turning to the uses of funds, there is always a risk of higher capital flight due to a large current account deficit. Countries with higher external debt demand for foreign exchange to meet the servicing requirements of their debt which may lead to a devaluation of the domestic currency which eventually lowers the value of capital and return on domestic investments. Capital owners at home convert their domestic assets into foreign assets, reinforce capital flight creating pressure on foreign reserves.

The seminal works of the World Bank (1985) and Deppler and Williamson (1987) assert that capital flight, be it defined in terms of motivation or context, has an innate relationship to the welfare loss of an economy. World Bank (1987) emphasizes the fact that any sort of capital outflows from a country that is unable to satisfy its investment, import and government budgetary requirements or service its liabilities works as a major impediment in achieving its potential growth. Undoubtedly, checking capital flight means increasing domestic capital by that amount which would ultimately raise the productive capacity of the economy. Deppler and Williamson (1987) view capital flight as the net loss in the total resources available to an economy in real term as it diverts saving away from investment in the home economy. Hence, rather than distinguishing capital outflows as normal and abnormal (capital flight), contextual definition views flight capital as the increase in foreign assets from the countries starving for capital. This view later contributes to the development of handful measures of capital flight.

2.3. Measures of Capital Flight

Different methods of measuring capital flight basically refer to its different definitions. Consequently, estimates of capital flight differ markedly across definitions. Just to put for an example, the maximum amount of flight capital from Mexico amounting to $48.6 billion, as estimated by Eggerstedt, Hall, & Wijnbergen (1995), was almost double from the minimum figure of $26.5 billion during 1970-85. However, it is not difficult to arrive at a robust estimate of capital flight employing different measurement techniques provided that the data are available.

The estimation procedures of capital flight corresponding to the definitions can be different, but all of them can be categorized under two main headings: direct measures and indirect measures. Estimation techniques under these two methods are summarized in Table 4. The direct measures are also known as narrow measures as they are derived from the narrow definitions of flight capital and the indirect measures cover the broad definitions.

Table 4
Measures of Capital Flight

Direct Method		Hot Money Approach (Cuddington, 1986)
		Errors and Omissions Approach (Alvarez and Guxman, 1988)
Indirect Method	Derived Method	Dooley (1986) Approach
		Trade Misinvoicing (Bhagwati, 1964)
	Residual Method	World Bank Approach (1985)
		Ebre Approach (1985)
		Morgan Guaranty Trust Co. Approach (1986)

Source: Author's Compilation

2.3.1. Direct Measures of Capital Flight

The direct measures of capital flight rely on the balance of payment (BOP) statistics or Bank of International Settlements (BIS) data. Capital flight, in this approach, is viewed to be the quick response towards investment risk and therefore identified as capital outflows in the short term. Hence, it includes Cuddington's (1986) hot money approach of capital flight along with the Errors and Omissions Approach of Alvarez and Guxman (1988) that considers necessary adjustments in Cuddington's approach to arrive at the finest estimate of flight capital.

2.3.1.1. Hot Money Approach

Hot money is the money that is highly sensitive to investment risks. This method considers flight of capital in response to political risk or financial crisis, capital controls, devaluation of the domestic currency, or change in real return due to the tax change. Being sensitive to the change in domestic economic conditions, hot money has the potential to return to the country quickly due to the change in conditions (Kant, 1996).

Cuddington's (1986) Hot Money Approach: Cuddington (1986) offers a variant of hot money measures of capital flight. This narrow measure views flight capital as the sum of reported short-term capital exports by the nonbank sector and, the balancing entry, errors and omissions that largely reflect unrecorded short-term capital flows. However, banks and official entities can also be taken into account in some cases. Alternative ways of measuring capital flight using Cuddington's (1986) hot money approach are-

Hot Money Measure 1 (HMM1): This measure of capital flight refers to all short-term capital outflows (SKF) that include net flows of non-FDI, non-portfolio investment assets and liabilities held by entities other than banks, general governments and monetary authorities. Cuddington argues that the net errors and omissions (EO) in the balance of payments statistics that shows the credit and debit gaps in the balance of payments is an account of unrecorded capital outflows in the short-term and therefore should be included in the capital flight measure. Hence, this measure sums up the errors and omissions and other short-term capital outflows to arrive at capital flight figures. Shortly,

$$HMM1=SKF+EO \quad (2.1)$$

Hot Money Measure 2 (HMM2): Along with the components of HMM1, this measure includes non-portfolio investment assets and liabilities (NPI) held by banks.

$$HMM2 = HMM1 + NPI \quad (2.2)$$

Or

$$HMM2 = SKF + EO + NPI \quad (2.3)$$

Kant (1996) proposes another variant of this measure as Hot Money Measure 3.

Hot Money Measure 3 (HMM3): This measure incorporates portfolio investments in bonds and corporate equity (PI) with HMM2 in order to arrive at the capital flight estimate. Hence,

$$HMM3 = HMM2 + PI \quad (2.4)$$

Or

$$HMM3 = SKF + EO + NPI + PI \quad (2.5)$$

2.3.1.2. Errors and Omissions Approach

The errors and omissions approach offered by Alvarez and Guxman (1988) focus on the errors and omissions of Cuddington's 'hot money' approach but with the following adjustments: interest imputed on external assets that remain abroad is deducted, thus increasing the current account deficit and reducing the measure of flight capital; asset accumulation of the public sector and commercial banks is not considered to be flight capital and is thus deducted, and transactions in gold and silver and valuation gains on official reserves (including Special Drawing Right (SDRs)) are netted out of official reserves.

The errors and omissions item in the balance-of-payments statistics consider the gap between debit and credit entries of current and capital accounts. Unreported capital outflows could be resulting from the large negative value of the balance. It does not necessarily mean that the errors and omissions item is alike to unrecorded capital flows. It encompasses the entries like errors, unrecorded imports and lagged registration that are not related to the flight of capital and could change the value of errors and omissions in terms of magnitude and directions (Duwendag, 1987). The resulting distortions due to these issues of inferring "errors and omissions" require to be adjusted to arrive at the typical value of capital flight. One attempt taken by Sinn (1990) to remove the distortions is by adding the largest positive stock estimate for accumulated "errors and omissions" to each stock estimate for the period concerned. The argument is that it will nullify the effect of plummeting capital flight in the cases of a positive balance in errors and omissions since positive balances would be opposite to the anticipated trend and thus unrelated to capital flight and "random in nature." However, the adjustment is not out of limitation in addressing the problem. Particularly such an adjustment will become inappropriate in cases where the movements in errors and omissions item are dominated by smuggling and thus bias the procedure (Eggerstedt and Van Wijnbergen (1995).

It is worth mentioning that all these measures of capital flight produce negative values of capital flight as all the entries in the measures are negative. Consequently, the resulting figures should be multiplied by -1 to have the true measure of capital flight.

2.3.2. Indirect Measures of Capital Flight

The indirect measure of capital flight expresses capital flight indirectly as a residual of some other variables. The indirect measures include Dooley's (1986) method, Trade Misinvoicing, World Bank's (1985) and Ebre's (1985) residual method and Morgan Guaranty Trust Co. Approach (1986).

2.3.2.1. Dooley Method

There are several steps involved in Dooley (1986) method to arrive at capital flight estimate. Those are-

Firstly, determining the gross capital outflow (GKO) by summing up the claims of cumulative recorded non-FDI of non-residents (CRNR) with the adjusted external debt (DED). The adjustment in external debt is brought taking the difference between external debt data recorded in the World Debt Table (WDT) of World Bank and data obtained from BOP statistic of IMF.

$$GKO = CRNR + DED \tag{2.6}$$

Clearly a negative DED lowers GKO. Taking the adjusted external debt data into account leads to get more appropriate estimate of capital flight.

Secondly, measuring the gross recorded external assets (EA) using the interest earned (IE) on foreign assets reported in the BOP utilizing an interest rate (r).

$$EA = IE/r \tag{2.7}$$

EA is sensitive to the use of interest rates. Chang et al. (1997) suggest to use the 90-day United States Treasury Bill rate to make it a representative one.

Finally, flight capital can be determined by deducting the gross recorded external assets from gross capital outflow:

KF= GKO-EA (2.8)

Or

KF= CRNR+ DED+IE/r (2.9)

Dooley (1988), Hermes et al. (2003) and Murinde et al. (1996) suggest adjusting the capital flight estimate by adding errors and omissions to cover unrecorded capital flows.

KF= CRNR+ DED+IE/r+EO (2.10)

Though Dooley (1986, 1988) defines capital flight directly, the absence of such a line or category in the BOP statistics make it necessary to measure indirectly the data on outflows of capital inspired by the desire to keep assets away from the control of domestic authorities (Kant, 1996).

2.3.2.2. Trade Misinvoicing

Falsifying the trade documents can be another means of shifting funds abroad. Bhagwati (1964) first argues that capital flight can essentially be determined by trade misinvoicing. Bhagwati, Krueger and Wibulswasdi (1974) examine the flight of capital from 28 underdeveloped countries and identify that exports are under invoiced in at least 19 of these countries which provides strong evidence of capital flight through trade misinvoicing. Hence, capital flight can be estimated by the willful misinvoicing of trade flows. Domestic capital could fly out of an economy through trade misinvoicing in two ways: import over-invoicing and export under-invoicing. Both exporters and importers of developing countries are engaged in capital flight by fabricating invoices (Hermes, Lensink and Murinde, 2004).

In the case of export under-invoicing, exporters falsify the invoice showing a lower price of exported goods than the price actually paid by foreign importers. The motive of doing export under-invoicing is to avoid taxes on export earnings or to show lower profits in order to check corporate income tax. On the contrary, import misinvoicing is done by falsifying the invoice showing a higher price of imported goods that the domestic importer actually paid to exporters abroad to evade controls and regulations of foreign exchange and tax evasion. In other words, capital flight takes place through systematic underreporting of exports and over-reporting of imports with

the motivation of avoiding trade restrictions and controls on shifting funds out of domestic economy.

The mechanism of trade misinvoicing can be illustrated in figure 2. In the case of import over-invoicing as illustrated in figure 2A, the importer of the home country receives goods worth $1 million but he manages an intermediary from a country other than home and exporting country to re-invoice the payment up to $1.2 million. Exporter abroad receives $1 million, the actual worth of the goods, and the rest left with the intermediary is transferred to an offshore bank account of the importer of home country. This way the process ends up with a net $0.2 million of capital flight from home country. Export under-invoicing works in the opposite direction. As figure 2B illustrates, the exporter receives $1 million against $1.2 million worth of goods export and manages an offshore intermediary to re-invoice the amount up to $1.2. Offshore intermediary transfers the reminder with him to the exporter's offshore bank account, net capital flight is $0.2 million.

Figure 2 gives us a clear direction to arrive at the capital flight figure. Clearly, for the case of import misinvoicing, capital flight figure is the difference between what the importer of home country pays and what the exporter from abroad actually receives. Similarly, one can easily appear at the capital flight figure taking the gap between the payments made by the importer from abroad and the amount received by the exporter at home in case of export under-invoicing. But for both of the cases, export data need to be adjusted from a CIF (cost, insurance, freight) basis to a FOB (free-on-board) basis. Hence, underlying discrepancies in exports and imports can be determined by the following formula:

$$XD = M_P - X_H \times CFF \tag{2.11}$$

$$MD = M_H - X_P \times CFF \tag{2.12}$$

where XD and MD represents export and import discrepancies, respectively M_P and M_H is the value of imports reported by the partner countries and home country, respectively. X_H and X_P is the value of exports reported by the home country and partner countries, respectively. CFF is the CIF-FOB factor representing the ratio of CIF to FOB. A positive sign of XD is indicative to export under-invoicing and thus suggestive to flight of capital from home countries as it means reported imports of partner countries are higher than the reported export of home country, additional amount flies away from the

domestic economy. On the other hand, a negative sign MD stands for import over-invoicing and thus refers to capital flight from home country as reported imports of home country falls short of reported exports by partner countries, capital flight occurs through offshore transfer of additional amount.

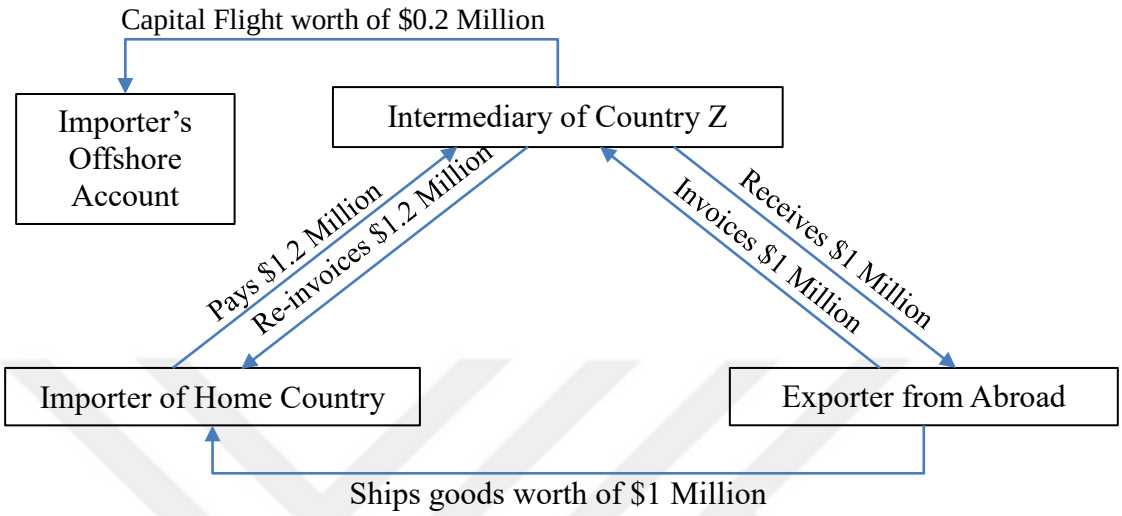

Figure 2A: Import Over-invoicing & Capital Flight

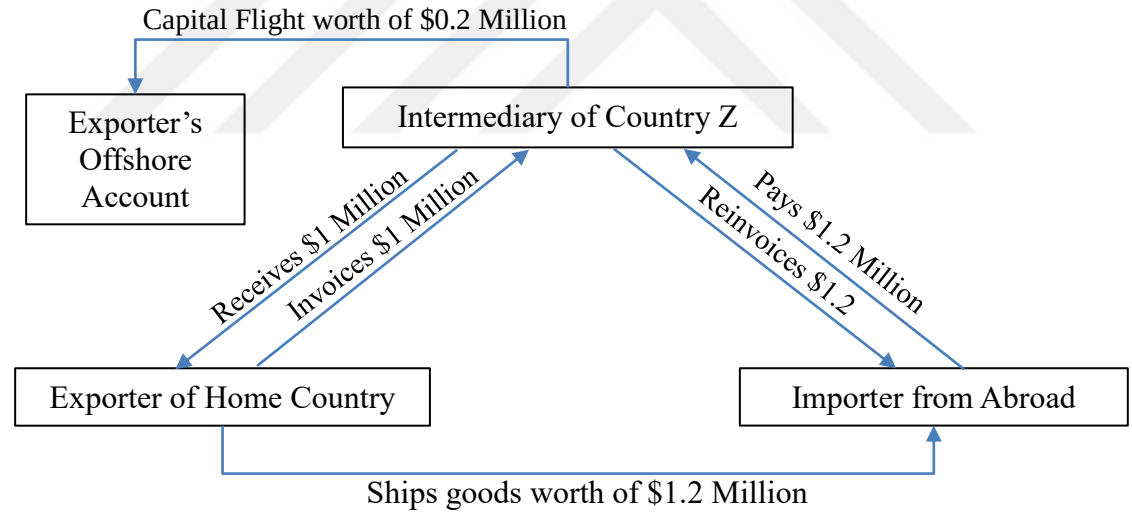

Figure 2B: Export under-invoicing & Capital Flight

Figure 2 Trade Misinvoicing Mechanism
Source: Author's construction

However, trade policies can foster trade misinvoicing in opposite direction: import under-invoicing and export over-invoicing which may result in capital inflow. Gulati (1987) observes that many of the developing countries under-invoice both exports and imports in response to the trade restrictions like tariffs and quotas. He finds evidence that trade misinvoicing leads to lower capital flight in these developing

countries as the value of under-invoiced imports is higher than the value of under-invoiced exports. Considering the counteracting effects of trade under-invoicing and over-invoicing, Eggerstedt, Hall and Wijnbergen (1995) suggest to take net misinvoicing position of a country in response to trade policy change to have a more concrete picture of capital flight.

2.3.2.3. Residual Method

The limitations associated with measuring capital flight using short-term changes in foreign assets and the errors and omissions item have been explained while defining capital flight from the motivational and contextual perspective. An alternative to quantify the capital flight is to regard it as a residual of four balance-of-payments components: change in foreign debt, foreign direct investment, change in foreign reserves and the current account balance. It is derived from the idea that the deficit in the current account or the accumulation of official reserve is backed by the capital inflows in terms of an increase in indebtedness and foreign direct investment.

This 'broad measure' of capital flight is proposed by World Bank's World Development Report (WDR, 1985) and Erbe (1985). The residual method views capital flight as the residual from sources of capital inflows, that is, increase in external debt and net foreign direct investment used to finance current account deficit and increase in international reserves. The gap between these two measures capital flight. Thus, in the residual method-

$$\text{Capital Flight, } CF = \Delta ED + NFDI - CAD - \Delta FR \tag{2.13}$$

where ΔED stands for change in external debt, NFDI is the net foreign direct investment, CAD means current account deficit and ΔFR stands for change in international reserve. Erbe (1985) also applies the residual method. She observes that there exist substantial inconsistencies between the changes in debt stock as reported in the World Bank's debt statistics (World Debt Tables). Indeed, the new debt shrunk under the OECD balance-of-payments statistics. Accordingly, Erbe (1985) uses the balance of payments statistics in place of World Bank data on external debt that WDR (1985) uses. Erbe's (1985) estimate is, therefore, higher than that of WDR (1985). She describes exchange rate incentives; currency overvaluation, risk and security are the foundations of capital to flee abroad.

However, Erbe's (1985) use of the balance of payment data can also be criticized from the ground that the official reserve change is deducted from all sorts of change in assets be it reported or not that are held abroad be it reported or not to arrive at the residual. Hence, it includes the accumulation of net foreign assets held by public entities which should actually be kept out of the residual. Balance of payment data is flow data and combining it with debt stock is an issue of major concern. There are two factors that can alter the debt stock value in terms of roller: changes in the exchange rate and currency composition of the debt stock. Therefore, it requires necessary adjustments to detach the real stock change from these effects. Besides, the quality and aptness of debt stock data for investigating capital flight issues also suffer from the problem of data reporting and coverage. The practice of debt restructuring creates additional problems (Eggerstedt, Hall and Wijnbergen, 1995).

Several other approaches of measuring capital flight actually offer to bring necessary adjustment in the residual method to appear at a more appropriate result that are summarized by Eggerstedt & Van Wijnbergen (1995) are shown in table 5.

Morgan Guaranty Trust Co. (1986) proposes to adjust changes in selected gross foreign assets, that is, assets other than reserves held by the monetary authorities and assets of commercial banks and other banking institutions. Thus, this approach says that Capital Flight:

$$CF = \Delta ED + NFDI - CAD - \Delta FR - FA \qquad (2.14)$$

where FA stands for banking system foreign assets.

Table 5
Alternative Measures of Capital Flight Using Residual Method

Measures	**Components**				
WDR (1985) & Erbe (1985)	ΔED +		NFDI–CAD–ΔFR		
Morgan Guaranty Trust Co. (1986)	ΔED +		NFDI–CAD–ΔFR	–FAs	
Zedillo (1987)		DF+	NFDI–CAD– ΔFR	–INT	
Gurria and Fadl's (1991)	NFDI+	DF+	NFDI–CAD–ΔFR	–INT	–ΔEA

Source: Eggerstedt & Wijnbergen (1995)

Zedillo (1987) suggests to adjust the residual method using debt flow data rather than change in stock data of external indebtedness as the flows are more reliable since they are consistent with other items in the balance of payments and are more consistent

over time. The current account also needs to be adjusted for interest that is earned and retained abroad. Hence, capital flight can be given as-

$$\text{Capital Flight, } CF = DF + NFDI - CAD - \Delta FR - INT \quad (2.15)$$

where DF is debt flow and INT shows interest earned and retained abroad.

Gurria and Fadl's (1991) measure of capital flight is similar to that of Zedillo but claims to add only the new investment (reinvested profits are excluded) to debt flows as FDI. Changes in external assets held by the public and banking sector are not considered to be flight capital and are thus subtracted from the residual. Therefore, the resulting capital flight equation will be-

$$\text{Capital Flight, } CF = NFDI + DF + NFDI - CAD - \Delta FR - INT - \Delta EA \quad (2.16)$$

where NFDI is the new FDI and ΔEA is the change in external assets held by public and commercial banks.

Whether interest earnings from the acquisition of foreign assets should be included in the current account or not is a controversial issue. The interest retained abroad on the holdings of foreign assets by domestic residents is included in the current account by many countries. In doing so, they usually do not distinguish between actual and expected interest earnings from the assets held abroad. Interest earning on the holding of the foreign asset even where the corresponding income is not remitted is also covered by this inclusion. The deficit in the current account would be higher if the true amount of the remitted interest income is included as they do not distinguish between actual and expected interest earnings from the assets held abroad, it leads to a smaller deficit in the current account than the expected. A smaller current account deficit suggests a lesser amount of genuine use of capital inflows, thus swelling the residual or flight capital estimate.

Arguments for and against including interest is well articulated in the literature. Some experts stand against this practice though there is no clear explanation. One of the arguments might be that interest earned on holding assets abroad was never desired to be sent back to the home economy and therefore should not be considered until they return first and flow out again. They suggest to adjust the current account excluding the

interest retained on foreign assets (e. g., Zedillo, 1987; Cline, 1987; Gurria and Fadl, 1991). On the contrary, Pastor (1990) include earnings abroad in terms of interest on foreign asset investment in his stock estimate for flight capital arguing that these earnings from foreign sources are by definition current account item and keeping them outside the current account, therefore, indicates an instantaneous and offsetting capital outflow.

2.4. Evolution of Capital Flight in Developing Economies

The study consults with previous studies in order to identify the suitable approach for examining the development of capital flight from developing countries. Among the alternative measures of capital flight, World Bank's residual method has gained remarkable attention in economic literature (Cuddington, 1986; Eggerstedt et al., 1995; Hermes, 2004; Beja, 2005; Ndikumana & Boyce, 2010). This method is deemed to be superior by many studies (Eggerstedt, Hall, and Wijnbergen, 1995; Vespignani, 2008). Vespignani (2008) argues it as the most widely prevalent measure of capital flight since it captures not only capital flight, but other influences as well incorporating the overall effect of outflow of capital; both recorded and unrecorded, without distinguishing short or long run. Eggerstedt, Hall and Wijnbergen (1995) argue in favor of the residual approach, which assumes that capital inflows in the form of increases in external indebtedness and foreign investment should finance either the current account or reserve accumulation; shortfalls in reported use can be attributed to capital flight. Hence the study decides to employ the residual method in measuring capital flight with necessary adjustment.

In the residual method, capital flight is viewed as the discrepancy between the sources and uses of capital flows where sources of capital flows include an increase in net external debt and inflows of net foreign direct investment (NFDI) and uses of capital flows include additions to foreign reserves and current account deficit. While considering the current account balance, the study takes net income from abroad and net current transfers in order to arrive at the more representative estimate of capital flight. Net Portfolio Investment equities and other investment assets are summed with net foreign direct investment to arrive at the figure of inflows of net foreign direct investment which makes the capital flight series more mimetic. Last but not the least,

the nominal flows are converted into real flows which make the capital flight series inflation-adjusted to confirm the comparability of the annual capital flight estimates for the countries concerned.

Capital flight estimates thus obtained can either be positive or negative. A positive capital flight estimate indicates the presence of capital flight, while a negative value of this estimate refers to capital inflows, that is, capital repatriation. Capital flight estimates from developing countries of different continents are summarized in the following sections for the period 1981-2019.

2.4.1. Evolution of Capital Flight from Selected Developing Asian Economies

Capital flight from Asian developing economies is a longstanding problem. Beja (2006) examines the capital flight from Thailand, Malaysia, Indonesia, and the Philippines and finds that these economies experience widespread capital flight. The study examines the capital flight phenomenon of eleven Asian economies. The economies include Bangladesh, China, India, Nepal, Pakistan, Sri Lanka, Thailand, Philippines, Indonesia, Jordan, and Fiji. The total amount of capital flight from the selected economies of Asia stands at USD 4843 billion during 1981-2019. The highest amount of capital flees from China which constitutes nearly 65 percent of total capital flight from Asia. The second largest capital flight susceptive economy is India from which nearly 20 percent of total capital flight from Asia takes place. However, when we compare the severity of capital flight in terms of percent of GDP, it provides a different scenario which is evident from figure 3. As the figure illustrates, the maximum capital flight takes place in the 2010s from most of these countries as a percent of GDP. Countries that come to pass extensive capital flight as a percent of GDP in the 2010s include Nepal, Jordan, Sri Lanka, Pakistan, Bangladesh, China, and the Philippines. In the same period, capital flight was least in Indonesia, Fiji, and Thailand. Among the countries, Bangladesh, India, Indonesia, and Thailand experience the minimum capital flight in the 2000s. More specifically, there was capital repatriation to Thailand and Indonesia in the 2000s and Fiji in the 1990s. Among these economies, Nepal and Jordan is the most capital flight prone economy during the sample period. Capital flight from Nepal and Jordan is nearly 20 percent and 16 percent of their GDP respectively throughout the sample period. The maximum capital flight the economies experienced in the 2010s were over 34 percent and 24 percent, respectively.

Considering all these developing Asian economies, maximum capital flight occurs in the 2010s by the amount USD 4843.06 billion at constant prices of 2010; however, its share in GDP was highest in the 1980s which was 4.42%. The capital flight as a percent of GDP fairly lies above the net foreign direct investment and official development assistance except for the period 2000s as shown in table 6.

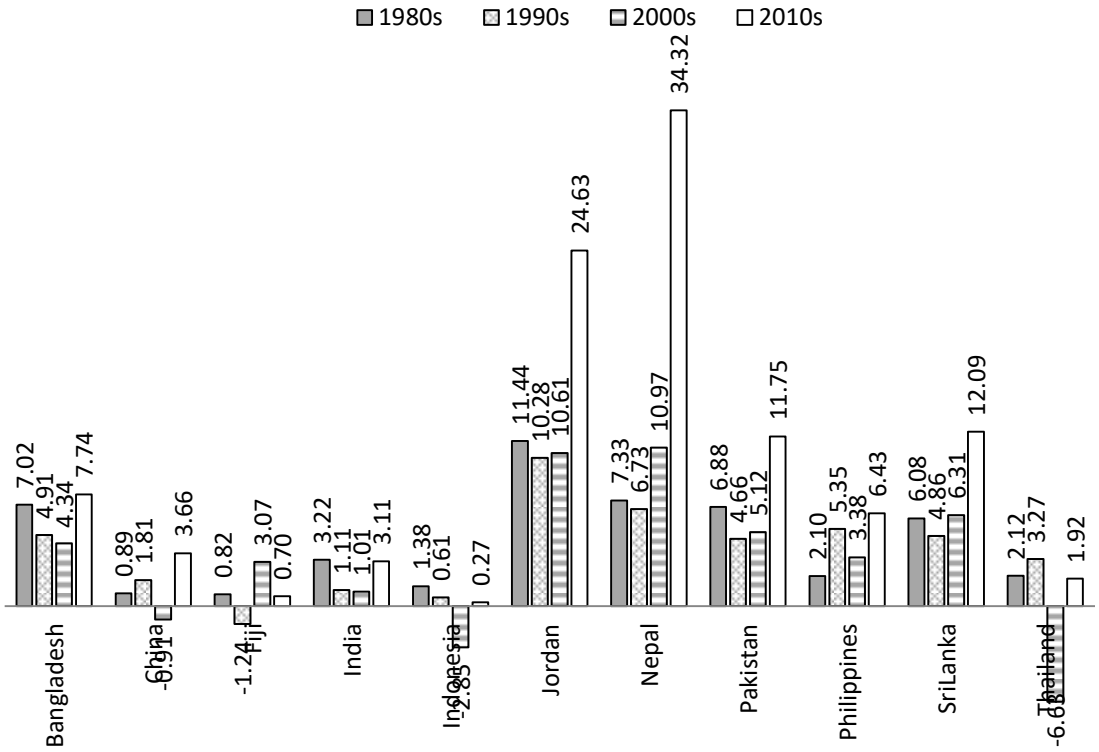

Figure 3 Capital Flight from Asian Economies (% of GDP)
Source: Author's calculation based on data from WDI, World Bank, 2020

Table 6
Capital Flight from Developing Asia (As % of GDP)

Periods	Capital Flight	NFDI	ODA
1980s	4.42	0.92	5.32
1990s	3.11	1.68	1.80
2000s	-1.13	1.60	0.48
2010s	2.54	1.37	0.21

Source: Author's calculation based on data from WDI, World Bank, 2020 (Billion, Constant 2010 USD)

2.4.2. Evolution of Capital Flight from Selected Developing African Economies

The study considers eleven African economies and examines the extent of capital flight from these economies. The economies include Benin, Cameroon, Egypt,

Kenya, Madagascar, Morocco, Nigeria, Rwanda, Sierra Leone, South Africa, and Togo. The total amount of capital flight from the selected African economies reaches to over USD 3433 billion from 1981 to 2019. The largest capital flight affected economy is Nigeria from which nearly USD 2473 billion capital flees abroad as of 2019 which is about 72 percent of total capital flight from the selected African economies during the sample period. The next most capital flight experiencing economy of Africa is South Africa which counts around 10.6 percent of total African capital flight. Nigeria remains the largest capital flight susceptive economy in terms of its percentage share in GDP as shown in figure 4. It appears from the figure that most of the countries, namely Cameroon, Rwanda, Sierra Leone, South Africa, and Togo experience large capital flight in the 2010s. Capital flight from Benin, Egypt, Madagascar, Morocco reached to a peak in the 1980s and for Kenya and Nigeria, it was in the 1990s. Capital flight share in GDP was the least in Benin, Kenya, Rwanda, Sierra Leon during the 2000s, South Africa and Togo in the 1980s and Morocco in the 1990s. There was capital repatriation in Cameroon and Egypt during the 2000s.

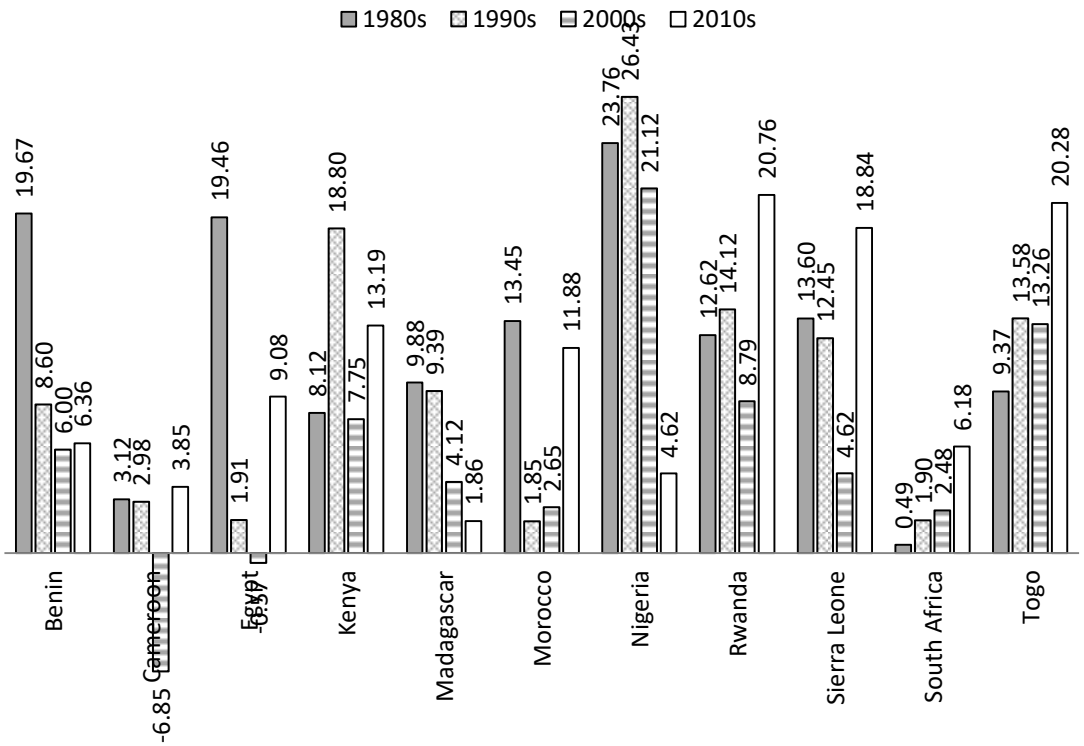

Figure 4 Capital Flight from African Economies (% of GDP)
Source: Author's calculation based on data from WDI, World Bank, 2020

Table 7
Capital Flight from Developing Africa (% of GDP)

Periods	Capital Flight	NFDI	ODA
1980s	13.02	0.82	3.96
1990s	11.27	0.62	2.01
2000s	9.59	1.60	1.02
2010s	5.92	2.04	1.37

Source: Author's calculation based on data from WDI, World Bank, 2020. (Billion, Constant 2010 USD)

The worst most period of capital flight from the selected African economies was 2000s during which nearly USD 1071.8 billion of domestic capital flees abroad which takes the second highest share in GDP for the economies as a whole in the periods. As table 7 illustrates, capital flight as a percent of GDP was highest in 1980s which was 13.02 percent. While comparing with the net foreign direct investment as a percent of GDP, capital flight is fairly greater for all the periods. Similarly, capital flight share in GDP is reasonable higher than the official development assistance throughout the sample period.

2.4.3. Evolution of Capital Flight from Selected Developing Latin American Economies

A good number of studies examine the extent of capital flight from Latin American countries. Cuddington (1986) investigates capital flight from Latin America during the period 1974-1982 and identified that Argentina, Mexico, Uruguay, and Venezuela experienced Large-Scale Capital Flight while it was less severe in Brazil, Chile, and Peru. Ketkar and Ketkar (1989) measured capital flight from Argentina, Brazil, and Mexico using quarterly data from 1977 to 1986. Using alternative measures of capital flight, they identified substantial amount of capital flight from these economies. Fatehi (1994) offered an estimate of capital flight from 17 Latin American countries for the period 1950-1982 and found that there was a flight of capital from each of the economies throughout the period. Pastor (1990) also marked capital flight at a significant amount from eight Latin American countries during the 1970s and 1980s.

The study takes ten Latin American economies into account to examine the extent of capital flight from these economies. The countries are Argentina, Bolivia, Brazil, Colombia, El Salvador, Guatemala, Haiti, Honduras, Mexico and Peru. Figure 5 shows the extent of capital flight as a percent of GDP from these economies. As the

figure suggests, the scale of capital flight is extremely large for Mexico. The degree of capital flight from Guatemala and Honduras is also extensive. However, capital flight is less severe in Argentina, Bolivia, Brazil, Colombia, El Salvador, Haiti and Peru. There was capital repatriation in half of the countries in 2000s, namely Argentina, Bolivia, Brazil, Colombia and Peru.

It is clearly evident from table 8 that capital flight has a greater share in GDP compared to net foreign direct investment and official development assistance throughout the sample period. A total of USD 9026.78 billion capital flight at 2010 constant prices occurs from these economies during 1981-2019 with a maximum of 17.12 percent of GDP in the 1980s and a minimum of 0.99 percent of GDP in the 2000s.

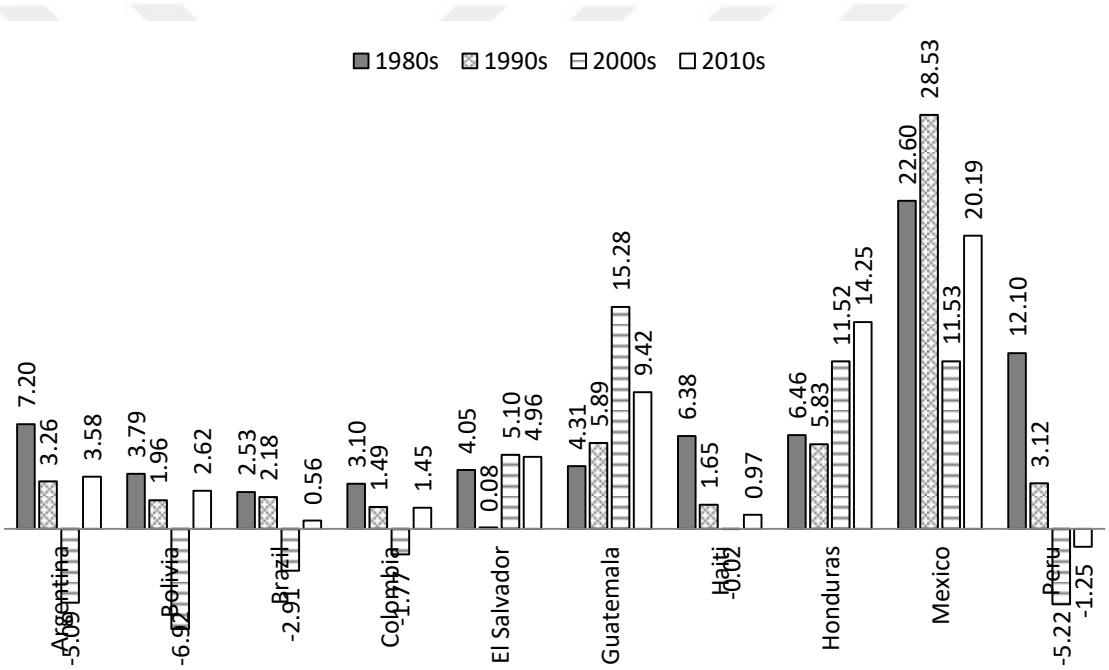

Figure 5 Capital Flight from Latin American Economies (% of GDP)
Source: Author's calculation based on data from WDI, World Bank, 2020

Table 8
Capital Flight from Developing Latin America (% of GDP)

Periods	Capital Flight	NFDI	ODA
1980s	17.12	0.84	0.54
1990s	9.66	1.95	0.26
2000s	0.99	1.14	0.08
2010s	6.11	3.15	0.13

Source: Author's calculation based on data from WDI, WB, 2020 (Billion, Constant 2010 USD)

2.4.4. Evolution of Capital Flight from Transition Countries

Capital flight studies on Transition countries are scarce. This study considers five Transition economies- Albania, Armenia, Kyrgyz Republic, Russian Federation and Kazakhstan. The sample period of the study covers 1992-2019. Capital flight is found to be a persistent problem for most of the sample countries. Among the countries considered, Russian Federations is suffering most from the capital flight problem as the total capital flight from the country is nearly USD 1072 billion at constant prices of 2010, which is about 89 percent of total capital flight from the selected Transition countries. However, in terms of percentage share in GDP, capital flight is found to be fairly high for the Kyrgyz Republic and then in Armenia. The highest capital flight from Albania, the Russian Federation and Kazakhstan as a percent of GDP occur in the 2000s.

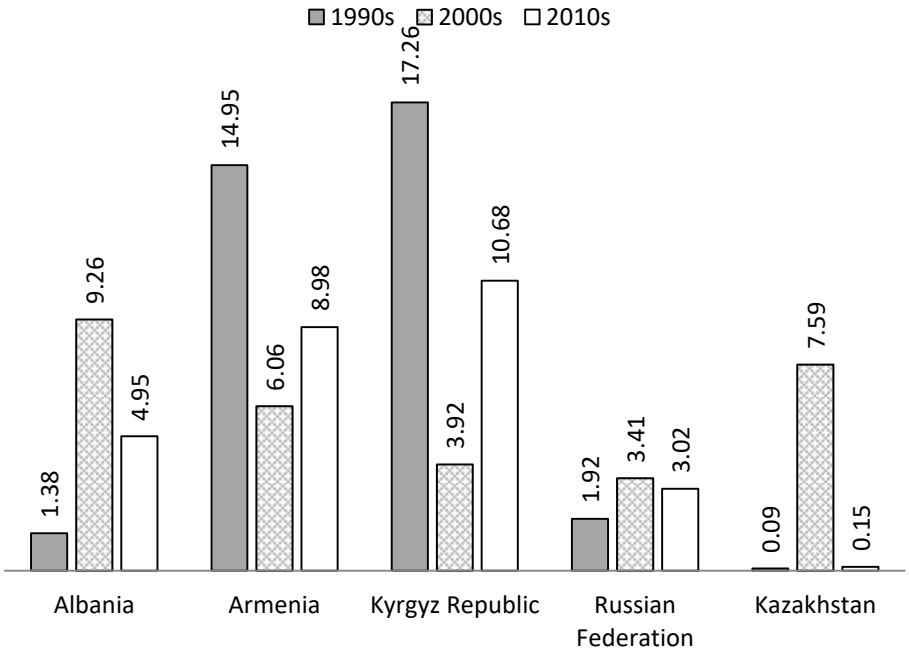

Figure 6 Capital Flight from Transition countries (% of GDP)
Source: Author's calculation based on data from WDI, World Bank, 2020

Table 9
Capital Flight from Transition economies (% of GDP)

Period	Capital Flight	NFDI	ODA
1990s	1.89	0.35	0.01
2000s	3.78	2.40	0.02
2010s	2.81	2.40	0.01

Source: Author's calculation based on data from WDI, World Bank, 2020
(Billion, Constant 2010 USD)

A comparison of capital flight with major capital inflows namely net foreign direct investment and official development assistance and foreign aid is presented in table 9. It exhibits that capital flight as a percentage of GDP is significantly greater than that of net foreign direct investment and official development assistance and foreign aid.

2.5. Summary

The chapter examines the definitions and measures of capital flight. It also examines the evolution of capital flight from different developing regions. It is commonly observed that capital flight was less intense in the 2000s in Asia and Latin America but very acute for developing Africa and transition countries. Many of the developing countries have gone through capital repatriation in this decade across the regions. During the period, the Latin American countries experience the highest level of capital flight amounting to $9027 billion. The issue of capital flight is more acute in African developing economies considering its share in GDP. Therefore, the incidence of capital flight from the developing economies is highly incident for the selected developing economies.

CHAPTER III

LITERATURE REVIEW

3.1. Introduction

Despite the unanimity among researchers regarding the definitions and measures of capital flight, its extent in developing economies is markedly noticeable. It has been a critical concern for most of the developing countries where capital is relatively scarce for development. The main purpose of the study is to examine the impact of capital flight on macroeconomic performance on economies of different developing regions of Asia, Africa, Latin America, and Transition countries. Therefore, it is necessary to determine the capital flight series for the selected developing economies. The study consults with available definitions and measures of capital flight that are summarized in chapter two. It is necessary to decide on the appropriate measure of capital flight among the alternatives to study its impact on the macroeconomic performance of developing economies. This chapter will conduct a brief literature survey on the studies on capital flight to identify the suitable measure of capital flight for this study. It will then discuss with the studies examining the impact of capital flight on different macroeconomic outcomes, particularly on economic growth to derive an ideal theoretical and empirical framework for the study.

3.2. Empirical Studies on Capital Flight

Empirical studies on capital flight can be categorized into two major branches: a group of studies examines the extent of capital flight in least developed and developing countries in association with its controlling factors while another group of studies investigates the impact of capital flight on key indicators that determine the macroeconomic performance of these economies.

3.2.1. Extent of Capital Flight and its Determinants in Developing Economies

The study of the empirical literature on the extent of capital flight and its determinants from developing country perspective will help determine the appropriate measure of capital flight for this study. Most of the studies on capital flight estimate summarize the factors that determine the capital flight from developing economies into

two broad groups: pull factors and push factors. Drawing a line between pull and push factors is quite straightforward. Pull factors stemmed from a country's social and economic system and push factors are external to a particular economy. The push and pull factors commonly used in persuasive empirical studies are presented in table 10.

3.2.1.1. Capital Flight and External Debt

It was observed that while governments of developing countries were depending more on the external debts to finance their development programs throughout the 1970s and 1980s, domestic residents were actively engaged in transferring their funds abroad. The study of capital flight gained pace facing the mare reality that many of the Latin American countries faced the prospect of defaulting on their external debts in the early 1980s. Consequently, there emerges a huge literature investigating the association between external debt and capital flight as capital flight has widely been accepted as a factor undermining the ability to repay the debt of highly indebted countries.

One of the factors that domestic investors consider making their investment decision is the risk differentials between domestic and foreign investment. **Khan and Haque (1985)** examine investors' attitudes towards this factor employing a standard intertemporal optimization model of external borrowing and investment incorporating the potential of expropriation risk. Their study suggests that the developing countries continue to borrow until the gap between the marginal rate of return on domestic and external investment disappears. They find the expropriation risk meaningful in explaining the simultaneous development of capital flight and external debt in developing countries: foreign investment at home is free from the repudiation threat while the expropriation risk motivates domestic investors to invest abroad.

Cuddington (1986) examines the capital accounts of the balance of payment for eight economies, seven from Latin America and one from east Asia, namely Argentina, Brazil, Chile, Korea, Mexico, Peru, Uruguay, and Venezuela and measures the capital flight from 1974 through 1982 using both narrow and broad measures and compare the growth of capital flight with the external debt of each of the countries in each of the years. He finds that capital flight fluctuates enormously from country to country with varying severity. While there has been a heavy capital flight from Mexico, Argentina, Uruguay and Venezuela, it registers an insignificant amount for Brazil, Chile, Korea and Peru. His study also suggests that external debt is one of the dominant determinants of capital flight for these countries. Among other factors, currency overvaluation and

real interest rate differentials have a notable impact on capital flight from Mexico and Venezuela.

Table 10
Push and Pull Factors of Capital Flight

Category	Factors	Study
Pull Factors	expropriation risk	Khan and Haque (1985), Rojas-Suarez (1991), Kant (1996), Khan and Ajayi (2000)
	external debt	Khan and Haque (1985), Cuddington (1986, 1987), Pastor (1990), Boyce (1992), Hermes and Lensink (1992), Claessens and Naude (1993), Kant (1996), Ndikumana (2016), Cerra, Rishi and Saxena (2008)
	Foreign Currency Reserve	Boyce (1992), Cuddington (1986), Pastor (1990), Kant (1996), Dachraoui, Smida, and Sebri (2020).
	Rate of inflation	Cuddington (1986), Hermes and Lensink (1992), Raji (2019), Anetor (2019)
	Rise in corporate income tax	Bouchet (2012), Ndikumana and Sarr (2019), Pradhan and Hiremath (2020), Ndikumana (2017)
	Financial repression/ Financial development/ Financial liberalization	Cuddington (1986), Forson, Obeng and Insaidoo (2017)
	Growth Rate	Conesa (1987), Boyce (1992), Hermes and Lensink (1992)
	Stock market crisis	Forson, Obeng and Insaidoo (2017), Eluyela, et. al. (2020)
	Currency overvaluation	Conesa (1987), Hermes and Lensink (1992), Ketkar and Ketkar (1989)
	Low domestic interest rate	Conesa (1987), Boyce (1992), Hermes and Lensink (1992), Kant (1996), Ketkar and Ketkar (1989),
	fiscal deficit	Conesa (1987)
	Budget Deficit	Boyce (1992), Hermes and Lensink (1992)
	Lagged capital flight	Boyce and Ndikumana (2001), Yalta and Yalta (2012)
	Institutional Quality	Cerra, Rishi and Saxena (2008)
	Political Risk	Ketkar and Ketkar (1989)
Push Factors	Low rate of inflation	Hermes and Lensink (1992), Ketkar and Ketkar (1989), Raji (2019), Anetor (2019)
	High interest rate	Conesa (1987), Boyce (1992), Kant (1996), Ketkar and Ketkar (1989)
	Strong and stable hard currency rate	Wu & Tang (2002), Ndikumana and Boyce (2000), Cerra, Rishi and Saxena (2008), Forson, Obeng and Insaidoo (2017), Bouchet, Fishkin and Goguel (2018)
	Dynamic offshore financial system	Forson, Obeng and Insaidoo (2017), Onyele, Opara, and Ikwuagwu (2017). Eluyela, et. al. (2020)

Source: Author's Survey

Dooley (1986) replaces Uruguay with the Philippines and identifies the dominance of capital flight for highly indebted economies in the year 1983. Based on a pooled regression covering the period 1976 to 1983, the study reaches to the conclusion that taxing domestic money balances through domestic inflation and financial repression motivates residents to keep their fund keep out of control of the domestic authorities and thereby cause capital flight.

Cumby and Levich (1987) survey on capital flight using its alternative definitions with a common database for Argentina, Brazil, Korea, Mexico, Philippines and Venezuela. They argue that the capital flight estimates vary across definition and sources of data have an important impact on the dispersion of estimates. Their results show that the differences in estimate for some countries turn negative from positive across the definition. However, most of the definitions suggest a substantial level of capital flight from these economies and in some cases surpasses the external debt stock while always insignificant relative to the stock of domestic assets or other measures of net national wealth.

Adopting the "investment climate" approach, **Conesa (1987)** investigates the factors influencing capital flight from a group of Latin American countries. According to his time-series study, lack of economic growth is turned out to be the most important factor causing capital to fly out from Latin American economies. He also uses public borrowing from foreign sources and foreign currency reserves to proxy the currency overvaluation arguing that dominance of these variables causes currency overvaluation. As the study reports, currency overvaluation, external debt, interest rate differentials and fiscal deficit in high amounts can also lead to the flight of capital.

Incorporating foreign borrowing as a factor describing capital flight, **Cuddington (1987)** examines the role of domestic interest and inflation rate and foreign interest rate with necessary adjustment for the depreciation of the domestic currency in portfolio choice using a standard three-asset portfolio-adjustment model. The assets include domestic and foreign financial assets and domestic inflation hedges like land and building. His Ordinary Least Square (OLS) regression results suggest that foreign borrowing is a significant variable to explain capital flight- nearly 31 percent of foreign borrowing of Mexico shifts abroad as capital flight during 1974-1984.

Pastor (1990) examines the capital flight determinants of eight Latin American countries from 1973 to 1986. The countries include Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela. He employs OLS regression of capital flight

considering a measure of capital availability proxied by the net long-term borrowing to GDP ratio, tax-GDP ratio differentials for two successive years, the relative profitability of investment in the domestic real sector proxied by the gap between the growth rate of the country concerned and the lagged U.S. growth rate and labor's share of GDP for the previous year as explanatory variables and conclude that borrowing from external sources has an important role in explaining capital flight from these economies.

The accumulation of external debt by Asian, Latin American, and African countries was accompanied in many instances by substantial capital flight. The role of external debt in capital flight has been illustrated well by **Boyce (1992)**. Using the 'revolving door' analogy, he summarizes the linkage between external debt and capital flight as debt-driven and debt-fueled capital flight. The study offers an estimate of capital flight from the Philippines which states that the cumulative capital flight during 1962-1986 was $10.4 billion in nominal terms, which is nearly $14 billion in real terms in 1986 dollars, equivalent to 48% of the country's external debt outstanding in 1986. Using the Ordinary least-squares estimation, Boyce (1992) also estimates the capital flight equation for the Philippines for the same period considering the following regressors: net debt disbursements, the level of the country's foreign currency reserve position of Philippines, the growth rate of gross domestic product, the real interest rate differential with the USA, the government budget surplus as a percentage of gross domestic product and a dummy to incorporate the impact of the Mexican debt crisis. It finds econometric evidence that the causal relationship between capital flight and external debt is bi-directional and hence the capital flight from the Philippines is both debt-driven and debt-fueled. The study also finds foreign reserve position, budget deficit or surplus and real interest rate differentials between the country and USA contribute moderately to the capital flight from the Philippines.

Hermes and Lensink (1992) study the economic determinants of capital flight from Africa adopting ordinary least squares (OLS) regression for six African countries, namely Ivory Coast, Nigeria, Sudan, Tanzania, Uganda and Zaire during 1976-1989. Arguing a higher burden of capital flight compared to Latin America, results of their econometric model suggest that the capital flight from the sample countries is substantially explained by two factors: government-guaranteed debt and exchange rate overvaluation. However, they warn to consider the effects of overvaluation of exchange rate cautiously as the result can be compromised depending on the measure of equilibrium real exchange rate. Moreover, the availability of suitable data on the real

effective exchange rate is another challenge in drawing an appropriate conclusion. The study does not find inflation, government budget deficits, growth rates of domestic GDP, US interest rates and taxes have a significant impact on capital flight.

In the case of debt-driven capital flight, capital flees abroad in response to economic situations attributable to the external debt itself. Probable pressure on domestic currency due to the arrival of foreign currency leads domestic currency to flee abroad. In the case of debt-fueled capital flight, an individual who is borrowing external fund is transferring part or all of his assets abroad. Whatever it be debt-driven or debt-fueled, external debt plays a substantial role in capital flight from the developing economies that have been well documented by many of the scholarly works.

Claessens and Naude (1993), in a working paper series of the World Bank, examines capital flight estimate for a group of 84 developing countries over the period 1971-1991 using alternative methods with necessary adjustments paying attention to two main issues: the distribution of capital flight among the countries concerning their gross domestic product and the extent of capital flight in relation to external debt. Their anecdotal evidence indicates capital flight is a much extensive phenomenon than generally stated with high correlations among the figures of capital flight derived by alternative measures. Their capital flight-GDP Lorenz curve is even above the 45-degree line which means proportional distribution of capital flight to the GDP of the countries indicates higher capital flight from the lower-income countries. Capital flight stock is less than 20 percent for 80 percent of the countries (67 countries) while 80 percent of the capital flight stock belongs to 20 percent of the countries (17 countries). Ranking of the countries in terms of their stock of capital flight in comparison to external debt also reveals a positive correlation between them.

Giving external funds to the capital scarce developing economies will become useless if a large part of the funds is shifted abroad as a capital flight. This fear was a mere reality during the aftermath of the 1980s debt crisis. Based on a literature survey, **Kant (1996)** identifies that $0.31 to $0.40 of each additional dollar of the private external borrowing guaranteed by developing country governments leaves as capital flight during the debt crisis. Cuddington (1987) and Pastor (1990) confirmed that there was a loss of debt inflows thru capital flight during this period. Both of the studies have been performed from the investment-climate perspective, in which the rate of return differential between home and abroad adjusted for the exchange rate is taken into account as the basis of analysis.

In a series of persuasive studies, Ndikumana and his co-authors(see e.g. Boyce and Ndikumana, 2001; Ndikumana and Boyce, 2010; Fofack & Ndikumana, 2010; Ndikumana, 2016; Ndikumana, 2015; Ndikumana, Boyce, and Ndiaye, 2015; Ndikumana, 2017; Ndikumana and Boyce, 2018) dedicate their interest in investigating the synchronized development of external debt and capital flight in developing countries.

Boyce and Ndikumana (2001) provide the capital flight estimates from Sub-Saharan low-income countries in which they report that the accumulated stock of capital flight from 25 low-income countries exceeds $193 billion during 1970-1996 in the dollar value of 1996 which amounts to over $285 billion with imputed earnings in the form of interest against the $178 billion cumulative external debt in 1996. They also find that capital flight in earlier years may induce residents to continue the practice in the future and hence capital flight can form a long-term disposition among residents rather than responding towards any positive changes in the investment climate.

Beja (2007) examines the revolving door hypothesis of capital flight presented by Boyce (1992). The results for Indonesia, Malaysia, and Thailand show that large sums of capital flowed in and out of these economies in a revolving door fashion. The revolving door model declares both the direct and indirect explanations of external borrowings and capital flights. The direct explanation is that external borrowings fuel capital flight through the liquidity effects of capital inflows. But when the external indebtedness gets worse, the growing pressure of debt servicing and the debt default potential augment risks, to which investors respond by taking their capital away. In this case, external indebtedness has a stock effect. Meanwhile, as capital flight proceeds, there is a reduction in the available domestic resources to finance economic growth. This situation forces a country to borrow to replace lost funds. A process of debt accumulation and capital flight thus ensues.

Lan (2007) attempts to identify the factors determining capital flight and its impact on economic growth of four selected ASEAN economies: Indonesia, Malaysia, the Philippines and Thailand. The study considers annual time series data covering from 1972 to 2005 and the ARDL ‘Bounds test’ approach to cointegration is used both for the capital flight model and growth model. The study takes three different measures of capital flight into account. Those are World Bank measure, Morgan Guaranty Trust measure and Dooley Derived measure. Results of the capital flight models are almost similar despite the differences in the measurement technique. The results show that

higher capital flight is associated with higher external debt, higher budget deficit as well as higher political instability that proxy by Political rights. However, the elasticities demonstrate that higher capital flight is associated with lower Interest rate differential (the United States Treasury Bill rate minus domestic deposit rate), and lower accumulation of international reserve.

In a revised estimate, **Ndikumana and Boyce (2010)** report $443 billion of accumulated stock of capital flight for the period 1970 to 2004 in dollar values of 2004 from 33 countries of the same region. It exceeds $640 billion when the interest earnings are accrued against $193 billion of accumulated external debts of the countries in 2004. Both of the residual method-based capital flight studies thus conclude sub-Saharan Africa as a net creditor to the rest of the world which has further been substantiated by Ndikumana, Boyce, and Ndiaye (2015) and Ndikumana (2015, 2017, 2018).

There is a steady increase in capital flight from the African countries that surpasses the external debt of countries in this region for most of the years with few exceptions. **Ndikumana, Boyce, and Ndiaye (2015)** show that the cumulative stock of capital flight from Africa exceeds 1.4 trillion US dollars as of 2010. **Ndikumana (2017)** compares the extent of capital flight from Africa from absolute and relative sense. He concludes that it is a bigger problem in other regions than Africa if the absolute values are taken into account. For instance, east Asia shows a six times higher flight amount of capital than Africa in absolute value. However, the accumulated stock of capital flight from Africa as a percent of GDP (24 percent) is higher than East Asia (20 percent), meaning that the relative cost for development is higher in Africa compared to other regions of the world due to capital flight. However, the updated estimate of **Ndikumana and Boyce (2018)** from a representative sample of 30 African countries from 1970 to 2015 find capital flight obtained by residual method is large both in absolute terms and relative to the size of the source economies. Their estimate of cumulative stock of capital flight as of 2015 including earned interest abroad reach to $1.8 trillion, a $496.9 billion higher than the countries' stock of external debt. The evidence also shows that these countries lose more through capital flight than they receive in the form of aid or foreign private investment.

Fofack and Ndikumana's (2010) capital flight repatriation argument bears significance in lessening the dependence on external debt. They argue that Africa will be able to maintain a higher sustainable growth trajectory if the flight capital from

Africa is restituted to the legitimate claimants. It will also reduce the debt burden on the future generation.

Bakare (2011), using the VAR approach over the period 1988-2010, examines the determinants of capital flight from Nigeria. The control variables the paper considers are exchange rate, inflation rate, external debt, economic growth (GDP), wage rate and corruption perception index. The study identifies external debt as the largest source of capital flight in Nigeria.

Ndikumana (2016) consults with eight cross-sectional and panel data studies with an objective to reach a generalized finding on the causes and effects of capital flight from Africa. The studies are Muchai and Muchai (2016) on Kenya, Ramiandrisoa and Rakotomanana (2016) on Madagascar, Geda and Yimer (2016) on Ethiopia, Kwaramba, Mahonye and Mandishara (2016) on Zimbabwe, Gankou, Bendoma and Sow (2016) and Mpenya, Metseyem and Epo (2016) on Cameroon, Ndiaye and Siri (2016) on Burkina Faso, and finally, Moulemvo (2016) on Congo-Brazzaville. The empirical evidence from the case studies approves the view that African capital flight is debt-fueled. The studies also find that natural resource countries use trade misinvoicing as a measure of capital flight. The studies also accentuate the need for quality institutions and palliation of political risk for the reversal of capital flight. The result of the study is consistent with **Cerra, Rishi and Saxena (2008)** panel data study from developing country perspective.

Cerra et. al's (2008) examines 134 developing and emerging market countries over 32 years from 1970 to 2001. Their panel data estimates for capital flight demonstrate robust evidence of the revolving door relationship between debt and flight. They support the debt-fueled flight of capital argument, as well as a financing need channel working in the opposite causal direction. Besides the debt-capital flight relationship, they also study the role of institutional quality and claim that better institutional quality limits capital flight which ultimately checks debt accumulation as financing needs are largely met from the domestic sources.

Recent studies based on the residual method of capital flight with necessary adjustments, namely Al-basheer, Al-Fawwaz and Alawneh (2016), Forson, Obeng and Insaidoo (2017), Salandy and Henry (2018), Anetor (2019), Tjaondjo (2019) Raji (2019), Pradhan and Hiremath (2020) Osaretin and Olotu (2020).

Al-basheer, Al-Fawwaz and Alawneh (2016) investigate the determinants causing capital flight from Jordan from 2000 to 2013. They appear at the capital flight

series using the residual method and identifies external public debt as one of the major determinants of flight of capital from Jordan. They also find that capital flight in the current year is also influenced by the capital flight of the previous years. However, higher economic growth reduces capital flight.

Forson, Obeng and Insaidoo (2017) examine both the short-run as well as the long-run factors that determine capital flight from Ghana using the autoregressive distributed lag (ARDL) estimation technique relying on yearly data for the period 1986 to 2015. Their study measures capital flight using the residual method. The study detects the factors like real output growth, positive and higher interest rate differential, financial development, good governance and strong property rights lessen capital flight, while the rise in external debt stimulates capital flight from Ghana and hence supports the debt-fueled flight of capital.

Kollamparambil and Gumbo (2018) examine the macroeconomic and institutional determinants of capital flight using panel data for 29 Sub-Saharan African Countries from 1996-2010 adopting Arellano–Bover/Blundell–Bond System GMM dynamic estimator. The study identifies external debt as one of the significant macroeconomic factors that cause capital flight. Among the other macroeconomic factors, inflation and economic growth are key determinants of capital flight along with institutional quality.

Relying on monthly data from March 2013 to May 2018, **Raji (2019)** examines the impact of uncertainties associated with macroeconomic policy environment and non-economic factors that include political instability, corruption, poor governance, civic conflicts, and property right. Based on fully modified OLS regression, the study reaches the conclusion that uncertainty of macroeconomic policy environments such as inflation-price instability, real exchange rate volatility and lack of confidence in the domestic stock market enhance capital flight.

Tjaondjo (2019) investigates the determinants of capital flight and the behavior of capital flight before and after the passage of Regulations 28 and 29 in Namibia. Using annual data from 1990 to 2016, the unit root and cointegration analyses were performed. The findings of the study indicate that foreign direct investment, current account deficit, change in foreign exchange reserves and external debt are important determinants of capital flight, whereas corruption and political uncertainty do not influence capital flight.

The macroeconomic factors determining the capital flight from the Sub-Saharan African (SSA) countries is studied by **Anetor (2019)** relying on yearly data between the period 1981-2015 adopting the autoregressive distributed lag (ARDL) Bound's tasting model technique to determine the macroeconomic factors influencing capital flight from the SSA region. The study finds that external debt influences capital flight positively in the short-run while growth of SSA economies tones it down. However, the study does not find spread in interest rate, rate of inflation, and openness in trade to be significant determinants of capital flight from the region.

The study on Indian capital flight performed by **Pradhan and Hiremath (2020)** reveals the synchronicity of capital flight and external debt for the economy throughout their study period 1990 to 2012. During this period the accumulated flight of capital from India obtained using the residual approach is $756.61 billion against the external debt stock of $3469.7 billion. With regard to the determinants of capital flight, the authors' findings suggest an intervention in the foreign exchange market as it is found to be a significant determinant both in the short-run as well as in the long run. Output growth is an important determinant that checks capital flight in the long run. Higher real interest rate restricts capital flight, however, authors warn of its probable adverse impact on output growth in the long run.

Emphasizing the scarcity of capital compared to their need, **Osaretin and Olotu (2020)** identify capital flight as the key factor that impedes the growth of the Nigerian economy. With an aim to identify the capital evasion from the Nigerian economy, they perform capital flight regression using the autoregressive distributed lag (ARDL) model covering the period 1970 to 2018. The study ascertains external debt as a substantial determinant of capital flight from Nigeria. Among the other determinants, foreign currency reserve, rate of inflation, and interest rate differentials have value in controlling capital flight. As **Al-basheer, Al-Fawwaz and Alawneh (2016)** found for Jordan, authors of the study also find that capital flight of a period is fueled by the previous level of capital flight.

3.2.1.2. Capital Flight in relation to Foreign Direct Investment

Despite the significance of foreign direct investment for developing economies, its financial effects in general or its relation to capital flight, in particular, has received less attention from researchers. Some influential studies in this area include Kant (1996), Sicular's (1998), Yang and Gunter (2002), Harrigan, Mavrotas and Yusop

(2002), Almounsor's (2007) and Chiang and Lee (2015). Among the recent studies, Liew, Mansor and Puah, (2016), Ndikumana and Sarr (2016), Ndikumana and Sarr (2019), and Mwangi, Njuguna and Achoki (2019) receive scholars' attention.

Kant (1996) examines the extent of capital flight concerning foreign direct investment from an investment climate perspective and discriminatory treatment perspective. The study is conducted during 1974-992 for six geographical regions of the developing world, namely East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, North Africa and the Middle East, South Asia and Sub-Saharan Africa using three different estimates of capital flight: World Bank's residual method, Dooley method and Hot Money 3. Based on contemporaneous correlation and principal component analysis, the study finds that there exists an inverse relationship between foreign direct investment and capital flight. FDI inflows always impair capital flight from all these geographical regions for all the measures of capital flight though the measures vary significantly. However, it concludes that inefficiency in macroeconomic policy setting is mainly responsible for capital flight from these regions. Gertler and Rogoff (1990), using a two-period model, also reach to a similar conclusion that inefficiencies in handling domestic capital influence the flow of international capital.

Sicular's (1998) estimate of capital flight shows that the magnitude of capital flight as a percent of GDP and domestic investment and saving is relatively higher from China compared to Russia during 1988-1996. He identifies that foreign direct investment in China over the same period relative to GDP is higher than that of Russia and thereby concludes that while the Government's development projects in china are financed by foreign capital, residents of China shift their funds abroad. In contrast to China, Russia relies less on foreign capital to implement their development projects and also experiences less capital flees from the economy.

Yang and Gunter (2002) examine the relationship between foreign direct investment and capital flight in China applying correlation, factor and causality analytical tools. The correlation analysis indicates that the relationship between them is significantly positive. In the meantime, the results of factor and causality analysis support the conclusion. This means that the driving cause of capital flight in China is the unbalanced policies toward domestic capital and foreign capital. Some policy implications are discussed.

Harrigan, Mavrotas and Yusop (2002) investigate the capital flight determinants by estimating a capital flight equation adopting four different measures of Malaysian capital flight time series data for the period from 1970 to 1996. The measures of capital flight include Dooley, World Bank's residual, Private Claim and Balance of Payments measures. Due to the presence of single cointegration relationship and non-weakly exogenous variables for the cases of Dooly's, World Bank's and Privarte Claim's measure, authors employ the instrumental variables estimator rather than OLS estimator to estimate the short-run capital flight function. However, the existence of two cointegrating relationships for the case of balance of payment measure confirmed by Johanson's cointegration test permits the author to apply the complete model to estimate the capital flight function allowing more than one endogeneous variable in the system. The long-run estimators for all capital flight equations relying on different measures of capital flight are found to be consistent across all four measures. It suggests that currency depreciation and external debt development stimulates capital flight for all for capital flight models, while capital flight is negatively associated with growth and foreign direct investment in Malaysia. With reference to the short-run model, results vary across models for alternative measures of capital flight. As long as the World Bank measure is concerned, the rise in external debt and currency depreciation has a positive impact on capital flight while inflation checks it. For both the World Bank and Private Claim measures, the impact of external debt and inflation on flight capital is right the opposite, an increase in external debt leads to greater capital flight while inflation checks it. As far as the Dooley measure is concerned, a rise in foreign direct investment cuts down capital flight while inflation fuels it up. Currency depreciation causes a rise in capital flight in the case of the World Bank measure. In a recent study performed by **Liew, Mansor and Puah, (2016)** on the determinants of capital flight from Malaysia using the World Banks's residual method of capital flight and adopting the Autoregressive Distributed Lag (ARDL) approach, an inverse relationship between foreign direct investment and capital flight has been detected.

Almounsor's (2007) investigation on the volume, nature, direction and determinants of capital flight and FDI in the resource-rich and resource-scarce Middle East and North Africa (MENA) region in relation to certain structural and institutional characteristics which helps identify the relationship between them. According to this study, capital flight in resource-rich countries of this region are relatively more common than resource-scarce countries, rather capital scarce countries experience unrecorded

capital inflows. On the contrary, resource-rich countries are the least recipient of foreign direct investment in comparison to their market size and potentials against the resource-scarce countries. Hence there prevails an inverse relationship between capital flight and foreign direct investment in resource-rich and resource-scarce countries of MENA.

In a methodical analysis during 1984-2012, Chiang and Lee (2015) investigate the foreign direct investment inflow (FDI inflow) and capital flight nexus in China adopting the cointegration technique. Their study identifies the existence of a positive correlation between capital flight and foreign direct investment in the long run. They also find evidence of a bi-directional causal relationship between capital flight and foreign direct investment in the short run.

The contemporaneous increase in inflows of foreign direct investment and capital flight from Africa induce **Ndikumana and Sarr (2016)** to investigate whether there exists a link between capital flight and foreign direct investment. The also examine whether there is a role of natural resource endowment in linking capital flight and foreign direct investment. They employ a dynamic panel data estimation method taking data from thirty-two countries of Africa for the period 1970-2013. Results of their study suggest that it is not the inflow of foreign direct investment, rather its stock does matter for capital flight. The abundance of natural resources causes capital light and also has a role in strengthening the link between foreign direct investment stock and capital flight. The study concludes that quality institutions can limit the role of foreign direct investment and natural resources to capital flight. Interestingly, in a later study while revisiting the same relationship for the period 1970-2015 for thirty African economies, **Ndikumana and Sarr (2019)** observes completely the opposite picture, not the past stock, rather the inflow of foreign direct investment motivates capital flight. High natural resource rents enhance capital flight which even cannot be mitigated by confirming better institutional quality.

