AN ANALYSIS OF FDI DRIVERS IN D-8 COUNTRIES: DOES DOMESTIC CREDIT MATTERS?

BY

CHIN SZE MIN
ELVAN CHONG YU FAN
HNG CHONG CHENG
KOW HUI XIN
SO KAH MUN

A final year project submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF BUSINESS ADMINISTRATION (HONS)
BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

DEPARTMENT OF FINANCE

AUGUST 2019

DECLARATION

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Name of Student:	Student ID:	Signature:
1. Chin Sze Min	1607188	______________________
2. Elvan Chong Yu Fan	1607039	______________________
3. Hng Chong Cheng	1607040	______________________
4. Kow Hui Xin	1606582	______________________
5. So Kah Mun	1606797	______________________

Date: ________________________

ACKNOWLEDGEMENT

We would like to express our special thanks of gratitude to our supervisor, Dr. Vikniswari A/P Vija Kumaran as well as our examiner, Dr. Zuriawati Binti Zakaria who gave us the golden opportunity to do this wonderful project on the topic, which is An Analysis of FDI Drivers in D-8 Countries: Does Domestic Credit Matters?. We are thankful to them which giving us a lot of advices and comments to complete our research project.

We also thanks our group members for their contribution and cooperation for achieving this project successfully.

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FDI	Foreign Direct Investment
EXR	Exchange Rate
GDP	Gross Domestic Product
INF	Inflation
LC	Labour Cost
TO	Trade Openness

DC	Domestic Credit
D-8	Developing 8 Organizations
LLC	Levin-Lin-Chu Test
POLS	Pooled Ordinary Least Squares
REM	Random Effects Model
FEM	Fixed Effects Model
LR	Likelihood Ratio
BP-LM	Breusch-Pagan Lagrange Multiplier
JB	Jarque-Bera

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ABSTRACT

An investigation was carried out to study the relationship of the exchange rate, GDP, inflation, labour cost, trade openness, domestic credit with foreign direct investment. Moreover, we also studied the domestic credit performed as an interaction term with macroeconomics variables and affect foreign direct investment. Pooled OLS, REM and FEM was carried out as model comparison among the variables. The results of model 1 showed that the GDP, inflation, labour cost, trade openness, and domestic credit are significantly influenced FDI in D-8 countries. On the other hand, the results of model 2 showed that only inflation and trade openness significantly affect the FDI inflows in D-8 countries.

Keywords: FDI inflows, exchange rate, GDP, inflation, labour cost, trade openness, domestic credit, interaction term, D-8 countries

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

In general, Foreign Direct Investment (FDI) is a direct investment which showing an equity flow in an economy. Overall FDI is an investment made by investors. Investors manage to bring their business interest positioning to another country (James, 2018). Foreign Direct Investment (FDI) is the sum of value capital, reinvestment of earnings, and the other of capital. FDI is normally operated in open economies, which always offer to average above of growth prospects or talented workforce for the investors. The key features of Foreign Direct Investment (FDI) is that it builds up either powerful control of, or if nothing else considerable impact over, the decision-making of the foreign business.

In the new economic era of the 21st century, foreign direct investment (FDI) set an exceptional pattern for growing the worldwide business. In the past few decades, FDI inflows have become in both developed and developing nations. FDI also establish a noteworthy component of the financial globalization. The focal point of this problem statement is an evaluation of the impact of determinants towards FDI inflows in D-8 countries (Mumtaz & Saima, 2015). Foreign Direct Investment (FDI) might have a big favourable spill over effect when there is an over longer duration of time in a country. For example, giving a workforce training program and establish a building infrastructure. Although it will bring advantages to the firm at first, new uses are found when the workforce changes their employment. The remaining part of the economy in the country will also get the benefit as well ("What is Foreign Direct Investment," n.d.).

Therefore, an analysis for Foreign Direct Investment (FDI) drivers in D-8 countries was carried out. Developing-8 (D-8) is an organization for development cooperation among 8 countries, which is Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, and Turkey. D-8 was established on June 15, 1997, which was located at Istanbul Declaration of Summit of Heads of State. D-8 was established with the objective, which wants to ameliorate member states' position in the global economy. It also diversify and giving new chances in trade relations.

Besides, it enhances D-8 more participate in decision-making. It would help to increase the quality of living areas.

Thus, we carry out the investigation or studies to know about the impact on FDI in D-8. This is because FDI is one of the important issues that will affect the economic growth of a country. Therefore, we are likely to study the exchange rate (EXR), Gross Domestic Product (GDP), inflation (INF), labour cost (LC), trade openness (TO) and domestic credit (DC) as our independent variables and FDI as our dependent variable for D-8 from 1993-2017.

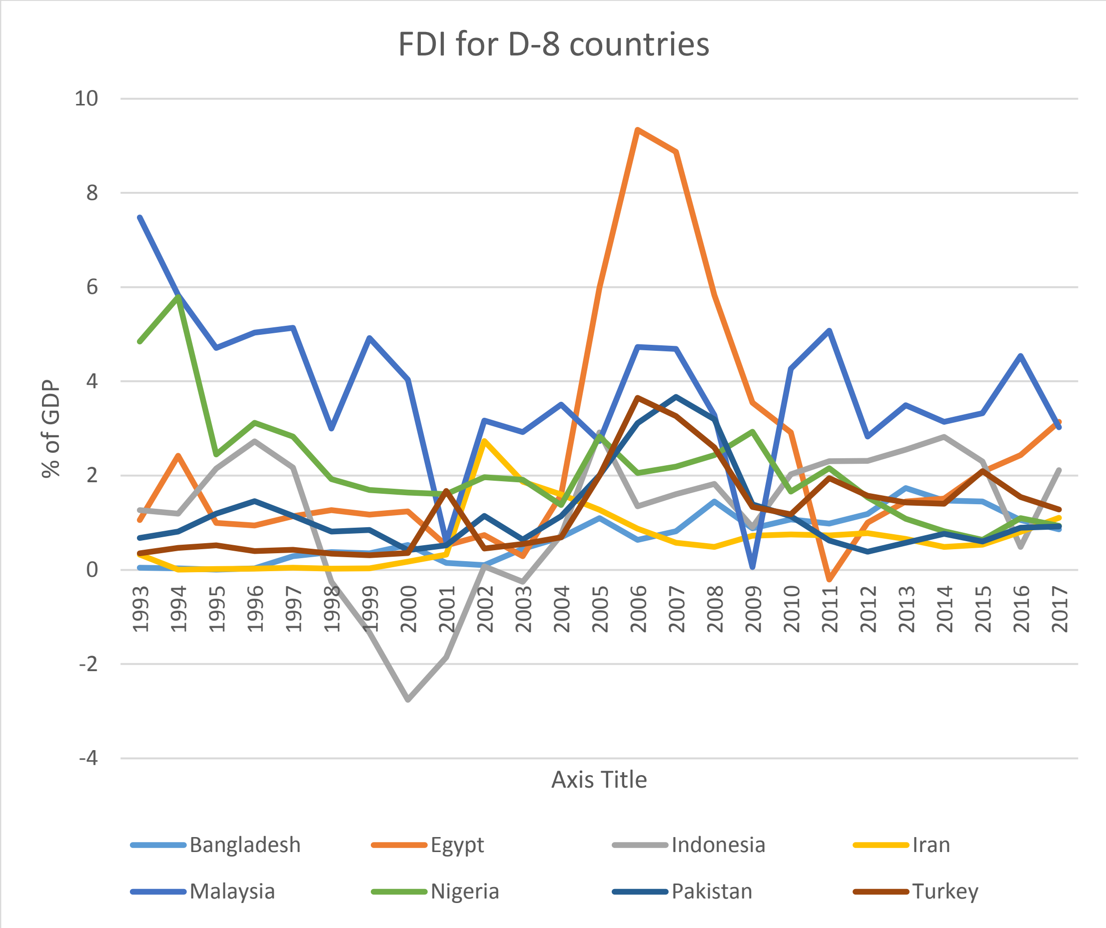
1.1 Research Background

In the new economic era of the 21st century, the general of foreign direct investment (FDI) set an exceptional pattern for growing the worldwide business. In the past few decades, FDI inflows have become in both developed and developing nations. FDI also establish a noteworthy component of the financial globalization. The focal point of this problem statement is an evaluation of the impact of determinants towards FDI inflows in D-8 countries (Mumtaz & Shah, 2015).

FDI plays an essential role in multinational business in this era. It is an intense and critical tool for financial improvement currently. FDI is fundamentally an investment in which the investors should put resources into different nations by completely attributable either to the entire business or in partnership. This enables the investors to get to different markets where they can benefit extraordinary and perhaps better openings, than their own countries. Those opportunities can be as trend-setting innovation, better production facilities, economies of scale and other resources. As indicated by the World Bank, FDI is the investments improved the situation accomplishing persisting authoritative advantages (at any rate having control of 10% or more in the association) in the home country (Mumtaz & Shah, 2015).

1.1.1 Overview Trend of FDI in D-8 Countries

Figure 1.1 trend of FDI in D-8 countries



From Figure 1.1, the FDI trend for D-8 countries are fluctuated. Egypt has reached the peak, which is located at 9.34% in 2006 among the countries; while Indonesia has dropped until -2.75% of GDP in 2000 among the countries.

As a results, the latest year showing that Bangladesh, Malaysia, Nigeria, and Turkey having a downward trend of FDI inflows. On the other hand, Egypt, Indonesia, and Iran have the upward trend of FDI inflows. Moreover, only the Pakistan shows a constant of FDI trend in the latest year.

According to Figure 1.1, D-8 showed a downward trend. A record of US $ 60 billion from previous year (2015) has slightly dropped from the total of FDI inflows (Bagci, Tintin, & Battaloglu, 2016). Therefore, we will carry out our empirical study to investigate the factors influenced FDI. Although the countries are Developing-8, there might be different results among these countries.

The following is explaining independently the trend of FDI in each of the country. Bangladesh is one of the Islamic countries among D-8 and it is treated as a capital-poor nation. For such a nation, FDI plays an important role in creating employment opportunities, to develop physical capital and productive capacity, as well as to help integrate the domestic economy with the global economy.

The FDI trend of Bangladesh from 1993-2017 was stated in the above figure. The inflow of FDI dropped slightly from 1993 (0.042% of GDP) until 1995 (0.005% of GDP) and it continued to have a stable increase from 1996 (0.029 % of GDP) until 1998 (0.38% of GDP) then had a slight fall at 0.35% of GDP in 1999 but it rose again in 2000 (0.525% of GDP). However, FDI started to decline dramatically and reached 0.096% of GDP in 2002. Then the rate increased significantly in the following years and stayed at 1.095% of GDP in 2005. After a steady rise in 2005, the FDI has fallen to 0.636% of GDP in 2006 but then increased markedly to 1.45% of GDP in 2008. After that, the rate falls sharply to 0.879% of GDP in 2009 but it rose again to 1.069% of GDP in 2010 and then dropped slightly in 2011 (0.983% of GDP). In the next following years, the FDI inflows began to increase gradually and reached its peak at 1.735% of GDP in 2013. After the rate has reached its peak (1.735% of GDP), it started to fall at 1.469% of GDP in 2014 and then further declined to 1.451% of GDP in 2015. The rate remained to drop at 0.861% of GDP in 2017.

We could see that the FDI trend of Bangladesh was fluctuating over the years and it started to drop significantly in the most recent years. According to Abdin (2015), there are several barriers to invest in Bangladesh. Those barriers included a long list of permission from different government agencies, the absence of good governance and corrupt bureaucracy and lengthy judicial system. It is also believed that a higher tax regime in the region and lack of better business climate is part of the factors that discouraging FDI in Bangladesh (Kibria, 2018).

The economy of Egypt country is considered as most diverse among the counties in the Middle East and North Africa where it is a key strength helping ensure long-term growth prospects for all sectors. In addition, the sheer size of Egypt's population placed it as the most populated country in Africa and the Middle East.

The FDI trend in Egypt can be observed in the above figure. At the beginning of the period, the FDI inflows of Egypt were 1.058% in 1993 and had an increase to 2.42% of GDP in 1994. After that, the rate started to fall to 0.994% of GDP in 1995 then dropped slightly to 0.94% of GDP in 1996. Next, the FDI inflows increased slowly to 1.268% of GDP in 1998. Then, it dropped to 1.174% of GDP in 1999 and had a slight increase to 1.237% of GDP in 2000 and continue with began of drop to 0.522% of GDP in 2001but the rate rose in 2002 (0.736% of GDP) then dropping again in 2003 (0.286% of GDP). The FDI inflows began to rise sharply in the next following years which it hit a high of 9.344 % of GDP in 2006 then declined in 2007 (8.874% of GDP) and fall dramatically to 3.551% of GDP in 2009. The rate was further dropping and it hit the lowest at -0.205% of GDP in 2011. However, it started to go up to1.001% of GDP in 2012 and increased steadily in the next following years. Finally, the rate reached at 3.14% of GDP in 2017.

Overall, the FDI trend in Egypt had increased steadily from 2011 until the recent year. The important energy resources, notably natural gas that triggered inflows to Egypt have been increasing constantly. In addition, Egypt has passed the Investment Law in 2017 where the regulations are different which become more liberal, more efficient administrations, more tax incentives, and others. According to Egypt’s Investment Minister, Sahar Nasr, she mentioned that FDI has been significantly picking up in Egypt and the current investment law has provided an incentive to attract diversified sectors ("Egypt's foreign direct investment rises 15%: Nasr to Bloomberg - Egypt Independent", 2018).

Foreign Direct Investment (FDI) has increased in importance in Indonesia of the D-8 organization. Indonesia has a natural appeal to foreign investors with a large internal market, abundant natural resources, a growing middle class, and a strategic location within Southeast Asia. Historically, Indonesia’s economy has relied on agriculture such as large-scale plantations, small-scale farming, and fishing.

According to figure 1.13, the FDI trend in Indonesia was stated from 1993 to 2017. FDI in Indonesia decreased slightly from 1.268% of GDP in 1993 to 1.192% of GDP in 1994. After that, there had an increased to 2.724% of GDP in 1996. In the following years, FDI had decreased until -2.757% of GDP in 2000. Then FDI increased from -1.856% of GDP in 2001 to -0.074% of GDP in 2002 but dropped again to -0.254% of GDP in 2003. After a fall from 2003, the FDI sharped increased to 2.916% of GDP in 2005. After that, there had a slightly decreased to 1.348% of GDP in 2006 and rose again to 1.826% of GDP in 2008. After a slight dropped in 2009 (0.904% of GDP), FDI had increased and reached a peak of 2.82% of GDP in 2014. However, FDI dropped to 0.487% of GDP in 2016 but increased again to 2.114% of GDP in 2017.

Foreign direct investment decline harshly in 2016 as Jakarta Governor Basuki Cahaya Purnama (commonly known as Ahok), Christianity, the Chinese Governor of Minority, allegedly insulted the holy book of Islam. Some investors may wish to wait for the verdict before making a direct investment in Jakarta so that will make FDI decrease (Investment Realization in Indonesia's Jakarta Fell in 2016, 2017). After 2017, foreign direct investment increase due to the Indonesian government eliminated some investment risks by strengthen political and economic solidity and through structural modernization, the overall market sentiment was improved and foreign direct investment increased in 2018. However, there are some obstacles remain, for example, rising credit costs, over-guideline and capriciousness, poor framework quality, terrorism risks and high level of corruption (Indonesia: Foreign Investment, 2019).

Iran is also one of the important countries among FDI in the D-8 organization. Farrokh Qobadi, an Iranian Economist said foreign direct investment tends to have more benefits. After world powers reach a nuclear agreement in 2015, Iran has attracted foreign investment ("FDI more Beneficial than Foreign Finance for Iran," 2017)

According to figure 1.14, the FDI trend in Iran was stated from 1993 to 2017. FDI in Iran has 0.326% of GDP in 1993. In the next following years, FDI had a stable increased from 0.003% of GDP in 1994 to 2.736% of GDP in 2002. It reached a peak of 2.736% of GDP in 2002. In 2008, FDI had a sharp fall to 0.488% of GDP in 2008. After that, FDI had increased to 0.749% of GDP in 2010 and a slight declined to 0.733% of GDP in 2011. A slight increase in 2012 (0.778% of GDP) and dropped again to 0.531% of GDP in 2015. After a fall in 2015, FDI had a stable increased from 0.805% of GDP to 1.105% of GDP in 2016 and 2017 respectively.

The flows of foreign direct investment in Iran have stayed extremely weak in recent years. This is because of a few factors such as external political risks (the American embargo, nuclear issue, economic sanctions,), as well as internal issues (social risks, the impoverishment of the population, crisis of the political regime, inflation), ubiquity of the state in the economy and heavy bureaucracy in all segments. The reformist Hassan Rouhani's coming to control and the ongoing lifting of international sanctions against the country are expected to boost FDI ("Foreign direct investment (FDI) in Iran," 2019).

As one of the D-8 countries, FDI act as a significant role effect on Malaysia's development. Besides, FDI enables the developed country to start enhancing developing business sector openings. The developing scene can see upgrades in wealth, while the developed country can profit by expanded benefits and creating the connection.

The FDI trend of Malaysia from 1993-2017 was stated in the above figure. The inflow of FDI was rose from 1993 (0.835% of GDP) until 2000 (4.353% of GDP), FDI inflows are kept increasing in those several years. However, starting in 2001 (2.393% of GDP), FDI inflows were decreasing harshly until 2003 only 1.38% of GDP. However, FDI began to increase constantly and reach the peak to 5.272% of GDP in 2007. After a serious fall in 2009 (2.713% of GDP), the FDI started to increase slightly in 2011 (3.025% of GDP). After a weak rise, the rate started to decrease until 2014 (2278% of GDP). The FDI inflows in 2015 (3.146% of GDP) and 2016 (3.159% of GDP) was not having significance difference with 2015. In 2017, the rate drop to 2.349% of GDP.

The trend was showing that FDI inflows in Malaysia were fluctuating; the trend is flickering but especially remains at a low level after 2010. Based on Alzaidy & Lacheheb (2017), Malaysia is viewed as the second quickest developing economy in the South East Asian region where the Gross National Production developing of 8% every year in the most recent years, and low labor cost in Malaysia attracting foreign investor expanded their business in Malaysia. In addition, the low cost of production made Malaysia winds up a well-known choice of FDI (Mohammad & Zulkornain, 2009).

Nigeria also categorized as one of the Islamic developing countries among D-8. Nigerian market has a large market for investors and profit-seeking co-operation. In order to achieve its goal to become a developed country and has a larger economy in the world, the federal government institutes s15everal policies at various levels to achieve such a goal.

Figure 1.16 shows the FDI trend of Nigeria from 1993-2017. At the beginning of the period, the FDI inflows of Nigeria were 4.848% in 1993, had increased to 5.791% of GDP in 1994, and reach the peak. However, it experienced a sharply dropped to 2.449% of GDP in 1995 and rising again to 3.12% of GDP in 1996. Then, it slightly decreased to 2.827% of GDP in 1997. It continued to further decrease until 2001 at 1.608% of GDP and rose again at 1.965% of GDP in 2002 then had a slight fall at 1.911% of GDP in 2003 and dropped again to 1.374% of GDP in 2004. The rate sharply increased to 2.829% of GDP in 2005 however declined again to 2.056% of GDP in 2006. In the following years, the rate gradually increased until 2009 at 2.931% of GDP and dramatically fall again to 1.658% of GDP in 2010 but rise again at 2.155% of GDP in 2011. The rate remains to drop until 2015 (0.634% of GDP), increased again to 1.099% of GDP in 2016 and experienced fall at 0.931% in 2017.

From the overall, we could see that the FDI trend of Nigeria was fluctuating over the years as it is either declining or increasing. The problem of the investment environment in Nigeria is this country is the most perceived corrupt country, which remains a high-risk operating environment. Moreover, it is not just in Africa yet in addition overall defilement out in the open and private spots distorts, the cost doing business in the country, hamper development and its international range. This country also has a political undertone problem hence this creates a serious issue to the country's capacity to diversify foreign investment inflows away from oil. Other factors such as the problem of regulation, poor infrastructure, crime and other safety concerns, inconsistency in policy and economy mismanagement (Idowu, 2014).

Pakistan as an Islamic country which is involved in one of the developing countries, has taken initiative to attract the investor to invest in Pakistan. These countries give incentives to the investor for the purpose of attracting a foreign investor. According to early 1980, the federal government of Pakistan has applied market-based economic reform policies and began to take hold in 1988. The reform includes providing lavish exchange and fiscal allowance to foreigners. The government more liberalized the policy. Moreover, government also opened certain sector included agriculture, energy, telecommunications, and protection to FDI (Khan & Kim, 1999).

Figure 1.17 shows the FDI trend of Pakistan from 1993-2017. The inflow of FDI increased significantly from 1993 (0.677% of GDP) until 1996 (1.456% of GDP) and had a stable fall until 1998 (0.814% of GDP) however it had a slightly rose at 0.845% of GDP in 1999. It continued to decline at 0.416% of GDP in 2000 and had a dramatically increased to 1.142% of GDP in 2002 but decreased again to 0.641% of GDP in 2003. The rate was rise sharply across the years from 2003 to 2007 and reach the peak at 3.668% of GDP, however, it started to dropped dramatically to 2009 (1.39% of GDP) and gradually declined until 2012 (0.383%of GDP). After the peak, the rate had a stable increased to 2014 at 0.764% of GDP and experienced a slight fall in 2015 (0.599), remaining rising at 0.923% of GDP in 2017.

Overall, the volume of FDI inflows into Pakistan had a substantial increased before the dramatic dropped from 2007 to 2010. The substantial increase could be due to the government of Pakistan embraced auxiliary changes in the late 1980s. After facing problems such as poor socio-economic condition, low growth and sustained balance of payments deficits. This reform was the gradual liberalization of trade and investment regime, which included supply credit facilities, mitigates the control of foreign exchange, tariff reductions and several trade and fiscal incentives to foreigners through tax adjustments (Khan, 1997, Aqeel and Nishat, 2004 and Khan, 2007). While the decline in FDI from 2007 to 2010 could be due to the magnify effects of global financial crises. This effect also deteriorated the scope of international investors to invest in abroad countries. This is because of falling collaborative profits. Other reasons are due to the augment risks and reduced access to financial resources (Desbordes & Shang, n.d.).

FDI is important for developing of the Turkey economy. A well management of economy and operation in the financial system, a stable political situation. Turkey tries to use FDI to bring benefits to their country development. Turkey uses FDI to increase productivity, easier in international transaction or trading and create job opportunities (Tatoglu & Glaister, 1998).

According to figure 1.18, we could see that the FDI trend in Turkey from 1993 to 2017. From 1993(0.353% of GDP) to 2000(0.36% of GDP) the trend fluctuates but the FDI inflow has remained at the same level. The trend suddenly increases to 1.674% of GDP in 2001. The FDI is dropped back to 0.454% of GDP in 2002. After the declined in 2002, FDI started to increase until 2006(3.653% of GDP), which reached the peak of the flow. The FDI inflow declined harshly until 2010 (1.179% of GDP). After a slight increase in 2011 (1.194% of GDP), the trend continues dropped until 2014 (1.404% of GDP). The same scenario from 2011 to 2014, slightly increase in 2015 (2.094% of GDP) and declined until 2017 (1.278% of GDP).

Based on Dumludag (2009) research, Turkey FDI levels have stopped flowing during the 1990s while all-out FDI worldwide expanded. This absence of enthusiasm by global organizations turns out to be considerably clearer when FDI inflows are changed according to the capacity economy of Turkey. Besides, Government of Turkey promised that capacity building was given the important need in the different segments of the economy and this expanded the general development of Turkey in 2014 (Jelilov, 2016), which can be explained why the trend increase slightly in 2015.

1.2 Problem Statement

In 2017, global foreign direct investment flows declined by 23%. The developed and transition economies' cross-border investment experienced a sharp dropped, and result a zero growth rate of economies in developing countries. There is an undulation trend for FDI in D-8 countries from 1993-2017. In short, from 2007-2010, there is a decreasing trend of FDI among D-8 countries. The following is to explain how the independent variables that we choose have a significant impact lead to FDI inflows decrease ("World Investment Report 2018: Investment and New Industrial Policies," 2018).

As Indonesia is one of the D-8 countries' member, Thomas Lembong, head of the Indonesia Investment Board, talk about the FDI have a significant drop as much as 40 percent in the recent year. He blamed about the accused absence of policy reform in the beginning of the year. Moreover, including the up and coming modification of the negative investment list, following the rupiah's IDR is facing a depreciation. The rundown indicates business exercises, which are either completely shut or restrictively open to foreign investment. Furthermore, starting from the beginning of second quarter year, FDI falls to $11 billion-$13 billion (Diela, 2018).

Follow by the GDP growth of D-8 members had achieved the second lowest in 2009 during the period of 1993 to 2017, which is -1.51% of GDP. At the same time, we also found that D-8 members' FDI had a serious fall at 0.057% of GDP in 2009 through World Bank and it is the lowest rate among the years to be studied hence it can be considered as a crash for D-8 members' FDI in 2009. The D-8 members' GDP was forecasted by The United Nations (UN) to drop to 0% in 2009 due to a deepening sub-regional industrial crisis in the region as reported by The Star newspaper ("UN says Malaysian GDP growth flat for 2009 - Business News | The Star Online", 2009).

Moreover, D-8 members have been stressing the solid economic growth increase by 7.4% in 2017. Nevertheless, they are facing "overheated" inflation (Briggs, 2018). High inflation may discourage foreign investors from entering D-8 members to invest (Mohammed & Mansur 2014). Therefore, it shows that high inflation will lead to low FDI inflow from foreign investor. Based on D-8 members' inflation, we can found that start from 2016 (7.78%), the inflation rate of D-8 member is rising harshly to 2017 (11.14%). In 2018, the inflation rate increasing harshly to 16.33% (Plecher, 2019). A greater inflation lead to reduction in FDI. A research project expressed that in spite of the agreement among numerous researchers and found that on the inversely connection between INF and FDI. From 2016-2017, showing that there is an inversely connection between INF and FDI (Obiamaka, Onwumere, & Okpara, 2011) and (Omankhanlen, 2011). Model testing will be carry out to prove the inversely connection between INF and FDI.

Furthermore, manufacturing has brought more FDI to the D-8 members' economy. The average of labour cost is about $0.50 per hour. EIU estimate that D-8 members' factory wages will increase by about 48% to $0.74 per hour between now and 2019. Therefore, there will be an inversely trend for FDI. A higher labour cost will lead to lower FDI inflow (Ghogomu, 2015). Among D-8 members, the head of macro strategy at Westpac Banking Corporation said that the lowest pay permitted by law, which is labour cost, cost competition from nations and political vulnerability could be the elements prompting the unfavourable performance of D-8 members. Therefore, it will indirectly lead to the FDI inflows reduce due to the low achievement of the services and the manufacturing sectors (Azadegen, 2018).

Besides, the sharp declined of FDI flows in D-8 members in the year, 2017 is due to the uncertainty over the international trade perspective, which amid in the rising of US-China trade frictions (Azadegen, 2018). However, the fact is the FDI in D-8 members, which act as developing countries received the latest casualty of the global stagnation in investment momentum. While the developed countries such as Association of Southeast Asian Nations countries experienced rising of 11% to $134bn in 2017. Based on the said of Sian Fenner, Asia economist at Oxford Economics, he mentioned that this uncertainty could shrink the FDI inflows in D-8 members at least in a short term as developing-8 countries are heavy dependence on China and exports. This has been hurting the prospects of stronger economic growth where the global tariff tussle risks stifling exports of the trade-reliant country.

Based on Zakaria (2007) study, discovered little proof that advancement of domestic banks affect FDI. Other than that, based on Muhammad, Ali, and Sohail (2016) study, he found that the domestic credit have significant favourable relationship between FDI. Divestment and reimbursement of loans & loss of the current worldwide entities have been deducted from the gross inflow of FDI to compute the FDI. Domestic bank of recent year increase their reserve to prevent the increasing of default of credit, thus the domestic credit decrease on that country. Due to D-8 members' domestic credit decrease, the FDI is decrease starting from 2013 to 2017. Model testing will be carried out to prove the favourable relationship between domestic credit and FDI.

1.3 Research Questions

1.3.1 What are the determinants affect the Foreign Direct Investment (FDI) among D-8 countries from 1993-2017?

1.3.2 What are the domestic credit interact with macroeconomic variables and overall affect the Foreign Direct Investment (FDI) among D-8 countries from 1993-2017?

1.4 Research Objectives

The general objective of this empirical study is to identify the relationship of the determinants of foreign direct investment (FDI) in D-8 from 1993-2017. The specific objectives of our empirical study are as follow:

1.4.1 To examine the determinants affect the Foreign Direct Investment (FDI) among D-8 countries from 1993-2017.

1.4.2 To investigate the effect of domestic credit as an interaction term with macroeconomic variables and overall affect the Foreign Direct Investment (FDI) among D-8 countries from 1993-2017.

1.5 Scope of Study

The six independent variables that chosen for our research study are exchange rate (EXR), Gross Domestic Product (GDP), inflation (INF), labour cost (LC), trade openness (TO) and domestic credit (DC) that influenced Foreign Direct Investment (FDI) in D-8. Besides, 25 observations will be conducted between 1993 until 2017. Our study's objective is to determine the determinants affect the FDI. This is because FDI is an important variable for a country. FDI inflow help to enhance the GDP of a country, indirectly improve the standard living of country. Therefore, we are curious to determine the causes that result the performance of FDI of D-8 countries.

Moreover, the idea of D-8 among major Muslim developing nations was plan by Dr. Necmettin Erbakan. The D-8 Organization objective is improve economic growth with cooperation, otherwise call Developing-8, is an organization for advancement co-activity among the countries which are Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, and Turkey. The main goal of D-8 are to improve current situation in the worldwide economy, enhance and make new open doors in exchange relations, upgrade investment in basic leadership at international level, and improve way of life, which can improve standard of livings in overall Islamic countries.

Domestic credit (DC) is consider as our research's contribution variable or gap variable, which we found that Domestic Credit (DC) showing that it have a significant relationship with FDI in previous study. Thus, we would like to find out the domestic credit interact the determinants that affect the FDI. In our research, we collect the secondary data source from the World Bank, United Nations Conference on Trade and Development and official national sources.

1.6 Significance of Study

The timeframe of study for our research is from 1993 to 2017. Due to the fluctuating of FDI trends in D-8 countries and FDI is one of the importance causes that will influence a country's GDP growth. Therefore, we carry out our research to understand the long-term relationship between the exchange rate, gross domestic product (GDP), inflation, labour cost, trade openness and domestic credit that influenced the dependent variable FDI in D-8 countries.

The problem that faced by D-8 is the value of money drop, overheated inflation, GDP drop, the labor cost increment, domestic reserve, and trade openness will affect the FDI. Therefore, we apply FDI as our dependent variable due to FDI inflow can improve status of country's economy in global. Moreover, FDI helps a country to diversify and create new opportunities for trade openness. Indirectly strengthen the exchange currency of a country and boost the GDP growth of a country.

Moreover, the objective of D-8 countries is to improve the status of member states in the global economy. It also diversifies and creates new opportunities for trade relations, and strengthens participation in international decision-making and improves living standards. Cooperation of D-8 will improve quality of life, promote welfare, and alleviate poverty. These countries had been more opportunity to work closely together in various institutions industry and commerce private investment company and public and private cooperation to balance the long-term goals. Thus, since D-8 countries' objectives are similar to impact of FDI, therefore we are interested to further explore the impact of macroeconomics variables on Foreign Direct Investment (FDI) among D-8 countries.

Panel data also called as longitudinal information that use in this study which combine cross sectional and time series issues. Panel data can provide more data variation, less collinearity and more degrees of freedom in these D-8 countries. In this study, a large number of data points were 25 years increased the degrees of freedom and reduced the collinearity among FDI to improve the efficiency of econometric estimates. Panel data is better suited in determining the causes that are not being observable in either cross-section or time series data. Panel data also study more complexity of behavioural models, such as the impact of economic cycle in D-8 countries.

Domestic credit is the least variable refer to loan or credit that provided by a central bank of a country or region to borrowers. Government have to borrow money in order to fund their projects and provide services to their constituents. Therefore, it is called as government debt. Domestic credit is chosen as gap variable in this study because it has notable influence to FDI. When the domestic credit lending capital is huge, the investors' lending capability is increased. Therefore, the risk averse investors can borrow a higher lending capital to run their investment. Hence, these risk averse investors will help to boost up the economy of country; indirectly increased the purchasing power and standard living lifestyle of country. It also show confidence of local banks in local projects and market segment investments. This is due to they invest more credit for investors, which means more confidence in return on investment. Therefore, it should be more attractive to foreign investors. In a nutshell, domestic credit is a importance variable in our research since domestic credit have a huge effect on foreign direct investment for a country.

The study on determinants of FDI among D-8 enables the investors and the government a better outlook on overall FDI prospects for each country. Investors will be getting benefit from this research as it creates extra chances for investors to enter into the market of D-8 countries and build their growth on FDI. Next, this research will provide some recommendations on policies related to FDI, which may helpful to the government and those multinational enterprises. Current policy frameworks and a range of business facilitation measures may be reviewed and to be further evaluated by the government of D-8 countries. Moreover, the government of those D-8 countries might implement new sophisticated policies targeting individual investors and particular investment sectors by adapting themselves in the latest trend of FDI in order to offer potential investors more desirable conditions. Last but not least, for the researchers, the analysis and empirical findings in this study will help them to uncover critical areas that no yet been explored. It also can used as future bibliography for this specific area.

1.7 Chapter Summary

The first chapter briefly introduces the research background, expounds the choice of research field, and explains the research question, research objective and significance of study.

The second chapter comprises a literature review. It contains an investigation of models and theoretical framework that have been recently brought into the examination field. This section contains key terms definitions and clarifies the quest system for auxiliary information. Other creators' perspectives are with respect to the general research field, particularly examine issue specifically are displayed in a consistent manner in this section.

The third chapter discusses methodology. This chapter describes the research process, research design interpretation and the selection and data collection method implementation. This chapter also includes a discussion of the duty sampling aspect and area of ethical considerations.

The fourth chapter constitutes analysis and discussion. This chapter plays a key role in achieving research goals and objectives. The results of the literature review have been compared to primary or secondary data results in this chapter. In addition, each research objectives are discussed in depth.

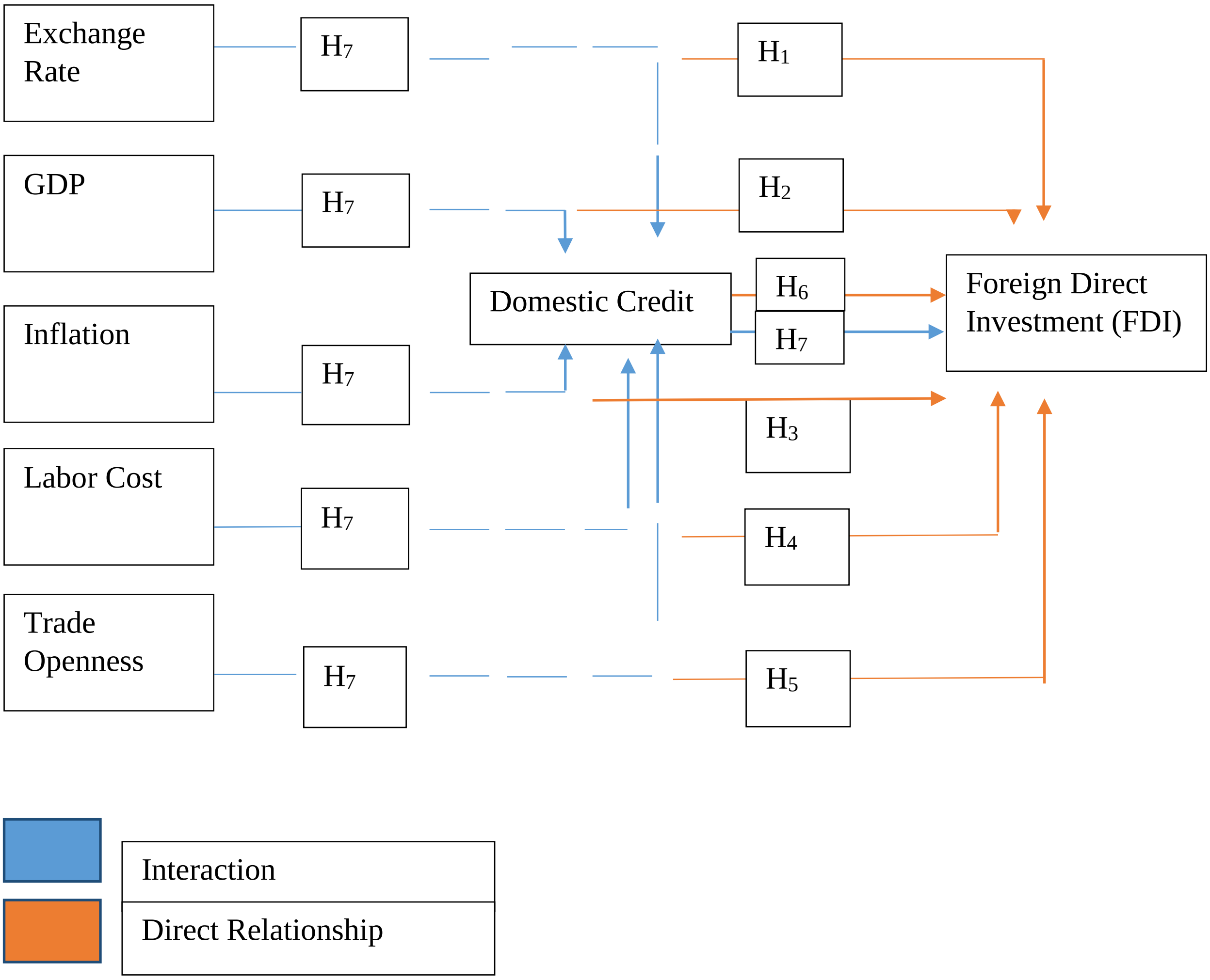
The fifth chapter finalize the work and compress the degree of research aim and goals. The chapter involves study and features scope for future examinations in a similar research zone.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter compose with a literature review of the FDI inflows on exchange rate, Gross Domestic Product (GDP), inflation, labor cost, trade openness and domestic credit. This chapter subsequently reviews on the theoretical frameworks and analysis of model. Theoretical framework is a written description, which includes a conceptual model. All the secondary data will be analysis about the problem in a logical manner, explain the relationship among the variables, describes the theory underlying these relationships among variables and nature (positive sign or negative sign) or direction of its relationship. This framework prolongs actual data inside the points of confinement of basic restricted hypothesis. Most important is this theoretical framework is the way that can hold or bolster a hypothesis of an exploration study. Thus, the chapter comprises two main sections: Section 2.1: Theoretical Framework; Section 2.2: Empirical Review. Each main theme is divided into several subsection for the discussing purpose, a clear explanation is provided for each subsection.

2.1 Theoretical Framework



Notes: Domestic Credit performed as interaction term.

2.2 Research Theory

2.2.1 The Keynesian Economics Theory

The economic theory of the aggregate of spending while developing the economy is known as Keynesian Economics Theory and its effect inflation and output. The British market expert John Maynard Keynes in the midst of the 1930s attempting to understand the Great Depression created Keynesian Economics Theory. Keynes pushed for extended government consumptions and lower duties to animate demand and haul the overall economy out of the downturn. In this way, Keynesian Economics Theory was utilized to suggest the possibility that perfect money related execution could be cultivated. Therefore, monetary slumps anticipated by affecting total demand through activist adjustment and economic intercession policies by the legislature. Keynesian economics theory can be considered as a "demand-side" theory. This is on the grounds that it centers around changes in the economy over the short run (Kenton, 2018).

According to Greenwood and Jovanovic (1990) and Bemcivenga and Smith (1991), they have explicated the role of credit given by the financial intermediaries. The financial intermediaries accumulate and examine data. They facilitate a better risk among individuals. Therefore, allowing credit to be allotted are more productively.

2.2.2 The New Growth Theory

The new growth theory is a financial development hypothesis that set individual’s wants and boundless needs to encourage regularly expanding profitability and economic development. The new growth theory contends that real GDP per individual will never-ending rising because of individuals' quest for benefits. Individuals need to consistently look for better approaches to deal with create new products so as to procure a higher benefit as competition brings down the profit in one area. This principle is one of the focal precepts of the theory (Kenton, 2018).

In the new growth theory, FDI is an imperative factor. FDI adds to economic growth through innovation by transferring effectiveness improvement. FDI influences economic growth in a few different ways. It is contended that FDI has been a noteworthy channel for the entrance to advance technologies. Consequently, it assumes a central role in the technological progress of countries (Borensztein, Gregorio, & Lee, 1998).

2.2.3 Purchasing Power Parity Theory

The PPP theory applies to commodities. PPP expresses the relationship between costs and the exchange rate in two of the countries is existed. PPP theory assumes that the transportation costs are zero, currency conversion costsare zero and there are no trade barriers or quota (Menuka, n.d.).

Absolute PPP theory

The Law of one price expresses which an identical item should have the same price in two countries. Based on the PPP theory, the commodity products sold in the two countries should match the law of one price. When the Law of one price is violated, which will be arbitrage opportunities occurred. Products that sell at a lower cost in country X will be transported to country Y (a review that transportation costs are thought to be zero) and sold at the more expensive rate. This will proceed until costs in the two countries balance. Absolute PPP is not applicable as for non-tradable merchandise, (for example, power, medicinal services benefits) that cannot be transported to another country and are not exchanged global markets. Based on Karras (2006) research, there show that the hypothetical model also assume a reverse relationship between trade openness and the volatility and instability of the real exchange rate.

2.2.4 Labor Theory of Value

The labor theory of value is an endeavour by economists to define the relative prices of goods exchange in the market. It was recommended that the value of goods could be measured by using the average number of labour hours (labour cost). The labor theory of value suggested the goods would trade at the same prices if the same amount of labour hours. Or else they will use the ratio fixed by a relative as exchange price since the labour hours are different. Since it was created in the eighteenth century, the labor theory of value has dropped out of support among most standard economists (Kenton, 2018).

2.3 Empirical Review

2.3.1 Exchange Rate (EXR) and Foreign Direct Investment (FDI)

According to Khandare (2016), there have a positive correlation between the exchange rate and FDI in India and negative correlation amidst the exchange rate and FDI in China by using a simple linear regression model. It is observed that a rise in the exchange rate will lead the FDI increase in India during an increment in the exchange rate will lead to a downturn of FDI in China during the study period. This result demonstrate that the exchange rate is profoundly significance with FDI if there should be an occurrence of India however the exchange rate does not exert the significance impact of FDI on the account of China. Bouoiyour (2007) stated that an exchange rate showing a negative effect on FDI in Morocco from 1960 to 2000 by using econometric model. A devaluation of the exchange rate for the contributing nation had expanded the inflow of FDI.

Muhammad et al. (2014) present the research it has positive connection between exchange rate and FDI of Pakistan as stated in secondary and time series data. The tests of correlation and regression examination were connected through SPSS programming to anaylze the correlation between EXR and FDI during the period of 1982 to 2013. The correlation results demonstrated that the exchange rate affects FDI in regression analysis. Lenka (2013) utilized time series data from 1980 to 2010 and using models such as OLS, lagged and Newey-West to research the exchange rate as a determinant of FDI in India. The empirical outcome demonstrated such the exchange rate was positive significance related to FDI inflows. One of the factor for the movement inconsistently in the exchange rate is because India is increasingly open presently as thought about in the time of 1991.

Based on Mohammed, Pandurengan, and Kalam (2019), they found that a favourable equilibrium between EXR and FDI inflow in Malaysia by utilizing numerous time series data and linear regression model has taken from 1985 to 2014. One of the supported studies by Guo and Trivedi (2002) pointed out that a country with currency depreciation would conduct to an expansion in FDI and foreign speculators are more likely to be pulled to the host country when the value of a currency is high which it directly reducing investment capital. Zakari (2017) discover was an equilibrium major correlation among exchange rate and foreign investment inflow from 2005 until 2014 by using correlation and multiple linear regression analysis. This outcome uncovered that an expansion in the exchange rate is accompanied by an increment in FDI in Nigeria.

Dinda (2014) examined the exchange rate in deciding FDI inflow to Nigeria during the period of 1970 to 2006. This research utilized a time series panel data tests vector error correction model (VECM). The results revealed such the rate of exchange negative significant in the determinants of FDI in Nigeria. According to Asiamah, Ofori, and Afful (2018), the investigation has exactly analyzed the determinants FDI in Ghana in the period 1990 to 2015. By adopting the Granger causality test, they found that a negative significant impact exchange rate on FDI both in the long and short runs. This implies an expansion in the exchange rate would prompt to a decrease in FDI. In this manner, the negative and crucial impact of exchange rate on FDI demonstrates that the exchange rate is a key channel for the economy to be in a tough situation.

Ali, Mohamed, and Zahir (2017) applied multiple regression model under OLS method during the period 1970 to 2010. They revealed there was a negative and critical effect between the exchange rate and FDI in Somalia. Which defines that appreciate in the exchange scale will lead the FDI going high in Somalia. Based on Djulius (2017), this study carried out the impact of exchange rate on FDI in Indonesia from 1981 to 2015. The error correction model is purpose to explain the relationship between exchange rate and FDI. The results showed that the exchange rate has a negative and significant impact on long-term effect. This finding suggests that exchange rate deterioration is one of the contemplations of foreign investors to invest their capital. For developing countries with currencies below the foreign currencies, a rise in exchange rates means that foreign investors can buy goods cheaply in the host country.

Pradeep (2018) mentioned the exchange rate has no effect on FDI. In this research, analysis has included 28 developing countries that attached FDI and the timeframe is from 1997 to 2014. ARCH (GARCH) model is used for measuring the exchange rate impact on FDI. Based on Rauf (2016), this investigation was examined the impact of exchange rate and FDI in Sri Lanka from 2013 to 2014 monthly basis by using the graphical techniques and statistical methods, for example, correlation and regression examination to recognize the connection. The results did not support the hypotheses. This means that there is no relationship between the exchange rate and FDI. Ahmed and Ikhtiar (2011) also stated the result is no relationship among the real exchange rate and FDI in Pakistan during the time period of 1970 to 2007. This result is because of the government-controlled fixed exchange rate until the 1990s.

2.3.2 GDP and Foreign Direct Investment (FDI)

Based on the study from Simionescu (2016), it is expressed that there is a positive and bidirectional relationship between GDP and FDI. The investigation demonstrated that higher GDP would pull in increasingly remote foreign investors, which mean give a conclusive effect on FDI inflows in most European Union countries. A research from Chowdhury and Mavrotas (2015) used the Toda-Yamamoto approach to test the causality between FDI and GDP in China, Malaysia and Chile and the results showed that it is GDP that causes in Chile yet not the other way while there is strong evidence suggested that there is fractional causality between GDP and FDI in Malaysia and China. Next, the causal relationship among GDP and FDI of Malaysia has been examined by Mohammad and Zulkornain (2009) using the same approach but the findings suggested that there is no strong evidence of bidirectional causality between GDP and FDI. On the other side, an earlier study from Duasa (2007) also implemented the Toda-Yamamoto approach. It is using to determine the causal relationship between FDI and economic growth in Malaysia from 1990-2002. However, there are no solid proof causality between GDP and FDI but it is reveals that FDI does contribute to soundness of development as development adds to the strength of FDI.

Furthermore, many past investigations have suggested that the relationship among GDP and FDI is significantly important. For instance, Aziz, Mamud, and Sarkar (2014) have different financial elements impact on foreign direct investment (FDI) inflows into Bangladesh ranging from 1972 to 2010 including business sector size measured by real GDP and the method of OLS has been applied. According to the results, it is implied that market size has a favourable signal and is measurably significant to FDI. Research from Cahyaningsih and Yogyakarta (2015) used time series data and Error Correction Model (ECM) as the method to determine the effect of GDP towards FDI in Indonesia. Their results showed that GDP is positively significant to FDI in the long term. Moreover, Khamis, Mohd, and Muhammad (2015) examined the impact of GDP per capita on FDI inflows in the United Arab Emirates (UAE) from 1980 to 2013 and the findings uncovered that GDP has a significantly positive impact on FDI. Comparative outcome additionally can be found in the prior study conducted by Asiedu (2002) that GDP per capita is positively related to FDI. On the contrary, Masoomeh and Malarvizhi (2014) investigated the impact of GDP on FDI in Malaysia from the first quarter of 1991 to the fourth quarter of 2012 by applying the Ordinary Least Square (OLS) method. Their findings suggested that there is no decidedly related among FDI and Gross Domestic Product yet it is discovered that there is a positive connection between GDP of the manufacturing sector and FDI.

Several empirical studies also have shown the negative effects of GDP on FDI. For example, Buchanan, Le, and Rishi (2012) reveal that there is a negative significant impact of economic growth in attracting foreign investments. Jensen (2003) revealed that countries with higher GDP will attract lower levels of FDI where the result is opposite from what of the most studies could expect. Similar result can be found in the empirical study by Arbatli (2011). However, there are few studies showed that GDP has no relationship to the FDI. A study conducted by Shaheena (2014) to recognize the real determinants of FDI inflows in Bangladesh has found that GDP per capita, which has considered as an intermediary of market size does not have any critical effect on quickening FDI as its coefficient using the ARDL approach is insignificant. Another study by Badar, Mohd, and Nadia (2018) to determine the determinants of FDI in Indian and Sri Lanka with OLS method express there is no noteworthy positive or negative relationship between market size and inward of Foreign Investment for India but it is found to be a significant relationship for Sri Lanka.

2.3.3 Inflation (INF) and Foreign Direct Investment (FDI)

The statistical technique employed in this research is Ordinary Least Squares (OLS), which uses a data of time series enclosed from 1970 to 2014 to obtain the annual series data. The findings of the study stated such the inflation has a favourable equilibrium with FDI. It means that an increment (decline) in inflation will result in an increment (decline) in FDI (Ali, Mohamed, & Zahir, 2017). Inflation affects FDI on account of the high expansion in Somalia which is unsteady and the FDI enthusiasm to be a less expensive item so as to trade cheaper product abroad. Jadhav (2012) examined the inflation in alluring FDI in BRICS nations utilizing pool data for a period from 2000 to 2009. Analysis using panel unit-root test, and multiple regression to indicate significantly. The results reveals that inflation has a positive significant effect on FDI due to the likelihood value related with t-statistics of the coefficient is not exactly an alpha that applied in this study.

Based on Faiz, Anish, Bisma, Madiha, and Sadaf (2013), FDI has positive relationship with inflation in Pakistan which applied time series data regression from 1990 until 2011. By using regression analysis, FDI as a dependent variable has a direct and positive relationship to inflation, which defines that any increment in inflation will cause FDI to arise. Moreover, Kahai (2004) collected the information from 1998 to 2000 for 55 developing countries to estimate an empirical model of FDI. This study showed that low inflation has a positive and significant effect on FDI inflows in developing countries. According to Dabla-Norris, Honda, Lahreche, and Verdier (2010), the data consisted over 100 developing countries between 1985 and 2007, including 52 low-income countries. The gravity model was used to examine the impact of inflation on FDI in countries who still developing. They found that FDI is significant and positive only for countries with a low inflation rate.

A case study by Ebiringa and Emeh (2013) determined the relationship between inflation and FDI in Nigeria during the period of 1980 to 2010. They used error correction model, which have existed two variables, long-run estimates and short-run estimates as a methodology. The result concludes that inflation having a long run negative and major influence on FDI due to a stable macroeconomic environment and price stability. In addition, Elijah (2006) found similar results, as inflation was negatively correlated on FDI inflows in the long run and short run in the Kenyan economy. Ahmad (2015) used the least square method in multiple regressions analysis as a statistic tool to estimate the correlation among inflation and FDI in Bahrain for the period of 1980 to 2013. Inflation revealed there has a significant negative relationship with FDI inflows. Zenegnaw (2010), Khalid and Varoudakis (2007), Asiedu (2006), and Onyeiwu and Shrestha (2004) found that FDI into Africa to be negatively correlated with the level of inflation.

Khalil (2015) investigated that inflation having negative impact on the stimulation of FDI in Egypt during the time of 1970 until 2013. Estimation of cointegration preequation is applied to determine the relationship between them and it showed that an increment in inflation leads to a decrease in FDI. The rise in inflation has led to local or foreign investors go into dangerous areas when invested due to corruption in the investment climate. Based on Fornah and Yuehua (2017), unit-root test method and co-integration test analysis were conducted to estimate the relationship between inflation and FDI. Inflation has a unfavourable and significant causes on FDI by utilizing data of time series for the period of 1990 to 2016. This implies that an increment in inflation may result in an approximate decrease in FDI inflows to Sierra Leone. This finding is not surprising as the high rate instability of the macroeconomic may scare away foreign investors.

According to Hong and Bui (2014), this study used a pool of the six ASEAN countries, which were Indonesia, Malaysia, Singapore, Vietnam and Thailand in the period of 1991 to 2009. The inflation showed that no statistically significant impact on FDI inflows by using Feasible Generalized Least Squares (FGLS) model. Inflation reflects macroeconomic instability. Hence, high inflation could limit FDI inflows. Wafure and Nurudeen (2010) also stated that inflation is positively connection with FDI in the Nigerian economy, but the results are not statistically significant. Based on Nurcahyo, Nur'ainy, and Nawangsari (2015), a t-test was used to test the impact of inflation on FDI in Indonesia from 2002 to 2012. The result of inflation and FDI showed that inflation in Indonesia has no effect on FDI. Therefore, investors do not consider inflation to enter their investment decisions.

2.3.4 Labour Cost (LC) and Foreign Direct Investment (FDI)

When it comes to labour cost, most studies have proven that there is an inverse relationship between labour cost (LC) and FDI. Wage rate theory is supported that in which higher average wage rate will discourage FDI. According to the study from Calhoun, Yearwood, and Willis (2002) investigated the impact of average wage rate on FDI flows to individual developing countries. Their econometric results revealed that for each USD equivalent per month that a nation's wage rate rise, will lead FDI of the specific countries are expected will fall by USD 432,100.

Besides, a research focused on the determinants of FDI in BRICS countries from 1975 to 2017 including the labour cost provided by Vijayakumar, Sridharan, and Rao (2010) employed the panel data analysis. Their empirical results have shown which the coefficient signal of labour cost is negative and it is a significant determinant in the study. A similar result can be obtained in the research by Sehleanu (2016) examined the determinants of FDI inflows to Romania. Final results revealed that there is a linear correlation between labour cost and FDI, which the study validated that lower labour cost has a positive influence on FDI inflows. Same evidence also can be found in a recent study conducted by Donaubauer and Dreger (2018) where every 1% increase in minimum wages would lead decrease the FDI performance to GDP ratio by roughly 0.6%. On the other hand, a study by Bayraktar-Saglam and Boke (2017) applied the Panel VAR method to investigate the endogenous interaction between labor costs and FDI in the OECD countries suggested that a fall in the unit labor cost would encourage the FDI. However, an increase in labor compensation will induce higher FDI in manufacturing sector.

On the other hand, there are some empirical studies reveal out there is the existence of a positive relationship between labour cost and FDI. A study examined determinants of FDI from EU accession participants by Janicki and Wunnava (2014) where a positive relationship exists between the labour cost and FDI but the labour cost is expressed in term of the labour cost differential. According to a study by Wheeler and Mody (1992) focused on the manufacturing investments by United States multinationals in the 1980s, their results suggested that labour cost has a high level of statistical significance and has a huge and positive effect on speculation. Similar result can be found in a study by Lai and Sarkar (2011) suggested that higher wage rate will increase the predicted output of foreign firms. Moreover, the coefficient of labour cost is found to be positive but insignificant in a study by Demirhan and Masca (2008). They concluded that low pay is not a deciding variable in attracting in FDI to creating nations in the period of 2000 until 2004 they have studied.

2.3.5 Trade Openness (TO) and Foreign Direct Investment (FDI)

Amongst other factors, trade openness remains ones of the strongest variables in determining the amount of FDI inflows in host countries (Kandiero & Chitiga, 2006). Others researcher such as Quazi (2007) also highlighted that trade openness a important factor of FDI inflows among other factors. According to Pradhan (2010), the research mentioned, that trade openness has a significant positive impact on FDI inflows on the Indian economy. A suggestion is therefore created that the government should actively pursue its openness policy to accelerating FDI development in the Indian economy. Besides that, the research from Wahid et al. (2009), the observation from African countries during 1990 and 2005 is used to audit the probable determinants of FDI inflows. The research notes that there is a positive relationship between trade openness and FDI inflows. Based on the research of Erdal and Tatoglu (2002) which examine such locational determinants of FDI in Turkey, employs Johansen co-integration analysis for the period during 1980-1998. They investigated the result there is a favourable relationship among trade openness and FDI inflows in Turkey. Both of this research, Erdal and Tatoglu (2002) and Wahid et al. (2009), suggests that as the increase in liberal trade regime, it leads to an increase of FDI inflows in the home country.

Janicki and Wunnava (2004) study foreign direct investments (FDI) between the members of the East European Candidate (CEEC) and European Union and eight Central economies in transition, pending incorporation into the European Union (EU). This research obtained Cross section data for Czech Republic, Hungary, Poland, Romania, Slovenia, Bulgaria, Estonia and Slovak Republic for 1997. A positive significant impact is confirmed between trade openness and inflows of FDI. Furthermore, Liu (2008) utilizes panel data from a set of home countries, which aimed at diagnosing the effects of Regional Trade Agreements on Chinese foreign direct investment (FDI). The result notes reveals there is a positive connection among trade openness and FDI inflows (resulting from regional trade agreements).In addition, Waheeduzzaman and Rau (2006) had employed a panel data which examining the association between market potential and FDI in 26 emerging market economies during 1960-2000. The research has found that FDI could be affected by trade openness positively.

On the other hand, Seim (2009) found that a negative as the very complicated interrelation between FDI inflows and the level of trade openness for transitioning countries. The analyst contends that foreign company that ready to extend their market may resolve that through a high level of transparency of trade, little limitation and low exchange costs. It mentioned that the market could be better than before through an export instead of FDI. Hence, it utilized that a high level of openness will cause a low degree of FDI inflow. Briefly, the impact of trade openness on FDI inflow may change indicated by motivation for engaging FDI exercises (Markusen and Maskus 2002; Dunning & Lundan (2008). Agos ń (1991), Greenaway and Sapsford (1994), Shafaeddin (1994), Moon (1997), and Morrissey and Mold (2006) proved there is having negative link between FDI and trade openness. This research implied the same concept with the research of Seim 2009.

However, based on Busse and Hefeker (2007) which explores the connections among institution, political risk and foreign direct investment inflows for a data sample of 83 developing countries during the period from 1984 to 2003. The study illustrated that there is no critical relationship between trade openness and FDI. Another research from Globerman and Shapiro (2002) which its main concern is in the role of Governance Infrastructure also presume there is no measurably crucial relationship among FDI and trade restrictions has did not have any impact against FDI inflows. From the perspective on hypothesis for the horizontal, vertical and knowledge capital models, Markusen and Maskus (2002) found that exchange confinements (receptiveness) are less significant as a motivator to the horizontal tax-jumping interest creating economic. Those outcome that the greater the level of trade restrictions, the lesser the effect on market-chasing investment in creating economies with respect to developed economies.

2.3.6 Domestic Credit and Foreign Direct Investment (FDI)

The domestic credit is explained as the loaning or credit that a country national bank makes accessible to borrowers inside a similar sector. This may incorporate business banks and even include the government. Moreover, such banks more often than not swing to the national bank if all else fails. There is having an interest charge, which considers as a kind of financing cost, which is known as a markdown rate. The domestic credit, which may fill in as a reason for loan fees, forced by other money-related company and is usually observed to be very competitive. According to Gozgor and Erzurumlu (2010), the result of the research showed the domestic credit of a country is increased, the FDI of a country should also increase, which considered a positive effect between them. Other than that, based on Muhammad, Ali, and Sohail (2016) study, he found that the domestic credit has a critical positive reaction between FDI in Pakistan. When there is an increment in domestic credit asset, it means the FDI inflow will increase more than equal vice versa. In addition, Central Banks formulate will lead to bigger domestic credit amount. Based on Borio, McCauley, and McGuire (2011) research, he mentioned that sources of domestic credit during credit booms seen in the majority of the environment would increase the FDI performance on the specific country. The previous literature showing that economic liberalization and democracy have an overall positive impact on economic growth (Bekaert, Harvey & Lundblad, 2005). In addition, there is empirically a significance relationship in the literatures that domestic credit have a positive impact on FDI found by Koyuncu and Unver (2016) and Desbordes and Shang (2017).

It demonstrates that nation have higher domestic credit will have lower FDI (Lane & Milesi-Ferretti, 2008). It shows the highly negative correlation between domestic credit and net foreign direct investment capital in the existing data for the 2003-2008 cross-sectional data. Based on Desbordes and Shang (2017), the author focused on the proportion of financial development is the domestic credit dispensed to the private area by financial intermediaries, which is standardized by GDP. The private domestic credit to GDP ratio varies across countries with a mean value of 56% and a volatility of 50% over the 2003-2006 period. The author found that domestic credit rarely becomes a factor that affects foreign direct investment. Besides, there is no direct relationship between domestic credit and FDI net inflows that conducted by Tsaurai (2014). The long-run relationship between banking division improvement and FDI net inflows is an indirect and two variables influence each other indirectly in Botswana.

2.3.7 The interaction term and macroeconomics variables

The interaction term in our research study is domestic credit. Based on Ucer, Rijkeghem, and Yolalan (1998) and Kibritcioglu et al. (2001), they fail to find evidence that domestic credit has a significant impact on exchange rate/ currencies in Turkey. Besides, based on Feridun (2006), he also fails to apply a causal relationship exchange rate and domestic credit. Based on Mohammad, Muhammad, and Zarinah (2018), the coefficient of the growth rate of domestic credit is founded positively at significant 1% level on GDP. Their result is also the same with other researchers, which are Perera and Paudel (2009) and Adu, Marbuah, and Mensah (2013). There is a favourable influence to domestic credit on GDP for Sri Lanka and Ghana respectively. Based on Suna, (2015), banking district of 10 European countries created domestic created but did not have any impact with inflation by using the panel data. Based on Lucas (1988), pioneer author Shan (2005) , his research found that a change in domestic credit will precede change in trade openness and this will accelerate the development of economic.

In summary, our research clarifies the indirect relationship between the interaction term and labour cost. Based on Bos, Breza, and Liberman (2018), they document that a substantial labor cost of default interlink with credit data among people at the edges of convention. They also suggestive proof that the employment cost of default is inefficiently borne by moderately increasingly reliable people. This finding gets from differences in the credit data accessible to banks and non-monetary establishments. In short, we can conclude that when domestic credit is a crunch, thus employer will try to search many ways to reduce the cost of production. This is due to a businessperson will keep their business are in good liquidity circumstances. Therefore, with achieving the minimum wages set by the government, the executive will try to employ cheaper wages of the employee. Hence, labour cost can be reduce and maximize the profit of the company.

2.4 Hypothesis Development

H_1: Exchange Rate have significant effect on FDI

H_2: GDP have significant effect on FDI

H_3: Inflation have significant effect on FDI

H_4: Labour Cost have significant effect on FDI

H_5: Trade Openness have significant effect on FDI

H_6: Domestic Credit have significant effect on FDI

H_7: Domestic Credit interact with macroeconomics variables have significant effect on FDI

Examine all macroeconomics variables are significant effect on FDI. Besides, also assuming domestic credit interact with all macroeconomics variables (DC_EXR, DC_GDP, DC_INF, DC_TO and DC_LC) have significant effect on FDI.

2.5 Conclusion

To conclude, our research had been examined six variables that may affect the decision or performance of FDI which are Exchange Rate (EXR), Gross Domestic Product (GDP), Inflation (INF), Labor Cost (LC), Trade Openness (TO) and Domestic Credit (DC). Those studies have been upheld by the pass research; in this way, those variables are indicated as significant towards FDI in D-8 Countries. So as to get dependable observation, research methodology is critical to have a reliable database to process an exactness analysis and testing. We choose domestic credit as our research's gap variable.

CHAPTER 3: METHODOLOGY

3.0 Introduction

Chapter 3 introduces the theoretical model, empirical model, model estimation, and overview on the tests that we going to conduct in Chapter 4 later and the data sources. Numerous methodologies and tests are applied in order to achieve the aim of our research, which is to determine the relationship between the variables, namely Foreign Direct Investment (FDI), Exchange Rate (EXR), Gross Domestic Product (GDP), Inflation (INF), Labour Cost (LC), Trade Openness (TO) and Domestic Credit (DC). Other than that, we also carry out the tests to identify the relationship between interaction term and explanatory variables that will affect our dependent variable- FDI. Therefore, Chapter 3.4 Model Estimation is going to explain the panel unit root test and the panel data model. Our research is using the Levin-Lin Chu-Test (LLC), Pooled OLS, REM and FEM to identify our result. Moreover, we use the Likelihood test, Breusch-Pagan Lagrange Multiplier test and Hausman test.

Moreover, diagnostic testing has been used in this chapter to test multicollinearity. Meanwhile, the following subtopics will be discussed on the theoretical model, model estimation, estimation method, sources of data and conclusion.

3.1 Theoretical Model

$FDI_t = \beta_0 + \hat{\beta}_1 GDP_{1t} + \varepsilon_t$ (Theoretical Model)

B_0 = y-intercept

FDI_t = Foreign Direct Investment

GDP_{1t}= Gross DomesticProduct

Ɛ = error term

Khamis, Mohd, and Muhammad (2015) present this model. Levels of GDP per capita are obtained by dividing GDP at current market prices by the population of the country. All trades in United Arab Emiratesused are in terms of U.S. dollars and hence the variables (GDP) are in terms of U.S. dollars as well (Khamis, Mohd, & Muhammad, 2015).