Mwangi, Njuguna and Achoki (2019), in their recent estimates of capital flight applying residual method, observe significant flight of capital from Kenya. The development of foreign direct investment in Kenya motivates them to examine the causal relationship between capital flight and foreign direct investment using quarterly data for the period 1998 to 2018. Results of their study based on the Autoregressive Distributed Lag model suggest that capital flight is significantly persuaded by the current foreign direct investment inflow. However, the study does not find inflation as a factor the determines the capital flight at a significant level.

3.2.1.3. Capital Control, Financial Liberalization and Capital Flight

Capital flight, the accumulation of foreign assets by the domestic resident, has become a concerning issue in many developing countries particularly after the debt crisis of the 1980s. In response to the scarcity of financial resources, many of the developing countries have adopted policies aiming at the liberalization of their capital account since the 1990s with the intention of drawing the attention of foreign investors to attain higher foreign capital inflows. It can assist the economy in two possible ways- it may help domestic authorities to undertake more development projects along with financing the rising external debt stock. However, it bears importance to realize the nature of the possible causal relationship between financial liberalization and capital flight from a policy perspective. Financial liberalization will be meaningful if it can check the capital flight, otherwise, it is inevitable to look for policies more operative to address this problem.

The academic view illustrates that financial liberalization can influence capital flight both positively and negatively. The conventional view suggests that in a closed economy, residents follow unlawful means for shifting their capital abroad which results in higher capital flight. Hence, it is expected that extent of capital flight can be controlled by freeing up capital flows taking financial liberalization policies **(Mody and Murshid 2005)**. The opposite view argues that financial openness may make an economy more prone to the financial crisis developing uncertainties and weaknesses in the financial institution and thus liberalized regime may induce flight of capital. **(Demirguc-Kunt and Detragiache 1998)**. Viewing capital flight as a cost of mismanagement, Park (1996) accepts this view as a free capital account, offering unrestricted and facile access to international financial markets to the domestic residents, may lead to greater capital flight which may set the government in a more challenging situation to design more effective policies to combat capital flight. When the negative economic effects of policy mismanagement following liberalization transmit into political costs, the government will become conservative to the policies and lose control in steering the capital flight. Groombridge's (2001) view is that capital flight due to liberalization is inevitable unless reforms required for freeing up the capital account are not taken well ahead of time.

Broner and Ventura (2010) emphasize on the country characteristics in explaining the response of capital flight towards financial liberalization. What the conventional view suggests that the temptation of opportunistic defaults together with

low-quality enforcement agencies can put foreign sources of financing at risk, creating a recurring external debt crisis in low-income emerging economies. However, the capacity to discriminate against foreigners would keep the domestic payment system out of the crisis. Consequently, domestic savings would still be available to investors at home and new foreign financing sources would be added to finance overall development. What the conventional view ignores is that it cannot anticipate the detrimental capital flight effect of the default threat. It is quite difficult to separate domestic debt from opportunistic defaulters on foreign debt. It is not possible to discriminate against foreigners when foreigners invest money in bonds and stocks, as foreigners can resell these assets to domestic residents in the secondary market in default expectations. Once domestic savers realize that defaults affect foreign payments along with domestic payments, they consider it favorable to send part or all of their savings abroad.

Economic integration among nations raises the issue of calibrating the capital flow management practices around the globe in order to control capital flows among nations. **Binici and Das (2021)** analyze 44 advanced and emerging economies that recalibrated their capital flow management measures between 2008 and 2019. It identifies that domestic overheating and capital flow management were key rationales for tightening controls on net inflows, while financial stability and exchange rate objectives were important for tightening measures on net outflows. Hence, it is inexorable to regulate financial flows across nations in the name of financial liberalization or capital controls.

Empirical studies are divided into two groups following these views. Lensink, Hermes and Murinde (1998), Almounsor's (2007) Shabani & Parang (2019) support the former while Schneider (2003), Yalta and Yalta (2012), Salandy and Henry (2018)' Pradhan and Hiremath (2020) Cheung, Steinkamp and Westermann (2020) and Epstein (2005) accept the latter one.

Lensink, Hermes and Murinde (1998) examine the impact of financial liberalization on flight of capital from African economies using a portfolio model for the 1970-1991 period. They use three measures of financial liberalization, namely interest rate deregulation, a decrease in reserve requirements and a change in exchange rate policy. The study finds that despite the effects are small, all these three financial liberalization measures lead to a decrease in capital flight. Hence, they conclude that the

policies for financial liberalization are necessary for checking capital flight in African economies.

Schneider (2003) uses data from twelve countries to examine the relationship between capital flight and capital account liberalization and finds that capital movements take place with and without capital controls and liberalization does not always lead to the repatriation of capital.

By conducting case studies of capital flight from several developing countries, **Epstein (2005)** conclude that in the age of financial liberalization, capital flight, far from disappearing, has remained high and even increased.

In a study on the resource-rich and resource-scarce Middle East and North Africa (MENA) region during 1970-2002, **Almounsor (2007)** shows that capital flight is shown to be an outcome of increasing control of domestic authorities in the resource-rich countries while increasing control of domestic authorities in the resource-poor economies induces unrecorded inflows to foreign exchange. The welfare analysis for the resource-rich countries suggests that both capital flight and FDI reduce economic growth, while for the resource-poor countries neither variable has a significant effect on economic growth.

The panel causality analysis of **Yalta and Yalta (2012)** aims to investigate the causal relationship between the liberalization of the financial system and capital flight from 21 emerging market countries, namely Argentina, Brazil, Chile, China, Colombia, Ecuador, Egypt, India, Indonesia, Malaysia, Mexico, Morocco, Peru, Philippines, South Africa, South Korea, Thailand, Tunisia, Turkey, Uruguay, and Venezuela during 1980 and 2004. They use the residual method to measure capital flight and Chinn and Ito (2008) index as a measure of financial liberalization. Like Boyce and Ndikumana (2001), this study also identifies the self-reinforcing character of capital flight as the current level of capital flight depends on its lagged value positively. The study identifies that the capital flight is not essentially responsive to the liberalization measures taken for the financial systems of these economies and thereby gives importance to the improvement in the domestic policy environment to fight against capital flight.

Brada, Kutan, and Vuksic (2013) estimate capital flight from 10 Central and Eastern European countries for the period 1996–2009 employing 2SLS and, as a robustness check, the GMM instrumental variables estimator. The authors identify interest rate differentials as an important determinant of capital flight from the transition economies along with domestic credit expansion. Contrary to the conventional view, the

study also finds that capital flight is fueled by financial liberalization in these economies.

The impacts of reforms brought to the domestic financial markets of African economies in the 1990s to combat capital flight have been examined by **Hermes & Lensink (2014) Hermes & Lensink (2014)**. The empirical analysis they carry out for the period 1973-2005 covering data from 18 African countries. The study uses the World Bank's (1985) measure of capital flight with some refinements and a composite measure of financial liberalization that includes credit controls and reserve requirements, interest rate controls, entry barriers, state ownership in the banking sector, restrictions on international financial transactions, securities market policies, prudential regulations and supervision of the banking sector. Their fixed effect estimation reveals mixed results. While policies relating to capital account liberalization deteriorate the capital flight situation, privatization of domestic commercial banks and reforms to make them open to both residents and nonresidents limit the flight of capital from the sample economies.

Salandy and Henry (2018) study the capital flight and financial liberalization nexus for the resource-rich country Trinidad and Tobago for a period of 41 years from 1971 to 2011. The adjust trade misinvoicing with the World Bank's measure to arrive at the estimate of capital flight. Dividing the entire sample period into pre-liberalization (first 23 years) and post-liberalization (last 18 years) periods, they examine the reform effects of the financial system on capital flight using both Ordinary Least Squares (OLS) technique and the Generalized Method of Moments (GMM) technique to check the robustness of the OLS results and identify a higher rate of capital flight in the post-liberalization period.

The determinants of capital flight are investigated by **Pradhan and Hiremath (2020)** for India from 1990 to 2012 employing the autoregressive distributed lag (ARDL) approach. They find evidence in support of the view offered by **Demirguc-Kunt and Detragiache (1998)** and criticized the policy framework of financial liberalization to be defective as it exposes the economy to global shocks which is evident by the sharp rise in capital flight during the aftermath of the global financial crisis following some episodes of capital flight in the early periods of liberalization.

The ease of doing business is a vital policy direction for emerging economies for strengthening productivity. The financial liberalization framework in many of the countries is designed in line with the easy of doing business framework. While

examining the ease of doing business and capital flight relationship using a dynamic panel data model on selected East Asian countries from 2004 to 2015, **Shabani & Parang (2019)** find that an increase in ease of doing business backed by essential financial liberalization policies leads to a decrease of capital flight to a significant amount.

The conventional view suggests that capital controls should be loosened during the economic recession to reduce capital flight and tightening measures of capital control during an economic expansion is useful in curving capital inflows. Whether this countercyclical capital control policy advocated in theoretical literature contributes to capital flight has been examined in some empirical studies. **Fernández, Rebucci, and Uribe (2015)** examine the behavior of capital controls in 78 countries over the period 1995–2011 and identified stable capital controls around the business cycle. However, **Schmitt-Grohé and Uribe** (2017) document completely the opposite view. They study optimal capital control policy within an open economy framework and document that the optimal policy calls for capital controls to be lowered during booms and to be increased during recessions to reduce capital flight.

It is not that only domestic policies for financial liberalization have a hand in controlling capital flight, policies formulated by capital haven countries or international financial liberalization policies in other words do matter as well. Cheung, Steinkamp and Westermann (2020) and Steinberg, McDowell, and Gueorguiev (2020) in their recent works offer empirical evidence in support to this reasoning.

Financial liberalization policies in the capital haven countries also play role in causing capital flight from capital scarce countries. In one such study, **Cheung, Steinkamp and Westermann (2020)** identify a sharp increase in capital flight to Germany, particularly after the post-global financial crisis period. They examine the impact of liberalization measures of Germany using quarterly data between 1995 and 2018 employing the OLS estimation approach for two measures of capital flight: trade misinvoicing and net claims and liabilities in the Eurosystem of central banks with necessary refinements. As their estimates suggest, traditional factor like covered interest differentials measured in terms of nominal interest rate differential plus the forward premium plays an insignificant role in capital flight to Germany for both of it measures. However, crisis-specific factor such as ambiguity in economic policy, the European Central Bank (ECB) collateral policy and misalignment in the real exchange rate are driving factors of the investors' apparent flight-to-safety behavior.

Steinberg, McDowell, and Gueorguiev (2020) provide both qualitative and quantitative evidence on how domestic policy context is influenced by its global counterpart in capital control with particular reference to China. Their qualitative evidence shows that the international policy context is excessively referred by the policymakers in china in designing their financial liberalization policies. Based on an original survey, the study later shows that the policy choices by other countries have an impact on commons' attitude about capital controls in China.

3.2.1.4. Political Risk, Socio-political Instability and Capital Flight

Non-macroeconomic variables like political risk or socio-political instability may also have a substantial impact on capital flight. Investment climate which is not favorable to invest at home or risk associated with the investment at home usually drives investors to invest their fund abroad. Variables that determine the investment climate of an economy include overvalued exchange rates, high rate of inflation at home, government budget deficits, low domestic or high international interest rate or real interest rate differential, and capital inflows. Apart from these factors, the uncertainty that arises from political risk or socio-political instability can explain residents' capital flight abroad. The argument is that if the residents are exposed to the potential risk of eroding the future value of their asset holding due to the uncertainty that may arise from a change in power of state or change of government policy, they will transfer money in a relatively safe destination (Alesina and Tabellini, 1989; Lensink, Hermes, and Murinde, 2000; Le and Zak, 2006). Following this argument, there has been some systematic investigation in the literature on the impact of political factors on the extent of capital flight.

The expropriation risk that matter for simultaneous development of external debt and capital flight, a result obtained by **Khan and Haque (1985)** while they investigate the investment decision by domestic residents employing a standard intertemporal optimization model, is often referred to as the policy risk that may appear due to change in state power (Clark, 1997; Sottilotta, 2016) However, the first formalized analysis on the issue is conducted by Alesina and Tabellini (1989).

Adopting a simple dynamic general equilibrium model **Alesina and Tabellini (1989)** attempt to explain the synchronous incident of large external debts, outflows of private capital, and low level of the domestic capital formation using a simple dynamic general equilibrium model. The model incorporates the existence of two noncooperating

social groups in order to explain political risk generated from the uncertainty associated with a random change in power between the groups. The study identifies that such a political risk has an impact on choices of private economic agents as well as of the government and accordingly both capital flight and government borrowing are likely to be excessive in countries with political turbulence. Using a variation of Alesina and Tabellini (1989) model, Bhattacharya (1999) analyses in a simple general equilibrium framework how uncertainty regarding the future level of taxes on factor incomes, and regarding trade liberalization in an economy contemplating tariff reforms, affects the overall volume of domestic investment and capital flight. It brings out the importance of income effects in addition to substitution effects in causing capital flight due to the expectation of future tax on income from domestic capital. On the one hand, there will be a portfolio shift in the allocation of domestic savings away from investment in the domestic economy and favor of foreign assets—this is the substitution effect. At the same time, there may be income effects on the overall volume of domestic savings.

The push and pull factor analysis of capital flight by Ketkar and Ketkar (1989) and Bouchet (2012) also identify political risk factors as one of the crucial determinants of capital flight from developing and emerging economies.

The push-pull factor analysis of capital flight by **Ketkar and Ketkar (1989)** for three major debtor economies of Latin America: Argentina, Brazil and Mexico covering quarterly data for the period 1977-1986 using portfolio adjustment model offers interesting insights in explaining the simultaneous accumulation of external debt and capital flight. The use of domestic interest and inflation rate, degree of overvaluation and risks attached to political regime change as push factor and host country's (USA) interest rate and inflation rate as pull factors. The study finds that while the push factors are responsible for capital flight from Argentina and Brazil, both the push and pull factors are contributors to the Mexican capital flight. However, the study commonly observes that capital flight from all these three economies can be checked by warding off uncertainties arising from changes in political regimes.

Assuming capital flight as a barometer of political instability, **Fatehi (1994)** studies the way in which capital flight and political instability are related taking 17 Latin American countries into account considering the period between 1954 and 1982. The study was aware of the impact of other macroeconomic variables that might have an impact on capital flight and hence decompose the capital flight data into political instability component and the component associate with other determinants and then

regressed on the political instability component in order to reach a more conclusive decision. It clearly identifies that the political instability component of capital flight is to an extent sensitive to political risk.

Henry (1996) examines the causes of capital flight from three Caribbean countries, namely Barbados, Jamaica, and Trinidad and Tobago during the period 1971–87 employing a simple OLS model and reach the conclusion that socio-political instability is one of the driving forces of Caribbean capital flight. **Trinder (1997)** estimates an error correction model for capital flight from Tunisia during the 1972–93 period also finds econometric evidence that, besides the usual macroeconomic factors, capital flight is caused by domestic socio-political instability.

Lensink, Hermes, and Murinde (2000) examine the relationship between political risk and capital flight controlling for macroeconomic and policy variables for a large set of 84 developing countries during the 1971–1991 period using several variants of capital flight measures, namely Morgan Guaranty (1986), Dooley (1986) and hot money method. The result of the study suggests that capital flight is significantly influenced by political risk factors for all of its measures when no other macroeconomic factors are considered. They check the robustness of the results of their study employing the Sala-i-Martin (1997) approach including domestic and international macroeconomic conditions and identifies a fairly strong association between capital flight and political risk factors for all the measures of capital flight except the Hot Money measure. **Fedderke and Liu (2002)**, while examining the capital flight determinants for African countries using the ARDL approach for the period 1960-1995, identify that the capital flight is sensitive to the risk measured in terms of political instability.

Identifying corruption as one dimension of governance quality, **Le and Rishi (2006)** study the role of corruption in impelling capital flight for 69 countries including 24 developed countries and 45 developing countries over the period 1995–2001 employing Panel regression analysis. The study explores direct linkages between corruption and capital flight and suggests that good governance by combatting corruption is the precondition to control capital flight.

Le and Zak (2006) present a portfolio choice model that relates capital flight to return differentials, risk aversion, and three types of risk: economic risk, political instability, and policy variability. Estimating the equation for equilibrium capital flight for a panel of 45 developing countries over 16 years, all three types of risk have a

statistically significant impact on capital flight. Quantitatively, political instability is the most important factor associated with capital flight.

Bouchet (2012) analyzes the development of capital flight from Vietnam and examines the sources categorizing them into push and pull factors. Like Argentina and Brazil, the study identifies the push factors are accountable alone for the capital flight from Vietnam. Among the pull factors, weak governance plays a key role in the flight of capital along with the weak public policy. The author argues that the capital flight caused by the push factors results in a large gap between saving and investment which directs the government to depend on external debt to finance national development projects.

Corruption as a political risk factor can also contribute to capital flight. **Mwangi, Njuguna & Achoki (2019)** investigates the association between corruption and capital flight during 1998 to 2018 in Kenya using quarterly time-series data applying the Autoregressive Distributed-lag model. They identify an inverse relationship between capital flight and corruption both in the short-run as well as in the long run. Most importantly, the adverse impact of corruption as a political risk factor on capital flight in the long run is found to be five times severe than that of the short run.

The role of governance and the required thresholds of government quality in fighting against capital flight trap in Africa has been examined by **Asongu and Nnanna (2020)** in a panel setting for 37 African countries using data for the period 1996–2010 employing standard system GMM estimation procedure. The self-reinforcing nature of capital flight, as the study identifies, confirms an obvious capital flight trap in Africa. The capital flight moves positively with political stability, regulation quality, economic governance, and corruption-control on capital flight are positive.

3.2.1.5. Policy Uncertainty and Capital Flight

Uncertainty in government policy can be another crucial factor that may erode capital flight situation of an economy. Many of the capital flight studies include some policy variables while examining the factors determining capital flight. However, very few studies address the impact of overall policy uncertainty on capital flight.

Two of the remarkable works explaining how fiscal rigidity and increased tax expectation can cause capital flight are Eaton (1987) and Ize and Ortis (1987). Eaton (1987) argues that capital flight can be a byproduct of government policies. Developing

a simple deterministic model, he explains capital flight largely occurs to escape taxation by the borrowing-country government. His model demonstrates that one of the outcomes of the government policy of guaranteeing private debt is that the anticipation of augmented tax obligations created by the potential nationalization of private debt generates capital flight. Ize and Ortis (1987) also show that when fiscal rigidities create difficulties for servicing foreign debt, private capital flight is encouraged by foreign borrowing since there is an expectation of higher domestic asset taxation in order to service future debt. Foreign borrowing provides the resources for channeling private capital abroad as well.

The simple dynamic general equilibrium model developed by **Alesina and Tabellini (1989)** to explain the synchronous incident of large external debts and capital flight also conclude that fiscal policy uncertainty of future governments in developing countries causes capital to flee abroad. Hermes and Lensink (2001) estimate forecasting equations in order to examine the relationship between policy uncertainty and capital flight for each of the developing countries for the 1971–1991 period. They measure capital flight using the Morgan Guaranty (1986) approach, a variant of World Bank's residual method and policy uncertainty is measured by the uncertainty of budget deficits, tax payments, government consumption and the inflation rate. The paper obtains a significant positive association between policy uncertainty and capital flight which remains robust even after the stability tests are applied. Loungani and Mauro (2001) document an opposite relationship between capital flight and macroeconomic policies for Russia and identify the uneven record of reform as the root cause of capital flight.

Baker, Bloom, and Davis (2016) offer an index named news-based index to measure policy uncertainty. Using the index, Drobetz, Ghoul, Guedhami, and Janzen (2018) examine the investment-cost of capital relationship in the presence of policy uncertainty for twenty-one countries and find that policy uncertainty has an adverse impact on the strength of the relationship between investment and cost of capital, meaning that with the rise in policy uncertainty lower cost of capital fails to draw more investment from domestic residents. This finding is most relevant for firms operating in industries that depend strongly on government subsidies and government consumption as well as in countries with high state ownership. In this situation, investors seek a safer place with certainty, capital flies abroad.

3.2.1.6. Capital Flight and Other Push-Pull Factors

Davies (2008) provides empirical evidence on the effects of inflation on postwar capital flight flows. It tests the hypothesis that inflation has a positive differential effect on capital flight in postwar economies. It uses a new panel dataset of 77 developing countries, of which 35 experienced at least one episode of war between 1971 and 2000. The rest enjoyed peace throughout this period. Ordinary Least Squares, Generalized Least Squares, Within-Group and Arellano-Bond estimation methods are applied to four capital flight measures - Cline, World Bank, Morgan Guaranty and Dooley. The results support the view that in postwar economies, a percentage point increase in the inflation rate is associated with a differential increase in annual capital flight flows of about 0.005 to 0.01 percentage points of GDP.

Ajilore (2010) estimates capital flight flows from Nigeria for the periods 1970-2004 using the residual method of estimation, including necessary adjustments to account for the influence of trade faking and exchange rate movements. It is found that capital flight estimates had a positive sign for most of the periods, indicating that residents consistently take capital out of Nigeria. The study further documents that trade faking is an important means through which capital flight is affected in Nigeria, with evidence that confirmed the existence of a financial revolving door relationship between capital flight and external indebtedness in Nigeria.

Akanbi(2015) estimates the magnitude and analysis of the trends of capital flight for the periods 1981 -2010 using the Engle granger two steps procedure for estimation, which captures both the long and short-run dynamics of capital flight. As the study suggests, inflation and expenditure for defense causes capital flight both in the short run and differentials in real interest rate join with them in the long run to stimulate capital flight.

Oluwaseyi (2018) studies the causality among capital flight, interest rates differential, political instability and economic growth in the Nigerian economy using the data for the period 1980-2014 employing the vector error correction mechanism (VECM) and Granger causality analysis. Results of the study claim that interest rate differential is the prime driver of capital flight meaning that the risk-adjusted returns are higher abroad which influences the flight of domestic capital. The study identifies a unidirectional causality running from economic growth to capital flight; while there is independence among other variables.

3.2.2. Capital Flight and Macroeconomic Performance

Although the issue of capital flight has long been the subject of research and policy debate, much of the prevailing literature on the issue focuses on its various measures and determinants. However, there is a recent surge in the literature on the impact of capital flight on different macroeconomic variables, particularly on economic growth and domestic investment.

3.2.2.1. Capital Flight and Economic Growth

Capital flight may exert an adverse impact on economic growth in two major ways. Primarily, capital flight economy refers to the transfer of domestic capital abroad which cannot contribute to domestic investment. Secondly, it may limit the imports. If scarce foreign exchange is used to finance capital flight, there might be a shortage of funds for financing imports that may be crucial for economic growth **(Lessard and Williamson 1987)**. If flight capital had been invested in the production of either domestically-produced intermediate goods or export goods that could finance imports, the import constraint on growth could have been relaxed.

Cervena (2006) summarizes some of the channels through which capital flight can limit economic growth. Capital flight hinders growth by dissipating the tax base of an economy. Capital that is illegally held in a foreign country cannot contribute to the economic growth of a country as it is out of the reach of tax authorities of the origin country. Second, the marginal cost of foreign debt due to capital flight ultimately results in lower economic growth. The reason is that legally shifted capital serves the role of collateral and the marginal cost of foreign debt would have been much lower as creditors could seize that in case of default by a borrowing country. Another channel through which capital flight may negatively contribute to growth is the balance of payment channel. Capital flight may worsen the balance of payments problems. Last but not the least, an adjustment in domestic interest rate and exchange rate policies called for sudden outflows of large financial resources may hinder economic growth destabilizing the financial system. Many studies have been performed to empirically investigate the impact of capital flight on the economic growth of developing economies.

Sakuragawa & Hamada (2001) have constructed a dynamic two-country OLG model with an integrated capital market focusing on the role of informational frictions

in the financial contract as a source of perverse capital movements with an aim to explain the impact of capital flight on economic growth. They emphasize on the need for the development of information infrastructures well-organized legal and accounting systems and the monitoring capacity of banks showing that country with superior information structure exploit the other one by absorbing capital flows and in that case, capital market integration plays little role in the improvement of the welfare of the country lying back as capital flight from that country drives it into a poverty trap.

Cervena (2006) estimates capital flight using its alternative measures for 75 developing countries. Performing a pooled cross-section analysis based on the fixed effects model estimated by feasible generalized least squares, the study then examines the impact of capital flight on the economic growth of these economies in the long run in the Solow-Swan growth model framework for the period of 1994-2003. Results obtained for the study bear a clear sign of growth faltering capital flight with poorer countries being grieved more by the phenomenon.

Beja (2007), based on a comparative analysis, have shown that the persistent capital flight from the Philippines since the 1970s results in an average loss in the growth rate of between 1 percent to 2.3 percent during the period 1970-1999 and hence contributes to the lowering of the quality of long-run economic growth.

Lan (2007) attempts to identify the factors determining capital flight and its impact on the economic growth of four selected ASEAN economies: Indonesia, Malaysia, the Philippines, and Thailand. The study considers annual time series data covering from 1972 to 2005. The study takes three different measures of capital flight into account. Those are World Bank measure, Morgan Guaranty Trust measure and Dooley Derived measure. ARDL 'Bounds test' approach to cointegration is applied for growth regression. The empirical results support the view that capital flight played a crucial role in limiting economic growth for the selected ASEAN economies.

Forgha (2008) investigates the determinants, measurement and the impact of capital flight on the real economic growth in Cameroon using the two-stage least squares technique after the application of co-integration Error correction mechanism of Engle and Granger (1987), using time series data from 1970 to 2005. Results of the study identify fiscal deficits, political instability, external debt servicing GDP ratio and interest rate inflation differentials are the prime reasons for capital flight from Cameroon. It also finds that capital flight also limits the economic growth of Nigeria.

Gusarova (2009) evaluates the relationship between capital flight for a large panel of 139 countries over the period 2002-2006 applying pooled OLS estimation approach. Results of the study clearly indicate that the GDP growth is leaned due to capital flight.

Fofack and Ndikumana's (2010) capital flight repatriation argument bears significance in lessening the dependence on external debt. They argue that Africa will be able to maintain a higher sustainable growth trajectory if the flight capital from Africa is restituted to the legitimate claimants. It will also reduce the debt burden on the future generation.

Bakare (2011) shows the impact of capital flight on the economic growth of Nigeria taking 1988-2010 as the period of the study. The paper adopts the vector autoregressive model (VAR) to determine the sources of capital and its impact on the growth process of the Nigerian economy. The result of the study suggests that capital flight has a significant negative impact on the output growth of the Nigerian economy, meaning that capital flight limits economic growth in Nigeria.

Ajayi (2012) provides a comprehensive analysis of capital flight and its resultant impact on domestic investment and the growth rate of the Nigerian economy using 40 years of data for the period 1970-2009. Relying on Error Correction Mechanism (ECM), the study identifies that the relationship between capital flight and economic growth is inverse and therefore suggests the government take policies to discourage capital flight.

Saheed and Ayodeji (2012) and **Godagampala (2019)** examine the impact of capital flight on the exchange rate and economic growth in Nigeria and Sri Lanka, respectively using the Ordinary Least Square estimation method but, in contrast to the conventional arguments, the papers identify a positive impact of capital flight for both of the economies. Authors argue that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run.

Olugbenga & Alamu (2013) investigate the dynamic relationship between capital flight and economic growth of Nigeria's economic growth for 30 years starting from 1981 and ends in 2010 adopting the Johansen cointegration test. They find a long-run cointegrating relationship among the variables. As the results suggest, the economic growth of the Nigerian economy is hampered by capital flight in the short run, however, it stimulates growth in the long run.

Umoru (2013) investigates the empirical relationship between capital flight and economic growth of the Nigerian economy through 1980-2010 using Johansen's cointegration analysis. The author considers various measures of capital flight and finds a negative relationship between capital flight and economic growth of the Nigerian economy for all measures of capital flight. Criticizing the low level of capital control, the author emphasizes making it more effective to control capital so as to achieve desired growth.

Salandy and Henry (2013) empirically investigate the causal relationship among capital flight, domestic investment and economic growth in Trinidad and Tobago over the period 1971-2008 with a Vector Error Correction (VEC) Model and Generalised Method of Moments (GMM) estimation approach. Results of the study suggest that capital flight measured by the residual method has a dampening effect on output growth by reducing domestic investment in Trinidad and Tobago.

Throughout the 1970s to 2000s, there was a massive capital flight from African Franc Zone (FZ) together with low and very volatile investment and growth rates. This sways **Ndiaye (2014)** to examine the impact of capital flight on the economic growth of 15 Franc Zone (FZ) countries during the period from 1971 to 2010 using the system Generalized Method of Moments (GMM). The study finds that capital flight markedly reduces economic growth in the FZ and thus poses a huge threat to high and sustainable economic growth in the FZ.

In order to provide a comprehensive perspective about the effect of capital inflows and capital flight on economic growth, **Raheem and Adeniyi (2015)** conduct a study on 33 countries of Sub-Saharan Africa (SSA) for the period spanning 1970 to2010 making use of system generalized method of moments (Sys-GMM). It considers the total effect along with the individual effects of the sources of capital inflow as well as capital flight. Results of the study reveal that capital flight constitutes significant drags on the growth of SSA.

The relationship between capital flight in the natural resource (oil and wood) sector and economic growth in Cameroon has been studied by **Mpenya, Clarisse, and Epo (2015)** using the Incremental Capital Output Ratio (ICOR). Identifying the natural resources sector, particularly the oil sector, as the major source of capital flight in Cameroon, the study confirms that if these capitals were reinvested in Cameroon, the economy would have been able to increase its growth rate of national output by about

0.41 on average for the period 1995-2012. It clearly indicates that the growth of Cameroon is hampered by its capital flight.

Measuring capital flight from Iran using World Bank (1985) and Erbe (1985) approach, **Zobeiri, Roshan & Shahrazi (2015)** examine its impact on the economic growth of Iran during 1981-2012 applying the Auto-Regressive Distributed Lag (ARDL) procedure and identifies that capital flight deters economic growth of Iran.

Akanbi (2015), while estimating the extent of capital flight from Nigeria for the periods 1981-2010 using the Engle granger two steps procedure for estimation, also offers an analysis on the growth-capital flight nexus of the economy. Identifying inflation, interest rate differentials and expenditure for defense as the major driver of capital flight, the study suggests that capital flight deteriorates domestic economic growth shrinking the domestic investment.

Olawale and Ifedayo (2015) examine the impacts of capital flight on economic growth in Nigeria between 1980 and 2012 applying co-integration, Ordinary Least Square (OLS) and Error Correction Mechanism (ECM) as its main estimation techniques. The evidence, however, shows that capital flight, foreign direct investment, external debt, foreign reserve and current account balance co-integrate with Gross Domestic Product (GDP) in Nigeria during the period under study. It is also revealed that capital flight had inverse impact on the growth of the economy.

Wujung and Mbella (2016) examine the association between capital flight and economic development in the Cameroon economy during the period1970-2013 with the help of the Fully Modified Least Squares (FMOLS) technique. The study documents an inverse association between capital flight and economic development. The study also finds that economic development is adversely affected by external debt and exports.

The impact of illicit financial flow on economic growth and development in Nigeria is assessed by **Ogbonnaya and Ogechuckwu (2017)** using time series data from 1980-2015 adopting the Johansen Cointegration approach. The study identifies long-run cointegration exists among the variables used for the study and hence estimates the long run model which indicates that the growth of Nigeria is significantly hindered by illicit financial flows.

The causality among capital flight, interest rates differential, political instability, and economic growth in the Nigerian economy has been studied by **Oluwaseyi (2018)** using the data for the period 1980-2014 employing the vector error correction mechanism (VECM) and Granger causality analysis. Results of the study claim that

interest rate differential is the prime driver of capital flight from Nigeria which exerts an adverse effect on the country's economic growth.

Ameh and Amadi (2019) empirically examine the effect of capital flight on selected macroeconomic variables in Nigeria, namely gross domestic product, investment, and unemployment, using a cointegration and causality testing approach for the period 1999-2015. The study identifies the variables under consideration that hold a long-run cointegrating relationship and concludes that capital flight has a significant inverse influence on growth and unemployment in Nigeria.

Both illicit financial flows and capital flight are found to be significant from Palestine which motivates **Badwan and Atta (2019)** to investigate how they cause economic growth to change. Based on co-integration and Granger causality analysis, the study identifies an inverse and significant relationship between capital flight and economic growth. It shows that the economic growth Granger causes both the illicit financial flows and the capital flight. Moreover, illicit financial flows and capital flight cause one another.

The massive capital flight from Nigeria drives **Orji, Jonathan, Kama, and Onyinye (2020)** to examine if it has a hand in determining the output growth of Nigeria for the period 1981 to 2017. Applying the Autoregressive Distributed Lag (ARDL) bounds test approach, the study detects a growth checking role of capital flight both in the short run as well as in the long run.

The effects of capital flight on economic growth in the Economic Community of Central and West African States (ECCAS and ECOWAS) and Southern African Development Community (SADC) countries over the 1984-2015 period are studied by **Gautier and Luc (2020)** using ARDL panel data analysis method. The study pays attention to the interaction between capital flight and private investment in arriving at its objective. Results of the research show that the effect of capital flight on economic growth is negative and significant in SADC for all specifications, though it is not the case for ECOWAS and ECCAS. In ECOWAS, capital flight deters economic growth when the interaction between capital flight and private investment is not taken into account, otherwise positive. However, capital flight has a positive impact on economic growth, even if private investment is considered. In the short run, capital flight dismays the growth of all these economic groups.

Despite the increasing evidence of capital inflow to Sub-Saharan Africa (SSA), the capacity to retain this capital for long-run growth appears weak given the high

incidence of capital flight from the region. Using the updated estimates of capital flight for 23 members of SSA, **Salisu and Isah (2021)** investigate capital flight-growth nexus and the role of macroeconomic uncertainty for the period 1986 to 2010 employing the Mean Group (MG) and Pooled Mean Group (PMG) estimators to analyze the model taking both non-stationarity and heterogeneity effects in the data into consideration. The study documents an adverse impact of capital flight on SSA economic growth, and macroeconomic uncertainty strengthens the relationship, meaning that a higher level of capital flight results from macroeconomic distress which further squeezes the growth performance of an economy. The study extends its analysis b investigating the impact of macroeconomic uncertainty on the relationship between capital flight and economic growth for two groups of SSA- the oil-rich and oil-scarce regions and reaches the conclusion that macroeconomic policy uncertainty has a more devastating effect on the adverse relationship between capital flight and economic growth of oil-rich (exporting) countries. The study also establishes that the inflow of foreign direct investment and foreign aid are not adequate to compensate for capital flight from SSA, while domestic investment and human capital, on the other hand, are drivers of growth in SSA.

3.2.2.2. Capital Flight and Domestic Investment

The impact of capital flight on investment remains mostly unanalyzed for developing economies. Very few of the studies include Yalta (2006, 2010), Adetiloye (2012), Gachoki & Nyang'oro (2016) and Rahmon (2017).

Presenting the capital flight estimates for Turkey using the residual method with some modifications during the period between 1970 and 2001, **Yalta (2006)** examines its impact on the domestic investment of Turkey employing the error correction method. According to the estimate, capital flight from Turkey during the sample period maintains has been between -7 to 12 percent of GDP. Results of the error correction model suggest that there prevails a negative association between capital flight and domestic investment which ultimately has an adverse impact on potential growth and increases the need for external debt to maintain the desired level of investment. Later, **Yalta (2010)** studies the same relationship in a panel of twenty-two emerging market economies between 1975 and 2000. The additional issue she addresses is the impact of financial liberalization policies on this relationship. The capital flight data is derived by resorting the residual method which is adjusted for inflation. The financial liberalization is proxied by the Chinn–Ito index (Chinn and Ito 2006). The study examines the impact

of capital flight on domestic private and public investment separately and identifies a negative significant impact of flight of capital on private domestic investment while it has no role in determining public domestic investment. However, the strength of the relationship between capital flight and domestic private investment is not found to be responsive towards the financial liberalization policies.

Adetiloye (2012) undertakes an empirical investigation on the impact of capital flight on domestic investment in Nigeria for the period 1970 to 2007 using the OLS estimation approach. The study also includes exchange rate, public sector borrowing, gross domestic product and stock market index along with capital flight measured by residual method. The study identifies that capital flight has a negative impact on domestic investment in Nigeria, however, the result is not statistically significant.

Arguing capital flight undermines domestic private savings and resource mobilization, **Gachoki and Nyang'oro (2016)** examine the impact of capital flight on private investment in Kenya using time series data from 1970 to 2012 with the help of OLS regression analysis. The study finds that capital flight worsens domestic private investment significantly. The study also identifies that real interest rate and change in terms of trade ratio have a negative impact on domestic private investment, while private credit to GDP and external debt stimulate it.

Rahmon (2017) empirically examines the relationship between capital flight and domestic investment in Nigeria making use of secondary data covering the period 1980 and 2015 employing the Johansen Cointegration technique. Contrary to a priori theoretical expectation, the study finds a statistically significant positive relationship between capital flight and gross domestic investment in Nigeria.

3.3. Summary

This chapter reviews the theoretical as well as the empirical literature on the measures of capital flight as well as its impact on the macroeconomic performance of developing economies. It suggests that most of the studies on the determinants of capital flight and its impact on economic growth employ the residual method to arrive at the estimate of capital flight. Among the alternative measures of capital flight, World Bank’s residual method has received attention in economic literature. This method is considered to be superior by a number of studies (Eggerstedt et al., 1995; Vespignani, 2008). Vespignani (2008) claims it as the most widely prevalent measure of capital flight. He argues that apart from capturing the capital flight, the measure also covers

other influences incorporating the overall effect of outflow of capital, both recorded and unrecorded, without distinguishing short or long run. Eggerstedt, Hall, & Wijnbergen (1995) argues in favor of the residual approach, which assumes that capital inflows in the form of increases in external indebtedness and foreign investment should finance either the current account or reserve accumulation; shortfalls in reported use can be attributed to capital flight. Hence the study decides to employ the residual method in measuring capital flight with necessary adjustment.

The extensive literature on the relationship between capital flight and economic growth mostly attributes sluggish economic growth to capital flight. These studies are mostly country-specific or region-specific and consequently, they do not offer a comprehensive up-to-date estimate of capital flight for different developing regions. Furthermore, being country-specific or region-specific, studies on the relationship between capital flight and economic growth is unable to compare the growth effect of capital flight for different developing regions. The study considers thirty-seven developing economies grouping them into four major developing regions, namely- Asia, Africa, Latin America, and Transition countries in order to examine the anti-growth phenomenon of capital flight for individual economies separately which will be helpful for cross country as well as cross-regional comparison. The case of Turkey is dealt with separately considering RER misalignment along with capital flight.

CHAPTER IV

MODEL, METHODOLOGY AND DATA SOURCES

4.1. Introduction

The literature survey on the factors determining capital flight and its impact on macroeconomic performance has equipped the author with the basic tools to determine an appropriate model for the study. This chapter will first identify the theoretical model and then step into the delineation of the empirical framework for the study. It will also portray the methodology of the study in order to examine the relationship between capital flight and economic growth of selected developing economies from different regions.

4.2. Models

The first order of business is to demarcate the theoretical as well as the empirical model of the study.

4.2.1. Theoretical Model

The study consults with the exogenous and endogenous growth models to determine the theoretical framework of the study. Harrod's (1939) and Domar's (1946) growth model, as the precursor to the exogenous growth theory, explains the economic growth of an economy in terms of the level of saving and capital. Neoclassical economists criticize that the Harrod–Domar model is unable to provide a solution for the balanced growth of an economy. Solow (1956) and Swan (1957), in their independent study, extend the Harrod–Domar growth model introducing total factor productivity in their growth models. Consequently, the capital-output ratio is considered to be fixed. Solow (1956) identifies it as the key reason for the instability in the solution of the Harrod–Domar growth model. Hence, Solow (1956) adds labor as a factor of production and allows the proportion between capital and output to vary. Again, the stylized facts of growth indicate that even when capital and output grow at the same rate; it is faster than the labor force. To reconcile the difference, Solow (1956) introduces technological progress into the analysis in the form of a rate of increase in labor productivity determined exogenously. Hence the labor force in the Solow model is

redefined as the effective labor force which is the sum of growth in the labor force and technological progress. These modifications permit growing capital intensity to be distinguished from technological progress. Therefore, the Solow-Swan growth model attempts to explain long-run economic growth by looking at capital accumulation, labor or population growth, and productivity increases commonly referred to as technological progress.

The economic growth in endogenous growth theory is primarily viewed as the outcome of endogenous forces. Mankiw, Romer, and Weil (1992) offer an augmented version of the Solow–Swan growth model by including human capital in order to explain the failure of international investment to flow to poor countries. This model explains the lower output and the marginal product of capital (K) in poor countries in terms of their scarcity of human capital compared to rich countries. Both Barro (1991) and Mankiw, Romer, and Weil (1992) argue to include the initial level of income in growth modeling. Furthermore, Mankiw, Romer, and Weil (1992) suggest accommodating the rate of depreciation with technological progress in the effective labor force.

With this backdrop, the study decides to use initial period per capita income, effective labor force and human capital as growth determinants along with capital flight. The study discusses with previous research on the impact of capital flight on economic growth. Some eminent studies include Cervena (2006), Gusarova (2009), Bakare (2011), Raheem and Adeniyi (2015), Wujung and Mbella (2016), Adams and Klobodu (2018), Gautier and Luc (2020), Orji, Jonathan, Kama, and Onyinye (2020), Salisu and Isah (2021). Factors having a substantial impact on economic growth identified by these studies can broadly be defined as policy variables. Again, these policy variables can be categorized as fiscal policy and monetary policy variables. Some of these studies include the state of democracy and government quality (Gautier and Luc, 2020) and political rights and economic freedom (Gusarova, 2009) which are interchangeably used as a measure of institutional quality (Ndiaye, 2014). The study, therefore, decides to take institutional quality into account which is often proxied by the $POLITY_t$ variable. Hence the theoretical model for the study can be given as:

$$g = f(CF, HC, (n + g + d), FP, MP, POLITY) \tag{4.1}$$

where g is the growth rate of per capita GDP, CF stands for capital flight, HC is the human capital. The growth rate of effective labor units and the rate of depreciation is shown by (n+g+d) where n is the growth rate of labor, g is the advancement in technology (n+g together defines the effective labor growth rate) and δ is the rate of depreciation. FP and MP stand for the sets of fiscal policy and monetary variables and finally, $POLITY$ is to proxy the institutional quality.

4.2.2. Empirical Model

The study primarily seeks to identify the impact of capital flight on economic growth in the growth model setting and as such, the baseline specification of the empirical model can be given as-

$$g_t = \alpha_0 + \alpha_1 lnY_{t-1} + \alpha_2 CF_t + \alpha_3 lnHC_t + \alpha_4 \ln(n_t + g + d) + u_t \quad (4.2)$$

Where the real GDP at the initial period is Y_{t-1}. Other variables bear the usual meaning as stated in the theoretical model.

The study then takes the fiscal policy and monetary policy variables as well as the institutional quality to evaluate and compare with the baseline model to identify whether there is any substantial change in the results after taking the policy variables into account. Therefore, the extended specification of the empirical model is-

$$g_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 CF_t + \alpha_3 lnHC_t + \alpha_4 \ln(n_t + g + d) + \gamma_i FP_t + \delta_i MP_t + \rho POLITY_t + u_t \quad (4.3)$$

where γ_i is (1×k) dimensional coefficient vector and FP_t is a (k×1) dimensional vector of fiscal policy variables. The fiscal policy variables the study considers are government final consumption expenditure and budget deficit. Similarly, δ_i is (1×k) dimensional coefficient vector and MP_t is a (k×1) dimensional vector of monetary policy variables. The monetary policy variables encompass domestic credit expansion to the private sector, increase in broad money supply, inflation and real interest rate. The $POLITY_t$ variable is taken to examine the role of institutional quality in economic growth. The variables capital flight, government final consumption expenditure, budget deficit and domestic credit expansion to the private sector are measured as a ratio to the GDP.

The coefficient of initial period real GDP per capita measures the conditional convergence in a cross-country regression. In a time series regression, it measures the responsiveness in growth towards initial period real per-capita GDP. An economy is expected to grow faster if begins with lower real per-capita GDP and hence the initial period real GDP per capita will be negative, that is, $\alpha_1 < 0$. Capital flight, shrinking domestic investment and checking capital imports, deters economic growth which is well approved in literature. Therefore, the coefficient associated with capital flight-GDP ratio will be negative, that is, $\alpha_2 < 0$. Human capital development refers to the development in knowledge, skills and experience of workers in an economy which lead to greater productivity and thus expected to have a positive impact on economic growth, that is why $\alpha_3 > 0$. An increase in the effective labor force means lower gross physical capital per capita and hence the growth rate of effective labor units and the rate of depreciation is assumed to have an adverse impact on economic growth, meaning that $\alpha_4 < 0$. An increase in government final consumption expenditure checks economic growth by checking public investment and thus coefficient associated with the government final consumption expenditure variable is expected to be negative. The negative impact of the budget deficit on economic growth is obvious as governments are short of the resources to meet their expenses in the long run and therefore the budget deficit variable will carry a negative coefficient. The coefficient attached to the domestic credit to the private sector is expected to be positive as the increase in domestic credit to the private sector as a percent of GDP indicates the availability of investable funds in the private sector for financing the economic project and thereby promote economic growth. An increase in money supply will boost economic growth boosting domestic investment lowering the interest rate and thus it bears a positive coefficient. Finally, both inflation and real interest rate deter economic growth.

4.3. Data Issues

The study employs annual data for the period 1981-2019. It collects data from various sources. The estimate of capital flight is derived for the study using the residual method after necessary adjustments. Sources of variables to arrive at the capital flight estimates have been summarized in chapter two.

The growth rate of GDP per capita and real GDP data are extracted from the World Development Indicator (WDI) of the World Bank. The human capital data is

sourced from the Barro-Lee database on educational attainment. The educational attainment of the total population is broken down into 5-year age groups and seven levels of schooling in this dataset. The study considers average years of total schooling to proxy the human capital. Use of the polity variable developed by and therefore sourced from the Center for System Peace (CSP) has been highly suggested in economic literature.

General government final consumption expenditure includes all government current expenditures for purchases of goods and services including compensation of employees. It also includes most expenditures on national defense and security except government military expenditures that are part of government capital formation. Budget deficit data is not commonly available. However, net borrowing which is accessible from the Government Finance Statistics Yearbook of the International Monetary Fund measures government expenditure over revenue. Net borrowing is a summary measure indicating the extent to which the government is utilizing the financial resources generated by other sectors in the economy or from abroad. Therefore, it can be used as a measure of the budget deficit.

Domestic credit to the private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits. The financial corporations include monetary authorities and deposit money banks, as well as other financial corporations like finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies. Data on this variable is obtained from the International Financial Statistics of the International Monetary Fund. Broad money includes the currency outside banks; demand, time, saving and foreign currency deposits of resident sectors other than those of the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper. Data on the money supply is also collected from International Financial Statistics of the International Monetary Fund.

Government final consumption expenditure, budget deficit, domestic credit to the private sector and money supply are taken as ratios to GDP. The inflation and real interest rate, that is the lending interest rate over inflation, are readily available in the WDI of the World Bank. Sources and necessary explanation of the variables are summed up in appendix A.

4.4. Methodology of the Study

The study regress per capita growth of real GDP on capital flight and a set of control variables delineated by growth theory together with fiscal policy and monetary policy variables and polity variable in order to examine the impact of capital flight on the economic growth of developing economies. Earlier studies on the issue are largely dominated by panel studies. One of the potential problems of these studies is relying on conventional panel data techniques to examine the impact of capital flight on economic growth imposes strong homogeneity assumptions on cross-country long-run economic growth and therefore may generate misleading results. The study explicitly takes into account heterogeneity in long-run economic growth across countries by performing growth regression individually for 38 developing countries over the period 1981–2019. Besides examining the differential effects of capital flight in a more precise manner for individual economies, it facilitates the comparison of the growth effect of capital flight across the countries and regions.

The stationarity of variables receives utmost significance in deciding over the use of the methodology in time series regression. When all the variables included in the model are stationary at the first difference, the Engle-Granger (1987) method can be applied to examine whether the variables are cointegrated or not. But the technique is criticized as it includes small sample bias due to the exclusion of short-run dynamics. One can also employ the Johansen and Juselius (1990) cointegration approach to test the long-run association among the variables that require a large sample size for the validity of the results (Ghatak & Siddiki, 2001). But when all the variables are not stationary at the first difference, these approaches can not be applied even if the sample size is large. With regard to this study, the main variable of interest capital flight itself is found to be stationary at level, that is, I(0) for most cases. Furthermore, the growth rate of per capita GDP, real interest rate and inflation rate are stationary at the level for most of the countries. The ARDL Bounds Testing approach of Hasem and Shin (1999) and Pesaran, Shin, and Smith (2001) is recommended for identifying the existence of a long-run relationship regardless of whether the underlying regressors are I(0), I(1), or mutually cointegrated. Additionally, this approach has some additional advantages over the traditional Engle-Granger (1987) and Johansen and Juselius (1990) cointegration approach. Firstly, the single-equation setup of the model makes it simple to interpret both the short-term as well as the long-term effects. Secondly, it produces robust estimates even if the sample size is small. Thirdly and most importantly, the procedure

can efficiently handle the problem like reverse causality, endogeneity bias, measurement error and omitted variable problems (Adams and Klobodu, 2018). Hence, the study decides to employ the ARDL Bounds Testing approach in examining the impact of capital flight on the economic growth of developing economies. The general framework for the ARDL Bounds Testing approach is summarized below.

Following the conventional Error Correction Model (ECM) for cointegrating variables, the ARDL scheme can be given as-

$$\Delta y_t = \alpha_0 + \sum \alpha_i \Delta y_{t-i} + \sum \beta_j \Delta x_{1,t-j} + \ldots\ldots\ldots + \sum \beta_r \Delta x_{n,t-r} + \rho ECT_{t-1} + e_t \qquad (4.4)$$

where y is the dependent variable and the x_1, x_2, ….., x_n are the regressors. Here, ECT, the "error-correction term", is the OLS residual series derived from the long-run cointegrating regression model given as-

$$y_t = a_0 + a_1 x_{1,t} + a_2 x_{2,t} + \ldots\ldots\ldots + a_n x_{n,t} + u_t \qquad (4.5)$$

The approach 'ARDL Bounds testing' is applicable for series that are I(0), I(1), or mutually cointegrated, but none of them is I(2). Given the condition is satisfied, the estimation of the following ARDL scheme can be performed-

$$\Delta y_t = \alpha_0 + \sum \alpha_i \Delta y_{t-i} + \sum \beta_j \Delta x_{1,t-j} + \ldots\ldots\ldots + \sum \beta_r \Delta x_{n,t-r} + \rho_1 y_{t-1} + \rho_2 x_{1,t-1} + \ldots\ldots + \rho_n x_{n,t-1} + e_t \qquad (4.6)$$

If the ARDL scheme in (4.6) is free from serial correlation and stable, one can use it for the Bounds test in order to examine the existence of long-run cointegrating relationship taking the null hypothesis H_0: $\rho_1=\rho_2=\ldots\ldots\ldots=\rho_n=0$ into account. Rejection of the null hypothesis approves the presence of long-run cointegrating relationship among the variables, which allows us to estimate the long-run relationship among the variables as stated in (4.5). It also allows examining the short-run dynamics as stated in (4.4), particularly whether the ECM necessarily describes the equilibrium relationship between dependent and independent variables.

4.5. Summary

The study is backed by the exogenous and endogenous growth model to determine the theoretical framework to examine the association between capital flight and macroeconomic performance of developing economies. It primarily considers the growth variables, namely initial period of GDP, human capital or per capita gross capital formation, the growth rate of effective labor units and the rate of depreciation and institutional quality to demarcate the baseline model for the study. It then decides to extend the baseline model taking the fiscal and monetary policy variables into account to examine the consistency of the estimates in order to reach a more robust decision. The fiscal policy variables include government final consumption expenditure and budget deficit and the monetary policy variables are domestic credit expansion to the private sector, real interest rate, rate of inflation and money supply. Some studies use the rate of inflation interchangeably across the extended models. The choice of the policy variables is justified by earlier studies.

CHAPTER V

CAPITAL FLIGHT AND ITS GROWTH EFFECTS IN DEVELOPING COUNTRIES

5.1. Introduction

The undesirable consequences of capital flight on macroeconomic performance and well-being have been underscored by numerous studies. The prime objective of the study is to examine the relationship between capital flight and macroeconomic performance of economies in different developing regions for which derivation of the capital flight series is inevitable. The study applies the World Bank's residual approach in order to appear at the capital flight figures of the developing economies and then identifies a total of 32 developing economies- 11 from Asia, 10 from Latin America, 11 from Africa, and 5 transition economies that are encountering extensive capital flight throughout the sample period 1981-2019. Once the capital flight series are in hand for the selected economies, one can proceed with the estimation of the long-run growth model delineated in chapter four to examine how the capital flight creates an impact on the growth of per capita income. This chapter is devoted to this issue.

5.2. Estimation Procedure

The study regress per capita growth of real GDP on capital flight and a set of control variables delineated by growth theory together with fiscal policy and monetary policy variables and polity variable in order to examine the impact of capital flight on the economic growth of developing economies. It performs separate time series regression for the individual economies applying the ARDL Bounds Testing Approach so as to help examine the differential effects of capital flight in a more precise manner.

The study considers a variant of specifications to control for the consistency of results. It primarily seeks to identify the impact of capital flight on economic growth in the growth model setting and as such the baseline specification of the empirical model includes per capita real GDP at the initial period, human capital or gross capital formation, the growth rate of effective labor units and the rate of depreciation and polity variable as a proxy of institutional quality as delineated by growth theories along with capital flight. The study then augments the baseline model incorporating fiscal policy variables, namely government final consumption expenditure and budget deficit as a percent of GDP, and monetary policy variables, namely domestic credit expansion to

the private sector and money supply as a percent of GDP, rate of inflation and real interest rate. Apart from the robustness check of the results, the inclusion of fiscal and monetary policy variables will help to determine their role on per capita output growth in the presence of capital flight.

To estimate the long-run parameters of the model in 4.2 and 4.3, the study proceeds in the following steps: it first examines the stationarity or order of integration of the variables for individual countries. The second step involves estimation of the long-run cointegrating relationship among the variables applying the Bounds test given that the variables are integrated in different orders, that is a mix of I(0) and I(1). In general, variables that are not found to be stationary either at level or first difference and variables that do not form long-run cointegrating relationship for alternative specifications are dropped from the analysis. The stationarity test results employing ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) tests are summarized in appendix B for all the selected economies. It is expected that a unique combination of the variables may not always form a long-run cointegrating relationship regardless of countries. Hence the study considers alternative combinations of the variables for estimating long-run cointegrating relationship for different countries and the final choice of the model is based on the following criteria: specification for which there exists long-run cointegrating relationship among the variables confirmed by the Bounds test and negative significant coefficient of Error Correction Term (ECT) must comply the suggested diagnostic checks. That is, the model should be structurally stable and free from the problems of serial autocorrelation and heteroskedasticity, the estimated parameters must be signed according to economic theory and significant. For more than one such specification, preference will be given to the one that minimizes the information criteria. Structural stability of the specifications will be examined by recursive estimates, namely CUSUM and CUSUM of Squares tests which is essential for the consistency of the estimates.

5.3. Impact of Capital Flight on Economic Growth of Developing Countries

Because of the capital scarcity of the developing economies, capital flow from the developed countries to the developing economies is expected to bring about a greater return to capital which will, in turn, leads the developing economies to a more desirable position. However, as Lucas paradox states, these developing economies are struggling in controlling capital flight to the developed economies which might have

costs in terms of lower output growth in these economies that need to be examined empirically.

The study performs separate time series regression for individual economies so as to help examine the differential effects of capital flight in a more precise manner. It incorporates 32 developing economies from Asia, Africa, Latin America and 5 Transition Countries experiencing capital flight at a substantial level. Choice of countries is influenced by the extent of capital flight from these economies as well as the criteria described in the previous section. Countries for which the criteria are satisfied with sustained capital flight are taken for examining the impact of capital flight on economic growth considering the baseline model and its extended variants.

5.3.1 Capital Flight and Economic Growth: Selected Developing Asian Economies

The study identifies eleven developing countries from Asia, namely Bangladesh, India, Pakistan, Sri Lanka, Nepal, Indonesia, China, Philippines, Thailand, Jordan and Fiji. As figure 7 demonstrates, the average capital flight was significantly higher than that of Net Foreign Direct Investment (FDI) and even expressively more than the Official Development Assistance (ODA) as a percent of Gross Domestic Product (GDP) over the sample period except for the 2000s. However, by inhibiting domestic saving, capital flight offsets domestic investment which is one of the major worries for achieving the intended growth target. Capital flight accounts for about 24 percent of domestic savings during the sample period. This section will investigate the impact of capital flight on the per capita output growth of the selected Asian economies.

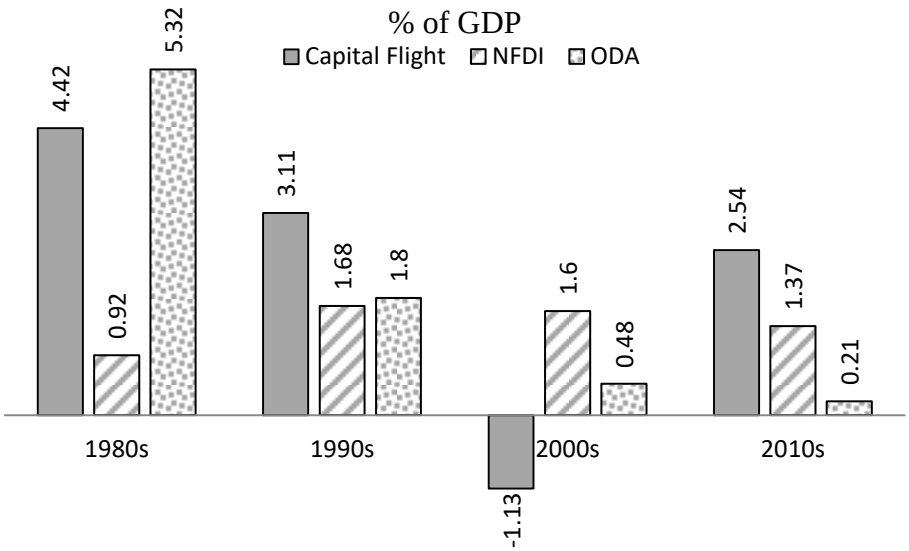

Figure 7 Capital Flight, Net FDI and ODA: The Case of Developing Asia
Source: Author's calculation (Billion, Constant 2010 USD)

5.3.1.1. Capital Flight and Economic Growth: The case of Bangladesh

Bangladesh lies among the most capital flight experienced economies of Asia. The total amount of capital flight from this economy is nearly USD 206 billion during 1981-2019. The highest capital flight from Bangladesh occurs in the 2010s, about USD 121 billion, which is also the highest in terms of its share in GDP. Capital flight fell short of official development assistance and foreign aid only in the 1980s as a percent of GDP. Otherwise, it took always a higher share in GDP than the net foreign direct investment and official development assistance and foreign aid throughout the sample period which is apparent from table 11. Considering the severity of capital flight, its impact on the output growth of Bangladesh will be worth investigating.

Table 11
Extent of Capital Flight from Bangladesh

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	22.35	7.02	0.00	7.27
1990s	25.65	4.91	0.11	3.21
2000s	37.18	4.34	0.62	1.59
2010s	120.89	7.74	1.31	1.68

Source: Author's Calculation based on WDI of World Bank 2021 (Billion, Constant 2010 USD)

The study first examines the stationarity of the variables. The ADF and PP unit root test results are given in table 57 in appendix B. As the table shows, the majority of the variables are stationary at first difference except for capital flight, real interest rate and inflation rate. It then proceeds to examine the long-run cointegrating relationship between growth and its determinants employing the Bounds test for alternative models. The F-statistics of Bounds test for all models fairly lies above the upper bound values which approve the existence of long-run cointegrating relationship between growth and its determinants for Bangladesh. Coefficients of the error correction term are negative for all specifications that are also statistically significant, meaning that there prevails long-run causality from the regressors to growth. The models are free from autocorrelation and heteroskedasticity problems as the value of F-statistics for both of the tests are accepted regardless of the models. Results of all these tests are summarized at the bottom of table 22. All the models are structurally stable confirmed by the stability diagnosis performed using CUSUM and CUSUM of squares test presented in figure 13 of Appendix C.

The baseline model, that is, model 1 examines the impact of Capital flight and other growth determinants on the economic growth of Bangladesh. According to this specification, the negative coefficient of capital flight is statistically significant and thus the growth demolishing capital flight argument is accepted. A 1 percent increase in capital flight as a percent of GDP causes economic growth to fall by nearly 0.01 percent. The coefficient of initial period real per-capita GDP needs to be negative and significant to accept the view that an economy grows faster if begins with lower real per-capita GDP, which is found evident for Bangladesh from the baseline model. Human capital bears a positive and statistically significant coefficient. Therefore, human capital development supports economic growth which is theoretically anticipated. Economic growth is increased by 1.14 percent due to 1 percent development in the human capital variable. As expected for developing economies, growth in the effective labor force and rate of depreciation drives down economic growth by reducing capital per capita confirmed by the negative and statistically significant coefficient of ln(n+g+d). It also includes the institutional quality taking polity variable into account, though the coefficient is positive but not statistically significant.

Model 2 includes a fiscal policy variable government final consumption expenditure and a monetary policy variable real interest rate along with capital flight and growth determinants. The budget deficit variable is dropped as it is not found to for long run cointegrating relationship from model 2. It does not find capital flight as a significant variable to influence economic growth. Though the human capital and growth in the effective labor force and rate of depreciation carry coefficients that are statistically significant, their signs do not satisfy traditional expectations. The fiscal policy variable, that is, government final consumption expenditure is found to be negative and statistically significant and thereby approves that government final consumption expenditure, limiting public and private investment, obstructs the economic growth of Bangladesh. Though the real interest rate maintains a negative coefficient consistent with theory, however, it is not statistically significant.

Specification 3 includes both the fiscal policy variable government final expenditure and monetary policy variables domestic credit to the private sector, rate of inflation and real interest rate together with capital flight and growth determinants. The money supply is not a meaningful variable for forming long-run cointegrating relationship for this model and hence disregarded. This specification suggests a negative

and significant coefficient of capital flight meaning that capital flight limits the growth of Bangladesh. A 1 percent increase in capital flight as a percent of GDP reduces economic growth by 0.10 percent. The coefficient associated with human capital is positive and statistically significant which means human capital development has a direct effect on economic growth. A 1 percent increase in human capital development causes 2.86 percent growth of the economy. As like the baseline model, this model also finds a negative significant coefficient of the growth in the effective labor force and rate of depreciation and hence it has a contractionary effect on economic growth. The fiscal policy variable government final consumption expenditure carries a negative coefficient which is statistically significant meaning that the relationship between government final consumption expenditure and economic growth is opposite. It is apparently acceptable as described for the baseline model. The coefficient attached to the domestic credit to the private sector is expected to be positive as the increase in domestic credit to the private sector as a percent of GDP indicates the availability of investable funds in the private sector for financing the economic project and thereby promote economic growth. In contrast to this expectation, the model identifies a negative significant coefficient for the domestic credit to the private sector and hence indicates that it harms economic growth. However, there is an argument in favor of such findings in the literature. Law (2014) argues that there is an optimal level of domestic financing beyond which it may hamper economic growth. For Bangladesh, the threshold level of domestic credit that is supportive of economic growth is an empirical issue and hence can be examined in a separate study. The role of inflation and real interest rate is customarily accepted as they both bear negative significant coefficients, which stand to mean that they both harm economic growth.

To sum up, both the baseline model and model 3 identify similar results with respect to the capital flight and other growth determinants and the findings meet traditional arguments. The anti-growth phenomenon of capital flight is accepted by both of the models. On the other hand, the fiscal policy and monetary policy variables in model 2 and model 3 produce results consistent with the traditional expectation.

5.3.1.2. Capital Flight and Economic Growth: The case of Fiji

A substantial level of capital flight is found in Fiji. There was capital repatriation in the 1990s, otherwise, there was capital flight in all other decades which is amounting

to USD 1.3 billion. As evident from table 12, capital flight was a vital issue in the 2000s as it takes nearly 3.07 percent of GDP. However, capital flight from Fiji never exceeded the net foreign direct investment and official development assistance and foreign aid except in the 2000s. In the 2000s, the capital flight surpassed the official development assistance and foreign aid. As capital flight prevails in Fiji during the period of investigation, the study will investigate its impact on the per capita output growth of Fiji's economy.

Table 12
Extent of Capital Flight from Fiji

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	0.14	0.82	1.38	4.49
1990s	-0.29	-1.24	-1.47	2.87
2000s	0.90	3.07	8.73	2.00
2010s	0.26	0.70	8.33	2.80

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results as summarized in table 58 in appendix B suggest that growth in per capita income, capital flight, inflation rate and money supply are stationary at level and the rest of the variables are stationary at first difference. The ARDL Bounds test results for the baseline as well as for the augmented models indicate that there exists long-run cointegration relationship among the variables as the F-statistics of the Bounds test exceed the upper bound values for all the specifications. Long run causality from the explanatory variables to the growth is further confirmed by the negative significant coefficient of the error correction terms for the models. The LM tests and BPG (Breusch-Pagan-Godfrey) tests suggest that all the specifications for Fiji are free from serial autocorrelation and heteroskedasticity issues as the value of the F-statistics for both of the tests are accepted irrespective of models. Results of all these tests are summarized at the bottom of table 22. Finally, the models are found to be structurally stable as confirmed by the CUSUM and CUSUM of squares test shown in figure 14 of Appendix C.

The baseline model regresses the per capita growth of income on growth determinants along with capital flight. Model 2 augments the baseline model incorporating the fiscal policy variable government final consumption expenditure and budget deficit. Again, model 3 incorporates the monetary policy variables, namely domestic credit to the private sector, rate of inflation and money supply. Another

monetary policy variable real interest rate does not form long-run cointegrating relationship for model 3 and hence is ignored.

The capital flight is found to have an adverse impact on the growth of per capita income for all the specifications as the coefficient of the capital flight variable enter into the regressions are negative. However, the coefficient is significant for the baseline model and model 3 that accounts for monetary policy variable. For the baseline model, a 1 percent increase in capital flight reduces per capita income growth by 0.23 percent which is almost double for model 3. Hence, the anticipated growth deteriorating effect of capital flight is evident for Fiji.

Human capital development is supposed to stimulate economic growth. But the baseline model rejects it by accepting the negative human capital coefficient. The augmented models, that is model 2 and model 3 exhibit just the opposite results. The human capital variable bears a positive significant coefficient for both of the models and therefore the growth fostering effects of human capital development is endorsed by both of the models. Development in human capital by 1 percent leads to a rise in per capita income level by 2.25 percent on average. Findings on the impact of growth in the effective labor force and rate of depreciation on economic growth are inconclusive. The negative significant coefficients of the variable in the baseline model meet the theoretical underpinning. It bears a negative coefficient for model 3 which is statistically insignificant. In contrast, the coefficient is positive and significant for model 2. A negative significant coefficient of the initial period real per-capita GDP is necessary to confirm the faster growth of an economy that starts with lower per capita GDP. Both for the baseline model and model 2, the coefficient of initial period per capita GDP is negative and significant and for model 3 it is positive but insignificant. Hence, the per capita GDP of Fiji grows at a faster rate than the initial period per capita GDP. The polity variable enters into the baseline model and model 2 with a positive significant coefficient meaning that improvement in institutional quality does matter for growth of per capita income level in a positive direction.

Higher government final consumption expenditure and budget deficit lead both public as well as the private to invest less and thus cause lower growth in income per capita. The coefficients of these two variables enter into model 2 with negative signs that are statistically significant and therefore both government final consumption expenditure and the budget deficit of Fiji tone down its economic growth.

With regard to the monetary policy variables, the rate of inflation and domestic credit expansion to the private sector bear negative significant coefficients while the money supply has positive significant coefficients. It is generally accepted that inflation hurts economic growth and for Fiji, it is found that a 1 percent increase in inflation causes per capita income to fall by around 0.3 percent. An increase in money supply gives incentive to entrepreneurs by reducing interest rates and thus stimulates growth. The study identifies a 0.11 percent growth in per capita income level due to a 1 percent increase in money supply as a percent of GDP. Despite domestic credit is expected to contribute to per capita output growth, the negative coefficient of domestic credit expansion to the sector does not satisfy this customary expectation.

5.3.1.3. Capital Flight and Economic Growth: The case of India

India is one of the most capital flight-prone economies. It experiences around USD 1004 billion capital flight during the last four decades which is about 2.27 percent of the country's GDP. Table 13 compares the capital flight from India with the major inflows of capital flight, namely net foreign direct investment and official development assistance and foreign aid. As a percent of GDP, capital flight was most in the 1980s and least in the 2000s. Capital flight from the Indian economy was always higher than the net foreign direct investment and official development assistance and foreign aid as a percent of GDP except in the 2000s in which net foreign direct investment in GDP exceeds the capital flight as a percent of GDP. Clearly, capital flight from India is a burning issue and therefore its impact on per capita output growth needs to be studied.

Table 13
Extent of Capital Flight from India

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	111.79	3.22	0.03	1.00
1990s	71.47	1.11	0.23	0.36
2000s	118.36	1.01	1.32	0.14
2010s	702.23	3.11	1.64	0.12

Source: Author's Calculation based on WDI, 2021 (Billion, Constant 2010 USD)

The variables used to perform the growth regression for India are found to be stationary at different orders. Table 59 in appendix B summarizes the unit root test results. As the results indicate, growth in per capita income, effective labor force growth and the rate of depreciation, real interest rate and money supply are stationary at level and the remaining variables are stationary at first difference. The mix of I(0) and I(1)

variable allows examining the long-run cointegrating relationship between per capita income growth and its determinants applying ARDL Bounds testing approach. The test result identifies the F statistics of Bounds test lies entirely above the upper bound values for all possible specifications and hence there exists a long-run cointegrating relationship between per capita GDP growth and its determinants for alternative models. The coefficient of error correction terms for all models are negative and less than 1 and also significant which approves long-run causality from explanatory variables to growth. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of autocorrelation and heteroskedasticity. Results of all these tests are summarized at the bottom of table 22. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 15.

The baseline model examines the impact of capital flight on per capita output growth along with other growth determinants. Model 2 augments the baseline model by taking fiscal policy variables government final consumption expenditure and budget deficit into consideration and model 3 includes the monetary policy variables domestic credit expansion to the private sector, money supply, inflation and real interest rate.

The coefficient of capital flight variable is negative and significant for the alternative models and hence the growth faltering effect of capital flight is evident. For the baseline model, a 1 percent increase in capital flight deters per capita growth in income by 0.07 percent. When we take the fiscal policy variables into account in model 2, the adverse impact of capital flight becomes two times severe than the baseline model accounting for 0.15 percent and it appears to be more acute, nearly threefold (0.21 percent) when the monetary policy variables are added to the model 3.

Human capital has a significant positive coefficient for the baseline model as well as for model 3, meaning that human capital development contributes to per capita income growth. A 1 percent development in the human capital expands per capita growth of income by 1.9 percent for the baseline model and 2.1 percent for the extended model 3. For model 2, the coefficient of the human capital variable is negative but insignificant and hence the null of either positive or no relationship between human capital development and per capita output growth is accepted. The growth in effective labor units and rate of depreciation is only found to bear a theoretically consistent and statistically significant negative coefficient for model 2. It indicates that a 1 percent increase in this variable leads to a 1.58 percent fall in per capita output growth. The

coefficient of initial period GDP is negative and significant for all specifications meaning that the Indian economy tends to grow faster than the initial period. The polity variable is positive and significant for the baseline model meaning that improvement in institutional quality reinforces output growth.

Greater coefficient of government final consumption expenditure enters with a negative sign in the model which is also significant. Such a result is anticipated as a higher level of government final consumption expenditure shrinks funds for the private sector and hampers growth. Clearly, a 1 percent increase in government final consumption expenditure leads to a 0.17 percent fall in per capita growth of output level. Though the budget deficit should bear a negative coefficient, it is positive for the augmented model 2 but insignificant which is indicative of the adverse impact of the high budget deficit on per capita output growth.

For the monetary policy variables, domestic credit expansion to the private sector has a positive significant coefficient. A 1 percent increase in domestic credit expansion to the private sector promotes per capita output growth by 0.24 percent. The rate of inflation has a negative significant coefficient. A 1 percent increase in the rate of inflation reduces per capita output growth by nearly 0.7 percent. An increase in the real interest rate, raising the cost of capital, leads to lower investment and lower output growth per capita. Results suggest that a 1 percent increase in real interest rate significantly causes the per capita output growth to fall by 0.57 percent. All these findings are consistent with theoretical expectations. However, the coefficient of money supply variable, though positive, but not significant.

5.3.1.4. Capital Flight and Economic Growth: The case of Indonesia

The huge capital repatriation to Indonesia in the 2000s makes the capital flight figure from Indonesia negative throughout the sample period 1981-2019. However, capital flight from Indonesia in all other decades was highly prevalent. As table 14 illustrates, the economy went through the highest capital flight in the 1980s amounting to USD 29.11 billion which is 1.4 percent of the country's GDP. In terms of percentage share in GDP, capital flight was fairly higher than that of net foreign direct investment and official development assistance and foreign aid in the first two decades. Even in the most recent decades, it passes the official development assistance and foreign aid. Thus, capital flight is expected to bear enormous significance in determining the country's output growth.

Table 14
Extent of Capital Flight from Indonesia

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	29.11	1.38	0.15	0.82
1990s	24.64	0.61	0.53	0.43
2000s	-161.53	-2.85	0.50	0.26
2010s	26.08	0.27	2.00	0.02

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The stationary test results of the variables are shown in table 60 in appendix B for Indonesia. The ADF and PP test results reveal that growth in per capita income, budget deficit, inflation, real interest rate and money supply are stationary at level while initial period GDP, capital flight, human capital, growth in effective labor unit and rate of depreciation, government expenditure and domestic credit are stationary at first difference. The combination of variables at level and first difference justifies the use of the ARDL Bounds test in order to identify the long-run cointegrating relationship between per capita output growth and its determinants. The Bounds test F-statistics exceed the upper bound values for all specification and hence long-run cointegrating relationship between growth and the regressors are confirmed. The negative significant coefficient of error correction term is less than one for all specifications which justifies the causal relationship from the regressors to the growth of per capita income. The study does not find polity to form long-run relationship for any of the models and hence dropped from all the models. The models are not suffering from the problems of autocorrelation and heteroskedasticity as the F statistics of the LM test and BPG test are found insignificant. Results of all these tests are summarized at the bottom of table 22. The models are also structurally stable as confirmed by the CUSUM and CUSUM of squares test shown in figure 16 in appendix C.

The results obtained concerning the impact of capital flight on the growth of per capita GDP for Indonesia are not compatible with the theory. The coefficients of capital flight are positive and significant for the baseline model and model 2. It means an increase in capital flight leads to higher growth of GDP per capita. Though the finding is not consistent with the customary relationship between capital flight and output growth which should be negative. However, the finding is in line with the studies

conducted by **Saheed and Ayodeji (2012)** and **Godagampala (2019)**. Both of the studies find that capital flight has a positive effect on economic growth in Nigeria and Sri Lanka, respectively. Authors argue that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. Indonesia tends to grow faster than the initial period per capita income as its coefficients are unanimously negative and significant for all specifications.

Though the positive association between per capita output growth and human capital development is not accepted by the baseline model, the human capital variable enters into model 3 with a positive coefficient is also significant. It states that development in human capital by 1 percent stimulates the Indonesian economy to grow by 0.88 percent. The negative insignificant coefficient of model 3 also accepts the positive association between human capital development and per capita output growth. Growth in the effective labor force and rate of depreciation by 1 percent deters per capita output growth by more than 1 percent as evident from the baseline model. Anyway, the augmented models, model 2 and model 3 do not sanction this finding.

Model 2 includes the fiscal policy variables government final consumption expenditure and budget deficit. It reveals that the positive impact of government final consumption expenditure on per capita output growth is not statistically significant meaning that it has either a negative or no impact on output growth. The government budget deficit, making financial resources scarce for the private sector, has a growth restricting effect endorsed by its negative significant coefficient. A 1 percent increase in budget deficit tones down the growth of per capita income by 0.68 percent.

The extended specification of the baseline model in model 3 comprises monetary policy variables. As the model suggests, domestic credit expansion to the private sector, rate of inflation, real interest rate and money supply- all bear theoretically expected coefficients that are also statistically significant. An expansion of domestic credit to the private sector by 1 percent stimulates per capita output growth by 0.04 percent. A 1 percent increase in inflation and real interest rate check growth 0.37 and 0.41 percent, respectively. Increase in money supply, making credit more available to the public; enhance output growth at the rate of 0.04 percent.

5.3.1.5. Capital Flight and Economic Growth: The case of Pakistan

Being a highly indebted economy, capital flight works as a major impediment in achieving the development objectives of Pakistan. Nearly USD 409 billion fled from the economy during the last four decades. The highest capital flight from Pakistan occurs in the 2010s, about USD 252.05 billion, which is also the highest in terms of its share in GDP (11.75 percent). Capital flight is always higher than the net foreign direct investment and official development assistance and foreign aid throughout the sample period as a percent of GDP which is apparent from table 15. The presence of widespread capital flight from Pakistan will therefore make it meaningful to examine its impact on the per capita output growth of the economy.

Table 15
Extent of Capital Flight from Pakistan

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	37.35	6.88	0.19	2.80
1990s	45.05	4.66	0.52	1.09
2000s	74.46	5.12	1.58	1.25
2010s	252.05	11.75	0.85	1.26

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The study identifies growth in per capita income and rate of inflation as stationary at level while initial period GDP, capital flight, human capital, the growth rate of effective labor units and the rate of depreciation, government expenditure, and money supply are stationary at first difference. Unit root test results performed by ADF and PP test are shown in table 61 in appendix B. Results of the growth regression for Pakistan with necessary diagnostic checks are presented in table 22. The ARDL Bounds Test results given at the bottom of table 22 indicate that long-run cointegrating relationships between the growth of per capita income and other explanatory variables are present for the baseline specification along with the other two extended models as the F statistics of the Bounds tests clearly surpass the upper bound values. Long run causal relationship from regressors to per capita income growth is further reinforced by the negative significant error correction coefficients that are all less the unity irrespective of models. The study checks the presence of autocorrelation and heteroskedasticity problems for the models using the LM test and BPG test, respectively. It accepts the null hypotheses that there is no autocorrelation and no

heteroskedasticity based on these tests. Structural stability of the models is warranted by the CUSUM and CUSUM of Squares test as summarized in figure 17 in appendix C.

A negative and significant coefficient of capital flight shows that capital flight hurts growth. According to the baseline model and model 2, the coefficient of capital flight is negative and significant. A 1 percent increase in capital flight causes per capita output growth to fall by 0.02 percent to 0.17 percent. Thought the capital flight coefficient for model 3 is also negative but not statistically significant. Polity is not found to form long-run cointegrating relationship and therefore declined from the models.

Human capital development augments growth. Both model 2 and model 3 accept this view as the human capital variable enters into the models with positive significant coefficients. Development in human capital by 1 percent leads the per capita income to grow at the rate of 0.8 percent to 1.2 percent. The baseline model also identifies a positive human capital coefficient; however, it is not significant. The growth rate of effective labor units and the rate of depreciation is assumed to have an adverse impact on growth. In contrast to this expectation, the variable bears a positive significant coefficient both for the baseline model and model 2. But, the negative association between the growth rate of effective labor units and the rate of depreciation and per capita output growth is ascertained by the negative significant coefficient of model 3. It states that a 1 percent growth in the rate of effective labor units and the rate of depreciation results in a 1.8 percent fall in growth of per capita income.

With regard to the impact of fiscal policy variables on growth shown in model 2, the budget deficit is ignored as it fails to form long run relationship. Higher government final consumption expenditure shrinks funds for private use and thereby worsens growth. The model identifies a negative significant government expenditure coefficient which confirms that a 1 percent increase in government final consumption expenditure reduces per capita income growth by 0.03 percent.

Model 3 is the extension of the baseline model that includes monetary policy variables. The model fails to find domestic credit expansion to the private sector and real interest rate as meaningful variables since they do not form cointegrating relationships in the long run. The adverse effect of inflation is affirmed by its negative significant coefficient. Per capita income growth falls by 0.55 percent due to a 1 percent

increase in the rate of inflation. Though the money supply has an anticipated positive coefficient, it is not statistically significant.

5.3.1.6. Capital Flight and Economic Growth: The case of Jordan

The total amount of capital flight from Jordan during 1981-2019 was USD 130 billion. Table 16 shows the extent of capital flight from Jordan and compares it with two major capital inflows, namely net foreign direct investment and official development assistance and foreign aid. Capital flight from the economy was severe both in the 1980s and 2010s. In these two decades capital flight was nearly one-fourth of the country's GDP. The major capital inflows net foreign direct investment and official development assistance and foreign aid never exceed the capital flight as their share in GDP throughout the period of investigation. The investigation of the impact of capital flight on the per capita output growth of Jordan, therefore, needs to be evaluated.

Table 16
Extent of Capital Flight from Jordan

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	21.48	24.48	0.48	16.31
1990s	12.29	10.28	0.75	5.89
2000s	21.19	10.61	8.16	4.29
2010s	75.06	24.63	5.19	6.87

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results presented in table 62 in appendix B suggest that growth in per capita income, capital flight, inflation and money supply are stationary at level and the rest of the variables concerned for the study of Jordan is stationary at first difference. The long-run model to examine the impact of capital flight on per capita output growth employing the ARDL Bounds testing approach is summarized in table 22 with necessary diagnostic checks. The ARDL Bounds test results show that the F statistics of the Bounds test lie entirely above the upper bound values for all the models which indicates that long-run cointegrating relationship between per capita growth in income and the regressors is present for all specifications. Since the error correction coefficient is negative and significant and less than one in absolute form irrespective of models, it means there is a long-run causality from regressors to growth of per capita income. The F statistics of the LM test accept the null hypothesis that there is no autocorrelation for the specified models. Again, the F statistics of the BPG test accept

the homoskedasticity assumption and hence all the models are free from the problem of heteroskedasticity. The CUSUM and CUSUM of squares test results presented in figure 18 in appendix C reveal that all the models are structurally stable.

Flight of capital abroad makes capital scarce in the domestic economy and exerts an adverse impact on growth. The study identifies that the capital flight variable bears negative significant coefficients for all the models and therefore the growth limiting effects of capital flight is evident for Jordan. For the baseline model, a 1 percent increase in capital flight causes growth of per capita income to fall by 0.09 percent. On the other hand, model 2 and model 3 indicates that growth of per capita income falls by nearly 0.05 percent due to a 1 percent increase in capital flight.

Human capital development leads to greater per capita income. According to extended model 2, human capital has a positive significant coefficient which stands to mean that human capital development stimulates per capita income growth. Nevertheless, though the coefficient of the human capital variable is positive but not significant. The growth rate of effective labor units and the rate of depreciation leads to lower per capita capital which ultimately causes lower output growth. The study finds that this variable has the most significant impact on output growth. The coefficients of the variable are negative and highly significant for all the specifications meaning that growth in effective labor units and the rate of depreciation results in lower per capita income. The negative significant coefficient of initial GDP implies that the economy of Jordan grows at a faster rate than the initial period. The polity variable is ignored as it is found not to have any role in forming long-run relationship for any of the models.

Model 2 incorporates the fiscal policy variables, namely government final consumption expenditure and budget deficit with the baseline model. The budget deficit variable is declined due to data limitation. Greater government expenditure limits output growth by limiting financial resources to the private sector and is hence expected to have a negative coefficient. The variable enters into the model with a negative significant coefficient and thus accepts the growth checking role of higher government expenditure. Clearly, per capita output growth falls by 0.46 percent due to a 1 percent increase in government expenditure.

The impact of monetary policy variables is examined in model 3. Among the monetary policy variables, the real interest rate is dropped as data on the variable is not available for the whole sample period. Domestic credit expansion to the private sector is also disregarded as it does not form long-run cointegrating relationship. Inflation hurts

output growth by taking away the purchasing capacity of domestic residents. Inflation has a negative and statistically significant coefficient. It indicates that a 1 percent increase in the rate of inflation reduces the per capita output growth by 0.23 percent. An increase in money supply leads to greater investment by reducing investment costs. The positive significant coefficient of the money supply variable confirms this view. As the coefficient indicates, per capita output growth is increased by 0.06 percent due to a 1 percent increase in the money supply.

5.3.1.7. Capital Flight and Economic Growth: The case of China

Being the second-largest economy in the world, capital flight from China constitutes nearly 65 percent of total capital flight from selected economies of Asia. Total capital flight from China reaches USD 3158.7 billion during 1981-2019. As shown in table 17, it increases dramatically in the 2010s amounting to USD 3188.06 billion which is around 3.66 percent of the country's GDP. The share of capital flight in GDP exceeds the official development assistance and foreign aid all over the period. China was a negative recipient of official development assistance and foreign aid in the 2010s as her repayments of past official development assistance and foreign aid were higher than her new receipts. Capital flight share in GDP was fairly higher than the net foreign direct investment of China in the 1980s and 2010s. Clearly, flight of capital is dominating over the major capital inflows to China and hence its influence on China's economy is obvious.

Table 17
Extent of Capital Flight from China

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	45.71	0.89	0.29	0.19
1990s	255.04	1.81	2.04	0.19
2000s	-330.07	-0.91	2.65	0.04
2010s	3188.06	3.66	2.64	-0.01

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The study first examines the stationarity of the variables. The ADF and PP unit root test results are given in table 63 in appendix B. As the table shows, majority of the variables are stationary at first difference except for capital flight and growth in per capita income that are stationary at level. It then proceeds to examine the long-run cointegrating relationship between growth and its determinants employing the Bounds

test for alternative models. The F-statistics of Bounds tests for all models fairly lie above the upper bound values which approve the existence of long-run cointegrating relationship between growth and its determinants for China. Coefficients of the error correction term are negative for all specifications that are also statistically significant, meaning that there prevails long-run causality from the regressors to growth for all specifications. The models are free from autocorrelation and heteroskedasticity problems as the value of F-statistics for both LM and BPG tests are accepted regardless of the models. Results of all these tests are summarized in table 22 with the long-run coefficients of the variables for all specifications. All the models are structurally stable confirmed by the stability diagnosis performed using CUSUM and CUSUM of squares test presented in figure 19 of Appendix C.

Though the baseline model shows that capital flight is growth-promoting, the growth demolishing impact of capital flight for China is confirmed by model 2 and model 3. According to these specifications, the negative coefficients of capital flight are statistically significant. A 1 percent increase in capital flight as a percent of GDP causes economic growth to fall by nearly 0.01 to 0.83 percent, respectively. It indicates that capital flight alone with the growth determinants is unable to describe its expected impact on per capita output growth of China unless the policy variables are taken into account.

The coefficient of initial period GDP needs to be negative and significant to accept the view that an economy grows faster if begins with lower real GDP, which is found evident for China from the baseline model and augmented model 2. As the human capital variable is not found to form long-run relationship for all the specifications, the study considers gross capital formation per capita. The use of the gross capital formation per capita is more justified (Solow, 1956) as a rise in the gross capital formation may not confirm productivity due to higher population growth. Productivity rises if per capita capital stock rises, otherwise not. The baseline model and model 2 exhibits a positive significant relationship between per capita gross capital formation and per capita output growth. The rise in per capita gross capital formation of China causes per capita output growth to rise. The adverse impact of per capita gross capital formation on per capita output identified by model 3 is not approved as the relationship is not found to be statistically significant. As expected for developing economies, growth in the effective labor force and rate of depreciation drives down economic

growth by reducing capital per capita confirmed by the negative and statistically significant coefficient of The growth in effective labor units and rate of depreciation, ln(n+g+d). The growth in effective labor units and the rate of depreciation has a negative significant impact on per capita growth in income which has been accepted by all variants of specification.

The fiscal policy variable, that is, government final consumption expenditure in model 2 is found to be negative and statistically significant and thereby approves that government final consumption expenditure, limiting public and private investment, obstructs the economic growth of China. A1 percent increase in government expenditure decreases the 1.34 percent of par capıta output growth. Another fiscal policy variable budget deficit is dropped as it is not found to for long-run cointegrating relationship for model 2. With regard to the monetary policy variables, the rate of inflation and real interest rate are eliminated due to data shortage. It is generally accepted that domestic credit enhance economic growth and for Chain, it is found that a 1 percent increase in domestic credit expansion to the private sector promotes per capita output growth by 0.01percent. An increase in money supply gives incentive to entrepreneurs by reducing interest rates and thus stimulates growth. The study identifies a 0.01 percent growth in per capita income level due to a 1 percent increase in money supply as a percent of GDP.

5.3.1.8. Capital Flight and Economic Growth: The case of Nepal

Capital flight from Nepal is gradually rising over the decades. Total capital flight from Nepal climbs to over USD 90 billion during the last four decades. Table 18 offers a comparison of capital flight from Nepal with major capital inflows to the economy. The share of capital flight in GDP also has a rising trend. The maximum capital flight from Nepal in terms of volume and its percent in GDP occurs in the 2010s. Over USD 67 billion of capital flight from Nepal takes place in this decade which is over 34 percent of the country's GDP. Capital flight was manifolds higher than the net foreign direct investment in all the decades as a percent of GDP. Even it expressively exceeds the official development assistance and foreign aid of Nepal in the last three decades. Capital flight is very high in Nepal considering the size of the economy and being a capital scarce developing economy how it controls the country's output growth the study aims to examine.

Table 18
Extent of Capital Flight from Nepal

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	3.53	7.33	0.01	9.16
1990s	5.69	6.73	0.08	5.22
2000s	14.03	10.97	0.05	4.09
2010s	67.20	34.32	0.50	5.29

Source: Author's Calculation based on WDI, 2021 (Billion, Constant 2010 USD)

The stationary test results performed by ADF and PP tests summarized in table 64 in appendix B show that only growth in per capita income and rate of inflation possess I(0) and the rest of the variables are I(1). The combination of I(0) and I(1) variables allows to examine the presence of long-run cointegrating relationship between the growth of per capita income and its determinants using the ARDL Bounds testing approach. Results of the Bounds tests for the baseline model and the augmented models-model 2 and model 3 are shown in table 22 with essential diagnostic tests. The Bounds test results reject the null hypothesis of no cointegrating relationship among the variables for all the models as the F statistics of Bounds tests lie above the upper bound values. Therefore, there prevails long-run cointegrating relationship between per capita income growth and the explanatory variables. Again, the error correction coefficients are negative and significant for all models which signify the long-run causal relationship from the explanatory variable to per capita growth of income.

With the exception of the theoretical consideration, the capital flight is found to have a positive impact on the per capita output growth of Nepal regardless of models that are also significant. Although the result is not in consonance with the conventional inverse relationship between capital flight and output growth. However, the finding is in line with the studies conducted by **Saheed and Ayodeji (2012)** and **Godagampala (2019)**. Both of the studies find that capital flight has a positive effect on economic growth in Nigeria and Sri Lanka, respectively. Authors argue that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. The economy of Nepal grows at a faster rate than its initial period as evident by the negative significant coefficients of initial GDP across the models.

As the human capital does not form long-run cointegrating relationship for the models but the per capita gross capital formation does, the study accounts for the later

for examining its impact on per capita output growth. The per capita gross capital formation has a positive impact on per capita growth in income for the baseline model and model 3, however, it is negative for model 2. But only for the baseline model, the coefficient of per capita gross capital formation is significant. A 1 percent increase in per capita gross capital formation stimulates per capita output growth by 0.27 percent. The negative insignificant coefficient of the per capita gross capital formation is also indicative of its positive impact on per capita growth in income. The growth in effective labor units and rate of depreciation deters per capita income growth according to the baseline model which is expected. The augmented models, that is, model 2 and model 3 identifies a positive impact of the variable on per capita output growth which is not significant for both of the models and thus not accepted. Institutional quality variable polity stimulates per capita output growth which is true for all three specifications and the coefficients are significant. Improvement in institutional quality by 1 percent stimulates per capita output growth by nearly 0.11 to 0.18 percent.

Model 2 extends the baseline model by incorporating fiscal policy variables government final consumption expenditure and budget deficit. Again model 3 extends the baseline model taking monetary policy variables domestic credit expansion to the private sector, inflation rate, real interest rate and money supply into account. As the data on budget deficit and Real interest Rate is not available for the whole sample period, they are dropped from their respective models. To facilitate the cointegrating relationship, model 2 includes the rate of inflation along with government final consumption expenditure together with the other growth determinants specified in the baseline model.

Government expenditure has a positive and significant impact on per capita output growth. Reducing funds available for the private sector, higher government final consumption expenditure is assumed to reduce per capita income growth. However, Gupta (20018), in his empirical study on Nepal also identifies a positive relationship between government expenditure and output growth. As the argument follows, high levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand and thereby contribute positively to growth. The coefficient of the rate of inflation is negative and significant for both model 2 and model 3 which indicates that inflation is detrimental to per capita income growth. A 1 percent increase in the rate of inflation causes per capita income growth to fall by 0.27 percent on average. An increase in money supply is expected to have a

positive impact on per capita output growth. Clearly, the money supply has a positive significant coefficient which stands to mean that a 1 percent increase in money supply as a percent of GDP leads to 0.31 percent per capita income growth. The domestic credit expansion to the private sector has a negative coefficient but insignificant. Hence the adverse effect of domestic credit expansion to the private sector on per capita income growth is not approved.

All the models pass the necessary diagnostic checks. The regression models are free from serial autocorrelation as the LM tests for alternative models accept the null hypothesis of no serial correlation. The BPG test is performed to check the problem of heteroskedasticity. The test results for all the models accept the null hypothesis of homoskedasticity or no heteroskedasticity and hence the models are not suffering from the problem of heteroskedasticity. Finally, the CUSUM and CUSUM of squares tests summarized in figure 20 in appendix C approve the structural stability of the models.

5.3.1.9. Capital Flight and Economic Growth: The case of Sri Lanka

Like Nepal, Sri Lanka has a growing trend in capital flight which is depicted in table 19. Capital flight from Sri Lanka stands at USD 137.8 billion as of 2019. The economy gets through the highest capital flight in the 2010s which is USD 89.4 billion, nearly 12 percent of GDP. The share of flight capital in the country's total output was markedly higher than that of official development assistance and foreign aid and net foreign direct investment for all decades. The extent of capital flight from Sri Lanka makes it imperative to examine its impact on the output growth of the economy.

Table 19
Extent of Capital Flight from Sri Lanka

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	9.38	6.08	0.24	5.44
1990s	12.71	4.86	0.59	2.16
2000s	26.31	6.31	0.84	1.34
2010s	89.40	12.09	1.29	0.47

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The order of integration of the variables used to perform the growth regression for Sri Lanka are tested using ADF and PP tests and found stationary at different orders. Table 65 in appendix B summarizes the unit root test results. As the results indicate,

growth in per capita income, Capital Flight, effective labor force growth and the rate of depreciation, Government Expenditure, Budget Deficit and Inflation are stationary at level and the remaining variables are stationary at first difference. The mix of I(0) and I(1) variable allows to examine the long-run cointegrating relationship between per capita income growth and its determinants applying ARDL Bounds testing approach. The test result identifies the F statistics of Bounds test lies entirely above the upper bound values for all possible specifications and hence there exists long-run cointegrating relationship between per capita GDP growth and its determinants for alternative models. The coefficients of error correction terms for all models are negative and also significant which approves long-run causality from explanatory variables to growth. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all these tests are summarized at the bottom of table 22. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 21.

The baseline model examines the impact of capital flight on per capita output growth along with other growth determinants. Model 2 augments the baseline model by taking fiscal policy variables government final consumption expenditure and budget deficit into consideration and model 3 includes the monetary policy variables domestic credit expansion to the private sector, inflation and money supply. The real interest rate is dropped from model 3 due to data limitation.

The coefficient of capital flight variable is negative and significant for the alternative models and hence the growth faltering effect of capital flight is evident. For the baseline model, a 1 percent increase in capital flight deters per capita growth in income by 0.23 percent. It remains almost the same when we take the fiscal policy variables into account in model 2. The adverse impact of capital flight appears to be more acute, nearly one and half times higher (0.34 percent) when the monetary policy variables are added to model 3.

As the human capital variable does not form long-run cointegration relationship, instead the study uses per capita gross capital formation and examines its impact on per capita output growth. It reveals that per capita gross capital formation has a positive impact on per capita growth in income for all three specifications. A 1 percent increase in gross capital formation per capita results in 0.26, 0.30, and 0.44 percent increase in per capita output growth for the baseline model, model 2, and model 3, respectively.

The growth in effective labor units and rate of depreciation is only found to bear a theoretically consistent and statistically significant negative coefficient for the baseline model. It indicates that a 1 percent increase in this variable causes a 1.95 percent fall in per capita output growth. The coefficients of the growth in effective labor units and rate of depreciation are positive for model 2 and model 3, but they are not statistically significant. The coefficient of initial period GDP is negative and significant for the baseline model and model 2. It carries the indication that the economy of Sri Lanka grows faster than in the initial period. Only model 3 indicates the growth of Sri Lankan economy is slower than the initial period, however, the coefficient is insignificant. Results concerning the impact of institutional quality proxied by polity variable are in contrast to the expectation. It reveals that better institutional quality hurts economic growth both for baseline model and model 2, the insignificant coefficient of the baseline model does not approve the view. Polity is not found to form long-run relationship for the case of model 3.

Government final consumption expenditure enters with a positive sign in the model which is also significant. Such a result is unanticipated as a higher level of government final consumption expenditure shrinks fund for the private sector and thus hampers growth. However, as Gupta (20018) argues, high levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand and thereby contribute positively to growth. Though the budget deficit should bear a negative coefficient, it is positive for the augmented model 2 but insignificant which is indicative of the adverse impact of high budget deficit on per capita output growth.

For the monetary policy variables, domestic credit expansion to the private sector stimulates per capita output growth and the result is statistically significant. A 1 percent increase in domestic credit expansion to the private sector promotes per capita output growth by 0.08 percent. Inflation is supposed to hurt output growth. In contrast to this, inflation appears with a positive coefficient though statistically insignificant and thereby refutes the positive association between inflation and growth in income per capita. As the study identifies, the money supply has an adverse impact on per capita output growth. In general, an increase in money supply stimulates output growth by reducing the cost of funds and thereby giving incentive to the private sector to invest more. On the other hand, a higher money supply leads to inflation which may exert

detrimental impact on per capita output growth. The later case is found to be dominant in the case of Sri Lanka.

5.3.1.10. Capital Flight and Economic Growth: The case of the Philippines

The Philippines economy comes to pass the largest capital flight of around USD 178 billion in the 2010s which is 6.43 percent of its GDP. Capital flight from the economy consistently maintains a greater share in GDP compared to the official development assistance and foreign aid and net foreign direct investment throughout the sample period which is evident from table 20. The sharp rise in capital flight in recent decades makes it a critical concern for researchers to identify how it directs the output growth of the country.

Table 20
Extent of Capital Flight from the Philippines

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	16.28	2.10	0.29	1.19
1990s	58.36	5.35	1.14	1.08
2000s	54.38	3.38	0.98	0.36
2010s	177.87	6.43	2.08	0.14

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results are presented in table 66 in appendix B. According to the test results, growth in per capita income, capital flight, inflation rate and real interest rate bear I(0) characteristics, that is they are stationary at level. The rest of the variables, namely initial period GDP, gross capital formation, growth in effective labor units and rate of depreciation, government expenditure, budget deficit and money supply are stationary at first difference. Consequently, the study employs the ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 22 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models.

The detrimental effect of capital flight is only approved by model 3. The negative significant coefficient of capital flight variable in model 3 indicates that a 1 percent increase in capital flight works as a source of deteriorating per capita output growth of the Philippines by 0.21 percent. The baseline model also identifies a negative

coefficient of capital flight; however, it is not statistically significant. The insignificant positive coefficient of capital flight in model 2 is also indicative to the adverse impact of capital flight on per capita output growth for the Philippines.

As the human capital variable is not found to form long-run relationship for all the specifications, the study considers gross capital formation per capita. Use of the gross capital formation per capita is more justified (Solow, 1956) as a rise in the gross capital formation may not confirm productivity due to higher population growth. Productivity rises if per capita capital stock rises, otherwise not. The baseline model and model 3 exhibits a positive significant relationship between per capita gross capital formation and per capita output growth. The rise in per capita capital formation of the Philippines causes per capita output growth to rise. The positive relationship that appears in model 2 is not statistically significant. Growth in effective labor units and rate of depreciation has a negative significant impact on per capita growth in income which has been accepted by all variants of specification. Per capita output of the Philippines grows at a faster rate than the initial period which is ascertained by the negative significant coefficients of the initial period GDP irrespective of models.

Concerning the fiscal policy variables, government final consumption expenditure has the expected negative significant coefficient which indicates that a 1 percent increase in government final consumption expenditure worsens per capita output growth by 0.96 percent. The positive but insignificant coefficient of the budget deficit variable is suggestive to its growth off-setting role. Turning to the monetary policy variables, both inflation and real interest rate have a negative impact on per capita growth in income of the Philippines. While a 1 percent increase in the rate of inflation hurts income growth per capita by 0.74 percent, a similar increase in the real interest rate tones down it by 1.2 percent. The coefficient of the money supply is negative but insignificant and hence the adverse impact of an increase in money supply on per capita output growth is not accepted.

It is worth mentioning that all the models pass the necessary diagnostic tests. The LM and BPG tests suggest that the models are free from serial correlation and heteroskedasticity. The negative significant coefficient of the error correction term substantiates the existence of long-run relationship between per capita income growth and the regressors for all models. The CUSUM and CUSUM of squares test results shown in figure 22 in appendix C indicate that all these models are structurally stable and therefore produce consistent results.

5.3.1.11. Capital Flight and Economic Growth: The case of Thailand

There was a noticeable capital flight from Thailand in most of the decades except in the 2000s. There was capital repatriation to Thailand in the 2000s. As table 21 illustrates, maximum capital flees abroad from Thailand in the 2010s, though it is high in the 1990s in terms of the share in GDP. Capital flight of Thailand surpasses net foreign direct investment and official development assistance and foreign aid in the 1980s and 1990s. Thailand was a negative recipient of official development assistance and foreign aid in the 2000s meaning that the country's repayments of previous years' official development assistance and foreign aid were greater than the new receipts. Overall, the degree of capital flight in comparison to the other major sources of capital inflows is strong enough to influence the country's economic growth and thus needs to be examined empirically.

Table 21
Extent of Capital Flight from Thailand

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	17.48	2.12	0.59	0.97
1990s	61.88	3.27	1.66	0.43
2000s	-181.79	-6.63	2.32	-0.02
2010s	75.59	1.92	2.28	0.00

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results are presented in table 67 in appendix B. According to the test results, growth in per capita income and inflation rate I(0) properties while the rest of the variables considered for Thailand are I(1). Accordingly, the study employs the ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 22 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models.

The results on the impact of capital flight on per capita output growth are mixed. The detrimental effect of capital flight is approved by the baseline model and model 3. It is evident that a 1 percent increase in capital flight from Thailand erodes the growth of per capita income by 0.11 and 0.7 percent for the baseline model and model 3,

respectively. In contrast, model 2 that incorporates fiscal policy determinants of output growth suggests a positive significant impact of capital flight on the growth of income per capita in Thailand.

Similarly, the impact of gross capital formation per capita on per capita income growth is also varying across models. While two of the models, the baseline model and model 3, identify a positive significant relationship between gross capital formation per capita and per capita income growth, model 2 opposes it by offering a negative significant per capita gross capital formation coefficient. As two out of three models suggest a positive association between gross capital formation per capita and per capita income growth, therefore, one can accept the view that gross capital formation per capita plays a growth-stimulating role in Thailand. The impact of growth in effective labor units and rate of depreciation is unanimously negative for all models but significant for the extended specifications. Hence, growth in effective labor units and rate of depreciation limits per capita output growth of Thailand. The baseline model as well as the extended model 3 identifies negative significant coefficients of the initial period GDP and hence Thailand's per capita output is inclined to grow faster compared to its initial period.

Concerning the fiscal policy variables, government final consumption expenditure has the expected negative significant coefficient which indicates that a 1 percent increase in government final consumption expenditure degrades per capita output growth by 1.45 percent. Data on budget deficit variables are not available for the whole sample period and thus ignored from the analysis.

Turning to the monetary policy variables, the coefficient of inflation is positive but not statistically significant and hence the positive impact of inflation on per capita output growth is not accepted. The coefficient of the money supply is positive and significant and hence increase in money supply promotes per capita output growth.

It is worth mentioning that all the models pass the necessary diagnostic tests. The LM and BPG tests suggest that the models are free from serial correlation and heteroskedasticity. The negative significant coefficient of the error correction term substantiates the existence of long-run relationship between per capita income growth and the regressors for all models. The CUSUM and CUSUM of squares test results shown in figure 23 in appendix C indicate that all these models are structurally stable and therefore produce consistent results.

Table 22

Cointegration and Long Run Model- Selected Developing Asian Economies

Regressors	**Bangladesh**			**Fiji**			**India**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-0.004**	-5.996	-0.001	-6.229***	-2.796*	4.985	-0.849***	-0.776**	-1.352***
	(-2.271)	(-1.638)	(-0.325)	(-1.733)	(-2.923)	(1.300)	(-1.787)	(-2.262)	(-1.867)
Capital Flight	-0.012*	0.026	-0.100**	-0.228*	-0.020	-0.483*	-0.077**	-0.154*	-0.209**
	(-3.605)	(0.391)	(-3.021)	(-3.593)	(-1.107)	(-4.214)	(-2.086)	(-2.890)	(-2.463)
Human Capital	1.149**	-6.602*	2.864*	-2.932*	2.633*	1.925**	1.895*	-2.415	2.179**
	(2.330)	(-3.525)	(4.375)	(-3.662)	(3.619)	(1.953)	(3.148)	(-0.304)	(2.452)
ln(n+g+d)	-4.282*	3.454***	-7.314*	-1.156*	0.564*	-0.155	0.625	-1.587***	3.638
	(-5.212)	(1.721)	(-5.109)	(-3.446)	(3.595)	(-0.176)	(0.086)	(-1.727)	(0.193)
Polity	0.013			0.366*	0.133*		2.605**	1.572	
	(1.041)			(4.769)	(4.557)		(2.145)	(1.592)	
Government Expenditure		-1.452**	-0.864**		-0.079**			-0.174**	
		(-2.193)	(-2.597)		(-2.113)			(-2.255)	
Budget Deficit					-0.144*			0.144	
					(-3.529)			(0.258)	
Domestic Credit			-0.086***			-0.125**			0.244**
			(-2.086)			(-2.304)			(2.405)
Inflation			-0.299*			-0.303**			-0.695**
			(-4.053)			(-2.293)			(-2.260)
Real Interest Rate		-0.017	-0.294*						-0.566***
		(-0.430)	(-4.336)						(-1.922)
Money Supply						0.108**			0.049
						(2.164)			(0.159)
Bounds Test: F-statistic	9.091	7.181	13.802	16.834	7.943	8.968	5.061	8.944	5.684
Lower Bound (5%)	2.450	2.320	2.140	2.620	2.320	2.320	2.620	2.320	2.220
Upper Bound (5%)	3.610	3.500	3.300	3.790	3.500	3.500	3.790	3.500	3.390
LM Test: F-stat	1.708	1.353	2.683	0.099	0.627	0.470	0.778	2.120	0.264
(p-value)	(0.2044)	(0.2812)	(0.1088)	(0.906)	(0.546)	(0.632)	(0.472)	(0.149)	(0.771)
BPG Test: F-stat	1.426	1.207	0.762	0.699	1.015	1.306	1.811	0.950	1.485
(p-value)	(0.228)	(0.351)	(0.724)	(0.728)	(0.481)	(0.286)	(0.107)	(0.536)	(0.198)
ECT	-0.107	-0.299	-0.392	-0.199	-0.977	-0.204	-0.173	-0.137	-0.114
(p-value)	(0.0000)	(0.0000)	(0.0000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 22:
(Continued)

Regressors		**Indonesia**			**Pakistan**			**Jordan**	
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-4.926***	-0.829*	-3.770**	1.881***	0.490	-2.369	-1.290*	-3.953*	-1.859*
	(-1.892)	(-3.281)	(-2.497)	(1.859)	(0.504)	(-2.621)	(-2.798)	(-2.991)	(-2.872)
Capital Flight	0.302*	0.187*	0.059	-0.171***	-0.017**	-0.054	-0.091*	-0.055*	-0.051*
	(4.068)	(4.426)	(1.564)	(-1.834)	(-2.640)	(-0.549)	(-5.031)	(-3.293)	(-2.953)
Human Capital	0.171	0.882*	-1.752	3.965	0.796**	1.177**	0.748	2.590**	2.370
	(0.076)	(3.545)	(-1.025)	(0.982)	(3.087)	(2.112)	(0.286)	(2.521)	(0.797)
ln(n+g+d)	-1.050*	-5.640	0.106	3.547*	5.043*	-1.760**	-5.257*	-5.450*	-5.481*
	(-2.570)	(-1.419)	(0.048)	(4.141)	(3.950)	(-2.255)	(-8.723)	(-7.156)	(-6.888)
Government Expenditure		0.014			-0.032**			-0.460**	
		(0.081)			(-3.043)			(-2.674)	
Budget Deficit		-0.682*							
		(-4.769)							
Domestic Credit			0.039**						
			(2.986)						
Inflation			-0.372*			-0.549*			-0.233**
			(-4.501)			(-3.893)			(-2.365)
Real Interest Rate			-0.415*						
			(-5.124)						
Money Supply			0.048**			0.026			0.063**
			(2.621)			(0.242)			(2.295)
Bounds Test: F-statistic	7.268	7.347	21.149	6.950	4.510	5.639	7.608	17.373	14.385
Lower Bound (5%)	2.860	2.450	2.220	2.860	2.620	2.450	2.860	2.620	2.450
Upper Bound (5%)	4.010	3.610	3.390	4.010	3.790	3.610	4.010	3.790	3.610
LM Test: F-stat	1.816	1.007	1.792	0.697	5.852	2.816	1.924	0.285	1.162
(p-value)	(0.184)	(0.382)	(0.221)	(0.419)	(0.065)	(0.092)	(0.171)	(0.755)	(0.360)
BPG Test: F-stat	0.864	1.432	0.649	1.351	2.692	1.370	0.637	1.150	0.439
(p-value)	(0.546)	(0.219)	(0.818)	(0.281)	(0.113)	(0.275)	(0.790	(0.364)	(0.650)
ECT	-0.980	-0.117	-0.165	-0.187	-0.598	0.827	-0.253	-0.180	-0.930
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 22:
(Continued)

Regressors	**China**			**Nepal**			**Sri Lanka**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-0.718*	-0.955*	0.096	-5.274*	-5.511***	-2.166*	-2.294**	-2.113**	0.476
	(-3.706)	(-4.268)	(0.960)	(-2.916)	(-1.706)	(-6.627)	(-2.111)	(-2.512)	(0.600)
Capital Flight	0.246	-0.829**	-0.009*	0.111***	0.102***	0.089**	-0.234*	-0.226*	-0.336*
	(1.258)	(-2.571)	(-2.112)	(1.678)	(1.809)	(1.916)	(-2.866)	(-3.116)	(-6.034)
Gross Capital Formation	0.450*	0.417**	-0.008	0.274***	-0.583	0.018	0.257***	0.296**	0.443*
	(2.854)	(2.313)	(-1.704)	(1.815)	(-0.221)	(0.152)	(1.961)	(2.777)	(5.983)
ln(n+g+d)	-0.938**	-1.828*	-0.657*	-0.525**	0.237	0.276	-1.951**	-0.813	-0.079
	(-2.338)	(-3.340)	(-3.182)	(-1.808)	(1.004)	(1.507)	(-2.435)	(-0.997)	(-0.128)
Polity				0.113***	0.139**	0.180*	-0.256	-0.482***	
				(1.872)	(2.502)	(3.821)	(-0.734)	(-1.752)	
Government Expenditure		-1.336**			1.242**			0.112**	
		(-2.479)			(2.754)			(2.156)	
Budget Deficit								0.059	
								(0.216)	
Domestic Credit			0.007***			-0.123			0.083**
			(2.096)			(-1.484)			(2.263)
Inflation					-0.253**	-0.282*			0.044
					(-2.536)	(-4.306)			(1.374)
Real Interest Rate									
Money Supply			0.008***			0.310*			-0.274*
			(1.816)			(3.443)			(0.000)
Bounds Test: F-statistic	8.224	5.336	5.189	8.648	5.664	7.742	7.716	7.289	10.292
Lower Bound (5%)	2.860	2.620	2.450	2.620	2.320	2.220	2.620	2.320	2.320
Upper Bound (5%)	4.010	3.790	3.610	3.790	3.500	3.390	3.790	3.500	3.500
LM Test: F-stat	1.618	2.195	0.307	2.285	3.065	0.330	0.474	0.099	0.727
(p-value)	(0.216)	(0.136)	(0.740)	(0.124)	(0.072)	(0.723)	(0.628)	(0.906)	(0.497)
BPG Test: F-stat	1.226	1.214	1.520	0.587	1.430	0.344	0.801	1.370	0.856
(p-value)	(0.321)	(0.330)	(.198)	(0.809)	(0.2223)	(0.986)	(0.607)	(0.257)	(0.604)
ECT	-0.754	-0.943	-0.755	-0.107	-0.138	-0.185	-0.791	-0.1076	-0.114
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 22:
(Continued)

Regressors	**Philippines**			**Thailand**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-0.627***	-1.413***	-3.674*	-3.734***	-1.310	-4.996**
	(-1.725)	(-1.833)	(-3.142)	(-1.739)	(-1.272)	(-2.348)
Capital Flight	-0.005	0.081	-0.211***	-0.106*	0.085*	-0.065***
	(-0.101)	(1.471)	(-1.820)	(-2.745)	(2.883)	(-1.800)
Gross Capital Formation	0.135*	0.236	1.518**	0.286*	-0.134***	0.273*
	(3.801)	(1.127)	(2.948)	(4.269)	(-1.800)	(3.830)
ln(n+g+d)	-1.755**	-3.330**	-5.194**	-3.161	-4.256*	-4.499***
	(-2.485)	(-2.571)	(-2.446)	(-1.417)	(-4.043)	(-1.734)
Government Expenditure		-0.962**			-1.446*	
		(-2.702)			(-6.750)	
Budget Deficit		0.032				
		(0.143)				
Inflation			-0.744**			0.298
			(-2.580)			(1.633)
Real Interest Rate			-1.198**			
			(-2.332)			
Money Supply			-0.020			0.096***
			(-0.271)			(1.871)
Bounds Test: F-statistic	4.899	6.438	11.852	10.770	19.031	9.819
Lower Bound (5%)	2.620	2.320	2.220	2.860	2.620	2.450
Upper Bound (5%)	3.790	3.500	3.390	4.010	3.790	3.610
LM Test: F-stat	1.018	2.446	2.100	1.929	2.772	1.304
(p-value)	(0.377)	(0.118)	(0.178)	(0.164)	(0.082)	(0.289)
BPG Test: F-stat	0.687	0.645	1.229	1.411	0.805	1.596
(p-value)	(0.738)	(0.815)	(0.373)	(0.242)	(0.615)	(0.165)
ECT	-0.110	-0.162	-0.890	-0.126	-0.200	-0.118
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

5.3.2. Capital Flight and Economic Growth: Selected Developing African Economies

The study considers eleven African economies that are Benin, Cameroon, Egypt, Kenya, Madagascar, Morocco, Nigeria, Rwanda, Sierra Leone, South Africa and Togo. It makes a comparison among capital flight, net foreign direct investment and official development assistance as a percent of GDP over the last four decades. Figure 8 reveals the findings. For the sample economies, capital flight is expressively higher than the net foreign direct investment and official development assistance in the 1980s and 2010s as a percent of GDP. Even developing Africa experiences a higher level of capital flight compared to net foreign direct investment in the 1990s, and it surpasses the official development assistance in the 2000s. Most importantly, capital flight from developing African sample countries accounts for about 35 percent of domestic savings during the sample period. Therefore, its contractionary effect on the economy by squeezing domestic investment is obvious. The section is devoted to studying the relationship between capital flight and per capita growth in income of the selected economies from developing Africa.

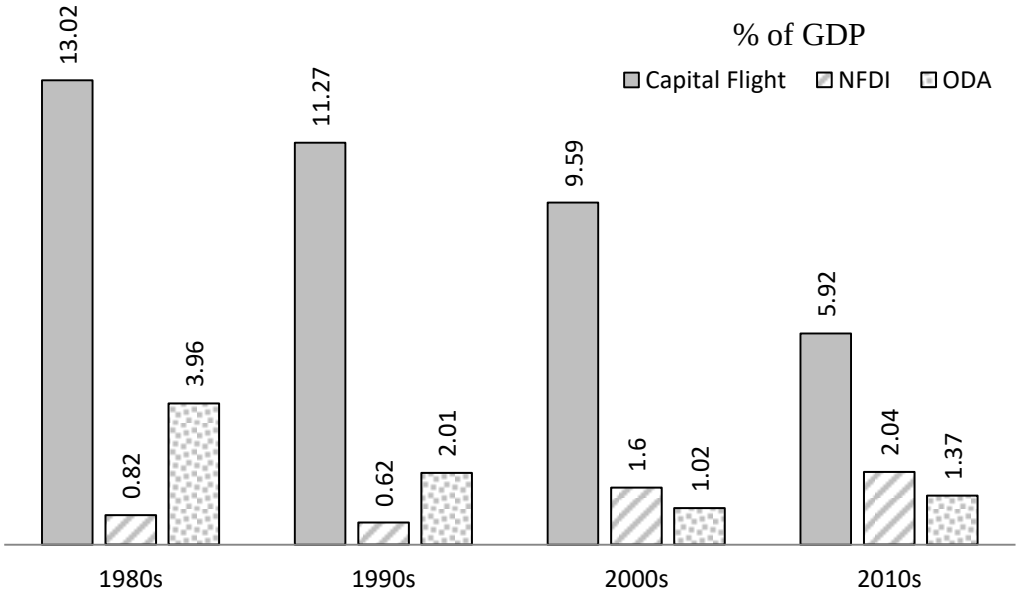

Figure 8 Capital Flight, Net FDI and ODA: The Case of Developing Africa
Source: Author's calculation (Billion, Constant 2010 USD)

5.3.2.1. Capital Flight and Economic Growth: The case of Benin

Capital flight from Benin stands at USD 15.84 billion as of 2019 shown in table 23. Though the least amount of capital flight occurred in the 1980s amounting to USD 1.93 billion, however it was maximum in 1980s as a percent of GDP which was nearly 19.7 percent. The highest capital flight USD 7.75 billion took place in 2010s, which is

6.36 percent of the country's GDP. In the first two decades, the value of disinvestment by foreign investors was more than the value of capital newly invested in Benin that results in negative net foreign direct investment as a percent of GDP. The capital flight exceeds the net foreign direct investment in the last two decades as well. Capital flight falls short of official development assistance and foreign aid in the first three decades of the sample period. Capital flight is a persistent problem for Benin and is expected to exert a significant impact on the output growth of the economy.

Table 23
Extent of Capital Flight from Benin

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	2.32	19.67	-0.17	19.84
1990s	1.93	8.60	-0.09	15.58
2000s	3.84	6.00	0.16	7.15
2010s	7.75	6.36	1.77	4.87

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The variables used to perform the growth regression for Benin are found to be stationary at different orders. The study identifies growth in per capita income and capital flight as stationary at level while initial period GDP, gross capital formation, the growth rate of effective labor units and the rate of depreciation, government expenditure, domestic Credit and money supply are stationary at first difference. Unit root test results performed by ADF and PP test are shown in table 68 in appendix B. The combination of the variables at level and first difference allows to apply the ARDL Bounds testing approach in order to examine the existence of long-run cointegrating relationship between per capita income growth and its determinants. The long-run model is summarized in table 34 with necessary diagnostic checks. The ARDL Bounds test results indicate that the F statistics of the Bounds test lie completely above the upper bound values for all the models which signify that the long-run cointegrating relationship between per capita growth in income and the regressors is present for all specifications. Furthermore, the error correction coefficient is negative and significant and less than one in absolute form regardless of models, which means there is long-run causality from regressors to growth of per capita income in the long run.

The baseline model, that is, model 1 shows the impact of capital flight and the other growth determinants on the economic growth of Benin. Model 2 augments the baseline model including the fiscal policy variable government final consumption

expenditure and budget deficit. Again, model 3 incorporates the monetary policy variables, namely domestic credit to the private sector and money supply. The fiscal policy variable budget deficit is ignored due to data limitations. The monetary policy variables rate of inflation and real interest rate do not form long-run cointegrating relationships for model 3 and hence ignored.

The capital flight is found to have an adverse impact on the growth of per capita income for all the specifications as the coefficient of the capital flight variable enter into the regressions are negative. The coefficients are significant for all the models. For the baseline model, a 1 percent increase in capital flight reduces per capita income growth by 0.28 percent. When we take the fiscal policy variables into account in model 2, the impact of capital flight is the same. After adding the monetary policy variables to model 3, the impact drops to 0.19 percent. Coefficients of the gross capital formation per capita are positive and significant for all specifications. Growth in gross capital formation per capita by 1 percent leads the per capita income to grow by 0.2 percent to 0.6 percent. As expected for developing economies, growth in effective labor force and rate of depreciation drives down economic growth by reducing capital per capita confirmed by the negative and statistically significant coefficient of ln(n+g+d) for all specifications except the baseline model. For the baseline model, the negative impact of the growth in effective labor force and the rate of depreciation is not statistically significant. The coefficient of initial period real per-capita GDP needs to be negative and significant to accept the view that an economy grows faster if begins with lower real per-capita GDP, which is found evident for Benin for all specifications.

Model 2 incorporates the fiscal policy variable government final consumption expenditure. Another fiscal policy variable budget deficit is dropped due to data limitations. It reveals that the positive impact of government final consumption expenditure on per capita output growth is not statistically significant meaning that it has either a negative or no impact on output growth.

Specification 3 includes monetary policy variables domestic credit to the private sector and money supply together with capital flight and growth determinants. The coefficient attached to the domestic credit to the private sector is expected to be positive as the increase in domestic credit to the private sector as a percent of GDP indicates the availability of investable funds in the private sector for financing the economic project and thereby promote economic growth. The finding of the study with regard to the impact of domestic credit expansion to the private sector on per capita output growth is

in contrast to this expectation, however not surprising as there is empirical support favoring this result. Law (2014) argues that there is an optimal level of domestic financing beyond which it may hamper economic growth. Therefore, the threshold level of domestic credit supportive for Benin's economic growth needs to be identified to reach a conclusive decision. The money supply variable bears an expected positive coefficient but not significant.

All the models pass the obligatory diagnostic checks. The regression models are free from serial autocorrelation as the LM tests for alternative models accept the null hypothesis of no serial correlation. The BPG test is performed to check the problem of heteroskedasticity. The test results for all the models accept the null hypothesis of homoskedasticity or no heteroskedasticity and hence the models are not suffering from the problem of heteroskedasticity. Finally, the CUSUM and CUSUM of squares tests summarized in figure 24 in appendix C approve the structural stability of the models.

5.3.2.2. Capital Flight and Economic Growth: The case of Cameroon

The capital flight from Cameroon except for the capital repatriation in the 2000s stands at USD 18.68 billion which is significant enough considering the size of the economy. Capital flight, as a percent of GDP, is most in the 2010s which is clearly higher than net foreign direct investment and official development assistance and foreign aid in the same period. The capital flight exceeds the net foreign direct investment in the first two decades as well as a percent of the country's GDP. Capital flight is a persistent problem for Cameroon. Thus, capital flight bears enormous significance in determining the country's output growth.

Table 24
Extent of Capital Flight from Cameroon

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	2.65	3.12	0.97	5.16
1990s	3.39	2.98	0.24	6.32
2000s	-12.07	-6.85	1.31	5.48
2010s	12.64	3.85	2.12	2.59

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The stationary test results for Cameroon suggest that capital flight and inflation rate bear I (0) characteristics. That is, they are stationary at level. The rest of the variables namely growth in per capita income, initial period GDP, gross capital formation, government expenditure, domestic credit and growth in effective labor units

and rate of depreciation are stationary at first difference. The stationary test results performed using ADF and PP tests are presented in table 69 in appendix B. The combination of the variables at level and first difference allows applying the ARDL Bounds testing approach to examine the existence of long-run cointegrating relationship between per capita income growth and explanatory variables. Results of the long-run models are presented in table 34 with the essential test results. The Bounds test result finds that the F statistics is greater than the upper bound values for all possible specifications. It accepts the presence of long-run cointegrating relationship between the growth in per capita income and regressors. The negative significant coefficients of the error correction terms for the models further reinforces the finding approving the long run causality from independent variables to per capita growth in income. All the models pass the necessary diagnostic checks. The regression models are free from serial autocorrelation as the LM tests for alternative models accept the null hypothesis of no serial correlation. The BPG test is performed to check the problem of heteroskedasticity. The test results for all the models accept the null hypothesis of homoskedasticity or no heteroskedasticity and hence the models are not suffering from the problem of heteroskedasticity. Finally, the CUSUM and CUSUM of squares tests summarized in figure 25 in appendix C approve the structural stability of the models.

The unfavorable effect of capital flight is approved by model 2 and model 3. The negative significant coefficient of capital flight variable in model 2 and model 3 indicates that a 1 percent increase in capital flight works as a source of abating per capita output growth of Cameroon by 0.40 percent and 0.33 percent. The baseline model identifies a positive but insignificant coefficient of capital flight which also implies the adverse impact of capital flight on the per capita output growth of Cameroon. The economy of Cameroon grows at a faster rate than its initial period as evident by the negative significant coefficients of initial GDP across the models.

As the human capital does not form long-run cointegrating relationship for the models but the per capita gross capital formation does, the study accounts for the later for examining its impact on per capita output growth. The per capita gross capital formation has a positive impact on per capita growth in income. The coefficients of per capita gross capital formation are positive and significant across the models. A 1 percent increase in per capita gross capital formation stimulates per capita output growth by 0.47 to 2.72 percent.

Growth in effective labor units and rate of depreciation has a negative significant impact on per capita growth in income which has been accepted by all variants of specification. The per capita output of Cameroon grows at a faster rate than the initial period which is ascertained by the negative significant coefficients of the initial period GDP irrespective of models.

Model 2 extends the baseline model by incorporating fiscal policy variable government final consumption expenditure. Again, model 3 extends the baseline model taking monetary policy variables domestic credit expansion to the private sector and inflation rate. As the data on the budget deficit, money supply and Real interest Rate is not available for the whole sample period, they are dropped from their respective models.

Concerning the fiscal policy variables, government final consumption expenditure has a positive and significant impact on per capita output growth. Reducing funds available for the private sector, higher government final consumption expenditure is assumed to reduce per capita income growth. However, Gupta (20018) shows that a positive relationship between government expenditure and output growth is also possible. High levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand and thereby contribute positively to growth. The coefficient of the rate of inflation is negative and significant for model 3 which indicates that inflation is detrimental to per capita income growth. A 1 percent increase in the rate of inflation causes per capita income growth to fall by 0.37 percent. The domestic credit expansion to the private sector has a negative coefficient but insignificant. Hence the adverse effect of domestic credit expansion to the private sector on per capita income growth is not approved.

5.3.2.3. Capital Flight and Economic Growth: The case of Kenya

Kenya is another capital flight susceptible economy. As table 25 shows, there was a steady increase in capital flight from Kaney. It experiences around USD 125.76 billion in capital flight during the last four decades. The table compares the capital flight from Kenya with the major inflows of capital flight, namely net foreign direct investment and official development assistance and foreign aid. As a percent of GDP, capital flight was most in the 1990s which was 18.80 percent and least in the 2000s which was 7.75 percent of the countries GDP. Capital flight from the economy of Kenya was always higher than the net foreign direct investment and official

development assistance and foreign aid except in the 1980s in which official development assistance and foreign aid exceed the capital flight as the percentage of GDP. Undoubtedly, being a capital-scarce country, how the capital flight from Kenya impacts the country's output growth is worth investigating.

Table 25
Extent of Capital Flight from Kenya

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	5.15	8.12	0.35	16.54
1990s	18.62	18.80	0.53	9.48
2000s	17.00	7.75	0.59	4.50
2010s	84.99	13.19	1.63	4.00

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results presented in table 70 in appendix B applying the ADF and PP tests suggest that growth in per capita income, capital flight, and real interest rate are stationary at level and the rest of the variables, namely initial period GDP, per capita gross capital formation, growth in effective labor units and rate of depreciation, government expenditure and domestic credit to the private sector are stationary at first difference. Consequently, the study employs the ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 34 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models.

The detrimental effect of capital flight is only approved by model 2. The negative significant coefficient of capital flight variable in model 2 indicates that a 1 percent increase in capital flight works as a source of worsening per capita output growth of Kenya by 0.22 percent. The baseline model also identifies a negative coefficient of capital flight; however, it is not statistically significant. The insignificant positive coefficient of capital flight in model 3 is also indicative of the adverse impact of capital flight on per capita output growth for Kenya.

As the human capital variable is not found to form long-run relationship for all the specifications, the study considers gross capital formation per capita. Use of the gross capital formation per capita is more justified (Solow, 1956) as the rise in gross capital formation may not confirm productivity due to higher population growth.

Productivity rises if per capita capital stock rises, otherwise not. The baseline model, model 2 and model 3 exhibits a positive significant relationship between per capita gross capital formation and per capita output growth. The rise in per capita capital formation of Kenya causes per capita output growth to rise. A 1 percent increase in per capita gross capital formation accelerates per capita output growth of Kenya by 0.6 percent to 9 percent.

The impact of the growth in effective labor units and the rate of depreciation on per capita output growth is mixed. The growth rate of effective labor units and the rate of depreciation is assumed to have an adverse impact on growth. In contrast to this expectation, the variable bears a positive significant coefficient for model 2. But, the negative association between the growth rate of effective labor units and the rate of depreciation and per capita output growth is approved both by the baseline model and model 3. It states that a 1 percent growth in the rate of effective labor units and the rate of depreciation results in a 0.9 to 1.1 percent fall in growth of per capita income.

Model 2 extends the baseline model by integrating fiscal policy variables government final consumption expenditure. Again model 3 extends the baseline model taking monetary policy variables domestic credit expansion to the private sector and real interest rate into account. As the data on the budget deficit, rate of inflation and money supply are not available for the whole sample period, they are dropped from their respective models. Government expenditure has a positive and significant impact on per capita output growth. Reducing funds available for the private sector, higher government final consumption expenditure can reduce per capita income growth. The positive association between government final consumption expenditure and per capita output growth is also possible particularly when high levels of government consumption expenditure generates multiplier effects on aggregate demand through increased employment, profitability, and investment and thereby contribute positively to growth are likely to increase employment, profitability and investment via multiplier effects on aggregate demand and thereby contribute positively to growth (Gupta, 2018).

For the monetary policy variables, domestic credit expansion to the private sector stimulates per capita output growth and the result is statistically significant. A 1 percent increase in domestic credit expansion to the private sector promotes per capita output growth by 0.26 percent. The real interest rate has a negative impact on per capita growth in income of Kenya, a 1 percent increase in real interest rate tones down it by 0.18 percent.

It is worth mentioning that all the models pass the necessary diagnostic tests. The LM and BPG tests suggest that the models are free from serial correlation and heteroskedasticity. The negative significant coefficient of the error correction term substantiates the existence of long-run relationship between per capita income growth and the regressors for all models. The CUSUM and CUSUM of squares test results shown in figure 26 in appendix C indicate that all these models are structurally stable and therefore produce consistent results.

5.3.2.4. Capital Flight and Economic Growth: The case of Egypt

There is an unusual increase in capital flight in the 2010s following the capital repatriation in the 2000s. Table 26 presents the capital flight figures of Egypt and compares them with GDP, net foreign direct investment and official development assistance and foreign aid. The total amount of capital flight from Egypt reaches USD 324.1 billion throughout the sample period. Despite the highest capital flight in the 2010s, it was much severe in terms of percentage of GDP in the 1980s which was nearly 19.46 percent. Capital flight from Egypt exceeds the net foreign direct investment except for the decades of capital repatriation in the 2000s as a percentage of GDP. Capital flight falls short of official development assistance and foreign aid in the 1990s and 2000s of the sample period. Considering the substantial amount of capital flight from Egypt, the study investigates the relationship between capital flight and per capita output growth of the economy.

Table 26
Extent of Capital Flight from Egypt

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	60.37	19.46	2.59	9.60
1990s	11.48	1.91	1.24	7.30
2000s	-6.34	-0.57	4.20	1.35
2010s	252.25	9.08	2.05	0.73

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The order of integration of the variables used to perform the growth regression for Egypt is found to be different. Table 71 in appendix B summarizes the unit root test results performed applying ADF and PP tests. As the results indicate, only growth in per capita income is stationary at level and remaining variables like initial period of GDP, capital flight, per capita gross capital formation, human capital, effective labor force

growth and the rate of depreciation, government final consumption expenditure, real interest rate are and domestic credit to the private sector are stationary at first difference. The mix of I(0) and I(1) variables lets to examine the long-run cointegrating relationship between per capita income growth and its determinants applying ARDL Bounds testing approach. The test results for alternative models find that the F statistics of Bounds tests lie entirely above the upper bound values and hence there exists long-run cointegrating relationship between per capita GDP growth and its determinants for alternative models. All these three models pass the necessary diagnostic tests. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all these tests are summarized at the bottom of table 34. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 27.

The baseline model examines the impact of capital flight on per capita output growth along with other growth determinants. Model 2 and model 3 augment the baseline model by taking fiscal policy variables and monetary policy variables into account, respectively.

The results concerning the impact of capital flight on the growth of per capita GDP for Egypt are not harmonious with the theory. The coefficients of capital flight are positive and significant for the baseline model and model 2. It means an increase in capital flight leads to higher growth of GDP per capita. The findings are not consistent with the expected relationship between capital flight and output growth which should be negative. However, the finding is in line with the studies conducted by **Saheed and Ayodeji (2012)** and **Godagampala (2019)**. Both of the studies find that capital flight has a positive effect on economic growth in Nigeria and Sri Lanka, respectively. Authors argue that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. The coefficient of capital flight obtained for Model 3 is not significant and hence disapproves the positive impact of capital flight on per capita output growth. Egypt has the tendency to grow slower than the initial period per capita income as its coefficients are consistently positive and significant for all specifications. Human capital development is supposed to stimulate economic growth. But the baseline model and the augmented models reject it by accepting the negative human capital coefficient. The impact of the growth rate of effective labor units and the rate of depreciation on the

growth of income per capita is mixed. The baseline model and the extended model 2 report that the variable hurts per capita output growth. As the results indicate, a 1 percent increase in the growth rate of effective labor units and the rate of depreciation reduces income growth per capita by 2.2 to 2.6 percent. But model 3 rejects it by accepting the positive or no effect of the growth rate of effective labor units and the rate of depreciation variable on growth of per capita income as the negative coefficient is appeared to be insignificant.

Model 2 is the extension of the baseline model that incorporates fiscal policy variables. Two fiscal policy variables that the study considers are government final consumption expenditure and government budget deficit. The government budget deficit is not found to form a long-run cointegrating relationship and therefore declined. Results suggest that the negative impact of government final consumption expenditure on per capita output growth is not significant which is suggestive of the fact that government expenditure accelerates output growth.

Model 3 that extends the baseline model including the monetary policy variables does not find real interest rate and inflation as meaningful variables in forming long-run relationships. The monetary policy variable domestic credit expansion to the private sector has a positive significant impact on per capita output growth. A 1 percent increase in domestic credit expansion to the private sector increases per capita output growth by 0.08 percent. However, the coefficient of money supply variable, though positive, but not significant.

5.3.2.5. Capital Flight and Economic Growth: The case of Morocco

Morocco is one of the most capital flight prone economies of Africa. It experiences around USD 173.09 billion in capital flight during the four decades. Table 27 compares the capital flight from Morocco with the major inflows of capital flight, namely net foreign direct investment and official development assistance and foreign aid. The highest capital flight of Morocco occurs in the 2010s, about USD 126.16 billion, which is 11.88 percent of GDP. As a percent of GDP, capital flight was least in the 1990s, nearly USD 6.79 billion, which was 1.85 percent of GDP. Capital flight fell short of net foreign direct investment only in the 2000s as a percent of GDP as well as official development assistance and foreign aid only in the 1990s. Otherwise, it remained always higher than the net foreign direct investment and official assistance and foreign aid throughout the sample period. The widespread capital flight from

Morocco makes it imperative to investigate its impact on the per capita output growth of the economy.

Table 27
Extent of Capital Flight from Morocco

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	23.51	13.45	0.32	6.89
1990s	6.79	1.85	1.32	3.01
2000s	16.63	2.65	2.92	1.45
2010s	126.16	11.88	2.52	1.48

Source: Author's Calculation based on WDI of World bank, 2021 (Billion, Constant 2010 USD)

Before testing the cointegrating relationship between per capita output growth and regressors, the study performs tests of order of integration for each of the variables applying ADF and PP tests. Test results of Morocco are shown in table 72 in appendix B. Test results suggest that growth in per capita income and inflation are stationary at level and the remaining variables, that is, initial period GDP, capital flight, human capital, the growth rate of effective labor units and the rate of depreciation, government final consumption expenditure and money supply are stationary at first difference. The combination of the variables at level and first difference allows to apply the ARDL Bounds testing approach in order to examine the existence of long-run cointegrating relationship between per capita income growth and its determinants. Results of the long-run models are presented in table 34 with the essential test results. The Bounds test results find that the F statistics are greater than the upper bound values for all possible specifications. It approves the presence of long-run cointegrating relationship between the growth in per capita income and regressors. The negative significant coefficients of the error correction terms for the models further reinforces the finding approving the long-run causality from independent variables to per capita growth in income. The study does not find polity to form long-run relationship for any of the models and hence dropped from all the models. The models are not suffering from the problems of autocorrelation and heteroskedasticity as the F statistics of the LM test and BPG test are found insignificant. Results of all these tests are summarized at the bottom of table 34. The models are also structurally stable as confirmed by the CUSUM and CUSUM of squares test shown in figure 28 in appendix C.

The results obtained with regard to the impact of capital flight on the growth of per capita GDP for Morocco are not compatible with the theory. Contrary to the

expectation, the capital flight is found to have a positive significant impact on per capita income growth for Morocco. It means an increase in capital flight results in higher growth of GDP per capita. However, the finding is consistent with Saheed and Ayodeji (2012) and Godagampala (2019). Their studies on Nigeria and Sri Lanka approve that capital flight has a positive effect on economic growth. The argument is that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. Morocco has the tendency to grow faster than the initial period per capita income as its coefficients are unanimously negative and significant for all specifications.

The positive impact of human capital on per capita output growth is true for all specifications. Hence, human capital development enhances per capita growth in income in Morocco. Growth in effective labor units and rate of depreciation has a negative significant impact on per capita growth in income which has been accepted by all variants of specification.

Model 2 shows the impact of fiscal policy variables on per capita income growth in addition to the growth variables mentioned in the baseline model. The fiscal policy variable government final consumption expenditure desolates economic growth. A 1 percent increase in government final consumption expenditure has been accounted for a 0.11 percent decrease in the growth of per capita income. The government budget deficit is not found to form a long-term relationship with the growth of per capita income and hence removed from the specification.

Turning to the monetary policy variables, the coefficient of inflation is positive but not statistically significant and hence the positive impact of inflation on per capita output growth is not accepted. The coefficient of the money supply is positive and significant and hence increase in money supply promotes per capita output growth. Clearly, the growth in per capita income is increased by 0.03 percent due to a 1 percent increase in money supply.

5.3.2.6. Capital Flight and Economic Growth: The case of South Africa

The economy of South Africa experiences a steady increase in capital flight in terms of volume and its share in GDP during the last four decades. It remains significantly higher than the net foreign direct investment and official assistance and foreign aid received by South Africa throughout the sample period which is apparent from table 28. Flight of capital is dominating over the major capital inflows to South

Africa and hence its influence on South African's economy, particularly on its output growth needs to be examined.

Table 28
Extent of Capital Flight from South Africa

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	3.61	0.49	0.02	-
1990s	26.23	1.90	0.62	0.30
2000s	54.24	2.48	1.94	0.38
2010s	221.78	6.18	1.18	0.33

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

At the outset, the unit root tests are conducted using ADF and PP tests to identify the order of integration of the variables. Test results are presented in table 73 in appendix B. According to the test results, growth in per capita income, capital flight and real interest rate have I(0) property while the rest of the variables considered for South Africa are I(1). Accordingly, the study employs the ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 34 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models.