3.2 Model Estimation

We adopted panel data from 1993-2017 consisting of 8 developing countries which are Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. The required dataset of the selected countries obtained from the World Bank. Foreign Direct Investment (FDI) is the dependent variable; Exchange Rate (EXR), Gross Domestic Product (GDP), Inflation (INF), Labor Cost (LC), Trade Openness (TO) and Domestic Credit (DC) are the independent variables. Since few of our independent variables consist of negative values thus we log our model to solve this kind of concern.

Based upon previous researches, we developed our Model 1 into the following lin-log equation:

$$FDI_{it} = \beta_0 + \beta_1 LOGEXR_{1it} + \beta_2 LOGGDP_{2it} + \beta_3 LOGINF_{3it} + \beta_4 LOGLC_{4it} + \beta_5 LOGTO_{5it} + \beta_6 LOGDC_{6it} + \varepsilon_{it}$$

(Model 1)

Where,

FDI_{it} = Foreign Direct Investment (FDI)

β_0 = y intercept

EXR_{1it} = Exchange rate (real effective exchange rate index, 2007=100)

GDP_{2it} = Gross Domestic Product (current value)

INF_{3it} = Inflation (% of annual growth of GDP)

LC_{4it} = Labour cost (% of total employment)

TO_{5it}= Trade openness (% of GDP)

DC_{6it}= Domestic credit (% of GDP)

Ɛit= Error term

$_{i=}$ Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, Turkey

$_{t\,=}$ Year 1993, 1994,…2017

Interaction term

Similar to Model 1, we conducted new linear regression analysis by adding interaction variable, domestic credit into Model 2. The purpose of interaction term is to test the indirect relationship of domestic credit to those independent variables and thereafter to dependent variable. By using Eviews, we investigate the relationship between the interaction term and domestic credit. The availability to know the significant effect on domestic credit could be investigated by observing the p-value. We proposed an estimation model for our interaction term (domestic credit) as below:

$$FDI_{it} = \beta_0 + [(\beta_1 LOGEXR*DC_{1it}) + LOGEXR_{it}] + [(\beta_2 LOGGDP*DC_{2it}) + LOGGDP_{it}] + [(\beta_3 LOGINF*DC_{3it}) + LOGINF_{it}] + [(\beta_4 LOGLC*DC_{4it}) + LOGLC_{it}] + [(\beta_5 LOGTO*DC_{5it}) + LOGTO_{it}] + \varepsilon_{it}$$

(Model 2)

Where

FDI_{it} = Foreign Direct Investment (FDI)

β_0 = y intercept

$EXR*DC_{1it}$ = Exchange rate multiply Domestic Credit

$GDP*DC_{2it}$ = Gross Domestic Product multiply Domestic Credit

$INF*DC_{3it}$ = Inflation multiply Domestic Credit

$LC*DC_{4it}$ = Labour cost multiply Domestic Credit

$TO*DC_{5it}$ = Trade openness multiply Domestic Credit

ε_{it}= Error term

i =Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, Turkey

t=Year 1993, 1994, …,2017

3.3 Definition of Variables

Variables	**Definition**	**Source**
Foreign Direct Investment (FDI)	A net inflow of direct investment reporting from foreign investors at home country.	World Bank
Exchange rate (EXR)	A measure of the value of a certain currency against a weighted average of several foreign currencies.	World Bank
Gross Domestic Product (GDP)	A sum of all finished goods and services produced within a country's borders. It is calculated without any deductions for depletion or degradation of natural resources.	World Bank
Inflation (INF)	A general rise in the price of goods and services over a period.	World Bank
Labour cost (LC)	Sum of costs of all labours used in a business or total paid to the workers.	World Bank
Trade openness (TO)	A sum of exports and imports of goods and services where it can be measured in percentage of gross domestic product.	World Bank
Domestic credit (DC)	It refers to the financial resources provided by the financial institutions including bank loans and the money borrowed from the government to finance the related activities.	World Bank

3.4 Estimation Method

3.4.1 Panel Unit Root Test

Panel unit root testing derived from time series unit root testing. The only differences between them is that the asymptotic behavior of the time-series dimension T and the cross-sectional dimension N have to be consider. In order to identify the asymptotic behavior of estimators and appropriate test used for non-stationary panel, N and T which congregate to infinity play an important role in it (Nell & Zimmermann, 2011). There are two generations of test have been introduced in the test framework of panel unit root test:

The first generation of test on non-stationary tests represented by Levin and Lin (1992, 1993), Levin, Lin, and Chu test (2002), Im, Pesaran, and Shin test (1997, 2003) and Maddala and Wu (1999) and Choi (1999, 2001); stationary test denoted by Choi (2001) extension and Hadri (2000). Fisher-type tests assumed that cross-sectional independence across units denoted as it main limit. However, the cross-sectional independence hypothesis is rejected by the second generation of test. Two main approaches are used for the differentiate purpose within the second generation of test. The others approach such as covariance restrictions approach which proved in the study of Chang (2002, 2004) and O'Connell (1998). While the factor structure approach that contributed by Bai and Ng (2004), Phillips and Sul (2003), Moon and Perron (2004), Choi (2006) and Pesaran (2007), among others (Barbieri, 2006).

Panel Unit Root Testing acts as crucial role in determining the stationary of a panel variable, it may result stationary (no random walk and no unit root) or non-stationary (random walk and unit root). It is important for the stationary of panel to meet the assumption of a classical linear regression model and avoid spurious regression problem occurs in a regression model. Thus, it can be said that the classical regression model is invalid as the panel variable is non-stationary, due to the inconstant and inconsistent of Ordinary Least Square (OLS) break down.

General regression model used by panel unit root testing:

$$\Delta y_{it} = p y_{it1} + z_{it}'\Upsilon + u_{it}$$

Where,

$_i$= 1,2,…, N; $_t$= 1,2,…, T

Z_{it} = deterministic component (could be 0,1, the fixed effects(μ_i), or fixed effect as well as time trend ($_t$).

μ_{it} = stationary process

The null hypothesis is:

H_0 :ρ_i= 0 (all panel variables contains a unit root)

The alternative hypothesis:

H_1:ρ_i= ρ <0 for all panel, or (all panel variables is stationary)

H_1:ρ_i<0 for some panel (some panel variables is stationary)

3.4.1.1 Levin-Lin-Chu (LLC) Test

Levin and Lin (1992, 1993) are the earlier generation of this test, the test thereafter replaces by Levin, Lin, and Chu (2002) (LLC test). The creation of Quah's model permits the heterogeneity of individual deterministic effects (constant and/or linear time trend). At the same time, it also allows heterogeneous serial correlation structure of the error terms which contains supposition of homogeneous first order autoregressive coefficient. The necessary condition for the LLC test is$\sqrt{N_T}/T \rightarrow 0$ whilst sufficient conditions would be $N_T/T \rightarrow 0$ and $N_T/T \rightarrow \kappa$. N_T represent that the cross-sectional dimension *N* is a monotonic function of time dimension *T*).The qualified statistic is quoted as when *N* lies between 10 and 250 and when *T* lies between 5 and 250. This means that the test is undersized and has low power where the *T* is very small. Individual unit root time-series tests is recommended by Levin et al. (2002) when *T* is very large. Usual panel data procedures can be applied when *N* is very large (or *T* very small) (Nell &Zimmermann, 2011).

The hypothesis below recommended by Levin-Lin-Chu Test (LLC):

H_0: $\rho_{i=}\rho$ = 0 (each time series contains a unit root)

H_1: ρ_i= ρ <0 (each time series is stationary)

There is a restrictive power in individual unit root tests, which implies that there is a limited probability of the test in rejecting null hypothesis (Nell and Zimmermann, 2011).Whereas, in the condition of first order partial autocorrelation coefficients, it is higher probability to reject the null hypothesis that time series contains a unit root with LLC test and less unit root we found in our model under the condition of 1^{st} order (Barbieri, 2006).

3.4.2 Panel Data Model

Panel data typically refer to data combining time series data of a number of individual. There are three panel data models to inspect the time series effect and individual effects, which are Pooled Ordinary Least Square (POLS) Model, Fixed Effect Model (FEM), and Random Effect Model (REM). Based on Cheng Hsiao (1986) study, panel data method considers heterogeneity, get individual-specific estimates and increases the complexity of the analysis.

3.4.2.1 Pooled Ordinary Least Squares (POLS)

Pooled Ordinary Least Squares (POLS) is simply an OLS technique which runs on Panel data. The panel data set including time-series and individual data. In that event, it is to completely ignore all individual specific effects. In order to use POLS in our model, we must make sure that the intercepts are constant across country; slopes are constant across country and no time effect in our model. Besides, we use this model when there is homogeneity among the variation of observations across periods. We must confirm that the assumptions of Classical Linear Regression Model (CLRM) have to be fulfilled by the estimated model in order to acquire the unbiased, efficient and consistent estimated parameter values. The error term of the model is considered as normally distributed and zero mean of constant variance. Last but not least, the independent variables needed to be assumed that they are fixed in sampling regularly.

The POLS model for panel data takes the following form:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_k X_{k,it} + \mu_{it}$$

Where,

Y_{it}= Dependent variable observed

β_0= Slope coefficient

β_k= Coefficient for independent variables; k= 1, 2, ….

$X_{k,it}$= Independent variable(s); i = country; t= time period

μ_{it} = Error term

3.4.2.2 Random Effects Model (REM)

The individual-specific effects in the random effects model (REM) can be assumed random variables, which mean that the explanatory variables are uncorrelated with the random variables. Random effects model has occurred when the explanatory variables are uncorrelated with the omitted variables. It will produce an unbiased estimate coefficient by using all available data, as well as induce the smallest standard deviation. On the other hand, it is more likely that at least some deviation in the estimate will be produced by the omitted variables. As compared with the fixed effects model, the random effects model's basic principle is the changes across entities are random and uncorrelated with the explanatory variables in the model (Torres-Reyna, 2007). As reported by Hsiao (2007), the advantages of the random effects model are when the sample size increases; the number of parameters will stay constant. Moreover, it allows the derivation of valid estimators that take advantages of both within and between the group variations. The random effects model will compute the influence of time-invariant variables, but the omitted variables are not controlled as the estimates may be biased.. The model will be written as below:

$$\mathrm{Y}_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + ... + \beta_k X_{kit} + [\mu_i + \mu_{it}]$$

Where,

Y_{it} = Dependent variable observed

X_{kit} = Independent variables, k=1,2,3,…

β_0 = Slope intercept

β_k = Coefficient for independent variables, k=1,2,3,…

μ_i = Unobserved cross-sectional effect

μ_{it} = Idiosyncratic error

3.4.2.3 Fixed Effects Model (FEM)

A fixed effects model (FEM) is a statistical model to which the independent variables are assumed to be non-random either fixed quantities. The relationship between dependent variable and explanatory variables is examined by the fixed effects. The dependent variable changes in response to the values of the explanatory variables. We use FEM when we assumed that something within the individual might influence or bias the dependent variable or the explanatory variables. Therefore, FEM is used to remove the effect of those time invariant characteristics to enable the net effect of the dependent variable on the independent variables can be accessed so that efficiency can be achieved. By using a fixed effects model, those unobserved variables are allowed to have any associations whatsoever with the observed variables (Allison, 1994). There are three approaches where the FEM can be estimated which are the within group estimator, the dummy variable regression and the first difference method.

3.4.3 Model Comparison

3.4.3.1 Likelihood Ratio (LR) (POLS vs FEM)

Likelihood Ratio (LR) Test is to compare the goodness-of-fit between POLS model, as well as FEM model. In LR test, degree of freedom must be viewed as when the distinction in likelihood between two models is critical. This is to decide the critical value of the test statistical tables. The H_0 and H_1 of LR test is:

Null Hypothesis: $H_0 : \sigma_\mu^2 = 0$ (POLS is preferable)

Alternative Hypothesis: $H_1 : \sigma_\mu^2 \neq 0$ (FEM is preferable)

The null hypothesis is rejected when the p-value of the model is less than the significant level at 1%, 5% and 10% or the test statistic of the model is higher than critical value. Thereupon, FEM is preferable compared to POLS.

3.4.3.2 Breusch-Pagan Lagrange Multiplier (BP-LM) Test (POLS vs REM)

The BP-LM test helps us to determine on whichever model is appropriate between a simple regression, OLS regression and a random effects regression. Under the null hypothesis, the BP-LM test is that the variance of the random effect is zero.

Null Hypothesis: $\mathrm{H}_0 : \sigma_\mu^2 = 0$ (POLS is preferable)

Alternative Hypothesis: $\mathrm{H}_1 : \sigma_\mu^2 \neq 0$ (REM is preferable)

Based on the above, it represents homoscedasticity when the null hypothesis is equal to zero which affects the general assumptions of OLS while it represents heteroscedasticity when the alternative hypothesis is not equal to zero. Moreover, the BP-LM test is used to test depends on the value of the chi-squared. POLS is appropriate if the null hypothesis is not rejected. In contrast, REM is appropriate when the null hypothesis is rejected with high chi-squared statistics. Null hypothesis is rejected when the p-value of the model is less than the significant level at 1%, 5% and 10%.

3.4.3.3 Hausman test (FEM vs REM)

The Hausman specification test also known as the Hausman test is to detect the explanatory variables in a regression model. Hausman (1978) to discriminate the estimators of fixed effects and random effects provides the Hausman test. We can perform the Hausman test to decide between fixed effects model (FEM) or random effects model (REM) in panel data analysis. The estimators of the coefficient vectors of both FEM and REM are to be compared in the test. It tests whether the unique errors are correlated with the regressors. To conduct the test, the null hypothesis (H_0) of the Hausman test is the REM is preferable (REM is consistent and efficient) while the alternate hypothesis (H_1) is the FEM is preferable (REM is inconsistent and inefficient). When H_0 is being rejected, it implies that the FEM is better suited than REM.

Null Hypothesis: H_o: REM is consistent and efficient.

Alternative Hypothesis: H_1: REM is inconsistent and inefficient.

We reject H_o if test statistic (H) is greater than critical value. Otherwise, do not reject H_o. When H_o is rejected, it implies that FEM is more appropriate to be used than REM.

	H_0 is true	H_1 is true
RE estimator	Consistent Efficient	Inconsistent
FE estimator	Consistent Inefficient	Consistent

3.5 Diagnostic Testing

3.5.1 Multicollinearity

Multicollinearity is defined as statistical phenomenon where it will cause redundant information. This occurs in regression when the predictor's variables are highly correlated. Multicollinearity can cause unsteady assessments and inaccurate fluctuations, which influences certainty interim and hypothesis test. The presence of multicollinearity blows up the changes of the parameter estimates, and consequently wrong inferences about the relationship among dependent variables and independent variable.

Basic multiple linear regression equation as shown below:

$$FDI_{it} = \beta_0 + \beta_1 EXR_{1it} + \beta_2 GDP_{2it} + \beta_3 INF_{3it} + \beta_4 LC_{4it} + \beta_5 TO_{5it} + \beta_6 DC_{6it} + \varepsilon_{it}$$

(Model 1)

Where,

FDI_{it} = Foreign Direct Investment (FDI)

β_0 = y intercept

EXR_{1it} = Exchange rate (real effective exchange rate index, 2007=100)

GDP_{2it} = Gross Domestic Product (annual %)

INF_{3it} = Inflation (% of annual growth of GDP)

LC_{4it} = Labour cost (% of total employment)

TO_{5it}= Trade openness (% of GDP)

DC_{6it}= Domestic credit (% of GDP)

ε_{it}= Error term

$_{i=}$ Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, Turkey

$_{t\,=}$ Year 1993, 1994, …,2017

Thinking about this condition, consider the way that multicollinearity will in general blow up the changes of the parameter estimates, which would lead to an absence of statistical significance of the individual predictor variables despite of the way that the general model itself remains significant. Therefore, the presence of multicollinearity can end up causing major issues of the model when assessing and interpreting the explanatory variables. This type of relationship between two variables in a model could prompt an even more biased outcome and thus leading to negatively affected results. Collinearity is particular problematic when a model's purpose is clarification as opposed to forecast. In the case of explanation, it is increasingly troublesome for a model containing collinear factors to accomplish importance of one the diverse parameters. For this situation, they are still reliable as any other variable in the model if the estimates wind up being statistically significant, and if they are not significant, then the sum of the coefficient is likely to be dependable or reliable. We are taking the level of collinearity increment after resulting from multicollinearity as our essential concern factor. There is no unique to detect multicollinearity problem but there are few rule of thumbs:

- High R-squared but few significant t ratios
- High-pair wise correlation coefficients
- Variance inflation factor (VIF) / Tolerance (TOL)

VIF is one of the most widely used rules. When reviewing the result, as mostly known, it is expected that as the degree of collinearity goes seriously, the VIF is getting larger (Yoo et al., 2014).The formula for VIF and TOL are shown in below:

$$VIF = \frac{1}{(1 - r_j^2)}$$

As a rule of thumb, if VIF > 10, which will happen if R-squared exceeds 0.90, the variable is said to be highly collinear.

$$TOL_j = \frac{1}{VIF_j} = (1 - r_j^2)$$

We drop one of our concern variables to comprehend this multicollinearity. Next, we additionally combine the cross-sectional and time series data, which become panel data. An earlier data additionally measure to solve multicollinearity problem. Besides, we can include some extra or new data our model or just omit the highly correlated variables to decrease the multicollinearity. Lastly, we can transform the variables by using first difference form or ratio transformation (Gregory, 2017).

3.5.2 Autocorrelation

Autocorrelation is the relationship of a time series data with its own particular past and future qualities. Autocorrelation is at times called "serial correlation", which refers to the correlation between members of a progression of numbers organized in time. Elective terms are "persistence" and "lagged correlation". An assumption in the linear regression model is that of zero value of the disturbance term covariance at all possible pairs of observation point. This is referred to as absence of autocorrelation of the error terms and when the disturbance term at any particular period is correlated with any other value of the disturbance term in the series, then we have autocorrelation. In autocorrelation, lag is a time period separating the ordered data and is used to calculate the autocorrelation coefficients. Autocorrelation estimates direct relationship; regardless of whether the autocorrelation is really less, there may in any case be a nonlinear relationship between a time series and a lagged version of itself. An autocorrelation with +1 indicates a perfect positive correlation while a value of -1 indicates a perfect negative correlation. The geophysical time arrangement plan are a significant part of the time correlated due to idleness or leftover portion process in the physical system. Three contraptions for reviewing the autocorrelation of period arrangements are:

(1) The time arrangement plot
(2) The slacked scatterplot
(3) The autocorrelation work

We use a graph of residuals versus data organize (1, 2, 3, 4, 5, 6, n) to apparently research residuals for autocorrelation. A grouping of residuals with a comparative sign perceives a positive autocorrelation. A negative autocorrelation is recognized by quick changes in the indications of consecutive residuals. Autocorrelation plots are known as the correlograms which present a better understanding of the evolution of a process through time using the probability of the relationship between data values separated by a specific number of time steps (lags). The correlogram plots autocorrelation coefficients on the vertical axis, and lag values on the horizontal axis. Correlogram summarizes characteristic features of the viz. randomness, the rising or declining trend, oscillation, etc (Nopiah et al., n.d.). If all the lagged autocorrelation coefficients in the correlogram hover around zero, this implies that the values in the series are independent. But if large coefficients appear at one or more lags, we have reason to suspect dependency in the series.

We also can use the Durbin-Watson test to test for the nearness of autocorrelation. It is used to test the hypothesis of lack of first order autocorrelation in the disturbance term. The test depends on a supposition that a first-order autoregressive process produces mistakes. In the event that there are missing perceptions, these are omitted from the calculations, and just the no missing perceptions are utilized. The Durbin-Watson (D-W) test is used for testing the hypothesis of lack of first order autocorrelation in the disturbance term. The null hypothesis for Durbin-Watson test is H_0: p = 0. To get the result from the test, we have to contrast the shown statistic with lower and upper bound in a table. We can characterize it if test statistic > upper bound, it is no relationship exists; if test statistic < lower bound, there is positive relationship exists; if test statistic is in the middle of the two bound, the test is uncertain (Babatunde, Ikughur, Ogunmola & Oguntunde, 2014). The test is as below:

$H_0 : p = 0$			
Nature of H_1	Reject H_0 when	Retain H_0 when	The test is inconclusive when
H_1: $p > 0$	$d < d_L$	$d > d_U$	$d_L < d < d_U$
H_1: $p < 0$	$d > (4-d_L)$	$d < (4-d_U)$	$(4-d_U) < d < (4-d_L)$
H_1: $p \neq 0$	$d < d_L$ or $d > (4-d_L)$	$d_U < d < (4-d_U)$	$d_L < d < d_U$ or $(4-d_U) < d < (4-d_L)$
Values of D_L and D_U are obtained from tables.			

The Breusch-Godfrey test is a general test of serial correlation and can be used to test for first order temporal autocorrelation or higher order autocorrelation. This test is a specific type of Lagrange Multiplier (LM) test. However, it is standard to use to the LM test when it is desired to allow for higher-order alternatives and the presence of lagged dependent variables in the regressors. It is a test against both autoregressive and moving average errors. The LM test uses the results of restricted estimation. For example, estimation under the null hypothesis but do not require the unrestricted estimation of the alternative model. Hence, they have the convenient property of being based upon OLS results (Godfrey, 2007). Reject the null hypothesis if the p-value is less than the level of significance. The null hypothesis is H_0: $p = 0$ while the alternative hypothesis is H_1: $p \neq 0$. The LM test statistic is as below:

$$LM = (n - i)\ R^2$$

where:

n: the number of observations

i: the order of autocorrelation

R^2: the unadjusted R^2 (coefficient of determination) of the model

3.5.3 Heteroscedasticity

Heteroscedasticity may result from misspecification due to overlooked non-linear predictor terms or to unobserved predictors not included in the model. In general, when the errors are independently identically distributed, they are homoscedastic. If the errors are not independently identically distributed and assumed to have distributions with different variances, the errors are said to be heteroscedastic. Put fundamentally, heteroscedasticity implies the circumstance in which the inconstancy of a variable is unequal over the scope of estimations of a second factor that predicts it. Heteroscedasticity are OLS cannot produce the best estimators and standard errors figured using least squares could be misdirecting and incorrect. When the scatter of errors is different, varying depending on the value of one or more of the independent variables, the error terms are heteroscesdatic. The consequences on OLS estimators can be summarized as below:

- The OLS estimators for the coefficients are still unbiased and consistent as none of the explanatory variables is correlated with error term.
- Heteroscedasticity affects the distribution of coefficients increasing the variances of the distributions and thus making the estimators of the OLS method inefficient.
- Heteroscedasticity also affects the variances of the estimated coefficients. In fact the presence of heteroscedasticity causes the OLS method to underestimate the variances and hence leading to higher than expected values of t-statistics and F-statistics.

Other than that, the Breusch-Pagan (BP) test is one of the most common tests for heteroskedasticity. The Breusch-Pagan-Godfrey Test is a test for heteroscedasticity of errors in regression. It starts by allowing the heteroskedasticity process to be a function of one or more of your independent variables, and it’s usually applied by assuming that heteroskedasticity may be a linear function of all the independent variables in the model (Koenker, 1981). The test statistic for the Breusch-Pagan-Godfrey test is:

$$N \,.\, R^2$$

where:

n = sample size

R^2 = R^2 (Coefficient of Determination) of the regression of squared residuals from the original regression
k = number of independent variables

It is a chi-squared test. Reject the null hypothesis if the test statistic has a p-value below the level of significance then the null hypothesis of homoskedasticity is rejected and heteroskedasticity assumed.

3.5.4 Normality Test

The normality test is crucial in statistical application. In graphical statistics terms, one measures a goodness of fit of a typical model to the information. Also, in the event that the fit is poor, at that point the information are not very much displayed in that regard by a normal distribution, without making a decision on any underlying variable. It is well known that departures from normality may lead to substantially incorrect statements in the analysis of economic models. Hence, normality test is needed in the regression analysis. Jarque-Bera test is one of the most famous tests for normality in regression analysis. It assists in detecting whether the error term is normally distributed or not. The test statistic, Jarque-Bera (JB) is a function of the measures of skewness (S) and kurtosis (K) computed from the sample. Skewness (S) is a measure of the asymmetry of the distribution of a variable while kurtosis (K) is a measure of the peakedness of a distribution. The test statistic of JB is defined as:

$$JB = \frac{n}{6} \cdot (S^2 + \frac{(K-3)^2}{4})$$

JB is asymptotically chi-squared distributed with two degrees of freedom because JB is just the sum of squares of two asymptotically independent standardized normal. It means the null hypothesis has to be rejected at level α if JB $\geq X_1^2$- α,2. The violation of the normality assumption may lead to the use of suboptimal estimators, invalid inferential statements, inaccurate conclusions and thus highlighting the importance of testing the validity of the assumption (Thadewald & Büning, 2007). Usually, a large Jarque-Bera value indicates that errors are not normally distributed. Currently, major of statistical software could not support this test. We can make decision by checking p-value. For example, a small p-value and a vast chi-square from the test imply that we may reject the null hypothesis that the data is normally distributed. Other than that, measures of kurtosis help identify if a curve is normal or abnormally shaped. The curve is highly arched at the mean with short tails indicates leptokurtic. Platykurtic curves, on the other hand, are flatter than normal with a lower peak and longer tails. These terms, platykurtic and leptokurtic, refer to the general shape of a distribution, with platykurtic distributions ($\beta_2 < 3$) being flat-topped compared with the normal, leptokurtic distributions ($\beta_2 > 3$) being more sharply peaked than the normal and mesokurtic distributions ($\beta_2 = 3$) having shape comparable to that of the normal (Balanda & Macgillivray, 1988).

Furthermore, there are four approaches to determine the normality model.

1. Look at a histogram with the normal curve. The diagram for variable one below shows it is a normality model.

2. Look at the values of Skewness. Skewness involves the symmetry of the distribution. Skewness that is normal involves a perfectly symmetric distribution. A positively skewed distribution has scores clustered to the left, with the tail extending to the right. A negatively skewed distribution has scores clustered to the right, with the tail extending to the left. Skewness is zero in a normal distribution, so the farther away from zero, the more non-normal the distribution.

3. Look at established tests for normality that take into account both Skewness and Kurtosis simultaneously. The Kolmogorov-Smirnov test (K-S) and Shapiro-Wilk (S-W) test are designed to test normality by comparing your data to a normal distribution with the same mean and standard deviation of your sample. If the test is not significant, then the data are normal, so any value above 0.05 indicates normality. If the test is significant (less than 0.05), thus the data is not normal.

4. Look at normality plots of the data. "Normal Q-Q Plot" provides a graphical way to determine the level of normality. The black line indicates the values your sample should adhere to if the distribution was normal. The dots are your actual data. If the dots fall exactly on the black line, then your data are normal. If they deviate from the black line, your data are non-normal. The diagram shows that it is a normal distribution. If the result is not normally distributed, we may try to use the following option (Limpert & Stahel, 2011):

1. Record for non-normality by tending to possible reasons, for example, nearness of outliers, cover of at least two procedures, inadequate data discrimination, sorted data, values close to zero or common point of confinement.
2. Increase the sample if conceivable
3. For little amount of sample, run an equivalent non-parametric test
4. Transform data with capacity that will drive it to fit normal model.

3.6 Source of Data

Data collection method plays an important role in this study to run the test. With such method, the relationship between dependent and explanatory variables is able to be investigated. The study covered with annually data from the D-8 countries within the period of 1993-2017. Since there is a country specific, panel data, which used to analyze the several subjects or countries within a specific time is selected. All secondary data from World Bank databaseis obtained.

The researchers or international surveyors to assist their study and their analysis broadly used the World Bank data set where it is a worldwide investigation from the development data group coordinated statistical and data work. It maintains a number of macro, financial and sector databases. The group is advised by professional standard in the collection, compilation and dissemination of data to ensure that all data users are confident with the data.

3.7 Conclusion

This chapter has introduced ordinary least regression (OLS) model and the interaction term model. A deep understanding on the secondary data that we extracted is gained throughout this methodology. It proved that this data is an important source for us to conduct our research. Several tests are included such as the diagnostic checking between the endogenous variables that give an impact on the exogenous variables is analyzed. Besides, the impact of domestic credit that acts as an interaction term on the independent variables such as Exchange Rate (EXR), Gross Domestic Product (GDP), Inflation (INF), Labour Cost (LC), Trade Openness (TO) and Domestic Credit (DC) and thereafter affects the FDI is to be tested. Several of tests and analysis result will be carried out to identify the significant relationship between dependent and explanatory variables. Hence, chapter 4 is going to discover the relationship and analysis will be done on the result found.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Data analysis and data interpretation which the data obtained from the World Bank will be carry out from this chapter. A series of discussions will be carried out based on the results provided after running the tests. There are several tests to be tested such as panel unit root test, LR test, LM test, Hausman test and multicollinearity test. Eviews will be conducted for our entire tests. The interpretation of the interaction term with other explanatory variables also will be discussed based on the results.

4.1 Panel Unit Root Test - Levin, Lin, Chu Test (LLC)

The unit root test is aimed to test the stationary and non-stationary of the variables. In our research, the Levin, Lin, Chu Test is used to examine the stationary of variables in our regression model. The individual intercept are conducted in the test. The null hypothesis indicate that there is unit root (non-stationary) occurs in the variable. We reject the null hypothesis when the p-value is less than 0.01, 0.05, or 0.1 which represent the variable is stationary.

Table 4.1 Levin, Lin, Chu Test for Model 1 and Model 2

Levin, Lin, Chu Test(LLC)			
Model 1		**Model 2**	
Variables	**Intercept**	**Variables**	**Intercept**
FDI	0.0032***	**FDI**	0.0032***
LOGEXC	0.0000***	**LOGEXC*DC**	0.0108**
LOGGDP	0.0184**	**LOGGDP*DC**	0.0889*
LOGINF	0.0068***	**LOGINF*DC**	0.0110**
LOGLC	0.0002***	**LOGLC*DC**	0.0789*
LOGTO	0.0001***	**LOGTO*DC**	0.0232**

LOGDC	0.0086***

Remark : The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

According to Table 4.1, LLC prove that all variables in Model 1 and Model 2 are stationary at individual intercept. Based on Model 1, majority variables stand for stationary at 1% significant level except LOGGDP is stationary at 5% significant level. However based on Model 2, there is one variable shown stationary at 1% significant level, which is FDI. LOGEXR*DC, LOGINF*DC and LOGTO*DC are stationary at 5% significant level whereas LOGGDP*DC and LOGLC*DC present stationary at 10% significant level.

4.2 Model comparison

The panel data had been regressed with different assumption from different models. The several model that use in this research for the comparison purpose is POLS, REM, and FEM.

4.2.1 Pooled Ordinary Least Squares (POLS)

Table 4.2.1 Pooled Ordinary Least Squares (POLS) for Model 1 and Model 2

Pooled Ordinary Least Squares (POLS)			
Model 1		**Model 2**	
C	0.280509 (0.9473)	**C**	3.545061 (0.3603)
LOGEXR	1.359967 (0.1231)	**LOGEXR_DC**	0.270016 (0.7355)
LOGGDP	-0.641348* (0.0747)	**LOGGDP_DC**	-0.636202* (0.0779)

LOGINF	0.438826 (0.2120)	**LOGINF_DC**	0.397852 (0.2605)
LOGLC	-1.360882 (0.1363)	**LOGLC_DC**	-1.967596*** (0.0036)
LOGTO	3.918842*** (0.0000)	**LOGTO_DC**	3.320128*** (0.0000)
LOGDC	0.750371 (0.3041)		
R-Squared Adjusted R-squared Prob(F-statistic)	0.288197 0.266068 0.000000	R-Squared Adjusted R-squared Prob(F-statistic)	0.277817 0.259204 0.000000

Remark: The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

In Model 1, there are two variables shown significant which are LOGTO significant at p-value0.0000 at 1% significant level and LOGGDP significant at p-value 0.0747 at 10% significant level. Others 4 variables such as LOGEXR with p-value 0.1231, LOGINF with p-value 0.2120, LOGLC with p-value 0.1363 and LOGDC with p-value 0.3041 are insignificant due to their p-value is exceed the alpha 0.10 (10% significant level). To the sign, the significant variable, which is LOGTO, shows positive relationship towards FDI while LOGGDP implies that it has negative relationship between the FDI.

In Model 2, there are three significant variables which include LOGGDP*DC, LOGLC*DC and LOGTO*DC. The variables that are significant at 1% significant level are LOGLC*DC (0.0036) and LOGTO*DC (0.0000) whereas LOGGDP*DC with p-value of 0.0779 is significant at 10% significant level. The LOGEXR*DC and LOGINF*DC with the p-value of 0.7355 and 0.2605 respectively which are exceed alpha 0.10 (10% significant level) are insignificant in this POLS model. The

LOGGDP*DC and LOGLC*DC which shown negative sign on the coefficient represent that they have an inverse relationship with FDI whereas the LOGTO*DC shows a positively significant relationship.