The results on the impact of capital flight on per capita output growth are mixed. The detrimental effect of capital flight is approved by the baseline model. It is evident that a 1 percent increase in capital flight from South Africa erodes the growth of per capita income by 1.56 percent for the baseline model. Model 3 identifies a positive insignificant coefficient. In contrast, model 2 that incorporates fiscal policy determinants of output growth suggests a positive significant impact of capital flight on the growth of income per capita in South Africa. Turning to human capital, the long-run impact on growth in per capita income is positive as confirmed by model 3. A 1 percent increase in human capital development enhances per capita income growth by 0.33 percent. The growth in effective labor units and rate of depreciation has negative significant impact on per capita growth in income which has been accepted by all variants of specification. Per capita output of South Africa grows at a faster rate than the initial period which is ascertained by the negative significant coefficients of the initial period GDP irrespective of models.

Higher government final consumption expenditure and budget deficit lead both public as well as the private to invest less and thus cause lower growth in income per capita. The coefficients of these two variables enter into model 2 are negative and statistically significant and therefore both government final consumption expenditure and budget deficit of South Africa town down its economic growth. A 1 percent increase in government expenditure of South Africa degrades the growth of per capita income by 1.89 percent while a similar increase in budget deficit deteriorates per capita output growth by .04 percent.

For the monetary policy variables, the rate of inflation has a negative significant coefficient. A 1 percent increase in the rate of inflation reduces per capita output growth by nearly 0.48 percent. An increase in the real interest rate, raising the cost of capital, leads to lower investment and lower output growth per capita. Results suggest that a 1 percent increase in real interest rate significantly causes the per capita output growth to fall by 0.35percent. All these findings are consistent with theoretical expectations.

All the models pass the necessary diagnostic tests. The LM and BPG tests suggest that the models are free from serial correlation and heteroskedasticity. The negative significant coefficient of the error correction term substantiates the existence of long-run relationship between per capita income growth and the regressors for all models. The CUSUM and CUSUM of squares test results shown in figure 29 in appendix C indicate that all these models are structurally stable and therefore produce consistent results.

5.3.2.7. Capital Flight and Economic Growth: The case of Rwanda

The total amount of capital flight from Rwanda during 1981-2019 was USD 24.66 billion. Table 29 shows the extent of capital flight from Rwanda. Capital flight from Rwanda was around USD 2.5 billion during the first three decades of the sample period. However, it rises sharply in the 2010s and reaches USD 17.27 billion which is about 21 percent of the GDP of Rwanda. Capital flight as a percent of the country's total output level remained manifolds high than the net foreign direct investment. On the other hand, official development assistance and foreign aid received by Rwanda were expressively greater than the flight of capital for all decades. Capital flight is a vital issue for Rwanda considering the size of the economy. The economy is highly suffering from capital scarcity. Hence, capital flight from this economy might have a significant impact on its output growth.

Table 29
Extent of Capital Flight from Rwanda

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	2.08	12.62	0.92	23.00
1990s	2.53	14.12	0.22	32.76
2000s	2.78	8.79	1.21	20.16
2010s	17.27	20.76	3.14	13.34

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The study starts with the test of the order of integration of the variables considered for Rwanda. The ADF and PP tests are conducted to examine the order of integration of the variables. Results are presented in table 74 in appendix B. It is observed that growth in per capita income, capital flight and rate of inflation bear I(0) characteristics and the rest of the variables are I(1). The blend of I(0) and I(1) processes suggests that one can proceed with the ARDL Bounds test to inspect the existence of long-run cointegrating relationship between per capita output growth and the factors that determine it. The Bounds test results for Rwanda emphasize that the per capita output growth is cointegrated with its determinants in the long run as the Bounds test F statistics lie entirely above the upper bound values for all specifications. The negative significant coefficient of error correction term further ensures the causality running from the regressors to the per capita output growth. The models are chosen in a way that they all get through the necessary diagnostic tests. Accordingly, there is no evidence of serial correlation and heteroskedasticity for alternative models. Structural stability of the models is confirmed by the CUSUM and CUSUM of squares test presented in figure 30 in appendix C. Therefore, one can proceed to estimate the long-run cointegrating equation. The estimated equation with the diagnostic test results is summarized in table 34.

Model 3 examines the impact of Capital flight and other growth determinants on the economic growth of Rwanda. According to this specification, the negative coefficient of capital flight is statistically significant and thus the growth demolishing capital flight argument is accepted. A 1 percent increase in capital flight as a percent of GDP causes per capita output growth to fall by nearly 0.53 percent. The baseline model and extended model 2 state positive and insignificant coefficients for the variable. The coefficient of initial period GDP is negative and significant for all specifications meaning that the economy of Rwanda has the tendency to grow faster than the initial period. The positive impact of human capital on per capita output growth is true for all

specifications. Hence, human capital development boosts the per capita growth in income of Rwanda.

Results of the impact of growth in effective labor units and rate of depreciation on per capita output growth are mixed. It produces an expected negative significant impact on per capita growth in income for model 1 (baseline model) alone. The positive and negative coefficients of growth in effective labor units and rate of depreciation in model 2 and model 3 respectively are statistically insignificant. Institutional quality does matter for the increase in per capita growth of income of Rwanda. The baseline model reflects that the polity variable, proxy of institutional quality, stimulates per capita output growth of Rwanda.

Model 2 extends the baseline model by incorporating fiscal policy variables government final consumption expenditure. Again model 3 extends the baseline model taking monetary policy variables domestic credit expansion to the private sector and inflation rate. As the data on budget deficit is not available for the whole sample period, and the money supply and real interest rate do not form long-run relationship, they are dropped from their respective models. Government final consumption expenditure enters with a positive sign in the model which is also significant. Such a result is unanticipated as a higher level of government final consumption expenditure shrinks fund for the private sector and thus hampers growth. However, as Gupta (20018) argues, high levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand and thereby contribute positively to growth.

The extended specification of the baseline model in model 3 encompasses monetary policy variables. As the model advocates, domestic credit expansion to the private sector bears a theoretically expected coefficient that is also statistically significant. An expansion of domestic credit to the private sector by 1 percent stimulates per capita output growth by 1.4 percent.

The model detects a positive role of inflation on per capita output growth. Generally, inflation is expected to reduce economic growth by reducing purchasing capacity and thereby aggregate demand. However, when an economy runs far below the full employment level, inflation can theoretically help economic growth triggering production to meet greater aggregate demand. The low employment characteristics of Rwanda satisfy this argument. A 1 percent increase in inflation increase the per capita output growth by 0.33 percent for Rwanda.

5.3.2.8. Capital Flight and Economic Growth: The case of Sierra Leone

The total amount of capital flight from Sierra Leone is USD 10.26 billion as of 2019. As evident from table 30, capital flight was a maximum in the 2010s as it takes nearly 18.84 percent of GDP. In the 1980s, the value of disinvestment by foreign investors was more than the value of capital newly invested in Sierra Leone that results in negative net foreign direct investment as a percent of GDP. The capital flight exceeds the net foreign direct investment throughout the decades. Capital flight falls short of official development assistance and foreign aid in the first three decades of the sample period. Capital flight is a persistent problem for Sierra Leone and is expected to exert a significant impact on the output growth of the economy.

Table 30
Extent of Capital Flight from Sierra Leone

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	1.16	13.60	-1.32	17.54
1990s	0.97	12.45	0.44	25.82
2000s	0.76	4.62	3.26	26.04
2010s	7.37	18.84	10.52	15.06

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The study identifies growth in per capita income, capital flight and real interest rate as stationary at level and the rest of the variables used for the growth regression of Sierra Leone are stationary at first difference. . Unit root test results performed by ADF and PP test are shown in table 75 in appendix B. As there are variables stationary both at level and first difference, ARDL Bounds testing is appropriate to find out the long-run cointegrating relationship between per capita output growth and its determinants if it really exists. The ARDL Bounds Test results given at the bottom of table 34 for Sierra Leone indicate that long-run cointegrating relationships between the growth of per capita income and other explanatory variables are present for the baseline specification along with the other two extended models as the F statistics of the Bounds tests clearly surpass the upper bound values. Long run causal relationship from regressors to per capita income growth is further reinforced by the negative significant error correction coefficients that are all less the unity irrespective of models. The study checks the presence of autocorrelation and heteroskedasticity problems for the models using LM test and BPG test, respectively. It accepts the null hypotheses that there is no autocorrelation and no heteroskedasticity based on these tests. Structural stability of the models is warranted by the CUSUM and CUSUM of Squares test as summarized in

figure 31 in appendix C. Therefore, one can proceed to estimate the long-run cointegration equation. The estimated equation for the long run along with the results of the diagnostic checks is presented in table 34.

The impact of capital flight on per capita output growth is mixed. While the baseline model accepts the customary adverse relationship between capital flight and per capita output growth, model 2 suggests the opposite result. According to the baseline model, a 1 percent increase in capital flight lowers per capita output growth by 0.14 percent. The insignificant coefficient of capital flight obtained in Model 3 disapproves the positive association between capital flight and per capita output growth.

Human capital has significant positive coefficients for the augmented model 2 as well as for model 3, meaning that human capital development contributes to per capita income growth. A 1 percent development in the human capital expands per capita growth of income by 3.9 percent for model 2 and 3.6 percent for the extended model 3. For the baseline model, the coefficient of the human capital variable is negative but insignificant and hence the null hypothesis of either positive or no relationship between human capital development and per capita output growth is accepted.

The growth rate of effective labor units and the rate of depreciation is assumed to have an adverse impact on growth. In contrast to this expectation, the variable bears a positive significant coefficient both for model 2 and model 3. But, the negative association between the growth rate of effective labor units and the rate of depreciation and per capita output growth is ascertained by the negative significant coefficient of the baseline model. It states that a 1 percent growth in the rate of effective labor units and the rate of depreciation results in o.65 percent fall in growth of per capita income. The economy of Sierra Leone experiences a slower growth than the initial period as evident by the positive significant coefficient of the initial period GDP in the baseline model. The faster growth of the economy than its initial period GDP as obtained by the augmented models is not approved since the associated coefficients are insignificant. The result concerning the impact of institutional quality proxied by polity variable is consistent with the expectation. It reveals that better institutional quality promotes per capita income growth according to the baseline model. Polity is not found to form long-run relationship for the augmented cases.

Government final consumption expenditure enters with a negative sign in model 2 which is also significant. Such a result is anticipated as a higher level of government final consumption expenditure shrinks funds for the private sector and thus hampers growth. The result indicates that a 1 percent increase in government final consumption

expenditure worsens per capita output growth by 0.94 percent. Turning to the monetary policy variables, the coefficient of real interest rate is negative and significant meaning that the real interest rate degrades per capita growth in income of Sierra Leone. If the real interest rate rises by 1 percent, it drives per capita output growth to fall by 0.06 percent. An increase in money supply is expected to have a positive impact on per capita output growth. The money supply has a positive significant coefficient which stands to mean that a 1 percent increase in money supply as a percent of GDP leads to 0.60 percent per capita income growth.

5.3.2.9. Capital Flight and Economic Growth: The case of Togo

There is a rising trend in capital flight from Togo over the last four decades. The economy comes to pass the largest capital flight of around USD 9 billion in the 2010s which is 20.28 percent of its GDP. Capital flight from the economy consistently maintains a greater share in GDP compared to the net foreign direct investment throughout the sample period which is evident from table 31. The sharp rise in capital flight in recent decades makes it a critical concern for researchers to identify how it directs the output growth of the country. Though the official development assistance and foreign aid had a higher share in GDP compared to capital flight in the first two decades, it turns into the opposite in the recent decades. Hence, higher capital flight with lower capital inflow is aggravating the capital scarcity problem of the economy that might have a contractionary effect on the country's economic growth.

Table 31
Extent of Capital Flight from Togo

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	0.85	9.37	0.77	27.00
1990s	1.98	13.58	0.16	14.53
2000s	3.05	13.26	2.85	6.49
2010s	9.01	20.28	3.30	6.77

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The order of integration of the variables used to perform the growth regression for Togo are tested using ADF and PP tests and found them stationary at different orders. Table 76 in appendix B summarizes the unit root test results. As the results indicate, growth in per capita income, capital flight and inflation are stationary at level and the remaining variables are stationary at first difference. The mix of I(0) and I(1) variable allows to examine the long-run cointegrating relationship between per capita

income growth and its determinants applying ARDL Bounds testing approach. The test result identifies the F statistics of Bounds test lie entirely above the upper bound values for all possible specifications and hence there exists long-run cointegrating relationship between per capita GDP growth and its determinants for alternative models. The coefficient of error correction terms for all models are negative and also significant which approves long-run causality from explanatory variables to the growth of per capita income. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all these tests are summarized in table 34 along with the long-run estimates of the coefficients of the variables. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 32.

Capital flight reduces the growth of per capita income of Togo both for model 2 and model 3. Results differ marginally between these two models. A 1 percent increase in capital flight as a percent of GDP causes per capita output growth to fall by nearly 0.24 percent for model 2 which is about 0.25 percent for model 3. The negative coefficient of capital flight obtained for the baseline model is statistically insignificant. Turning to human capital, the long-run impact on growth in per capita income is positive as confirmed by the baseline model and model 2. Results on the impact of the growth in effective labor units and the rate of depreciation on per capita output growth are mixed. It produces an expected negative significant impact on per capita growth in income for model 3 alone. In contrast to this finding, model 2 identifies a direct association between the growth in effective labor units and the rate of depreciation and growth in per capita income which is also significant. The negative association between the variables offered by the baseline model is insignificant and thus not accepted. Institutional quality does matter for the increase in per capita growth of income of Togo. Both the baseline model and model 2 reflect that the polity variable, proxy of institutional quality, stimulates per capita output growth of Togo. The economy of Togo experiences a faster growth than the initial period as evident by the negative significant coefficient of the initial period GDP irrespective of models.

Model 2 covers the fiscal policy variables along with the growth determinants. The fiscal policy variable government budget deficit is dropped from the model as it does not form long-run relationship. The government final consumption expenditure has a growth faltering effect. A 1 percent increase in government expenditure reduces per

capita output growth by 1.05 percent. The extended specification of the baseline model in model 3 comprises monetary policy variables. The coefficient of the rate of inflation is negative and significant for model 3 which indicates that inflation is detrimental to per capita income growth. A 1 percent increase in the rate of inflation causes per capita income growth to fall by 0.14 percent. An increase in money supply is expected to have a positive impact on per capita output growth. Money supply has a positive significant coefficient which stands to mean that a 1 percent increase in money supply as a percent of GDP leads to 0.13 percent per capita income growth.

5.3.2.10. Capital Flight and Economic Growth: The case of Madagascar

Capital flight from Madagascar is gradually decreasing in terms of volume and share in GDP over the last four decades. Table 32 shows that the economy cames to pass the maximum capital flight in the 1990s, while the maximum share of capital flight in GDP was in the 1980s. Capital flight, as a percent of GDP, was higher than that of net foreign direct investment in the first two decades. Official development assistance and foreign aid were higher than the capital flight as a percent of GDP all the way through. The extent of capital flight from Madagascar makes it imperative to examine its impact on the output growth of the economy.

Table 32
Extent of Capital Flight from Madagascar

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	3.54	9.88	0.12	13.53
1990s	3.78	9.39	0.47	14.27
2000s	2.80	4.12	5.67	11.41
2010s	2.27	1.86	4.82	4.87

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

For the case of Madagascar, the baseline and the extended models involve the following variables: growth in per capita income, initial period GDP, capital flight, gross capital formation as a percent of GDP, government final consumption expenditure, polity, real interest rate and money supply. The ADF and PP test results available in table 77 in appendix B illustrate that among the variables capital flight and government expenditure are I(0) processes and the remaining variables are of I(1). Therefore, the presence of the long-run cointegrating relationship between per capita output growth and the explanatory variables can be examined using the ARDL Bounds

test. The test results shown in table 34 reveal that the null hypothesis of no long-run cointegrating relationship between per capita output growth and the regressors are rejected since all the F statistics of the Bounds test surpass the upper bound values regardless of specifications. The error correction terms for all the models are negative and significant which supports the view that there is long-run causality from independent variables to per capita income growth.

Flight of capital abroad makes capital scarce in the domestic economy and wields an adverse impact on growth. The study ascertains that the capital flight variable bears negative significant coefficients for all the models and therefore the growth limiting effects of capital flight are evident for Madagascar. Results suggest that a 1 percent increase in capital flight causes growth of per capita income to fall by 0.11 percent on average. Both the augmented models assert that a 1 percent increase in per capita gross capital formation stimulates per capita output growth by nearly 0.09 percent. The growth rate of effective labor units and the rate of depreciation does not form long-run relationship with per capita output growth and thus removed from the models.

Results concerning the impact of institutional quality proxied by polity variable are consistent with the theoretical expectation. The polity variable enters into the baseline model and model 2 with a positive significant coefficient meaning that improvement in institutional quality does matter for growth of per capita income level in a positive direction. Polity is not found to form long-run relationship for model 3. A negative significant coefficient of the initial period real per capita GDP is necessary to confirm the faster growth of an economy that starts with lower per capita GDP. The coefficient of initial period per capita GDP is positive but insignificant for all specifications. Hence, the slower growth of the economy of Madagascar than the initial period per capita GDP is not approved.

Model 2 incorporates the fiscal policy variable government final consumption expenditure with the baseline model. The budget deficit variable is declined due to data limitations. Greater government expenditure limits output growth by limiting financial resources to the private sector and is hence expected to have a negative coefficient. The variable enters into the model with a negative significant coefficient and thus accepts the growth checking role of higher government expenditure. Per capita output growth falls by 0.06 percent due to a 1 percent increase in government expenditure. Model 3 takes the monetary policy variables real interest rate and money supply into account

along with the growth determinants. The rate of inflation and domestic credit to the private sector are disregarded as they are not found to form long-run cointegrating relationship. As the model suggests, the real interest rate maintains a negative coefficient consistent with theory, however, it is not statistically significant. The money supply has positive significant coefficients. An increase in money supply gives incentive to entrepreneurs by reducing interest rates and thus stimulates growth. The study identifies a 0.29 percent growth in per capita income level due to a 1 percent increase in money supply as a percent of GDP.

Specifications are picked in a way that they comply with the necessary diagnostic tests. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for all models. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for all models. Hence all the models are free from autocorrelation and heteroskedasticity problems. Furthermore, all the models are structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 33 in appendix C.

5.3.2.11. Capital Flight and Economic Growth: The case of Nigeria

Nigeria lies among the most capital flight experienced economies of Africa. The total amount of capital flight from this economy is nearly USD 2473 billion during 1981-2019. The highest capital flight from Nigeria occurs in the 2000s, about USD 1018.6 billion, which is also the highest in terms of its share in GDP (26.43 percent). Capital flight is markedly greater than the net foreign direct investment and official development assistance and foreign aid as a percent of GDP throughout the sample period which is apparent from table 33. Considering the severity of capital flight, its impact on the output growth of Nigeria will be worth investigating.

Table 33
Extent of Capital Flight from Nigeria

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP	ODA (% of GDP)
1980s	508.92	23.76	0.24	0.04
1990s	745.29	26.43	0.29	0.08
2000s	1018.66	21.12	0.84	0.50
2010s	200.00	4.62	1.12	0.60

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The unit root test results presented in table 78 in appendix B applying the ADF and PP tests suggest that growth in per capita income and capital flight are stationary at level and the rest of the variables, namely initial period GDP, human capital, the growth in effective labor units and the rate of depreciation, polity, government expenditure, inflation and money supply bear I(1) characteristics. Consequently, the study employs the ARDL Bounds test in examining the presence of long-run cointegrating relationship between the regressors and regressand. Test results are given in table 34 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models. The models are chosen in a way that they all get through the necessary diagnostic tests. Accordingly, there is no evidence of serial correlation and heteroskedasticity for alternative models. Structural stability of the models is confirmed by the CUSUM and CUSUM of squares test presented in figure 34 in appendix C. Therefore, one can proceed to estimate the long-run cointegrating equation. The estimated equation with the diagnostic test results is summarized in table 34.

The baseline model, that is, model 1 shows the impact of capital flight and the other growth determinants on the economic growth of Nigeria. Model 2 augments the baseline model including the fiscal policy variable government final consumption expenditure. The budget deficit variable is excluded due to data scarcity. Again, model 3 incorporates the monetary policy variables, namely inflation and money supply. Two other monetary policy variables domestic credit expansion to the private sector and real interest rate do not form long-run relationship with per capita output growth and hence removed from model 3.

The capital flight is found to have an adverse impact on the growth of per capita income for all the specifications as the coefficient of the capital flight variable enter into the regressions are negative. The coefficients are significant for all the models. For the baseline model, a 1 percent increase in capital flight reduces per capita income growth by 0.007 percent. When we take the fiscal policy variables into account in model 2, the impact of capital flight on per capita income growth remains the same. After adding the monetary policy variables to model 3, the impact drops slightly to 0.006 percent. The impact of human capital development on per capita growth in income is mixed, however, none of the coefficients are found to be significant. However, the negative

insignificant coefficient in model 2 is indicative of the growth-promoting role of human capital development.

The impact of the growth in effective labor units and the rate of depreciation on per capita output growth is also mixed. The growth rate of effective labor units and the rate of depreciation is assumed to have an adverse impact on growth. In contrast to this expectation, the variable bears a positive significant coefficient for augmented model 2 and model 3. But, the negative association between the growth rate of effective labor units and the rate of depreciation and per capita output growth is approved by the baseline model. It states that a 1 percent increase in the growth rate of effective labor units and the rate of depreciation results in a 3.67 percent fall in the growth of per capita income of Nigeria. A negative significant coefficient of the initial period GDP is necessary to confirm the faster growth of an economy that starts with lower per capita GDP. In the baseline model, the coefficient of the initial period is negative and significant which indicates that the economy of Nigeria grows at a faster rate than the initial period GDP. The polity variable enters into all specifications with a positive significant coefficient meaning that improvement in institutional quality does matter for growth of per capita income level in a positive direction.

It examines how certain fiscal and monetary policy variables impact per capita output growth in the presence of capital flight. Among these variables, the fiscal policy variable budget deficit and the monetary policy variable domestic credit expansion to the private sector are removed as they do not have data for the entire sample period. The real interest rate does not form long-run relationship with per capita output growth.

The coefficient of government final consumption expenditure enters with a negative sign in the model which is also significant. Such a result is anticipated as a higher level of government final consumption expenditure shrinks funds for the private sector and hampers growth. A 1 percent increase in government final consumption expenditure leads to a 0.03 percent fall in per capita growth of output level. For the monetary policy variables, inflation is supposed to hurt output growth. In contrast to this, inflation appears with a positive coefficient though statistically insignificant and thereby refutes the positive association between inflation and growth in income per capita. Another monetary policy variable money supply is found to stimulate per capita output growth and the result is statistically significant. A 1 percent increase in money supply promotes per capita output growth by 0.01 percent.

Table 34

Cointegration and Long Run Model- Selected Developing African Economies

Regressors		**Benin**			**Cameroon**			**Kenya**	
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-4.846**	-2.913*	-6.437*	-1.874***	-0.268*	-2.282*	-2.847	-1.686***	-1.538**
	-2.111	-3.773	-4.773	-1.717	-3.208	-3.926	-0.612	-1.895	-2.091
Capital Flight	-0.276**	-0.276*	-0.194**	0.045	-0.405**	-0.325*	-0.034	-0.219***	0.050
	-2.566	-4.013	-2.478	0.881	-2.383	-2.846	-0.914	-2.052	1.119
Gross Capital Formation	0.601**	0.441*	0.194**	0.474*	2.716*	1.726*	0.610*	0.734*	0.911*
	2.412	3.241	2.084	3.962	3.304	3.774	3.961	3.852	5.488
ln(n+g+d)	-9.822	-3.497*	-3.089*	-2.543	-0.660*	-3.104	-1.138*	3.308***	-0.944**
	-1.075	-3.370	-3.892	-0.471	-4.369	-0.403	-2.901	1.818	-2.191
Government Expenditure		0.031			1.201**			1.539**	
		0.211			2.228			2.573	
Domestic Credit			-0.157***			-0.127			0.258**
			-1.860			-1.506			2.149
Inflation						-0.374*			
						-2.920			
Real Interest Rate									-0.180**
									-2.364
Money Supply			0.115						
			1.491						
Bounds Test: F-statistic	6.135	13.162	14.207	4.668	10.312	5.679	6.263	7.258	6.352
Lower Bound (5%)	2.860	2.620	2.450	2.860	2.620	2.450	2.860	2.620	2.450
Upper Bound (5%)	4.010	3.790	3.610	4.010	3.790	3.610	4.010	3.790	3.610
LM Test: F-stat	1.495	2.841	1.708	1.504	1.982	0.289	0.139	0.185	2.395
(p-value)	(0.247)	(0.078)	(0.208)	(0.241)	(0.167)	(0.753)	(0.871)	(0.832)	(0.120)
BPG Test: F-stat	1.473	1.345	1.106	1.081	1.065	0.887	0.854	0.843	1.071
(p-value)	(0.208)	(0.259)	(0.403)	(0.405)	(0.440)	(0.596)	(0.540)	(0.562)	(0.436)
ECT	-0.584	-0.879	-0.134	-0.750	-0.660	-0.109	-0.983	-0.849	-0.135
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 34
(Continued)

Regressors		**Egypt**			**Morocco**			**South Africa**	
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	2.483**	1.993**	1.129*	-2.626*	-5.989*	-3.788**	-4.799*	-0.641*	-1.149*
	2.444	2.592	4.520	(-4.134)	(-3.943)	(-2.437)	(-3.755)	(-2.958)	(-5.359)
Capital Flight	0.146*	0.211*	0.057	0.038*	0.028*	0.024***	-1.557*	0.099***	0.106
	3.143	5.684	1.361	(3.632)	(3.432)	(1.854)	(-5.553)	(1.825)	(1.296)
Human Capital	-2.189*	-2.355*	-2.585*	2.368*	4.096*	5.461**	0.110	0.005	0.332***
	-4.376	-6.326	-5.195	(3.910)	(3.715)	(2.446)	(1.385)	(0.027)	(1.935)
ln(n+g+d)	-2.200*	-2.620*	-0.576	-2.616*	-2.232*	-3.731**	-6.088*	-0.928*	-2.519**
	-4.496	-7.292	-0.894	(-6.176)	(-4.048)	(-2.598)	(-4.467)	(-3.665)	(-2.512)
Government Expenditure		-0.201			-0.116**			-1.889**	
		-1.265			(-2.554)			(-2.636)	
Budget Deficit								-0.041***	
								(-1.894)	
Domestic Credit			0.089*						0.029
			2.290						(0.596)
Inflation						0.018			-0.484*
						(0.759)			(-3.650)
Real Interest Rate									-0.353*
									(-3.469)
Money Supply			0.086			0.027***			
			1.538			(1.761)			
Bounds Test: F-statistic	5.746	9.896	7.057	9.545	14.812	7.629	9.140	12.201	12.522
Lower Bound (5%)	2.860	2.620	2.450	2.860	2.620	2.450	2.860	2.450	2.320
Upper Bound (5%)	4.010	3.790	3.610	4.010	3.790	3.610	4.010	3.610	3.500
LM Test: F-stat	1.380	0.072	0.709	2.378	1.723	0.947	0.260	2.616	
(p-value)	(0.270)	(0.931)	(0.503)	(0.117)	(0.202)	(0.406)	(0.773)	(0.092)	0.917 (0.417)
BPG Test: F-stat	1.104	1.629	0.406	1.711	0.672	1.245	2.287	0.548	
(p-value)	(0.393)	(0.151)	(0.966)	(0.126)	(0.762)	(0.305)	(0.055)	(0.827)	1.978 (0.074)
ECT	-0.929	-0.134	-0.106	-0.122	-0.128	-0.103	-0.156	-0.997	
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	-0.118 (.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 34
(Continued)

Regressors	**Rwanda**			**Sierra Leone**			**Togo**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-1.466*	-2.139**	-3.216*	4.410**	-5.675	-1.291	-1.122*	-3.150*	-1.214***
	(-5.018)	(-2.303)	(-3.746)	(2.360)	(-1.594)	(-1.609)	(-4.066)	(-3.290)	(-1.891)
Capital Flight	0.007	0.058	-0.527***	-0.145**	0.162**	-0.008	-0.018	-0.243***	-0.245***
	(0.085)	(0.249)	(-1.944)	(-2.381)	(2.220)	(-0.113)	(-0.250)	(-1.940)	(-1.945)
Human Capital	6.634*	1.212***	0.956***	-1.742	3.850*	3.641*	8.773*	0.970**	0.203
	(2.982)	(1.907)	(1.768)	(-0.486)	(6.010)	(3.064)	(2.901)	(2.205)	(0.106)
ln(n+g+d)	-1.257*	0.410	-0.232	-0.646**	0.923**	1.182***	-0.214	1.314***	-5.331**
	(-4.505)	(0.313)	(-0.223)	(-2.781)	(2.549)	(2.066)	(-0.038)	(1.864)	(-2.170)
Polity	1.707*			0.463**			1.109**	2.273*	
	(11.585)			(2.132)			(2.581)	(3.143)	
Government Expenditure		1.184**			-0.943**			-1.050*	
		(2.776)			(-2.197)			(-3.879)	
Domestic Credit			1.433*						
			(4.493)						
Inflation			0.334**						-0.142**
			(2.193)						(-2.157)
Real Interest Rate						-0.063***			
						(-0.777)			
Money Supply						0.603*			0.125**
						(2.886)			(2.639)
Bounds Test: F-statistic	17.877	4.137	7.065	10.686	13.535	12.555	4.793	6.819	6.129
Lower Bound (5%)	2.620	2.620	2.450	2.620	2.620	2.450	2.620	2.450	2.450
Upper Bound (5%)	3.790	3.790	3.610	3.790	3.790	3.610	3.790	3.610	3.610
LM Test: F-stat	0.393	1.905	0.570	1.984	1.805	1.298	0.077	1.925	1.146
(p-value)	(0.681)	(0.173)	(0.574)	(0.163)	(0.188)	(0.294)	(0.926)	(.172)	(0.343)
BPG Test: F-stat	0.687	0.878	0.729	0.925	2.046	0.822	2.021	0.545	1.472
(p-value)	(0.774)	(0.579)	(0.718)	(0.544)	(0.066)	(0.635)	(0.076)	(0.883)	(0.212)
ECT	-0.676	-0.739	-0.930	-0.236	-0.164	-0.128	-0.396	-0.138	-0.172
(p-value)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.041)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 34
(Continued)

Regressors	**Madagascar**			**Nigeria**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	0.595	0.550	5.175	-0.263*	-0.020	-0.096
	(1.065)	(1.000)	(1.214)	(-3.337)	(-0.251)	(-1.223)
Capital Flight	-0.110***	-0.108***	-0.121**	-0.007*	-0.007*	-0.006*
	(-2.029)	(-2.018)	(-2.368)	(-4.960)	(-6.292)	(-5.708)
Human Capital				0.189	-0.109	0.083
				(1.359)	(-0.876)	(0.773)
Gross Capital Formation	-0.076**	0.088**	0.087**			
	(-2.159)	(2.298)	(2.639)			
Ln(n+g+d)				-3.660*	0.679*	0.450*
				(-3.055)	(4.647)	(3.827)
Polity	0.133***	0.139***		0.024*	0.020*	0.022*
	(1.797)	(1.884)		(5.847)	(5.919)	(5.894)
Government Expenditure		-0.060**			-0.029*	
		(-2.273)			(-3.217)	
Inflation						0.001
						(0.157)
Real Interest Rate			-0.011			
			(-0.477)			
Money Supply			0.290**			0.013**
			(2.840)			(2.787)
Bounds Test: F-statistic	8.133	7.052	9.138	18.268	20.465	17.367
Lower Bound (5%)	2.620	2.450	2.450	2.620	2.450	2.320
Upper Bound (5%)	3.790	3.610	3.610	3.790	3.610	3.500
LM Test: F-stat	1.222	1.095	3.123	2.789	3.196	2.366
(p-value)	(0.317)	(0.356)	(0.073)	(0.086)	(0.064)	(0.120)
BPG Test: F-stat	1.173	1.161	1.169	1.110	1.193	0.762
(p-value)	(0.361)	(0.371)	(0.375)	(0.404)	(0.350)	(0.696)
ECT	-0.902	-0.888	-0.920	-0.151	-0.170	-0.154
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

5.3.3. Capital Flight and Economic Growth: Selected Latin American Economies

The Latin American countries the study covers are Argentina, Bolivia, Brazil, Colombia, El Salvador, Guatemala, Haiti, Honduras, Mexico and Peru. The severity of capital flight from Latin America can easily be understood from its comparison with foreign direct investment and official development that the Latin American countries received throughout the sample period.

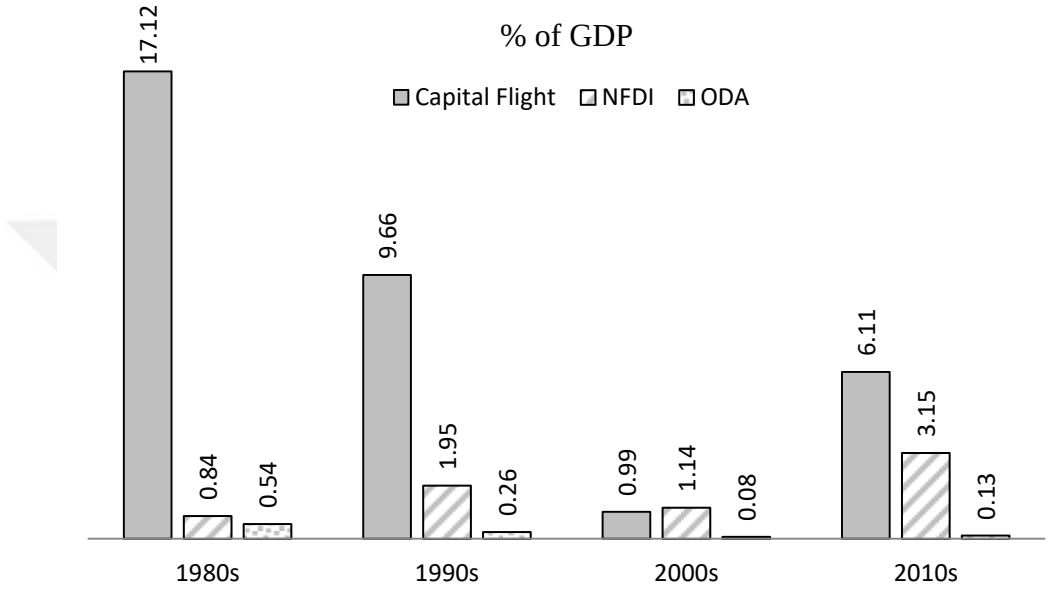

Figure 9 Capital Flight, Net FDI and ODA: The Case of Developing Latin America
Source: Author's calculation (Billion, Constant 2010 USD)

Figure 9 shows that capital flight from the selected Latin American countries is extensively greater than the net foreign direct investment and official development assistance as a percent of GDP except the 2000s. Even in the 2000s, the share of capital flight in GDP is significantly high than official development assistance but falls slightly short of the net foreign direct investment. Capital flight from these economies constitutes nearly 33.5 percent of domestic saving and hence it dries up fund for domestic investment and hurts economic growth. The impact of capital flight on the per capita GDP growth of developing Latin American economies will be examined in this section.

5.3.3.1. Capital Flight and Economic Growth: The case of Argentina

The total capital flight from Argentina was USD 333.08 billion during the period 1981-2019 excluding the capital repatriation in the 2000s. As table 35 illustrates, the

economy went through highest capital flight in 2010s amounting to USD 191 billion. As a percent of GDP capital flight was most in the 1980s which is nearly 7.20 percent. In terms of percentage share in GDP, capital flight from the Argentine economy was fairly higher than that of net foreign direct investment and official development assistance and foreign aid except in the 2000s in which there was huge capital repatriation to Argentina. Considering the sharp rise in capital flight in recent decades, it is expected to bear enormous significance in determining the country's output growth.

Table 35
Extent of Capital Flight from Argentina

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	61.91	7.20	0.60	0.15
1990s	80.08	3.26	2.77	0.09
2000s	-120.02	-5.09	2.19	0.05
2010s	191.09	3.58	1.83	0.01

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

It begins with the investigation of the stationarity of the variables. Table 79 in appendix B shows that ADF and PP tests results of stationarity. As the results of the tests suggest, growth in per capita GDP, capital flight, polity and inflation are stationary at level and the remaining variables, that is, initial period GDP, human capital, the growth rate of effective labor units and the rate of depreciation, government final consumption expenditure and domestic credit expansion to the private sector are stationary at first difference. The combination of the variables at level and first difference allows applying the ARDL Bounds testing approach in order to examine the existence of long-run cointegrating relationship between per capita income growth and its determinants. Results of the long-run models are presented in table 45 with the essential test results.

The Bounds test result finds that the F statistics is greater than the upper bound values for all possible specifications. It approves the presence of long-run cointegrating relationship between the growth in per capita income and regressors. The negative significant coefficients of the error correction terms for the models further reinforces the finding approving the long-run causality from independent variables to per capita growth in income.

Concerning the capital flight, it has a negative significant relationship for all the models. Therefore per capita output growth is hampered by capital flight. The impact is severe for model 3 that takes the monetary policy variable into account along with other growth determinants and least for model 2 that considers the fiscal policy variables. Clearly, a 1 percent increase in capital flight hurts the per capita output growth of Argentina by approximately 0.02 percent to 0.34 percent. Turning to human capital, the long-run impact on growth in per capita income is positive as confirmed by the baseline model and model 2. A 1 percent increase in human capital development enhances per capita income growth by 0.70 to 0.89 percent. The growth rate of effective labor units and the rate of depreciation deters economic growth which is accepted both by the baseline model and model 3. As the results indicate, a 1 percent increase in the growth rate of effective labor units and the rate of depreciation reduces income growth per capita by 1.06 to 1.48 percent. All the models sanction that the per capita output growth of the Argentine economy is faster than the initial period as the coefficients of the initial period GDP are negative and significant. All these results are consistent with the theoretical expectations.

Model 2 is the extension of the baseline model that incorporates fiscal policy variables. Two fiscal policy variables that the study considers are government final consumption expenditure and government budget deficit. The government budget deficit is not found to form a long-run cointegrating relationship and therefore declined. However, in order to arrive at a result showing long-run association between per capita output growth and its determinants, the study considers the rate of inflation in model 2. Results suggest that the negative impact of government final consumption expenditure on per capita output growth is not significant which is suggestive of the favorable impact of the variable on per capita output growth. Inflation has a negative impact on the growth of per capita income both for model 2 and model 3 which is expected. Model 3 that extends the baseline model including the monetary policy variables does not find real interest rate and money supply as meaningful variables in forming long-run relationships. The negative impact of domestic credit expansion to the private sector on per capita growth in output is not found to be significant.

All these three models pass the necessary diagnostic tests. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all

these tests are summarized at the bottom of table 45. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 35.

5.3.3.2. Capital Flight and Economic Growth: The case of Mexico

Mexıco is the most capital flight prone economy of Latin America. Capital flight works as a major impediment in achieving the development objectives of Mexico. Nearly USD 5482.21 billion flees from the economy during the last four decades. The highest capital flight from Mexico occurs in the 2010s, about USD 2408.80 billion, which is nearly 20.19 percent of GDP. Capital flight from Mexico is manifold higher than the net foreign direct investment and official development assistance and foreign aid throughout the sample period as a percent of GDP which is apparent from table 36. The presence of widespread capital flight from Mexico will therefore make it meaningful to examine its impact on the per capita output growth of the economy.

Table 36
Extent of Capital Flight from Mexico

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	829.28	22.60	0.59	0.08
1990s	1244.94	28.53	1.96	0.07
2000s	999.19	11.53	2.82	0.02
2010s	2408.80	20.19	2.74	0.05

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

For the case of Mexico, the baseline and the extended models involve the following variables: growth in per capita income, initial period GDP, capital flight, human capital, the growth rate of effective labor units and the rate of depreciation, government final consumption expenditure, budget deficit, domestic credit, and money supply. The ADF and PP test results accessible from table 80 in appendix B illustrate that among the variables the growth in per capita income, government expenditure, domestic credit expansion to the private sector and money supply are I(0) processes and the remaining variables are of I(1). Therefore, the presence of the long-run cointegrating relationship between per capita output growth and the explanatory variables can be examined using the ARDL Bounds test. The test results shown in table 45 reveal that the null hypothesis of no long-run cointegrating relationship between per capita output

growth and the regressors are rejected as all the F statistics of the Bounds test surpass the upper bound values irrespective of specifications. The error correction terms for all the models are negative and significant which supports the view that there is long-run causality from independent variables to per capita income growth.

It is evident that capital flight reduces the growth of per capita income of Mexico. A 1 percent increase in capital flight as a percent of GDP causes per capita output growth to fall by nearly 0.08 percent for the baseline model which is about 0.10 percent for model 3. The positive coefficient of capital flight is statistically insignificant. The positive impact of human capital on per capita output growth is true both for model 2 and model 3. While the growth of per capita output is increased by 1.84 percent due to 1 percent development in human capital for model 2, the impact is close to 1.23 percent for model 3. The baseline model reveals a negative effect of the growth rate of effective labor units and the rate of depreciation on the growth of income per capita. The extended models also identify a negative coefficient of the variable but insignificant. The negative significant coefficient of the initial period GDP regardless of models can be interpreted as the Mexican economy also grows at a faster rate than the initial period.

Model 2 shows the impact of fiscal policy variables on per capita income growth in addition to the growth variables mentioned in the baseline model. The fiscal policy variable government final consumption expenditure stimulates economic growth. A 1 percent increase in government final consumption expenditure has been accounted for a 0.55 percent increase in the growth of per capita income. On the other hand, the government budget deficit works as a source to reduce per capita income growth. As the study suggests, a 1 percent increase in budget deficit as a percent of GDP is responsible for the fall in per capita output growth by 0.48 percent.

Turning to model 3 that sums up the impact of monetary policy variables on the growth of per capita income, rate of inflation, and real interest rate are not found to contribute to forming long-run cointegrating relationship and thus removed. As expected, both domestic credit expansion to the private sector and money supply contribute to the growth of per capita income positively. Per capita income growth is increased by 0.20 percent due to a 1 percent increase in domestic credit expansion to the private sector which is 0.04 percent for a similar change in the money supply.

Specifications are picked in a way that they comply with the necessary diagnostic tests. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for all models. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for all models. Hence all the models are free from autocorrelation and heteroskedasticity problems. Furthermore, all the models are structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 36 in appendix C.

5.3.3.3. Capital Flight and Economic Growth: The case of Guatemala

Capital flight from Guatemala is rising sharply over the decades. The total capital flight from Guatemala climbs to USD 109.62 billion during the last four decades. Table 37 offers a comparison of capital flight from Guatemala with major capital inflows to the economy. The share of capital flight in GDP also has a rising trend for the first three decades. The maximum capital flight from Guatemala in terms of volume occurs in the 2010s, USD 56.49 billion of capital flight from Guatemala takes place in this decade which is 9.42 percent of the country's GDP. Capital flight was manifold higher than the net foreign direct investment and the official development assistance and foreign aid in all the decades as a percent of GDP. Capital flight is very high in Guatemala in relation to the size of the economy and being a capital scarce developing economy how it controls the country requires empirical investigation.

Table 37
Extent of Capital Flight from Guatemala

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	3.28	4.31	1.28	2.78
1990s	8.12	5.89	2.54	2.17
2000s	41.73	15.28	0.32	1.40
2010s	56.49	9.42	1.88	0.61

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

Prior to testing the cointegration, the study performs tests of the order of integration for each of the variables applying ADF and PP tests. Test results are shown in table 81 in appendix B. Test results suggest that growth in per capita income, capital flight, budget deficit and rate of inflation are stationary at level and the remaining variables are stationary at first difference. As some of the variables are stationary at

level and some are at first difference, it convinces the study to proceed with the ARDL Bounds testing approach to determine if there prevails a long-run cointegrating relationship among the variables. The test is performed for each of the specifications for Guatemala separately. The results reveal that the long-run cointegrating relationship between per capita output growth and the explanatory variables is present irrespective of models as the F statistics of the Bounds tests clearly remain higher than the upper bound values for all specifications. Additionally, the negative significant coefficient of the error correction term proves the causality runs from the regressors to the per capita output growth. Specifications are picked in such a way that they satisfy the major diagnostic checks. The LM test results suggest that all models are free from the serial correlation problem as the null hypothesis of no serial correlation is accepted. Again, heteroskedasticity is not an issue for the models since the BPG test accepts the null hypothesis of no heteroskedasticity. Finally, the CUSUM and CUSUM of squares tests results summarized in figure 37 in appendix C approve the structural stability of the models. The next step is to estimate the long-run cointegrating equation for Guatemala. The estimated equations for alternative models with the diagnostic test results are summed up in table 45.

Contrary to the expectation, the capital flight is found to have a positive significant impact on per capita income growth for Guatemala. It means an increase in capital flight results in higher growth of GDP per capita. However, the finding is consistent with Saheed and Ayodeji (2012) and Godagampala (2019). Their studies on Nigeria and Sri Lanka approve that capital flight has a positive effect on economic growth. The argument is that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. The baseline model indicates that the rate of growth of the per capita GDP of Guatemala is quite faster than the initial period as the initial period GDP enters into the model with a negative significant coefficient. Thought the coefficient of initial period GDP is positive in model 3 but not significant which is also suggestive of faster per capita GDP growth compared to the initial period. The baseline model supports the view that human capital development helps the per capita growth of income. The human capital variable appears with a positive coefficient in extended models as well but they are insignificant. The impact of the growth rate of effective labor units and the rate of depreciation on the growth of income per capita is mixed. The

baseline model and the extended model 2 report that the variable hurts per capita output growth, but model 2 rejects it by accepting the positive or no effect of the variable on the growth of per capita income as the negative coefficient is appeared to be insignificant. The polity variable bears a positive coefficient both for the baseline model and model 2 meaning that development in institutional quality brings about a result of greater growth in per capita income.

The extended model 2 examines the impact of government final consumption expenditure and budget deficit on per capita income growth. An increase in government expenditure limits the per capita growth of income of Guatemala by limiting funds available for the private sector. Similarly, government budget deficit financed from the internal sources leave less fund for the private investors and thereby exerts an adverse impact on per capita output growth. An increase in government expenditure and budget deficit by 1 percent reduces per capita income growth by 0.23 percent and 0.51 percent, respectively.

Among the monetary policy variables, domestic credit expansion to the private sector and real interest rate do not form long-run relationship and thus set away from the extended model 3 that measures the impact of monetary policy variables on per capita output growth. The model detects a positive role of inflation on per capita output growth. Generally, inflation is expected to reduce economic growth by reducing purchasing capacity and thereby aggregate demand. However, when an economy runs far below the full employment level, inflation can theoretically help economic growth triggering production to meet greater aggregate demand. The low employment characteristic of Guatemala satisfies this argument. A 1 percent increase in inflation increase the per capita output growth by 0.35 percent for Guatemala. The money supply has a positive significant coefficient which indicates that an increase in money supply causes an increase in the growth rate of per capita income. Clearly, the growth in per capita income is increased by 0.07 percent due to a 1 percent increase in the money supply.

5.3.3.4. Capital Flight and Economic Growth: The case of Brazil

There was huge capital repatriation to Brazil in the 2000s. However, capital flight from Brazil in all other decades was markedly noticeable. As table 38 illustrates, the economy went through the highest capital flight in the 1990s amounting to USD

139.94 billion which is 2.18 percent of the country's GDP. In terms of percentage share in GDP, capital flight was fairly higher than that of net foreign direct investment and official development assistance and foreign aid in the first two decades. Even in the most recent decades, it passes the official development assistance and foreign aid. Thus, capital flight is expected to bear enormous significance in determining the country's output growth.

Table 38
Extent of Capital Flight from Brazil

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	63.26	2.53	0.62	0.13
1990s	139.94	2.18	1.65	0.03
2000s	-282.35	-2.91	2.71	0.03
2010s	121.19	0.56	3.68	0.03

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

It starts with the test of the order of integration of the variables considered for Brazil. The ADF and PP tests are conducted to examine the order of integration of the variables. Results are presented in table 82 in appendix B. It is observed that growth in per capita income, capital flight and real interest rate bear I(0) characteristics and the rest of the variables are I(1). The blend of I(0) and I(1) processes implies that one can proceed with the ARDL Bounds test in order to examine the presence of long-run cointegrating relationship between per capita output growth and the factors that determine it. The Bounds test results for Brazil assert that the per capita output growth is cointegrated with its determinants in the long run as the Bounds test F statistics lie entirely above the upper bound values for all specifications. The negative significant coefficient of error correction term further ensures the causality is running from the regressors to the per capita output growth. The models are chosen in a way that they all get through the necessary diagnostic tests. Accordingly, there is no evidence of serial correlation and heteroskedasticity for alternative models. Structural stability of the models is confirmed by the CUSUM and CUSUM of squares test presented in figure 38 in appendix C. Therefore, one can proceed to estimate the long-run cointegrating equation. The estimated equation with the diagnostic test results is summarized in table 45.

The adverse impact of capital flight on the per capita growth of income for Brazil is approved by all the models. The impact is moderate for the baseline model

while it is least for augmented model 3 and most for the augmented model 2. The baseline model indicates that a 1 percent increase in capital flight lowers per capita output growth by 0.16 percent, which is 0.11 percent for model 3 and 0.22 percent for model 2. The gross capital formation per capita bears positive significant coefficients for all specifications and hence improvement in per capita gross capital formation promotes per capita output growth of Brazil. With regard to the growth rate of effective labor units and the rate of depreciation, only the baseline model identifies that it has a detrimental impact on per capita output growth. Though the coefficients of the variable in augmented models are negative but not significant. The economy of Brazil experiences a faster growth than the initial period as evident by the negative significant coefficient of the initial period GDP irrespective of models.

Model 2 covers the fiscal policy variables along with the growth determinants. The fiscal policy variable government budget deficit is dropped from the model as it does not form long-run relationship. The government final consumption expenditure has a growth faltering effect. A 1 percent increase in government expenditure reduces per capita output growth by 0.68 percent. Two of the monetary policy variables included in model 3 are found to form long-run cointegrating relationship. The variables are rate of inflation and real interest rate. They both appear in the model with negative coefficients that are statistically significant. It indicates that both inflation and the real interest rate hurt per capita output growth. A 1 percent increase in the real interest rate checks per capita output growth by 0.09 percent while it is 0.02 percent for a similar change in the rate of inflation.

5.3.3.5. Capital Flight and Economic Growth: The case of Colombia

There was a noticeable capital flight from Colombıa in most of the decades except in the 2000s. There was capital repatriation to Colombıa in the 2000s. As table 39 depicts, maximum capital flees abroad from Colombıa was in the 2010s, though it was high in the 1980s in terms of the share in GDP. Capital flight of Colombıa surpasses net foreign direct investment in the 1980s as a percent of GDP. Capital flight from the Colombian economy was always higher than the official development assistance and foreign aid as a percent of GDP except in the 2000s in which official development assistance and foreign aid in GDP exceeds the capital flight. Undoubtedly, being a capital-scarce developing country of Latin America, how the capital flight from Colombia impacts the country's output growth is worth investigating.

Table 39
Extent of Capital Flight from Colombia

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	10.46	3.10	1.37	0.36
1990s	11.71	1.49	2.30	0.30
2000s	-26.51	-1.77	3.77	0.55
2010s	47.73	1.45	4.05	0.32

Source: Author's Calculation based on WDI of Wrld Bank, 2021 (Billion, Constant 2010 USD)

The study identifies only growth in per capita income as stationary at level and the rest of the variables used for the growth regression of Colombia are stationary at first difference. Unit root test results performed by ADF and PP test are shown in table 83 in appendix B. As there are variables stationary both at level and first difference, ARDL Bounds testing is appropriate to find out the long-run cointegrating relationship between per capita output growth and its determinants if it really exists. The ARDL Bounds Test results given at the bottom of table 45 for Colombia indicate that long-run cointegrating relationships between the growth of per capita income and other explanatory variables are present for the baseline specification along with the other two extended models as the F statistics of the Bounds tests clearly surpass the upper bound values. Long run causal relationship from regressors to per capita income growth is further reinforced by the negative significant error correction coefficients that are all less the unity irrespective of models. The study checks the presence of autocorrelation and heteroskedasticity problems for the models using the LM test and BPG test, respectively. It accepts the null hypotheses that there is no autocorrelation and no heteroskedasticity based on these tests. Structural stability of the models is warranted by the CUSUM and CUSUM of Squares test as summarized in figure 39 in appendix C. Therefore, one can proceed to estimate the long-run cointegration equation. The estimated equation for the long run along with the results of the diagnostic checks is presented in table 45.

A negative and significant coefficient of capital flight shows that capital flight hurts growth. According to the baseline and the augmented models, it is clearly evident that capital flight damps down per capita output growth. A 1 percent increase in capital flight causes per capita output growth to fall by 0.12 percent, 0.15 percent and 0.14

percent for the baseline model, model 2 and model 3, respectively. The gross capital formation per capita stimulates per capita output growth which is true for all specifications. Per capita output growth is increased by 0.45 percent due to a 1 percent increase in per capita gross capital formation for the baseline model, which is nearly 0.55 percent both for model 2 and model 3. The growth rate of effective labor units and the rate of depreciation is assumed to harm growth. Though the negative impact of the growth rate of effective labor units and the rate of depreciation on per capita output growth is found for all models but it is significant only for the baseline model. The negative coefficient of the polity variable is not significant. The economy poses the disposition of growing at a faster rate than the initial period approved by the negative significant coefficients of initial period GDP in all specifications.

With regard to the impact of fiscal policy variables on growth shown in model 2, the budget deficit is removed as it fails to form long-run relationship. The government final consumption expenditure enters into the model with an insignificant positive coefficient which typically indicates the negative relationship between government expenditure and per capita output growth. Rate of inflation contracts per capita output growth. Both of the augmented models find evidence that a 1 percent increase in inflation causes per capita output growth to fall by 0.10 percent. Money supply bears a negative coefficient which is not statistically significant.

5.3.3.6. Capital Flight and Economic Growth: The case of Haiti

A substantial level of capital flight is found in Haiti. There was capital repatriation in the 2000s, otherwise, there was capital flight in all other decades which is amounting to USD 3.02 billion. As evident from table 40, capital flight was a vital issue in the 1980s as it takes nearly 6.38 percent of GDP. Capital flight surpassed the net foreign direct investment in the first two decades of the sample period.

Table 40
Extent of Capital Flight from Haiti

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	1.16	6.38	0.34	14.84
1990s	0.49	1.65	0.18	14.75
2000s	-0.02	-0.02	0.51	6.41
2010s	1.37	0.97	1.05	9.13

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

However, capital flight from Haiti never exceeded the official development assistance and foreign aid. As capital flight is a persistent issue for Haiti during the period of investigation, the study will investigate its impact on the per capita output growth of Haiti's economy.

The unit root test results of the concerned variables for Haiti are presented in table 84 in appendix B. According to the test results, growth in per capita income, capital flight, inflation rate and money supply carry I(0) characteristics, that is they are stationary at level. The rest of the variables are I(1) processes, that is, they are stationary at first difference. The mixture of I(0) and I(1) variable allows the study to employ the ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 45 with the long-run estimates of the coefficients of the variables for alternative models along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for all models.

The growth deteriorating impact of capital flight is approved by all models with varying degrees. The least impact of capital flight is obtained for the baseline model. It states that a 1 percent increase in capital flight is responsible for a decrease in per capita output growth by 0.006 percent. The impact is quite high when the fiscal policy variables are introduced shown by model 2. As the model illustrates, growth in per capita income falls by 0.07 percent as a result of a 1 percent increase in capital flight. There is a sharp rise in the impact of capital flight on per capita output growth when the monetary policy variables are acquainted with given by model 3. This specification asserts that a 1 percent increase in capital flight is accountable for a 0.37 percent increase in the growth of per capita income.

As the human capital variable is not found to form long-run relationship for all the specifications, the study considers gross capital formation per capita. The use of the gross capital formation per capita is more justified (Solow, 1956) as a rise in the gross capital formation may not confirm productivity due to higher population growth. Productivity rises if per capita capital stock rises, otherwise not. The baseline model and the extended models exhibit a positive significant relationship between per capita gross capital formation and per capita output growth. The rise in per capita capital formation of Haiti leads to per capita output growth to rise. The impact of change in per capita

gross capital formation is least for model 2 and most for model 3. Per capita output growth increases at a higher rate than the per capita gross capital formation for model 3 while it is lower for the baseline model and model 2. Results of the impact on growth in effective labor units and rate of depreciation on per capita output growth is mixed. It produces an expected negative significant impact on per capita growth in income for model 3 alone. In the rest of the models, growth in effective labor units and rate of depreciation appears with positive coefficients that are also significant. Institutional quality does matter for the increase in per capita growth of income of Haiti. Both the baseline model and model reflect that the polity variable, proxy of institutional quality, stimulates the per capita output growth of Haiti. However, the variable does not form long-run relationship in the case of model 3. While model 3 suggests that Haiti experiences a faster growth rate compared to the initial period, the baseline model opposes it.

Concerning the fiscal policy variables, government final consumption expenditure has a negative significant coefficient which indicates that a 1 percent increase in government final consumption expenditure, leaving less financial resources to the private sector, worsens per capita output growth by 0.14 percent. The government budget deficit variable is not found to form long-run relationship and thus omitted from the specification.

Turning to the monetary policy variables, the rate of inflation has a negative impact on per capita growth in income of Haiti, a 1 percent inflation hurts income growth per capita by 0.30 percent. The coefficient of the money supply is negative but insignificant and hence the adverse impact of an increase in money supply on per capita output growth is not allusive. Real interest rate and domestic credit expansion to the private sector do not contribute to the formation of long-run relationships.

It is worth mentioning that all the models pass the necessary diagnostic tests. The LM and BPG tests suggest that the models are free from serial correlation and heteroskedasticity. The negative significant coefficient of the error correction term substantiates the existence of long-run relationship between per capita income growth and the regressors for all models. The CUSUM and CUSUM of squares test results shown in figure 40 in appendix C indicate that all these models are structurally stable and therefore produce consistent results.

5.3.3.7. Capital Flight and Economic Growth: The case of El Salvador

The total amount of capital flight from El Salvador during 1980-2019 was USD 20.36 billion. Table 41 shows the extent of capital flight from El Salvador and compares it with two major capital inflows, namely net foreign direct investment and official development assistance and foreign aid. As a percent of GDP, capital flight was most in the 2010s amounting to USD 11.43 billion which was 4.96 percent of the country's economy and least in the 1990s amounting to USD 0.06 billion which was 0.08 percent of the country's GDP. Capital flight from El Salvador's economy was always higher than that the net foreign direct investment except the 1990s in which net foreign direct investment exceeds the capital flight. Capital flight fell short of official development assistance and foreign aid in the first two decades. Considering the substantial amount of capital flight from El Salvador, the study decides to investigate the relationship between capital flight and per capita output growth of the economy.

Table 41
Extent of Capital Flight from El Salvador

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	1.38	4.05	0.35	15.66
1990s	0.06	0.08	1.82	4.96
2000s	7.49	5.10	3.40	1.80
2010s	11.43	4.96	1.65	0.90

Source: Author's Calculation based on WDI of World bank, 2021 (Billion, Constant 2010 USD)

For the case of El Salvador, the baseline and the extended models involve the following variables: growth in per capita income, initial period GDP, capital flight, per capita gross capital formation, growth in effective labor units and rate of depreciation, polity, government final consumption expenditure, inflation and money supply. The ADF and PP test results accessible from table 85 in appendix B illustrate that among the variables the growth in per capita income, capital flight, per capita gross capital formation and polity are I(0) processes and the remaining variables are of I(1). Therefore, the presence of the long-run cointegrating relationship between per capita output growth and the explanatory variables can be examined by employing the ARDL Bounds test. The test results shown in table 45 reveal that the null hypothesis of no long-run cointegrating relationship between per capita output growth and the regressors are rejected as all the F statistics of the Bounds test surpass the upper bound values irrespective of specifications. The error correction terms for all the models are negative

and significant which supports the view that there is long-run causality from independent variables to per capita income growth. Therefore, one can proceed to estimate the long-run cointegrating relationship between per capita growth in income and the regressors.

The growth dismaying capital flight for El Salvador is evident for all the specifications. The baseline model indicates that per capita growth in income is reduced by nearly 0.06 percent due to a 1 percent increase in capital flight while it drops to 0.04 percent when the fiscal policy variables are taken into account as shown in model 2. The anti-growth effect of capital flight is maximum for model 3 that includes the monetary policy variables along with other growth determinants. It suggests that a 1 percent increase in capital flight is accountable for a 0.11 percent fall in per capita output growth.

The impact of per capita gross capital formation on per capita output growth is positive and significant for all variants. Among the alternative variants, per capita, gross capital formation is more influential for model 2. The extended models reveal a negative effect of the growth rate of effective labor units and the rate of depreciation on the growth of income per capita. The baseline model identifies a positive coefficient of the variable but insignificant and hence accepts the view that there exists either a negative or no impact of the growth rate of effective labor units and the rate of depreciation on the growth of income per capita. The negative significant coefficient of the initial period GDP regardless of models can be interpreted as the economy of El Salvador also grows at a faster rate than the initial period. The polity variable is found to have a positive significant coefficient for all specifications and thus it is unanimously approved that improvement in institutional quality promotes per capita growth of income.

Model 2 shows the impact of fiscal policy variables on per capita income growth in addition to the growth variables mentioned in the baseline model. The fiscal policy variable government final consumption expenditure desolates economic growth. A 1 percent increase in government final consumption expenditure has been accounted for a 0.58 percent increase in the growth of per capita income. The government budget deficit is not found to form a long-term relationship with the growth of per capita income and hence removed from the specification.

Turning to model 3 that sums up the impact of monetary policy variables on the growth of per capita income of El Salvador, domestic credit expansion to private sector and real interest rate is not found to contribute in forming long-run cointegrating relationship and thus declined from the model. As expected, the rate of inflation tones

down economic growth taking away purchasing capacity of domestic residents and thereby reducing aggregate demand. Nearly 0.13 percent fall in per capita income growth is caused by a 1 percent increase in the rate of inflation. In general, an increase in money supply is expected to exert a positive impact on per capita output growth by relaxing credit constraints. In contrast to this expectation, the study finds that the money supply is hampering the growth of El Salvador. Such a result is not surprising in the long run particularly when a higher money supply leads to misallocation of capital through inflation that eventually leads to waste and speculative investments, the ultimate result of which is lower output growth. The result is in line with the findings of the study conducted by Denbel, Ayen, and Regasa (2016).

Specifications are picked in a way that they comply with the necessary diagnostic tests. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for all models. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for all models. Hence all the models are free from autocorrelation and heteroskedasticity problems. Furthermore, all the models are structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 41 in appendix C.

5.3.3.8. Capital Flight and Economic Growth: The case of Peru

Capital flight in the first two decades from Peru as a percent of GDP exceeds the official development assistance and foreign aid which is shown in table 42. Even it was markedly higher than the net foreign direct investment in the 1980s. The huge repatriation of capital in 2011 and 2019 makes the capital flight figure of Peru negative in the 2010s, whereas the country went through significant capital flight in most of the years of 2010s. As capital flight prevails in Peru during the period of investigation, the study will investigate its impact on the per capita output growth of Peru's economy.

Table 42

Extent of Capital Flight from Peru

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	20.43	12.10	0.16	2.94
1990s	14.02	3.12	3.51	1.33
2000s	-41.39	-5.22	4.03	0.67
2010s	-24.46	-1.25	4.13	0.16

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The order of integration of the variables used to perform the growth regression for Peru are tested using ADF and PP tests and found them stationary at different orders. Table 86 in appendix B summarizes the unit root test results. As the results indicate, growth in per capita income and Capital Flight are stationary at level and the remaining variables are stationary at first difference. The mix of I(0) and I(1) variable allows examining the long-run cointegrating relationship between per capita income growth and its determinants applying ARDL Bounds testing approach. The test result identifies the F statistics of Bounds test lies entirely above the upper bound values for all possible specifications and hence there exists long-run cointegrating relationship between per capita GDP growth and its determinants for alternative models. The coefficient of error correction terms for all models are negative and also significant which approves long-run causality from explanatory variables to the growth of per capita income. The value of F statistics for LM tests and BPG tests are accepted for all three models and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all these tests are summarized at the bottom of table 45. The structural stability of the models is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 42.

The baseline model examines the impact of capital flight on per capita output growth along with other growth determinants. Model 2 augments the baseline model by taking fiscal policy variables government final consumption expenditure and budget deficit into consideration and model 3 includes the monetary policy variables inflation and money supply. Real interest rate and domestic credit expansion to the private sector are dropped from model 3 due to data limitation.

The coefficient of capital flight variable is negative and significant for the augmented models and hence the growth faltering effect of capital flight is evident. The inclusion of fiscal policy and monetary policy variables in the models do not alter the results significantly, a 1 percent increase in capital flight deters per capita growth in income by 0.16 to 0.17 percent. Though the baseline model has a positive capital flight coefficient, but it is not statistically significant and therefore a negative or no impact of capital flight on per capita output growth is anticipated which is consistent with the results of the other two models.

As the human capital variable does not form long-run cointegration relationship, instead the study uses per capita gross capital formation and examines its impact on per capita output growth. It reveals that per capita gross capital formation has a positive

impact on per capita growth in income for the baseline model and model 1. On the contrary, the gross capital formation per capita appears with a negative coefficient in specification 3 which is statistically insignificant. The growth in effective labor units and rate of depreciation is only found to bear a theoretically consistent and statistically significant negative coefficient for the extended model 2. For the other two models, that is for the baseline specification and specification 3 the relationship between growth in effective labor units and rate of depreciation and per capita economic growth turns from negative to positive, but they both are statistically insignificant and therefore not noteworthy in decision making. The coefficient of initial period GDP is negative and significant regardless of models. It carries the sign that the economy of Peru grows faster than the initial period. The result concerning the impact of institutional quality proxied by polity variable is consistent with the expectation. It reveals that better institutional quality promotes per capita income growth according to the baseline model. Polity is not found to form long-run relationship for the augmented cases.

Government final consumption expenditure enters with a negative sign in the model which is also significant. Such a result is anticipated as a higher level of government final consumption expenditure shrinks funds for the private sector and thus hampers growth. Though the government budget deficit should bear a negative significant coefficient, it is positive for the augmented model 2 but insignificant which is indicative to the adverse impact of higher budget deficit on per capita output growth.

For the monetary policy variables, an increase in money supply stimulates per capita output growth and the result is statistically significant. A 1 percent increase in money supply promotes per capita output growth by 0.40 percent. The generally accepted view is that inflation is expected to reduce economic growth by reducing purchasing capacity and thereby aggregate demand. However, when an economy runs far below the full employment level, inflation can theoretically help economic growth triggering production to meet greater aggregate demand. Such a finding is evident for Peru as inflation appears with a positive significant coefficient in model 3 and thereby suggests a positive association between inflation and growth in income per capita. The low employment characteristic of Peru satisfies this finding (Pastor & Meono, 2019). Generally, a 1 percent increase in inflation increases the per capita output growth by 0.02 percent for Peru.

5.3.3.9. Capital Flight and Economic Growth: The case of Bolivia

Total capital flight from Bolivia reaches to around USD 11.4 billion during the sample period except for the 2000s in which the economy experiences capital repatriation. As table 43 illustrates, capital flight as a percent of GDP was higher than net foreign direct investment in the 1980s and 2010s. The sharp rise in capital flight in recent decades following the 2000s' capital repatriation makes it imperative to examine its growth effect on the economy of Bolivia.

Table 43
Extent of Capital Flight from Bolivia

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	1.74	3.79	0.31	8.97
1990s	1.30	1.96	6.00	11.98
2000s	-13.10	-11.97	3.40	6.86
2010s	8.38	2.62	2.07	2.19

Source: Author's Calculation based on WDI of World bank, 2021 (Billion, Constant 2010 USD)

It starts with the test of the order of integration of the variables considered for Bolivia. The ADF and PP tests are conducted to examine the order of integration of the variables. Results are presented in table 87 in appendix B. It is observed that growth in per capita income, capital flight, and polity bear I(0) characteristics and the rest of the variables are I(1). The blend of I(0) and I(1) processes implies that one can proceed with the ARDL Bounds test in order to examine the presence of long-run cointegrating relationship between per capita output growth and the factors that determine it. The Bounds test results for Brazil assert that the per capita output growth is cointegrated with its determinants in the long run as the Bounds test F statistics lie entirely above the upper bound values for all specifications. The negative significant coefficient of error correction term further ensures the causality is running from the regressors to the per capita output growth. The models are chosen in a way that they all get through the necessary diagnostic tests. Accordingly, there is no evidence of serial correlation and heteroskedasticity for alternative models. Structural stability of the models is confirmed by the CUSUM and CUSUM of squares test presented in figure 43 in appendix C. Therefore, one can proceed to estimate the long-run cointegrating equation. The estimated equation with the diagnostic test results is summarized in table 45.

Data on the real interest rate and money supply are not available for the whole sample period. Again, inflation and domestic credit expansion to the private sector do

not form long-run cointegrating relationship with per capita growth of income of Bolivia. As none of the monetary policy variables are found suitable to be taken into account, the extended model 3 is dropped for Bolivia while explaining the impact of capital flight on per capita output growth. Hence, it proceeds with the baseline and extended model 2.

The impact of capital flight on per capita output growth is mixed. While the baseline model accepts the customary adverse relationship between capital flight and per capita output growth, model 2 suggests the opposite result. According to the baseline model, a 1 percent increase in capital flight lowers per capita output growth by 0.02 percent. The gross capital formation per capita bears positive significant coefficients for all specifications and hence improvement in per capita gross capital formation promotes per capita output growth of Bolivia. With regard to the growth rate of effective labor units and the rate of depreciation, the extended model 2 identifies that it has a detrimental impact on per capita output growth. Though the coefficients of the variable in the baseline model are positive but not significant and hence a negative or zero effect of the variable on per capita output growth does make sense. The economy of Bolivia experiences a faster growth than the initial period as evident by the negative significant coefficient of the initial period GDP irrespective of models.