4.2.2 Random Effects Model (REM)

Table 4.2.2Random Effects Model (REM) for Model 1 and Model 2

Random Effects Model (REM)			
Model 1		**Model 2**	
C	0.280509 (0.9408)	**C**	-0.202239 (0.9733)
LOGEXR	1.359967* (0.0833)	**LOGEXR_DC**	0.356795 (0.6767)
LOGGDP	-0.641348** (0.0453)	**LOGGDP_DC**	-0.456579 (0.4613)
LOGINF	0.438826 (0.1608)	**LOGINF_DC**	0.652781* (0.0659)
LOGLC	-1.360882* (0.0942)	**LOGLC_DC**	-0.300485 (0.8284)
LOGTO	3.918842*** (0.0000)	**LOGTO_DC**	1.844014** (0.0443)
LOGDC	0.750371 (0.2481)		
R-Squared	0.288197	R-Squared	0.105857

Adjusted R-squared	0.266068	Adjusted R-squared	0.082812
Prob(F-statistic)	0.000000	Prob(F-statistic)	0.000554

Remark: The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

In Model 1, there are four significant variables, which are LOGEXR, LOGGDP, LOGLC and LOGTO. LOGTO is significant at 1% significant level with p-value 0.0000; LOGGDP is significant at 5% significant level with p-value 0.0453while LOGEXR (p-value 0.0833) and LOGLC (p-value 0.0942) are significant at 10% significant level. By contrast, LOGINF and LOGDC, which hold p-value of 0.1608 and 0.2481 respectively, is exceed the alpha 0.10(10% significant level) present the insignificant relationship with FDI. LOGEXR and LOGTO are positively significant with FDI while LOGGDP and LOGLC result an inverse relationship toward FDI due to their negative sign of coefficient.

In Model 2, there are two positively significant variables which are LOGINF*DC with p-value 0.0659 point that it is significant at 10% significant level and LOGTO*DC with p-value 0.0443 display that it is significant at 5% significant level. Another three variables reveal a statistically insignificant relationship with FDI which include LOGEXR*DC(p-value 0.6767), LOGGDP*DC (p-value0.4613) and LOGLC*DC(p-value 0.8284) due to their p-value is exceed the alpha 0.10 (10% significant level).

4.2.3 Fixed Effects Model (FEM)

Table 4.2.3Fixed Effects Model (FEM) for Model 1 and Model 2

Fixed Effects Model (FEM)			
Model 1		**Model 2**	
C	-5.343752 (0.5320)	**C**	4.733841 (0.5665)

LOGEXR	0.354515 (0.7123)	**LOGEXR_DC**	-0.161015 (0.8619)
LOGGDP	-2.158593** (0.0226)	**LOGGDP_DC**	-1.104766 (0.2268)
LOGINF	1.179745*** (0.0020)	**LOGINF_DC**	0.799357** (0.0308)
LOGLC	14.21921*** (0.0007)	**LOGLC_DC**	2.367622 (0.2773)
LOGTO	2.598334** (0.0363)	**LOGTO_DC**	0.753271 (0.5028)
LOGDC	1.469733** (0.0465)		
R-Squared Adjusted R-squared Prob(F-statistic)	0.457311 0.419381 0.000000	R-Squared Adjusted R-squared Prob(F-statistic)	0.423823 0.386849 0.000000

Remark: The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

In Model 1, five variables show significant except LOGEXR with the p-value of 0.7123, whichis exceeding the alpha 0.10 (10% significant level) shows insignificant. LOGINF and LOGLC with p-value of 0.0020 and 0.0007 respectively are significant at 1% significant level while LOGGDP (p-value 0.0226), LOGTO (p-value 0.0363) and LOGDC (p-value 0.0465) are significant at 5% significant level. The only variables that present an inverse relationship with FDI is LOGGDP with the negative sign on its coefficient.

In Model 2, most of the variables are insignificant except LOGINF*DC with the p-value of 0.0308 which is positively significant at 5% significant level. The others 4 variables which are LOGEXR*DC, LOGGDP*DC, LOGLC*DC and LOGTO*DC with p-value of 0.8619, 0.2268, 0.2773 and 0.5028 respectively show the insignificant relationship with our dependent variables (FDI).

4.3 Comparison Test

Likelihood Ratio (LR) test, Breusch-Pagan Lagrange Multiplier (BP-LM) test and Hausman Test are used to identified the best model comparing from POLS, REM and FEM. LR test represents the comparing between POLS and FEM while BP-LM test is used as a tool to differentiate the best model between POLS and REM. Hausman Test is used to indicates the better model between REM and FEM.

4.3.1 Model 1

Table 4.3.1 Model Comparison for Model 1

Model 1			
	LR Test	**LM Test**	**Hausman Test**
Test Statistic	54.252912*** (p-value 0.0000)	38.56064*** (p-value 0.0000)***	56.970245*** (p-value 0.0000)***
Decision Making	Reject null hypothesis.	Reject null hypothesis.	Reject null hypothesis.
Conclusion	FEM is preferable than POLS.	REM is preferable than POLS.	FEM is preferable than REM.
R-squared(FEM)	0.457311		

Remark: The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

According to our methodology, the LR test is carried out to compare between POLS, and FEM. Based on Table 4.3.1, the test statistic is 54.252912 and p-value is 0.0000. The null hypothesis is rejected since the p-value is significant at the level of 1%, 5%, and 10% respectively. Hence, there is sufficient evidence to conclude that FEM is preferable than POLS.

LM test apply to distinguish the ideal model between POLS and REM. The test statistic is 38.56064 and p-value is 0.0000. The null hypothesis is reject since the p-value is significant at the significant level of 1%, 5%, and 10%. Hence, we can conclude that there is enough evidence to prove that REM is preferable than POLS.

With an aim to identify the suitability model among REM and FEM, Hausman test is carried out. The test statistic is 56.970245 and p-value is 0.0000. We reject null hypothesis since the p-value is significant at the significant level of 1%, 5%, and 10%. Therefore, we can conclude that there is sufficient evidence to prove that FEM is preferable than REM.

As a result, FEM is preferable in Model 1. The R-square in FEM of Model 1 is 0.457311. In this Model, there are 5 significant variables included LOGGDP, LOGINF, LOGLC, LOGTO and LOGDC which show reject the null hypothesis which stated that the variables is insignificant to FDI. LOGINF and LOGLC are significant at 1% significant level while LOGGDP, LOGTO and LOGDC are significant at 5% significant level. However, LOGEXR is the only variables that shows insignificant and do not reject the null hypothesis at any significant level by FEM.

Ahmed and Ikhtiar (2011) stated the result is no relationship among the real exchange rate and FDI in Pakistan during the time period of 1970 to 2007. This result is because of the government-controlled fixed exchange rate until the 1990s. Therefore, as per the research of Ahmed and Ikhtiar (2011), we noticed that when the government implied a fixed exchange rate, there are some consequences. Firstly, investors will not face an exchange rate risk. When investors invest in that country, investors can predict how much return will he received. Therefore, investors are more confident to invest in that country so that they can earn a predictable profit without taking the consideration of changes exchange rate. Secondly, the hedging method is widely used nowadays. Investors can enter either a futures contract, forward contract, swaps or options. These hedging methods help investors reduce risk. In order to earn a profit, the arbitragers will calculate whether there is consist of arbitrage opportunities or not. Therefore, the exchange rate would not become a risk but become an opportunity for them to earn the arbitrage profit. Based on Ryoo (2006), they found that if there is a beneficial exchange opportunity there will be an exploitable propensity for exchange returns to continue to be higher than the mean return of all. By using Tobit regression model, the arbitrage returns are partly predictable. Nonetheless, they will use the hedging method, which is entered into a contract to ensure there is no exchange rate risk for them in their return investment.

4.3.2 Model 2

Table 4.3.2 Model Comparison for Model 2

Model 2			
	LR Test	**LM Test**	**Hausman Test**
Test Statistic	45.172614*** (p-value 0.0000)	46.91609*** (p-value 0.0000)	5.280109*** (p-value 0.0000)
Decision Making	Reject null hypothesis.	Reject null hypothesis.	Do not reject null hypothesis.
Conclusion	FEM is preferable than POLS.	REM is preferable than POLS.	REM is preferable than FEM.
R-squared(REM)	0.105857		

Remark: The asterisks, ***, **, * represent rejection of the null hypothesis at 1%, 5%, and 10% level significant respectively.

LR test is carried out to compare between POLS, FEM. Based on Table 4.3.2, the test statistic is 45.172614, and p-value is 0.0000. The null hypothesis is rejected due to the p-value(0.0000) is significant at the significant level of 1%, 5%, and 10%. Hence, we has sufficient evidence to conclude that the FEM is preferable than POLS.

For the purpose to distinguish the best model among POLS and REM, LM test is used in this research. The test statistic for LM test is 46.91609 and p-value is 0.0000. We reject the null hypothesis since the p-value 0.0000 is significant at the significant level of 1%, 5%, and 10%. We have enough evidence to conclude that REM is preferable than POLS.

By knowing the suitability model between REM and FEM, Hausman test is carried out. The test statistic is 5.280109 and p-value is 0.3827. We do not reject null hypothesis since the p-value is insignificant at its level of significant at 1%, 5%, and 10%. Therefore, we can conclude that there is sufficient evidence to prove that REM is preferable than FEM.

In the nutshell, we can conclude that REM is preferable in Model 2 with the productivity of interaction variable. The R-square in REM of Model 2 is 0.105857. In this Model, there are two significant variables included LOGINF*DC display that it is significant at 10% significant level and LOGTO*DC which is significant at 5% significant level and hence reject null hypothesis that stated the variables is insignificant to FDI. However, another three variables present a statistically insignificant relationship with FDI which include LOGEXR*DC, LOGGDP*DC and LOGLC*DC and do not reject the null hypothesis at any significant level by REM.

4.3.3 FEM and REM (Final Model)

4.3.3.1 Model 1 (FEM)

The result is obtained from the fixed effect model (FEM). The empirical result of the FEM in Model 1 shows that there are 5 out of 6 significant independent variables while the exchange rate is the only insignificant variable. Those significant variables are GDP, inflation, labor cost, trade openness and domestic credit. The Model 1 (FEM) shows that GDP is negative sign while the inflation, labor cost, trade openness and domestic credit are in positive sign.

According to the empirical review in Chapter 2, negative effects of economic growth have been reported in several empirical studies. It can be explained that if the GDP increase by 1%, on average, the FDI will decrease by 0.02159 units, ceteris paribus. This happened might be due to GDP act as a deterrent force to FDI. Buchanan, Le, and Rishi (2012) suggested that higher GDP would deter as the standards of livings started to rise and it will cause the business costs to increase. There is a similar result can be seen in the study by Jensen (2003) in which nations with greater GDP will incur lower levels of FDI. Such situation can be explained because of ‘scaling effect’ where the growth rate of a country exceeds the growth in FDI would have a decrease in FDI as a percentage of GDP. Jensen (2003) also found that a number of industrialized countries having increased FDI although they were in recession during the early 1980s. Next, Arbatli (2001) revealed that GDP has a significant negative sign and suggesting that the differences in the FDI inflows among emerging market economics might be explained the marginal productivity of capital. In such cases, a negative association between GDP and FDI can be linked.

Another important contribution in our study is the inflation. The Model 1(FEM) displays positive relationship between inflation and FDI. If the inflation increases by 1%, on average, the FDI will increase by 0.01180 units, ceteris paribus. Based on the study by Ali, Mohamed, and Zahir (2017), it is suggested that inflation positively influence the FDI is due to FDI interest to be cheaper product in order to export cheap product abroad. Empirical studies by Kahai (2004), Jadhav (2012) and Faiza, Anish, Bisma, Madiha, and Sadaf (2013) found that inflation rate is statistically positively significant to FDI. Kahai (2004) mentioned that the effects of monetary and fiscal policies on the inflation rate influence the economic stability, in turn, influencing all types of investments including FDI. In addition, a study conducted by Sayek (2009) pointed out that rising domestic inflation rate will increase foreign investments via changes in the intertemporal consumption pattern of the agent.

Next, the significance of this study is the labor cost. Our FEM result has revealed that there is positive sign on the labor cost, which indicates that the lower the labor cost, the lower the FDI, vice versa. When labor cost increases by 1%, on average, the FDI will increase by 0.1422 units, ceteris paribus. In general, most of the studies supported the wage rate theory where higher wage rate will discourage the FDI. However, few studies have uncovered a positive relationship between labor cost and FDI where high labor cost will encourage FDI. Similar result can be found in a study by Lai and Sarka (2011) suggested that greater wage rate in a foreign owned firm rather than domestic firm will increase the predicted output and thus FDI is encouraged. Labor cost is no longer as a factor where it should be minimized but it will act as a resource whose potential has to be maximized. Furthermore, Bayraktar-Saglam and Boke (2017) suggested that foreign firms not only seeking for cheap labor but also qualified and productive labor. The study mentioned that rising labor compensation will improve the productivity of labor and it will attract more FDI whereby rising in labor compensation induces rising in labor cost. In addition, it is suggested by Mina and

Jaeck (2015) that investors from foreign country more driven to gain market access rather minimizing total labor cost.

Trade openness is another major contribution in our study. Based on the FEM in Model 1, it is discovered that trade openness has positive influence on FDI. If the trade openness increases by 1%, on average, the FDI will increase by 0.02598 units, ceteris paribus. Higher FDI is driven by higher trade openness. Nations with higher trade openness tend to have higher capability to attract FDI inflows. A study by Erdal and Tatoglu (2002) mentioned that raw materials or certain capital goods are to be easier to import or export in an open economy and thus it will bring positive effects on FDI. According to Pradhan (2010), the government should actively pursue its openness policy so that higher FDI can be driven as free trade often involving in removing or decreasing the barriers to import or export. Erdal and Tatoglu (2002) also pointed out those countries, which are likely to export more since they are more liberal in their trade approaches.

Last but not least, domestic credit is an important variable in our study. The coefficient of domestic credit is positive indicates that it is positively influence the FDI. If the domestic credit increase by 1%, on average, the FDI will increase by 0.01470 units, ceteris paribus. According to Gozgor and Erzurumlu (2010), the outcome of the research showed the domestic credit of a country is increased, the FDI of a country should also increase, which considered a positive effect between them. Another study by Desbordes and Shang (2017) suggested that financial development is an important role to promote FDI. The evidence showed that the volume of FDI in financially vulnerable sector increased due to higher financial development. In addition, other evidences have found where tight credit constraints will decline FDI flows drastically when there is global financial crisis as FDI is highly sensitive to external finance availability. Next, a research conducted by Muhammad, Ali, and Sohail (2016) found that all explicators except the real exchange rate have significant effect on net foreign assets. The evidence shown any changes in domestic monetary condition would result more than equal or opposite changes in net foreign assets. As a result, domestic interest rate increases will attract further capital flows in the country, which provides incentives to the foreign investors to move their capital in the country to earn higher profit. On the other side, a research carried out by Borio, McCauley, and McGuire (2011) revealed that sources of domestic credit during credit booms seen in the majority of the environment would increase the FDI performance on the specific country.

4.3.3.2 Model 2 (REM)

In Model 2, the research employs domestic credit as interaction term to examine the effect of independent variables to domestic credit and thereafter to the FDI. The domestic credit, which interact with others independent variables such as exchange rate, GDP, inflation, labor cost and trade openness are act as our independent variables in Model 2. As we obtained the result in the random effect model (REM) test. The REM in Model 2 shows that there are 2 out of 5 significant independent variables, which the significant variables represent, by Inflation interact with domestic credit and trade openness interact with domestic credit. The exchange rate, GDP, and labor cost that interact with domestic credit reveal insignificant relationship with FDI. Both significant variables present positives signs.

Based on the empirical result, the result noted that inflation interacts with domestic credit is having a positive significant relationship with FDI. If inflation interacts with domestic credit increase by 1%, on average, the FDI will increase by 0.006528 units, ceteris paribus. Based on Dhungana and Pradhan (2018), the research stated that higher domestic credit would lead to the higher inflation in a country. Therefore, it explained that there are positive relationship between inflation and domestic credit. However, the study of Suna (2015) conversely expressed to the result above which showed that the domestic credits created by the banking sector for 10 European countries did not affect inflation. The foreign investor may investigate the country effect of domestic credit influence to inflation and make the decision that whether they want to invest their capital in the domestic country.From others research, it found that inflation has a positive influence on FDI because of the high inflation in Somalia, which is unstable, and the FDI interest to be a cheaper product in order to export cheap product abroad (Ali, Mohamed, & Zahir, 2017). In addition, based on the study of Muhammad, Ali, and Sohail (2016), the researcher found that the domestic credit are crucial to explain FDI in Pakistan and an equilibrium relationship between them. When there is an increment in domestic credit asset, it means the FDI inflow will increase more than equal vice versa. In contrast, our result is consistent with most of the past findings that with having a positive relationship between domestic credit & inflation and FDI in this model.

On the view of trade openness interact with domestic credit, it having a positive significant relationship with FDI. To interpret our result, when trade openness interacts with domestic credit increase by 1%, on average, the FDI will increase by 0.01844 units, ceteris paribus. As a result, a larger amount of domestic credit will cause arise of import of the country, which will also increase the trade openness (Chimobi, 2010). Thus, it can be described that there is favorable relationship among trade openness and domestic credit. Based on the study of Shan (2005), the researcher found that a change in domestic credit will precede the change in trade openness and this will lead to an increase in economic growth. Besides, from other research we found that there is a positive relationship between trade openness and FDI inflows (Wahid et al., 2009). In addition, according to Gozgor and Erzurumlu (2010), the result of the research showed the domestic credit of a country is increased, the FDI of a country should also increase, which considered a positive effect between them. In contrast, our result is consistent with most of the past findings that having a positive relationship between trade openness interact with domestic credit variable and FDI in this model.

4.4 Diagnostic Testing

Diagnostic checking is an evaluation of a series of analysis that aimed to detect the problem that may occurs in a model regression. The objective of the test is to ensure the model fulfill the requirement of Best Linear Unbiased Estimators (BLUE). In this study, the multicollinearity test is used.

4.4.1 Multicollinearity Test

Multicollinearity problem occurs when there is a high correlation between at least one of the independent variables with another independent variables in a regression model. All independent variables must be independent and do not related to each of the independent variables to avoid providing of redundant result. In this multiple regression, VIF act as an tools to detect the of multicollinearity problem.As a rule of thumb, if VIF > 10, which will happen if R-squared exceeds 0.90, the variable is said to be highly collinear.

4.4.1.1 Model 1

Table 4.4.1.1 Result of Variance Inflation Factors of Model 1.

Variables	**Centered VIF**	**Low / High**
LOGEXR	1.100362	**Low**
LOGGDP	1.304933	**Low**
LOGINF	1.887003	**Low**
LOGLC	2.915852	**Low**
LOGTO	2.384377	**Low**
LOGDC	5.198280	**Low**

According to Table 4.4.1.1, all independent variables in Model 1 have no serious multicollinearity problem. The degree of Variation Inflation Factor of the independent variables are less than 10, which define that there is no serous multicollinearity problem. Therefore, the multicollinearity problem can be ignored. The estimated parameters are efficient, consistent, and unbiased.

4.4.1.2 Model 2

Table 4.4.1.2 Result of Variance Inflation Factors of Model 2.

Variables	**Centered VIF**	**Low / High**
LOGEXR_DC	6.813735	**Low**
LOGGDP_DC	2.763421	**Low**
LOGINF_DC	1.497776	**Low**
LOGLC_DC	9.937818	**Low**
LOGTO_DC	7.263327	**Low**

According to Table 4.4.2, the degree of Variation Inflation Factor of all the independent variables are fell between 1 to 10. Therefore, it can be conclude that there is no serious multicollinearity problem occurs in this multiple regression model. This estimated parameter will still provide accurate information in the condition that its Variation Inflation Factors are not exceed 10.

4.4.2 Autocorrelation Test

Autocorrelation also known as serial correlation. It refers to the degree of correlation of a random variable with itself. Breusch-Godfrey Serial Correlation LM Test is employed in our research with null hypothesis of there is no serial correlation in our Model. We include the one lag term of dependent variable (FDI) in the right-hand side of the equation to remove the autocorrelation problem of our model.

Table 4.4.2 Result of Breusch-Godfrey Serial Correlation LM Test of Model 1 and Model 2.

Breusch-Godfrey Serial Correlation LM Test			
Model 1		**Model 2**	
F-statistic	1.372352	F-statistic	1.309173
Obs*R-squared	2.848559	Obs*R-squared	2.705096
Prob. F(2,189)	0.2560	Prob. F(2,190)	0.2725
Prob. Chi-Square(2)	0.2407	Prob. Chi-Square(2)	0.2586

According to Table 4.4.2, for Model 1, the Obs*R-squared and Prob. Chi-Square(2) showed 2.848559 and 0.2407 respectively. The corresponding probability noted that it is no significant at either 1%, 5%, and 10% significant level. Hence, we do not reject the null hypothesis and conclude that there is sufficient evidence to proved that there is no serial correlation in Model 1.

For Model 2, the Obs*R-squared and Prob. Chi-Square(2) showed 2.705096 and 0.2586 respectively. The corresponding probability noted that it is no significant at either 1%, 5%, and 10% significant level. Therefore, we do not reject the null hypothesis. We can conclude that there is sufficient evidence to prove that there is no serial correlation in Model 2.

4.4.3 Heteroscedasticity Test

Heteroscedasticity is occurs when the variance of the standard error differ from each of the observation. This will cause our OLS result still unbiased and inconsistent even homoscedasticity are not assumed and our standard error will showed biased. Breusch-Pagan-Godfrey are used in our research to test the heteroscedasticity problem occurs. The null hypothesis is our model is under assumption of homescedasticity.

Table 4.4.3 Result of Breusch-Pagan-Godfrey of Model 1 and Model 2.

Breusch-Pagan-Godfrey			
Model 1		**Model 2**	
F-statistic	1.518088	F-statistic	1.997574
Obs*R-squared	9.013504	Obs*R-squared	9.792614
Prob. F(2,189)	0.1740	Prob. F(2,190)	0.0807
Prob. Chi-Square(2)	0.1728	Prob. Chi-Square(2)	0.0813

According to Table 4.4.3, for Model 1, the Obs*R-squared and Prob. Chi-Square(2) showed 9.013504 and 0.1728 respectively. The corresponding probability noted that it is no significant at either 1%, 5%, and 10% significant level. Hence, we do not reject the null hypothesis and proved that there is sufficient evidence to conclude that there is homoscedasticity in Model 1. Heteroscedasticity problem do not exist in Model 1.

For Model 2, the Obs*R-squared and Prob. Chi-Square(2) showed 9.792614 and 0.0813 respectively. The corresponding probability noted that it is no significant at either 1% and 5% significant level. Hence, we do not reject the null hypothesis and proved that there is sufficient evidence to conclude that there is homoscedasticity in at 1% and 5% significant level. Heteroscedasticity problem do not exist in Model 2 at both of these significant level.

4.4.4 Normality Test

Normality test are aimed to determined whether if our model is fit for the standard normal distribution assumption. JB test are employed to execute this test with the null hypothesis of normal distribution in the model. The sign of the skewness whether it is positive and negative are take into account. The type of kustorsis will be result by referring to the value of kurtosis. The kustosis with more than three is called Leptokurtosis distribution and less than three are named as Platykurtic.

Table 4.4.4 Result of JB Test of Model 1 and Model 2.

JB Test			
Model 1		**Model 2**	
Skewness	1.366170	Skewness	1.368273
Kurtosis	9.851501	Kurtosis	9.674940
Jarque-Bera	453.4062	Jarque-Bera	433.6959
Probability	0.0000	Probability	0.0000

Figure 4.4.4.1 Histogram-JB Test of Model 1.

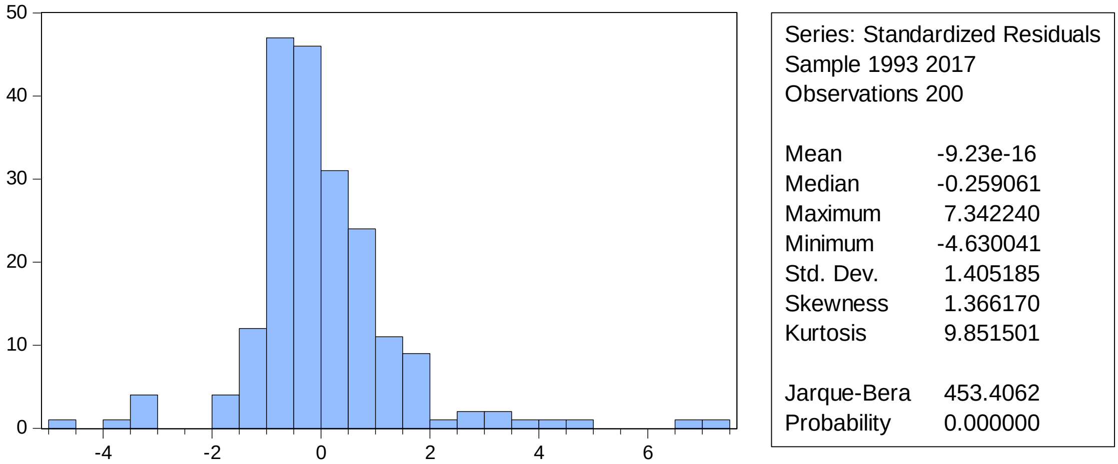
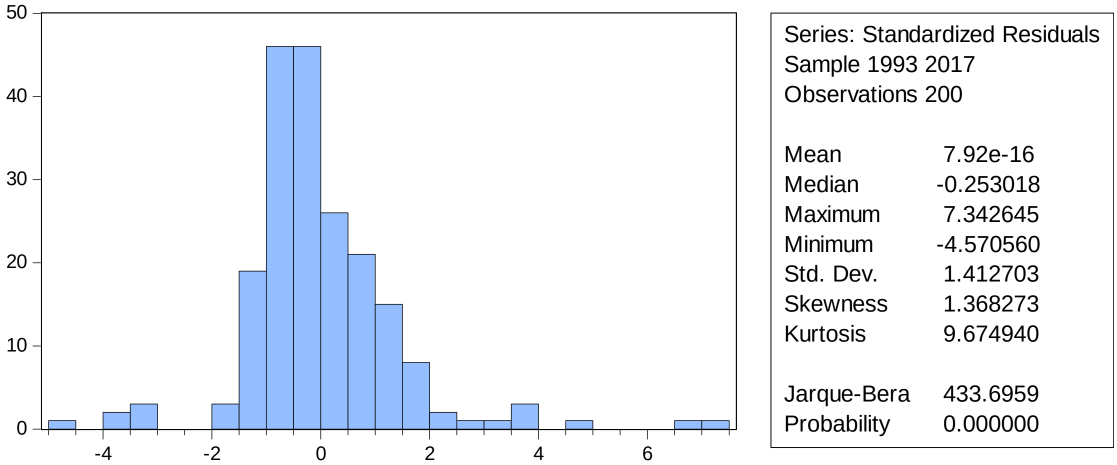


Figure 4.4.4.2 Histogram-JB Test of Model 2.



According to Table 4.4.4, for Model 1, the Skewness is 1.366170 which noted as a positive skewness and Kurtosis of 9.851501 which is higher than three showed that it is leptokurtic distributions. Hence, the distribution is featured by high peak with right-skewed thin tails (see histogram in Figure 4.4.4.1) The corresponding probability of 0.0000 stated that it is significant at either 1%, 5%, and 10% significant level. Hence, we reject the null hypothesis and conclude that there is sufficient evidence to proved that the model not normally distributed.

For Model 2, the Skewness is 1.368273 which noted as a positive skewness and Kurtosis of 9.674940 which is higher than three showed that it is leptokurtic distributions. Therefore, the distribution is featured by high peak with right-skewed thin tails (see histogram in Figure 4.4.4.2). The corresponding probability of 0.0000 stated that it is significant at either 1%, 5%, and 10% significant level. Thus, we reject the null hypothesis and conclude that there is sufficient evidence to prove that the model not normally distributed.

The result showed that both of our Model 1 and Model 2 do not fulfill the normal distribution assumption. Normality assumptions are not a 'must' in the panel data and even OLS regression. According to Habeck and Brickman (2018), the research highlighted that the normally distributed dependent variables or independent variables for OLS linear regression is the statistical fallacy. The study mentioned that the distributional assumption in the context of general linear model is more appropriate to the distribution of residual error but not distribution of dependent and independent variables. For instances, the first assumption is we must make sure the model are homoskedasticity and have a constant variance (Pedhazur & Kerlinger, 1982). From this assumption, we can analyze that the variance of the error terms is not rely on the value of the independent variable(s). Meanwhile, second assumption highlight that normal distributed of errors are require. The two aforementioned assumptions is sufficient to ensure that our regression model will give an accurate result in the context of our independent variables are known perfectly and fulfill the condition of stationary variables. Thus, the normal distributional assumptions for dependent or independent variables are not require. Our dependent and independent variables are known perfectly with all the data value in our observation years are complete and fulfill the stationary assumption, hence the normality distribution assumption for our variables could be ignore.

4.5 Conclusion

For the summary, panel unit root test – Levin, Lin, Chu Test (LLC) is used to test the stationary of variables in our regression model. In addition, we using Likelihood Ratio (LR) test, Breusch-Pagan Lagrange Multiplier (BP-LM) testand Hausman test to examine ideal model comparing from POLS, REM, and FEM. For diagnostic checking, multicollinearity which the Variance Inflation Factor (VIF) is used as the indicator.As a result, we decided FEM is preferable in Model 1 and REM is preferable in Model 2. Moreover, GDP, inflation, labor cost, trade openness, and domestic credit is being significance Model 1, the exchange rate is the only independent variable insignificance in affecting the FDI performance in Model 1. In contrast, after inserting domestic credit as our interaction term, only inflation and trade openness show significance in Model 2, another variable such as exchange rate, GDP and labor cost are insignificance in Model 2.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This research studies on the relationship between independent variables which are exchange rate, Gross Domestic Product (GDP), inflation, labor cost, trade openness and domestic credit on the Foreign Direct Investment (FDI) among D-8 countries, as well as the the effect of domestic credit as an interaction term with macroeconomics variables and overall affect the FDI among D-8 countries. In this chapter, we summarize the study which include empirical findings and policy implication that would be used to overcome the problem of FDI in D-8 countries. Lastly, we discuss the limitations which are the problems that we face throughout the research and recommendation for future study.

5.1 Summary of Findings

This research carried out a panel data analysis which using the formulation of two models to examine the independent variables on FDI among D-8 countries from 1993 to 2017. The research conducted Likelihood Ratio (LR) test, Breusch-Pagan Lagrange Multiplier (BP-LM) test and Hausman test to determine which model is best suited to the regression comparing from Pooled OLS, FEM and REM. The result shows that model 1 should employ FEM and model 2 should employ REM. Based on the empirical result in chapter 4, the correlation between a dependent variable and independent variables are as shown below:

Table 5.1: Summary of Findings

Model 1 (FEM)	Gross Domestic Product (GDP)	Negative	When GDP increase by 1%, on average, FDI will decrease by 0.02159 units, ceteris paribus.
	Inflation	Positive	When inflation increase by 1%, on average, FDI will increase by 0.01180 units, ceteris paribus.

	Labor Cost	Positive	When labor cost increase by 1%, on average, FDI will increase by 0.1422 units, ceteris paribus.
	Trade Openness	Positive	When trade openness increase by 1%, on average, FDI will increase by 0.02598 units, ceteris paribus.
	Domestic Credit	Positive	When domestic credit increase by 1%, on average, FDI will increase by 0.01470 units, ceteris paribus.
Model 2 (REM)	Inflation & Domestic Credit	Positive	When inflation & domestic credit increase by 1%, on average, FDI will increase by 0.006528 units, ceteris paribus.
	Trade Openness & Domestic Credit	Positive	When trade openness & domestic credit increase by 1%, on average, FDI will increase by 0.01844 units, ceteris paribus.

In addition, all independent variables have no serious multicollinearity when conducting the degree of Variation Inflation Factor (VIF). Lastly, the panel unit root test which the LLC test is employed provides the result proved that all variables are fulfilled the stationary assumption after trial and error.

5.2 Implications of Study

From the research, the development spill over effect of promoting deeper FDI into the domestic economy. Foreign direct investment need use effective by foreign investors, government, the domestic private sector and other stakeholders to increase it. In the long run, the government can achieve economic stability in countries through Gross Domestic Product (GDP), inflation, labor cost, trade openness and domestic credit on FDI to increase positive outcomes.

GDP had a serious fall in the year of 2009 because of sub-regional industrial crisis in the D-8 members' countries and it will decrease the foreign direct investment inflows. Therefore, policymakers should adopt fiscal policy to increase foreign direct investment. People have more money when it lower taxes and spending of government raise. People need more services and goods when they have more money. Money supply will increase and it will decrease interest rates in the economy, leading to more consumption and loans (Ross, 2018). This will attract more investors to invest in D-8 countries and increase foreign direct investment. The government should stimulate consumer spending, which can reduce taxes. Tax cuts provide additional funds for families, and the government hopes that these funds will be used for goods and services to stimulate the economy of the D-8 countries (Kuligowski, 2019).