Model 2 covers a fiscal policy variable government final consumption expenditure and a monetary policy variable domestic credit expansion to the private sector along with the growth determinants. The fiscal policy variable government budget deficit is dropped from the model as it does not form long-run relationship. The government final consumption expenditure has a growth faltering effect. A 1 percent increase in government expenditure reduces per capita output growth by 0.66 percent. The monetary policy variable domestic credit expansion to the private sector has a positive significant impact on per capita output growth. A 1 percent increase in domestic credit expansion to the private sector enhances per capita output growth by 0.05 percent.

5.3.3.10. Capital Flight and Economic Growth: The case of Honduras

Honduras is another capital flight susceptible economy. As table 44 shows, there was a steady increase in capital flight from Honduras. It experiences around USD 47 billion in capital flight during the last four decades. The table compares the capital flight from Honduras with the major inflows of capital flight, namely net foreign direct investment and official development assistance and foreign aid. As a percent of GDP,

capital flight was most in the 2010s which was 14.25 percent and least in the 1990s which was 5.83 percent of the country's GDP. Capital flight from the economy of Honduras was always higher than the net foreign direct investment and official development assistance and foreign aid except in the first two decades in which official development assistance and foreign aid exceed the capital flight as the percentage of GDP. Undoubtedly, being a capital-scarce country, how the capital flight from Honduras impacts the country's output growth is worth investigating.

Table 44
Extent of Capital Flight from Honduras

Period	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1980s	2.98	6.46	0.54	8.15
1990s	3.10	5.83	1.51	9.08
2000s	11.66	11.52	5.84	5.45
2010s	29.26	14.25	5.51	2.50

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

For the case of Honduras, the baseline and the extended models involve the following variables: growth in per capita income, initial period GDP, capital flight, human capital, the growth rate of effective labor units and the rate of depreciation, government final consumption expenditure, domestic credit expansion to the private sector and rate of inflation. The ADF and PP test results accessible from table 88 in appendix B illustrate that among the variables the growth in per capita income and capital flight are I(0) processes and the remaining variables are of I(1). Therefore, the presence of the long-run cointegrating relationship between per capita output growth and the explanatory variables can be examined using the ARDL Bounds test. The test results shown in table 45 reveal that the null hypothesis of no long-run cointegrating relationship between per capita output growth and the regressors are rejected as all the F statistics of the Bounds test surpass the upper bound values irrespective of specifications. The error correction terms for all the models are negative and significant which supports the view that there is long-run causality from independent variables to per capita income growth.

Capital flight reduces the growth of per capita income of Honduras both for the baseline model and model 2. A 1 percent increase in capital flight as a percent of GDP causes per capita output growth to fall by nearly 0.28 percent for the baseline model which is about 0.33 percent for model 2. The negative coefficient of capital flight

obtained for model 3 is statistically insignificant. The positive impact of human capital on per capita output growth is true for all specifications. Hence, human capital development enhances per capita growth in income in Honduras. The baseline model reveals a negative effect of the growth rate of effective labor units and the rate of depreciation on the growth of income per capita which is insignificant. Contrary to the theoretical expectation, both of the extended models suggest that the growth rate of effective labor units and the rate of depreciation on the growth of income per capita is positive for Honduras. The negative significant coefficient of the initial period GDP for the baseline model suggests that Honduras experiences a faster growth rate compared to the initial period. On the other hand, both of the extended models oppose this finding as the initial period GDP enters into these models with negative significant coefficients.

Model 2 shows the impact of fiscal policy variables on per capita income growth in addition to the growth variables mentioned in the baseline model. It also includes a monetary policy variable inflation rate so as to satisfy the model selection criteria. The fiscal policy variable government final consumption expenditure hurts economic growth by making financial resources scarce for private investors. A 1 percent increase in government final consumption expenditure has been accounted for a 0.75 percent fall in the growth of per capita income. The rate of inflation is also included in model 3 as a monetary policy variable along with domestic credit expansion to the private sector. The rate of inflation appears with negative significant coefficients in both model 2 and model 3 and thus indicated that a higher inflation rate, reducing aggregate demand by checking purchasing capacity of the domestic residents, leads to lower per capita output growth. The models suggest that a 1 percent increase in the inflation rate is responsible to reduce the per capita growth in income by nearly 0.71 percent on average. Concerning the domestic credit expansion to the private sector, the negative coefficient associate with the variable is not statistically significant and hence symptomatically accepts its positive impact on per capita output growth.

Specifications are picked in a way that they comply with the necessary diagnostic tests. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for all models. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for all models. Hence all the models are free from autocorrelation and heteroskedasticity problems. Furthermore, all the models are structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 44 in appendix C.

Table 45

Cointegration and Long Run Model- Selected Latin American Economies

Regressors	**Argentina**			**Mexico**			**Guatemala**		
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-0.664*	-1.050*	-0.560**	-4.657*	-1.093*	-0.911*	-2.526**	-3.932	3.598
	(-3.083)	(-9.798)	(-2.078)	(-2.888)	(-4.330)	(-7.022)	(-2.684)	(-1.525)	(1.335)
Capital Flight	-0.044**	-0.015***	-0.341**	-0.078***	0.056	-0.102*	0.095***	0.051**	0.076**
	(-2.749)	(-1.926)	(-2.333)	(-1.862)	(1.444)	(-3.293)	(1.866)	(2.405)	(2.504)
Human Capital	0.887***	0.691*	0.862	0.765	1.839***	1.229**	4.215***	1.333	0.350
	(1.816)	(3.899)	(1.568)	(1.054)	(2.255)	(2.466)	(1.813)	(0.927)	(0.204)
ln(n+g+d)	-1.475*	-0.039	-1.057**	-0.961***	-0.740	-1.215	-2.400*	-4.389**	-3.004
	(-4.600)	(-0.082)	(-2.321)	(-1.727)	(-0.941)	(-0.286)	(-2.967)	(-2.133)	(-0.676)
Polity	-0.026						0.200**	0.410***	
	(-0.633)						(2.522)	(1.930)	
Government Expenditure		-0.010			0.554**			-0.226**	
		(-0.796)			(2.625)			(-2.553)	
Budget Deficit					-0.484**			-0.509**	
					(-2.239)			(-2.433)	
Domestic Credit			-0.008			0.201*			
			(-1.565)			(3.104)			
Inflation		-0.007*	-0.008*						0.345*
		(-2.848)	(-2.877)						(4.819)
Money Supply						0.036**			0.073**
						(2.305)			(2.450)
Bounds Test: F-statistic	4.038	3.889	4.118	13.206	3.756	10.614	9.165	8.949	7.082
Lower Bound (5%)	2.620	2.450	2.450	2.860	2.450	2.450	2.620	2.320	2.450
Upper Bound (5%)	3.790	3.610	3.610	4.010	3.610	3.610	3.790	3.500	3.610
LM Test: F-stat	3.104	0.839	1.465	0.031	1.844	2.852	1.947	0.671	0.248
(p-value)	(0.068)	(0.448)	(.256)	(0.969)	(0.189)	(0.078)	(0.164)	(0.097)	(0.782)
BPG Test: F-stat	0.808	0.501	0.501	1.735	0.813	1.084	1.475	0.671	1.289
(p-value)	(0.656)	(0.913)	(0.913)	(0.155)	(0.664)	(0.412)	(0.20)	(0.784)	(0.287)
ECT	-0.026	-0.391	0.282	-0.728	0.563	-0.898	-0.825	-0.698	-0.143
(p-value)	(0.078)	(0.010)	(0.000)	(0.000)	(0.000)	(0.000)	(0.3000)	(0.001)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 45
(Continued)

Regressors		**Brazil**			**Colombia**			**Haiti**	
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-3.697**	-2.014*	-1.605*	-5.191*	-4.308*	-3.851*	0.324**	-0.733	-4.554**
	(-2.690)	(-3.362)	(-26.257)	-4.545	-4.351	-3.158	2.493	-0.296	-2.377
Capital Flight	-0.166***	-0.225*	-0.111***	-0.116*	-0.154*	-0.141*	-0.006**	-0.072**	-0.369*
	(-1.999)	(-3.114)	(-1.810)	-3.413	-3.939	-3.183	-2.456	-2.978	-4.270
Gross Capital Formation	1.479*	1.122*	2.234*	0.446*	0.550*	0.539*	0.425*	0.374*	1.178*
	(2.784)	(4.330)	(13.348)	5.681	6.098	6.418	6.151	5.387	4.082
ln(n+g+d)	-1.857**	-2.974	-2.098	-2.527**	-1.543	-1.469	8.825*	8.546**	-3.245*
	(-2.152)	(-1.298)	(-4.999)	-2.467	-1.114	-1.057	2.885	2.571	-3.523
Polity				-0.427			0.294*	0.230*	
				-1.371			6.383	5.158	
Government Expenditure		-0.683*			0.022			-0.143	
		(-4.687)			0.322			-0.964	
Inflation			-0.015*		-0.105**	-0.102**			-0.301*
			(-6.932)		-2.277	-2.227			-4.447
Real Interest Rate			-0.089*						
			(-7.009)						
Money Supply						-0.016			-0.013
						-0.394			-0.147
Bounds Test: F-statistic	34.062	48.685	73.908	7.588	8.244	8.266	16.695	10.008	10.001
Lower Bound (5%)	2.860	2.620	2.450	2.620	2.450	2.450	2.620	2.450	2.450
Upper Bound (5%)	4.010	3.790	3.610	3.790	3.610	3.610	3.790	3.610	3.610
LM Test: F-stat	0.238	2.396	0.901	2.697	1.841	1.600	0.281	0.351	1.900
(p-value)	(0.790)	(0.112)	(0.421)	(0.086)	(0.179)	(0.221)	(0.759)	(0.712)	(0.219)
BPG Test: F-stat	1.085	0.812	1.990	0.692	1.251	1.404	1.210	1.049	0.801
(p-value)	(0.405)	(0.620)	(0.072)	(0.695)	(0.308)	(0.238)	(0.347)	(0.470)	(0.666)
ECT	-0.963	-0.966	-0.833	-0.145	-0.135	1.404	-0.176	-0.229	-0.125
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 45
(Continued)

Regressors	**El Salvador**			**Peru**			**Bolivia**	
Models	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**
Growth (-1)	-5.864**	-6.568*	-4.998	-5.381*	-5.146*	-6.998**	-0.928*	-0.709*
	-2.364	-4.115	-1.399	-3.889	-2.929	-2.699	-6.243	-3.180
Capital Flight	-0.058***	-0.038***	-0.110**	0.041	-0.159**	-0.174**	-0.015**	0.025*
	-1.723	-1.881	-2.205	0.619	-2.227	-2.111	-1.985	4.369
Gross Capital Formation	0.784*	4.657**	1.117*	3.585*	3.851**	-1.687	0.070*	1.927**
	3.103	2.317	2.781	2.870	2.234	-1.007	5.131	2.565
ln(n+g+d)	0.247	-2.423*	-4.358**	0.031	-2.866**	-0.553	1.270	-2.650*
	0.276	-3.923	-2.450	0.035	-2.672	-0.486	0.137	-4.761
Polity	1.134***	1.797*	1.733**	0.265*				
	2.023	4.157	2.186	4.436				
Government Expenditure		-0.582*			-0.447**			-0.668*
		-7.155			-2.451			-6.810
Budget Deficit					0.356			
					1.479			
Domestic Credit								0.046*
								3.516
Inflation			-0.133***			0.022***		
			-1.856			1.737		
Money Supply			-0.233**			0.402*		
			-2.710			3.205		
Bounds Test: F-statistic	6.281	13.829	5.949	14.238	14.421	13.779	5.716	9.845
Lower Bound (5%)	2.620	2.450	2.320	2.620	2.450	2.450	2.620	2.450
Upper Bound (5%)	3.790	3.610	3.500	3.790	3.610	3.610	3.790	3.610
LM Test: F-stat	0.31	0.976	1.203	2.264	1.119	2.077	0.250	1.971
(p-value)	(0.735)	(0.401)	(.326)	(0.131)	(0.348)	(0.156)	(0781)	(0.167)
BPG Test: F-stat	0.366	0.180	0.265	1.757	0.917	0.459	0.567	0.260
(p-value)	(0.963)	(0.999)	(0.996)	(0.118)	(0.561)	(0.940)	(0.776)	(0.995)
ECT	-0.153	-0.207	-0.123	-0.162	-0.144	-0.138	-0.928	-0.186
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

Table 45
(Continued)

Regressors	**Honduras**		
Models	**Model-1**	**Model-2**	**Model-3**
Growth (-1)	-0.873***	2.773***	1.192*
	-1.744	2.014	3.637
Capital Flight	-0.279**	-0.334**	-0.009
	-2.078	-2.565	-0.277
Human Capital	1.527**	1.830***	4.508***
	2.741	1.954	1.768
ln(n+g+d)	-0.641	2.649*	2.580*
	-0.800	3.353	4.017
Government Expenditure		-0.756*	
		-3.459	
Domestic Credit			-0.081
			-0.907
Inflation		-0.763*	-0.663*
		-4.908	-5.518
Bounds Test: F-statistic	10.241	8.043	7.060
Lower Bound (5%)	2.860	2.450	2.450
Upper Bound (5%)	4.010	3.610	3.610
LM Test: F-stat	1.555	0.454	1.957
(p-value)	(0.231)	(0.642)	(0.167)
BPG Test: F-stat	1.396	0.709	0.770
(p-value)	(0.238)	(0.755)	(0.689)
ECT	0.596	-0.345	-0.682
(p-value)	(0.000)	(0.038)	(0.050)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

5.3.4. Capital Flight and Economic Growth: Selected Transition Countries

Unlike the African, Latin American, and Asian developing countries that have been the focus of previous work on the causes of capital flight, the transition countries have experienced much faster progress in developing market-based institutions by undergoing a set of structural transformations. These include financial liberalization, macroeconomic stabilization, financial restructuring and privatization, legal and institutional reforms. One of the remarkable aspects of these transitional economies has been the high volume of capital inflows into these countries. Such inflows have included large amounts of Foreign Direct Investment (FDI) as well as official development assistance and foreign aid. However, these reforms were unable to check the flight of capital from these economies from the very beginning after the dissolution of the Soviet Union.

Figure 10 Capital Flight, Net FDI and ODA: Transition Countries
Source: Author's calculation (Billion, Constant 2010 USD)

The study considers five of the Transition Countries, namely Albania, Armenia, Kyrgyz Republic, Russian Federation and Kazakhstan. Capital flight from these economies is found to highly dominant against major capital inflows. As a percent of GDP, capital flight from these economies is widely stronger than the net foreign direct investment and official development assistance throughout the sample period (see figure 10). It accounts for nearly 16.6 percent of domestic saving from the selected economies and thereby causing capital scarcity in these economies which could otherwise be a source of greater productive capacity if invested domestically. The section is dedicated

to exploring the association between capital flight and economic growth per capita of the selected Transition Countries.

5.3.4.1. Capital Flight and Economic Growth: The case of Albania

Capital flight from Albania is amounting to USD 15.55 billion as of 2019. As shown by table 46, the maximum amount of capital flight that happens from Albania is in the 2000s which is 9.26 percent of the country's GDP that clearly exceeds the net foreign direct investment and official development assistance and foreign aid in the same decades. Capital flight lies below the official development assistance and foreign aid but higher than the net foreign direct investment in the 1990s which is right the opposite for the period 2010s. Albania lies among the Transition countries facing remarkable capital flight and hence the study considers it to examine the growth effect of capital flight on the economy.

Table 46
Extent of Capital Flight from Albania

Periods	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1990s	0.58	1.38	1.01	7.19
2000s	8.45	9.26	5.30	4.23
2010s	6.52	4.95	8.29	1.99

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

It starts with the test of the order of integration of the variables considered for Albania. The ADF and PP tests are conducted to examine the order of integration of the variables. Results are presented in table 89 in appendix B. According to the test results, growth in per capita income, capital flight, and government expenditure bears I(0) characteristics, that is they are stationary at level. The rest of the variables, namely initial period GDP, human capital and money supply are stationary at first difference. Consequently, the study employs ARDL Bounds test in examining the presence of long-run cointegrating relationship in the long run. Test results are given in table 51 with the long-run estimates of the coefficients of the variables along with necessary diagnostic tests. The Bounds tests reject the null hypothesis of no long-run cointegrating relationship among the variables and hence the variables are cointegrated in the long run for the model. The coefficient of the error correction term is negative and statistically significant, meaning that there prevails long-run causality from the regressors to growth.

The model is free from autocorrelation and heteroskedasticity problems as the value of F-statistics for both LM and BPG tests are accepted. The model is structurally stable confirmed by the stability diagnosis performed using CUSUM and CUSUM of squares test presented in figure 45 of Appendix C. The model examines the impact of Capital flight and other growth determinants on the economic growth of Albania. It also includes fiscal and monetary policy variables in the specification of the growth model. It avoids alternative specifications due to the small sample size of Albania. For Albania, data are available for 28 years between 1992 and 2019.

The positive coefficient of capital flight is statistically insignificant and thus the growth demolishing capital flight argument is accepted. The coefficient of initial period real per-capita GDP needs to be negative and significant to accept the view that an economy grows faster if begins with lower real per-capita GDP, which is found evident for Albania from the model. Human capital bears a positive and statistically significant coefficient. Therefore, human capital development supports economic growth which is theoretically anticipated. Economic growth is increased by 4.2 percent due to 1 percent development in the human capital variable.

The model includes fiscal policy variable government final consumption expenditure and monetary policy variable money supply with capital flight and other growth determinants. The fiscal policy variable, that is, government final consumption expenditure is found to bear a negative and statistically significant coefficient and thereby approves that government final consumption expenditure, limiting public and private investment, obstruct the per capita output growth of Albania. A 1 percent increase in government expenditure as a percent of GDP causes per capita output growth to fall by nearly 0.14 percent. As the study identifies, the money supply has an adverse impact on per capita output growth. In general, an increase in money supply stimulates output growth by reducing the cost of funds and thereby giving incentive to the private sector to invest more. On the other hand, a higher money supply leads to inflation which may exert a detrimental impact on per capita output growth. The later case is found to be dominant in the case of Albania. The budget deficit and real interest rate are dropped due to data limitations. Domestic credit expansion to the private sector and inflation rate do not form long-run cointegrating relationships and thus are removed.

5.3.4.2. Capital Flight and Economic Growth: The case of Armenia

There is a rising trend in capital flight from Armenia over the last three decades. The economy comes to pass the largest capital flight of around USD 10.19 billion in the 2010s which is 8.98 percent of its GDP shown in table 47. However, in terms of percentage of GDP, the largest capital flight from the economy takes place in the 1990s. Capital fight from the economy consistently maintains a greater share in GDP compared to the net foreign direct investment and official development assistance and foreign aid in all three decades which is apparent from the table. Hence, higher capital flight with lower capital inflows is aggravating the capital scarcity problem of the economy. The study will examine whether the problem of capital scarcity arises due to capital flight has an impact on the country's output growth.

Table 47
Extent of Capital Flight from Armenia

Periods	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1990s	4.18	14.95	1.65	7.01
2000s	4.42	6.06	5.18	4.35
2010s	10.19	8.98	3.27	2.68

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The stationary test results performed by ADF and PP tests summarized in table 90 in appendix B show that growth in per capita income, capital flight, government expenditure and real interest rate bear I(0) characteristics and the rest of the variables are I(1). The combination of I(0) and I(1) variables allows examining the presence of long-run cointegrating relationship between the growth of per capita income and its determinants using the ARDL Bounds testing approach. The result of the Bounds test for the specified model is shown in table 51 with essential diagnostic tests. The Bounds test result rejects the null hypothesis of no cointegrating relationship among the variables for the model as the F statistic of the Bounds test lies above the upper bound values. Therefore one can proceed to estimate the long-run cointegrating relationship between per capita output growth and its determinants. Again, the error correction coefficient is negative and significant for the model which signifies the long-run causal relationship from the explanatory variable to per capita growth of income. The specification is limited to one due to data constrained. The period covered for Armenia is 1992-2019.

With exception of the theoretical consideration, the capital flight is found to have a positive significant impact on the per capita output growth of Armenia. The finding is not consistent with the customary relationship between capital flight and output growth which should be negative. However, the finding is in line with the studies conducted by **Saheed and Ayodeji (2012)** and **Godagampala (2019)**. Both of the studies find that capital flight has a positive effect on economic growth in Nigeria and Sri Lanka, respectively. Authors argue that capital outflows constituted for traceable to the importation of capital/industrial goods payments and its use transform to economic growth in the long run. The economy of Armenia grows at a slower rate than its initial period as evident by the negative insignificant coefficients of initial GDP for the model. The positive impact of human capital on per capita output growth is true for the model. Hence, human capital development boosts per capita growth in income of Armenia. The polity variable bears a positive significant coefficient for the model meaning that development in institutional quality brings about a result of greater growth in per capita income for the instance of Armenia.

The model also includes government final consumption expenditure as fiscal policy variable and real interest rate as monetary policy variable. The fiscal policy variable government final consumption expenditure stimulates economic growth. A 1 percent increase in government final consumption expenditure has been accounted for a 1.14 percent increase in the growth of per capita income. Turning to the monetary policy variables, the real interest rate has a negative impact on the per capita growth in income of Armenia. A 1 percent real interest rate tones down per capita output growth by 0.01 percent.

The specification is picked in a way that complies with the necessary diagnostic tests. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for all models. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for all models. Hence all the models are free from autocorrelation and heteroskedasticity problems. Furthermore, all the models are structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 46 in appendix C.

5.3.4.3. Capital Flight and Economic Growth: The case of the Kyrgyz Republic

The total amount of capital flight from the Kyrgyz Republic reaches to around USD 12 billion during the period 1992-2019. Maximum capital flight occurs in the 2010s with the highest share in GDP in the 1990s. It was significantly higher than the

net foreign direct investment and official development assistance and foreign aid received by the economy as a percent of GDP in the 1990s and 2010s. As the capital flight from the Kyrgyz republic is dominant during the sample period, the study will examine its role in determining the output growth of the economy.

Table 48
Extent of Capital Flight from the Kyrgyz Republic

Periods	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1990s	4.06	17.26	1.82	7.19
2000s	1.53	3.92	3.14	6.23
2010s	6.37	10.68	7.47	8.23

Source: Author's Calculation based on WDI of World bank, 2021 (Billion, Constant 2010 USD)

The study performs tests of the order of integration for each of the variables applying ADF and PP tests. Test results are shown in table 91 in appendix B. Test results suggest that growth in per capita income, capital flight, real interest rate and government expenditure are stationary at level and the remaining variables are stationary at first difference. As some of the variables are stationary at level and some are at first difference, it persuades the study to continue with the ARDL Bounds testing approach to determine if there prevails a long-run cointegrating relationship among the variables. The test is performed for the specification chosen for the Kyrgyz Republic and the result reveals that the long-run cointegrating relationship between per capita output growth and the explanatory variables is present since the F statistic of the Bounds test remains higher than the upper bound values. Additionally, the negative significant coefficient of the error correction term proves the causality runs from the regressors to the per capita output growth. The specification is chosen in such a way that it satisfies the major diagnostic checks. The LM test results suggest that the model is free from the serial correlation problem as the null hypothesis of no serial correlation is accepted. Again, heteroskedasticity is not an issue for the model since the BPG test accepts the null hypothesis of no heteroskedasticity. Finally, the CUSUM and CUSUM of squares tests results summarized in figure 47 in appendix C approve the structural stability of the model. The next step is to estimate the long-run cointegrating equation for the Kyrgyz Republic. The estimated equations with the diagnostic test results are presented in table 51. Data constraint limits to work with alternative specifications as there is data available for a small period from 1992 to 2019.

The capital flight is found to have a significant coefficient which is close to zero

meaning that change in capital flight brings about infinitesimal change or no change in per capita output growth of Kyrgyz Republic. The model indicates that the rate of output growth of the Kyrgyz Republic is quite faster than the initial period as the initial period GDP enters into the model with a negative significant coefficient. The outcome of human capital is positive but statistically insignificant.

The fiscal policy variable government final consumption expenditure carries a negative coefficient which is statistically significant meaning that the relationship between government final consumption expenditure and economic growth is opposite. A 1 percent increase in government final consumption expenditure has been accounted for a 0.23 percent decrease in the growth of per capita income. An increase in the real interest rate, raising the cost of capital, leads to lower investment and lower output growth per capita. The relationship between real interest rate and per capita output growth is in line with this explanation. Result suggests that a 1 percent increase in real interest rate significantly causes the per capita output growth to fall by 0.03 percent.

5.3.4.4. Capital Flight and Economic Growth: The case of the Russian Federation

Russia is the most capital flight susceptible economy among the selected Transition countries. Capital flight from Russia constitutes nearly 89 percent of the total capital flight of the countries selected under this category. Total capital flight from Russia during 1992-2019 exceeds USD 1072 billion shown in table 49. As a percent of GDP, capital flight from Russia is markedly higher than the net foreign direct investment and official development assistance and foreign aid received by the economy. The existence of extensive capital flight from Russia is therefore makes it meaningful to examine its impact on the per capita output growth of the economy.

Table 49

Extent of Capital Flight from Russian Federation

Periods	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1990s	141.54	1.92	0.25	0.25
2000s	427.48	3.41	2.01	0.07
2010s	503.31	3.02	2.09	-

Source: Author's Calculation based on WDI of World bank, 2021 (Billion, Constant 2010 USD)

For the case of Russia, the model involves the following variables: growth in per capita income, initial period GDP, capital flight, human capital, government final consumption expenditure, polity and rate of inflation. The ADF and PP test results accessible from table 92 in appendix B illustrate that among the variables the

government expenditure and capital flight are I(0) processes and the remaining variables are of I(1). Therefore, the presence of the long-run cointegrating relationship between per capita output growth and the explanatory variables can be examined using the ARDL Bounds test as the variables are mixed of I(0) and I(1) processes. The test results shown in table 51 reveal that the null hypothesis of no long-run cointegrating relationship between per capita output growth and the regressors are rejected as all the F statistics of the Bounds test surpass the upper bound value of the chosen specification. The error correction term for the model is negative and significant which supports the view that there is long-run causality from independent variables to per capita income growth. It avoids alternative specifications due to the small sample size of Russia. For Russia, data are available for 28 years between 1992 and 2019.

It is evident that capital flight reduces the growth of per capita income of Russia. A 1 percent increase in capital flight as a percent of GDP causes per capita output growth to fall by nearly 0.24 percent for the model. Human capital development is supposed to stimulate economic growth. The coefficient of human capital is negative and insignificant which is indicative to the fact that human capital development enhances per capita growth in income of Russia. The negative significant coefficient of the initial period GDP for the model suggests that Russia experiences a faster growth rate compared to the initial period. The growth rate of effective labor units and the rate of depreciation proxied by ln(n+g+d) is dropped as the population growth rate of Russia is negative for most of the years. The budget deficit is removed due to data shortage. The polity variable enters into the model with a positive significant coefficient meaning that improvement in institutional quality does matter for growth of per capita income level in a positive direction.

With regard to the fiscal policy variable government final consumption expenditure, the result suggest that it has a negative impact on per capita output growth which is not significant and thus it is suggestive of the fact that government expenditure accelerates output growth.

Among the monetary policy variables, there is a deficiency in data for domestic credit to the private sector and real interest rate. The money supply is not found to form long-run cointegrating relationship with per capita growth in income. Accordingly, they all are disregarded from the model. The rate of inflation appears with negative significant coefficients in the model and thus indicated that a higher inflation rate, reducing aggregate demand by checking purchasing capacity of the domestic residents, leads to lower per capita output growth. The model suggests that a 1 percent increase in

the inflation rate is responsible to reduce the per capita growth in income by nearly 0.07 percent.

While choosing the specification, attention is given to whether the necessary diagnostic tests are satisfied. The LM tests results show that the null hypothesis of no serial autocorrelation is accepted for the model. The BPG test results prove that the null hypothesis of homoskedasticity is accepted for the model. Hence the model is free from autocorrelation and heteroskedasticity problems. Furthermore, the model is structurally stable as evident by the CUSUM and CUSUM of squares tests summarized in figure 48 in appendix C.

5.3.4.5. Capital Flight and Economic Growth: The case of Kazakhstan

Table 50 provides the extent of capital flight from Kazakhstan. The maximum amount of capital flight USD 80 billion happens from Kazakhstan in the 2000s which is 7.59 percent of the country's GDP that exceeds the net foreign direct investment and official development assistance and foreign aid in the same decade. Capital flight lies below the net foreign direct investment but higher than the official development assistance and foreign aid in the 2010s. As capital flight prevails in Kazakhstan during the period of investigation, the study will investigate its impact on the per capita output growth of the economy.

Table 50

Extent of Capital Flight from Kazakhstan

Periods	Capital Flight	Capital Flight (% of GDP)	Net FDI (% of GDP)	ODA (% of GDP)
1990s	0.46	0.09	1.58	0.19
2000s	80.02	7.59	6.46	0.25
2010s	2.67	0.15	4.62	0.05

Source: Author's Calculation based on WDI of World Bank, 2021 (Billion, Constant 2010 USD)

The study first performs the tests for order of integration of the variables to perform the growth regression for Kazakhstan using ADF and PP tests. The variables are found to be stationary at different orders. Table 93 in appendix B summarizes the unit root test results. As the results indicate, variables namely per capita output growth, capital flight, government final consumption expenditure and rate of inflation are stationary at level and the remaining variables are stationary at first difference. The blend of I(0) and I(1) variables allow examining the long run cointegrating relationship between per capita income growth and its determinants applying ARDL Bounds testing approach. The test result identifies the F statistics of Bounds test lie entirely above the

upper bound value for the selected model and hence there exists long-run cointegrating relationship between per capita GDP growth and its determinants. The coefficient of error correction term for the model is negative and also significant which approves long-run causality from explanatory variables to the growth of per capita income. The value of F statistics for LM tests and BPG tests are accepted for the model and hence they are free from the problem of serial correlation and heteroskedasticity. Results of all these tests are summarized in table 51 along with the long-run estimates of the coefficients of the variables. The structural stability of the model is confirmed by the CUSUM and CUSUM of squares test as presented in appendix C in figure 49. The specification is limited to one due to data constrained. The period covered for Kazakhstan is 1992-2019.

The growth dismaying capital flight for Kazakhstan is evident for the specification. The model indicates that per capita growth in income is reduced by nearly 0.11 percent due to a 1 percent increase in capital flight. As the human capital does not form long-run cointegrating relationship for the model but the per capita gross capital formation does, the study accounts for the later for examining its impact on per capita output growth. The impact of per capita gross capital formation on per capita output growth is positive and significant. A 1 percent increase in per capita gross capital formation stimulates per capita output growth by 0.28 percent. The negative significant coefficient of the initial period GDP can be interpreted as the economy of Kazakhstan also grows at a faster rate than the initial period. Institutional quality variable polity stimulates per capita output growth confirmed by its positive significant coefficient. Improvement in institutional quality by 1 percent stimulates per capita output growth by 0.71 percent.

It also examines the impact of fiscal policy variable government final consumption expenditure and monetary policy variable real interest rate on per capita output growth in the presence of capital flight. Another fiscal policy variable budget deficit and monetary is ignored as data is not available for this variable. The monetary policy variables domestic credit to the private sector, real interest rate and money supply do not form cointegrating relationship with per capita output growth in the long run. As results indicate, the adverse impact of government final consumption expenditure on per capita output growth is not approved as its coefficient is insignificant. However, inflation has a detrimental impact on the per capita growth in income of Kazakhstan. The model suggests that a 1 percent increase in inflation rate results in the fall of per capita growth in income by 0.13 percent.

Table 51
Long Run Model: The case of Transition Countries

Regressors	Albania	Armenia	Kyrgyz Republic	Russian Federation	Kazakhstan
Growth (-1)	-0.972*	-0.964	-1.487**	-0.992**	-0.337*
	(-4.671)	(-1.487)	(-3.313)	(-3.377)	(-4.893)
Capital Flight	0.004	0.029**	0.000*	-0.240*	-0.107*
	(0.992)	(2.383)	(6.187)	(-3.985)	(-3.592)
Human Capital	4.299*	3.851***	3.036	-0.003	
	(6.183)	(2.121)	(1.230)	(-0.004)	
Gross Capital Formation					0.275*
					(3.808)
Polity		0.445*		0.114**	0.708**
		(3.917)		(2.510)	(3.006)
Government Expenditure	-0.142***	1.148*	-0.226*	-0.068	-0.121
	(-1.969)	(4.709)	(-4.002)	(-1.431)	(-1.551)
Inflation				-0.063**	-0.129*
				(-3.427)	(-5.069)
Real Interest Rate		-0.099*	-0.026*		
		(-3.537)	(-3.316)		
Money Supply	-0.029*				
	(-6.539)				
Bounds Test: F-statistic	5.202	28.478	5.588	5.646	3.943
Lower Bound (5%)	2.620	2.450	2.620	2.450	2.450
Upper Bound (5%)	3.790	3.610	3.790	3.610	3.610
LM Test: F-stat	0.898	1.922	2.491	0.458	1.889
(p-value)	(0.476)	(0.227)	(0.163)	(0.657)	(0.245)
Heteroskedasticity	0.970	0.735	1.590	2.538	2.600
(p-value)	(0.561)	(0.707)	(0.258)	(0.107)	(0.101)
ECT	-0.572	-0.220	-0.527	-0.274	-0.378
(p-value)	(0.017)	(0.013)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively. Source: Author's calculation

5.4. Summary

The anti-growth phenomenon of capital flight has been examined for 32 developing economies of Asia, Africa, Latin America and 5 Transition Countries. The study identifies that capital flight retards economic growth for most of these developing economies with few exceptions. In terms of the mean value of negative significant coefficients of capital flight, one can conclude that the growth faltering effect of capital flight is very severe in developing Africa, then in Asia, and least in Latin America. While examining the evolution of capital flight in chapter two, the study identifies that though the capital flight is high from Latin American countries; its relative share in GDP is high for the countries in developing Africa. Therefore, the higher growth faltering effect of capital flight in developing Africa is a consistent outcome. In terms of the mean value of the negative significant coefficients, a one percent increase in capital flight from developing Africa degrades per capita output growth by 0.28 percent. A similar shift in capital from developing Asia to abroad hurts the economic growth by 0.18 percent. Turning to developing Latin American economies, its per capita output growth is dropped by 0.14 percent due to a 1 percent increase in capital flight. The overall impact of capital flight on the per capita output growth of Transition economies is negative.

CHAPTER VI

CAPITAL FLIGHT, CURRENCY MISALIGNMENT AND ECONOMIC GROWTH: THE CASE OF TURKISH

6.1. Introduction

Currency misalignment, which stands to mean the deviation of the real exchange rate from its equilibrium value, can bring about a change in output growth in the long run by altering a countries competitive position. Again, it might work as an incentive to capital flight from the source economy and thereby aggravate the output growth. Considering the consistent depreciation of Turkish currency, this chapter is dedicated to the investigation of the impact of capital flight in the presence of currency misalignment on the output growth of Turkish economy.

6.2. Capital Flight from Turkey

Capital flight from Turkey is a long-standing problem. If the trade-related illicit financial flows are taken into account alone, Turkey belongs to the top ten economies having the largest value gaps in bilateral trade with 36 developed countries during 2008-2017 (Global Financial Integrity, 2020). In terms of trade misinvoicing, the average capital flight from turkey during the period was US$41,199 million, nearly 50 percent of which flees to advanced economies amounting to US$22,052 million. The mean share of flight capital in total trade was nearly 21 and 17 percent with all trading partners and advanced economies, respectively during the period under interest.

The study measures capital flight using the Residual Method and finds strong evidence of capital flight from Turkey throughout the last four decades. As table 52 demonstrates, the average capital flight was significantly higher than Foreign Direct Investment (FDI) and even expressively more than the Official Development Assistance (ODA) as a percent of Gross Domestic Product (GDP) over the last four decades. It takes a greater share in GDP compared to the current account deficit (CAD) except in the 2010s. However, capital flight constrains domestic saving and thereby damp down domestic investment, which is one of the major barriers to domestic capital formation and thus impedes economic growth. Capital flight accounts for about 16 percent of domestic savings during the sample period.

Table 52
Extent of Capital Flight from Turkey

Time	(Billion USD)		(% of GDP)					Capital Flight (% of Saving)
	Capital Flight	GDP	Capital Flight	Net FDI	ODA	External Debt	CAD	
1980s	12.67	283.77	4.46	0.20	0.51	38.66	1.27	15.05
1990s	14.16	430.80	3.29	0.36	0.29	40.55	0.75	16.90
2000s	22.91	624.82	3.67	1.43	0.11	43.48	2.99	14.71
2010s	35.22	1043.75	3.37	1.13	0.28	46.46	4.30	15.08

Source: Authors' Calculation based on data from WDI of World Bank, 2021 (Billion, Constant 2010 USD)

As a highly indebted economy, Turkey depends on capital flows to finance this debt. The chronic deficit in the current account of Turkey makes it a sharp reality that the country has gradually become heavily dependent on borrowing from external sources. The external debt of Turkey is rising over the years and reaches over 57% of GDP in 2019. Following the financial liberalization in the early 1990s, the performance of the Turkish economy has become more dependent on capital inflows (Koska, 2005; Akcay & Güngen, 2019). Under such a setting, funds fleeing from Turkey are working as a barrier in achieving the expected development targets.

There are few studies on the magnitude of flight of capital from Turkey (e. g., Yalta, 2006; Demirgil, 2011; Özer, 2013) but no significant study has been found investigating the growth effect of flight capital on Turkey. Hence, as a capital-scarce country, the degree of flight of capital and its impact on the real economy of Turkey needs to be evaluated.

6.3. Currency Misalignment, Capital Flight and Economic Growth

The RER that is conducive to both internal and external equilibrium of a country is referred to as equilibrium RER. Deviation in RER from its equilibrium value, that is, overvaluation or undervaluation in RER, which is also termed as RER misalignment exerts considerable impact on macroeconomic performance of open economies.

The link between currency misalignment and capital flight is a commonly accepted argument. A few of the studies on the determinants of capital flight consider real exchange rate (RER) as a factor that influences capital flight (Dornbusch, 1985; Pastor, 1990; Gouider and Nouira, 2014). In this connection, Fry (l993) states that the

anticipation of an exchange rate devaluation due to the external debts of a country induces its domestic residence to hold assets abroad. Studies investigating the magnitude and direction of capital flight of the highly indebted economies in response to currency misalignment argue that the way RER change impacts capital flight is generally determined by the level of its depreciation or appreciation (Cuddington, 1986; Lessard and Williamson, 1987, Forbes and Warnock, 2012). In two recent empirical studies, Gouider and Nouira (2014) and Bosupeng, Dzator, and Nadolny (2019) find strong evidence of capital flight from developing economies. Gouider and Nouira (2014) in their panel study on a sample of 52 developing economies for the period of 1980-2010 find that RER misalignment substantially creates incentives for capital flight from these economies. On the other hand, the time series study of Bosupeng, Dzator, and Nadolny (2019) on Botswana during 1980–2015 also identifies the capital flight influencing role of currency misalignment. Therefore, the role of RER misalignment on capital flight is obvious.

The association between RER misalignment and economic growth of developing economies and emerging markets has been examined empirically in numerous studies (for example, Toulaboe, 2011; Frikha & Hachicha, 2013; Mbaye, 2013; Schröder, 2013, 2017; Comunale, 2017; Mamun, 2019; Kreko and Oblath, 2020 just the name but a few). Studies also suggest thtat the RER of Turkey is significantly misaligned (Alper and Saglam, 2000; Kibritçioğlu and Kibritçioğlu, 2004; Ozlale and Yeldan, 2004; Atasoy and Saxena, 2006; Dağdeviren, Binatli, and Sohrabji, 2012; Soylemez, 2013; Mamun, 2019). Despite the significance of capital flight from Turkey, the impact of currency misalignment on macroeconomic performance is a less researched topic for Turkey. There is only a single study found that directly addresses this issue. Mamun, Bal, and Basher (2020) study the experience of Turkey from 1980 to 2016 and find that RER misalignment of Turkey brings a contractionary effect to the economy.

The channels through which capital flight and currency misalignment can bring the contractionary effect in an economy can be illustrated using figure 11. Misalignment in RER brings about a change in trade balance through changing the competitive position of an economy at least in three possible ways, by changing the relative prices of exports and imports, by altering the relative prices of tradable and non-tradable goods and by reallocating resources between tradable and non-tradable sectors due to the change in relative wage rate. The price uncertainty resulting from currency misalignment also affects the aggregate level of domestic consumption and domestic

investment. As they all together (that is, the trade balance, domestic consumption and domestic investment) determine the level of national output of an economy, therefore, RER misalignment is one of the crucial factors that describe the growth of open economies. Again, currency misalignment that might work as an incentive to capital flight may hamper economic growth by reducing capital available in an economy, reducing investors confidence, lowering domestic saving, discouraging foreign capital inflow by reducing the debt servicing capacity of an economy.

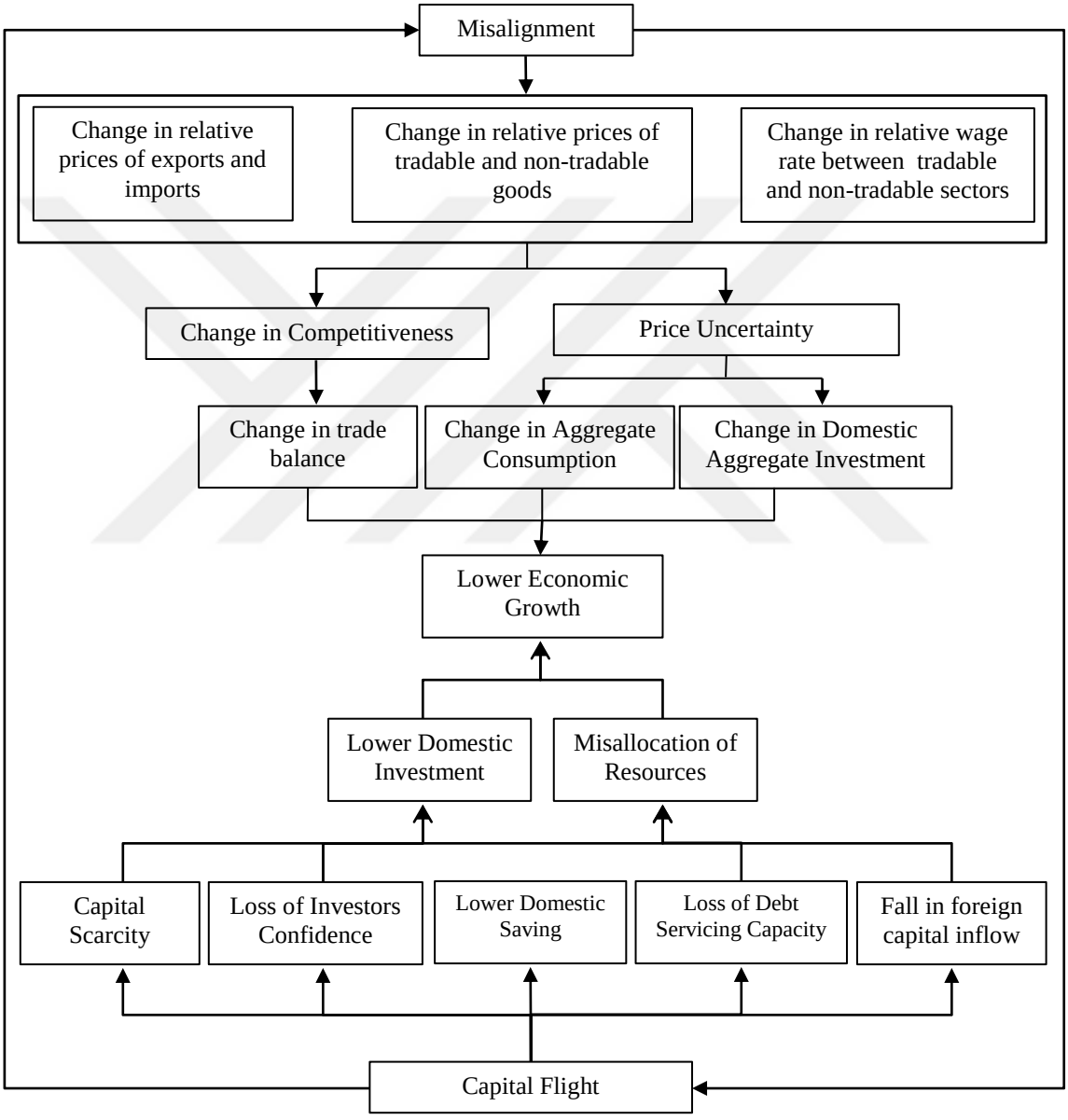

Figure 11 Link among Capital Flight, RER misalignment and economic growth
Source: Author's construction

As the capital flight and currency misalignment are closely related and their impacts on economic growth are widely accepted in literature, studying the growth

effect of capital flight and currency misalignment of Turkey will be value worthy. Most importantly, no earlier study examines their combined effect on the economic growth of developing economies, particularly of Turkey. With this regard, the study will first delineate the empirical framework for arriving at the equilibrium RER of Turkey which will enable us to derive the misalignment series.

6.4. Estimation of Real Exchange Rate Misalignment

Without determining the equilibrium RER, exchange rate deviations will remain a subjective phenomenon. Therefore, it is highly necessary to identify the equilibrium RER to arrive at its misalignment series which is nothing but the deviation between the observed values of RER from its equilibrium values.

6.4.1 Theoretical and Empirical Model for the Estimation of RER Misalignments

The literature on the estimation of equilibrium RER is extensive and ever-evolving. Some of the model-based widely used approaches include Capital Enhanced Equilibrium Exchange Rate (CHEER), Fundamental Equilibrium Exchange Rate (FEER), Desired Equilibrium Exchange Rate (DEER), The Natural Real Exchange Rate (NATREX), Behavioral Equilibrium Exchange Rate (BEER), Permanent Equilibrium Exchange Rate (PEER) and Single Equation Approach. The approaches mainly differ in terms of they define and model the dynamics of exchange rate.

Terra and Valladares (2010) and Koukouritakis (2012) offer a brief explanation of the contexts in which the approaches suit best. As the study is concerned with the long-run equilibrium RER, it precludes the CHEER which focuses on the estimation of nominal exchange rate. FEER, NATREX and DEER are not also fit for the study since they are indirect approaches of equilibrium RER estimation. They give more attention to the estimation of either complete macroeconomic models or simply current accounts and the resulting equilibrium RER is compatible with medium-term equilibrium. Though BEER measures equilibrium RER directly, the modeling technique it employs captures over time movements in real exchange rates rather than the movements in the medium or long-run equilibrium level and hence can be treated as a concept of the short-run equilibrium exchange rate (Driver & Westawa, 2005). PEER is a related representation of BEER which fundamentally differs in the way that the exchange rate in this approach is determined only by the fundamentals having a persistent effect on it.

The single equation approach estimates the long-run equilibrium RER directly drawing a vector of sustainable values for the fundamentals.

The Single Equation approach offered by Edwards (1989), Elbadawi (1994) and Baffes, Elbadawi, & O'connell (1999) deems the long-run equilibrium RERs is likely to be determined by a set of economic fundamentals. The fundamentals they use include terms of trade (TOT), government spending on non-tradables (G_N), government spending on tradable goods (G_T), investment (I), trade openness (OPEN). However, the theory underlying this approach offers relatively a wide range of fundamentals to choose from in developing the model. Edwards & Savastano (1999) present some representative empirical studies that have assessed the extent of misalignment employing the single equation approach in developing and transition economies during the late 1980s through the 1990s. The study also examines the recent literature on the estimation of equilibrium RER based on the Single Equation approach in developing and emerging economies (for instance, Rahman and Basher, 2001; Macdonald & Ricci, 2004; Kemme and Roy, 2006; Toulaboe, 2011, 2017; Elbadawi, Kaltani and Soto, 2012 and Schröder, 2013) aiming to identify the fundamentals they use. In addition to the aforesaid fundamentals, these studies also consider resource balance to GDP ratio (RESGDP), net financial assets position (NFA), debt services (DEBT), the relative productivity in tradable sector to non-tradable sector (PROD), or the relative price of tradable to non-tradable goods (TNT) to incorporate the Balassa-Samuelson effect, real interest rate differentials (RIRD) and official development assistance (ODA) to model the equilibrium RER. However, the unavailability of data for all these variables throughout the sample period limits the study to include them all in the theoretical model of equilibrium RER (q^*) determination that takes the following form:

$$q^* = q(TOT, G_N, G_T, NFA, I, OPEN, PROD, r - r^*, ODA) \quad (6.1)$$

The empirical model for estimating the relationship between RER and its fundamentals can, therefore, be given as:

$$lnq_{rt}^* = \beta' F_{rt}^s \quad (6.2)$$

where q_t^* is the equilibrium RER of country r at time t, β' is the vector of coefficients of the long-run parameters to be estimated, F_{rt}^s is the vector of permanent or sustainable

values for the set of fundamentals of country r at time t. The empirical model presented below is nothing but the replication of equation 6.2:

$$lnq_t^* = \beta_0 + \beta_1 lnTOT_t + \beta_2 lnPROD_t + \beta_3 G_t + \beta_4 I_t + \beta_5 OPEN_t + \beta_6 NFA_t + \beta_7 ODA_t + \beta_8 (r_t - r_t^*)_t + \varepsilon_t \quad (6.3)$$

It is expected that government spending on non-tradables, net financial assets position, relative productivity in the tradable sector to non-tradable sector, real interest rate differentials and official development assistance have a positive impact on RER while it is inversely related to government spending on tradable goods, trade openness and the relative price of tradable to non-tradable goods. However, the impact of terms of trade and investment can either be positive or negative. The expected signs of the coefficients are as follows: $\beta_1 \lessgtr 0, \beta_2 < 0, \beta_3 \lessgtr 0, \beta_4 \lessgtr 0, \beta_5 > 0, \beta_6 > 0, \beta_7 \lessgtr 0, \beta_8 < 0$.

6.4.2 Data Sources

Annual frequency data for the period 1981-2019 have been used to derive the equilibrium RER of Turkey. Sources and necessary explanations of the variables are summarized below.

The real exchange rate is a multilateral exchange rate to measure the relative price of domestic goods and services in terms of a basket of goods and services of other major trading partners which is the weighted average of bilateral real exchange rate where the trade share of a trading partner in a country's total trade constitutes the weight. RER data are collected from BRUEGEL datasets. Terms of Trade data, which is the relative price of a country's exports to its import expressed as the ratio of unit value index of exports to its imports, has been compiled from the United Nations Conference on Trade and Development (UNCTAD). Net foreign assets (NFA) include net holdings of portfolio equity assets, foreign direct investment (FDI) assets, debt assets, financial derivative assets and foreign exchange reserves minus gold. The ratio of net foreign assets to GDP has been considered for the study. NFA data is mainly drawn from Lane and Milesi-Ferretti (Lane & Milesi-Ferretti, 2007) that contains data for the period 1970-2014 in its updated version. The data is completed with WDI net foreign assets data of WB with necessary modification. Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development

Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD) and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). The study uses data of ODA as a percent of GDP from WDI of WB.

Unreachable time series of certain fundamentals that explain equilibrium RER is the rudimentary limitation for the implementation of the empirical model. They include investment spending, government spending on non-tradable goods, trade policy and productivity differentials. These explanatory variables have to be proxied by appropriate alternatives so as to estimate equilibrium RER. Investment spending (I) data which is proxied by gross capital formation is drawn from of World Bank. Government consumption (G) broadly falls into two categories: expenditure on tradable (G_T) and non-tradable (G_N) goods. But data on the share of government expenditure on non-tradables and tradables to GDP are not distinctly attainable. Therefore, it has been replaced by the share of government consumption as a percent of GDP collected from WDI of WB. Edwards (1989), argues that government consumption is likely to be excessively flowed into non-tradable goods and thus can be perceived as a proxy for G_N. In contrast, Elbadawi and Soto (1997) do not markedly find it true irrespective of countries. Accordingly, the study allows the data to determine whether G represents G_N or G_T as Schröder (2013) and Nouira and Sekkat (2015) suggest. The direct measure for trade policy is not available. In general, countries with higher trade volumes are assumed to have a more liberal trade regime. That is why empirical studies substantially use the sum of exports and imports over GDP to proxy this variable. Variable formed in this manner shows a country's exposure to the rest of the world and thus it is the measure of the openness of the country to the international market. The study piles up data from WDI of WB and UNCTAD to construct the variable.

Productivity differentials have been used to incorporate the Balassa–Samuelson-effect. One of the ways to measure the productivity differential is the relative productivity of labor (measured in terms of GDP per worker) between individual economies and abroad (Maeso- Fernandez, Osbat, & Schnatz, 2002). But the major obstacle in the practice of this measure is the absence of widespread data on employment level for many of the emerging economies. In this study, productivity differentials have been proxied by the relative productivity between Turkey and Group of Seven (G-7) countries, which is constructed as a percent of the GDP per capita of

Turkey to the G-7 average GDP per capita. Both the GDP per capita data for Turkey and G-7 countries are compiled from the WDI of WB. Real Interest rate differentials control capital flows and they together determine the foreign borrowing decision. Hence the variable plays an important role in determining equilibrium RER. But the limitation of data is an acute problem to include the variable in the model. The same is true for the debt services variable.

6.4.3 Estimation Procedure of the Determination of Misalignment in RER

The study estimates the equilibrium RER empirically for Turkey adopting the Single Equation approach. To estimate the long-run parameters of the model in 6.3, the approach involves the following steps: the first is to examine the stationarity or order of integration of the variables. The second step involves estimation of the long-run cointegrating relationship among the variables that are integrated of the same order, that is, of order 1 applying Johansen's (1990) cointegration approach. The combination of fundamentals that will form a long-run relationship with RER is uncertain. Consequently, the study will consider alternative combinations of fundamentals for estimating the long-run cointegrating relationship and the final choice will be based on the following criteria proposed by Montiel (2007). Specification for which there exists long-run cointegrating relationship among the variables and comply with all necessary diagnostic checks will be taken into account. For the specification, the estimated parameters must be stable, signed according to economic theory and significant. For more than one such specification, preference will be given to the one that minimizes the information criteria.

The presence of a long-run cointegrating relationship infers the existence of a long-run equilibrium relationship between RER and its fundamentals. Therefore, it is necessary to obtain the sustainable values of the fundamentals that explain the long-run behavior of RER, which is the third step of the procedure. Detrending the explanatory variables of the desirable specification derived by the H-P filtering process (Hodrick & Prescott, 1997) enables us to attain the sustainable or permanent values of the fundamentals, which can then be used to arrive at the long-run equilibrium values of RER. Finally, the misalignment series can be derived by simply taking the difference between the actual and long-term equilibrium values of RER in terms of percent.

6.4.4 Estimation of Growth Model

The empirical growth model demarcated in section 4.2 by equation 4.3 will remain the same to perform the growth regression to examine the impact of capital flight and currency misalignment on the per capita output growth of Turkey. The estimation procedure will also be the same as described in sections 4.4 and 5.2, the study will employ the ARDL Bound's testing approach in order to determine the long-run cointegrating relationship. Apart from considering the fiscal and monetary policy variables, the study also takes the misalignment variable into account. It considers four alternative specifications: the baseline specification includes the RER misalignment and capital flight series along with the growth determinants, another specification will incorporate the fiscal policy and monetary policy variables with the baseline model. The final two specifications will replace the RER misalignment variable by undervaluation and overvaluation, respectively to examine how their inclusion alters the results. Specification of alternative models will be useful for checking the robustness of results. Furthermore, how do the variables change their characters in the presence of capital flight and currency fluctuations can also be examined.

6.5. Empirical Results

6.5.1. Equilibrium RER and Corresponding Misalignment

The stationarity test results performed employing both ADF and PP tests are noted down in table 95 in appendix D. ADF test results indicate that PROD, I, G and ODA are non-stationary at level but stationary at the first difference at 1 percent level of significance across the two specifications- with 'intercept' and 'trend and intercept', while RER and TOT are found to be nonstationary for all specifications. However, all they are found to be stationary at the first difference by PP test both for 'intercept' and 'trend and intercept' at 1 percent significance level. That is, they are integrated at order one. Therefore, they can be used for the determination of long-run cointegrating relationships using Jonahsen's cointegration approach. RID is disregarded as it is stationary at level. OPEN and NFA are dropped as they are not found to be relevant in forming a cointegrating relationship. The model for estimating the long-run cointegrating relationship between RER and its fundamentals thus can be given as-

$$lnq_t = f(lnTOT_t, PROD_t, I_t, G_t, , ODA_t) \quad (6.4)$$

The study investigates the long-term cointegrating relationship between RER and fundamentals that determine its equilibrium value following the VAR approach. The optimal lag length of the VAR models are summarized in table 96 in appendix D. Stability of VAR models examined by using inverse roots of AR characteristic polynomial are presented in figure 51 in Appendix D. The VAR models are stationary and thus stable as the inverse roots lie inside the unit circle for all selected models.

Results of the cointegration test using trace and maximum eigenvalue tests are summarized below in table 53. Both the trace and maximum eigenvalue statistics clearly reject the null hypothesis that there exists no cointegrating vector as the trace statistics indicates there exists at least 3 cointegrating relationships and the maximum eigenvalue statistic refers to the existence of at least 1 cointegrating relationship between RER and its fundamentals.

Table 53
Cointegration Test Results for Turkey

H_0: r	Trace Statistic	p-value**	Max-Eigen Statistic	p-value**
r=0	140.681*	0.0008	45.206*	0.0418
r≤1	95.476*	0.0151	30.801	0.2819
r≤2	64.675*	0.0428	28.783	0.1211
r≤3	35.892	0.2102	18.529	0.3380
r≤4	17.363	0.3883	9.607	0.6608
r≤5	7.756	0.2722	7.756	0.2722

Notes: r stands for the number of cointegrating equation(s)
* denotes rejection of the hypothesis at the 0.05 level
** Mackinnon-Haug-Michelis (1999) p-values

The normalized cointegration equation is shown in table 54. The cointegration results indicate that the long-run coefficients of all fundamentals bear theoretically expected signs that are statistically significant. A permanent increase in export prices generates a positive income effect by improving TOT and hence real national income. It leads to a rise in demand for both tradable and nontradable goods that result in an appreciating effect on RER by producing upward pressure on relative prices of non-tradables. At the same time, a depreciating effect on RER caused by substitution effects on the demand and supply sides makes the net effect uncertain. There will be a real currency depreciation if the substitution effect dominates over the income effect, and real currency appreciates in the opposite case. The coefficient of TOT is negative meaning that the income effect dominates over the substitution effect due to the improvement in TOT which causes RER to appreciate. The depreciation of RER due to the increase in domestic investment as evident from the positive investment coefficient

indicates that domestic investment is largely subjective to non-tradable goods. Productivity growth in emerging economies is likely to be intense in the tradable sectors. Accordingly, for homogeneous prices of tradables across countries, wage increase in tradable sectors owing to rapid technological progress shifts to wages in non-tradable sectors of emerging economies (Balassa, 1964; Samuelson, 1964). Productivity growth in tradable sectors raises the demand for labor in this sector. Assuming full employment, tempting labor in the non-tradable sector offering higher wages is the only way to meet this higher labor demand in tradable sectors. It induces the wage rate to rise in the non-tradable sectors (Jongwanich, 2009). This shift in wage increase to non-tradable sectors drives down the RER (appreciation) due to higher prices of non-tradable goods. Hence, the Balassa-Samuelson effect is approved by the negative coefficient of productivity variable for Turkey. The positive government expenditure coefficient indicates that a rise in government expenditure leads to the depreciation of RER. A rise in government expenditure on non-tradable goods increases their prices by stimulating demand. Since the RER refers to the domestic relative price of tradable to non-tradables measured in terms of proportion between the price index abroad and home price index in simplest form, a rise in prices of nontradable goods would therefore cause a real appreciation by raising the value of domestic price index. By the same token, a rise in government expenditure on tradable goods is likely to be turned into increased demand for tradable goods and accordingly resulted in a real depreciation laying down the value of the home price index. Hence the positive coefficient of government expenditure indicates that the government expenditure of Turkey is ardent to tradable goods. Finally, the official development assistance has a depreciating effect on RER as confirmed by the positive sign of its coefficient. Any of the deviations that exist between actual and equilibrium RER in the short run dissolve at the rate of 14.2 percent in the long run in each period.

The study conducts an LM autocorrelation and white heteroskedasticity test in order to check the robustness of the results. According to the LM test, the null hypothesis that there is no autocorrelation among the residuals cannot be rejected at a 5 percent level of significance tested for any of the orders. Again, the white heteroskedasticity test accepts the null hypothesis that there is no heteroskedasticity, therefore, the residual term is homoscedastic. These test results confirm that the empirical model is correctly specified and structurally stable. Furthermore, the structural stability is also confirmed by the CUSUM test as shown in appendix D (figure 52).

Table 54
Cointegration Equation for Turkey

$lnq = 17.692 - 2.991\ lnTOT + 0.241\ ODA + 0.024\ G + 0.043\ I - 0.033\ lnPROD$					
Se	(0.312)	(0.073)	(0.013)	(0.009)	(0.009)
t	[9.595]	[−3.306]	[−1.864]	[−4.884]	[3.702]

Notes: Speed of adjustment in RER (t-statistic): -0.142* (p-value: 0.0048)
LM Autocorrelation Test: p-value=0.2951 (LM (1)), 0.1812 (LM(2))
White Heteroskedasticity: p-value= 0.2468
* Statistically significant at 1 percent level
** Statistically significant at 5 percent level
*** Statistically significant at 10 percent level

The existence of long-run cointegrating relationship between RER and its fundamentals directs to estimate the equilibrium RER and misalignments in RER. The equilibrium RER can be attained by substantiating the cointegration equation in table 54 with the sustainable values of the fundamentals removing short-term fluctuations of the fundamentals using HP filtering. Figure 12 plots equilibrium RER along with its actual and sustainable counterparts, and also demonstrates the RER misalignments for Turkey which indicates the deviations of equilibrium RER from its observed values in percent. The actual RER moves around the equilibrium RER throughout the sample period with some clear undervaluation and overvaluation episodes. There are twelve different episodes of RER misalignments that are summarized in table 55.

The summary illustrates that the degree of misalignment reached its peak to 13.158 during 1980-1985 and was least in 2011-2019 which was -14.099. The mean value of misalignment lies between 0.739 and 8.852. The average misalignment throughout the sample period is -0.0613. As Atasoy & Saxena (2006) found, the RER of Turkey was remarkably overvalued during the fixed exchange rate regime (up to 2000) except for a short period after the currency crisis from 1994 to 1997. Gerek & Karabacak (2017) and Kibritçioğlu & Kibritçioğlu (2004) also found that Turkey's RER was significantly overvalued before its shift to floating exchange rate management. The overvalued currency comes across depreciation when it moves to the floating exchange rate regime following the crisis in 2001 and remains undervalued throughout the regime which supports the findings of Dagdeviren, Ogus Binatlı, & Sohrabji (2012).

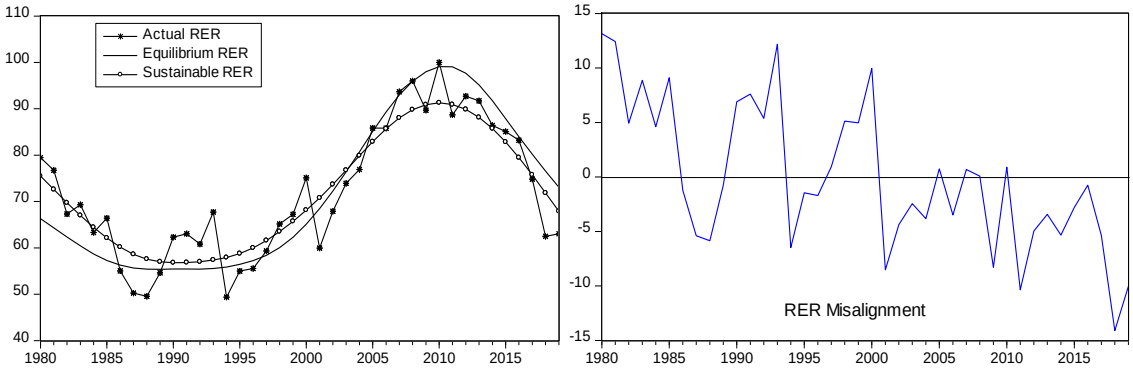

Figure 12 Equilibrium RER and Corresponding Misalignment for Turkey
Source: Actual RER is sourced from FRED, Equilibrium and Sustainable RERs are calculated by the author.

Table 55
Misalignment Episodes of Turkey

Period	Misalignment	Maximum	Minimum	Mean	Std. Dev
1980-1985	Overvaluation	13.158	4.613	8.852	3.596
1986-1989	Undervaluation	-0.756	-5.848	-3.308	2.687
1990-1993	Overvaluation	12.178	5.386	8.016	2.926
1994-1996	Undervaluation	-1.463	-6.481	-3.219	2.828
1997-2000	Overvaluation	9.957	0.941	5.248	3.688
2001-2004	Undervaluation	-2.453	-8.536	-4.802	2.619
2005	Overvaluation	0.739	0.739	0.739	0.000
2006	Undervaluation	-3.487	-3.487	-3.487	0.000
2007-2008	Overvaluation	0.689	0.076	0.383	0.433
2009	Undervaluation	-8.291	-8.291	-8.291	0.000
2010	Overvaluation	0.898	0.898	0.898	0.000
2011-2019	Undervaluation	-0.765	-14.099	-6.350	4.270
Overall		13.158	-14.099	-0.061	6.681

Source: Author's estimates

6.5.2. Empirical Results and Discussion

The study starts by estimating the baseline model that aims to identify the impact of capital flight and misalignment on the growth of Turkey along with other growth determinants that include human capital and growth in effective labor force and rate of depreciation. It then adds the policy variables, undervaluation and overvaluation in separate models to evaluate and compare with the baseline model to identify whether there is any substantial change in the results after taking the policy variables into account. The undervaluation and overvaluation series are constructed decomposing the misalignment series of RER into its two counterparts- one incorporating the negative values or zero otherwise for the former and another incorporating the positive values or

zero otherwise for the later series. The stationary test results applying the ADF and PP tests are shown in table 94 in appendix B. Test results exhibit that per capita output growth, initial period GDP, RER misalignment, undervaluation and overvaluation possess I(0) characteristics and the remaining variables are I(1). Therefore, the ARDL Bounds test can be applied to identify the existence of long-run cointegrating relationship between per capita output growth and its determinants.

The Bounds test results along with the necessary diagnostic checks are summarized below in table 56. According to the Bounds test results, the null hypothesis of no cointegrating relationship between per capita GDP growth rate and the dependent variables has been rejected as the values of F-statistics lie entirely above the upper bounds for all of the specifications. Furthermore, the coefficients of the error correction terms are negative and statistically significant for all models meaning that there prevails long-run causality running from regressors to the dependent variable. It allows us to estimate the long-run cointegrating relationship between the per capita GDP growth rate and its determinants and the short-run dynamics. All the specifications are free from autocorrelation as the null hypothesis of 'no autocorrelation' is accepted at a 5 percent level of significance irrespective of the models. The residuals are homoscedastic as heteroskedasticity is rejected for all the models. The CUSUM and CUSUM of squares test summarized in figure 50 in appendix C confirm the stability of the alternative specifications.

Capital flight limits domestic investment and thereby deters economic growth. Though the capital flight coefficient is significant for all variants of specifications including the baseline model, however, the study finds evidence in support of growth faltering capital flight for model-2 that includes policy variables along with misalignment and model 3 that includes policy variables along with undervaluation. The model suggests that a 1 percent increase in capital flight desolates growth from 0.18 percent to 0.60 percent.

With regard to currency misalignment, a negative misalignment coefficient indicates that deviation in RER from its equilibrium value in any direction dissipates growth. The study identifies a negative and significant misalignment coefficient both for the baseline model (model 1), as well as for the model that includes policy variables (model 2). Hence, the growth degrading effect of RER misalignment for Turkey is

confirmed by the study which was earlier supported by Toulaboe (2011), Nouira & Sekkat (2012), Couharde & Sallenave (2013) and Schröder (2017). If the RER is misaligned by 1 percent from its equilibrium level, it causes growth to fall by 0.002 percent to 0.43 percent.

Table 56
Cointegration and Long-run Equation

Regressors	**Model-1**	**Model-2**	**Model-3**	**Model-4**
Initial period GDP	1.259	-0.543*	-0.294*	-0.506**
	(0.584)	(-3.595)	(-3.272)	(-2.704)
Capital Flight	0.57537*	-0.183**	-0.600**	0.114**
	(4.443)	(-2.503)	(-2.732)	(2.508)
Human Capital	-5.865**	0.578*	0.215*	0.341**
	(-2.454)	(5.474)	(3.294)	(2.570)
ln(n+g+d)	-1.2048*	0.330*	0.500	1.073
	(-3.091)	(3.222)	(1.730)	(1.283)
RER Misalignment	-0.432*	-0.002***		
	(-3.794)	(-1.775)		
Budget Deficit		-0.050*	-0.053	-0.168**
		(-4.705)	(-1.645)	(-2.255)
Inflation		-0.004*	-0.023**	-0.046***
		(-3.051)	(-2.648)	(-2.458)
Real Interest rate		-0.007*	-0.042**	-0.081**
		(-2.979)	(-2.910)	(-2.554)
Undervaluation			-0.031**	
			(-2.875)	
Overvaluation				-0.072**
				(-2.175)
Bounds Test F-statistic	6.586	14.431	4.200	4.924
Lower Bound (5%)	2.62	2.220	2.220	2.220
Upper Bound (5%)	3.79	3.390	3.390	3.390
LM Test	0.707	2.567	2.215	2.645
(p-value)	(0.504)	(0.112)	(0.144)	(0.096)
BPG Test	1.264	0.847	0.891	0.689
(p-value)	(0.299)	(0.642)	(0.610)	(0.790)
ECT	-0.153	-0.141	-0.153	-0.107
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)

Note: Figures in brackets below the coefficients of the long-run model show t-values. Stability diagnoses are supplied in the appendix. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5%, and 10% levels of significance, respectively.
Source: Author's calculation

The baseline model of the study does not accept the view that the development of human capital boosts economic growth. However, the rest of the extended

specifications significantly argue that development in human capital by 1 percent stimulates growth by 0.27 percent to 0.51 percent. Therefore, the human capital development of Turkey is supportive of its per capita output growth.

The negative association between per capita GDP growth rate and the growth rate of effective labor units and the rate of depreciation together ($ln(n_{i,t} + g + \delta)$) suggested by Solow (1956) and Mankiw et al. (1992) is approved by the baseline specification as it has a negative coefficient for $ln(n_{i,t} + g + \delta)$ statistically significant at 1 percent level.[1] But, model 2 suggests a positive significant relationship between these two variables. The rest of the two variants do not produce a significant coefficient for the variable.

Model 2, 3, and 4 include both the growth determinants and the policy variables, but they separately include RER misalignment, undervaluation and overvaluation, respectively. The budget deficit has an adverse impact on economic growth as it means a shortage of resources to the governments to meet their expenses. It is accepted for Turkey by all these three models though found significant for models 2 and 4. The anticipated inverse impact of inflation on the economic growth of Turkey is true as the coefficients are negative and statistically significant regardless of all these three specifications. All these three variants also approve the negative effect of real interest rate on economic growth by the negative significant coefficients.

The coefficients of both undervaluation and overvaluation have to be negative to support the view that undervaluation fosters economic growth while overvaluation hurts. As revealed from models 3 and 4, the negative and statistically significant coefficients of undervaluation and overvaluation confirm that while undervaluation is supportive to the economic growth of Turkey, overvaluation tones it down. The negative and statistically significant error correction coefficient shows that nearly 14 percent of the deviation from long-run equilibrium on average is corrected in each period.

[1] Solow (1956) argues that the higher the growth of population, the lower the income as it reduces per capita capital. Mankiw et al. (1992) quantitatively measures it using an augmented model and prove that the combined effect of growth rate of effective labour units and the rate of depreciation ($n + g + \delta$) on income is much higher- with a one third capital share, a 1 percent increase in $n + g + \delta$ causes a 0.5 percent fall in per capita income for the Solow's taxtbook model which is 2 percent for the augmented model.

6.5. Summary

The study identifies that the real exchange rate of Turkey was misaligned throughout the sample period producing six alternating periods of overvaluation and undervaluation. The real exchange rate remained undervalued for a long period from 2011 to 2019. It is commonly argued that the anticipated undervaluation of currency of a country motivates domestic residents to hold their assets abroad and thereby causes capital flight. The case is found to be consistent if one examines the capital flight from Turkey associate with the aforementioned undervaluation episodes. During the 2010s, Turkey experiences the largest amount of capital flight amounting to USD 35.22 billion. In terms of percent of GDP, this figure lies above the net foreign direct investment and net official development assistance and official aid received by Turkey during the period.

Turning to the impact of capital flight and RER misalignment on the per capita output growth of Turkey, RER misalignment degrades the per capita growth of income irrespective of the models it enters. On the other hand, growth faltering capital flight is evident in the presence of policy variables along with currency misalignment. Most importantly, undervaluation that promotes per capita output growth also gives incentive to capital flight that has an adverse impact on per capita output growth which is clearly depicted in model 3.

CHAPTER VII

CONCLUSION

7.1. Key Findings

Capital flight is turned out to be widely prevailing in developing economies. Although the issue has long been the subject of research and policy debate, much of the prevailing literature on the issue focuses on its various measures and determinants. However, there is a recent surge in the literature on the impact of capital flight on different macroeconomic variables, particularly on economic growth and domestic investment. Most of these studies have attributed sluggish economic growth to capital flight. However, there is no recent study on the estimates of capital flight for a large group of developing economies based on the same approach to compare and contrast the extent of capital flight from these economies. By the same token, differential effects of capital flight on the economic growth of the developing economies employing the capital flight series obtained following the same approach were left ignored as they are mostly panel studies. Offering an up-to-date estimate of capital flight from developing economies categorizing them into four major regions, namely- developing regions of Asia, Africa, Latin America and transition economies, the study examines the anti-growth phenomenon of capital flight for individual economies separately.

World Bank's residual method has widely been used in economic literature which is regarded to be superior by several studies (Eggerstedt, Hall, and Wijnbergen, 1995; Vespignani, 2008). The study applies the approach to derive the capital flight series of selected developing economies after necessary modifications. It adjusts current account balance taking net income from abroad and net current transfers, corrects the figure of inflows of net foreign direct investment adding net portfolio investment equities and other investment assets with it, and finally adjusts the series for inflation to arrive at the more representative estimate of capital flight so as to confirm the comparability of the annual capital flight estimates for the countries concerned.

As per estimates of the study, a total of USD 4843 billion capital flight occurs from eleven selected developing economies of Asia that include Bangladesh, China, India, Nepal, Pakistan, Sri Lanka, Thailand, Philippines, Indonesia, Jordan and Fiji during 1981-2019. The highest amount of capital flees from China which constitutes

nearly 65 percent of total capital flight from Asia. The second-largest capital flight susceptive economy is India from which nearly 20 percent of total capital flight from Asia takes place. However, when we compare the severity of capital flight in terms of percent of GDP, it provides a different picture. Among these economies, the issue of capital flight is grave for Nepal and Jordan during the sample period. Capital flight from Nepal and Jordan is nearly 20 percent and 16 percent of their GDP respectively throughout the sample period. The maximum capital flight the economies experienced in the 2010s is over 34 percent and 24 percent, respectively. With regard to the economies of Africa, the total amount of capital flight from eleven selected African economies reaches to over USD 3433 billion from 1981 to 2019. The economies include Benin, Cameroon, Egypt, Kenya, Madagascar, Morocco, Nigeria, Rwanda, Sierra Leone, South Africa and Togo. The largest capital flight affected economy of Africa is Nigeria from which about 72 percent of total capital flight from the selected African economies takes place during the sample period. The next most capital flight experiencing economy of Africa is South Africa which counts around 10.6 percent of the total capital flight of selected African countries. Nigeria remains the largest capital flight susceptive economy in terms of its percentage share in GDP. There is substantial capital flight from Rwanda, Kenya, Sierra Leone and Togo as a percent of GDP among the African economies. Turning to Latin America, the study identifies a total of USD 9026.78 billion capital flight at 2010 constant prices occurs from ten Latin American economies, namely Argentina, Bolivia, Brazil, Colombia, El Salvador, Guatemala, Haiti, Honduras, Mexico and Peru during 1981-2019. The scale of capital flight in terms of percent of GDP is extremely large for Mexico. The degree of capital flight from Guatemala and Honduras is also extensive. The capital flight from five Transition economies- Albania, Armenia, Kyrgyz Republic, Russian Federation and Kazakhstan has been examined for the period 1992-2019. Among the selected countries, capital flight from Russia constitutes alone nearly 89 percent of total capital flight which is around USD 1072 billion. However, capital flight as a percent of GDP from these economies presents a different picture, capital flight is a serious issue for the Kyrgyz Republic and then for Armenia. Capital flight was less acute in the 2000s from Asian and Latin American developing countries but increased expressively from Africa and transition economies. Many of the developing countries have gone through capital repatriation in this decade across the regions. During the sample period, the Latin American countries experience the highest level of capital flight amounting to $9027

billion. However, the issue of capital flight is more acute in African developing economies considering its share in GDP.

The study performs separate time series regression for individual economies to examine the differential effects of capital flight on the economic growth of the selected aforementioned economies. It considers a baseline model including the growth variables determined consulting with exogenous and endogenous growth theories and augments it incorporating the fiscal and monetary policy variables in order to examine the robustness of results. It also helps examine the impacts of major fiscal and monetary policy variables on output growth of the selected economies in the presence of capital flight. The results of alternative specifications for individual economies lead to draw the following conclusions regarding the impact of capital flight and other influencing factors on per capita output growth of the selected economies-

1. With regard to the selected Asian economies, capital flight is found to be growth faltering for most of the selected developing economies of Asia except Indonesia and Nepal. The study identifies that Human capital development and/ or increase in per capita gross capital formation is complementary to economic growth for all selected Asian economies. The growth rate of effective labor units and the rate of depreciation has an adverse impact on economic growth for all economies except Pakistan for which the result is inconclusive. Institutional quality, proxied by polity, is growth-promoting for Bangladesh, Fiji, India and Nepal but surprisingly growth contracting for Sri Lanka. It does not enter into the specifications for other economies. All the economies grow at a faster rate than their initial period excluding Pakistan. The fiscal policy variable government final consumption expenditure is commonly found to influence the output growth of selected Asian economies. Its impact is positive for Indonesia, Nepal, and Sri Lanka, for the rest of the economies increase in government final consumption expenditure limits per capita output growth. The budget deficit also curbs the per capita output growth of Fiji, India, Indonesia, Sri Lanka and the Philippines. Among the monetary policy variables, money supply and inflation rate are found to determine output growth for all the Asian economies except Bangladesh and China, respectively. For most cases, an increase in money supply promotes per capita output growth excluding Sri Lanka and the Philippines. The rate of inflation checks the per capita output growth of these economies apart from Sri Lanka and Thailand.

2. Concerning the selected African economies, the anti-growth effect of capital flight is approved for all the economies but Egypt and Morocco. Human capital development and/ or increase in per capita gross capital formation is supportive to economic growth for African economies. The impact of the growth rate of effective labor units and the rate of depreciation is indecisive for Sierra Leone, Togo and Nigeria. It has no role in determining the output growth of Madagascar. It has an adverse impact on economic growth for the rest of the countries. Except for Egypt and Sierra Leone, African economies selected for the study has a faster growth experience than the initial period. The fiscal policy variable government final consumption expenditure is a common factor that has an impact on per capita output growth; it is found to be mostly growth-deteriorating except for the case of, Cameroon, Kenya and Rwanda. Among the monetary policy variables, the money supply is the most crucial factor that determines the output growth of African economies and for most cases, it directly influences the output growth per capita. The next most common factors are inflation rate and domestic credit expansion to private sectors. Domestic credit expansion to private sectors promotes the per capita output growth of Kenya, Egypt and Rwanda. A rise in the inflation rate tends to restrain per capita output growth of Cameroon, South Africa, and Togo. An increase in real interest rates limits the growth of Kenya, South Africa and Sierra Leone.
3. Capital flight reduces the per capita output growth of all the selected Latin American economies except Guatemala. Human capital development and/ or increase in per capita gross capital formation is commonly growth-promoting for all the Latin American economies. The growth rate of effective labor units and the rate of depreciation negatively affect the per capita output growth of most Latin American economies other than Haiti and Honduras. Institutional quality matters for the output growth of Guatemala, Haiti, El Salvador and Peru. Apart from Haiti and Honduras, all Latin American economies grow faster than in the initial period. It is uncertain for the case of Haiti and Honduras. The fiscal policy variable government final consumption expenditure has an indirect impact on the per capita output growth of most Latin American economies except Colombia and Mexico. The government budget deficit adversely affects the per capita output growth of Guatemala and Mexico. Among the monetary policy variables, the rate of inflation is the most common factor that determines the

output growth of the selected Latin American economies. In most cases, the cases of Argentina, Brazil, Colombia, El Salvador, Haiti and Honduras for example, the rate of inflation negatively affects per capita output growth while it is positive for Guatemala and Peru. The next most common monetary policy variable is the money supply that promotes the output growth of Guatemala, Mexico and Peru. Domestic credit expansion to the private sector stimulates the growth of Bolivia and Mexico. An increase in real interest rate has an unfavorable impact on the per capita output growth of Brazil.

4. Turning to the Transition economies, capital flight checks the per capita output growth of the Russian Federation, Kazakhstan and Albania. The human capital development and/ or increase in per capita gross capital formation commonly fuel the growth of the selected Transition economies except Russian Federation. The economy of Armenia, the Russian Federation and Kazakhstan relies on the role of the quality institution for greater economic growth. All these economies grow at a faster rate than their initial period. Government final consumption expenditure is a common factor that influences the economies' output growth which is in opposite direction for Albania and the Kyrgyz Republic and positive direction for the rest. An increase in the rate of inflation negatively affects the per capita output growth of the Russian Federation and Kazakhstan and so does the real interest rate for the Armenia and Kyrgyz Republic.
5. Besides examining the extent of capital flight, the study also examines the degree of RER misalignment of Turkey and investigates their joint effects on the per capita output growth of Turkey. The real exchange rate of Turkey was misaligned throughout the sample period producing six alternating periods of overvaluation and undervaluation. The real exchange rate remained undervalued for a long period from 2011 to 2019. It is commonly argued that an anticipated undervaluation of the currency of a country motivates domestic residents to hold their assets abroad and thereby causes capital flight. The case is found to be consistent if one examines the capital flight from Turkey associate with the aforementioned undervaluation episodes. During the 2010s, Turkey experiences the largest amount of capital flight amounting to USD 35.22 billion. In terms of percent of GDP, this figure lies above the net foreign direct investment and net official development assistance and official aid received by Turkey during the period. Turning to the impact of capital flight and RER misalignment on the per

capita output growth of Turkey, RER misalignment degrades the per capita growth of income irrespective of the models it enters. On the other hand, growth faltering capital flight is evident in the presence of policy variables along with currency misalignment. Most importantly, undervaluation that promotes per capita output growth also gives incentive to capital flight that has an adverse impact on per capita output growth.

In terms of the mean value of negative significant coefficients of capital flight, one can conclude that the growth faltering effect of capital flight is very severe in developing Africa, then in Asia and least in Latin America. The evolution of capital flight suggests that though the capital flight is high from Latin American countries; its relative share in GDP is high for the countries in developing Africa. Therefore, the higher growth faltering effect of capital flight in developing Africa is a consistent outcome. In terms of the mean value of the negative significant coefficients, a one percent increase in capital flight from developing Africa degrades per capita output growth by 0.28 percent. A similar shift in capital from developing Asia to abroad hurts the economic growth by 0.18 percent. Turning to developing Latin American economies, its per capita output growth is dropped by 0.14 percent due to a 1 percent increase in capital flight. The overall impact of capital flight on the per capita output growth of Transition economies is negative.

7.2. Policy Recommendations

The study identifies capital flight as the attributor to the slower economic growth of the selected economies of Asia, Africa, Latin America and Transition countries. Being capital scarce economies, checking capital flight is inevitable for these economies to keep their economy on the desired trajectory. Studies suggest that most of these developing economies share some common characteristics that stimulate capital flight from these economies. Some of these characteristics include discriminatory treatment of domestic capital, initiation of restrictive market policies, poor institutions, low domestic interest rates, political unrest, and threats to property ownership, just the name but a few. Appropriate policies addressing these issues can rather create a reverse flow of capital to these capital-scarce regions.

Capital flight results in a particular economy when both the domestic and foreign investors perceive that there exists better opportunity abroad. Investors, be they

domestic or foreign, desire to maximize their return at the least possible risk and thus they commonly prefer the economies that are less vulnerable to macroeconomic shocks. Therefore, there is no alternative but confirming a favorable investment climate to retain capital at home. Most of the selected developing economies are yet in search of a competitive investment climate favorable for enhancing investment for business-led growth (Kinda, 2010; Kinda and Veganzones, 2015; Bayraktar, 2015, World Bank 2015). Investment climate largely refers to the policy, institutional and regulatory settings in which the investors of an economy run their businesses. A comprehensive policy framework for investment that addresses the issues relating to investment promotion and facilitation, competition policy, corporate governance, infrastructure, and financial sector development can help the selected developing countries establish a competitive investment climate that is favorable for stimulating investment for the private sector-led growth. Hence, the developing economies should reform their investment policies and develop their institutional and regulatory framework conducive to business so that both local and foreign investors can get confidence to invest in the home economy which will reduce the motive for capital flight.

Tax competition is gradually emerging as one of the key factors that can control the capital mobility of developing economies (Dietsch, 2015). Not only the domestic residents but also the international investors respond towards tax while they take their investment and saving decisions. Zucman (2013) offers an estimate of wealth held by private citizens in tax havens which states that globally around 8% of households' financial wealth is held in tax havens. Researches also find that profits reported by multinational companies substantially respond to tax differentials between host and source economies. Researchers have shown how profits reported by multinational companies respond to tax differentials between host and source countries. Johannesen, Torslov, and Wier (2020) show that profits reported by multinational firms are roughly twice more sensitive to tax incentives in developing countries than in developed countries. Crivelli, De Mooij, and Keen (2015) find that the developing countries lose taxes at a level of around 1.3% of their GDP and endorse the view that international corporate tax evasion is a relatively more important phenomenon for developing as compared to developed countries. Therefore, the developing economies should give more importance to designing their tax policies and customize them at a regular interval to keep competitiveness in terms of taxation that will in turn address the issue of discriminatory treatment towards domestic capital and thereby reduce capital flight.

Many of the African and Latin American natural resource-rich developing countries are unable to hold a large part of their capital due to lack of adequate investment in education and health care which restraints the development of human capital of these economies (Badeeb, Lean and Clark, 2017; Briere et al., 2017). Skilled human resources can play an important role in a country's growth by exploring its investment potential. Inadequate investment in human capital development is found to be in common in most of the countries considered in this study. Therefore, developing countries need to focus on the development of human capital by investing more in the development of infrastructure for education, research, and health care which will help not only to retain domestic capital but also to attract foreign capital.

Good governance, acting as the safeguard of domestic and international investments, is one of the prerequisites for retaining a country's capital. In most cases, developing countries lack the capacity to attain and sustain a climate of good governance (Hope, 2009). Accountability, transparency, responsiveness, effectiveness, efficiency, and inclusiveness of public institutions can ensure good governance of a country which also acts as a catalyst for the political stability of the country. Developing countries need to take appropriate measures to overcome the obstacles in ensuring good governance and political stability as they together encourage domestic investment by paving the way for justice and promote foreign investment by building trust among foreign investors and multinational companies.

To sum up, unleashing the way of private sector-led growth of the developing countries with necessary policy, infrastructural, institutional and regulatory support will help them retain and repatriate domestic capital.

7.3. Limitations and Directions for Future Research

Certain limitations of the study have opened up some avenues for future research. Results of the study should be considered with some cautions. The data set of the study is relatively small. Moreover, data available on the factors that determine the capital flight series of the developing economies are often disputable. Capital flight estimates may vary across studies for several reasons. Firstly, it depends on the definition one uses to measure the capital flight series. Secondly, researchers consider some adjustments to arrive at a more representational estimate of capital flight based on their self-judgment. Thirdly, differences in databases may have substantial effects. Fourthly, the nature of the economic variables determining the capital flight is ever-

evolving. Last but not the least, the values at constant prices depend on the base used. Consequently, the extent of capital flight may differ across the studies and so does its impact on the output growth of developing economies. Data on the many growth determinants and policy variables are not readily available which limits the scope of comparing alternative specifications of the growth models for many economies in order to arrive at more robust estimates of the parameters. Apart from taking these cautions into account, future studies have scope to consider large sample size, increase the number of sample countries and use alternative measures of capital flight to compare and contrast to arrive at more conclusive decisions.

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APPENDICES

Appendix A: Data Sources

Variable	Explanation	Sources
Budget Deficit	Government's net borrowing***	Government Finance Statistics Yearbook of IMF
CAB	Net export adjusted for net primary income, and net secondary income*	WDI of WB
CPI	Consumer Price Index (Base 2010)	UNCTAD
Domestic Credit	Domestic credit provided by financial sector***	WDI of WB
External Debt	Total external debt Stock*	WDI of WB
Government Expenditure	Government final consumption expenditure***	WDI, PWT 9.0 UNCTAD
Growth Rate	Growth rate of per capita GDP	WDI of WB
Human Capital	Average years of total schooling	Barro-Lee database on educational attainment
Inflation Rate	The CPI-based inflation rate	WDI of WB WEO of IMF
Investment Spending	Proxied by gross capital formation***	Compiled from WDI, PWT 9.0, UNCTAD
ln(n+g+d)	The rate of population growth (n) The rate of depreciation (δ)= 0.03 The advancement in technology (g)= 0.02	WDI of WB Mankiw et al. (1992)
Money Supply	Broad money***	IFS of IMF
Net Foreign Assets	Net foreign assets as a percent of GDP*	Lane & Milesi-Ferretti (2007) Database

(Continued on next page)

Variable	Explanation	Sources
Net FDI	Net Foreign direct investment*	WDI of WB WDI of WB UNCTAD
Openness	The sum of exports and imports as a percent of GDP**	WDI of WB PWT 9.0, UNCTAD
Polity2	Institutional quality	the Center for System Peace (CSP) database
Portfolio Investment	Net Portfolio Investment equities and other investment assets*	WDI of WB
PROD	Productivity Differentials- have been proxied by the relative productivity between Turkey and Group of Seven (G-7) countries	UNCTAD
Rate of Depreciation	The rate of depreciation (δ) is set at 0.03	Mankiw et al. (1992)
Real Domestic Income	Gross domestic product (GDP)**	UNCTAD
Real Interest Rate	Real interest rate is the lending interest rate adjusted for inflation	IFS of IMF
Reserve	Total official reserve including gold*	WDI of WB
Terms of Trade	The ratio between the export and import price index	WDI of WB UNCTAD IFS of IMF
RER	Real Effective Exchange Rate: Data on the variable is compiled from various sources, but the study cautiously maintains a common price index (CPI) and common base year while collecting RER data	Compiled from BRUEGEL Datasets[2], FRED, WDI of WB

(Continued on next page)

[2] The dataset is constructed following the methodology offered by Darvas (2012) which is undated on a regular basis

Variable	Explanation	Sources
RER Misalignment	Mean value of absolute misalignment	Author's calculations
Undervaluation & Overvaluation	The undervaluation and overvaluation series are constructed decomposing the misalignment series into its two counterparts- one incorporating the negative values or zero otherwise for the former and another incorporating the positive values or zero otherwise for the later series.	Author's calculations
Note:	* in current USD Billion ** in constant (2010) USD Billion *** as a percent of GDP	

Appendix B: ADF and PP Stationarity Test

Table 57
ADF and PP Test Results for Bangladesh

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	0.460	0.983	-1.556	0.495
		Trend & Intercept	-2.929	0.167	-7.450*	0.000
	First Difference	Intercept	-4.206*	0.002	-15.055*	0.000
		Trend & Intercept	-4.289*	0.009	-17.484*	0.000
Initial Period GDP	Level	Intercept	12.446	1.000	10.840	1.000
		Trend & Intercept	0.491	0.999	0.495	0.999
	First Difference	Intercept	-0.029	0.949	-8.713	0.000
		Trend & Intercept	-2.692	0.247	-5.024*	0.001
Capital Flight	Level	Intercept	-3.348**	0.020	-3.422**	0.016
		Trend & Intercept	-3.954**	0.019	-3.846**	0.025
Human Capital	Level	Intercept	-0.902	0.777	-1.196	0.666
		Trend & Intercept	-2.379	0.383	-1.671	0.745
	First Difference	Intercept	-2.919*	0.054	-3.322**	0.021
		Trend & Intercept	-3.005	0.149	-3.313***	0.080
ln(n+g+d)	Level	Intercept	-4.113*	0.0031	-6.625*	0.0000
		Trend & Intercept	-4.181**	0.0147	-6.985*	0.0000
Polity	Level	Intercept	-2.278	0.184	-1.918	0.321
		Trend & Intercept	-1.847	0.661	-1.510	0.809
	First Difference	Intercept	-5.499*	0.000	-6.094*	0.000
		Trend & Intercept	-5.831*	0.000	-11.407*	0.000
Government Expenditure	Level	Intercept	0.279	0.974	0.316	0.976
		Trend & Intercept	-2.308	0.419	-2.131	0.513
	First Difference	Intercept	-5.261*	0.000	-5.204*	0.000
		Trend & Intercept	-5.416*	0.000	-5.386*	0.001
Domestic Credit	Level	Intercept	-0.342	0.909	-0.325	0.912
		Trend & Intercept	-1.763	0.703	-1.779	0.695
	First Difference	Intercept	-5.502*	0.000	-5.463*	0.000
		Trend & Intercept	-5.390*	0.001	-5.350*	0.001
Inflation	Level	Intercept	-4.416*	0.001	-4.416*	0.001
		Trend & Intercept	-3.133	0.114	-4.546*	0.004
Real Interest Rate	Level	Intercept	-3.881*	0.005	-3.815*	0.006
		Trend & Intercept	-3.731**	0.034	-3.734*	0.032

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 58
ADF and PP Test Results for Fiji

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-7.392*	0.000	-7.303*	0.000
		Trend & Intercept	-8.055*	0.000	-8.008*	0.000
Initial Period GDP	Level	Intercept	0.574	0.987	0.798	0.993
		Trend & Intercept	-2.901	0.176	-4.374*	0.007
	First Difference	Intercept	-2.729***	0.082	-7.836*	0.000
		Trend & Intercept	-2.617	0.276	-8.086*	0.000
Capital Flight	Level	Intercept	-5.885*	0.000	-5.916*	0.000
		Trend & Intercept	-5.789*	0.000	-5.829*	0.000
Human Capital	Level	Intercept	-1.417	0.563	-1.295	0.622
		Trend & Intercept	-2.672	0.253	-1.528	0.802
	First Difference	Intercept	-4.111*	0.003	-3.992*	0.004
		Trend & Intercept	-4.120**	0.013	-3.885**	0.023
ln(n+g+d)	Level	Intercept	-3.629*	0.010	-2.021	0.277
		Trend & Intercept	-4.670*	0.003	-1.731	0.718
	First Difference	Intercept	-4.592*	0.001	-2.374	0.156
		Trend & Intercept	-4.637*	0.004	-2.387	0.380
Polity	Level	Intercept	-2.016	0.279	-2.085	0.252
		Trend & Intercept	-2.129	0.514	-2.311	0.418
	First Difference	Intercept	-5.683*	0.000	-5.742*	0.000
		Trend & Intercept	-5.621*	0.000	-5.668*	0.000
Government Expenditure	Level	Intercept	-2.716	0.081	-2.792***	0.069
		Trend & Intercept	-2.729	0.232	-2.793	0.209
	First Difference	Intercept	-4.695*	0.001	-8.492*	0.000
		Trend & Intercept	-5.403*	0.001	-10.380*	0.000
Budget Deficit	Level	Intercept	-1.923	0.319	-1.821	0.365
		Trend & Intercept	-1.969	0.599	-1.969	0.599
	First Difference	Intercept	-7.327*	0.000	-7.359*	0.000
		Trend & Intercept	-7.247*	0.000	-7.339*	0.000
Domestic Credit	Level	Intercept	-0.716	0.829	-0.648	0.848
		Trend & Intercept	-3.764**	0.031	-2.190	0.481
	First Difference	Intercept	-3.715*	0.008	-5.175*	0.000
		Trend & Intercept	-3.354***	0.077	-5.115*	0.001
Inflation	Level	Intercept	-4.008*	0.004	-3.938*	0.004
		Trend & Intercept	-4.473*	0.005	-4.465*	0.005
Money Supply	Level	Intercept	-4.199*	0.002	-4.787*	0.000
		Trend & Intercept	-4.249*	0.010	-4.782*	0.002

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 59
ADF and PP Test Results for India

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-5.105*	0.000	-5.105*	0.000
		Trend & Intercept	-4.739*	0.003	-6.109*	0.000
Initial Period GDP	Level	Intercept	1.744	1.000	5.230	1.000
		Trend & Intercept	-2.022	0.571	-1.910	0.630
	First Difference	Intercept	-5.641*	0.000	-5.647*	0.000
		Trend & Intercept	-5.884*	0.000	-10.556*	0.000
Capital Flight	Level	Intercept	-2.109	0.243	-2.029	0.274
		Trend & Intercept	-2.172	0.491	-2.089	0.535
	First Difference	Intercept	-7.918*	0.000	-7.891*	0.000
		Trend & Intercept	-7.956*	0.000	-7.937*	0.000
Human Capital	Level	Intercept	-0.643	0.849	-0.656	0.846
		Trend & Intercept	-2.792	0.210	-2.028	0.568
	First Difference	Intercept	-3.255**	0.026	-5.079*	0.000
		Trend & Intercept	-3.221***	0.098	-5.047*	0.001
ln(n+g+d)	Level	Intercept	-4.543*	0.0009	-4.585*	0.0008
		Trend & Intercept	-4.452*	0.0060	-4.440*	0.0061
Polity	Level	Intercept	-1.115	0.700	-1.115	0.700
		Trend & Intercept	-1.837	0.667	-1.895	0.638
	First Difference	Intercept	-6.083*	0.000	-6.083*	0.000
		Trend & Intercept	-6.008*	0.000	-6.007*	0.000
Government Expenditure	Level	Intercept	-3.929*	0.005	-2.556	0.111
		Trend & Intercept	-3.906**	0.022	-2.268	0.440
	First Difference	Intercept	-3.842*	0.006	-3.863*	0.005
		Trend & Intercept	-3.715**	0.034	-3.731**	0.033
Budget Deficit	Level	Intercept	-3.112**	0.034	-3.098**	0.035
		Trend & Intercept	-2.764	0.219	-2.735	0.229
	First Difference	Intercept	-3.925*	0.005	-6.581*	0.000
		Trend & Intercept	-3.184	0.108	-6.830*	0.000
Domestic Credit	Level	Intercept	-0.737	0.825	-0.354	0.907
		Trend & Intercept	-4.195**	0.013	-1.673	0.744
	First Difference	Intercept	-2.360	0.160	-5.233*	0.000
		Trend & Intercept	-3.533***	0.055	-5.200*	0.001
Inflation	Level	Intercept	-1.570	0.485	-2.253	0.192
		Trend & Intercept	-3.968**	0.021	-2.804	0.205
	First Difference	Intercept	-8.340*	0.000	-8.309*	0.000
		Trend & Intercept	-8.224*	0.000	-8.200*	0.000
Real Interest Rate	Level	Intercept	-1.683	0.429	-2.932***	0.051
		Trend & Intercept	-4.150**	0.014	-3.380***	0.069
Money Supply	Level	Intercept	-1.135	0.692	-3.187**	0.029
		Trend & Intercept	-2.017	0.573	-4.376*	0.007

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 60
ADF and PP Test Results for Indonesia

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-4.954*	0.000	-5.237*	0.000
		Trend & Intercept	-4.872*	0.002	-5.173*	0.001
Initial Period GDP	Level	Intercept	-0.123	0.939	0.370	0.979
		Trend & Intercept	-2.246	0.451	-1.964	0.602
	First Difference	Intercept	-4.613*	0.001	-4.595*	0.001
		Trend & Intercept	-4.552*	0.004	-4.533*	0.005
Capital Flight	Level	Intercept	-2.628***	0.096	-2.536	0.115
		Trend & Intercept	-2.842	0.192	-2.967	0.155
	First Difference	Intercept	-7.560*	0.000	-10.751*	0.000
		Trend & Intercept	-7.558*	0.000	-14.379*	0.000
Human Capital	Level	Intercept	-2.193	0.212	-1.948	0.308
		Trend & Intercept	-4.663*	0.004	-2.956	0.158
	First Difference	Intercept	-4.205*	0.002	-4.205*	0.002
		Trend & Intercept	-4.287*	0.009	-4.287*	0.009
ln(n+g+d)	Level	Intercept	-1.387	0.575	-1.710	0.419
		Trend & Intercept	-4.102**	0.015	-1.643	0.757
	First Difference	Intercept	-2.721***	0.083	-1.696	0.425
		Trend & Intercept	-2.721***	0.083	-1.822	0.674
Government Expenditure	Level	Intercept	-1.831	0.359	-1.698	0.424
		Trend & Intercept	-2.205	0.471	-1.487	0.817
	First Difference	Intercept	-6.057*	0.000	-6.057*	0.000
		Trend & Intercept	-6.183*	0.000	-6.258*	0.000
Budget Deficit	Level	Intercept	-3.041**	0.040	-3.010**	0.043
		Trend & Intercept	-2.808	0.206	-3.303***	0.081
Domestic Credit	Level	Intercept	-2.351	0.162	-2.053	0.264
		Trend & Intercept	-2.339	0.404	-1.871	0.650
	First Difference	Intercept	-4.371*	0.001	-4.313*	0.002
		Trend & Intercept	-4.359*	0.007	-4.294*	0.009
Inflation	Level	Intercept	-4.109*	0.003	-4.057*	0.003
		Trend & Intercept	-4.489*	0.005	-4.455*	0.006
Real Interest Rate	Level	Intercept	-3.356**	0.019	-3.187**	0.029
		Trend & Intercept	-4.138**	0.012	-4.089**	0.014
Money Supply	Level	Intercept	-3.958*	0.004	-4.062*	0.003
		Trend & Intercept	-5.249*	0.001	-5.249*	0.001

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 61
ADF and PP Test Results for Pakistan

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.250**	0.026	-4.045*	0.003
		Trend & Intercept	-3.283***	0.086	-4.054*	0.015
Initial Period GDP	Level	Intercept	-0.957	0.757	-1.029	0.733
		Trend & Intercept	-3.677**	0.038	-2.423	0.363
	First Difference	Intercept	-3.418**	0.018	-3.924*	0.005
		Trend & Intercept	-3.431***	0.065	-3.915**	0.021
Capital Flight	Level	Intercept	-2.793***	0.069	-2.732***	0.078
		Trend & Intercept	-2.744	0.226	-2.739	0.228
	First Difference	Intercept	-7.117*	0.000	-8.429*	0.000
		Trend & Intercept	-7.057*	0.000	-12.382*	0.000
Human Capital	Level	Intercept	-0.979	0.745	-0.799	0.803
		Trend & Intercept	-1.673	0.735	-1.807	0.673
	First Difference	Intercept	-3.547**	0.015	-3.561**	0.015
		Trend & Intercept	-3.517***	0.059	-3.525***	0.058
ln(n+g+d)	Level	Intercept	-0.770	0.813	-0.539	0.872
		Trend & Intercept	-1.085	0.915	-2.350	0.398
	First Difference	Intercept	-0.628	0.849	-2.803***	0.068
		Trend & Intercept	-0.680	0.965	-2.692***	0.0858
Government Expenditure	Level	Intercept	-1.429	0.558	-1.665	0.441
		Trend & Intercept	-1.651	0.753	-1.905	0.632
	First Difference	Intercept	-4.922*	0.000	-4.929*	0.000
		Trend & Intercept	-4.852*	0.002	-4.860*	0.002
Inflation	Level	Intercept	-3.702*	0.008	-2.909**	0.054
		Trend & Intercept	-3.643**	0.040	-5.402*	0.000
Money Supply	Level	Intercept	-1.243	0.646	-1.288	0.625
		Trend & Intercept	-3.249***	0.091	-2.651	0.262
	First Difference	Intercept	-5.241*	0.000	-6.485*	0.000
		Trend & Intercept	-5.200*	0.001	-6.765*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 62
ADF and PP Test Results for Jordan

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-4.331*	0.002	-4.473*	0.001
		Trend & Intercept	-4.343*	0.007	-4.478*	0.005
Initial Period GDP	Level	Intercept	0.317	0.976	0.368	0.979
		Trend & Intercept	-2.314	0.416	-1.831	0.670
	First Difference	Intercept	-3.589**	0.011	-4.658*	0.001
		Trend & Intercept	-4.665*	0.003	-4.735*	0.003
Capital Flight	Level	Intercept	-3.532**	0.012	-3.417*	0.017
		Trend & Intercept	-4.201**	0.011	-4.102**	0.013
Human Capital	Level	Intercept	-0.940	0.764	-0.919	0.771
		Trend & Intercept	-2.407	0.370	-2.465	0.343
	First Difference	Intercept	-1.912	0.322	-6.155*	0.000
		Trend & Intercept	-3.976**	0.023	-6.064*	0.000
ln(n+g+d)	Level	Intercept	-2.060	0.262	-2.192	0.212
		Trend & Intercept	-2.185	0.483	-2.360	0.393
	First Difference	Intercept	-6.071*	0.000	-6.071*	0.000
		Trend & Intercept	-5.970*	0.000	-5.970*	0.000
Government Expenditure	Level	Intercept	-1.098	0.706	-1.672	0.437
		Trend & Intercept	-3.685**	0.036	-3.788	0.028
	First Difference	Intercept	-8.425*	0.000	-8.713*	0.000
		Trend & Intercept	-8.317*	0.000	-8.579*	0.000
Inflation	Level	Intercept	-3.632*	0.010	-3.346**	0.020
		Trend & Intercept	-3.809**	0.027	-3.447***	0.060
Money Supply	Level	Intercept	-6.583*	0.000	-6.577*	0.000
		Trend & Intercept	-6.811*	0.000	-6.811*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 63
ADF and PP Test Results for China

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-2.520	0.119	-3.316**	0.021
		Trend & Intercept	-4.253*	0.009	-3.597**	0.044
Initial Period GDP	Level	Intercept	-1.864	0.345	-1.971	0.298
		Trend & Intercept	-1.913	0.627	-1.094	0.917
	First Difference	Intercept	-3.703*	0.008	-2.726***	0.079
		Trend & Intercept	-4.231*	0.010	-3.121	0.117
Capital Flight	llevel	Intercept	-4.148*	0.002	-4.093*	0.003
		Trend & Intercept	-4.235*	0.010	-4.186**	0.011
Gross Capital Formation	Level	Intercept	-0.409	0.896	-0.944	0.763
		Trend & Intercept	-4.003**	0.017	-2.092	0.534
	First Difference	Intercept	-3.345**	0.021	-6.254*	0.000
		Trend & Intercept	-3.262***	0.091	-6.026*	0.000
ln(n+g+d)	Level	Intercept	-1.680	0.432	-0.178	0.933
		Trend & Intercept	-2.152	0.497	-2.307	0.420
	First Difference	Intercept	-3.118*	0.035	-4.579*	0.001
		Trend & Intercept	-3.142	0.113	-4.508*	0.005
Government Expenditure	Level	Intercept	-1.583	0.481	-1.599	0.473
		Trend & Intercept	-4.049**	0.015	-2.517	0.319
	First Difference	Intercept	-5.596*	0.000	-3.518**	0.013
		Trend & Intercept	-5.513*	0.000	-3.455***	0.060
Domestic credit to the private sector	Level	Intercept	-0.183	0.931	0.022	0.954
		Trend & Intercept	-2.178	0.486	-2.178	0.486
	First Difference	Intercept	-5.024*	0.000	-5.534*	0.000
		Trend & Intercept	-5.062*	0.001	-5.716*	0.000
Money Supply	Level	Intercept	-1.724	0.409	-1.070	0.718
		Trend & Intercept	-2.329	0.409	-2.329	0.409
	First Difference	Intercept	-2.817***	0.068	-6.023*	0.000
		Trend & Intercept	-3.301***	0.086	-6.322*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 64
ADF and PP Test Results for Nepal

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-6.274*	0.000	-6.313*	0.000
		Trend & Intercept	-6.248*	0.000	-6.299*	0.000
Initial Period GDP	Level	Intercept	2.881	1.000	7.951	1.000
		Trend & Intercept	-1.156	0.905	-0.705	0.965
	First Difference	Intercept	-6.562*	0.000	-6.562*	0.000
		Trend & Intercept	-7.488*	0.000	-8.398*	0.000
Capital Flight	Level	Intercept	0.544	0.986	-1.107	0.703
		Trend & Intercept	-2.710	0.239	-2.532	0.312
	First Difference	Intercept	-6.302*	0.000	-9.905*	0.000
		Trend & Intercept	-3.435***	0.064	-20.952*	0.000
Gross Capital Formation	Level	Intercept	0.288	0.975	0.235	0.971
		Trend & Intercept	-0.778	0.959	-0.974	0.936
	First Difference	Intercept	-2.128	0.236	-6.652*	0.000
		Trend & Intercept	-2.634	0.269	-7.002*	0.000
ln(n+g+d)	Level	Intercept	2.023	1.000	-2.089	0.250
		Trend & Intercept	3.024	1.000	-2.410	0.369
	First Difference	Intercept	1.254	0.998	-6.255*	0.000
		Trend & Intercept	-0.570	0.974	-6.197*	0.000
Polity	Level	Intercept	-2.198	0.210	-2.275	0.185
		Trend & Intercept	-2.534	0.311	-2.647	0.263
	First Difference	Intercept	-4.453*	0.001	-5.955*	0.000
		Trend & Intercept	-4.383*	0.007	-5.870*	0.000
Government Expenditure	Level	Intercept	-1.131	0.693	-2.341	0.165
		Trend & Intercept	-1.954	0.606	-3.167	0.106
	First Difference	Intercept	-8.284*	0.000	-9.547*	0.000
		Trend & Intercept	-8.195*	0.000	-11.131*	0.000
Domestic Credit	Level	Intercept	1.550	0.999	2.166	1.000
		Trend & Intercept	-1.172	0.902	-1.216	0.893
	First Difference	Intercept	-5.494*	0.000	-5.494*	0.000
		Trend & Intercept	-6.029*	0.000	-6.143*	0.000
Inflation	Level	Intercept	-3.742*	0.007	-3.712*	0.008
		Trend & Intercept	-4.082**	0.014	-4.082**	0.014
Money Supply	Level	Intercept	4.684	1.000	2.331	1.000
		Trend & Intercept	0.769	1.000	-1.310	0.870
	First Difference	Intercept	-0.899	0.775	-6.021*	0.000
		Trend & Intercept	-6.285*	0.000	-11.203*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 65
ADF and PP Test Results for Sri Lanka

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.340**	0.020	-3.300**	0.022
		Trend & Intercept	-3.388***	0.069	-3.372***	0.071
Initial Period GDP	Level	Intercept	1.150	0.997	0.894	0.994
		Trend & Intercept	-2.113	0.522	-2.007	0.579
	First Difference	Intercept	-4.119*	0.003	-4.092*	0.003
		Trend & Intercept	-4.126**	0.013	-4.126**	0.013
Capital Flight	Level	Intercept	-1.566	0.489	-4.503*	0.001
		Trend & Intercept	-1.596	0.774	-4.742*	0.003
Gross Capital Formation	Level	Intercept	-2.156	0.225	-2.100	0.246
		Trend & Intercept	-2.741	0.227	-2.509	0.322
	First Difference	Intercept	-2.562	0.112	-6.403*	0.000
		Trend & Intercept	-1.910	0.624	-6.406*	0.000
ln(n+g+d)	Level	Intercept	-3.048**	0.039	-2.917***	0.053
		Trend & Intercept	-3.587**	0.044	-3.568**	0.046
Polity	Level	Intercept	-2.883***	0.057	-2.521	0.119
		Trend & Intercept	-2.818	0.200	-2.403	0.372
	First Difference	Intercept	-5.451*	0.000	-5.436*	0.000
		Trend & Intercept	-3.101	0.124	-5.348*	0.001
Government Expenditure	Level	Intercept	-6.531*	0.000	-6.535*	0.000
		Trend & Intercept	-6.433*	0.000	-6.445*	0.000
Budget Deficit	Level	Intercept	-3.348**	0.020	-3.274**	0.023
		Trend & Intercept	-3.430***	0.062	-3.393***	0.067
Domestic Credit	Level	Intercept	-0.619	0.854	-0.720	0.830
		Trend & Intercept	-2.611	0.278	-2.385	0.381
	First Difference	Intercept	-5.650*	0.000	-5.643*	0.000
		Trend & Intercept	-5.673*	0.000	-5.740*	0.000
Inflation	Level	Intercept	-4.595*	0.001	-4.586*	0.001
		Trend & Intercept	-5.300*	0.001	-5.299*	0.001
Money Supply	Level	Intercept	0.716	0.991	1.107	0.997
		Trend & Intercept	-1.267	0.880	-0.635	0.971
	First Difference	Intercept	-3.066**	0.038	-7.232*	0.000
		Trend & Intercept	-3.593**	0.045	-7.928*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 66
ADF and PP Test Results for Philippines

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.483**	0.014	-3.483**	0.014
		Trend & Intercept	-3.954**	0.020	-4.284*	0.009
Initial Period GDP	Level	Intercept	0.918	0.994	3.075	1.000
		Trend & Intercept	-0.015	0.994	-1.994	0.586
	First Difference	Intercept	-0.342	0.907	-2.782***	0.071
		Trend & Intercept	-7.229*	0.000	-3.942**	0.020
Capital Flight	Level	Intercept	-4.661*	0.001	-4.666*	0.001
		Trend & Intercept	-4.600*	0.004	-4.588*	0.004
Gross Capital Formation	Level	Intercept	-1.336	0.601	-2.295	0.179
		Trend & Intercept	-1.243	0.884	-2.078	0.541
	First Difference	Intercept	-4.401*	0.001	-4.430*	0.001
		Trend & Intercept	-4.121**	0.014	-4.617*	0.004
ln(n+g+d)	Level	Intercept	0.685	0.990	1.124	0.997
		Trend & Intercept	-3.100	0.124	-2.275	0.437
	First Difference	Intercept	-5.737*	0.000	-5.733*	0.000
		Trend & Intercept	-5.989*	0.000	-6.124*	0.000
Government Expenditure	Level	Intercept	-1.516	0.514	-1.359	0.592
		Trend & Intercept	-1.974	0.596	-1.731	0.718
	First Difference	Intercept	-4.085*	0.003	-4.074*	0.003
		Trend & Intercept	-4.067**	0.015	-4.068**	0.015
Budget Deficit	Level	Intercept	-2.550	0.112	-2.593	0.103
		Trend & Intercept	-2.492	0.330	-2.538	0.309
	First Difference	Intercept	-6.554*	0.000	-6.550*	0.000
		Trend & Intercept	-6.480*	0.000	-6.477*	0.000
Inflation	Level	Intercept	-2.496	0.125	-3.103**	0.035
		Trend & Intercept	-3.905**	0.022	-3.901**	0.022
Real Interest Rate	Level	Intercept	-0.743	0.822	-4.584*	0.001
		Trend & Intercept	-6.637*	0.000	-6.711*	0.000
Money Supply	Level	Intercept	-0.727	0.828	-0.686	0.838
		Trend & Intercept	-3.312***	0.083	-2.150	0.502
	First Difference	Intercept	-6.760*	0.000	-6.735*	0.000
		Trend & Intercept	-6.663*	0.000	-6.642*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 67
ADF and PP Test Results for Thailand

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.386**	0.018	-3.340**	0.020
		Trend & Intercept	-3.755**	0.031	-3.755**	0.031
Initial Period GDP	Level	Intercept	-2.051	0.265	-2.349	0.163
		Trend & Intercept	-1.829	0.670	-1.328	0.866
	First Difference	Intercept	-3.214**	0.027	-3.214**	0.027
		Trend & Intercept	-3.669**	0.037	-3.690**	0.036
Capital Flight	Level	Intercept	-2.402	0.148	-2.587	0.104
		Trend & Intercept	-2.385	0.381	-2.595	0.284
	First Difference	Intercept	-5.808*	0.000	-5.845*	0.000
		Trend & Intercept	-5.708*	0.000	-5.726*	0.000
Gross Capital Formation	Level	Intercept	-1.578	0.483	-1.248	0.644
		Trend & Intercept	-3.050	0.133	-1.732	0.717
	First Difference	Intercept	-4.325*	0.002	-3.219**	0.027
		Trend & Intercept	-4.281*	0.009	-3.124	0.116
ln(n+g+d)	Level	Intercept	1.481	0.999	0.022	0.955
		Trend & Intercept	-1.203	0.892	-2.411	0.368
	First Difference	Intercept	-4.219*	0.003	-3.891*	0.005
		Trend & Intercept	-4.275*	0.010	-3.774**	0.030
Government Expenditure	Level	Intercept	-0.326	0.912	-0.767	0.817
		Trend & Intercept	-2.868	0.184	-2.045	0.559
	First Difference	Intercept	-3.548**	0.012	-3.566**	0.012
		Trend & Intercept	-3.602**	0.043	-3.642**	0.040
Inflation	Level	Intercept	-2.451	0.135	-3.649*	0.009
		Trend & Intercept	-4.125**	0.013	-4.166**	0.011
Growth in Money Supply	Level	Intercept	-2.199	0.210	-2.079	0.254
		Trend & Intercept	-2.275	0.436	-2.018	0.573
	First Difference	Intercept	-4.993*	0.000	-5.018*	0.000
		Trend & Intercept	-5.198*	0.001	-5.230*	0.001

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 68
ADF and PP Test Results for Benin

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-5.369*	0.000	-6.946*	0.000
		Trend & Intercept	-5.221*	0.001	-7.101*	0.000
Initial Period GDP	Level	Intercept	1.344	0.998	2.953	1.000
		Trend & Intercept	-3.096	0.124	-2.189	0.482
	First Difference	Intercept	-2.682***	0.089	-6.032*	0.000
		Trend & Intercept	-2.907	0.175	-11.342*	0.000
Capital Flight	Level	Intercept	-2.418	0.146	-6.082*	0.000
		Trend & Intercept	-1.066	0.918	-7.087*	0.000
Gross Capital Formation	Level	Intercept	-1.430	0.555	-1.615	0.465
		Trend & Intercept	-3.805**	0.032	-2.333	0.407
	First Difference	Intercept	-7.824*	0.000	-7.933*	0.000
		Trend & Intercept	-7.981*	0.000	-8.201*	0.000
ln(n+g+d)	Level	Intercept	0.237	0.971	-1.528	0.509
		Trend & Intercept	-3.125	0.120	-2.149	0.503
	First Difference	Intercept	-5.167*	0.000	-0.555	0.8683
		Trend & Intercept	-4.303**	0.011	-3.600**	0.0439
Government Expenditure	Level	Intercept	-2.099	0.246	-2.144	0.229
		Trend & Intercept	-3.051	0.132	-3.082	0.125
	First Difference	Intercept	-7.029*	0.000	-7.029*	0.000
		Trend & Intercept	-3.423***	0.069	-6.987*	0.000
Domestic Credit	Level	Intercept	-2.804***	0.068	-1.474	0.536
		Trend & Intercept	-0.834	0.953	-0.941	0.940
	First Difference	Intercept	-1.319	0.610	-6.804*	0.000
		Trend & Intercept	-1.704	0.728	-7.386*	0.000
Growth in Money Supply	Level	Intercept	-1.344	0.599	-1.598	0.474
		Trend & Intercept	-1.453	0.828	-1.684	0.739
	First Difference	Intercept	-6.031*	0.000	-6.045*	0.000
		Trend & Intercept	-6.011*	0.000	-6.022*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 69
ADF and PP Test Results for Cameroon

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-2.831***	0.064	-2.693*	0.085
		Trend & Intercept	-2.935	0.164	-2.816	0.201
	First Difference	Intercept	-5.983*	0.000	-7.772*	0.000
		Trend & Intercept	-5.964*	0.000	-7.827*	0.000
Initial Period GDP	Level	Intercept	0.270	0.972	0.285	0.974
		Trend & Intercept	-4.913*	0.002	-1.149	0.907
	First Difference	Intercept	-1.998	0.286	-2.637***	0.095
		Trend & Intercept	-3.425***	0.067	-2.692***	0.086
Capital Flight	Level	Intercept	-3.815*	0.006	-3.854*	0.005
		Trend & Intercept	-3.738**	0.032	-3.781**	0.029
Gross Capital Formation	Level	Intercept	-2.334	0.167	-2.405	0.147
		Trend & Intercept	-2.375	0.386	-2.417	0.365
	First Difference	Intercept	-5.662*	0.000	-5.662*	0.000
		Trend & Intercept	-4.330*	0.008	-5.638*	0.000
ln(n+g+d)	Level	Intercept	-1.261	0.634	-0.966	0.755
		Trend & Intercept	-2.378	0.382	-1.660	0.749
	First Difference	Intercept	-1.221	0.651	-3.740*	0.0076
		Trend & Intercept	-3.627**	0.044	-3.916**	0.0218
Government Expenditure	Level	Intercept	0.627	0.988	-0.664	0.844
		Trend & Intercept	-4.040**	0.018	-1.496	0.814
	First Difference	Intercept	-2.854***	0.063	-4.493*	0.001
		Trend & Intercept	-2.902	0.176	-4.414*	0.006
Domestic Credit	Level	Intercept	-2.347	0.163	-2.106	0.244
		Trend & Intercept	-1.300	0.873	-1.343	0.861
	First Difference	Intercept	-4.679*	0.001	-4.622*	0.001
		Trend & Intercept	-4.990*	0.001	-4.894*	0.002
Inflation	Level	Intercept	-3.563**	0.012	-2.904***	0.054
		Trend & Intercept	-3.983**	0.021	-3.502***	0.0547

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 70
ADF and PP Test Results for Kenya

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.400**	0.017	-3.400**	0.017
		Trend & Intercept	-3.666**	0.038	-3.818**	0.026
Initial Period GDP	Level	Intercept	0.702	0.991	1.749	1.000
		Trend & Intercept	0.031	0.995	-0.076	0.994
	First Difference	Intercept	-3.224**	0.027	-3.237**	0.026
		Trend & Intercept	-3.271***	0.088	-3.911**	0.022
Capital Flight	Level	Intercept	-4.550*	0.001	-4.525*	0.001
		Trend & Intercept	-4.556*	0.004	-4.534*	0.005
ln(n+g+d)	Level	Intercept	-2.257	0.192	-0.583	0.863
		Trend & Intercept	-4.341*	0.008	-1.562	0.789
	First Difference	Intercept	-1.185	0.666	-3.846*	0.0058
		Trend & Intercept	-4.567*	0.006	-3.756**	0.0314
Gross Capital Formation	Level	Intercept	-2.597	0.102	-2.495	0.125
		Trend & Intercept	-2.697	0.244	-2.619	0.274
	First Difference	Intercept	-5.665*	0.000	-8.019*	0.000
		Trend & Intercept	-5.571*	0.000	-7.883*	0.000
Government Expenditure	Level	Intercept	-0.413	0.897	-0.007	0.952
		Trend & Intercept	-2.219	0.466	-2.046	0.558
	First Difference	Intercept	-4.512*	0.001	-4.529*	0.001
		Trend & Intercept	-4.435*	0.006	-4.453*	0.006
Domestic Credit	Level	Intercept	-1.360	0.591	-1.447	0.549
		Trend & Intercept	-4.567*	0.005	-2.636	0.268
	First Difference	Intercept	-4.215*	0.003	-5.470*	0.000
		Trend & Intercept	-3.874**	0.027	-5.356*	0.001
Real Interest Rate	Level	Intercept	-4.427*	0.001	-4.541*	0.001
		Trend & Intercept	-4.361*	0.007	-4.488*	0.005

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 71
ADF and PP Test Results for Egypt

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.119	0.036	-3.752*	0.007
		Trend & Intercept	-2.997	0.149	-3.734**	0.032
Initial Period GDP	Level	Intercept	0.081	0.959	-1.268	0.634
		Trend & Intercept	-4.679*	0.003	-2.777	0.214
	First Difference	Intercept	-3.786*	0.007	-4.532*	0.001
		Trend & Intercept	-3.645**	0.041	-4.305*	0.008
Capital Flight	Level	Intercept	-2.685***	0.086	-2.691***	0.085
		Trend & Intercept	-2.214	0.469	-2.178	0.488
	First Difference	Intercept	-4.863*	0.000	-5.700*	0.000
		Trend & Intercept	-5.082*	0.001	-6.034*	0.000
Human Capital	Level	Intercept	-1.913	0.323	-2.081	0.253
		Trend & Intercept	-2.391	0.378	-2.213	0.469
	First Difference	Intercept	-2.792**	0.070	-5.104*	0.000
		Trend & Intercept	-2.798	0.207	-5.037*	0.001
ln(n+g+d)	Level	Intercept	-1.489	0.528	-1.570	0.487
		Trend & Intercept	-1.949	0.609	-2.061	0.549
	First Difference	Intercept	-5.718*	0.000	-5.724*	0.000
		Trend & Intercept	-5.669*	0.000	-5.678*	0.000
Government Expenditure	Level	Intercept	-1.050	0.725	-1.800	0.375
		Trend & Intercept	-1.712	0.726	-2.120	0.519
	First Difference	Intercept	-3.985*	0.004	-4.001*	0.004
		Trend & Intercept	-3.871**	0.024	-3.883**	0.023
Domestic Credit	Level	Intercept	-2.066	0.259	-1.375	0.584
		Trend & Intercept	-1.829	0.669	-1.048	0.925
	First Difference	Intercept	-3.536**	0.012	-3.616*	0.010
		Trend & Intercept	-2.786	0.213	-3.870**	0.024
Growth in Money Supply	Level	Intercept	-3.652*	0.010	-2.491	0.126
		Trend & Intercept	-3.660**	0.039	-2.445	0.352
	First Difference	Intercept	-3.496**	0.014	-4.912*	0.000
		Trend & Intercept	-3.472***	0.059	-4.882*	0.002

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 72
ADF and PP Test Results for Morocco

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-2.579	0.107	-12.290*	0.000
		Trend & Intercept	-2.544	0.307	-12.124*	0.000
Initial Period GDP	Level	Intercept	-0.922	0.769	-1.403	0.571
		Trend & Intercept	-3.424***	0.067	-3.762**	0.030
	First Difference	Intercept	-2.295	0.179	-11.226*	0.000
		Trend & Intercept	-2.388	0.379	-11.412*	0.000
Capital Flight	Level	Intercept	-1.827	0.362	-2.530	0.117
		Trend & Intercept	-1.870	0.648	-2.400	0.374
	First Difference	Intercept	-8.799*	0.000	-9.130*	0.000
		Trend & Intercept	-8.928*	0.000	-9.075*	0.000
Human Capital	Level	Intercept	-0.700	0.832	-1.172	0.676
		Trend & Intercept	-4.819*	0.003	-2.146	0.505
	First Difference	Intercept	-3.059**	0.039	-3.054**	0.039
		Trend & Intercept	-2.055	0.548	-3.648*	0.0096
ln(n+g+d)	Level	Intercept	-1.766	0.391	-1.787	0.381
		Trend & Intercept	-1.096	0.915	-1.218	0.892
	First Difference	Intercept	-4.775*	0.0005	-4.776*	0.001
		Trend & Intercept	-5.011*	0.0014	-4.949*	0.002
Government Expenditure	Level	Intercept	-0.299	0.915	-2.109	0.242
		Trend & Intercept	-4.062**	0.015	-3.515	0.052
	First Difference	Intercept	-5.533*	0.000	-11.391*	0.000
		Trend & Intercept	-3.805**	0.031	-16.383*	0.000
Inflation	Level	Intercept	-2.292	0.181	-3.125**	0.033
		Trend & Intercept	-4.401*	0.006	-4.325*	0.008
Money Supply	Level	Intercept	-0.684	0.838	-0.170	0.934
		Trend & Intercept	-2.147	0.503	-1.932	0.618
	First Difference	Intercept	-2.501	0.124	-5.617*	0.000
		Trend & Intercept	-2.419	0.364	-5.523*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 73
ADF and PP Test Results for South Africa

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-4.463*	0.001	-4.529*	0.001
		Trend & Intercept	-4.515*	0.005	-4.581*	0.004
Initial Period GDP	Level	Intercept	-0.093	0.943	0.414	0.981
		Trend & Intercept	-2.028	0.567	-2.181	0.486
	First Difference	Intercept	-4.034*	0.003	-4.004*	0.004
		Trend & Intercept	-3.944**	0.020	-3.919**	0.021
Capital Flight	Level	Intercept	-4.863*	0.000	-4.898*	0.000
		Trend & Intercept	-5.830*	0.000	-5.861*	0.000
Human Capital	Level	Intercept	-3.328**	0.021	-2.798***	0.068
		Trend & Intercept	-3.002	0.145	-2.262	0.444
	First Difference	Intercept	-3.919*	0.005	-3.868*	0.005
		Trend & Intercept	-4.119**	0.013	-3.870**	0.024
ln(n+g+d)	Level	Intercept	1.821	0.9996	1.902	0.9997
		Trend & Intercept	-1.480	0.8156	-1.931	0.6178
	First Difference	Intercept	-2.787	0.0711	-4.256*	0.0020
		Trend & Intercept	-5.440*	0.0005	-5.423*	0.0005
Government Expenditure	Level	Intercept	-1.847	0.353	-1.717	0.415
		Trend & Intercept	-3.352***	0.073	-3.342***	0.075
	First Difference	Intercept	-6.836*	0.000	-13.486*	0.000
		Trend & Intercept	-6.759*	0.000	-14.252*	0.000
Budget Deficit	Level	Intercept	-2.586	0.105	-2.648***	0.093
		Trend & Intercept	-2.550	0.304	-2.613	0.277
	First Difference	Intercept	-6.146*	0.000	-6.674*	0.000
		Trend & Intercept	-6.059*	0.000	-6.573*	0.000
Domestic Credit	Level	Intercept	-1.895	0.331	-1.849	0.352
		Trend & Intercept	-2.366	0.390	-2.410	0.369
	First Difference	Intercept	-7.021*	0.000	-7.023*	0.000
		Trend & Intercept	-4.412*	0.007	-7.046*	0.000
Inflation	Level	Intercept	-1.207	0.660	-1.548	0.499
		Trend & Intercept	-0.947	0.938	-2.717	0.236
	First Difference	Intercept	-3.156**	0.032	-9.655*	0.000
		Trend & Intercept	-5.627*	0.000	-10.000*	0.000
Real Interest Rate	Level	Intercept	-3.865*	0.006	-8.914*	0.000
		Trend & Intercept	-4.037**	0.017	-8.721*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 74
ADF and PP Test Results for Rwanda

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-4.430*	0.001	-4.422*	0.001
		Trend & Intercept	-5.598*	0.000	-5.600*	0.000
Initial Period GDP	Level	Intercept	-0.352	0.907	0.207	0.970
		Trend & Intercept	-1.968	0.600	-1.688	0.737
	First Difference	Intercept	-7.431*	0.000	-7.681*	0.000
		Trend & Intercept	-6.339*	0.000	-18.279*	0.000
Capital Flight	Level	Intercept	-3.059**	0.038	-3.086**	0.036
		Trend & Intercept	-3.595**	0.044	-3.595**	0.044
Human Capital	Level	Intercept	0.590	0.988	0.088	0.961
		Trend & Intercept	-0.910	0.944	-1.532	0.800
	First Difference	Intercept	-6.934*	0.000	-7.546*	0.000
		Trend & Intercept	-7.296*	0.000	-8.995*	0.000
ln(n+g+d)	Level	Intercept	-2.879***	0.059	-2.378	0.155
		Trend & Intercept	-3.720**	0.036	-2.358	0.395
	First Difference	Intercept	-3.349**	0.021	-4.575*	0.001
		Trend & Intercept	-3.371***	0.074	-4.513*	0.005
Polity	Level	Intercept	-0.817	0.803	-0.802	0.807
		Trend & Intercept	-1.910	0.630	-1.959	0.605
	First Difference	Intercept	-6.264*	0.000	-6.264*	0.000
		Trend & Intercept	-6.176*	0.000	-6.176*	0.000
Government Expenditure	Level	Intercept	-2.264	0.188	-2.264	0.188
		Trend & Intercept	-2.664	0.256	-2.664	0.256
	First Difference	Intercept	-5.406*	0.000	-5.672*	0.000
		Trend & Intercept	-5.327*	0.001	-5.584*	0.000
Domestic Credit	Level	Intercept	0.268	0.973	0.659	0.990
		Trend & Intercept	-1.466	0.824	-1.329	0.865
	First Difference	Intercept	-5.091*	0.000	-5.047*	0.000
		Trend & Intercept	-5.273*	0.001	-6.681*	0.000
Inflation	Level	Intercept	-4.884*	0.000	-3.868*	0.005
		Trend & Intercept	-4.697*	0.003	-3.815**	0.027

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 75
ADF and PP Test Results for Sierra Leone

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-3.286**	0.023	-6.036*	0.000
		Trend & Intercept	-7.177*	0.000	-7.204*	0.000
Initial Period GDP	Level	Intercept	-1.330	0.606	-1.325	0.608
		Trend & Intercept	-1.421	0.838	-1.291	0.875
	First Difference	Intercept	-6.200*	0.000	-6.200*	0.000
		Trend & Intercept	-6.608*	0.000	-6.802*	0.000
Capital Flight	Level	Intercept	-4.797*	0.000	-4.797*	0.000
		Trend & Intercept	-4.933*	0.002	-4.950*	0.002
Human Capital	Level	Intercept	-0.732	0.826	-0.737	0.825
		Trend & Intercept	-1.531	0.801	-1.749	0.709
	First Difference	Intercept	-5.801*	0.000	-5.798*	0.000
		Trend & Intercept	-5.717*	0.000	-5.712*	0.000
ln(n+g+d)	Level	Intercept	-2.123	0.237	-1.960	0.303
		Trend & Intercept	-2.505	0.324	-2.048	0.557
	First Difference	Intercept	-4.461*	0.001	-4.452*	0.001
		Trend & Intercept	-4.407*	0.006	-4.398*	0.007
Polity	Level	Intercept	-0.869	0.787	-0.816	0.803
		Trend & Intercept	-2.731	0.231	-2.637	0.267
	First Difference	Intercept	-8.009*	0.000	-8.534*	0.000
		Trend & Intercept	-7.901*	0.000	-8.442*	0.000
Government Expenditure	Level	Intercept	-3.084**	0.036	-3.058**	0.039
		Trend & Intercept	-3.038	0.136	-3.029	0.138
	First Difference	Intercept	-7.579*	0.000	-9.241*	0.000
		Trend & Intercept	-4.366*	0.008	-9.934*	0.000
Real Interest Rate	Level	Intercept	-3.922*	0.005	-3.833*	0.006
		Trend & Intercept	-3.101	0.124	-5.372*	0.001
Money Supply	Level	Intercept	-1.664	0.441	-1.635	0.455
		Trend & Intercept	-1.632	0.761	-1.645	0.756
	First Difference	Intercept	-6.386*	0.000	-6.386*	0.000
		Trend & Intercept	-6.538*	0.000	-7.396*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 76
ADF and PP Test Results for Togo

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-4.129*	0.003	-4.129*	0.003
		Trend & Intercept	-4.202*	0.010	-4.202*	0.010
Initial Period GDP	Level	Intercept	-1.775	0.387	-2.070	0.258
		Trend & Intercept	-1.830	0.670	-1.944	0.612
	First Difference	Intercept	-3.630*	0.010	-5.124*	0.000
		Trend & Intercept	-4.369*	0.008	-5.395*	0.001
Capital Flight	Level	Intercept	-5.471*	0.000	-5.522*	0.000
		Trend & Intercept	-5.534*	0.000	-5.776*	0.000
Human Capital	Level	Intercept	-2.241	0.196	-2.734***	0.078
		Trend & Intercept	-2.328	0.409	-2.576	0.293
	First Difference	Intercept	-4.557*	0.001	-8.072*	0.000
		Trend & Intercept	-4.635*	0.004	-11.030*	0.000
ln(n+g+d)	Level	Intercept	-2.006	0.283	-1.901	0.328
		Trend & Intercept	-3.694**	0.038	-2.129	0.514
	First Difference	Intercept	-3.597**	0.012	-2.840***	0.063
		Trend & Intercept	-3.313***	0.084	-2.808***	0.067
Polity	Level	Intercept	-1.871	0.342	-1.536	0.505
		Trend & Intercept	-2.088	0.535	-1.756	0.706
	First Difference	Intercept	-3.164**	0.031	-6.135*	0.000
		Trend & Intercept	-3.197	0.101	-6.128*	0.000
Government Expenditure	Level	Intercept	-2.931***	0.051	-2.808***	0.067
		Trend & Intercept	-2.890	0.177	-2.716	0.236
	First Difference	Intercept	-7.849*	0.000	-9.684*	0.000
		Trend & Intercept	-7.990*	0.000	-15.694*	0.000
Inflation	Level	Intercept	-5.062*	0.000	-4.735*	0.001
		Trend & Intercept	-5.147*	0.001	-4.605*	0.004
Money Supply	Level	Intercept	-2.811***	0.069	-0.229	0.926
		Trend & Intercept	-2.839	0.196	-0.449	0.982
	First Difference	Intercept	-1.528	0.508	-5.676*	0.000
		Trend & Intercept	-6.665*	0.000	-6.694*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 77
ADF and PP Test Results for Madagascar

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-2.773***	0.072	-2.753***	0.075
		Trend & Intercept	-2.768	0.217	-2.797	0.207
	First Difference	Intercept	-6.104*	0.000	-6.151*	0.000
		Trend & Intercept	-6.129*	0.000	-6.226*	0.000
Initial Period GDP	Level	Intercept	-2.689***	0.085	-2.737***	0.077
		Trend & Intercept	-2.127	0.515	-2.054	0.554
	First Difference	Intercept	-6.867*	0.000	-6.902*	0.000
		Trend & Intercept	-7.204*	0.000	-9.129*	0.000
Capital Flight	Level	Intercept	-5.778*	0.000	-5.630*	0.000
		Trend & Intercept	-7.600*	0.000	-13.384*	0.000
Gross Capital Formation	Level	Intercept	-2.881***	0.060	-2.851***	0.061
		Trend & Intercept	-2.488	0.331	-2.790	0.209
	First Difference	Intercept	-3.259**	0.026	-6.373*	0.000
		Trend & Intercept	-3.213	0.101	-6.276*	0.000
Polity	Level	Intercept	-2.175	0.219	-1.746	0.401
		Trend & Intercept	-2.046	0.557	-1.640	0.758
	First Difference	Intercept	-4.387*	0.001	-4.334*	0.002
		Trend & Intercept	-4.447*	0.006	-4.305*	0.008
Government Expenditure	Level	Intercept	-3.314**	0.021	-3.447**	0.015
		Trend & Intercept	-3.709**	0.034	-3.779**	0.029
Real Interest Rate	Level	Intercept	-1.398	0.573	-1.281	0.628
		Trend & Intercept	-2.746	0.225	-2.633	0.269
	First Difference	Intercept	-6.506*	0.000	-9.605*	0.000
		Trend & Intercept	-6.430*	0.000	-12.293*	0.000
Money Supply	Level	Intercept	-0.820	0.802	-0.820	0.802
		Trend & Intercept	-3.431***	0.064	-4.418*	0.006
	First Difference	Intercept	-3.828*	0.007	-7.542*	0.000
		Trend & Intercept	-3.751**	0.033	-7.351*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 78
ADF and PP Test Results for Nigeria