Another findings implication is inflation targeting as a push factor to enhance FDI. These policies should adopt by government to maintain a low inflation and ensure that foreign direct investment levels are raised. Inflation targeting reduces uncertainty of monetary policy in future therefore it makes the policy more transparency. Government should maintain the price stability to prevent one-time shock to inflation such as D-8 members' inflation increase harshly from 2016 to 2017 ("Benefits of Inflation Targeting," 2010). Policymakers should plan a future investment decision as low inflation for making an investment-friendly environment would have a positive impact on FDI in D-8 countries.

Based on the outcome of this empirical research stated down labor cost has a notable issue on foreign direct investment. Hence, D-8 countries of government should attempt focus more effectively on the domestic market and industries, developing its infrastructure, and the quality of the workforce rather than lowering the labor cost to boost the foreign direct investment. The government should reduce labor cost by seeks cheap labor and also seeks productive and qualified workforce based on aggregate econometric evidence to increase FDI in D-8 countries. Policymakers should improve the productivity of labor and reduce regulatory burdens on the labor market to protect and attract more foreign direct investment (Bayraktar-Saglam& Boke, 2017).

Moreover, policymakers can increase market research through regional integration so that FDI increase. D-8 countries should build a close interaction between their neighboring markets and their domestic markets. Due to US-China trade friction increase in 2017, therefore D-8 countries cannot depend on China for export only but they should cooperation the trade with other countries. According to Lomas (2017), the transition of China is giving opportunity to other countries like Malaysia, India, Thailand, Indonesia, and Vietnam become the potential countries to set up factories due to low-cost of manufacturing and consider as the “Mighty Five” or MITI-V. Moreover, the professional predict the next top low-cost of manufacturing country is India. Therefore, D-8 countries can trade with India to lower down the cost of trading goods compared to US and China. In order to import goods, D-8 members should attract more investors to set up factory in their countries so that they can export goods as well. D-8 countries should apply free market policy such as lower tax incentives, subsidies and barriers can increase foreign direct investment (Koyuncu & Unver, 2016). In addition, a more open market policy of the D-8 countries led to choices of consumers are more diversified, greater exposure to new technologies and higher levels of investment will stimulate and attract more FDI inflows. This means that the D-8 countries are increasingly integrate with the world market.

Domestic credit decreases due to loss of the current worldwide entities. Therefore, government should enter new technologies to D-8 countries through financial development. Improve the performance of the banking system, develop private banking, and adopt market-friendly policies, especially those related to the stock market to attract the foreign investors invest. The financial sector should fully manage the financial system with strong domestic foundations, develops domestic economic technology to maintain long-term economic growth for attracting more FDI inflows to D-8 countries (Varnamkhasti & Mehregan, 2014). The financial system should provide effective credit and financial services that can facilitate technology transfer and increase spill over efficiency. Financing development can also increase foreign direct investment in D-8 countries by improving external financing channels.

5.3 Limitations of Study

In our research project, we faced some limitation during our research process. Throughout our research, we have changed many times our data, model to overcome and match our research objectives and research questions.

First of all, our research faces the data constraint problem. It cannot be expanded in time due to lack of information. We need to confirm the available of data for each country since our research is using panel data. For instance, data of interest rate not available in some of the countries such as Iran, Pakistan and Turkey. Therefore, we cannot use interest rate as our independent variable.

Secondly, we also face least information for the interaction term from the previous researchers. There have rarely researchers study our control variable which is domestic credit as an interaction term. We hard to explore the control variable with the macroeconomics variables in our research. The information is limited for us when we try to research the interaction term and macroeconomics variables.

Thirdly, our research shows the result is not normality distribution when using Jarque-Bera Test. The chi-squared approximation is sensitive for small sample size and it will often reject the null hypothesis (Stephens, 1974). The Jarque-Bera Test failed to detect the deviation from the normality as it has small sample size which is 200 observations in our research.

5.4 Recommendations for Future Research

After we done our research, there are few recommendations to solve the limitation of our research. We mightchange the measurement of the variable to ensure all independent variables are significant. For instance, model 1 and model 2 show that our independent variable, exchange rate is not an important variable in our research. Therefore, we might change the measurement which is real effective exchange rate index (2007=100) to nominal effective exchange rate. In other words, the relationship between FDI and the independent variables will conduct a more reliability and accuracy results for us and for future researchers.

In addition, our research might use other independent variables such as GDP, inflation, labor cost or trade openness to become our control variable as they also have a huge influence to FDI. There have more researchers research in other independent variables compare to domestic credit. Moreover, the aim of a study for a research is to provide a quality information for future researchers.

Last but not least, we might use Shapiro-Wilk W Test compare to Jarque-Bera Test since our research has small observation which is 200. Shapiro-Wilk W Test is most powerful test for normality that exhibiting high power, leading to good results with a small observation between 3 to 5000 (Royston, 1995). This test has done very well in comparison with other goodness-of-fit tests.

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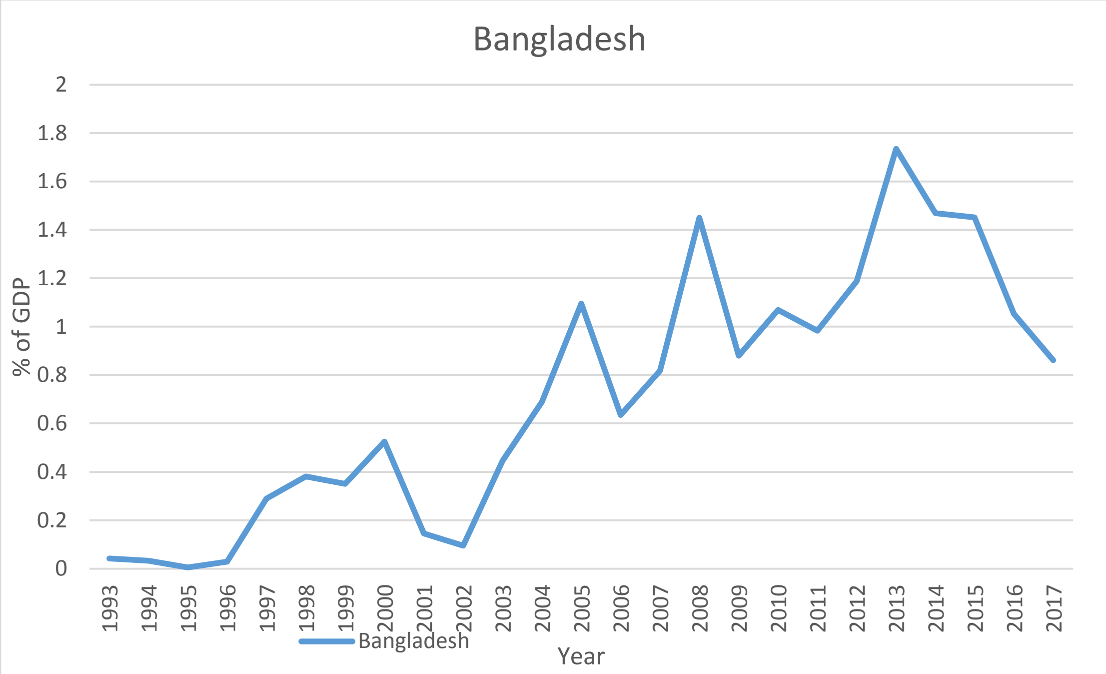
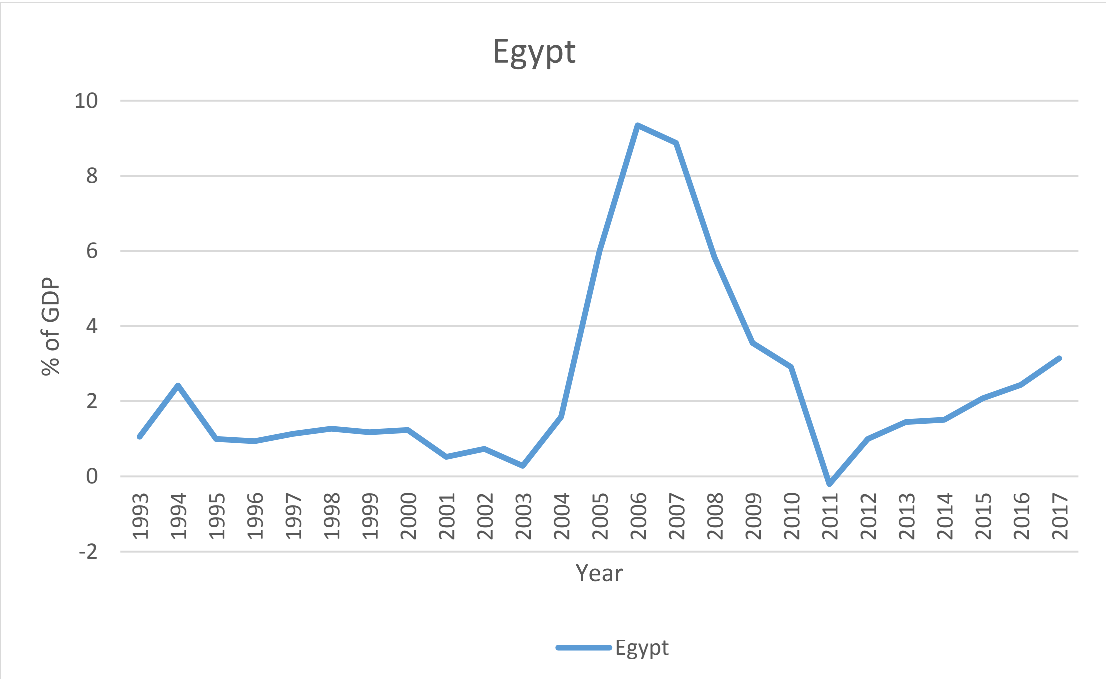
Appendices

Appendix 1: Trend of FDI Inflows for each Countries

Total FDI inflows in Bangladesh (% of GDP): 1993 – 2017

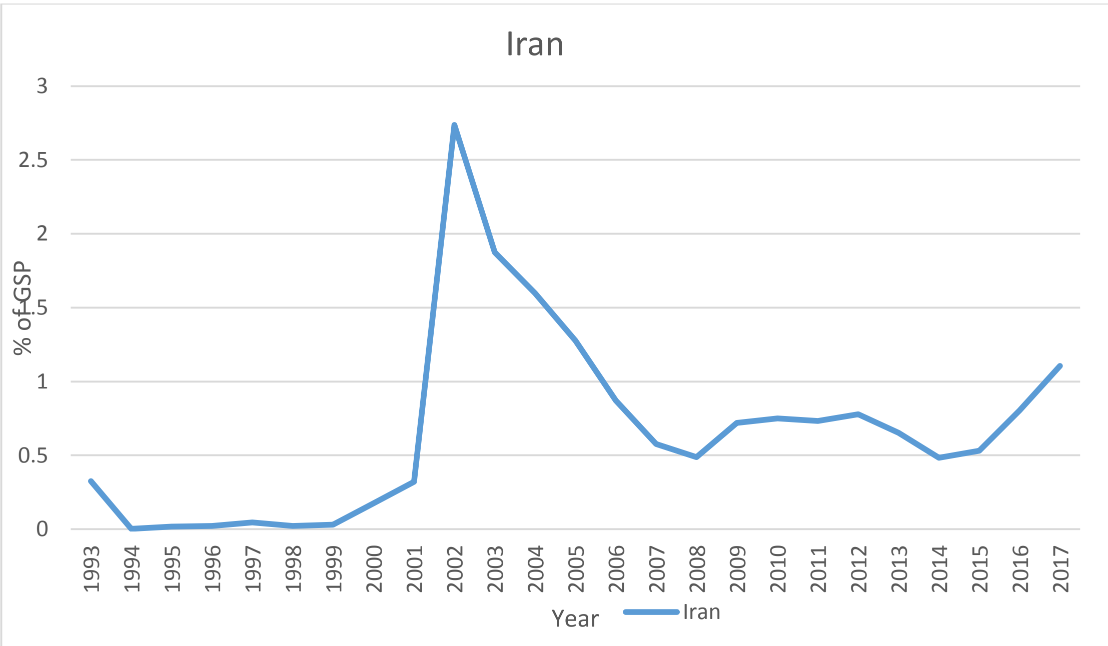


Total FDI inflows in Egypt (% of GDP): 1993 – 2017

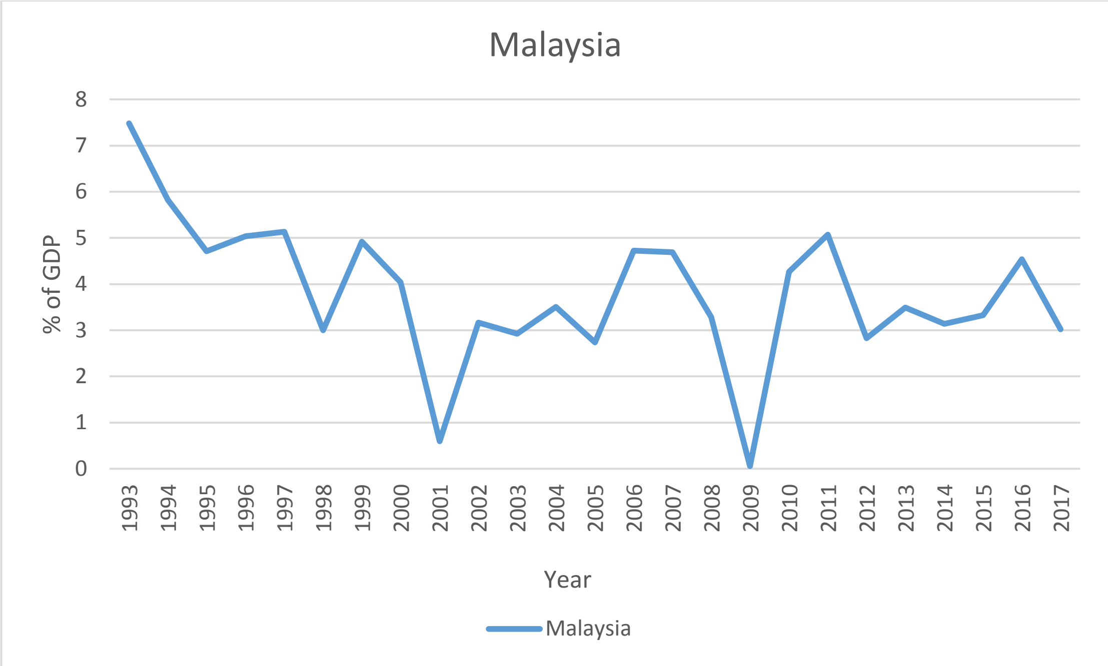


Total FDI inflows in Indonesia (% of GDP): 1993 – 2017

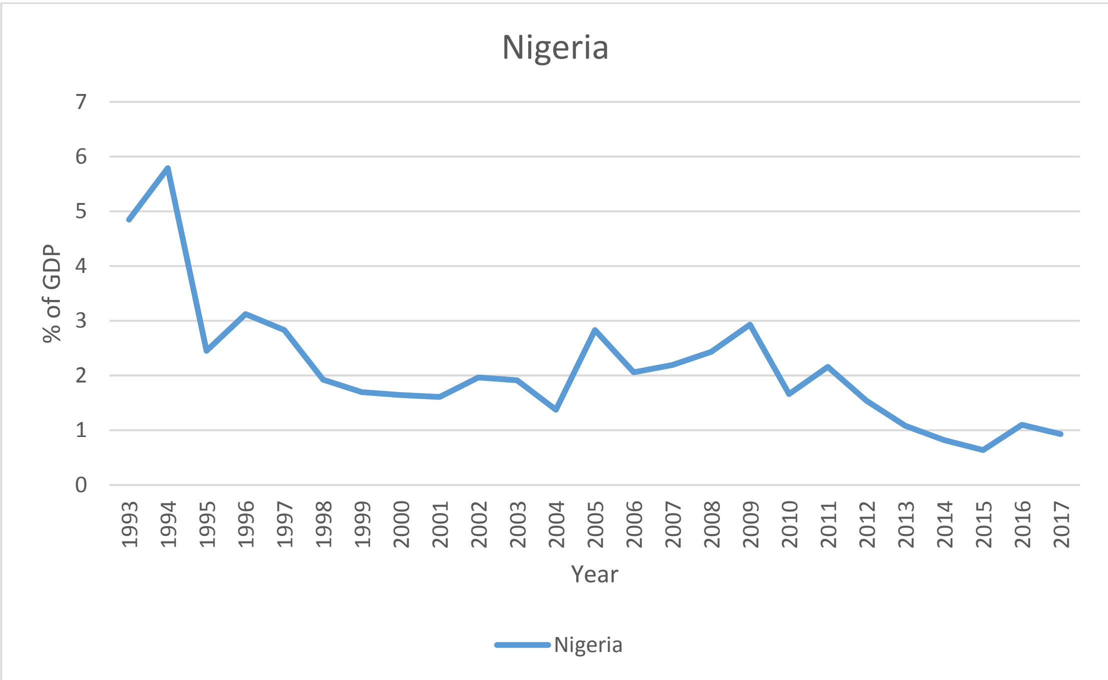
Total FDI inflows in Iran (% of GDP): 1993 – 2017



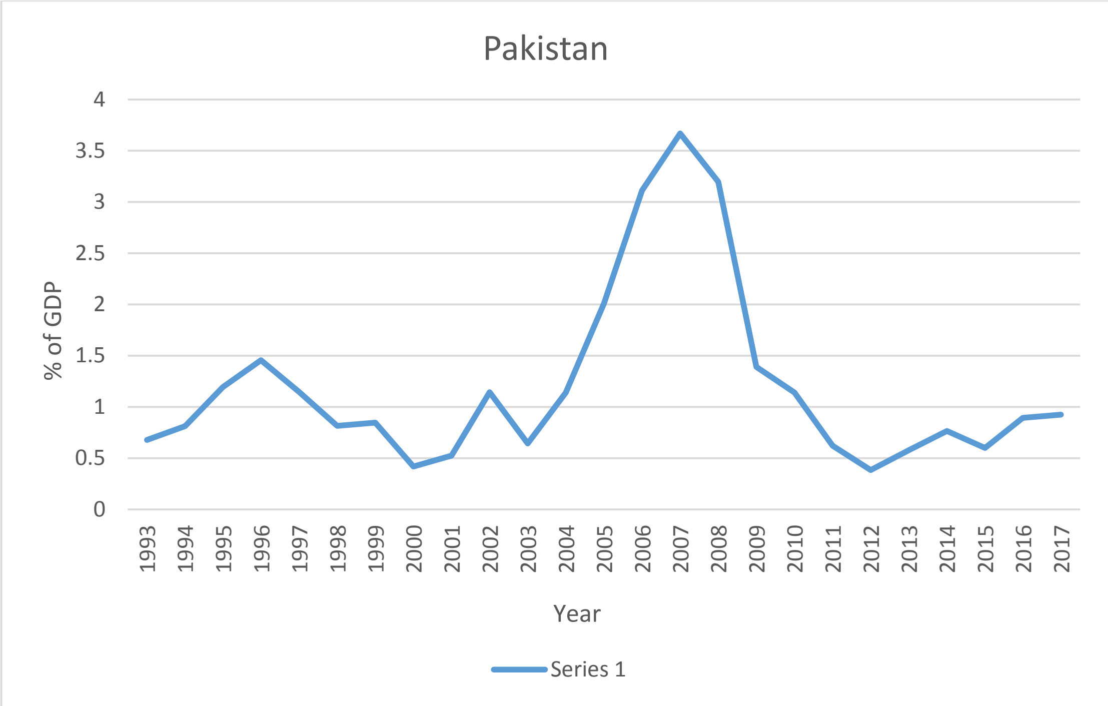
Total FDI inflows in Malaysia (% of GDP): 1993 – 2017



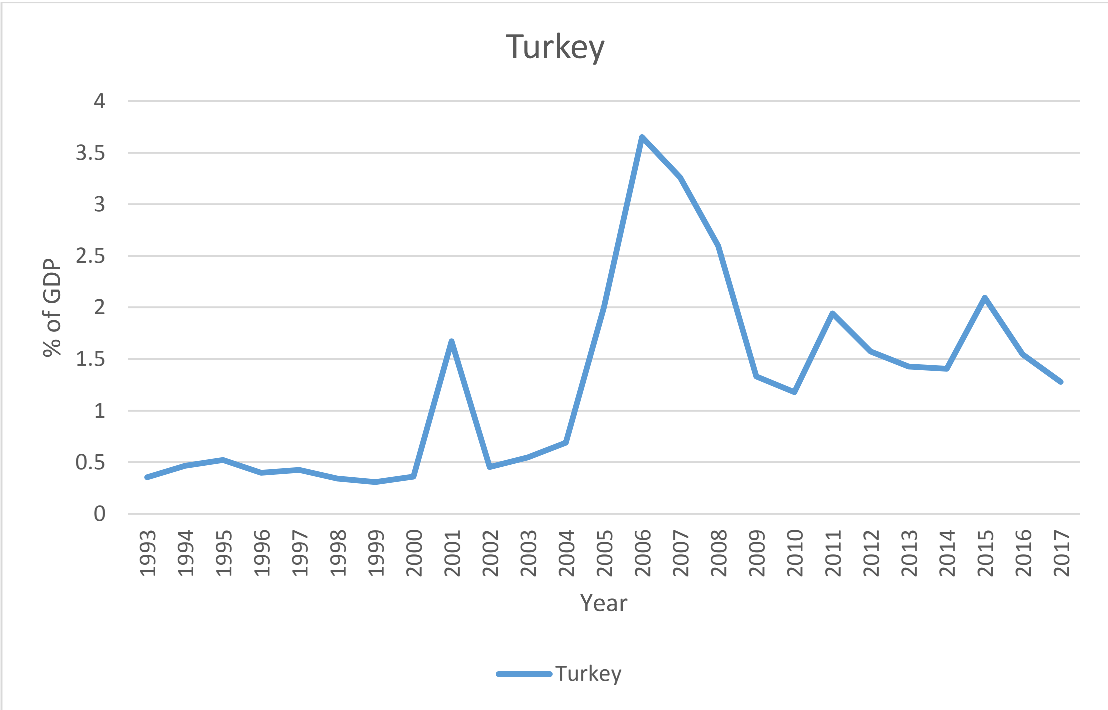
Total FDI inflows in Nigeria (% of GDP): 1993 – 2017



Total FDI inflows in Pakistan (% of GDP): 1993 – 2017



Total FDI inflows in Turkey (% of GDP): 1993 – 2017



Appendix 2 : Base Form Model for Model 1 (FDI-IV) - LLC

	Level Form		1st Diiferences	
	Intercept	**Intercept and trend**	**Intercept**	**Intercept and trend**
FDI	0.0032***(maxlag)	0.0265**(maxlag)	0.0000***	0.0000***
EXC	0.0000***(lag8)	0.0825*(lag 5)	0.0000***	0.0000***
GDP	0.5815 (lag10)	0.0000***(lag4)	0.0006***	0.0002***
INF	0.0017***(lag1)	0.0000***(lag2)	0.0000***	0.0000***
LC	0.0023***(lag1)	0.5011(lag3)	0.0000***	0.0000***
TO	0.0000***(lag10)	0.0003***(lag 4)	0.0000***	0.0000***
DC	0.1588 (lag 5)	0.0001***(lag4)	0.0000***	0.0009***

Dependent Variable-FDI

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:52
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.72249	0.0032

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.20106	0.0804	0.0293	0	4	7.0	24

Egypt	-0.32560	1.6758	3.7303	1	4	1.0	23
Indonesia	-0.28783	1.1485	1.2641	0	4	2.0	24
Iran	-0.36288	0.2530	0.2646	0	4	1.0	24
Malaysia	-0.79134	1.6926	0.7000	0	4	11.0	24
Nigeria	-0.39882	0.5857	0.3365	0	4	6.0	24
Pakistan	-0.32466	0.2214	0.4454	1	4	1.0	23
Turkey	-0.29332	0.4042	0.4601	0	4	2.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.34136	-7.170	1.023	-0.554	0.919		190

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:53
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 187
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 1.93481	0.0265

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.70058	0.0642	0.0282	0	4	8.0	24
Egypt	-0.34849	1.6105	3.7270	1	4	1.0	23
Indonesia	-0.83921	0.6392	1.2536	3	4	2.0	21
Iran	-0.39803	0.2471	0.2648	0	4	1.0	24
Malaysia	-0.86536	1.6185	0.4027	0	4	10.0	24
Nigeria	-0.60812	0.5160	0.2395	0	4	8.0	24
Pakistan	-0.32358	0.2210	0.4380	1	4	1.0	23
Turkey	-0.38258	0.3909	0.3276	0	4	3.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.49123	-8.777	1.037	-0.703	1.003		187

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.93427	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.31186	0.0612	0.0160	3	4	13.0	20
Egypt	-0.60545	2.2889	1.1921	0	4	5.0	23
Indonesia	-0.97998	1.3922	0.1976	0	4	17.0	23
Iran	-1.14292	0.3096	0.0495	0	4	14.0	23
Malaysia	-2.02082	2.1283	0.9097	1	4	9.0	22
Nigeria	-1.47357	0.5880	0.1166	0	4	22.0	23
Pakistan	-0.64011	0.2968	0.0921	0	4	7.0	23
Turkey	-0.93564	0.4985	0.1434	0	4	7.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.07965	-12.710	1.102	-0.554	0.919		180

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.62425	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.28373	0.0603	0.0134	3	4	12.0	20
Egypt	-0.60220	2.2818	1.1632	0	4	5.0	23
Indonesia	-0.97755	1.3863	0.1900	0	4	16.0	23
Iran	-1.14404	0.3091	0.0530	0	4	13.0	23
Malaysia	-2.09360	2.0291	0.7961	1	4	9.0	22
Nigeria	-1.51409	0.5148	0.1030	0	4	22.0	23
Pakistan	-0.64653	0.2957	0.0914	0	4	7.0	23
Turkey	-0.94243	0.4942	0.1418	0	4	7.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.10313	-13.042	1.110	-0.703	1.003		180

Independent Variables

(a) Exchange Rate

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: EXR
Date: 06/19/19 Time: 15:31
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 8
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 128
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 7.88036	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on EXR

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band- width	Obs
Bangladesh	0.78408	4.2040	12.508	8	8	0.0	16
Egypt	-1.67143	120.32	396.21	8	8	1.0	16
Indonesia	-0.45317	11.222	78.641	8	8	9.0	16
Iran	-1.63190	48.897	3541.1	8	8	1.0	16
Malaysia	-0.89610	4.4780	21.891	8	8	4.0	16
Nigeria	-0.47133	27.650	2675.0	8	8	1.0	16
Pakistan	-0.21841	15.411	31.404	8	8	1.0	16
Turkey	-0.46206	4.7843	45.552	8	8	1.0	16

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.85906	-13.275	1.724	-0.554	0.919		128

Null Hypothesis: Unit root (common unit root process)
Series: EXR
Date: 06/19/19 Time: 15:31
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 1.38844	0.0825

** Probabilities are computed assuming asympotic normality

Intermediate results on EXR

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band- width	Obs
Bangladesh	-0.17587	6.5672	11.320	5	5	3.0	19

Egypt	-0.82490	151.71	383.29	5	5	1.0	19
Indonesia	-0.74073	23.123	22.864	5	5	17.0	19
Iran	-1.21612	2377.4	3465.7	5	5	1.0	19
Malaysia	-0.26201	8.6080	19.688	5	5	4.0	19
Nigeria	-1.02364	77.138	2642.2	5	5	1.0	19
Pakistan	0.04373	13.059	12.355	5	5	7.0	19
Turkey	0.04545	32.793	63.545	5	5	0.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.76768	-11.524	1.141	-0.703	1.003		152

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(EXR)
Date: 06/19/19 Time: 15:31
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 183
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.79795	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(EXR)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.71082	11.571	2.1545	0	4	10.0	23
Egypt	-0.50108	250.62	160.17	0	4	6.0	23
Indonesia	-1.47314	182.29	35.913	1	4	9.0	22
Iran	-0.99137	3661.1	324.87	0	4	22.0	23
Malaysia	-0.84693	34.369	3.3109	0	4	22.0	23
Nigeria	-0.98282	2687.8	254.53	0	4	22.0	23
Pakistan	-0.90565	29.360	3.7251	0	4	15.0	23
Turkey	-1.31715	42.978	45.906	0	4	5.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.95409	-12.468	1.035	-0.554	0.919		183

Null Hypothesis: Unit root (common unit root process)
Series: D(EXR)
Date: 06/19/19 Time: 15:32
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 8.16577	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(EXR)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.79692	10.896	2.2597	0	4	10.0	23
Egypt	-0.50588	240.23	150.29	0	4	6.0	23
Indonesia	-1.56511	170.95	36.311	1	4	9.0	22
Iran	-1.00241	3610.7	325.76	0	4	22.0	23
Malaysia	-0.85070	34.315	2.9557	0	4	22.0	23
Nigeria	-3.22128	833.53	243.08	4	4	22.0	19
Pakistan	-1.43211	22.631	3.9326	1	4	15.0	22
Turkey	-1.32942	35.778	24.047	0	4	6.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.12624	-12.633	1.125	-0.703	1.003		178

(b) <u>GDP</u>

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: GDP
Date: 06/19/19 Time: 15:38
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 10
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 112
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	0.2057 0	0.5815

** Probabilities are computed assuming asympotic normality

Intermediate results on GDP

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.82566	4.E+16	3.E+19	10	10	3.0	14
Egypt	-0.20878	2.E+16	2.E+19	10	10	3.0	14
Indonesia	1.32662	8.E+19	3.E+20	10	10	2.0	14
Iran	0.00274	6.E+18	1.E+21	10	10	2.0	14
Malaysia	0.71574	5.E+17	4.E+19	10	10	0.0	14
Nigeria	-0.12127	2.E+19	2.E+20	10	10	2.0	14
Pakistan	0.17049	5.E+17	3.E+19	10	10	3.0	14
Turkey	0.93204	1.E+20	1.E+21	10	10	2.0	14

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.05733	-2.070	2.994	-0.554	0.919		112

Null Hypothesis: Unit root (common unit root process)
Series: GDP
Date: 06/19/19 Time: 15:40
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.10309	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on GDP

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.07095	2.E+17	2.E+18	2	4	2.0	22
Egypt	-0.17333	2.E+18	1.E+19	3	4	2.0	21
Indonesia	-0.37512	3.E+20	3.E+20	0	4	2.0	24
Iran	-0.25474	6.E+18	4.E+20	4	4	1.0	20
Malaysia	0.03245	3.E+19	1.E+19	2	4	8.0	22
Nigeria	-0.16664	4.E+19	2.E+20	1	4	2.0	23
Pakistan	-0.08752	3.E+18	1.E+19	1	4	2.0	23
Turkey	-0.06548	7.E+20	8.E+20	0	4	1.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.15816	-10.483	1.418	-0.703	1.003		179

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(GDP)
Date: 06/19/19 Time: 15:37
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.23840	0.0006

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GDP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.08338	3.E+17	4.E+17	0	4	0.0	23
Egypt	-0.62158	3.E+18	6.E+18	2	4	2.0	21
Indonesia	-1.00677	3.E+20	7.E+19	0	4	11.0	23

Iran	-0.27355	9.E+18	5.E+19	4	4	22.0	19
Malaysia	-0.91302	5.E+19	6.E+18	0	4	10.0	23
Nigeria	-0.37006	5.E+19	4.E+19	0	4	4.0	23
Pakistan	-0.13992	4.E+18	4.E+18	0	4	1.0	23
Turkey	-0.75406	9.E+20	3.E+20	0	4	5.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.18706	-5.326	1.200	-0.554	0.919		178

Null Hypothesis: Unit root (common unit root process)
Series: D(GDP)
Date: 06/19/19 Time: 15:38
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 3.50395	0.0002

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GDP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.31792	3.E+17	2.E+17	1	4	4.0	22
Egypt	-0.75481	3.E+18	6.E+18	2	4	2.0	21
Indonesia	-1.02538	3.E+20	6.E+19	0	4	11.0	23
Iran	-0.80178	3.E+20	3.E+19	0	4	22.0	23
Malaysia	-1.45949	3.E+19	7.E+18	1	4	9.0	22
Nigeria	-0.36185	5.E+19	9.E+18	0	4	10.0	23
Pakistan	-0.31675	4.E+18	4.E+18	0	4	1.0	23
Turkey	-0.97237	8.E+20	3.E+20	0	4	5.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.65271	-9.033	1.065	-0.703	1.003		180

(c) **Inflation**

(i) **Level form**

Null Hypothesis: Unit root (common unit root process)
Series: INF
Date: 06/19/19 Time: 15:40
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**

Levin, Lin & Chu t*	-2.93595	0.0017

** Probabilities are computed assuming asympotic normality

Intermediate results on INF

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.87979	5.2837	1.1184	1	1	11.0	23
Egypt	-0.13189	25.523	26.689	1	1	0.0	23
Indonesia	-0.95448	116.57	16.811	1	1	13.0	23
Iran	-0.64508	61.507	20.486	1	1	10.0	23
Malaysia	-0.94110	1.4682	0.3189	1	1	16.0	23
Nigeria	-0.41041	85.844	103.36	1	1	3.0	23
Pakistan	-0.30697	10.740	8.7827	1	1	2.0	23
Turkey	-0.11992	41.781	119.51	1	1	3.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.21138	-5.451	1.088	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: INF
Date: 06/19/19 Time: 15:40
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 176
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.26772	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on INF