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-3.972*	0.004	-4.172*	0.002
		Trend & Intercept	-3.474***	0.058	-3.982**	0.018
Initial Period GDP	Level	Intercept	-0.414	0.896	0.722	0.991
		Trend & Intercept	-1.832	0.666	-3.150	0.110
	First Difference	Intercept	-3.383**	0.019	-3.857*	0.005
		Trend & Intercept	-3.081	0.126	-3.764**	0.030
Capital Flight	Level	Intercept	-2.822***	0.065	-2.715***	0.081
		Trend & Intercept	-3.423***	0.063	-3.442***	0.061
Human Capital	Level	Intercept	-1.625	0.460	-2.278	0.184
		Trend & Intercept	-2.545	0.306	-1.888	0.641
	First Difference	Intercept	-2.561	0.110	-3.892*	0.005
		Trend & Intercept	-2.571	0.295	-4.059**	0.015
ln(n+g+d)	Level	Intercept	-5.181*	0.000	-2.361	0.159
		Trend & Intercept	-4.688*	0.004	-2.852	0.189
	First Difference	Intercept	-3.441**	0.018	-4.272*	0.002
		Trend & Intercept	-2.628	0.271	-3.990**	0.018
Polity	Level	Intercept	-1.692	0.427	-1.632	0.457
		Trend & Intercept	-4.103**	0.014	-3.208***	0.098
	First Difference	Intercept	-3.930*	0.005	-5.380*	0.000
		Trend & Intercept	-4.202**	0.011	-5.575*	0.000
Government Expenditure	Level	Intercept	-1.616	0.464	-1.295	0.622
		Trend & Intercept	-2.855	0.189	-1.994	0.586
	First Difference	Intercept	-2.209	0.207	-5.744*	0.000
		Trend & Intercept	-2.173	0.489	-5.670*	0.000
Inflation	Level	Intercept	-2.916***	0.053	-2.785**	0.070
		Trend & Intercept	-4.290**	0.011	-2.868	0.184
	First Difference	Intercept	-2.834***	0.065	-9.669*	0.000
		Trend & Intercept	-2.875	0.183	-10.605*	0.000
Money Supply	Level	Intercept	-1.006	0.741	-0.779	0.814
		Trend & Intercept	-2.829	0.197	-2.038	0.562
	First Difference	Intercept	-4.900*	0.000	-5.917*	0.000
		Trend & Intercept	-4.833*	0.002	-6.385*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 79
ADF and PP Test Results for Argentina

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-3.026**	0.043	-4.730*	0.001
		Trend & Intercept	-3.008	0.146	-4.623*	0.004
Initial Period GDP	Level	Intercept	-0.350	0.906	-0.640	0.850
		Trend & Intercept	-2.108	0.521	-2.106	0.526
	First Difference	Intercept	-4.291*	0.002	-4.649*	0.001
		Trend & Intercept	-3.989**	0.020	-4.576*	0.004
Capital Flight	Level	Intercept	-2.661***	0.091	-4.608*	0.001
		Trend & Intercept	-1.489	0.815	-4.634*	0.003
Human Capital	Level	Intercept	-1.438	0.550	-1.581	0.483
		Trend & Intercept	-3.158	0.109	-2.285	0.432
	First Difference	Intercept	-3.641**	0.011	-4.259*	0.002
		Trend & Intercept	-3.888**	0.025	-4.302*	0.008
ln(n+g+d)	Level	Intercept	-1.311	0.614	-1.344	0.599
		Trend & Intercept	-1.775	0.696	-2.887	0.178
	First Difference	Intercept	-9.502*	0.000	-10.470*	0.000
		Trend & Intercept	-9.423*	0.000	-10.893*	0.000
Polity	Level	Intercept	-5.645*	0.000	-9.120*	0.000
		Trend & Intercept	-5.322*	0.001	-11.564*	0.000
Government Expenditure	Level	Intercept	-1.340	0.601	-1.241	0.647
		Trend & Intercept	-2.469	0.341	-2.643	0.265
	First Difference	Intercept	-6.303*	0.000	-6.521*	0.000
		Trend & Intercept	-6.233*	0.000	-6.454*	0.000
Domestic Credit	Level	Intercept	-5.579*	0.000	-2.582	0.106
		Trend & Intercept	-5.071*	0.001	-2.398	0.375
	First Difference	Intercept	-4.681*	0.001	-4.531*	0.001
		Trend & Intercept	-4.705*	0.003	-4.538*	0.005
Inflation	Level	Intercept	-7.007*	0.000	-7.015*	0.000
		Trend & Intercept	-7.043*	0.000	-7.056*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 80
ADF and PP Test Results for Mexico

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-4.724*	0.001	-4.889*	0.000
		Trend & Intercept	-4.705*	0.003	-4.874*	0.002
Initial Period GDP	Level	Intercept	-0.263	0.921	-0.280	0.919
		Trend & Intercept	-3.860**	0.024	-3.971**	0.018
	First Difference	Intercept	-4.237*	0.002	-5.945*	0.000
		Trend & Intercept	-4.020**	0.018	-5.990*	0.000
Capital Flight	Level	Intercept	-1.461	0.542	-1.366	0.589
		Trend & Intercept	0.556	0.999	-2.363	0.392
	First Difference	Intercept	-1.325	0.605	-6.865*	0.000
		Trend & Intercept	-2.970	0.157	-12.986*	0.000
Human Capital	Level	Intercept	0.297	0.975	-0.556	0.869
		Trend & Intercept	-4.176**	0.012	-1.925	0.622
	First Difference	Intercept	-3.781*	0.007	-3.864*	0.005
		Trend & Intercept	-3.800**	0.028	-3.850**	0.025
ln(n+g+d)	Level	Intercept	-1.226	0.650	-0.910	0.774
		Trend & Intercept	-2.641	0.266	-1.768	0.700
	First Difference	Intercept	-3.424**	0.017	-3.419**	0.0185
		Trend & Intercept	-4.103**	0.016	-3.446***	0.0648
Government Expenditure	Level	Intercept	-5.333*	0.000	-5.076*	0.000
		Trend & Intercept	-5.368*	0.001	-4.998*	0.001
Budget Deficit	Level	Intercept	-1.838	0.357	-2.084	0.252
		Trend & Intercept	-2.071	0.544	-2.390	0.379
	First Difference	Intercept	-6.497*	0.000	-6.892*	0.000
		Trend & Intercept	-6.482*	0.000	-7.969*	0.000
Domestic Credit	Level	Intercept	-1.332	0.602	-3.101**	0.035
		Trend & Intercept	-0.233	0.989	-4.456*	0.006
Money Supply	Level	Intercept	-1.332	0.602	-3.101**	0.035
		Trend & Intercept	-0.233	0.989	-4.456*	0.006

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 81
ADF and PP Test Results for Guatemala

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-2.954**	0.049	-2.954**	0.049
		Trend & Intercept	-3.535**	0.050	-3.535**	0.050
Initial Period GDP	Level	Intercept	0.112	0.962	1.281	0.998
		Trend & Intercept	-3.624**	0.042	-6.797*	0.000
	First Difference	Intercept	-4.460*	0.001	-7.465*	0.000
		Trend & Intercept	-4.158**	0.012	-4.777*	0.002
Capital Flight	Level	Intercept	-1.701	0.423	-2.635***	0.095
		Trend & Intercept	-2.196	0.478	-3.460***	0.059
Human Capital	Level	Intercept	-1.520	0.513	-0.634	0.851
		Trend & Intercept	-0.780	0.959	-1.542	0.797
	First Difference	Intercept	-3.458**	0.015	-3.577*	0.011
		Trend & Intercept	-3.517***	0.052	-3.513***	0.053
ln(n+g+d)	Level	Intercept	0.820	0.993	1.518	0.999
		Trend & Intercept	-2.563	0.298	-3.776**	0.029
	First Difference	Intercept	-3.181**	0.030	-3.377**	0.018
		Trend & Intercept	-3.521***	0.052	-3.159***	0.100
Polity	Level	Intercept	-2.241	0.196	-3.019**	0.042
		Trend & Intercept	-1.600	0.774	-1.100	0.916
	First Difference	Intercept	-4.568*	0.001	-4.600*	0.001
		Trend & Intercept	-5.048*	0.001	-5.111*	0.001
Government Expenditure	Level	Intercept	-0.741	0.824	-0.882	0.783
		Trend & Intercept	-2.388	0.380	-2.199	0.477
	First Difference	Intercept	-5.045*	0.000	-5.005*	0.000
		Trend & Intercept	-5.054*	0.001	-4.974*	0.001
Budget Deficit	Level	Intercept	-3.341**	0.020	-3.341**	0.020
		Trend & Intercept	-3.409***	0.065	-3.409***	0.065
Inflation	Level	Intercept	-1.473	0.535	-3.661*	0.009
		Trend & Intercept	-3.774**	0.029	-3.982**	0.018
Money Supply	Level	Intercept	-0.082	0.944	-0.283	0.918
		Trend & Intercept	-2.573	0.294	-1.762	0.703
	First Difference	Intercept	-3.395**	0.018	-6.482*	0.000
		Trend & Intercept	-3.487***	0.056	-6.549*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 82
ADF and PP Test Results for Brazil

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-4.727*	0.001	-4.715*	0.001
		Trend & Intercept	-4.724*	0.003	-4.710*	0.003
Initial Period GDP	Level	Intercept	-1.155	0.683	-1.023	0.735
		Trend & Intercept	-2.549	0.305	-1.786	0.692
	First Difference	Intercept	-4.367*	0.001	-4.342*	0.002
		Trend & Intercept	-4.421*	0.006	-4.398*	0.007
Capital Flight	Level	Intercept	-3.689*	0.008	-3.652*	0.009
		Trend & Intercept	-3.603**	0.043	-3.502***	0.053
Gross Capital Formation	Level	Intercept	-1.211	0.659	-0.785	0.812
		Trend & Intercept	-2.607	0.280	-2.548	0.305
	First Difference	Intercept	-2.655***	0.093	-4.566*	0.001
		Trend & Intercept	-2.595	0.285	-4.492*	0.005
ln(n+g+d)	Level	Intercept	3.463	1.000	0.059	0.958
		Trend & Intercept	-5.233*	0.001	-2.041	0.561
	First Difference	Intercept	-2.666	0.256	-2.711***	0.082
		Trend & Intercept	-2.639	0.267	-3.090**	0.039
Gross Capital Formation	Level	Intercept	-1.211	0.659	-0.785	0.812
		Trend & Intercept	-2.607	0.280	-2.548	0.305
	First Difference	Intercept	-2.655***	0.093	-4.566*	0.001
		Trend & Intercept	-2.595	0.285	-4.492*	0.005
Government Expenditure	Level	Intercept	-0.593	0.858	-2.193	0.212
		Trend & Intercept	-2.743	0.228	-1.880	0.645
	First Difference	Intercept	-2.237	0.198	-5.251*	0.000
		Trend & Intercept	-2.148	0.500	-5.446*	0.000
Inflation	Level	Intercept	-3.566**	0.012	-1.366	0.589
		Trend & Intercept	-4.148**	0.013	-2.152	0.501
	First Difference	Intercept	-4.324*	0.002	-3.430**	0.016
		Trend & Intercept	-7.537*	0.000	-3.433***	0.062
Real Interest Rate	Level	Intercept	-4.912*	0.000	-3.351**	0.019
		Trend & Intercept	-4.635*	0.004	-3.035	0.136

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 83
ADF and PP Test Results for Colombia

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-3.547**	0.012	-3.538**	0.012
		Trend & Intercept	-3.483***	0.056	-3.473***	0.057
Initial Period GDP	Level	Intercept	-0.183	0.932	0.412	0.981
		Trend & Intercept	-2.088	0.536	-1.945	0.611
	First Difference	Intercept	-3.683*	0.009	-3.654*	0.009
		Trend & Intercept	-3.620**	0.042	-3.598**	0.044
Capital Flight	Level	Intercept	-3.280**	0.023	-3.140**	0.032
		Trend & Intercept	-3.170	0.106	-2.984	0.150
	First Difference	Intercept	-7.220*	0.000	-7.554*	0.000
		Trend & Intercept	-7.237*	0.000	-8.265*	0.000
Gross Capital Formation	Level	Intercept	-2.716***	0.081	-2.195	0.211
		Trend & Intercept	-2.955	0.158	-2.354	0.396
	First Difference	Intercept	-4.531*	0.001	-4.526*	0.001
		Trend & Intercept	-4.466*	0.006	-4.462*	0.006
ln(n+g+d)	Level	Intercept	1.574	0.999	-1.338	0.602
		Trend & Intercept	-0.820	0.952	-1.485	0.817
	First Difference	Intercept	-3.290**	0.023	-3.319**	0.021
		Trend & Intercept	-3.781**	0.029	-3.834**	0.026
Polity	Level	Intercept	-1.689	0.429	-1.769	0.390
		Trend & Intercept	-2.331	0.408	-2.508	0.323
	First Difference	Intercept	-4.192*	0.002	-5.948*	0.000
		Trend & Intercept	-4.122**	0.014	-5.864*	0.000
Government Expenditure	Level	Intercept	-1.767	0.390	-1.648	0.449
		Trend & Intercept	-1.779	0.695	-1.581	0.782
	First Difference	Intercept	-4.232*	0.002	-4.232*	0.002
		Trend & Intercept	-4.191**	0.011	-4.191**	0.011
Capital Flight	Level	Intercept	-3.236*	0.026	-3.103**	0.035
		Trend & Intercept	-3.137	0.113	-2.960	0.156
	First Difference	Intercept	-7.107*	0.000	-7.318*	0.000
		Trend & Intercept	-7.108*	0.000	-8.018*	0.000
Inflation	Level	Intercept	-1.223	0.655	-1.222	0.655
		Trend & Intercept	-1.881	0.645	-2.022	0.571
	First Difference	Intercept	-6.671*	0.000	-6.664*	0.000
		Trend & Intercept	-6.581*	0.000	-6.573*	0.000
Money Supply	Level	Intercept	-0.928	0.768	-0.245	0.924
		Trend & Intercept	-3.370***	0.072	-1.777	0.696
	First Difference	Intercept	-2.572	0.108	-5.542*	0.000
		Trend & Intercept	-3.941**	0.022	-5.775*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 84
ADF and PP Test Results for Haiti

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-2.069	0.258	-4.823*	0.000
		Trend & Intercept	-5.705*	0.000	-5.705*	0.000
Initial Period GDP	Level	Intercept	0.365	0.979	0.272	0.974
		Trend & Intercept	-1.672	0.744	-1.625	0.764
	First Difference	Intercept	-5.810*	0.000	-5.810*	0.000
		Trend & Intercept	-6.145*	0.000	-6.208*	0.000
Capital Flight	Level	Intercept	-3.943*	0.004	-3.802*	0.006
		Trend & Intercept	-3.990**	0.018	-3.871**	0.024
Gross Capital Formation	Level	Intercept	0.292	0.971	0.176	0.967
		Trend & Intercept	0.865	0.999	-1.232	0.889
	First Difference	Intercept	-3.375**	0.025	-5.299*	0.000
		Trend & Intercept	-3.496***	0.065	-5.188*	0.001
ln(n+g+d)	Level	Intercept	1.293	0.998	1.023	0.996
		Trend & Intercept	-2.727	0.234	-2.261	0.444
	First Difference	Intercept	-2.428	0.143	-4.768*	0.000
		Trend & Intercept	-2.373	0.385	-4.463*	0.006
Polity	Level	Intercept	-1.894	0.331	-2.391	0.151
		Trend & Intercept	-1.698	0.728	-2.793	0.209
	First Difference	Intercept	-5.497*	0.000	-5.636*	0.000
		Trend & Intercept	-3.052	0.137	-6.138*	0.000
Government Expenditure	Level	Intercept	-1.494	0.526	-1.578	0.484
		Trend & Intercept	-3.399***	0.067	-3.399***	0.067
	First Difference	Intercept	-8.579*	0.000	-9.620*	0.000
		Trend & Intercept	-8.570*	0.000	-9.836*	0.000
Inflation	Level	Intercept	-5.520*	0.001	-3.314**	0.022
		Trend & Intercept	-0.826	0.939	-3.273***	0.088
Money Supply	Level	Intercept	-3.190**	0.028	-3.130**	0.033
		Trend & Intercept	-3.318***	0.079	-3.293***	0.083

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 85
ADF and PP Test Results for El Salvador

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-4.392*	0.001	-4.468*	0.001
		Trend & Intercept	-4.360*	0.007	-4.450*	0.006
Initial Period GDP	Level	Intercept	0.606	0.988	0.387	0.980
		Trend & Intercept	-3.646**	0.043	-2.994	0.147
	First Difference	Intercept	-2.961***	0.051	-6.519*	0.000
		Trend & Intercept	-3.713**	0.038	-6.321*	0.000
Capital Flight	Level	Intercept	-4.709*	0.001	-4.684*	0.001
		Trend & Intercept	-4.698*	0.003	-4.657*	0.003
Gross Capital Formation	Level	Intercept	-3.005**	0.044	-3.665*	0.009
		Trend & Intercept	-4.189**	0.013	-4.901*	0.002
ln(n+g+d)	Level	Intercept	-2.495	0.127	-1.252	0.642
		Trend & Intercept	-2.534	0.311	-1.001	0.932
	First Difference	Intercept	-3.585**	0.011	-3.585**	0.011
		Trend & Intercept	-3.732**	0.033	-3.732**	0.033
Polity	Level	Intercept	-3.591*	0.011	-4.772*	0.000
		Trend & Intercept	-3.536**	0.050	-6.977*	0.000
Government Expenditure	Level	Intercept	-2.776***	0.072	-1.307	0.616
		Trend & Intercept	-5.116*	0.001	-1.861	0.655
	First Difference	Intercept	-4.481*	0.001	-4.627*	0.001
		Trend & Intercept	-2.580	0.291	-4.903*	0.002
Inflation	Level	Intercept	-0.929	0.767	-1.301	0.619
		Trend & Intercept	-2.248	0.448	-2.825	0.198
	First Difference	Intercept	-3.241**	0.026	-7.990*	0.000
		Trend & Intercept	-3.212***	0.099	-7.890*	0.000
Money Supply	Level	Intercept	-1.859	0.348	-1.859	0.348
		Trend & Intercept	-2.437	0.356	-2.411	0.368
	First Difference	Intercept	-7.319*	0.000	-7.461*	0.000
		Trend & Intercept	-7.217*	0.000	-7.351*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 86
ADF and PP Test Results for Peru

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-4.684*	0.001	-4.194*	0.002
		Trend & Intercept	-4.723*	0.003	-4.200**	0.011
Initial Period GDP	Level	Intercept	0.663	0.989	0.992	0.996
		Trend & Intercept	-2.609	0.279	-2.254	0.447
	First Difference	Intercept	-3.746*	0.008	-3.709*	0.008
		Trend & Intercept	-2.862	0.187	-3.814**	0.027
Capital Flight	Level	Intercept	-1.589	0.477	-3.471**	0.014
		Trend & Intercept	-3.304***	0.084	-4.943*	0.002
Gross Capital Formation	Level	Intercept	-1.311	0.615	-1.544	0.501
		Trend & Intercept	-2.866	0.184	-2.866	0.184
	First Difference	Intercept	-4.864*	0.000	-4.840*	0.000
		Trend & Intercept	-5.005*	0.001	-4.977*	0.001
ln(n+g+d)	Level	Intercept	0.271	0.973	-1.427	0.559
		Trend & Intercept	-2.673	0.254	-0.349	0.986
	First Difference	Intercept	-1.846	0.353	-4.582*	0.001
		Trend & Intercept	-1.878	0.646	-4.545*	0.006
Polity	Level	Intercept	-1.719	0.414	-1.750	0.399
		Trend & Intercept	-2.033	0.565	-2.053	0.555
	First Difference	Intercept	-6.248*	0.000	-6.248*	0.000
		Trend & Intercept	-6.193*	0.000	-6.193*	0.000
Government Expenditure	Level	Intercept	-1.504	0.521	-1.653	0.446
		Trend & Intercept	-8.275*	0.000	-1.956	0.606
	First Difference	Intercept	-5.502*	0.000	-5.504*	0.000
		Trend & Intercept	-5.880*	0.000	-5.880*	0.000
Budget Deficit	Level	Intercept	-2.604	0.101	-2.423	0.142
		Trend & Intercept	-3.092	0.123	-3.112	0.118
	First Difference	Intercept	-8.045*	0.000	-8.941*	0.000
		Trend & Intercept	-5.093*	0.002	-9.079*	0.000
Inflation	Level	Intercept	-4.498*	0.001	-1.110	0.702
		Trend & Intercept	-4.337***	0.009	-1.482	0.818
	First Difference	Intercept	-2.481	0.131	-5.356*	0.000
		Trend & Intercept	-4.052**	0.018	-5.267*	0.001
Money Supply	Level	Intercept	-0.030	0.950	-0.023	0.951
		Trend & Intercept	-2.521	0.317	-1.865	0.653
	First Difference	Intercept	-5.947*	0.000	-5.947*	0.000
		Trend & Intercept	-3.923**	0.023	-6.066*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 87
ADF and PP Test Results for Bolivia

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-2.769	0.217	-2.708***	0.082
		Trend & Intercept	-2.932	0.165	-2.849***	0.061
Initial Period GDP	Level	Intercept	0.083	0.960	1.110	0.997
		Trend & Intercept	-3.137	0.113	-4.334*	0.008
	First Difference	Intercept	-2.905	0.173	-3.266**	0.024
		Trend & Intercept	-3.118	0.117	-3.225**	0.026
Capital Flight	Level	Intercept	-3.063	0.130	-3.180**	0.029
		Trend & Intercept	-3.015	0.142	-3.141**	0.032
Gross Capital Formation	Level	Intercept	-0.843	0.795	-0.843	0.795
		Trend & Intercept	-2.965	0.155	-3.029	0.138
	First Difference	Intercept	-6.537*	0.000	-6.537*	0.000
		Trend & Intercept	-6.427*	0.000	-6.427*	0.000
ln(n+g+d)	Level	Intercept	0.656	0.989	2.594	1.000
		Trend & Intercept	-5.865*	0.000	-1.176	0.901
	First Difference	Intercept	-2.441	0.140	-3.138**	0.032
		Trend & Intercept	-1.337	0.858	-3.863**	0.024
Polity	Level	Intercept	-16.132*	0.000	-9.450*	0.000
		Trend & Intercept	-22.246*	0.000	-16.822*	0.000
Government Expenditure	Level	Intercept	-1.302	0.619	-1.031	0.732
		Trend & Intercept	-3.103	0.123	-3.492***	0.055
	First Difference	Intercept	-3.072**	0.040	-8.075*	0.000
		Trend & Intercept	-3.148	0.115	-8.035*	0.000
Domestic Credit	Level	Intercept	-4.038*	0.004	-1.202	0.664
		Trend & Intercept	-4.342*	0.009	-1.628	0.763
	First Difference	Intercept	-3.691***	0.010	-4.875*	0.000
		Trend & Intercept	-3.481***	0.061	-4.875*	0.002

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 88
ADF and PP Test Results for Honduras

Variables	Tests		ADF		PP	
			t-stat	p-value	t-stat	p-value
Growth in Per Capita Income	Level	Intercept	-5.832*	0.000	-5.832*	0.000
		Trend & Intercept	-5.763*	0.000	-5.763*	0.000
Initial Period GDP	Level	Intercept	0.397	0.980	0.397	0.980
		Trend & Intercept	-2.993	0.147	-3.200	0.100
	First Difference	Intercept	-6.553*	0.000	-6.597*	0.000
		Trend & Intercept	-6.414*	0.000	-6.450*	0.000
Capital Flight	Level	Intercept	-3.683*	0.008	-3.720*	0.008
		Trend & Intercept	-4.198**	0.011	-4.410*	0.006
Human Capital	Level	Intercept	-0.195	0.930	-0.613	0.856
		Trend & Intercept	-2.741	0.228	-1.924	0.622
	First Difference	Intercept	-2.188	0.215	-4.051*	0.003
		Trend & Intercept	-1.778	0.692	-3.999**	0.017
ln(n+g+d)	Level	Intercept	-0.334	0.910	1.661	0.999
		Trend & Intercept	-2.305	0.421	-1.288	0.876
	First Difference	Intercept	-2.659***	0.093	-2.652***	0.092
		Trend & Intercept	-3.335***	0.079	-2.705***	0.083
Government Expenditure	Level	Intercept	-1.582	0.482	-1.869	0.343
		Trend & Intercept	-1.494	0.814	-1.783	0.693
	First Difference	Intercept	-5.404*	0.000	-5.399*	0.000
		Trend & Intercept	-5.390*	0.001	-5.385*	0.001
Domestic Credit	Level	Intercept	0.049	0.957	0.556	0.987
		Trend & Intercept	-2.440	0.354	-1.743	0.712
	First Difference	Intercept	-4.102*	0.003	-3.970*	0.004
		Trend & Intercept	-4.342*	0.008	-4.034**	0.016
Inflation	Level	Intercept	-1.876	0.340	-2.013	0.280
		Trend & Intercept	-1.319	0.867	-2.142	0.507
	First Difference	Intercept	-6.010*	0.000	-6.595*	0.000
		Trend & Intercept	-5.961*	0.000	-6.509*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 89
ADF and PP Test Results for Albania

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-1.099	0.698	-5.351*	0.000
		Trend & Intercept	-5.013*	0.003	-14.133*	0.000
Initial Period GDP	Level	Intercept	-2.050	0.265	-5.397*	0.000
		Trend & Intercept	-2.264	0.435	-1.282	0.871
	First Difference	Intercept	-3.887*	0.007	-4.392*	0.002
		Trend & Intercept	-4.906*	0.003	-8.354*	0.000
Capital Flight	Level	Intercept	-1.650	0.441	-4.811*	0.001
		Trend & Intercept	-1.226	0.883	-4.712*	0.004
Human Capital	Level	Intercept	-1.139	0.681	-0.133	0.936
		Trend & Intercept	-1.615	0.754	-4.350*	0.010
	First Difference	Intercept	-3.677*	0.011	-6.061*	0.000
		Trend & Intercept	-3.374***	0.078	-5.508*	0.001
Government Expenditure	Level	Intercept	-1.463	0.534	-21.641*	0.000
		Trend & Intercept	-3.235	0.105	-20.201*	0.000
Money Supply	Level	Intercept	-3.321**	0.025	-3.321**	0.025
		Trend & Intercept	-2.070	0.537	-2.070	0.537
	First Difference	Intercept	-5.335*	0.000	-5.306*	0.000
		Trend & Intercept	-6.346*	0.000	-6.262*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 90
ADF and PP Test Results for Armenia

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-7.217*	0.000	-6.959*	0.000
		Trend & Intercept	-6.742*	0.000	-6.742*	0.000
Initial Period GDP	Level	Intercept	-1.680	0.429	-0.800	0.803
		Trend & Intercept	-1.454	0.820	-1.218	0.886
	First Difference	Intercept	-3.897*	0.007	-3.925*	0.006
		Trend & Intercept	-4.120**	0.017	-4.120**	0.017
Capital Flight	Level	Intercept	-4.888*	0.000	-20.019*	0.000
		Trend & Intercept	-5.123*	0.001	-21.968*	0.000
Human Capital	Level	Intercept	-2.166	0.222	-2.190	0.214
		Trend & Intercept	-2.260	0.440	-2.297	0.421
	First Difference	Intercept	-4.696*	0.001	-5.212*	0.000
		Trend & Intercept	-4.562*	0.007	-5.035*	0.002
Polity	Level	Intercept	-2.430	0.143	-2.587	0.108
		Trend & Intercept	-2.876	0.185	-2.656	0.261
	First Difference	Intercept	-4.102*	0.004	-4.352*	0.002
		Trend & Intercept	-4.059**	0.019	-4.203**	0.014
Government Expenditure	Level	Intercept	-4.010*	0.005	-4.042*	0.004
		Trend & Intercept	-3.729**	0.037	-3.943**	0.024
Real Interest Rate	Level	Intercept	-5.322*	0.000	-5.034*	0.001
		Trend & Intercept	-8.873*	0.000	-6.656*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 91
ADF and PP Test Results for Kyrgyz Republic

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-6.356*	0.000	-3.219**	0.030
		Trend & Intercept	-5.546*	0.001	-2.528	0.313
Initial Period GDP	Level	Intercept	0.189	0.966	0.373	0.978
		Trend & Intercept	-3.265***	0.097	-25.227*	0.000
	First Difference	Intercept	-7.297*	0.000	-6.946*	0.000
		Trend & Intercept	-6.917*	0.000	-5.645*	0.001
Capital Flight	Level	Intercept	-5.093*	0.000	-5.081*	0.000
		Trend & Intercept	-4.958*	0.002	-4.954*	0.002
Human Capital	Level	Intercept	-2.168	0.222	-2.367	0.160
		Trend & Intercept	-3.443***	0.067	-3.496***	0.060
	First Difference	Intercept	-2.609	0.108	-4.152*	0.004
		Trend & Intercept	-3.654**	0.050	-4.652*	0.005
Real Interest Rate	Level	Intercept	-1.382	0.575	-3.047**	0.043
		Trend & Intercept	-1.836	0.657	-3.429***	0.069
Government Expenditure	Level	Intercept	-3.769*	0.009	-3.769*	0.009
		Trend & Intercept	-4.188**	0.014	-4.188**	0.014

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 92
ADF and PP Test Results for Russian Federation

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-3.273**	0.027	-3.302**	0.025
		Trend & Intercept	-2.183	0.479	-2.875	0.185
	First Difference	Intercept	-4.567*	0.001	-7.748*	0.000
		Trend & Intercept	-5.042*	0.002	-15.536*	0.000
Initial Period GDP	Level	Intercept	0.124	0.962	-0.346	0.905
		Trend & Intercept	-3.275***	0.092	-3.039	0.141
	First Difference	Intercept	-3.061**	0.042	-2.956***	0.053
		Trend & Intercept	-3.071	0.135	-3.226	0.101
Capital Flight	Level	intercept	-0.652	0.840	-5.426*	0.000
		Trend & Intercept	-3.613**	0.050	-6.784*	0.000
Human Capital	Level	Intercept	-1.242	0.640	-0.753	0.816
		Trend & Intercept	-1.574	0.776	-1.305	0.865
	First Difference	Intercept	-2.635	0.277	-2.635***	0.099
		Trend & Intercept	-2.614	0.277	-2.614***	0.099
Polity	Level	Intercept	-4.315*	0.003	-2.130	0.235
		Trend & Intercept	-5.500*	0.001	-2.139	0.502
	First Difference	Intercept	-3.834*	0.010	-5.591*	0.000
		Trend & Intercept	-4.492*	0.010	-5.528*	0.001
Government Expenditure	Level	Intercept	-3.428**	0.019	-4.396*	0.002
		Trend & Intercept	-3.349***	0.081	-4.294**	0.011
Inflation	Level	Intercept	-2.589	0.108	-2.514	0.124
		Trend & Intercept	-2.751	0.227	-3.247***	0.097
	First Difference	Intercept	-5.972*	0.000	-10.374*	0.000
		Trend & Intercept	-5.946*	0.000	-12.359*	0.000

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 93
ADF and PP Test Results for Kazakhstan

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-3.410**	0.022	-1.863	0.344
		Trend & Intercept	-2.742	0.229	-1.543	0.789
	First Difference	Intercept	-5.882*	0.000	-3.920*	0.006
		Trend & Intercept	-6.796*	0.000	-5.663*	0.001
Initial Period GDP	Level	Intercept	-2.586	0.110	0.197	0.967
		Trend & Intercept	-3.056	0.139	-2.206	0.467
	First Difference	Intercept	-2.970***	0.055	-2.660***	0.095
		Trend & Intercept	-3.582***	0.052	-3.461***	0.064
Capital Flight	Level	Intercept	-4.696*	0.001	-4.726*	0.001
		Trend & Intercept	-4.843*	0.003	-4.844*	0.003
Gross Capital Formation	Level	Intercept	-2.538	0.118	-2.556	0.114
		Trend & Intercept	-3.022	0.145	-3.056	0.137
	First Difference	Intercept	-7.081*	0.000	-6.865*	0.000
		Trend & Intercept	-6.886*	0.000	-6.687*	0.000
Polity	Level	Intercept	-2.184	0.215	-1.861	0.346
		Trend & Intercept	-1.260	0.881	-1.593	0.776
	First Difference	Intercept	-1.432	0.555	-2.392*	0.000
		Trend & Intercept	-1.743*	0.000	-2.324*	0.000
Government Expenditure	Level	Intercept	-5.125*	0.000	-5.125*	0.000
		Trend & Intercept	-6.368*	0.000	-7.742*	0.000
Inflation	Level	Intercept	-4.059*	0.004	-4.050*	0.004
		Trend & Intercept	-4.478*	0.007	-4.480*	0.007

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Table 94
ADF and PP Test Results for Turkey

Variables	**Tests**		ADF		PP	
			t-stat	**p-value**	**t-stat**	**p-value**
Growth in Per Capita Income	Level	Intercept	-6.485*	0.000	-6.631*	0.000
		Trend & Intercept	-3.797**	0.030	-6.520*	0.000
Initial Period GDP	Level	Intercept	-0.061	0.947	0.112	0.963
		Trend & Intercept	-2.472	0.339	-2.515	0.320
	First Difference	Intercept	-6.496*	0.000	-6.663*	0.000
		Trend & Intercept	-6.406*	0.000	-6.570*	0.000
Capital Flight	Level	Intercept	-5.625*	0.000	-5.625*	0.000
		Trend & Intercept	-5.531*	0.000	-5.483*	0.000
Human Capital	Level	Intercept	-1.470	0.537	-1.544	0.501
		Trend & Intercept	-1.953	0.607	-1.060	0.923
	First Difference	Intercept	-4.036**	0.0035	-4.041*	0.0035
		Trend & Intercept	-4.578**	0.0043	-4.438**	0.0062
ln(n+g+d)	Level	Intercept	-2.306	0.177	-1.808	0.371
		Trend & Intercept	1.082	1.000	-1.833	0.669
	First Difference	Intercept	-3.430**	0.0169	-3.891*	0.0052
		Trend & Intercept	-3.065	0.131	-3.774**	0.0302
Budget Deficit	Level	Intercept	-2.764***	0.073	-2.808***	0.067
		Trend & Intercept	-3.553**	0.048	-3.553**	0.048
	First Difference	Intercept	-5.703*	0.000	-8.169*	0.000
		Trend & Intercept	-5.621*	0.000	-8.360	0.000
Inflation	Level	Intercept	-1.029	0.733	-1.040	0.729
		Trend & Intercept	-3.913**	0.023	-1.733	0.717
	First Difference	Intercept	-6.022*	0.000	-6.030*	0.000
		Trend & Intercept	-6.048*	0.000	-6.062*	0.000
Real Interest Rate	Level	Intercept	-2.488	0.126	-2.443	0.137
		Trend & Intercept	-3.783**	0.032	-2.456	0.347
	First Difference	Intercept	-7.722*	0.000	-7.830*	0.000
		Trend & Intercept	-6.302*	0.000	-7.713*	0.000
RER Misalignment	Level	Intercept	-3.726*	0.008	-5.387*	0.000
		Trend & Intercept	-3.569**	0.047	-5.228*	0.001
Undervaluation	Level	Intercept	1.142	0.997	-4.050*	0.003
		Trend & Intercept	-4.285*	0.009	-5.113*	0.001
Overvaluation	Level	Intercept	-0.968	0.753	-4.444*	0.001
		Trend & Intercept	-5.213*	0.001	-5.369*	0.001

Notes: *, ** and *** indicate rejection of the Null hypothesis of having a unit root at 1%, 5% and 10% level of significance, respectively.