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.67974	3.8323	0.8757	2	2	11.0	22
Egypt	-0.63295	16.113	17.005	2	2	2.0	22
Indonesia	-1.34282	94.231	17.180	2	2	12.0	22
Iran	-0.78134	35.335	24.051	2	2	9.0	22
Malaysia	-0.81301	1.4286	0.1938	2	2	14.0	22
Nigeria	-0.76882	11.907	25.634	2	2	9.0	22
Pakistan	-0.37899	10.835	8.7118	2	2	2.0	22
Turkey	-0.04256	37.851	114.38	2	2	3.0	22
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.56825	-10.250	1.117	-0.703	1.003		176

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(INF)
Date: 06/19/19 Time: 15:42
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 174
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.59224	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(INF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-2.00736	4.6437	1.8960	1	4	8.0	22
Egypt	-1.25031	25.755	16.015	0	4	4.0	23
Indonesia	-3.00953	15.901	37.281	4	4	9.0	19
Iran	-1.05066	89.844	12.218	0	4	22.0	23
Malaysia	-2.25671	1.7849	0.8144	1	4	10.0	22
Nigeria	-0.99586	127.11	18.730	0	4	13.0	23
Pakistan	-1.25685	12.183	1.4106	0	4	22.0	23
Turkey	-0.36305	18.440	73.667	4	4	22.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.32572	-13.460	1.177	-0.554	0.919		174

Null Hypothesis: Unit root (common unit root process)
Series: D(INF)
Date: 06/19/19 Time: 15:42
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 177
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.09141	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(INF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-2.00544	4.6429	1.9031	1	4	8.0	22
Egypt	-1.32065	22.782	14.780	0	4	4.0	23
Indonesia	-2.79853	9.3779	37.315	4	4	9.0	19

Iran	-1.04912	89.806	9.5893	0	4	22.0	23
Malaysia	-2.27168	1.7289	0.7818	1	4	10.0	22
Nigeria	-1.07081	116.56	19.100	0	4	13.0	23
Pakistan	-1.25804	12.179	1.3002	0	4	22.0	23
Turkey	-0.94621	38.166	26.733	1	4	22.0	22

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.47124	-15.760	1.143	-0.703	1.003		177

(d) Labour Cost

(i) Level Form

Null Hypothesis: Unit root (common unit root process)
Series: LC
Date: 06/19/19 Time: 15:44
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.82869	0.0023

** Probabilities are computed assuming asympotic normality

Intermediate results on LC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.01029	0.0019	0.0291	1	1	3.0	23
Egypt	-0.24646	3.9554	1.8749	1	1	7.0	23
Indonesia	0.01008	1.7270	1.6826	1	1	2.0	23
Iran	-0.14231	0.2506	0.5465	1	1	2.0	23
Malaysia	-0.43572	0.7341	0.5304	1	1	4.0	23
Nigeria	-0.04353	0.0382	0.0788	1	1	2.0	23
Pakistan	-0.27519	1.2761	0.4212	1	1	8.0	23
Turkey	-0.01357	1.5053	2.1625	1	1	1.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.01140	-3.082	1.043	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: LC
Date: 06/19/19 Time: 15:44
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	0.0027	0.5011

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** Probabilities are computed assuming asympotic normality

Intermediate results on LC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.17804	0.0009	0.0293	3	3	3.0	21
Egypt	-0.67024	3.2833	1.6615	3	3	7.0	21
Indonesia	-0.29852	1.2068	0.6270	3	3	6.0	21
Iran	-0.33571	0.1947	0.5380	3	3	2.0	21
Malaysia	-0.68675	0.6019	0.1401	3	3	10.0	21
Nigeria	-0.20000	0.0388	0.0720	3	3	2.0	21
Pakistan	-0.70155	1.0633	0.2267	3	3	9.0	21
Turkey	-0.43429	1.1223	2.0501	3	3	1.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.24840	-6.492	1.036	-0.703	1.003		168

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(LC)
Date: 06/19/19 Time: 15:45
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-6.56984	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.01030	0.0026	0.0028	0	4	2.0	23
Egypt	-1.12033	4.1812	0.4685	0	4	22.0	23
Indonesia	-0.88805	1.7293	0.1805	0	4	22.0	23
Iran	-0.60117	0.2837	0.1635	0	4	4.0	23
Malaysia	-1.43612	0.9655	0.1053	0	4	22.0	23
Nigeria	-0.59284	0.0415	0.0101	0	4	12.0	23
Pakistan	-1.03015	1.5351	0.2684	0	4	12.0	23
Turkey	-0.67067	1.5141	0.2257	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.64763	-8.933	1.143	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: D(LC)
Date: 06/19/19 Time: 15:46
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 183
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.08783	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.13385	0.0017	0.0012	1	4	2.0	22
Egypt	-1.14515	4.1016	0.4642	0	4	22.0	23
Indonesia	-0.95186	1.6489	0.1682	0	4	22.0	23
Iran	-0.60717	0.2824	0.1639	0	4	4.0	23
Malaysia	-1.48789	0.8848	0.1018	0	4	22.0	23
Nigeria	-0.62899	0.0398	0.0062	0	4	13.0	23
Pakistan	-1.04220	1.5168	0.2679	0	4	12.0	23
Turkey	-0.68854	1.5066	0.1405	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.60855	-8.106	1.199	-0.703	1.003		183

(e) <u>Trade Openness</u>

(i) <u>Level Form</u>

Null Hypothesis: Unit root (common unit root process)
Series: TO
Date: 06/19/19 Time: 15:47
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 10
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 112
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.52146	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on TO

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.70523	0.0778	12.366	10	10	1.0	14
Egypt	-4.17333	4.9393	44.579	10	10	1.0	14

Indonesia	-0.16622	0.6887	20.986	10	10	20.0	14
Iran	-1.93323	1.4087	16.758	10	10	0.0	14
Malaysia	-0.98183	3.2143	148.87	10	10	1.0	14
Nigeria	2.79619	6.4070	18.472	10	10	12.0	14
Pakistan	-9.22880	1.2570	4.4208	10	10	1.0	14
Turkey	0.32114	0.2563	6.7312	10	10	9.0	14

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.56200	-12.904	1.805	-0.554	0.919		112

Null Hypothesis: Unit root (common unit root process)
Series: TO
Date: 06/19/19 Time: 15:47
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.40331	0.0003

** Probabilities are computed assuming asympotic normality

Intermediate results on TO

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.60502	9.2623	10.257	4	4	2.0	20
Egypt	-0.61667	21.544	44.837	4	4	1.0	20
Indonesia	-2.36248	9.3779	7.0251	4	4	23.0	20
Iran	-0.43926	8.8776	16.472	4	4	0.0	20
Malaysia	-0.52605	33.227	109.77	4	4	1.0	20
Nigeria	-0.44469	45.689	4.3222	4	4	23.0	20
Pakistan	-0.81830	3.6139	4.3941	4	4	1.0	20
Turkey	-2.78550	2.6487	5.7900	4	4	10.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.93473	-10.260	1.328	-0.703	1.003		160

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(TO)
Date: 06/19/19 Time: 15:48
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 176
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-	0.0000

	6.49372	

** Probabilities are computed assuming asympotic normality

Intermediate results on D(TO)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.90857	11.735	2.1648	0	4	14.0	23
Egypt	-0.73549	36.069	9.1592	0	4	21.0	23
Indonesia	-1.85381	110.94	20.905	1	4	12.0	22
Iran	-0.71812	15.267	2.8531	0	4	16.0	23
Malaysia	-0.77902	85.175	43.093	2	4	4.0	21
Nigeria	-1.48127	67.234	18.147	1	4	15.0	22
Pakistan	-1.19681	5.1419	1.7196	0	4	6.0	23
Turkey	-3.60031	5.6597	7.8779	4	4	15.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.05490	-10.855	1.077	-0.554	0.919		176

Null Hypothesis: Unit root (common unit root process)
Series: D(TO)
Date: 06/19/19 Time: 15:49
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 175
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-6.06421	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(TO)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.95728	10.952	1.4746	0	4	13.0	23
Egypt	-0.72799	35.986	7.4572	0	4	21.0	23
Indonesia	-1.99433	101.10	20.224	1	4	12.0	22
Iran	-0.94814	13.720	2.9073	1	4	16.0	22
Malaysia	-1.23771	72.236	20.763	2	4	5.0	21
Nigeria	-1.65991	62.130	17.936	1	4	15.0	22
Pakistan	-1.20530	5.0365	1.5916	0	4	6.0	23
Turkey	-3.65486	5.5592	4.3824	4	4	13.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.19061	-11.641	1.075	-0.703	1.003		175

(f) Domestic Credit

(i) Level Form

Null Hypothesis: Unit root (common unit root process)
Series: DC
Date: 06/19/19 Time: 15:49
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.99956	0.1588

** Probabilities are computed assuming asympotic normality

Intermediate results on DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.01660	1.2238	1.7510	5	5	1.0	19
Egypt	-0.50683	3.8576	33.543	5	5	3.0	19
Indonesia	-0.88275	20.558	50.840	5	5	0.0	19
Iran	-0.05389	7.0946	13.523	5	5	1.0	19
Malaysia	-0.42566	17.402	128.92	5	5	2.0	19
Nigeria	-0.20189	3.9065	6.5296	5	5	0.0	19
Pakistan	-0.28015	3.8970	4.7367	5	5	1.0	19
Turkey	-0.10895	2.3315	19.192	5	5	2.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.09547	-3.788	1.181	-0.554	0.919		152

Null Hypothesis: Unit root (common unit root process)
Series: DC
Date: 06/19/19 Time: 15:50
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.76445	0.0001

** Probabilities are computed assuming asympotic normality

Intermediate results on DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.67822	0.8596	1.7427	4	4	1.0	20
Egypt	-0.37674	4.7119	16.586	4	4	2.0	20
Indonesia	-0.46924	20.501	53.631	4	4	2.0	20

Iran	-0.78192	6.1854	10.791	4	4	2.0	20
Malaysia	-0.30818	19.867	126.28	4	4	2.0	20
Nigeria	-0.73540	3.3573	6.5213	4	4	0.0	20
Pakistan	-0.42189	3.2071	4.5673	4	4	1.0	20
Turkey	-0.36636	2.3029	9.8798	4	4	0.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.39728	-10.585	1.020	-0.703	1.003	160

(ii) <u>1st Differences</u>

Null Hypothesis: Unit root (common unit root process)
Series: D(DC)
Date: 06/19/19 Time: 15:51
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-6.42252	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.16502	2.1164	0.6195	0	4	7.0	23
Egypt	-0.53015	11.509	2.0945	0	4	12.0	23
Indonesia	-0.77876	49.936	5.2183	0	4	22.0	23
Iran	-1.03582	8.9985	1.4448	1	4	14.0	22
Malaysia	-0.47370	52.444	51.405	0	4	1.0	23
Nigeria	-1.32183	4.5321	4.3671	2	4	3.0	21
Pakistan	-0.76301	3.7764	0.3802	0	4	22.0	23
Turkey	-0.42781	10.742	1.9762	2	4	15.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.77291	-9.813	1.040	-0.554	0.919	179

Null Hypothesis: Unit root (common unit root process)
Series: D(DC)
Date: 06/19/19 Time: 15:52
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.38273	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.16580	2.1111	0.6320	0	4	7.0	23
Egypt	-0.69998	10.076	2.5911	0	4	11.0	23
Indonesia	-0.82192	47.781	5.2175	0	4	21.0	23
Iran	-1.09045	8.7939	1.1558	1	4	14.0	22
Malaysia	-0.48282	51.956	51.593	0	4	1.0	23
Nigeria	-1.32363	4.4695	4.3489	2	4	3.0	21
Pakistan	-0.78341	3.7252	0.3702	0	4	22.0	23
Turkey	-0.92051	9.3240	1.3496	2	4	15.0	21
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.85396	-10.594	1.031	-0.703	1.003		179

Appendix 3 : Base Form Model for Model 1 (FDI-IV) - POLS & REM & FEM

(A) Pooled Ordinary Least Squares (POLS)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:22
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.846431	0.471016	1.797033	0.0739
EXR	5.44E-05	0.002667	0.020382	0.9838
GDP	-7.00E-13	4.70E-13	-1.488271	0.1383
INF	-0.001356	0.006700	-0.202312	0.8399
LC	0.001063	0.009700	0.109555	0.9129
TO	0.011359	0.005331	2.130766	0.0344
DC	0.008545	0.008578	0.996196	0.3204

R-squared	0.260923	Mean dependent var	1.681255
Adjusted R-squared	0.237946	S.D. dependent var	1.665534
S.E. of regression	1.453939	Akaike info criterion	3.620803
Sum squared resid	407.9904	Schwarz criterion	3.736245
Log likelihood	-355.0803	Hannan-Quinn criter.	3.667521
F-statistic	11.35606	Durbin-Watson stat	0.566281
Prob(F-statistic)	0.000000		

(B) Random Effects Model (REM)

Dependent Variable: FDI
Method: Panel EGLS (Cross-section random effects)
Date: 06/19/19 Time: 15:23
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.858839	0.448189	1.916244	0.0568
EXR	-0.000176	0.002450	-0.071768	0.9429
GDP	-6.73E-13	4.51E-13	-1.490589	0.1377
INF	-0.001683	0.006098	-0.275956	0.7829
LC	0.001291	0.009374	0.137673	0.8906
TO	0.010317	0.004941	2.088115	0.0381
DC	0.010005	0.007786	1.284990	0.2003

Effects Specification	S.D.	Rho
Cross-section random	0.120689	0.0084
Idiosyncratic random	1.308179	0.9916

Weighted Statistics			
R-squared	0.233364	Mean dependent var	1.526658
Adjusted R-squared	0.209530	S.D. dependent var	1.611821
S.E. of regression	1.433043	Sum squared resid	396.3473
F-statistic	9.791513	Durbin-Watson stat	0.581797
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.260618	Mean dependent var	1.681255
Sum squared resid	408.1587	Durbin-Watson stat	0.564961

(C) Fixed Effects Model (FEM)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:24
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.169696	1.666531	-2.502021	0.0132
EXR	-0.002658	0.002800	-0.949214	0.3437
GDP	-2.34E-12	1.19E-12	-1.974251	0.0498
INF	0.005436	0.007868	0.690905	0.4905
LC	0.121721	0.037703	3.228460	0.0015
TO	0.006499	0.008090	0.803410	0.4228
DC	0.018976	0.009226	2.056887	0.0411

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.423383	Mean dependent var	1.681255
Adjusted R-squared	0.383082	S.D. dependent var	1.665534
S.E. of regression	1.308179	Akaike info criterion	3.442579
Sum squared resid	318.3080	Schwarz criterion	3.673461
Log likelihood	-330.2579	Hannan-Quinn criter.	3.536014
F-statistic	10.50547	Durbin-Watson stat	0.702551
Prob(F-statistic)	0.000000		

Appendix 4 : Base Form Model for Model 1 (FDI-IV) - LR & LM & Hausman Test

(A) Likelihood Ratio [LR] - (POLS vs FEM)

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	7.486432	(7,186)	0.0000
Cross-section Chi-square	49.644864	7	0.0000

Cross-section fixed effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:25
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.846431	0.471016	1.797033	0.0739
EXR	5.44E-05	0.002667	0.020382	0.9838
GDP	-7.00E-13	4.70E-13	-1.488271	0.1383
INF	-0.001356	0.006700	-0.202312	0.8399
LC	0.001063	0.009700	0.109555	0.9129
TO	0.011359	0.005331	2.130766	0.0344
DC	0.008545	0.008578	0.996196	0.3204

R-squared	0.260923	Mean dependent var	1.681255
Adjusted R-squared	0.237946	S.D. dependent var	1.665534
S.E. of regression	1.453939	Akaike info criterion	3.620803
Sum squared resid	407.9904	Schwarz criterion	3.736245
Log likelihood	-355.0803	Hannan-Quinn criter.	3.667521
F-statistic	11.35606	Durbin-Watson stat	0.566281
Prob(F-statistic)	0.000000		

(B) Breusch-Pagan Lagrange Multiplier (BP-LM) Test (POLS vs REM)

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	37.75098 (0.0000)	8.900895 (0.0029)	46.65187 (0.0000)
Honda	6.144182 (0.0000)	2.983437 (0.0014)	6.454201 (0.0000)
King-Wu	6.144182 (0.0000)	2.983437 (0.0014)	6.823862 (0.0000)
Standardized Honda	10.51589 (0.0000)	3.170604 (0.0008)	3.790263 (0.0001)
Standardized King-Wu	10.51589 (0.0000)	3.170604 (0.0008)	5.619170 (0.0000)
Gourieroux, et al.*	--	--	46.65187 (0.0000)

(C) Hausman test (FEM vs REM)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	44.601508	6	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EXR	-0.002658	-0.000176	0.000002	0.0671
GDP	-0.000000	-0.000000	0.000000	0.1280
INF	0.005436	-0.001683	0.000025	0.1522
LC	0.121721	0.001291	0.001334	0.0010
TO	0.006499	0.010317	0.000041	0.5511
DC	0.018976	0.010005	0.000024	0.0699

Cross-section random effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:25
Sample: 1993 2017
Periods included: 25

Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.169696	1.666531	-2.502021	0.0132
EXR	-0.002658	0.002800	-0.949214	0.3437
GDP	-2.34E-12	1.19E-12	-1.974251	0.0498
INF	0.005436	0.007868	0.690905	0.4905
LC	0.121721	0.037703	3.228460	0.0015
TO	0.006499	0.008090	0.803410	0.4228
DC	0.018976	0.009226	2.056887	0.0411

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.423383	Mean dependent var	1.681255
Adjusted R-squared	0.383082	S.D. dependent var	1.665534
S.E. of regression	1.308179	Akaike info criterion	3.442579
Sum squared resid	318.3080	Schwarz criterion	3.673461
Log likelihood	-330.2579	Hannan-Quinn criter.	3.536014
F-statistic	10.50547	Durbin-Watson stat	0.702551
Prob(F-statistic)	0.000000		

Appendix 5 : Base Form Model for Model 1 (FDI-IV) - Diagnostic Testing

(A) Multicollinearity

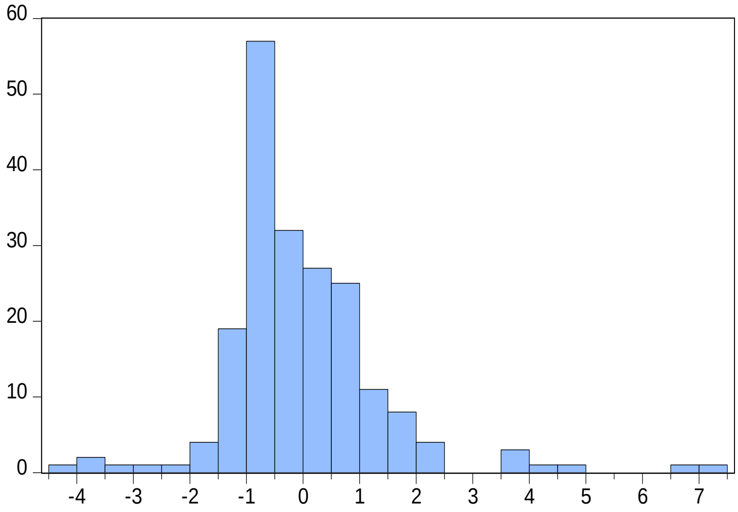
(i) VIF

Variance Inflation Factors
Date: 06/19/19 Time: 15:57
Sample: 1 200
Included observations: 200

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.221856	20.98981	NA
EXR	7.12E-06	9.623073	1.066864
GDP	2.21E-25	3.596407	1.301067
INF	4.49E-05	2.063663	1.277723
LC	9.41E-05	22.02412	2.633024
TO	2.84E-05	15.38870	5.879857
DC	7.36E-05	19.89906	7.963025

(B) Normality Test

(i) Panel dated data



Series: Standardized Residuals
Sample 1993 2017
Observations 200

Mean	-4.00e-16
Median	-0.266804
Maximum	7.437809
Minimum	-4.398117
Std. Dev.	1.431853
Skewness	1.537298
Kurtosis	9.760407
Jarque-Bera	459.6354
Probability	0.000000

<u>Appendix 6 : Model 1 (FDI-LOGIV) - LLC</u>

	Level Form		**1st Diiferences**	
	Intercept	**Intercept and trend**	**Intercept**	**Intercept and trend**
FDI	0.0032***(maxlag)	0.0265**(maxlag)	0.0000***	0.0000***
LOGEXC	0.0000***(lag8)	0.3902(lag4)	0.0000***	0.0000***
LOGGDP	0.0184**(Lag8)	0.0000***(lag4)	0.0000***	0.0001***
LOGINF	0.0068***(max lag)	0.0059***(max lag)	0.0000***	0.0000***
LOGLC	0.0002***(maxlag)	0.7205(lag3)	0.0000***	0.0000***
LOGTO	0.0001***(lag 10)	0.0951*(lag3)	0.0000***	0.0000***
LOGDC	0.0086***(lag5)	0.0001***(maxlag)	0.0000***	0.0000***

Dependent Variable-FDI

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:52
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.72249	0.0032

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.20106	0.0804	0.0293	0	4	7.0	24
Egypt	-0.32560	1.6758	3.7303	1	4	1.0	23
Indonesia	-0.28783	1.1485	1.2641	0	4	2.0	24
Iran	-0.36288	0.2530	0.2646	0	4	1.0	24
Malaysia	-0.79134	1.6926	0.7000	0	4	11.0	24
Nigeria	-0.39882	0.5857	0.3365	0	4	6.0	24
Pakistan	-0.32466	0.2214	0.4454	1	4	1.0	23
Turkey	-0.29332	0.4042	0.4601	0	4	2.0	24
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.34136	-7.170	1.023	-0.554	0.919		190

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:53
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 187
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.93481	0.0265

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.70058	0.0642	0.0282	0	4	8.0	24

Egypt	-0.34849	1.6105	3.7270	1	4	1.0	23
Indonesia	-0.83921	0.6392	1.2536	3	4	2.0	21
Iran	-0.39803	0.2471	0.2648	0	4	1.0	24
Malaysia	-0.86536	1.6185	0.4027	0	4	10.0	24
Nigeria	-0.60812	0.5160	0.2395	0	4	8.0	24
Pakistan	-0.32358	0.2210	0.4380	1	4	1.0	23
Turkey	-0.38258	0.3909	0.3276	0	4	3.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.49123	-8.777	1.037	-0.703	1.003		187

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19   Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.93427	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.31186	0.0612	0.0160	3	4	13.0	20
Egypt	-0.60545	2.2889	1.1921	0	4	5.0	23
Indonesia	-0.97998	1.3922	0.1976	0	4	17.0	23
Iran	-1.14292	0.3096	0.0495	0	4	14.0	23
Malaysia	-2.02082	2.1283	0.9097	1	4	9.0	22
Nigeria	-1.47357	0.5880	0.1166	0	4	22.0	23
Pakistan	-0.64011	0.2968	0.0921	0	4	7.0	23
Turkey	-0.93564	0.4985	0.1434	0	4	7.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.07965	-12.710	1.102	-0.554	0.919		180

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19   Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.62425	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.28373	0.0603	0.0134	3	4	12.0	20
Egypt	-0.60220	2.2818	1.1632	0	4	5.0	23
Indonesia	-0.97755	1.3863	0.1900	0	4	16.0	23
Iran	-1.14404	0.3091	0.0530	0	4	13.0	23
Malaysia	-2.09360	2.0291	0.7961	1	4	9.0	22
Nigeria	-1.51409	0.5148	0.1030	0	4	22.0	23
Pakistan	-0.64653	0.2957	0.0914	0	4	7.0	23
Turkey	-0.94243	0.4942	0.1418	0	4	7.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.10313	-13.042	1.110	-0.703	1.003		180

Independent Variables

(a) LOGEXR

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGEXR
Date: 06/19/19 Time: 14:49
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 8
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 128
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-4.49601	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGEXR

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.71901	7.E-05	0.0003	8	8	1.0	16
Egypt	-1.56234	0.0015	0.0050	8	8	1.0	16
Indonesia	-0.46806	0.0002	0.0013	8	8	15.0	16
Iran	-1.97956	0.0005	0.0167	8	8	0.0	16
Malaysia	-0.90841	8.E-05	0.0005	8	8	3.0	16
Nigeria	-0.39854	0.0004	0.0200	8	8	0.0	16
Pakistan	-0.31030	0.0003	0.0005	8	8	0.0	16
Turkey	-0.43793	0.0001	0.0022	8	8	0.0	16

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.63528	-10.027	1.610	-0.554	0.919	128

Null Hypothesis: Unit root (common unit root process)
Series: LOGEXR
Date: 06/19/19 Time: 14:49
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.27882	0.3902

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGEXR

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.25634	0.0001	0.0002	4	4	3.0	20
Egypt	-0.60097	0.0020	0.0048	4	4	1.0	20
Indonesia	-1.76194	0.0009	0.0005	4	4	23.0	20
Iran	-0.79870	0.0111	0.0164	4	4	0.0	20
Malaysia	-0.77502	0.0003	0.0003	4	4	4.0	20
Nigeria	-0.76943	0.0102	0.0198	4	4	0.0	20
Pakistan	0.20317	0.0003	0.0002	4	4	8.0	20
Turkey	0.15062	0.0009	0.0015	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.65550	-7.866	1.208	-0.703	1.003	160

(ii) 1st Difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGEXR)
Date: 06/19/19 Time: 14:50
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 183
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.76981	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGEXR)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.73565	0.0002	4.E-05	0	4	10.0	23
Egypt	-0.47002	0.0031	0.0021	0	4	6.0	23
Indonesia	-1.61352	0.0057	0.0012	1	4	9.0	22
Iran	-0.86227	0.0170	0.0016	0	4	22.0	23
Malaysia	-0.84707	0.0006	6.E-05	0	4	22.0	23
Nigeria	-0.92420	0.0194	0.0023	0	4	22.0	23
Pakistan	-0.95755	0.0005	5.E-05	0	4	16.0	23
Turkey	-1.29466	0.0012	0.0020	0	4	3.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.95201	-12.610	1.040	-0.554	0.919		183

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGEXR)
Date: 06/19/19 Time: 14:50
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.05984	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGEXR)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.79941	0.0002	4.E-05	0	4	10.0	23
Egypt	-0.47181	0.0029	0.0019	0	4	6.0	23
Indonesia	-1.69129	0.0054	0.0012	1	4	9.0	22
Iran	-0.87693	0.0167	0.0016	0	4	22.0	23
Malaysia	-0.84977	0.0006	5.E-05	0	4	22.0	23
Nigeria	-3.03916	0.0083	0.0020	4	4	22.0	19
Pakistan	-1.47894	0.0004	5.E-05	1	4	16.0	22
Turkey	-1.29902	0.0010	0.0012	0	4	4.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.09132	-12.751	1.106	-0.703	1.003		178

(b) <u>LOGGDP</u>
(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: LOGGDP
Date: 06/19/19 Time: 14:53
Sample: 1993 2017

Exogenous variables: Individual effects
User-specified lags: 8
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 128
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.08881	0.0184

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGGDP

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.03790	4.E-06	4.E-05	8	8	3.0	16
Egypt	-0.02041	1.E-05	8.E-05	8	8	2.0	16
Indonesia	-0.13409	0.0002	0.0003	8	8	1.0	16
Iran	-0.03851	2.E-06	0.0003	8	8	0.0	16
Malaysia	0.00622	4.E-05	8.E-05	8	8	8.0	16
Nigeria	-0.13473	5.E-05	0.0004	8	8	2.0	16
Pakistan	-0.01222	5.E-06	9.E-05	8	8	2.0	16
Turkey	0.10960	0.0001	0.0004	8	8	0.0	16

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.01620	-2.978	1.166	-0.554	0.919		128

Null Hypothesis: Unit root (common unit root process)
Series: LOGGDP
Date: 06/19/19 Time: 14:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-13.8638	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGGDP

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.04781	4.E-06	6.E-06	4	4	0.0	20
Egypt	-0.13694	2.E-05	7.E-05	4	4	2.0	20
Indonesia	-0.83888	0.0002	0.0003	4	4	1.0	20
Iran	-0.67492	5.E-06	0.0004	4	4	1.0	20
Malaysia	-1.51512	4.E-05	8.E-05	4	4	8.0	20
Nigeria	-0.29391	9.E-05	0.0004	4	4	2.0	20
Pakistan	-0.58600	1.E-05	9.E-05	4	4	2.0	20
Turkey	-0.62078	0.0002	0.0004	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.57421	-19.185	1.286	-0.703	1.003		160

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGGDP)
Date: 06/19/19 Time: 14:54
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-4.37983	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGGDP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.27345	7.E-06	2.E-06	0	4	5.0	23
Egypt	-0.62812	2.E-05	3.E-05	2	4	2.0	21
Indonesia	-1.00997	0.0003	6.E-05	0	4	12.0	23
Iran	-0.99929	0.0003	4.E-05	2	4	22.0	21
Malaysia	-1.42478	0.0002	6.E-05	1	4	9.0	22
Nigeria	-0.45603	0.0001	0.0002	0	4	0.0	23
Pakistan	-0.40772	3.E-05	4.E-05	0	4	1.0	23
Turkey	-0.99772	0.0004	0.0004	0	4	2.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.63415	-8.989	1.070	-0.554	0.919		179

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGGDP)
Date: 06/19/19 Time: 14:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.69072	0.0001

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGGDP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.80918	4.E-06	2.E-06	1	4	5.0	22
Egypt	-0.75604	2.E-05	3.E-05	2	4	2.0	21
Indonesia	-1.00872	0.0003	6.E-05	0	4	12.0	23

Iran	-1.32358	0.0002	3.E-05	2	4	22.0	21
Malaysia	-1.42511	0.0002	5.E-05	1	4	9.0	22
Nigeria	-0.42598	0.0001	0.0001	0	4	2.0	23
Pakistan	-0.41924	3.E-05	4.E-05	0	4	2.0	23
Turkey	-1.02110	0.0003	0.0004	0	4	2.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.77979	-10.415	1.055	-0.703	1.003		178

(c) <u>LOGINF</u>

(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: LOGINF
Date: 06/19/19 Time: 14:56
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 2.46932	0.0068

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGINF

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.76065	0.0335	0.0055	1	4	18.0	23
Egypt	-0.20705	0.0373	0.0400	0	4	0.0	24
Indonesia	-0.76215	0.0654	0.0107	0	4	9.0	24
Iran	-0.63872	0.0203	0.0082	1	4	9.0	23
Malaysia	-0.91541	0.0483	0.0104	0	4	15.0	24
Nigeria	-0.35304	0.0338	0.0383	0	4	3.0	24
Pakistan	-0.26029	0.0286	0.0284	0	4	1.0	24
Turkey	-0.06476	0.0185	0.0199	0	4	1.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.25481	-5.349	1.091	-0.554	0.919		190

Null Hypothesis: Unit root (common unit root process)
Series: LOGINF
Date: 06/19/19 Time: 14:56
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 182
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.51825	0.0059

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGINF

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.94641	0.0301	0.0038	1	4	18.0	23
Egypt	-0.33968	0.0301	0.0269	0	4	2.0	24
Indonesia	-3.16489	0.0155	0.0095	4	4	9.0	20
Iran	-0.71310	0.0192	0.0091	1	4	9.0	23
Malaysia	-0.95670	0.0473	0.0058	0	4	14.0	24
Nigeria	-0.36504	0.0338	0.0115	0	4	6.0	24
Pakistan	-0.85009	0.0174	0.0283	4	4	1.0	20
Turkey	-0.15680	0.0181	0.0192	0	4	1.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.57686	-7.729	1.155	-0.703	1.003		182

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGINF)
Date: 06/19/19 Time: 14:56
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-11.5411	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGINF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.78570	0.0353	0.0102	1	4	11.0	22
Egypt	-1.16580	0.0392	0.0095	0	4	8.0	23
Indonesia	-2.11415	0.0641	0.0245	1	4	8.0	22
Iran	-0.97599	0.0305	0.0044	0	4	22.0	23
Malaysia	-2.13651	0.0608	0.0238	1	4	10.0	22
Nigeria	-0.99041	0.0464	0.0064	0	4	13.0	23
Pakistan	-1.13030	0.0329	0.0036	0	4	22.0	23
Turkey	-0.97216	0.0177	0.0179	0	4	1.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.26704	-14.622	1.070	-0.554	0.919		181

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGINF)
Date: 06/19/19 Time: 14:57
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.89819	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGINF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.78128	0.0352	0.0100	1	4	11.0	22
Egypt	-1.22787	0.0359	0.0123	0	4	9.0	23
Indonesia	-2.12656	0.0631	0.0245	1	4	8.0	22
Iran	-0.97484	0.0305	0.0033	0	4	22.0	23
Malaysia	-2.16230	0.0585	0.0230	1	4	10.0	22
Nigeria	-1.05951	0.0429	0.0065	0	4	13.0	23
Pakistan	-1.13072	0.0329	0.0033	0	4	22.0	23
Turkey	-0.98331	0.0162	0.0166	0	4	1.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.28768	-15.034	1.070	-0.703	1.003		181

(d) <u>Labour cost</u>

(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: LOGLC
Date: 06/19/19 Time: 14:58
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 188
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.55811	0.0002

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGLC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.01380	2.E-07	4.E-06	2	4	3.0	22
Egypt	-0.19118	0.0002	9.E-05	0	4	7.0	24

Indonesia	0.00351	0.0002	0.0001	0	4	4.0	24
Iran	-0.14318	2.E-05	4.E-05	1	4	2.0	23
Malaysia	-0.44237	3.E-05	2.E-05	0	4	4.0	24
Nigeria	-0.04462	2.E-05	5.E-05	1	4	2.0	23
Pakistan	-0.22622	0.0002	6.E-05	0	4	8.0	24
Turkey	0.00144	0.0001	0.0001	0	4	1.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.01498	-3.784	1.046	-0.554	0.919		188

Null Hypothesis: Unit root (common unit root process)
Series: LOGLC
Date: 06/19/19 Time: 14:59
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	0.5843 0	0.7205

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGLC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.19020	2.E-07	4.E-06	3	3	3.0	21
Egypt	-0.69557	0.0002	7.E-05	3	3	8.0	21
Indonesia	-0.38972	0.0002	8.E-05	3	3	6.0	21
Iran	-0.33363	1.E-05	3.E-05	3	3	2.0	21
Malaysia	-0.68346	2.E-05	5.E-06	3	3	9.0	21
Nigeria	-0.18553	2.E-05	4.E-05	3	3	2.0	21
Pakistan	-0.69549	0.0001	3.E-05	3	3	9.0	21
Turkey	-0.45378	7.E-05	0.0001	3	3	1.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.27547	-6.419	1.034	-0.703	1.003		168

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGLC)
Date: 06/19/19 Time: 14:59
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 6.67400	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGLC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.02244	4.E-07	4.E-07	0	4	2.0	23
Egypt	-1.11450	0.0002	2.E-05	0	4	22.0	23
Indonesia	-0.93932	0.0002	2.E-05	0	4	22.0	23
Iran	-0.60527	2.E-05	1.E-05	0	4	4.0	23
Malaysia	-1.44021	3.E-05	4.E-06	0	4	22.0	23
Nigeria	-0.58785	3.E-05	6.E-06	0	4	14.0	23
Pakistan	-1.04316	0.0002	3.E-05	0	4	13.0	23
Turkey	-0.72013	0.0001	1.E-05	0	4	22.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.65678	-8.944	1.150	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGLC)
Date: 06/19/19 Time: 14:59
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 183
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 5.48452	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGLC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.09855	2.E-07	2.E-07	1	4	4.0	22
Egypt	-1.13329	0.0002	2.E-05	0	4	22.0	23
Indonesia	-0.97826	0.0002	2.E-05	0	4	22.0	23
Iran	-0.61170	2.E-05	1.E-05	0	4	4.0	23
Malaysia	-1.49365	3.E-05	3.E-06	0	4	22.0	23
Nigeria	-0.63454	2.E-05	4.E-06	0	4	16.0	23
Pakistan	-1.05688	0.0002	3.E-05	0	4	13.0	23
Turkey	-0.72963	0.0001	9.E-06	0	4	22.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.63695	-8.520	1.189	-0.703	1.003		183

(e) LOGTO

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGTO
Date: 06/19/19 Time: 15:00
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 10
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 112
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.68149	0.0001

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGTO

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.50509	6.E-05	0.0017	10	10	2.0	14
Egypt	-3.99432	0.0003	0.0036	10	10	1.0	14
Indonesia	-0.06274	5.E-05	0.0014	10	10	15.0	14
Iran	-2.36053	0.0001	0.0019	10	10	0.0	14
Malaysia	-1.10780	1.E-05	0.0008	10	10	1.0	14
Nigeria	3.13966	0.0019	0.0035	10	10	7.0	14
Pakistan	-8.78499	0.0002	0.0010	10	10	0.0	14
Turkey	-0.19548	2.E-05	0.0008	10	10	6.0	14

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.46735	-9.203	1.580	-0.554	0.919		112

Null Hypothesis: Unit root (common unit root process)
Series: LOGTO
Date: 06/19/19 Time: 15:01
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.31005	0.0951

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGTO

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.53083	0.0013	0.0013	3	3	3.0	21
Egypt	-0.47340	0.0023	0.0036	3	3	1.0	21
Indonesia	-1.02931	0.0024	0.0003	3	3	23.0	21

Iran	-0.48186	0.0009	0.0018	3	3	0.0	21
Malaysia	-0.35806	0.0002	0.0005	3	3	2.0	21
Nigeria	-0.78502	0.0064	0.0010	3	3	13.0	21
Pakistan	-0.68821	0.0007	0.0010	3	3	0.0	21
Turkey	-2.39672	0.0004	0.0008	3	3	7.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.52988	-8.069	1.106	-0.703	1.003		168

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGTO)
Date: 06/19/19 Time: 15:01
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.66389	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGTO)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.97760	0.0019	0.0003	0	4	18.0	23
Egypt	-0.77721	0.0031	0.0025	0	4	5.0	23
Indonesia	-1.73394	0.0046	0.0010	1	4	11.0	22
Iran	-0.74492	0.0017	0.0005	0	4	12.0	23
Malaysia	-0.69076	0.0005	0.0002	0	4	5.0	23
Nigeria	-1.26506	0.0104	0.0019	0	4	22.0	23
Pakistan	-1.18159	0.0010	0.0004	0	4	5.0	23
Turkey	-3.51774	0.0004	0.0007	4	4	16.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.02866	-11.878	1.078	-0.554	0.919		179

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGTO)
Date: 06/19/19 Time: 15:01
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 177
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-	0.0000

	5.19279

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGTO)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.03862	0.0017	0.0002	0	4	17.0	23
Egypt	-0.75722	0.0031	0.0026	0	4	5.0	23
Indonesia	-1.94975	0.0040	0.0010	1	4	11.0	22
Iran	-0.97499	0.0015	0.0005	1	4	12.0	22
Malaysia	-0.80566	0.0004	0.0001	0	4	5.0	23
Nigeria	-1.56607	0.0080	0.0019	1	4	22.0	22
Pakistan	-1.19767	0.0009	0.0004	0	4	5.0	23
Turkey	-3.53818	0.0004	0.0004	4	4	13.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.14635	-11.710	1.074	-0.703	1.003		177

(f) LOGDC

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGDC
Date: 06/19/19 Time: 15:02
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.38172	0.0086

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGDC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.04491	0.0002	0.0004	5	5	3.0	19
Egypt	-0.41156	0.0008	0.0046	5	5	3.0	19
Indonesia	-0.84156	0.0043	0.0079	5	5	0.0	19
Iran	-0.12852	0.0011	0.0021	5	5	0.0	19
Malaysia	-0.45198	0.0003	0.0015	5	5	2.0	19
Nigeria	-0.17347	0.0042	0.0069	5	5	0.0	19
Pakistan	-0.27570	0.0012	0.0018	5	5	2.0	19
Turkey	-0.08196	0.0007	0.0039	5	5	0.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.10167	-4.710	1.117	-0.554	0.919		152

Null Hypothesis: Unit root (common unit root process)
Series: LOGDC
Date: 06/19/19 Time: 15:03
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 186
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 3.70519	0.0001

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGDC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.60617	0.0005	0.0003	0	4	4.0	24
Egypt	-0.17968	0.0012	0.0023	0	4	2.0	24
Indonesia	-0.17245	0.0069	0.0085	0	4	1.0	24
Iran	-0.31772	0.0017	0.0021	0	4	0.0	24
Malaysia	-0.19361	0.0007	0.0014	0	4	2.0	24
Nigeria	-0.56583	0.0045	0.0069	1	4	0.0	23
Pakistan	-0.22110	0.0010	0.0016	1	4	1.0	23
Turkey	-0.54364	0.0007	0.0043	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.32097	-9.126	1.070	-0.703	1.003		186

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGDC)
Date: 06/19/19 Time: 15:03
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 182
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 7.68695	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGDC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.28500	0.0007	0.0001	0	4	12.0	23
Egypt	-0.60919	0.0018	0.0004	0	4	12.0	23
Indonesia	-0.81706	0.0079	0.0008	0	4	22.0	23

Iran	-0.77191	0.0020	0.0005	0	4	10.0	23
Malaysia	-0.55366	0.0007	0.0005	0	4	3.0	23
Nigeria	-1.36195	0.0051	0.0075	2	4	2.0	21
Pakistan	-0.69935	0.0012	0.0003	0	4	10.0	23
Turkey	-0.79166	0.0036	0.0006	0	4	19.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.82132	-10.979	1.034	-0.554	0.919		182

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGDC)
Date: 06/19/19 Time: 15:03
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.81726	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGDC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.33722	0.0006	0.0001	0	4	12.0	23
Egypt	-0.78057	0.0016	0.0004	0	4	11.0	23
Indonesia	-0.86817	0.0075	0.0008	0	4	22.0	23
Iran	-0.96892	0.0017	0.0004	1	4	10.0	22
Malaysia	-0.56241	0.0007	0.0005	0	4	2.0	23
Nigeria	-1.36512	0.0050	0.0075	2	4	2.0	21
Pakistan	-0.72022	0.0012	0.0002	0	4	11.0	23
Turkey	-0.92179	0.0032	0.0004	2	4	19.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.90638	-11.257	1.033	-0.703	1.003		179

Appendix 7 : Model 1 (FDI-LOGIV) - POLS & REM & FEM

(A) Pooled Ordinary Least Squares (POLS)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:05
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	0.280509	4.239360	0.066168	0.9473
LOGEXR	1.359967	0.878186	1.548608	0.1231
LOGGDP	-0.641348	0.357908	-1.791933	0.0747
LOGINF	0.438826	0.350465	1.252126	0.2120
LOGLC	-1.360882	0.909774	-1.495847	0.1363
LOGTO	3.918842	0.666094	5.883313	0.0000
LOGDC	0.750371	0.728262	1.030359	0.3041

R-squared	0.288197	Mean dependent var	1.681255
Adjusted R-squared	0.266068	S.D. dependent var	1.665534
S.E. of regression	1.426860	Akaike info criterion	3.583202
Sum squared resid	392.9343	Schwarz criterion	3.698643
Log likelihood	-351.3202	Hannan-Quinn criter.	3.629919
F-statistic	13.02373	Durbin-Watson stat	0.616190
Prob(F-statistic)	0.000000		

(B) Random Effects Model (REM)

Dependent Variable: FDI
Method: Panel EGLS (Cross-section random effects)
Date: 06/19/19 Time: 15:07
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.280509	3.770667	0.074392	0.9408
LOGEXR	1.359967	0.781096	1.741100	0.0833
LOGGDP	-0.641348	0.318339	-2.014670	0.0453
LOGINF	0.438826	0.311718	1.407765	0.1608
LOGLC	-1.360882	0.809191	-1.681780	0.0942
LOGTO	3.918842	0.592453	6.614609	0.0000
LOGDC	0.750371	0.647747	1.158433	0.2481

Effects Specification		S.D.	Rho
Cross-section random		0.000000	0.0000
Idiosyncratic random		1.269110	1.0000

Weighted Statistics			
R-squared	0.288197	Mean dependent var	1.681255
Adjusted R-squared	0.266068	S.D. dependent var	1.665534
S.E. of regression	1.426860	Sum squared resid	392.9343
F-statistic	13.02373	Durbin-Watson stat	0.616190
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.288197	Mean dependent var	1.681255
Sum squared resid	392.9343	Durbin-Watson stat	0.616190

(C) Fixed Effects Model (FEM)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:06
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.343752	8.534262	-0.626153	0.5320
LOGEXR	0.354515	0.959733	0.369390	0.7123
LOGGDP	-2.158593	0.938673	-2.299621	0.0226
LOGINF	1.179745	0.376066	3.137070	0.0020
LOGLC	14.21921	4.130328	3.442634	0.0007
LOGTO	2.598334	1.232156	2.108771	0.0363
LOGDC	1.469733	0.733189	2.004576	0.0465

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.457311	Mean dependent var	1.681255
Adjusted R-squared	0.419381	S.D. dependent var	1.665534
S.E. of regression	1.269110	Akaike info criterion	3.381938
Sum squared resid	299.5789	Schwarz criterion	3.612820
Log likelihood	-324.1938	Hannan-Quinn criter.	3.475372
F-statistic	12.05674	Durbin-Watson stat	0.768041
Prob(F-statistic)	0.000000		

Appendix 8 : Model 1 (FDI-LOGIV) - LR & LM & Hausman Test

(A) Likelihood Ratio [LR] - (POLS vs FEM)

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	8.280242	(7,186)	0.0000
Cross-section Chi-square	54.252912	7	0.0000

Cross-section fixed effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:11
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	0.280509	4.239360	0.066168	0.9473
LOGEXR	1.359967	0.878186	1.548608	0.1231
LOGGDP	-0.641348	0.357908	-1.791933	0.0747
LOGINF	0.438826	0.350465	1.252126	0.2120
LOGLC	-1.360882	0.909774	-1.495847	0.1363
LOGTO	3.918842	0.666094	5.883313	0.0000
LOGDC	0.750371	0.728262	1.030359	0.3041

R-squared	0.288197	Mean dependent var	1.681255
Adjusted R-squared	0.266068	S.D. dependent var	1.665534
S.E. of regression	1.426860	Akaike info criterion	3.583202
Sum squared resid	392.9343	Schwarz criterion	3.698643
Log likelihood	-351.3202	Hannan-Quinn criter.	3.629919
F-statistic	13.02373	Durbin-Watson stat	0.616190
Prob(F-statistic)	0.000000		

(B) Breusch-Pagan Lagrange Multiplier (BP-LM) Test (POLS vs REM)

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	29.69365 (0.0000)	8.866993 (0.0029)	38.56064 (0.0000)
Honda	5.449188 (0.0000)	2.977750 (0.0015)	5.958744 (0.0000)
King-Wu	5.449188 (0.0000)	2.977750 (0.0015)	6.209646 (0.0000)
Standardized Honda	9.742265 (0.0000)	3.180325 (0.0007)	3.234677 (0.0006)
Standardized King-Wu	9.742265 (0.0000)	3.180325 (0.0007)	4.877102 (0.0000)
Gourieroux, et al.*	--	--	38.56064 (0.0000)

(C) Hausman test (FEM vs REM)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	56.970245	6	0.0000

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOGEXR	0.354515	1.359967	0.310975	0.0714
LOGGDP	-2.158593	-0.641348	0.779768	0.0858
LOGINF	1.179745	0.438826	0.044257	0.0004
LOGLC	14.219208	-1.360882	16.404816	0.0001
LOGTO	2.598334	3.918842	1.167208	0.2216
LOGDC	1.469733	0.750371	0.117990	0.0362

Cross-section random effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 15:10
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.343752	8.534262	-0.626153	0.5320
LOGEXR	0.354515	0.959733	0.369390	0.7123
LOGGDP	-2.158593	0.938673	-2.299621	0.0226
LOGINF	1.179745	0.376066	3.137070	0.0020
LOGLC	14.21921	4.130328	3.442634	0.0007
LOGTO	2.598334	1.232156	2.108771	0.0363
LOGDC	1.469733	0.733189	2.004576	0.0465

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.457311	Mean dependent var	1.681255
Adjusted R-squared	0.419381	S.D. dependent var	1.665534
S.E. of regression	1.269110	Akaike info criterion	3.381938
Sum squared resid	299.5789	Schwarz criterion	3.612820
Log likelihood	-324.1938	Hannan-Quinn criter.	3.475372
F-statistic	12.05674	Durbin-Watson stat	0.768041
Prob(F-statistic)	0.000000		

Appendix 9 : Model 1 (FDI-LOGIV) - Diagnostic Testing

(A) Multicollinearity

(i) VIF

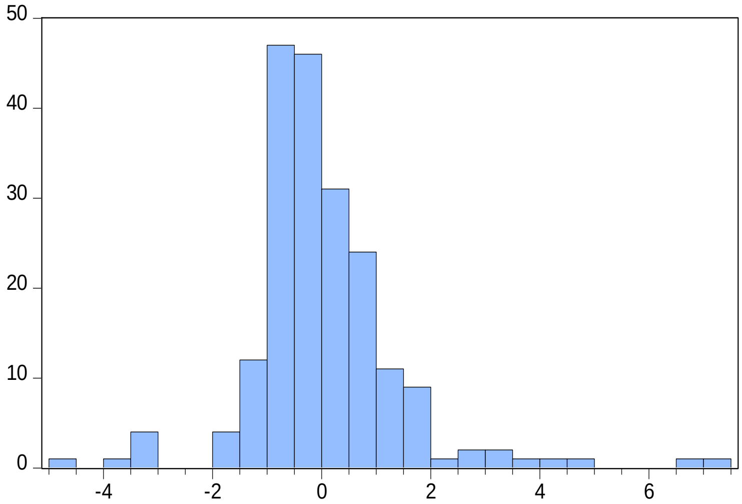
Variance Inflation Factors
Date: 06/19/19 Time: 15:19
Sample: 1 200
Included observations: 200

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	17.97217	1765.501	NA

LOGEXR	0.771211	314.2592	1.100362
LOGGDP	0.128098	1637.970	1.304933
LOGINF	0.122826	12.37271	1.887003
LOGLC	0.827688	219.6975	2.915852
LOGTO	0.443682	127.4529	2.384377
LOGDC	0.530365	122.2328	5.198280

(B) <u>Normality test</u>

(i) Panel dated data



Series: Standardized Residuals
Sample 1993 2017
Observations 200

Mean	3.87e-16
Median	-0.259061
Maximum	7.342240
Minimum	-4.630041
Std. Dev.	1.405185
Skewness	1.366170
Kurtosis	9.851501
Jarque-Bera	453.4062
Probability	0.000000

(C) Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.372352	Prob. F(2,189)	0.2560
Obs*R-squared	2.848559	Prob. Chi-Square(2)	0.2407

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 08/06/19 Time: 10:51
Sample: 2 200
Included observations: 199
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.074642	3.261871	-0.022883	0.9818
LOGEXR	0.106903	0.682130	0.156719	0.8756
LOGGDP	-0.036029	0.276944	-0.130094	0.8966
LOGINF	-0.003287	0.271755	-0.012094	0.9904
LOGLC	-0.112147	0.704529	-0.159180	0.8737
LOGTO	0.348942	0.642715	0.542919	0.5878

LOGDC	0.018508	0.557353	0.033208	0.9735
FDI(-1)	-0.098056	0.108182	-0.906400	0.3659
RESID(-1)	0.176294	0.122101	1.443835	0.1504
RESID(-2)	0.005318	0.100247	0.053048	0.9577

R-squared	0.014314	Mean dependent var	1.91E-16
Adjusted R-squared	-0.032623	S.D. dependent var	1.067153
S.E. of regression	1.084420	Akaike info criterion	3.048913
Sum squared resid	222.2578	Schwarz criterion	3.214405
Log likelihood	-293.3668	Hannan-Quinn criter.	3.115892
F-statistic	0.304967	Durbin-Watson stat	1.996765
Prob(F-statistic)	0.972547		

(D) Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.518088	Prob. F(6,193)	0.1740
Obs*R-squared	9.013504	Prob. Chi-Square(6)	0.1728
Scaled explained SS	37.14798	Prob. Chi-Square(6)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/19 Time: 10:51
Sample: 1 200
Included observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.00793	17.27588	1.447564	0.1494
LOGEXR	-3.871053	3.578709	-1.081690	0.2807
LOGGDP	-2.287687	1.458518	-1.568501	0.1184
LOGINF	1.710609	1.428184	1.197751	0.2325
LOGLC	2.074899	3.707431	0.559659	0.5764
LOGTO	4.786595	2.714410	1.763401	0.0794
LOGDC	-1.450608	2.967750	-0.488791	0.6255

R-squared	0.045068	Mean dependent var	1.964672
Adjusted R-squared	0.015380	S.D. dependent var	5.859855
S.E. of regression	5.814617	Akaike info criterion	6.393000
Sum squared resid	6525.285	Schwarz criterion	6.508441
Log likelihood	-632.3000	Hannan-Quinn criter.	6.439717
F-statistic	1.518088	Durbin-Watson stat	0.779850
Prob(F-statistic)	0.174046		

Appendix 10 : Base Form Model of Model 2 (FDI-IV*DC) - LLC

	Level Form		1st Diiferences	
	Intercept	**Intercept and trend**	**Intercept**	**Intercept and trend**
FDI	0.0032***(maxlag)	0.0265**(maxlag)	0.0000***	0.0000***
EXC*DC	0.6946 (maxlag)	0.0000*(lag 4)	0.0000***	0.0000***
GDP*DC	1.0000 (maxlag)	0.0055***(lag5)	0.0000***	0.0000***
INF*DC	0.0018***(maxlag)	0.0083***(maxlag)	0.0000***	0.0000***
LC*DC	0.9737 (maxlag)	0.0122**(lag4)	0.0000***	0.0000***
TO*DC	0.0000***(lag5)	0.0004***(lag 5)	0.0000***	0.0000***

Dependent Variable-FDI

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:52
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.72249	0.0032

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.20106	0.0804	0.0293	0	4	7.0	24
Egypt	-0.32560	1.6758	3.7303	1	4	1.0	23
Indonesia	-0.28783	1.1485	1.2641	0	4	2.0	24
Iran	-0.36288	0.2530	0.2646	0	4	1.0	24
Malaysia	-0.79134	1.6926	0.7000	0	4	11.0	24
Nigeria	-0.39882	0.5857	0.3365	0	4	6.0	24

Pakistan	-0.32466	0.2214	0.4454	1	4	1.0	23
Turkey	-0.29332	0.4042	0.4601	0	4	2.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.34136	-7.170	1.023	-0.554	0.919	190

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:53
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 187
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.93481	0.0265

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.70058	0.0642	0.0282	0	4	8.0	24
Egypt	-0.34849	1.6105	3.7270	1	4	1.0	23
Indonesia	-0.83921	0.6392	1.2536	3	4	2.0	21
Iran	-0.39803	0.2471	0.2648	0	4	1.0	24
Malaysia	-0.86536	1.6185	0.4027	0	4	10.0	24
Nigeria	-0.60812	0.5160	0.2395	0	4	8.0	24
Pakistan	-0.32358	0.2210	0.4380	1	4	1.0	23
Turkey	-0.38258	0.3909	0.3276	0	4	3.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.49123	-8.777	1.037	-0.703	1.003	187

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.93427	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.31186	0.0612	0.0160	3	4	13.0	20
Egypt	-0.60545	2.2889	1.1921	0	4	5.0	23
Indonesia	-0.97998	1.3922	0.1976	0	4	17.0	23
Iran	-1.14292	0.3096	0.0495	0	4	14.0	23
Malaysia	-2.02082	2.1283	0.9097	1	4	9.0	22
Nigeria	-1.47357	0.5880	0.1166	0	4	22.0	23
Pakistan	-0.64011	0.2968	0.0921	0	4	7.0	23
Turkey	-0.93564	0.4985	0.1434	0	4	7.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.07965	-12.710	1.102	-0.554	0.919		180

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.62425	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.28373	0.0603	0.0134	3	4	12.0	20
Egypt	-0.60220	2.2818	1.1632	0	4	5.0	23
Indonesia	-0.97755	1.3863	0.1900	0	4	16.0	23
Iran	-1.14404	0.3091	0.0530	0	4	13.0	23
Malaysia	-2.09360	2.0291	0.7961	1	4	9.0	22
Nigeria	-1.51409	0.5148	0.1030	0	4	22.0	23
Pakistan	-0.64653	0.2957	0.0914	0	4	7.0	23
Turkey	-0.94243	0.4942	0.1418	0	4	7.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.10313	-13.042	1.110	-0.703	1.003		180

Independent Variables

(a) EXR*DC

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: EXR_DC
Date: 06/19/19 Time: 16:19
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 186
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	0.5088 7	0.6946

** Probabilities are computed assuming asympotic normality

Intermediate results on EXR_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.04672	34438.	44025.	0	4	1.0	24
Egypt	-0.19448	457153	1.E+06	1	4	2.0	23
Indonesia	-0.24895	479558	862247	1	4	1.0	23
Iran	-0.29634	3.E+06	711692	0	4	9.0	24
Malaysia	-0.13478	1.E+06	2.E+06	0	4	1.0	24
Nigeria	-0.33035	185028	185579	0	4	3.0	24
Pakistan	-0.19664	20453.	52501.	1	4	2.0	23
Turkey	-0.09971	109177	185270	3	4	2.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.04415	-1.941	1.078	-0.554	0.919		186

Null Hypothesis: Unit root (common unit root process)
Series: EXR_DC
Date: 06/19/19 Time: 16:17
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 17.8188	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on EXR_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.19015	19829.	33834.	4	4	1.0	20

Egypt	-0.69788	230363	980457	4	4	2.0	20
Indonesia	-0.68428	12418.	758421	4	4	1.0	20
Iran	-1.08076	3.E+06	716073	4	4	9.0	20
Malaysia	-0.36450	321203	2.E+06	4	4	1.0	20
Nigeria	-0.75692	152340	186652	4	4	3.0	20
Pakistan	-0.63978	15675.	52157.	4	4	2.0	20
Turkey	-0.49396	44750.	149916	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.63111	-23.834	1.086	-0.703	1.003	160

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(EXR_DC)
Date: 06/19/19 Time: 16:19
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 5.94771	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(EXR_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.84562	38501.	6354.9	0	4	8.0	23
Egypt	-0.55442	491954	521960	1	4	3.0	22
Indonesia	-0.69093	615234	68572.	0	4	22.0	23
Iran	-1.06618	4.E+06	705195	0	4	11.0	23
Malaysia	-0.67456	1.E+06	487929	0	4	7.0	23
Nigeria	-0.90772	230737	24393.	0	4	22.0	23
Pakistan	-0.52088	25304.	14086.	0	4	5.0	23
Turkey	-0.37624	124124	58564.	3	4	22.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.72516	-9.522	1.018	-0.554	0.919	180

Null Hypothesis: Unit root (common unit root process)
Series: D(EXR_DC)
Date: 06/19/19 Time: 16:20
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 4.79687	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(EXR_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.96589	34117.	6181.0	0	4	8.0	23
Egypt	-0.67966	420143	624928	1	4	2.0	22
Indonesia	-0.76115	575117	65982.	0	4	22.0	23
Iran	-1.06573	4.E+06	709113	0	4	11.0	23
Malaysia	-0.67744	1.E+06	556367	0	4	6.0	23
Nigeria	-0.90897	230215	24049.	0	4	22.0	23
Pakistan	-0.52301	25254.	13908.	0	4	5.0	23
Turkey	-0.18706	126754	27055.	2	4	14.0	21
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.76606	-10.001	1.020	-0.703	1.003		181

(b) <u>GDP*DC</u>

(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: GDP_DC
Date: 06/19/19 Time: 16:22
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 188
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	9.5940 9	1.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on GDP_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.09422	2.E+22	1.E+23	0	4	3.0	24
Egypt	-0.17703	4.E+23	6.E+23	0	4	2.0	24
Indonesia	-0.05870	5.E+24	5.E+24	0	4	0.0	24
Iran	0.10493	6.E+24	2.E+25	0	4	2.0	24
Malaysia	0.01593	3.E+24	5.E+24	0	4	2.0	24
Nigeria	-0.02099	4.E+23	7.E+23	3	4	0.0	21
Pakistan	-0.16200	9.E+22	2.E+23	1	4	2.0	23
Turkey	0.11176	7.E+24	4.E+25	0	4	3.0	24
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	0.08050	7.270	1.083	-0.554	0.919		188

Null Hypothesis: Unit root (common unit root process)
Series: GDP_DC
Date: 06/19/19 Time: 16:23
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 2.54173	0.0055

** Probabilities are computed assuming asympotic normality

Intermediate results on GDP_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.07448	1.E+22	2.E+22	5	5	1.0	19
Egypt	-0.51647	3.E+23	4.E+23	5	5	1.0	19
Indonesia	-0.76303	3.E+23	5.E+24	5	5	1.0	19
Iran	-0.31943	3.E+24	3.E+24	5	5	4.0	19
Malaysia	-0.19757	6.E+23	4.E+24	5	5	2.0	19
Nigeria	-0.77054	3.E+23	7.E+23	5	5	0.0	19
Pakistan	-0.54064	8.E+22	2.E+23	5	5	2.0	19
Turkey	-0.12552	3.E+24	5.E+24	5	5	0.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.36152	-8.022	1.278	-0.703	1.003		152

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(GDP_DC)
Date: 06/19/19 Time: 16:24
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 4.49706	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GDP_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.25001	3.E+22	1.E+22	0	4	3.0	23
Egypt	-0.88946	5.E+23	1.E+23	0	4	9.0	23
Indonesia	-0.77063	5.E+24	5.E+23	0	4	22.0	23
Iran	-0.46668	7.E+24	5.E+23	0	4	22.0	23

Malaysia	-0.55741	2.E+24	1.E+24	0	4	6.0	23
Nigeria	-1.35412	4.E+23	5.E+23	2	4	3.0	21
Pakistan	-0.63334	1.E+23	2.E+22	0	4	12.0	23
Turkey	-0.13398	7.E+24	5.E+23	2	4	22.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.56183	-7.547	1.055	-0.554	0.919	180

Null Hypothesis: Unit root (common unit root process)
Series: D(GDP_DC)
Date: 06/19/19 Time: 16:25
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 179
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.06668	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GDP_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.97655	2.E+22	1.E+22	0	4	4.0	23
Egypt	-0.97792	4.E+23	2.E+23	0	4	8.0	23
Indonesia	-0.84951	5.E+24	5.E+23	0	4	22.0	23
Iran	-2.77323	4.E+24	5.E+23	3	4	22.0	20
Malaysia	-0.57362	2.E+24	1.E+24	0	4	6.0	23
Nigeria	-1.37430	4.E+23	5.E+23	2	4	3.0	21
Pakistan	-0.63712	1.E+23	2.E+22	0	4	13.0	23
Turkey	-0.97095	6.E+24	5.E+23	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.88643	-10.532	1.042	-0.703	1.003	179

(c) <u>INF*DC</u>

(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: INF_DC
Date: 06/19/19 Time: 16:26
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 192
Cross-sections included: 8

Method	Statistic	Prob.**

Levin, Lin & Chu t*	-2.90769	0.0018

** Probabilities are computed assuming asympotic normality

Intermediate results on INF_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.34617	6110.2	1104.1	0	4	11.0	24
Egypt	-0.52237	30447.	26086.	0	4	2.0	24
Indonesia	-0.91604	338773	30062.	0	4	20.0	24
Iran	-0.37672	83238.	40961.	0	4	5.0	24
Malaysia	-0.73569	24631.	3265.4	0	4	23.0	24
Nigeria	-0.35000	6000.3	6874.7	0	4	3.0	24
Pakistan	-0.39404	9364.0	7046.3	0	4	4.0	24
Turkey	-0.10801	63145.	67204.	0	4	0.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.34250	-6.360	1.050	-0.554	0.919		192

Null Hypothesis: Unit root (common unit root process)
Series: INF_DC
Date: 06/19/19 Time: 16:25
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.39466	0.0083

** Probabilities are computed assuming asympotic normality

Intermediate results on INF_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.72388	4876.6	999.19	0	4	11.0	24
Egypt	-0.61345	27210.	24192.	0	4	2.0	24
Indonesia	-1.03678	299346	30037.	0	4	20.0	24
Iran	-0.52027	77313.	41396.	0	4	5.0	24
Malaysia	-0.83305	23346.	2228.4	0	4	23.0	24
Nigeria	-0.32617	5934.2	2575.2	0	4	6.0	24
Pakistan	-0.41852	9149.4	6950.6	0	4	4.0	24
Turkey	-0.14148	52088.	66053.	2	4	0.0	22

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.49389	-7.575	1.050	-0.703	1.003		190

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(INF_DC)
Date: 06/19/19 Time: 16:27
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-11.0211	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(INF_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.98952	4715.4	1664.7	1	4	8.0	22
Egypt	-1.28886	35789.	16720.	0	4	5.0	23
Indonesia	-3.35765	77474.	85541.	4	4	14.0	19
Iran	-1.07942	105644	28518.	0	4	7.0	23
Malaysia	-1.94568	30129.	7386.6	1	4	11.0	22
Nigeria	-0.89748	7762.3	900.52	0	4	22.0	23
Pakistan	-1.30933	10720.	1173.6	0	4	22.0	23
Turkey	-0.91666	58485.	25076.	0	4	14.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.31330	-14.315	1.117	-0.554	0.919		178