Appendix C: Stability Diagnosis

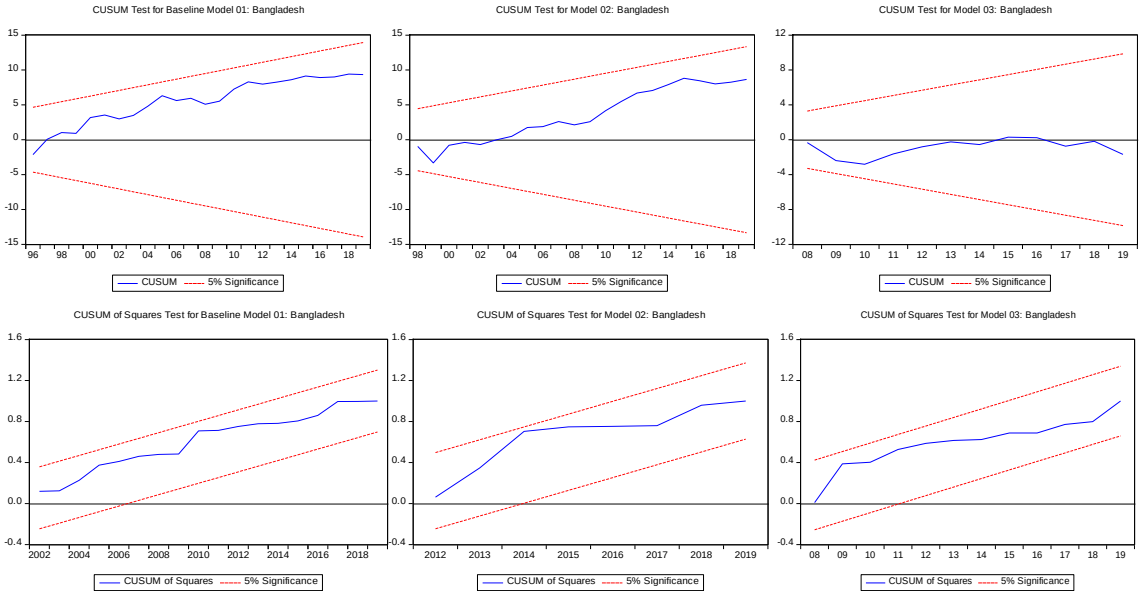


Figure 13 CUSUM and CUSUM of Square tests for Bangladesh

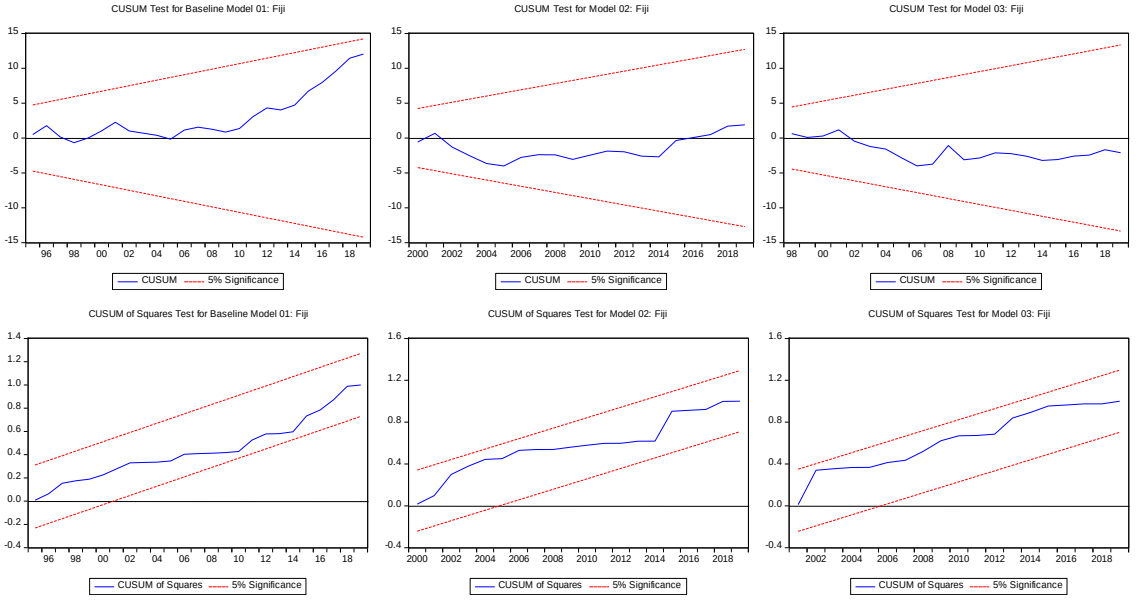


Figure 14 CUSUM and CUSUM of Square tests for Fiji

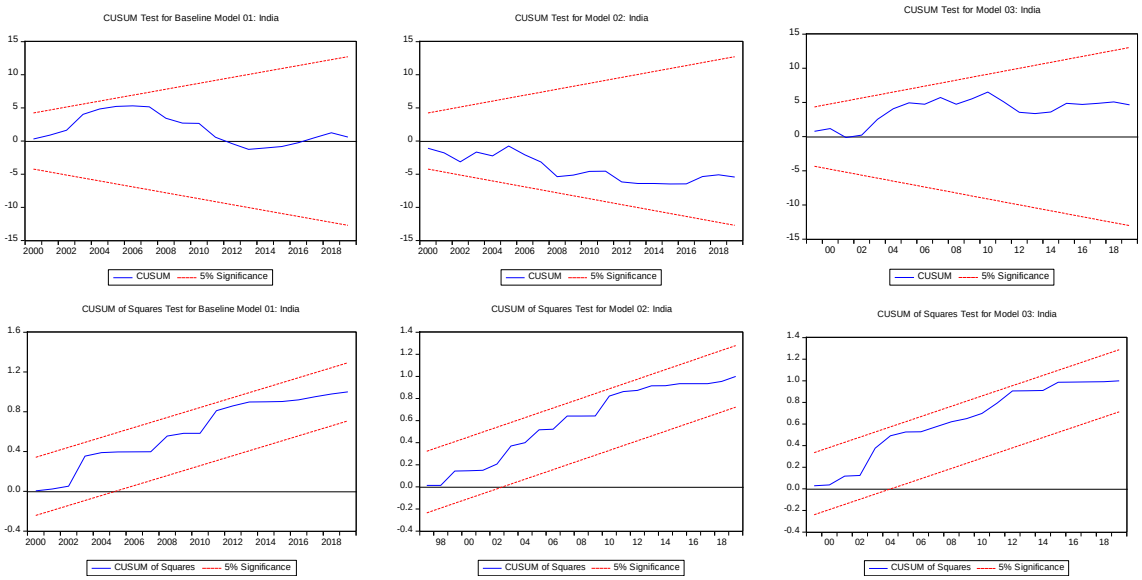


Figure 15 CUSUM and CUSUM of Square tests for India

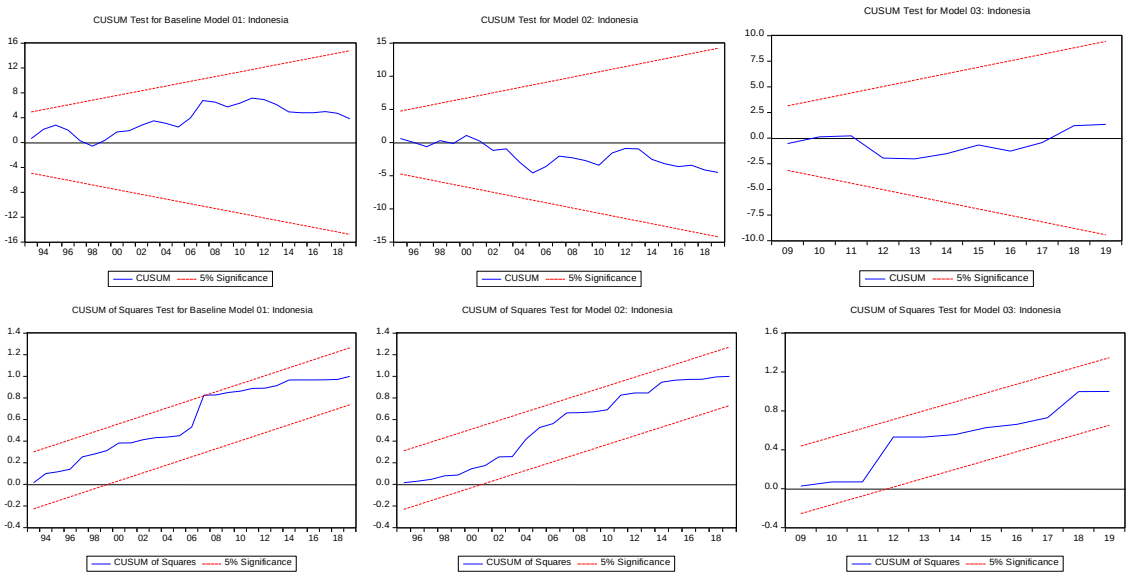


Figure 16 CUSUM and CUSUM of Square tests for Indonesia

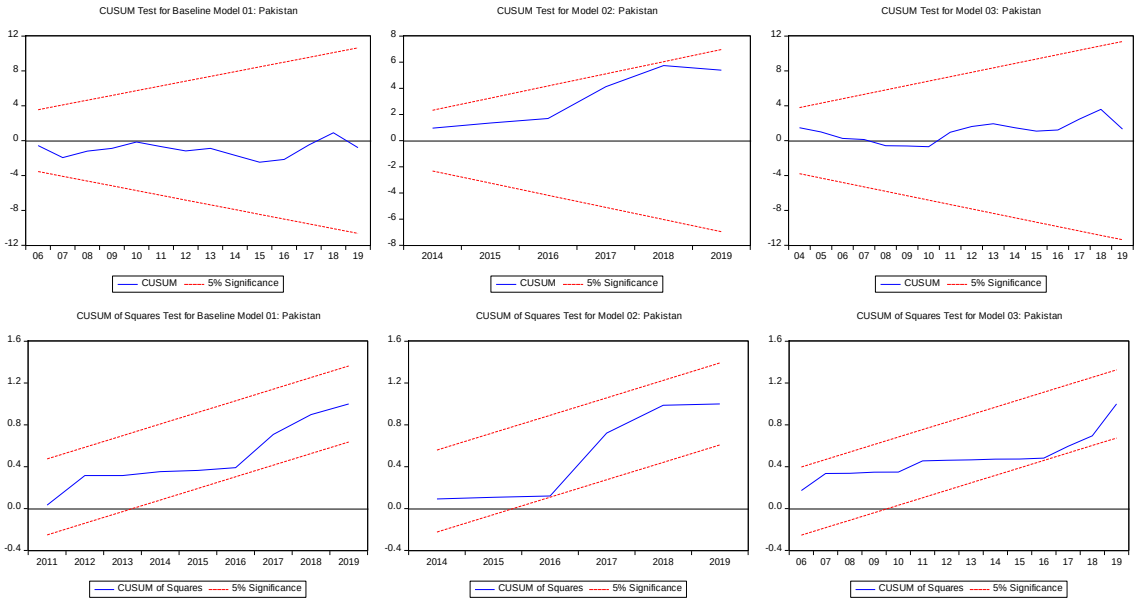


Figure 17 CUSUM and CUSUM of Square tests for Pakistan

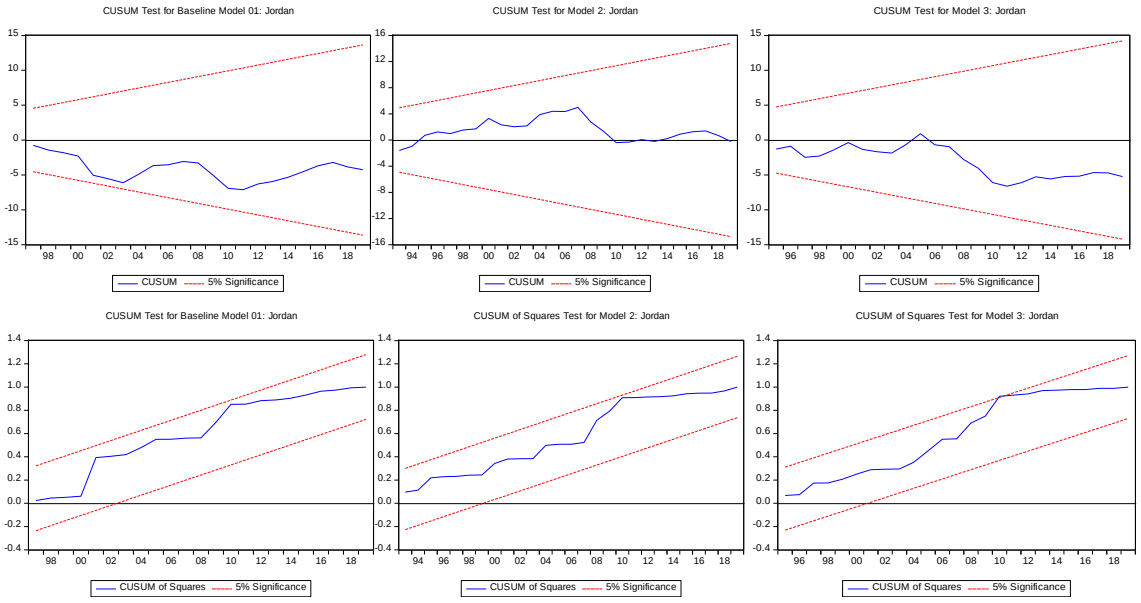


Figure 18 CUSUM and CUSUM of Square tests for Jordan

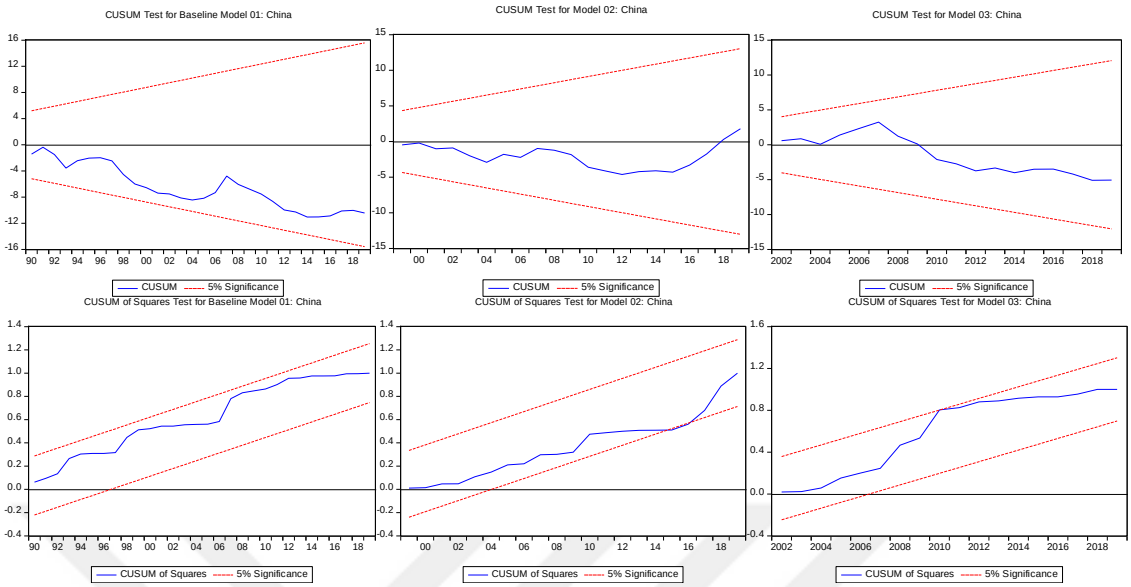


Figure 19 CUSUM and CUSUM of Square tests for China

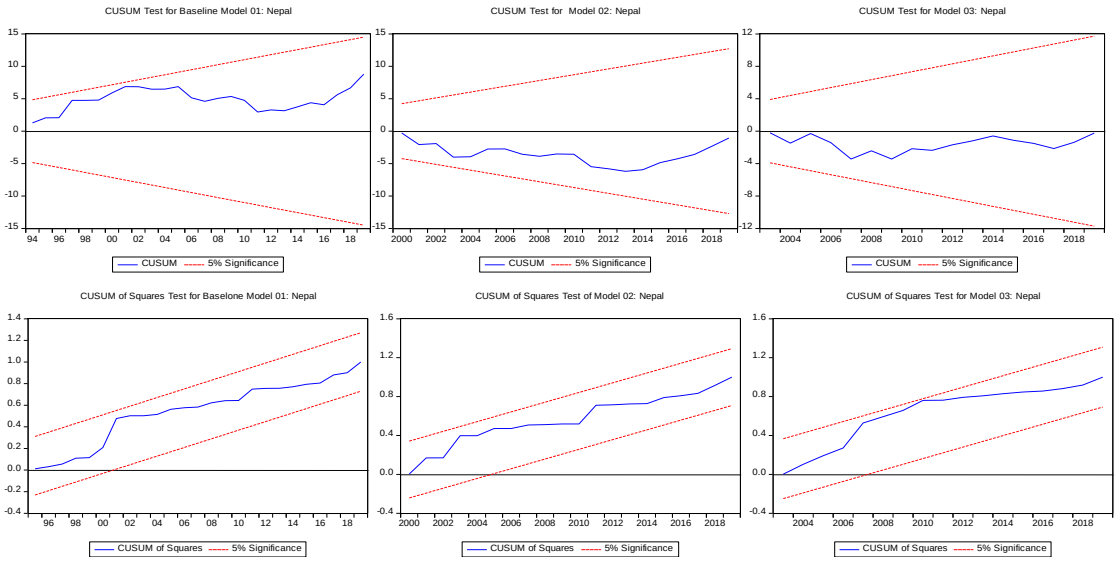


Figure 20 CUSUM and CUSUM of Square tests for Nepal

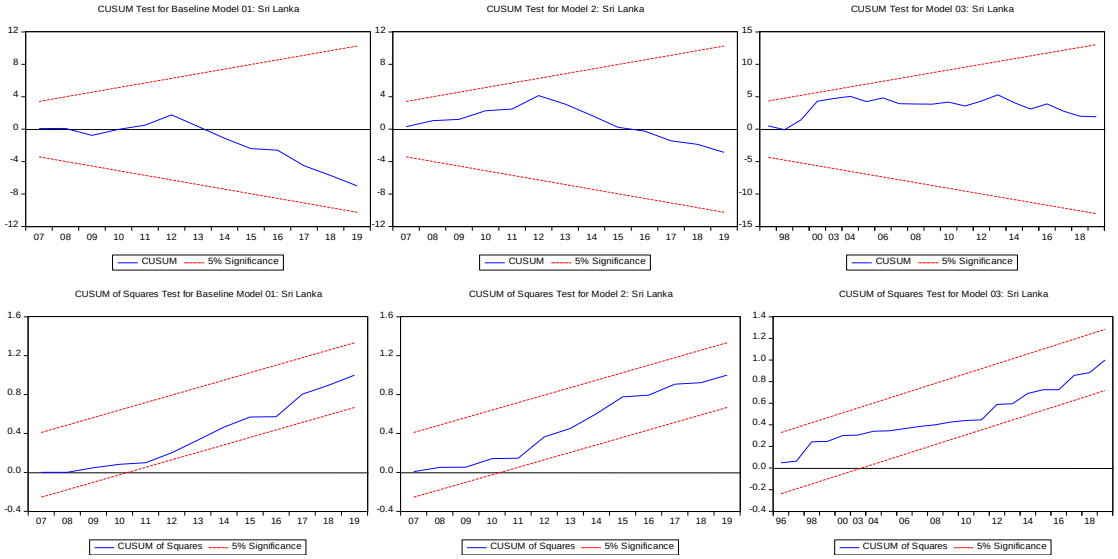


Figure 21 CUSUM and CUSUM of Square tests for Sri Lanka

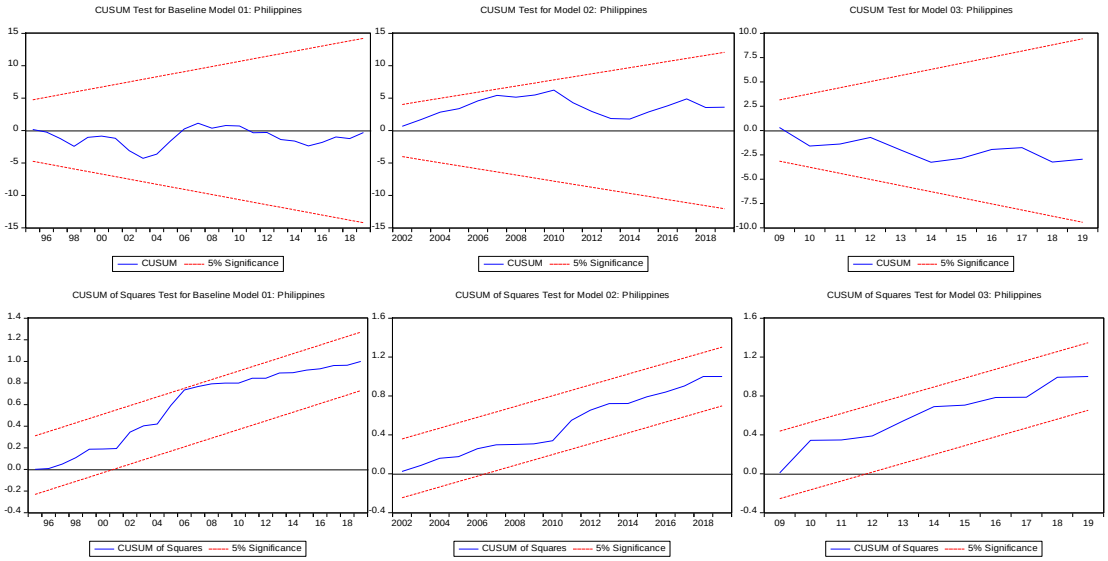


Figure 22 CUSUM and CUSUM of Square tests for Philippines

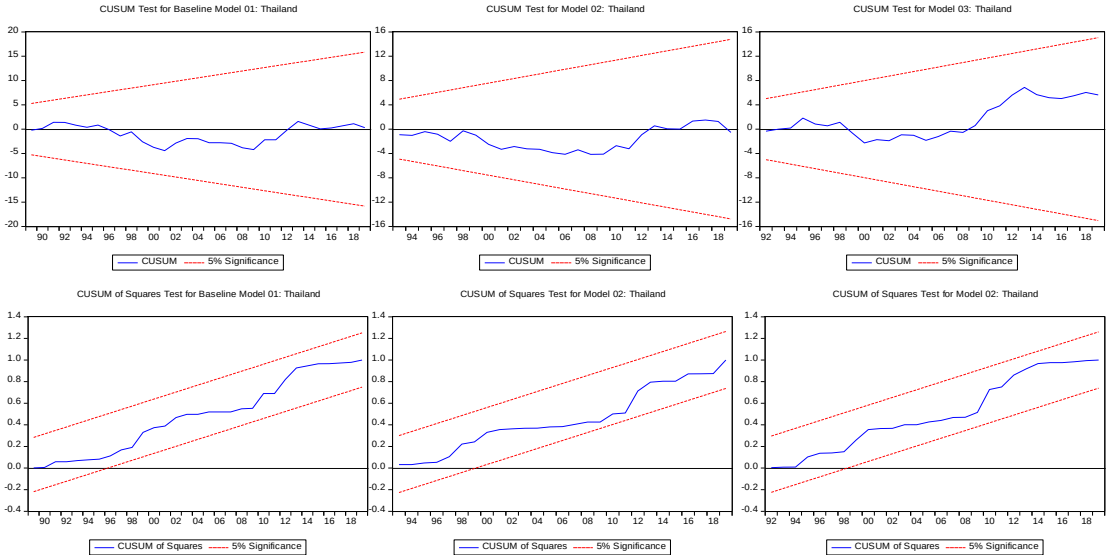


Figure 23 CUSUM and CUSUM of Square tests for Thailand

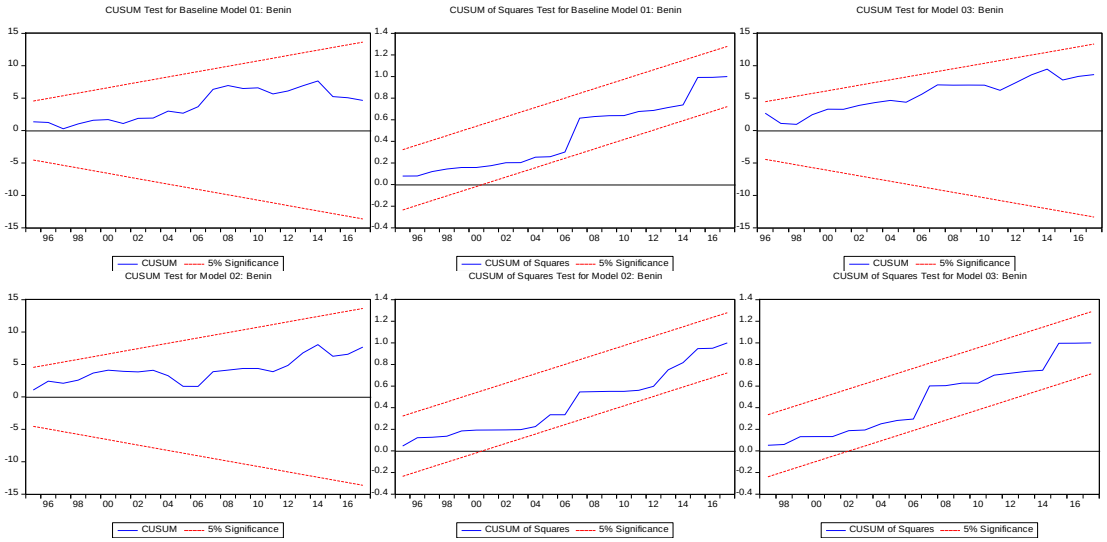


Figure 24 CUSUM and CUSUM of Square tests for Benin

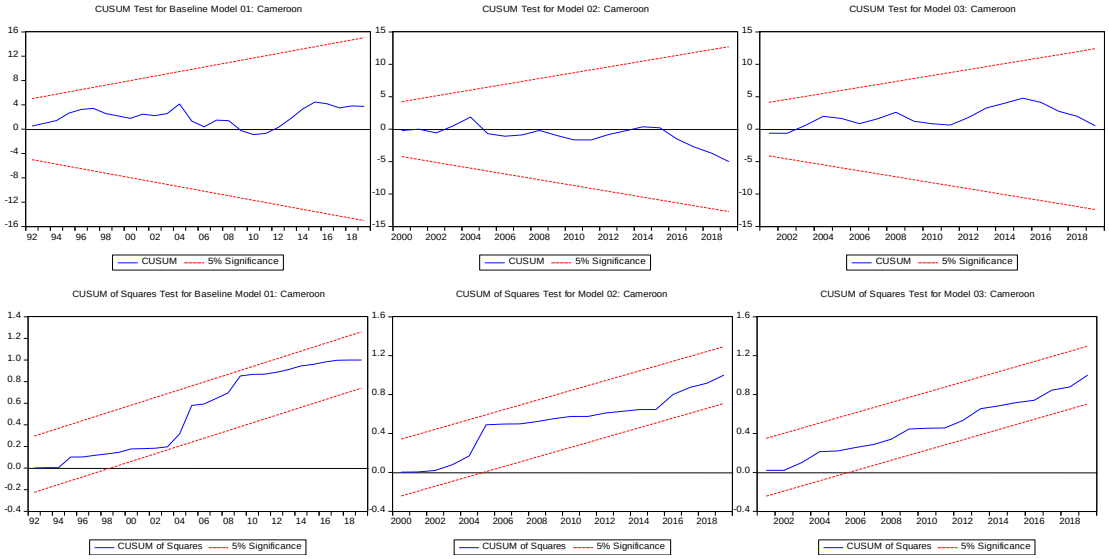


Figure 25 CUSUM and CUSUM of Square tests for Cameroon

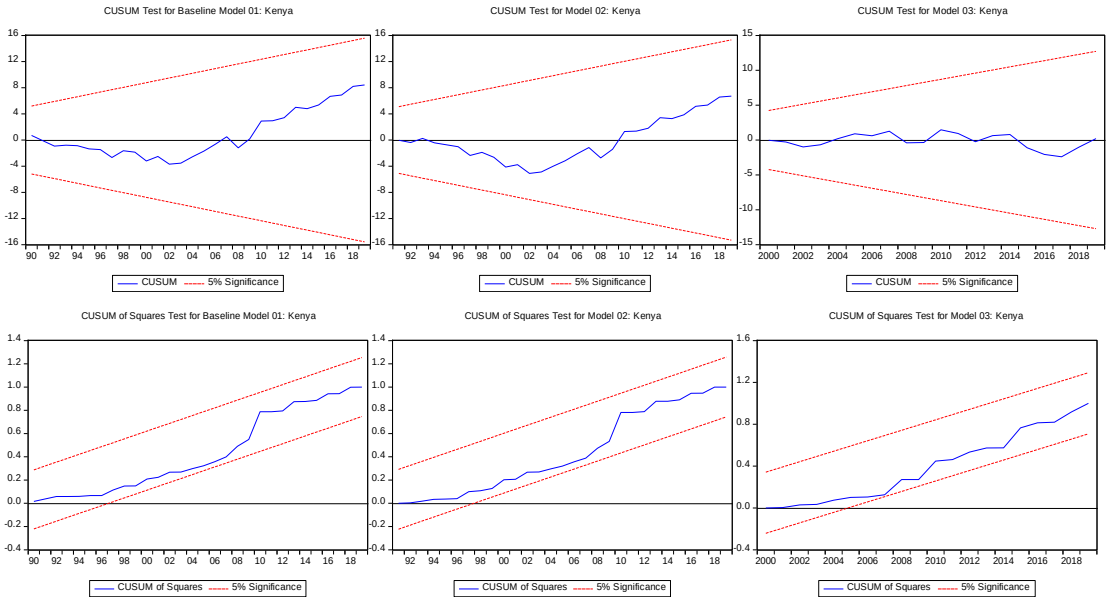


Figure 26 CUSUM and CUSUM of Square tests for Kenya

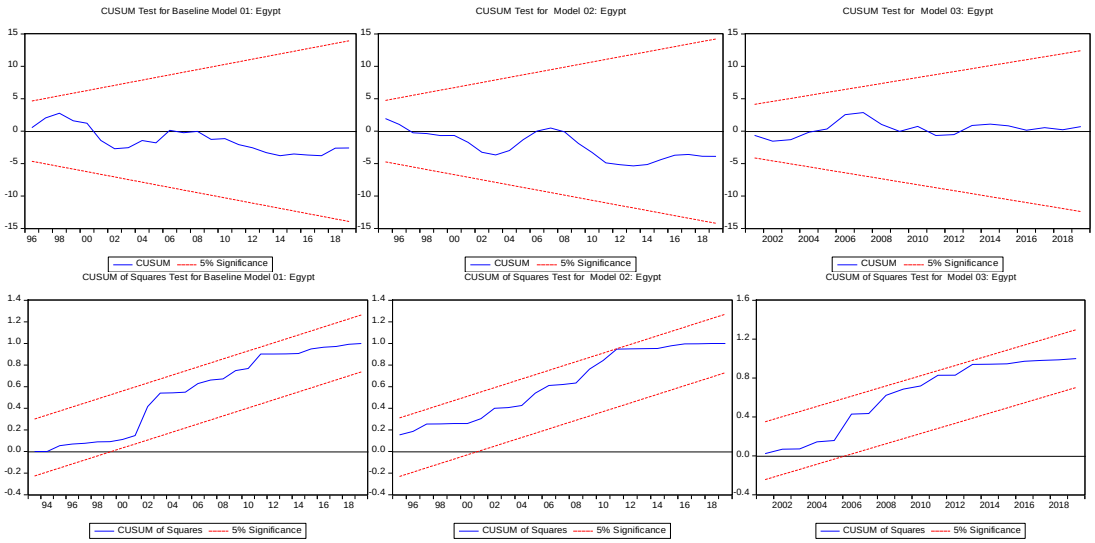


Figure 27 CUSUM and CUSUM of Square tests for Egypt

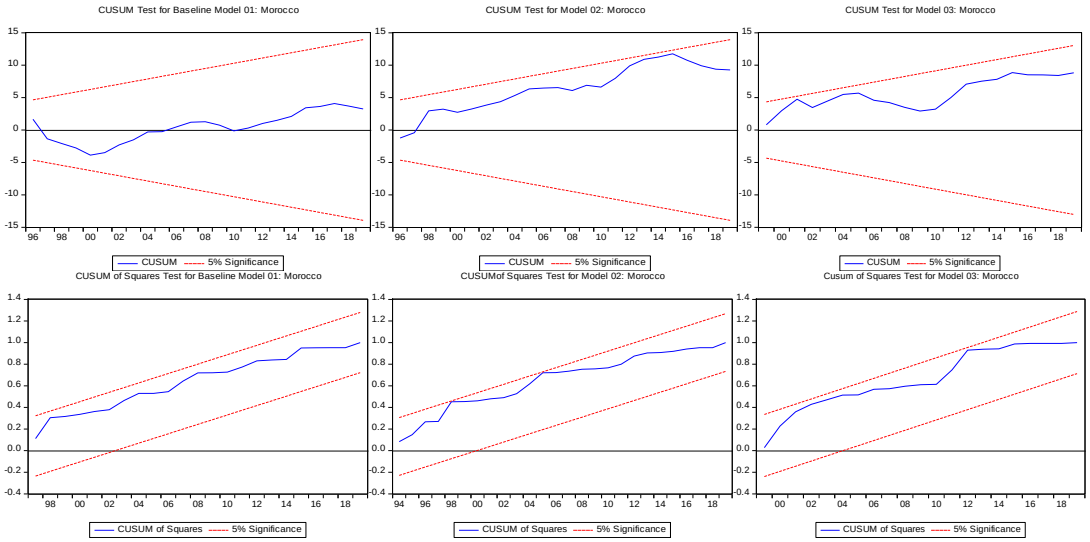


Figure 28 CUSUM and CUSUM of Square tests for Morocco

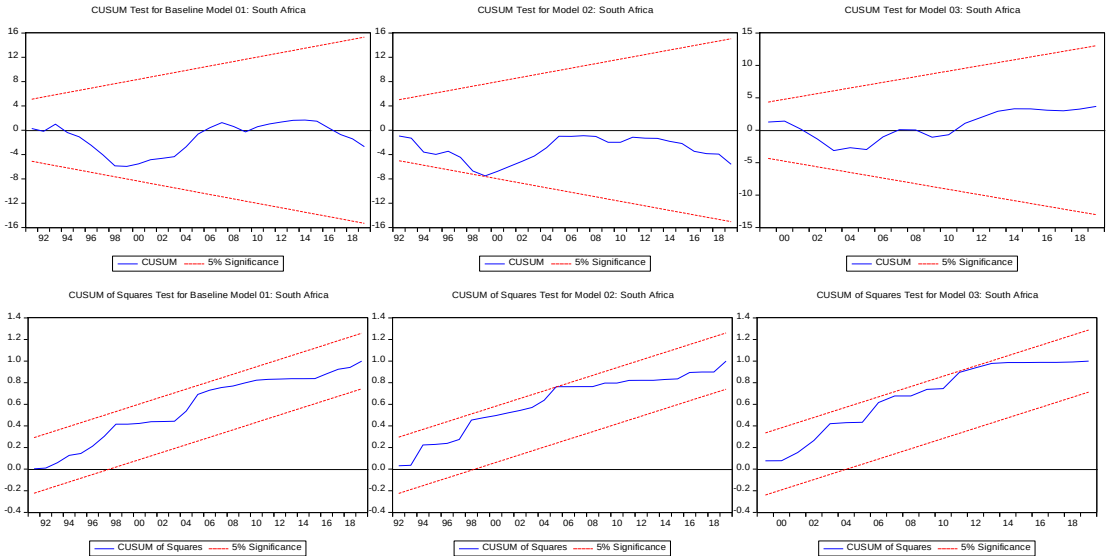


Figure 29 CUSUM and CUSUM of Square tests for South Africa

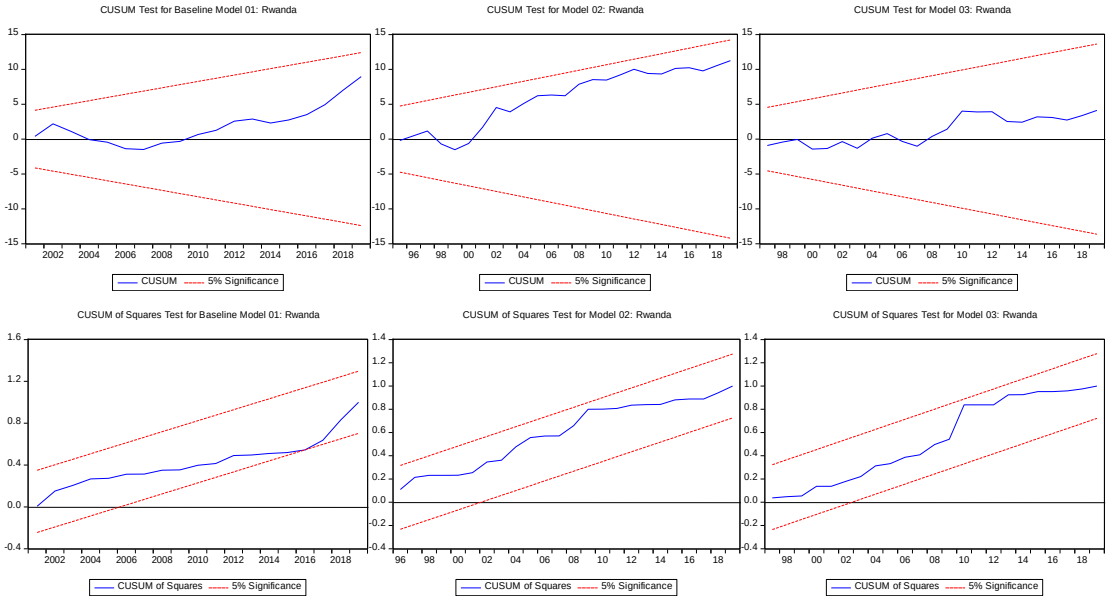


Figure 30 CUSUM and CUSUM of Square tests for Rwanda

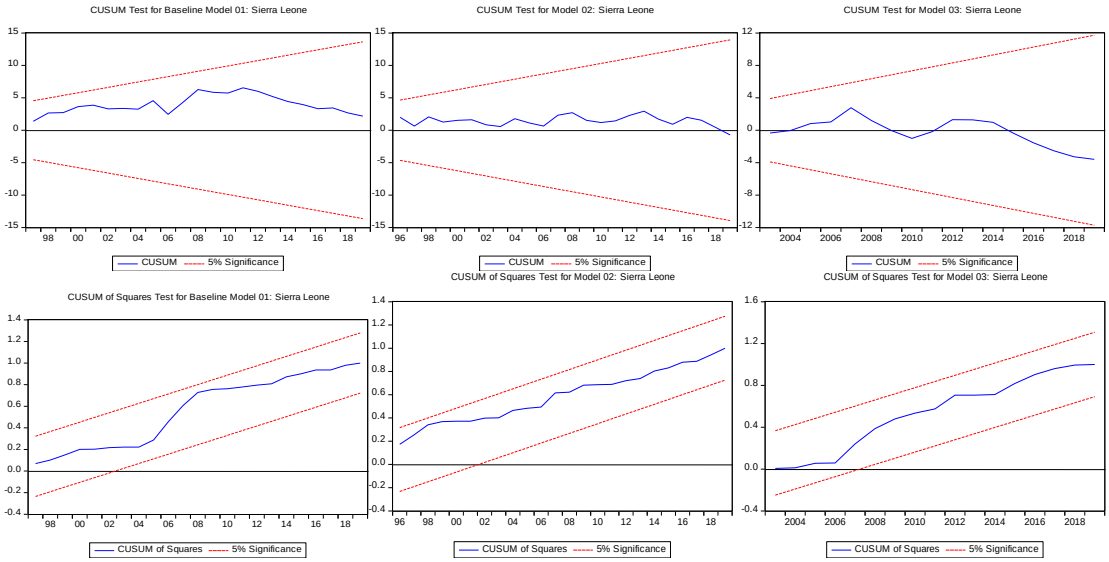


Figure 31 CUSUM and CUSUM of Square tests for Sierra Leone

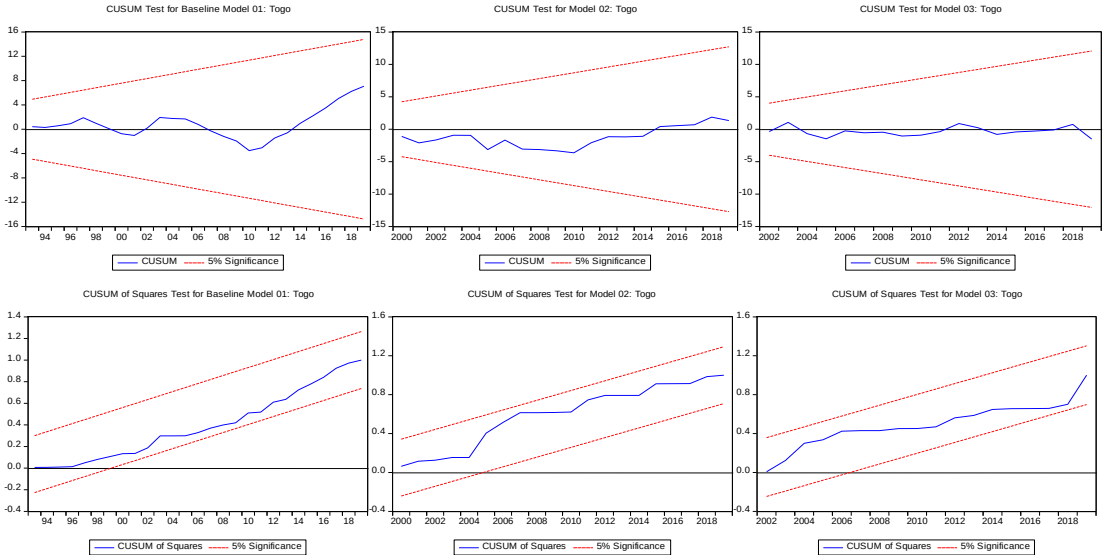


Figure 32 CUSUM and CUSUM of Square tests for Togo

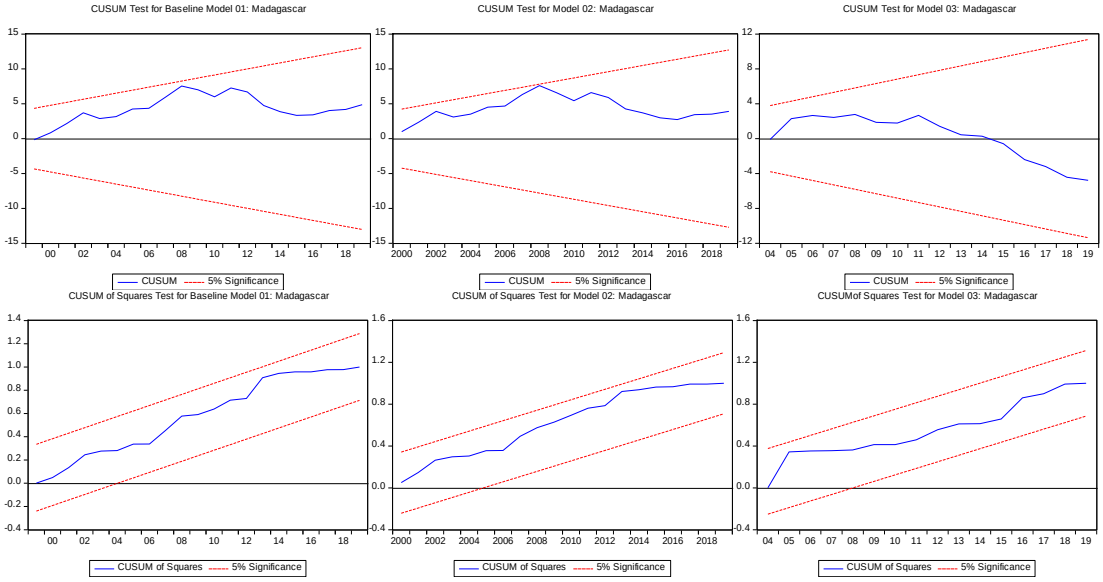


Figure 33 CUSUM and CUSUM of Square tests for Madagascar

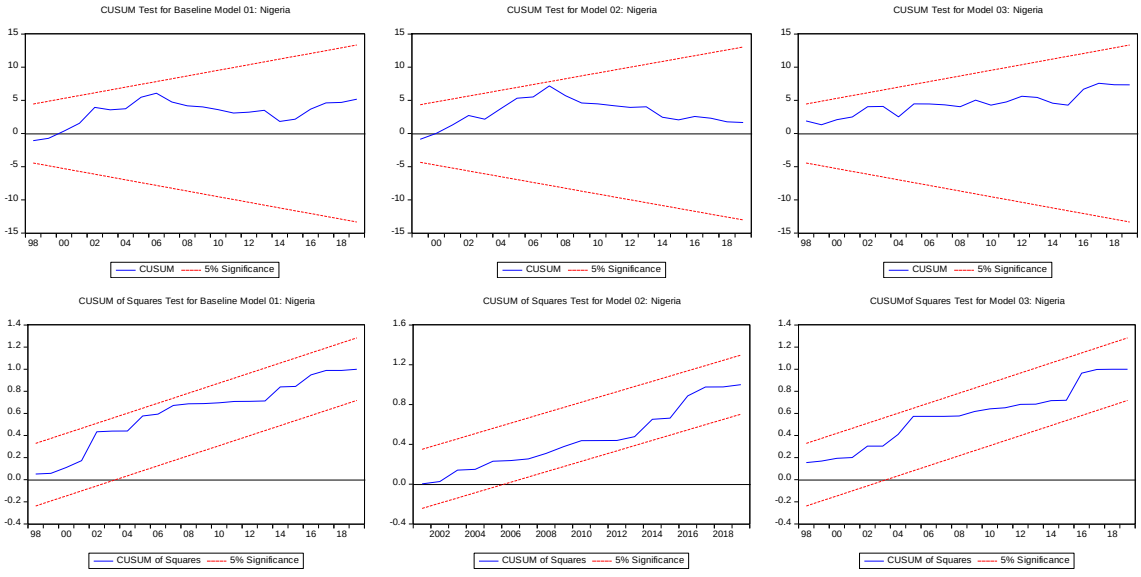


Figure 34 CUSUM and CUSUM of Square tests for Nigeria

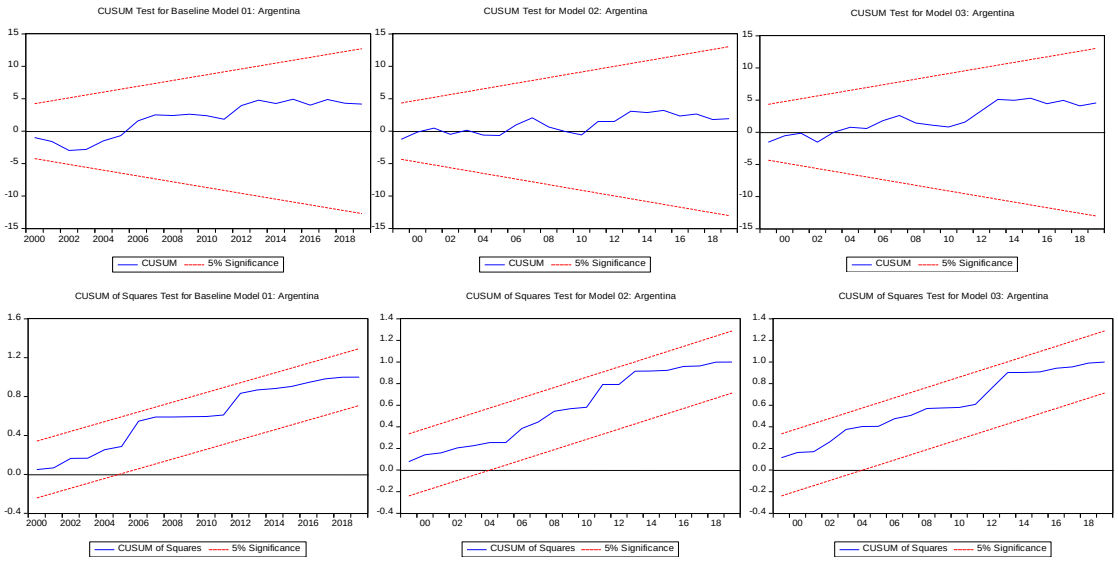


Figure 35 CUSUM and CUSUM of Square tests for Argentina

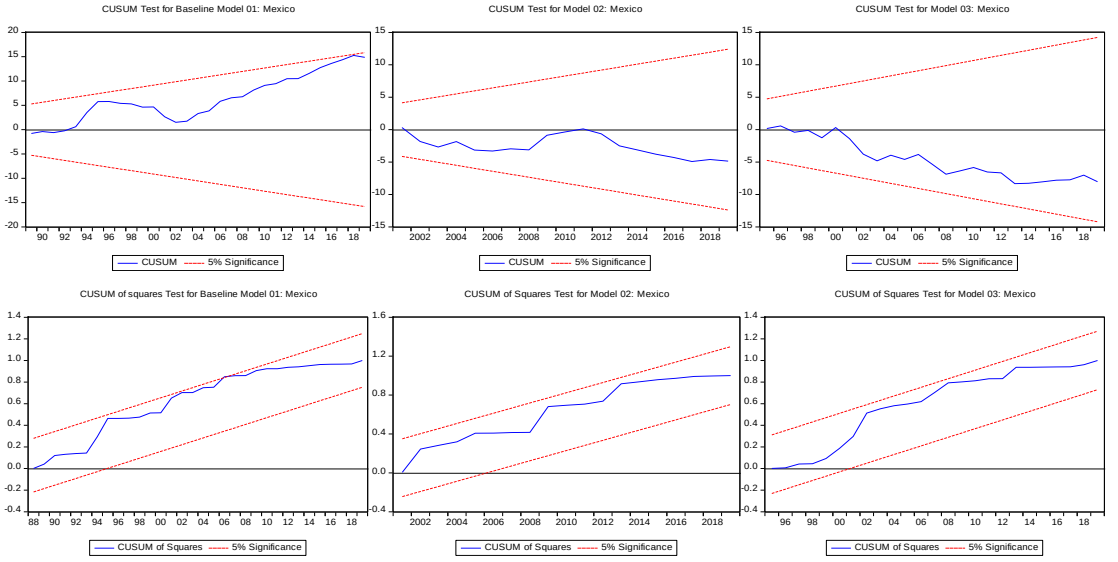


Figure 36 CUSUM and CUSUM of Square tests for Mexico

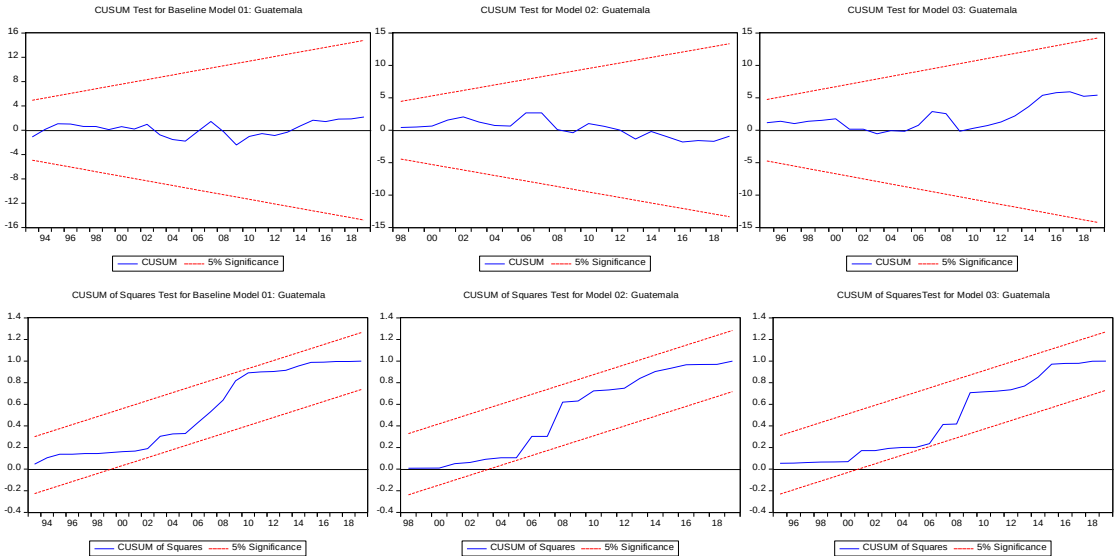


Figure 37 CUSUM and CUSUM of Square tests for Guatemala

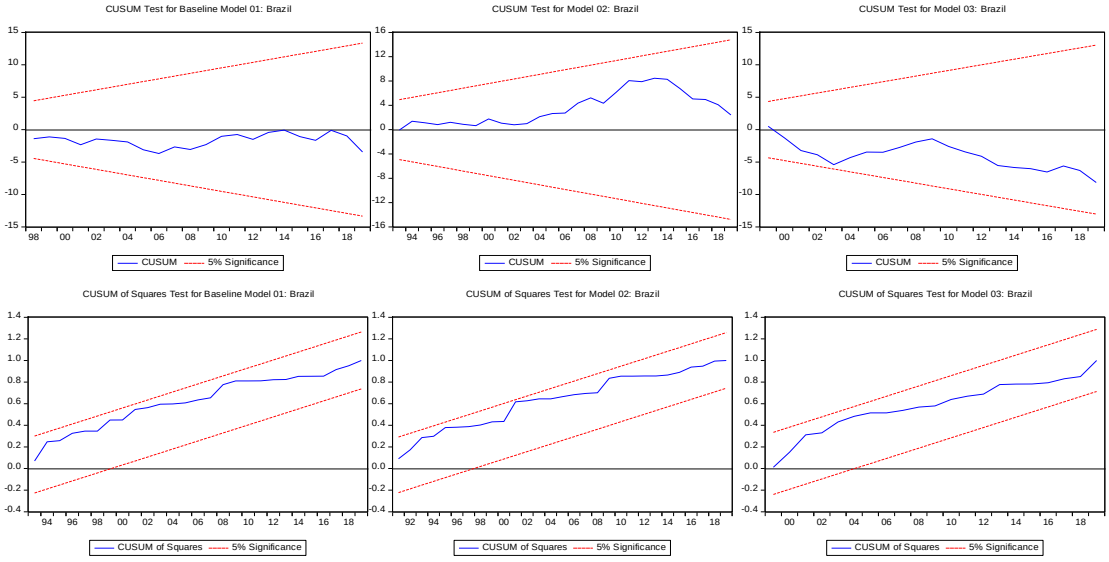


Figure 38 CUSUM and CUSUM of Square tests for Brazil

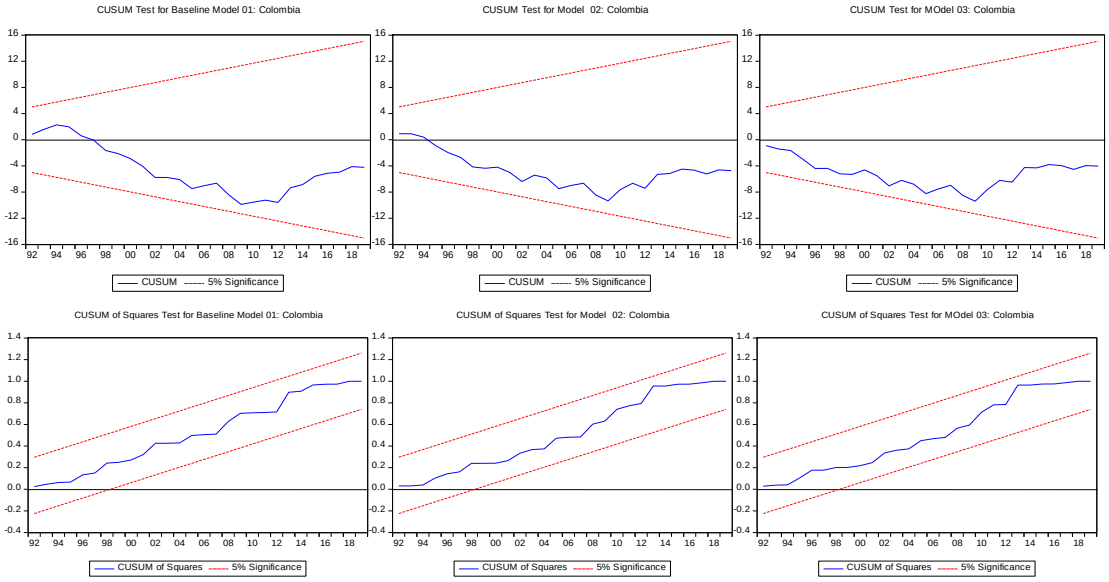


Figure 39 CUSUM and CUSUM of Square tests for Colombia

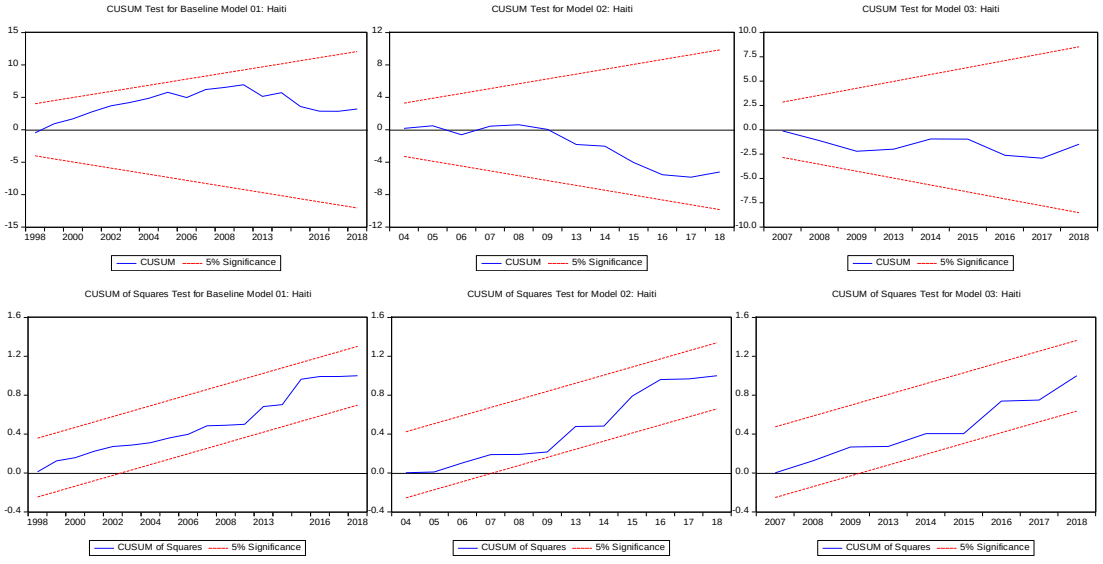


Figure 40 CUSUM and CUSUM of Square tests for Haiti

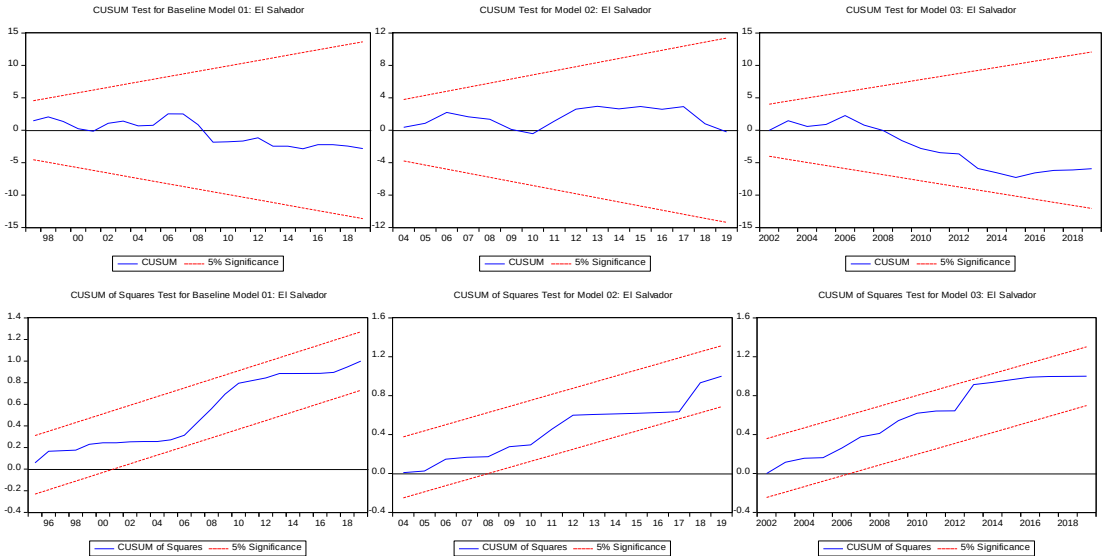


Figure 41 CUSUM and CUSUM of Square tests for El Salvador

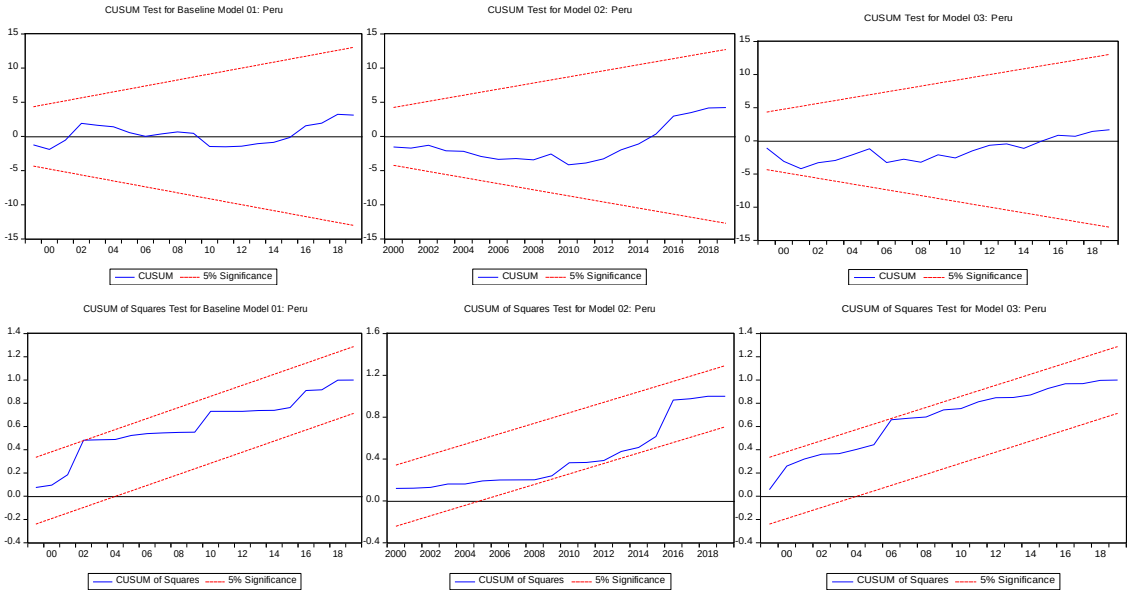


Figure 42 CUSUM and CUSUM of Square tests for Peru

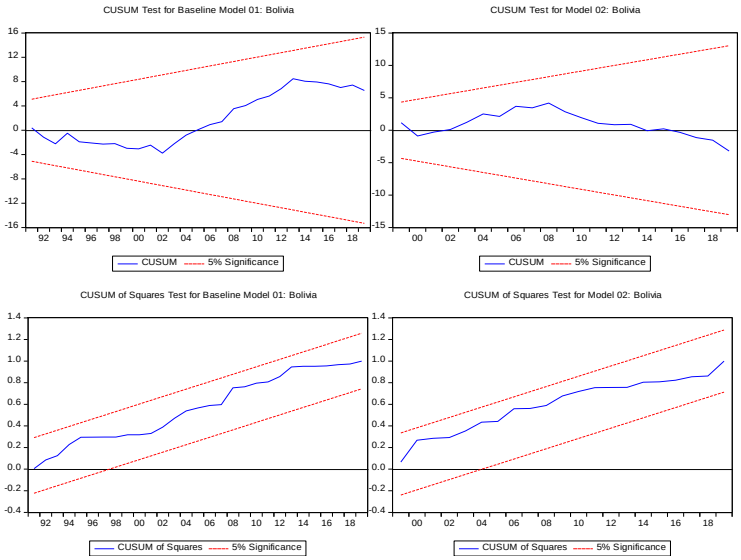


Figure 43 CUSUM and CUSUM of Square tests for Bolivia

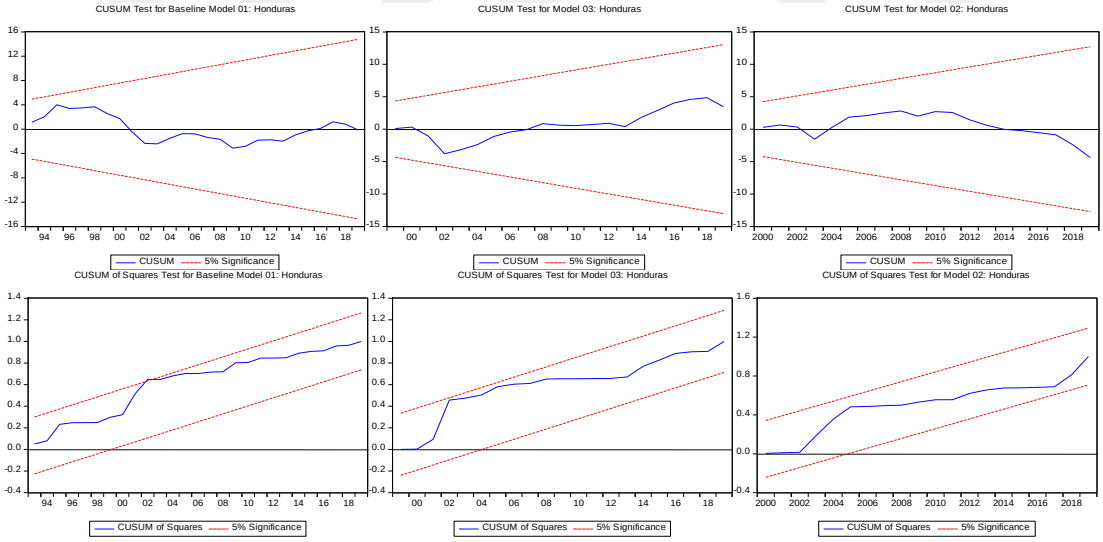


Figure 44 CUSUM and CUSUM of Square tests for Honduras

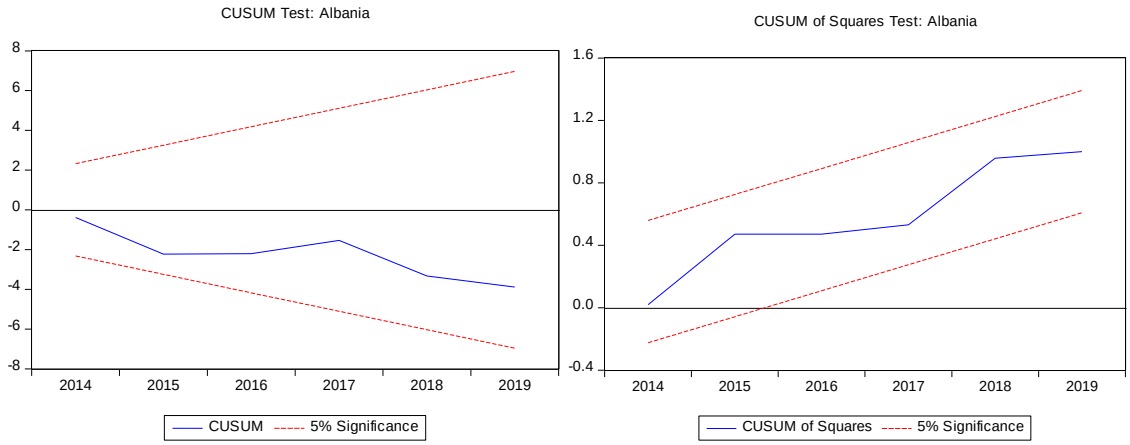


Figure 45 CUSUM and CUSUM of Square tests for Albania

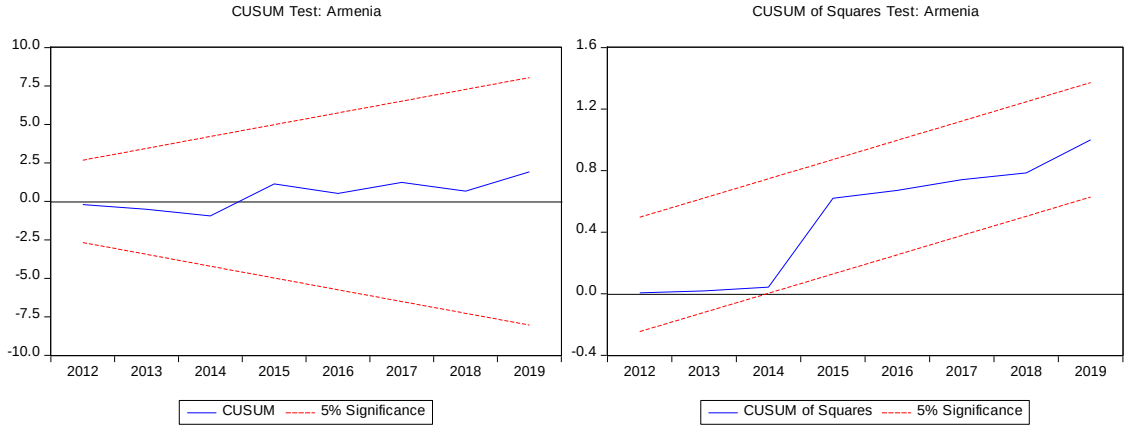


Figure 46 CUSUM and CUSUM of Square tests for Armenia

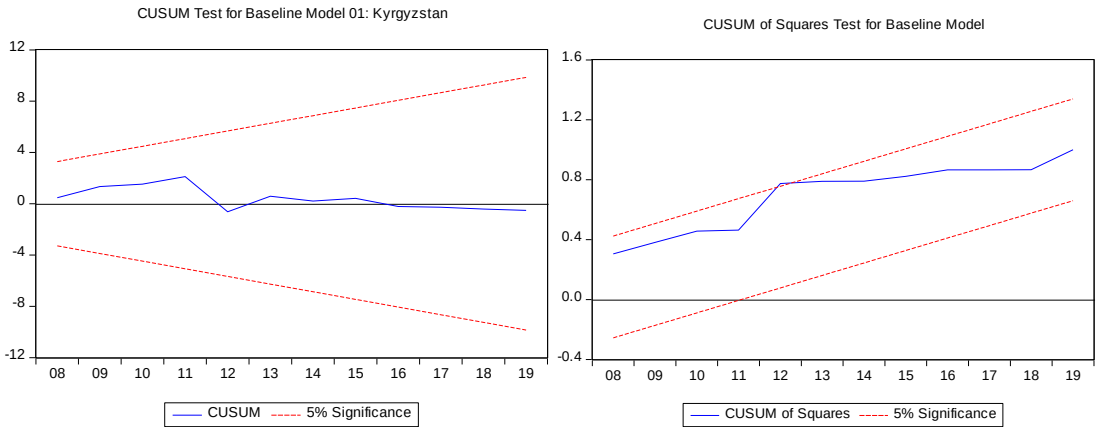


Figure 47 CUSUM and CUSUM of Square tests for Kyrgyz Republic

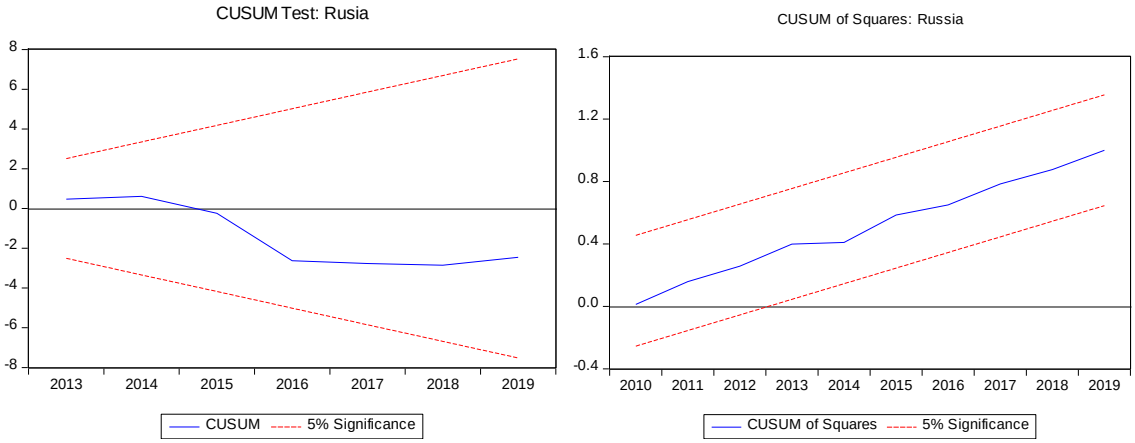


Figure 48 CUSUM and CUSUM of Square tests for Russian Federation

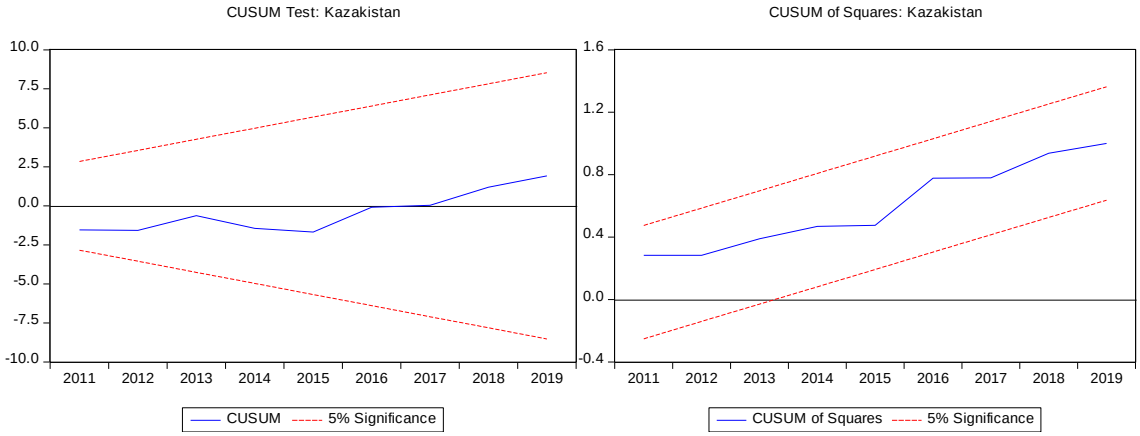
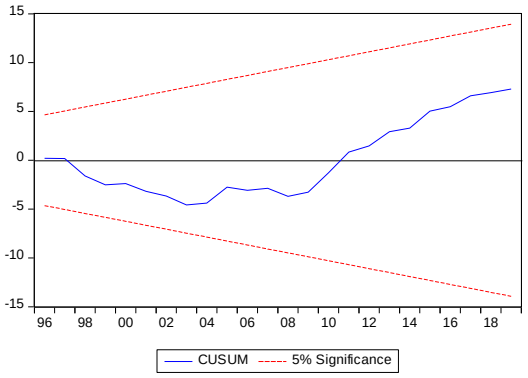
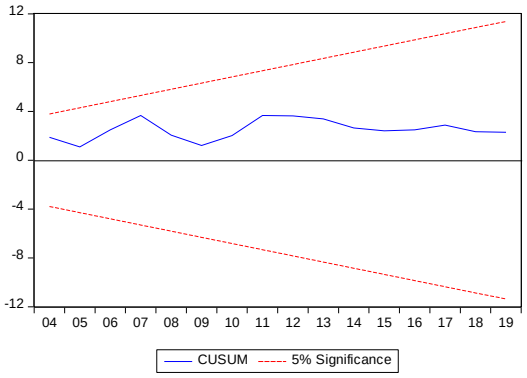


Figure 49 CUSUM and CUSUM of Square tests for Kazakhstan

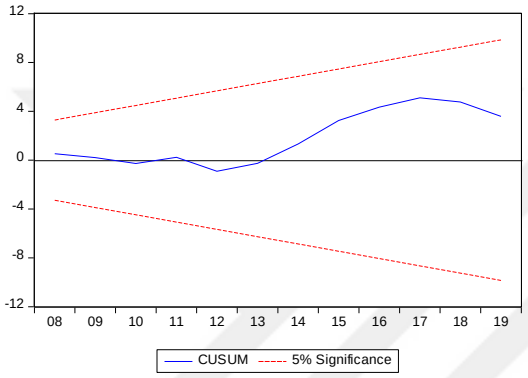
CUSUM Test for Baseline Model 01: Turkey



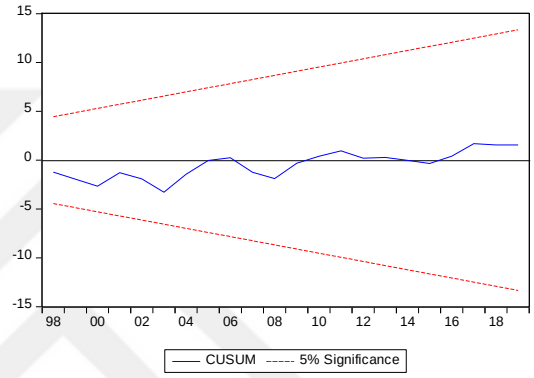
CUSUM Test for Model 02: Turkey



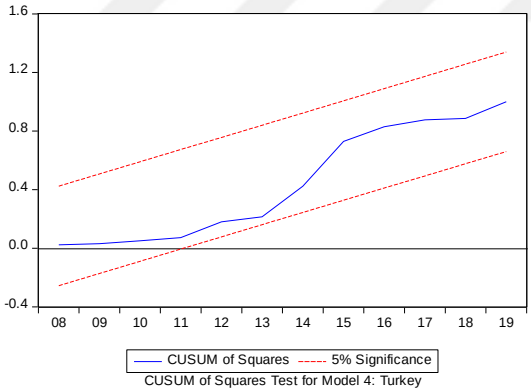
CUSUM Test for Model 03: Turkey



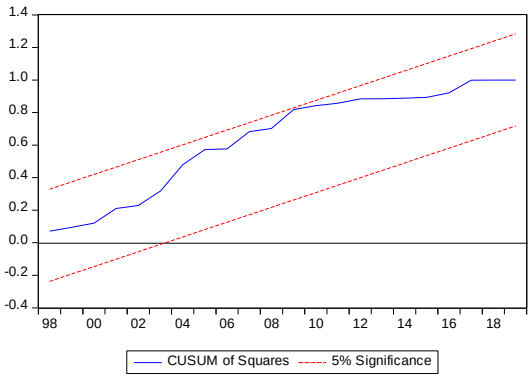
CUSUM Test for Model 04: Turkey



CUSUM of Squares Test for Model 03: Turkey



CUSUM of Squares Test for Model 4: Turkey



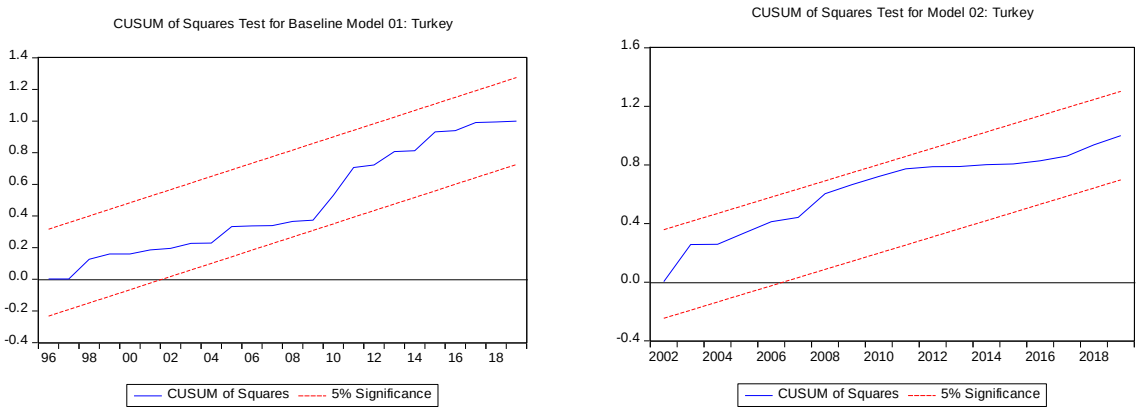


Figure 50: CUSUM and CUSUM of Square tests for Turkey

Appendix D: Diagnostic Checks For RER misalignment

Table 95
ADF and PP Test Results for Turkey (RER and its Determinants)

Variable	Test in	Includes	ADF		PP	
			t-stat	p-value	t-stat	p-value
RER	Level	Intercept	-1.766	0.3905	-1.787	0.3805
		Trend, Intercept	-1.096	0.9158	-1.218	0.8916
	First Difference	Intercept	-4.775*	0.0005	-4.776*	0.0005
		Trend, Intercept	-5.011*	0.0014	-4.949*	0.0017
TOT	Level	Intercept	-2.500	0.1240	-2.476	0.1295
		Trend, Intercept	-1.975	0.5946	-2.356	0.3948
	First Difference	Intercept	-5.914*	0.0000	-6.049*	0.0000
		Trend, Intercept	-5.973*	0.0001	-6.085*	0.0001
ODA	Level	Intercept	-1.446	0.5485	-1.682	0.4318
		Trend, Intercept	-2.910	0.1715	-2.936	0.1639
	First Difference	Intercept	-8.206*	0.0000	-8.326*	0.0000
		Trend, Intercept	-8.182*	0.0000	-8.678*	0.0000
G	Level	Intercept	-2.246	0.1946	-1.518	0.5131
		Trend, Intercept	-2.152	0.4999	-1.285	0.8758
	First Difference	Intercept	-4.087*	0.0031	-4.087*	0.0031
		Trend, Intercept	-4.588*	0.0042	-4.616*	0.0039
I	Level	Intercept	-1.656	0.4440	-1.369	0.5863
		Trend, Intercept	-2.365	0.3903	-2.000	0.5814
	First Difference	Intercept	-4.414*	0.0013	-4.399*	0.0013
		Trend, Intercept	-4.377*	0.0072	-4.358*	0.0075
PROD	Level	Intercept	-1.146	0.6862	-1.059	0.7212
		Trend, Intercept	-2.773	0.2166	-1.860	0.6542
	First Difference	Intercept	-3.152**	0.0318	-3.167**	0.0307
		Trend, Intercept	-3.145	0.1120	-3.196	0.1017

Notes: * and ** indicate rejection of the Null hypothesis of having a unit root at 1% and 5% level of significance respectively

Table 96
Optimal Lag selection

Sample: 1980 2019
Included observations: 38

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-195.5088	NA	0.001626	10.60573	10.86429	10.69772
1	-21.90075	283.2552*	1.19e-06*	3.363197*	5.173161*	4.007168*
2	7.977570	39.31358	1.91e-06	3.685391	7.046752	4.881338

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Appropriate number of lag is 1 (SB criteria is preferred; however, all criteria approve the lag is 1)

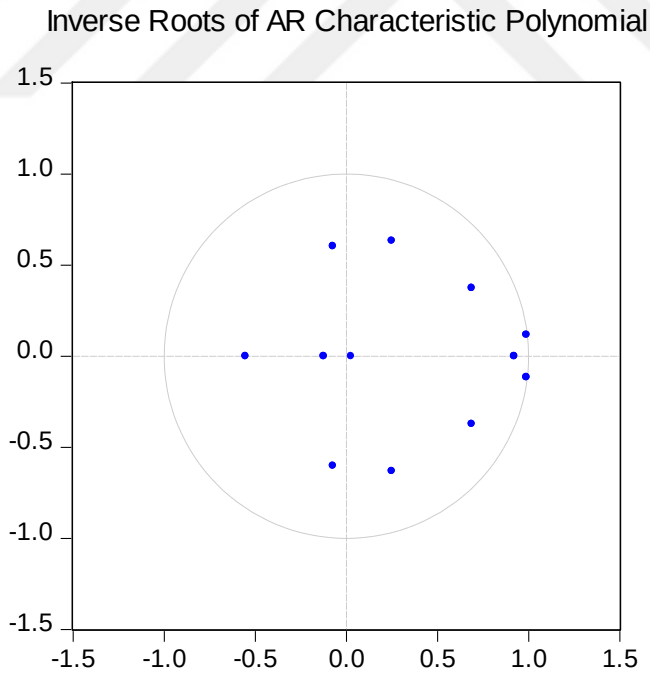


Figure 51 Stationarity of VAR

Estimated VAR is stationary as all the inverse roots lie inside the unit circle

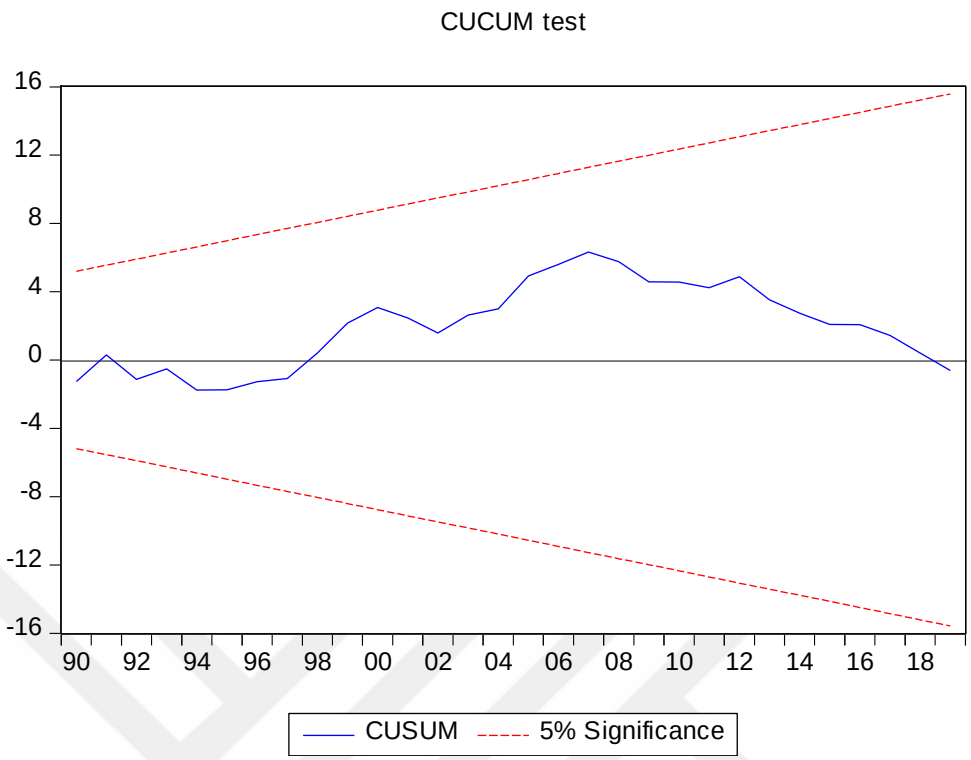


Figure 52 Stability of the Long Run Cointegrating Equation

As the CUCUM test statistic lies within the confidence interval, the model is stable

Appendix E: Capital Flight Series

Table 97
Capital Flight from Selected Developing Asian Economies

Year	Bangladesh	China	Fiji	India	Indonesia	Jordan
1981	3.74	10.58	0.38	1.07	-0.03	4.69
1982	3.98	2.35	0.11	0.81	13.99	5.10
1983	2.71	5.45	0.11	0.62	18.72	4.45
1984	3.63	6.11	-0.05	0.43	-3.35	4.54
1985	4.08	-3.24	0.01	0.74	7.03	4.61
1986	5.08	1.84	-0.07	0.67	23.05	3.59
1987	4.70	16.44	0.08	0.80	20.39	4.27
1988	3.11	6.97	-0.29	0.82	-2.20	2.34
1989	4.68	-0.79	-0.07	37.65	3.67	3.43
1990	4.51	27.00	-0.10	29.33	16.41	3.47
1991	2.42	12.87	-0.02	6.32	15.48	4.90
1992	2.11	111.32	-0.16	10.25	10.91	-0.09
1993	2.35	10.18	0.13	2.74	-9.07	0.78
1994	3.69	-16.38	-0.08	4.51	34.33	2.32
1995	5.86	-2.49	-0.11	9.84	27.66	2.20
1996	3.29	-21.34	-0.14	17.68	-5.98	2.96
1997	1.82	44.01	0.11	11.36	9.92	1.45
1998	3.44	50.00	-0.08	23.89	-6.78	3.27
1999	4.67	39.87	0.02	9.97	-44.28	1.80
2000	1.82	21.87	0.23	11.87	-54.50	6.16
2001	3.04	31.08	0.23	-8.52	-56.90	5.20
2002	4.65	-62.50	0.16	-27.94	-53.89	2.99
2003	4.74	-79.13	0.13	-22.38	-22.25	-0.05
2004	5.06	-146.62	0.05	-18.35	-13.08	4.44
2005	3.13	-37.17	0.33	20.38	-16.01	4.93
2006	5.16	68.55	0.04	32.77	-59.51	1.28
2007	6.05	-56.77	-0.19	-26.82	-38.03	5.08
2008	8.90	72.59	0.23	110.37	2.73	1.89
2009	2.96	-141.97	-0.05	57.39	-22.14	0.33
2010	7.01	123.19	-0.08	97.91	-43.54	4.98
2011	11.83	136.90	0.15	124.31	-25.25	7.74
2012	6.39	203.56	-0.25	180.21	17.13	10.08
2013	5.33	49.11	0.23	109.48	18.19	6.58
2014	5.57	506.66	-0.01	50.39	5.01	5.16
2015	4.79	426.04	-0.12	21.64	5.81	6.43
2016	4.50	683.55	-0.12	-31.97	-26.30	7.39
2017	16.65	402.18	-0.20	48.51	-9.84	6.26
2018	18.26	385.78	0.07	102.17	32.77	5.35
2019	15.18	271.07	0.12	11.01	-2.48	3.38

Source: Author’s calculation (Billion, Constant 2010 USD)

Table 97
(Continued)

Year	Nepal	Pakistan	Philippines	SriLanka	Thailand
1981	0.48	6.40	15.49	3.23	9.72
1982	0.62	6.89	17.86	3.72	3.89
1983	0.87	4.37	8.22	3.22	8.53
1984	0.57	9.44	1.06	0.58	4.80
1985	0.78	9.34	3.01	3.83	7.04
1986	0.67	8.93	-5.06	3.85	-1.87
1987	0.77	8.87	3.68	3.75	0.00
1988	0.96	6.93	-3.90	3.32	-1.13
1989	1.00	7.78	-0.28	1.96	-2.44
1990	1.10	11.30	9.56	2.91	8.65
1991	0.85	9.72	0.77	3.38	16.25
1992	0.64	8.87	3.62	1.01	6.82
1993	0.85	4.34	11.22	1.27	14.97
1994	1.58	6.73	11.97	4.05	19.36
1995	1.55	11.95	5.79	3.51	47.90
1996	1.16	8.26	9.93	2.31	26.36
1997	1.14	4.13	27.71	0.77	7.62
1998	1.02	8.28	2.25	3.47	-56.12
1999	1.44	6.22	10.70	4.74	-56.12
2000	0.51	0.94	8.86	2.91	-49.01
2001	0.61	-3.14	12.84	0.55	-45.88
2002	1.89	-4.73	11.68	3.71	-37.60
2003	1.58	-0.58	16.06	1.80	-35.57
2004	1.66	7.73	10.80	4.93	-31.90
2005	1.92	6.66	6.75	1.90	-9.55
2006	2.28	13.66	-0.32	4.94	-32.84
2007	3.13	13.24	1.48	6.55	-54.88
2008	2.68	31.27	13.36	9.90	-33.30
2009	3.85	13.30	-0.22	3.49	-45.72
2010	4.05	12.80	3.99	4.02	-153.48
2011	3.35	13.32	2.00	11.57	3.05
2012	3.77	15.63	7.33	16.53	24.77
2013	4.17	17.04	6.95	8.17	5.79
2014	5.28	13.27	24.98	7.18	-62.33
2015	3.37	13.67	14.44	7.60	57.77
2016	6.91	21.94	19.79	9.08	-113.08
2017	7.83	38.74	21.92	6.79	51.12
2018	10.67	40.41	40.55	7.94	25.44
2019	9.26	24.07	25.28	7.21	-88.21

Source: Author’s calculation (Billion, Constant 2010 USD)

Table 98
Capital Flight from Selected Developing African Economies

T	Benin	Cameroon	Egypt	Kenya	Madagascar	Morocco
1981	0.23	0.34	6.87	0.68	0.69	3.33
1982	0.76	0.25	8.48	0.41	0.60	3.94
1983	0.23	-0.07	6.72	0.14	0.29	2.01
1984	0.05	-0.08	7.80	-0.03	0.20	2.29
1985	0.25	-0.17	8.04	0.71	0.55	3.25
1986	0.33	1.19	6.55	0.37	0.55	2.80
1987	0.32	0.73	6.65	1.75	0.72	3.61
1988	0.19	-0.13	6.40	0.49	0.13	0.02
1989	-0.04	0.60	2.87	0.64	-0.19	2.26
1990	-0.03	1.35	-10.31	1.67	0.74	2.61
1991	0.42	0.09	-0.92	0.60	0.39	-2.26
1992	0.02	0.38	-4.94	-0.47	0.22	1.23
1993	0.36	0.11	0.61	1.01	0.18	0.46
1994	0.02	1.38	3.60	1.31	0.51	1.48
1995	0.55	1.15	1.64	2.75	0.42	3.42
1996	-0.04	-0.18	0.43	1.01	-0.12	1.17
1997	0.18	-0.50	2.63	2.53	0.20	-0.83
1998	0.18	0.29	10.47	4.44	0.68	0.86
1999	0.27	-0.68	8.27	3.79	0.56	-1.35
2000	-0.03	-0.73	4.36	0.39	0.14	0.33
2001	0.30	-0.87	3.72	0.21	-0.56	-7.16
2002	0.61	-0.29	3.31	1.23	0.90	-1.84
2003	0.03	1.09	-0.35	0.77	0.93	-4.11
2004	0.61	-0.67	-0.49	1.13	-0.65	-1.39
2005	0.01	-3.42	-9.02	0.68	0.50	1.68
2006	0.56	-5.33	-9.72	1.78	-1.68	-0.12
2007	-0.20	-2.07	-4.25	2.22	1.08	4.04
2008	0.66	0.27	2.09	4.81	1.12	12.89
2009	1.29	-0.05	4.01	3.77	1.04	12.31
2010	0.58	0.71	5.07	4.20	0.31	11.72
2011	1.05	0.59	32.23	6.35	0.43	18.00
2012	0.16	0.58	25.43	5.84	0.58	19.13
2013	0.54	1.31	22.25	7.44	0.62	15.66
2014	0.60	1.23	19.32	10.09	0.06	12.96
2015	0.80	1.59	30.80	9.91	0.18	4.11
2016	1.14	1.96	38.31	6.97	-0.58	10.05
2017	0.06	1.14	22.94	13.01	0.07	11.31
2018	1.64	1.06	26.92	10.79	0.21	10.26
2019	1.17	2.48	28.99	10.40	0.40	12.95

Source: Author’s calculation (Billion, Constant 2010 USD)

(Continues)

Table 98
(Continued)

Year	Nigeria	Rwanda	Sierra Leone	South Africa	Togo
1981	104.58	0.17	0.26	9.09	-0.04
1982	77.60	0.22	0.23	3.61	0.08
1983	66.49	0.16	0.02	0.56	-0.01
1984	45.59	0.17	0.00	3.01	-0.11
1985	53.13	0.22	0.14	-1.15	0.17
1986	50.86	0.18	0.29	-3.00	0.29
1987	30.05	0.37	0.11	-6.01	0.37
1988	15.47	0.34	0.04	-1.37	0.06
1989	23.29	0.24	0.06	-1.13	0.05
1990	41.86	0.28	0.08	-1.84	0.29
1991	66.26	0.24	0.05	-2.05	0.29
1992	65.81	0.29	0.12	-0.07	0.32
1993	150.34	0.34	0.24	-2.19	0.14
1994	82.33	0.13	0.07	22.11	0.15
1995	49.54	0.21	-0.18	6.26	0.29
1996	76.80	0.20	0.22	4.72	0.04
1997	94.53	0.23	0.02	1.71	-0.01
1998	109.39	0.32	0.19	-0.89	0.34
1999	50.30	0.27	0.17	-1.53	0.14
2000	49.19	0.11	0.08	0.10	0.04
2001	123.90	0.16	0.19	-12.07	0.16
2002	128.36	0.30	0.35	6.44	0.31
2003	194.97	0.32	0.40	3.84	0.40
2004	77.51	0.19	0.14	4.96	0.23
2005	65.90	0.21	0.18	-3.60	0.37
2006	67.23	-0.85	-0.22	26.67	0.13
2007	132.74	0.31	-0.95	19.06	0.72
2008	75.85	1.13	0.28	4.81	0.49
2009	103.01	0.89	0.31	4.04	0.21
2010	64.54	1.22	0.55	25.86	0.08
2011	35.23	1.77	1.08	10.35	0.63
2012	-1.88	2.05	0.79	44.96	1.37
2013	26.39	1.66	0.08	13.83	0.44
2014	27.70	1.74	0.96	21.07	1.21
2015	13.48	2.05	1.34	5.20	1.03
2016	-6.65	2.07	0.49	27.24	1.38
2017	-18.47	1.29	0.70	46.09	0.74
2018	22.66	1.45	0.69	6.33	1.26
2019	36.99	1.96	0.69	20.85	0.86

Source: Author’s calculation (Billion, Constant 2010 USD)

Table 99

Capital Flight from Selected Developing Latin American Economies

Year	Argentina	Bolivia	Brazil	Colombia	El Salvador
1981	16.55	0.72	18.78	3.68	0.58
1982	10.58	-0.24	29.78	3.99	0.37
1983	6.24	0.67	9.44	4.65	0.31
1984	5.43	0.06	-3.64	1.93	0.16
1985	0.02	0.51	-0.93	1.37	0.01
1986	4.09	0.92	14.01	-2.16	-0.15
1987	10.98	0.48	11.30	0.10	-0.10
1988	-0.71	-0.69	-10.20	-1.03	0.04
1989	8.74	-0.67	-5.28	-2.05	0.15
1990	-12.45	0.28	8.56	-2.98	0.07
1991	0.16	0.03	2.99	-5.17	0.33
1992	1.23	0.60	-14.17	-2.76	0.04
1993	-1.86	0.39	5.75	2.27	-0.43
1994	18.27	0.39	0.86	4.92	0.08
1995	24.71	0.13	9.69	5.78	0.52
1996	10.06	-0.43	24.10	2.87	0.31
1997	21.03	-0.10	37.01	2.49	0.04
1998	20.34	0.41	55.38	4.17	-1.21
1999	-1.40	-0.39	9.78	0.11	0.32
2000	-1.19	0.18	-5.55	-4.85	1.08
2001	14.96	-1.43	-16.90	-0.51	0.85
2002	-11.81	0.41	-6.45	-3.58	0.77
2003	2.44	0.45	-21.57	3.91	2.73
2004	-7.61	0.05	-39.28	-4.18	0.86
2005	-54.86	0.01	-59.73	-6.89	0.78
2006	-25.41	-3.28	-30.31	-2.91	0.76
2007	-23.25	-4.49	-79.42	-4.01	-0.71
2008	-5.06	-3.52	14.65	-5.12	1.19
2009	-8.24	-1.47	-37.79	1.63	-0.81
2010	-20.00	-2.49	44.07	8.88	2.09
2011	18.17	-3.06	-21.83	1.05	2.52
2012	-12.10	-4.89	8.63	-16.48	0.91
2013	27.23	-5.88	77.82	1.84	2.35
2014	8.73	1.73	102.72	7.91	2.00
2015	36.02	4.51	-13.55	20.11	0.67
2016	12.88	6.36	-44.03	10.56	0.75
2017	51.52	3.34	-41.76	2.38	-0.14
2018	52.73	3.28	-20.61	9.03	0.61
2019	15.90	5.48	29.72	2.45	-0.31

Source: Author’s calculation (Billion, Constant 2010 USD)

Table 99
(Continued)

Year	Guatemala	Haiti	Honduras	Mexico	Peru
1981	0.95	0.25	0.47	93.48	1.86
1982	0.56	0.22	0.17	95.55	3.46
1983	0.31	0.13	0.38	92.23	1.57
1984	0.70	0.18	0.36	85.63	1.00
1985	0.30	0.15	0.62	95.77	0.20
1986	-0.16	0.02	0.27	97.43	3.61
1987	0.31	0.15	0.41	97.51	5.52
1988	0.07	0.01	0.13	90.19	2.69
1989	0.25	0.04	0.17	81.48	0.52
1990	0.57	0.10	0.36	101.50	2.66
1991	-0.31	-0.09	-0.33	97.95	0.83
1992	0.89	0.03	0.54	90.40	1.22
1993	0.78	0.02	0.81	119.82	4.46
1994	1.10	-0.08	0.57	160.39	-1.14
1995	1.16	0.02	0.19	165.90	5.16
1996	0.58	0.20	0.15	126.42	-4.06
1997	0.79	0.20	0.01	101.93	1.69
1998	0.84	-0.09	0.21	136.64	4.04
1999	1.71	0.18	0.59	143.98	0.82
2000	1.00	0.16	0.43	97.82	0.58
2001	1.60	0.25	0.07	125.54	-2.92
2002	2.91	0.14	0.78	91.94	1.06
2003	3.13	0.13	1.05	92.69	0.93
2004	5.96	-0.15	0.95	103.76	-4.65
2005	5.02	-0.01	-0.27	91.72	-7.46
2006	5.72	-0.14	0.16	91.84	-9.83
2007	6.55	-0.02	1.59	123.47	-14.29
2008	6.07	0.41	4.14	95.87	1.84
2009	3.78	-0.80	2.76	84.54	-8.30
2010	3.61	-1.41	1.45	157.19	-10.68
2011	5.31	0.03	2.89	159.83	-15.05
2012	3.84	0.38	3.67	221.82	4.40
2013	6.81	0.45	4.13	269.88	1.35
2014	7.29	1.52	2.14	267.45	13.86
2015	5.76	0.37	2.40	251.89	1.61
2016	4.58	-0.16	2.21	238.54	1.70
2017	5.44	-0.34	2.73	288.28	-7.72
2018	5.68	0.32	4.18	287.43	0.22
2019	8.17	0.20	3.46	266.48	-14.16

Source: Author’s calculation (Billion, Constant 2010 USD)

Table 100
Capital Flight from Selected Transition Countries

Year	Albania	Armenia	Kyrgyz Rep.	Russian Federation	Kazakhstan
1992	-0.23	0.17	-0.72	-20.40	-7.67
1993	-0.01	-0.13	0.70	40.50	7.46
1994	0.62	0.37	0.34	21.83	1.69
1995	-1.13	0.63	0.28	-2.21	-0.68
1996	0.03	0.88	1.28	18.48	-4.28
1997	0.62	0.74	0.33	0.60	1.02
1998	0.26	0.64	0.80	54.78	6.26
1999	0.42	0.88	1.04	27.96	-3.33
2000	0.70	0.41	0.38	-3.83	16.62
2001	0.03	1.18	-0.26	18.20	1.96
2002	0.74	0.55	0.27	12.69	4.47
2003	0.79	0.56	0.20	48.71	3.03
2004	-0.13	-0.19	0.15	40.63	-0.18
2005	1.12	-0.66	-0.56	61.63	22.52
2006	0.69	-0.71	0.34	39.85	20.69
2007	1.17	0.40	-0.07	13.26	29.75
2008	1.87	1.38	0.94	178.57	-11.35
2009	1.49	1.51	0.15	17.77	-7.49
2010	0.87	2.27	-0.12	29.54	-0.72
2011	2.03	1.59	0.86	193.79	12.01
2012	1.20	0.93	0.81	80.12	-1.59
2013	1.16	1.05	0.77	120.94	5.82
2014	0.29	1.11	1.43	27.07	-6.12
2015	-0.58	0.13	0.60	-11.18	-0.38
2016	0.70	0.48	0.26	91.19	4.04
2017	0.99	0.23	0.48	-46.71	-5.10
2018	-0.43	1.22	0.74	-7.21	-7.78
2019	0.30	1.19	0.54	25.77	2.48

Source: Author’s calculation (Billion, Constant 2010 USD)

Appendix F: Capital Flight and RER Misalignment Series for Turkey

Table 101
Capital Flight and RER Misalignment Series for Turkey

Year	CF (2010) Billion	RER Misalignment	Year	CF (2010) Billion	RER Misalignment
1981	9.119	12.424	2001	-16.982	8.536
1982	3.693	4.936	2002	17.029	4.385
1983	10.371	8.876	2003	25.800	2.453
1984	12.877	4.613	2004	40.888	3.834
1985	22.512	9.107	2005	21.628	0.739
1986	30.121	1.230	2006	51.694	3.487
1987	29.866	5.400	2007	63.466	0.689
1988	-8.007	5.848	2008	54.923	0.076
1989	-10.563	0.756	2009	-6.451	8.291
1990	20.686	6.888	2010	51.484	0.898
1991	3.858	7.612	2011	64.200	10.355
1992	13.007	5.386	2012	47.923	4.963
1993	41.777	12.178	2013	88.626	3.434
1994	-16.215	6.481	2014	59.787	5.335
1995	10.186	1.463	2015	27.289	2.791
1996	12.483	1.712	2016	41.611	0.765
1997	11.092	0.941	2017	112.335	5.382
1998	15.260	5.126	2018	22.990	14.099
1999	4.163	4.967	2019	-53.638	10.027
2000	50.061	9.957			

Source: Author's calculation (Capital Flight in Billion, Constant 2010 USD and RER Misalignment in percent)