Null Hypothesis: Unit root (common unit root process)
Series: D(INF_DC)
Date: 06/19/19 Time: 16:28
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 178
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.96903	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(INF_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.99216	4713.9	1702.3	1	4	8.0	22
Egypt	-1.29995	34591.	15478.	0	4	5.0	23
Indonesia	-3.26018	29710.	85521.	4	4	14.0	19
Iran	-1.08146	105579	30087.	0	4	7.0	23

Malaysia	-1.94864	29612.	6536.0	1	4	11.0	22
Nigeria	-0.97762	7052.4	856.26	0	4	22.0	23
Pakistan	-1.31129	10708.	1108.9	0	4	22.0	23
Turkey	-0.93472	52891.	16647.	0	4	11.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.43497	-15.316	1.191	-0.703	1.003	178

(d) LC*DC

(i) Level Form

Null Hypothesis: Unit root (common unit root process)
Series: LC_DC
Date: 06/19/19 Time: 16:29
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	1.9376 0	0.9737

** Probabilities are computed assuming asympotic normality

Intermediate results on LC_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.01182	2677.7	2703.3	0	4	0.0	24
Egypt	-0.27969	42702.	111386	3	4	2.0	21
Indonesia	-0.22217	51356.	66678.	1	4	0.0	23
Iran	0.03310	29343.	34393.	0	4	2.0	24
Malaysia	-0.27068	203671	734549	2	4	2.0	22
Nigeria	-0.21620	1625.4	2154.8	1	4	0.0	23
Pakistan	-0.14923	4122.6	7761.8	1	4	2.0	23
Turkey	0.06548	38576.	102189	0	4	3.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.00440	-0.251	1.094	-0.554	0.919	184

Null Hypothesis: Unit root (common unit root process)
Series: LC_DC
Date: 06/19/19 Time: 16:31
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-	0.0122

2.25045

** Probabilities are computed assuming asympotic normality

Intermediate results on LC_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.49762	1299.0	2627.3	4	4	0.0	20
Egypt	-0.41620	39134.	78459.	4	4	2.0	20
Indonesia	-0.38567	19072.	80118.	4	4	1.0	20
Iran	-1.03727	13897.	21303.	4	4	4.0	20
Malaysia	-0.31414	93831.	709402	4	4	2.0	20
Nigeria	-0.66793	1123.6	2151.6	4	4	0.0	20
Pakistan	-0.30252	4055.0	7087.2	4	4	2.0	20
Turkey	-0.30181	10831.	36201.	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.35602	-9.193	1.026	-0.703	1.003		160

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(LC_DC)
Date: 06/19/19 Time: 16:32
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 6.62465	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LC_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.06337	2785.1	767.83	0	4	7.0	23
Egypt	-0.75776	71435.	16807.	0	4	9.0	23
Indonesia	-0.66845	61300.	7608.8	0	4	20.0	23
Iran	-1.07454	23618.	4125.6	1	4	14.0	22
Malaysia	-0.53959	332952	276488	0	4	1.0	23
Nigeria	-1.24954	1492.8	1457.8	2	4	3.0	21
Pakistan	-0.64599	4605.0	2123.8	0	4	6.0	23
Turkey	-0.55278	35469.	6499.5	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.76604	-10.223	1.028	-0.554	0.919		181

Null Hypothesis: Unit root (common unit root process)
Series: D(LC_DC)
Date: 06/19/19 Time: 16:33

Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 5.55508	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LC_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.08293	2718.8	849.04	0	4	6.0	23
Egypt	-0.87788	63521.	24980.	0	4	8.0	23
Indonesia	-1.01304	51956.	7452.8	1	4	20.0	22
Iran	-1.15849	22652.	3108.7	1	4	14.0	22
Malaysia	-0.55422	328565	277505	0	4	1.0	23
Nigeria	-1.25223	1471.1	1450.4	2	4	3.0	21
Pakistan	-0.67688	4519.3	1588.0	0	4	7.0	23
Turkey	-0.80587	31302.	3606.5	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.88487	-11.163	1.024	-0.703	1.003		180

(e) TO*DC

(i) Level Form

Null Hypothesis: Unit root (common unit root process)
Series: TO_DC
Date: 06/19/19 Time: 16:33
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 6.48179	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on TO_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.10934	12249.	17706.	5	5	0.0	19
Egypt	-0.30576	57721.	145315	5	5	2.0	19
Indonesia	-1.11727	16810.	86604.	5	5	14.0	19
Iran	-0.09213	26829.	57554.	5	5	1.0	19
Malaysia	-0.14419	578677	9.E+06	5	5	3.0	19
Nigeria	-0.41478	11638.	13899.	5	5	0.0	19

Pakistan	-0.13037	7312.0	9608.0	5	5	2.0	19
Turkey	0.02326	27566.	69700.	5	5	1.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.35053	-8.166	1.716	-0.554	0.919		152

Null Hypothesis: Unit root (common unit root process)
Series: TO_DC
Date: 06/19/19 Time: 16:35
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 5
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 152
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 3.36781	0.0004

** Probabilities are computed assuming asympotic normality

Intermediate results on TO_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.54367	10407.	17404.	5	5	0.0	19
Egypt	-0.29971	54771.	116939	5	5	2.0	19
Indonesia	-1.04080	15349.	79337.	5	5	14.0	19
Iran	-0.64487	18992.	57960.	5	5	2.0	19
Malaysia	-0.28808	558142	8.E+06	5	5	3.0	19
Nigeria	-0.74310	11253.	13623.	5	5	0.0	19
Pakistan	-0.41894	6204.4	9287.4	5	5	2.0	19
Turkey	-0.35875	17584.	34670.	5	5	5.0	19

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.69157	-11.944	1.133	-0.703	1.003		152

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(TO_DC)
Date: 06/19/19 Time: 16:36
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 7.59443	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(TO_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.82229	17843.	3862.1	0	4	10.0	23
Egypt	-0.60124	78589.	20142.	0	4	13.0	23
Indonesia	-1.33500	706307	118031	0	4	13.0	23
Iran	-0.50942	31066.	14811.	0	4	5.0	23
Malaysia	-0.40148	2.E+06	2.E+06	0	4	3.0	23
Nigeria	-0.94131	14308.	2313.2	0	4	10.0	23
Pakistan	-1.05613	9102.6	6839.6	0	4	2.0	23
Turkey	-0.91970	67420.	10468.	0	4	15.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.78395	-10.829	1.052	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: D(TO_DC)
Date: 06/19/19 Time: 16:36
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.33675	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(TO_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.83498	17450.	2854.1	0	4	9.0	23
Egypt	-0.66820	76338.	17447.	0	4	12.0	23
Indonesia	-3.56364	169710	114840	4	4	13.0	19
Iran	-0.54202	30155.	15133.	0	4	5.0	23
Malaysia	-0.42503	2.E+06	1.E+06	0	4	4.0	23
Nigeria	-0.97424	13839.	2283.2	0	4	10.0	23
Pakistan	-1.07525	8865.5	6857.6	0	4	2.0	23
Turkey	-1.02002	59232.	8299.1	0	4	15.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.85762	-10.091	1.149	-0.703	1.003		180

Appendix 11 : Base Form Model of Model 2 (FDI-IV*DC) - POLS & REM & FEM

(A) Pooled Ordinary Least Squares (POLS)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 16:03
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.257784	0.214348	5.867955	0.0000
EXR_DC	-0.000101	8.16E-05	-1.240321	0.2164
GDP_DC	-2.41E-14	1.02E-14	-2.358041	0.0194
INF_DC	-0.000275	0.000271	-1.016613	0.3106
LC_DC	0.000676	0.000229	2.956400	0.0035
TO_DC	-7.09E-05	6.40E-05	-1.107669	0.2694

R-squared	0.277487	Mean dependent var	1.681255
Adjusted R-squared	0.258866	S.D. dependent var	1.665534
S.E. of regression	1.433844	Akaike info criterion	3.588136
Sum squared resid	398.8463	Schwarz criterion	3.687085
Log likelihood	-352.8136	Hannan-Quinn criter.	3.628179
F-statistic	14.90146	Durbin-Watson stat	0.585082
Prob(F-statistic)	0.000000		

(B) Random Effects Model (REM)

Dependent Variable: FDI
Method: Panel EGLS (Cross-section random effects)
Date: 06/19/19 Time: 16:05
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.894088	0.410761	2.176660	0.0307
EXR_DC	-1.58E-05	8.93E-05	-0.176412	0.8602
GDP_DC	-1.94E-14	1.41E-14	-1.371764	0.1717
INF_DC	-4.67E-05	0.000283	-0.165034	0.8691
LC_DC	0.000625	0.000313	1.997631	0.0472
TO_DC	-8.61E-05	8.31E-05	-1.036574	0.3012

Effects Specification

	S.D.	Rho
Cross-section random	0.846901	0.2838
Idiosyncratic random	1.345524	0.7162

Weighted Statistics

R-squared	0.068829	Mean dependent var	0.509138
Adjusted R-squared	0.044830	S.D. dependent var	1.364798
S.E. of regression	1.333856	Sum squared resid	345.1592
F-statistic	2.867968	Durbin-Watson stat	0.675784
Prob(F-statistic)	0.015991		

Unweighted Statistics

R-squared	0.261333	Mean dependent var	1.681255
Sum squared resid	407.7640	Durbin-Watson stat	0.572030

(C) Fixed Effects Model (FEM)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 16:04
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.758233	0.373304	2.031141	0.0437
EXR_DC	-1.41E-05	9.50E-05	-0.148622	0.8820
GDP_DC	-2.11E-14	1.72E-14	-1.225684	0.2219
INF_DC	-5.08E-06	0.000289	-0.017594	0.9860
LC_DC	0.000694	0.000398	1.743968	0.0828
TO_DC	-9.34E-05	8.84E-05	-1.056411	0.2921

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.386712	Mean dependent var	1.681255
Adjusted R-squared	0.347356	S.D. dependent var	1.665534
S.E. of regression	1.345524	Akaike info criterion	3.494236
Sum squared resid	338.5514	Schwarz criterion	3.708626
Log likelihood	-336.4236	Hannan-Quinn criter.	3.580996
F-statistic	9.826143	Durbin-Watson stat	0.691825
Prob(F-statistic)	0.000000		

Appendix 12 : Base Form Model of Model 2 (FDI-IV*DC) - LR & LM & Hausman Test

(A) Likelihood Ratio [LR] - (POLS vs FEM)

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.757728	(7,187)	0.0001

Cross-section Chi-square	32.780046	7	0.0000

Cross-section fixed effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 16:09
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.257784	0.214348	5.867955	0.0000
EXR_DC	-0.000101	8.16E-05	-1.240321	0.2164
GDP_DC	-2.41E-14	1.02E-14	-2.358041	0.0194
INF_DC	-0.000275	0.000271	-1.016613	0.3106
LC_DC	0.000676	0.000229	2.956400	0.0035
TO_DC	-7.09E-05	6.40E-05	-1.107669	0.2694

R-squared	0.277487	Mean dependent var	1.681255
Adjusted R-squared	0.258866	S.D. dependent var	1.665534
S.E. of regression	1.433844	Akaike info criterion	3.588136
Sum squared resid	398.8463	Schwarz criterion	3.687085
Log likelihood	-352.8136	Hannan-Quinn criter.	3.628179
F-statistic	14.90146	Durbin-Watson stat	0.585082
Prob(F-statistic)	0.000000		

(B) Breusch-Pagan Lagrange Multiplier (BP-LM) Test (POLS vs REM)

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	22.70591	10.35338	33.05928
	(0.0000)	(0.0013)	(0.0000)
Honda	4.765072	3.217666	5.644648
	(0.0000)	(0.0006)	(0.0000)
King-Wu	4.765072	3.217666	5.721710
	(0.0000)	(0.0006)	(0.0000)
Standardized Honda	7.625385	3.395507	2.583192
	(0.0000)	(0.0003)	(0.0049)
Standardized King-Wu	7.625385	3.395507	3.733615
	(0.0000)	(0.0003)	(0.0001)
Gourieroux, et al.*	--	--	33.05928
			(0.0000)

(C) Hausman test (FEM vs REM)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.649800	5	0.8952

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EXR_DC	-0.000014	-0.000016	0.000000	0.9600
GDP_DC	-0.000000	-0.000000	0.000000	0.8645
INF_DC	-0.000005	-0.000047	0.000000	0.4670
LC_DC	0.000694	0.000625	0.000000	0.7786
TO_DC	-0.000093	-0.000086	0.000000	0.8098

Cross-section random effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 16:08
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.758233	0.373304	2.031141	0.0437
EXR_DC	-1.41E-05	9.50E-05	-0.148622	0.8820
GDP_DC	-2.11E-14	1.72E-14	-1.225684	0.2219
INF_DC	-5.08E-06	0.000289	-0.017594	0.9860
LC_DC	0.000694	0.000398	1.743968	0.0828
TO_DC	-9.34E-05	8.84E-05	-1.056411	0.2921

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.386712	Mean dependent var	1.681255
Adjusted R-squared	0.347356	S.D. dependent var	1.665534
S.E. of regression	1.345524	Akaike info criterion	3.494236
Sum squared resid	338.5514	Schwarz criterion	3.708626
Log likelihood	-336.4236	Hannan-Quinn criter.	3.580996
F-statistic	9.826143	Durbin-Watson stat	0.691825
Prob(F-statistic)	0.000000		

Appendix 13 : Base Form Model of Model 2 (FDI-IV*DC) - Diagnostic Testing

(A) Multicollinearity

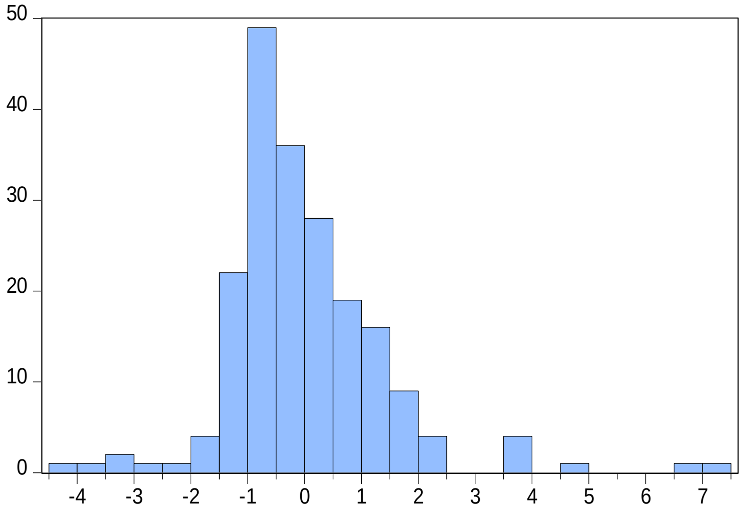
(i) VIF

Variance Inflation Factors
Date: 06/19/19 Time: 16:41
Sample: 1 200
Included observations: 200

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.045945	4.469563	NA
EXR_DC	6.66E-09	22.32831	8.826996
GDP_DC	1.05E-28	4.574344	2.599452
INF_DC	7.34E-08	2.148769	1.114837
LC_DC	5.23E-08	66.01816	37.48966
TO_DC	4.09E-09	25.43091	19.44922

(B) Normality test

(i) Panel Dated Data



Series: Standardized Residuals
Sample 1993 2017
Observations 200

Mean	4.86e-16
Median	-0.250871
Maximum	7.032193
Minimum	-4.034786
Std. Dev.	1.415716
Skewness	1.451443
Kurtosis	8.850542
Jarque-Bera	355.4632
Probability	0.000000

Appendix 14 : Model 2 (FDI-LOGIV*DC) - LLC

	Level Form		1st Diiferences	
	Intercept	**Intercept and trend**	**Intercept**	**Intercept and trend**
FDI	0.0032***(maxlag)	0.0265**(maxlag)	0.0000***	0.0000***

LOGEXC*DC	0.0108**(lag10)	0.0600*(lag3)	0.0000***	0.0000***
LOGGDP*DC	0.0889*(lag6)	0.0247**(lag 4)	0.0000***	0.0000***
LOGINF*DC	0.0110**(max lag)	0.0471**(max lag)	0.0000***	0.0000***
LOGLC*DC	0.0789*(lag3)	0.0006***(maxlag)	0.0000***	0.0000***
LOGTO*DC	0.0232**(lag3)	0.0945*(lag4)	0.0000***	0.0000***

Dependent Variable-FDI

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:52
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.72249	0.0032

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.20106	0.0804	0.0293	0	4	7.0	24
Egypt	-0.32560	1.6758	3.7303	1	4	1.0	23
Indonesia	-0.28783	1.1485	1.2641	0	4	2.0	24
Iran	-0.36288	0.2530	0.2646	0	4	1.0	24
Malaysia	-0.79134	1.6926	0.7000	0	4	11.0	24
Nigeria	-0.39882	0.5857	0.3365	0	4	6.0	24
Pakistan	-0.32466	0.2214	0.4454	1	4	1.0	23
Turkey	-0.29332	0.4042	0.4601	0	4	2.0	24
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.34136	-7.170	1.023	-0.554	0.919		190

Null Hypothesis: Unit root (common unit root process)
Series: FDI
Date: 06/19/19 Time: 15:53
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 187
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.93481	0.0265

** Probabilities are computed assuming asympotic normality

Intermediate results on FDI

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.70058	0.0642	0.0282	0	4	8.0	24
Egypt	-0.34849	1.6105	3.7270	1	4	1.0	23
Indonesia	-0.83921	0.6392	1.2536	3	4	2.0	21
Iran	-0.39803	0.2471	0.2648	0	4	1.0	24
Malaysia	-0.86536	1.6185	0.4027	0	4	10.0	24
Nigeria	-0.60812	0.5160	0.2395	0	4	8.0	24
Pakistan	-0.32358	0.2210	0.4380	1	4	1.0	23
Turkey	-0.38258	0.3909	0.3276	0	4	3.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.49123	-8.777	1.037	-0.703	1.003		187

(ii) 1st Differences

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.93427	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.31186	0.0612	0.0160	3	4	13.0	20
Egypt	-0.60545	2.2889	1.1921	0	4	5.0	23
Indonesia	-0.97998	1.3922	0.1976	0	4	17.0	23
Iran	-1.14292	0.3096	0.0495	0	4	14.0	23
Malaysia	-2.02082	2.1283	0.9097	1	4	9.0	22
Nigeria	-1.47357	0.5880	0.1166	0	4	22.0	23
Pakistan	-0.64011	0.2968	0.0921	0	4	7.0	23
Turkey	-0.93564	0.4985	0.1434	0	4	7.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs

Pooled	-1.07965	-12.710	1.102	-0.554	0.919		180

Null Hypothesis: Unit root (common unit root process)
Series: D(FDI)
Date: 06/19/19 Time: 15:54
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.62425	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(FDI)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-3.28373	0.0603	0.0134	3	4	12.0	20
Egypt	-0.60220	2.2818	1.1632	0	4	5.0	23
Indonesia	-0.97755	1.3863	0.1900	0	4	16.0	23
Iran	-1.14404	0.3091	0.0530	0	4	13.0	23
Malaysia	-2.09360	2.0291	0.7961	1	4	9.0	22
Nigeria	-1.51409	0.5148	0.1030	0	4	22.0	23
Pakistan	-0.64653	0.2957	0.0914	0	4	7.0	23
Turkey	-0.94243	0.4942	0.1418	0	4	7.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.10313	-13.042	1.110	-0.703	1.003		180

Independent Variables

(a) LOGEXR*DC

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGEXR_DC
Date: 06/19/19 Time: 12:45
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 10
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 112
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.29786	0.0108

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGEXR_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	0.42451	3.E-06	0.0005	10	10	3.0	14
Egypt	-1.01918	0.0012	0.0083	10	10	2.0	14
Indonesia	-0.09418	0.0003	0.0120	10	10	2.0	14
Iran	0.49340	0.0003	0.0193	10	10	1.0	14
Malaysia	-0.29367	6.E-05	0.0017	10	10	1.0	14
Nigeria	0.41052	0.0003	0.0262	10	10	2.0	14
Pakistan	1.65217	0.0004	0.0022	10	10	2.0	14
Turkey	-0.34153	1.E-05	0.0053	10	10	0.0	14
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.12786	-3.743	3.379	-0.554	0.919		112

Null Hypothesis: Unit root (common unit root process)
Series: LOGEXR_DC
Date: 06/19/19 Time: 12:49
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 1.55499	0.0600

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGEXR_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.57960	0.0004	0.0005	3	3	3.0	21
Egypt	-0.55011	0.0030	0.0057	3	3	1.0	21
Indonesia	-0.67907	0.0033	0.0088	3	3	1.0	21
Iran	-0.71945	0.0075	0.0173	3	3	2.0	21
Malaysia	-0.25138	0.0006	0.0016	3	3	1.0	21
Nigeria	-0.69356	0.0159	0.0257	3	3	2.0	21
Pakistan	-0.54864	0.0008	0.0022	3	3	2.0	21
Turkey	-0.46145	0.0034	0.0052	3	3	0.0	21
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.55478	-10.243	1.026	-0.703	1.003		168

(ii) 1st Difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGEXR_DC)
Date: 06/19/19 Time: 12:49
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 182
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.68494	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGEXR_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.36975	0.0006	0.0002	1	4	9.0	22
Egypt	-0.55241	0.0053	0.0056	0	4	2.0	23
Indonesia	-1.01747	0.0143	0.0105	1	4	2.0	22
Iran	-0.71531	0.0144	0.0018	0	4	16.0	23
Malaysia	-0.67585	0.0012	0.0005	0	4	6.0	23
Nigeria	-0.92106	0.0230	0.0051	0	4	18.0	23
Pakistan	-0.60208	0.0012	0.0011	0	4	2.0	23
Turkey	-0.97358	0.0053	0.0013	0	4	13.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.81501	-10.196	1.023	-0.554	0.919		182

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGEXR_DC)
Date: 06/19/19 Time: 12:50
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 183
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.79407	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGEXR_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.35046	0.0006	0.0002	1	4	9.0	22
Egypt	-0.69748	0.0047	0.0057	0	4	2.0	23
Indonesia	-1.39874	0.0126	0.0105	0	4	2.0	23
Iran	-0.72970	0.0142	0.0018	0	4	16.0	23
Malaysia	-0.67916	0.0012	0.0005	0	4	6.0	23
Nigeria	-0.92288	0.0230	0.0050	0	4	16.0	23
Pakistan	-0.60342	0.0012	0.0011	0	4	2.0	23
Turkey	-0.96852	0.0053	0.0008	0	4	13.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.90537	-11.752	1.039	-0.703	1.003		183

(b) LOGGDP*DC

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGGDP_DC
Date: 06/19/19 Time: 12:55
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 6
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 144
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.34730	0.0889

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGGDP_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.01560	0.0002	0.0002	6	6	5.0	18
Egypt	-0.35646	0.0011	0.0049	6	6	3.0	18
Indonesia	0.01716	0.0003	0.0083	6	6	0.0	18
Iran	-0.09935	0.0004	0.0022	6	6	4.0	18
Malaysia	-0.11742	0.0001	0.0020	6	6	2.0	18
Nigeria	-0.08414	0.0047	0.0069	6	6	0.0	18
Pakistan	-0.21024	0.0012	0.0025	6	6	2.0	18
Turkey	0.01920	0.0012	0.0056	6	6	0.0	18

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.03674	-3.214	1.070	-0.554	0.919		144

Null Hypothesis: Unit root (common unit root process)
Series: LOGGDP_DC
Date: 06/19/19 Time: 12:56
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.96457	0.0247

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGGDP_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.78413	0.0001	0.0002	4	4	5.0	20
Egypt	-0.34333	0.0010	0.0023	4	4	2.0	20
Indonesia	-0.57987	0.0040	0.0087	4	4	1.0	20
Iran	-0.67751	0.0010	0.0020	4	4	4.0	20
Malaysia	-0.29158	0.0001	0.0019	4	4	2.0	20

Nigeria	-0.56702	0.0040	0.0069	4	4	0.0	20
Pakistan	-0.43496	0.0010	0.0024	4	4	2.0	20
Turkey	-0.53127	0.0011	0.0060	4	4	1.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.44808	-10.422	1.030	-0.703	1.003	160

(ii) 1st Difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGGDP_DC)
Date: 06/19/19 Time: 12:58
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.72541	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGGDP_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.33577	0.0006	9.E-05	0	4	17.0	23
Egypt	-0.58708	0.0019	0.0004	0	4	10.0	23
Indonesia	-0.83717	0.0084	0.0010	0	4	17.0	23
Iran	-1.19158	0.0017	0.0005	1	4	8.0	22
Malaysia	-0.46959	0.0008	0.0005	0	4	4.0	23
Nigeria	-1.29076	0.0050	0.0044	2	4	3.0	21
Pakistan	-0.57887	0.0013	0.0005	0	4	7.0	23
Turkey	-0.80822	0.0050	0.0009	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.82701	-10.887	1.051	-0.554	0.919	181

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGGDP_DC)
Date: 06/19/19 Time: 12:59
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-6.58907	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGGDP_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.34609	0.0006	9.E-05	0	4	17.0	23
Egypt	-0.78429	0.0016	0.0005	0	4	9.0	23
Indonesia	-0.88757	0.0080	0.0010	0	4	17.0	23
Iran	-1.21479	0.0017	0.0004	1	4	8.0	22
Malaysia	-0.47829	0.0008	0.0005	0	4	4.0	23
Nigeria	-1.28328	0.0049	0.0043	2	4	3.0	21
Pakistan	-0.58713	0.0013	0.0004	0	4	8.0	23
Turkey	-0.84237	0.0049	0.0005	0	4	22.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.87339	-11.345	1.046	-0.703	1.003		181

(c) <u>LOGINF*DC</u>

(i) <u>Level form</u>

Null Hypothesis: Unit root (common unit root process)
Series: LOGINF_DC
Date: 06/19/19 Time: 14:09
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 192
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 2.29133	0.0110

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGINF_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.38684	0.0449	0.0070	0	4	18.0	24
Egypt	-0.37302	0.0345	0.0324	0	4	1.0	24
Indonesia	-0.63334	0.0824	0.0148	0	4	10.0	24
Iran	-0.29919	0.0212	0.0093	0	4	7.0	24
Malaysia	-0.76542	0.0513	0.0076	0	4	22.0	24
Nigeria	-0.41517	0.0409	0.0430	0	4	3.0	24
Pakistan	-0.22089	0.0350	0.0389	0	4	0.0	24
Turkey	-0.10903	0.0199	0.0270	0	4	2.0	24
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.30382	-5.941	1.038	-0.554	0.919		192

Null Hypothesis: Unit root (common unit root process)
Series: LOGINF_DC
Date: 06/19/19 Time: 14:12

Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 190
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.67346	0.0471

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGINF_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.91181	0.0353	0.0044	1	4	18.0	23
Egypt	-0.46634	0.0309	0.0284	0	4	2.0	24
Indonesia	-0.86944	0.0685	0.0144	0	4	10.0	24
Iran	-0.69193	0.0158	0.0096	1	4	7.0	23
Malaysia	-0.83674	0.0495	0.0055	0	4	18.0	24
Nigeria	-0.39913	0.0396	0.0210	0	4	5.0	24
Pakistan	-0.25634	0.0340	0.0387	0	4	0.0	24
Turkey	-0.07595	0.0197	0.0233	0	4	2.0	24

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.41920	-6.763	1.066	-0.703	1.003		190

(ii) <u>1st Difference</u>

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGINF_DC)
Date: 06/19/19 Time: 14:13
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-11.4577	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGINF_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.82636	0.0376	0.0112	1	4	11.0	22
Egypt	-1.20528	0.0397	0.0064	0	4	12.0	23
Indonesia	-1.96149	0.0858	0.0290	1	4	8.0	22
Iran	-0.97124	0.0252	0.0035	0	4	20.0	23
Malaysia	-2.01934	0.0613	0.0222	1	4	10.0	22
Nigeria	-1.00803	0.0554	0.0067	0	4	17.0	23
Pakistan	-1.09082	0.0397	0.0042	0	4	22.0	23

Turkey	-0.89421	0.0209	0.0176	0	4	1.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.23948	-14.359	1.061	-0.554	0.919	181

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGINF_DC)
Date: 06/19/19 Time: 14:14
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 181
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.86194	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGINF_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.82239	0.0375	0.0110	1	4	11.0	22
Egypt	-1.22091	0.0386	0.0074	0	4	13.0	23
Indonesia	-1.96516	0.0855	0.0290	1	4	8.0	22
Iran	-0.96910	0.0252	0.0030	0	4	18.0	23
Malaysia	-2.03836	0.0593	0.0210	1	4	10.0	22
Nigeria	-1.06721	0.0518	0.0068	0	4	17.0	23
Pakistan	-1.09427	0.0397	0.0039	0	4	22.0	23
Turkey	-0.94767	0.0187	0.0156	0	4	2.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.25668	-14.713	1.059	-0.703	1.003	181

(d) LOGLC*DC
(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGLC_DC
Date: 06/19/19 Time: 14:15
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-1.41220	0.0789

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGLC_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.02821	0.0002	0.0004	3	3	3.0	21
Egypt	-0.27434	0.0017	0.0044	3	3	2.0	21
Indonesia	-0.30524	0.0070	0.0086	3	3	0.0	21
Iran	-0.07138	0.0012	0.0020	3	3	0.0	21
Malaysia	-0.24891	0.0004	0.0017	3	3	3.0	21
Nigeria	-0.14089	0.0049	0.0070	3	3	0.0	21
Pakistan	-0.18330	0.0010	0.0019	3	3	2.0	21
Turkey	-0.01384	0.0040	0.0055	3	3	1.0	21
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.05771	-3.351	1.048	-0.554	0.919		168

Null Hypothesis: Unit root (common unit root process)
Series: LOGLC_DC
Date: 06/19/19 Time: 14:17
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 186
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.23641	0.0006

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGLC_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.53088	0.0005	0.0003	0	4	3.0	24
Egypt	-0.20980	0.0018	0.0031	0	4	2.0	24
Indonesia	-0.15426	0.0075	0.0092	0	4	2.0	24
Iran	-0.35428	0.0015	0.0020	0	4	0.0	24
Malaysia	-0.21047	0.0007	0.0016	0	4	3.0	24
Nigeria	-0.50333	0.0047	0.0070	1	4	0.0	23
Pakistan	-0.19835	0.0009	0.0018	1	4	2.0	23
Turkey	-0.55679	0.0009	0.0042	4	4	0.0	20
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.32481	-8.894	1.058	-0.703	1.003		186

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGLC_DC)

Date: 06/19/19 Time: 14:18
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 7.48422	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGLC_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.26519	0.0007	0.0001	0	4	13.0	23
Egypt	-0.73943	0.0027	0.0006	0	4	10.0	23
Indonesia	-0.73084	0.0083	0.0009	0	4	20.0	23
Iran	-0.77650	0.0019	0.0005	0	4	10.0	23
Malaysia	-0.59163	0.0008	0.0006	0	4	1.0	23
Nigeria	-0.78827	0.0069	0.0046	0	4	3.0	23
Pakistan	-0.62008	0.0011	0.0006	0	4	4.0	23
Turkey	-0.75732	0.0040	0.0007	0	4	22.0	23
	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.78022	-10.858	1.020	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGLC_DC)
Date: 06/19/19 Time: 14:18
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 182
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 6.34889	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGLC_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.32029	0.0006	0.0001	0	4	13.0	23
Egypt	-0.85645	0.0024	0.0008	0	4	9.0	23
Indonesia	-1.04351	0.0074	0.0009	1	4	20.0	22
Iran	-0.99297	0.0015	0.0004	1	4	10.0	22
Malaysia	-0.60678	0.0008	0.0006	0	4	1.0	23
Nigeria	-0.78834	0.0069	0.0046	0	4	3.0	23

Pakistan	-0.65087	0.0011	0.0005	0	4	4.0	23
Turkey	-0.78828	0.0040	0.0004	0	4	22.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.86773	-11.419	1.025	-0.703	1.003		182

(e) LOGTO*DC

(i) Level form

Null Hypothesis: Unit root (common unit root process)
Series: LOGTO_DC
Date: 06/19/19 Time: 14:19
Sample: 1993 2017
Exogenous variables: Individual effects
User-specified lags: 3
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 168
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 1.99250	0.0232

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGTO_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.07365	0.0015	0.0026	3	3	3.0	21
Egypt	-0.26238	0.0017	0.0072	3	3	2.0	21
Indonesia	-0.47744	0.0144	0.0042	3	3	10.0	21
Iran	-0.10182	0.0023	0.0081	3	3	2.0	21
Malaysia	-0.11491	0.0006	0.0032	3	3	3.0	21
Nigeria	-0.43992	0.0114	0.0146	3	3	0.0	21
Pakistan	-0.22926	0.0023	0.0031	3	3	2.0	21
Turkey	0.03145	0.0076	0.0069	3	3	4.0	21

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.11798	-4.799	1.047	-0.554	0.919		168

Null Hypothesis: Unit root (common unit root process)
Series: LOGTO_DC
Date: 06/19/19 Time: 14:22
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 4
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 160
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	- 1.31348	0.0945

** Probabilities are computed assuming asympotic normality

Intermediate results on LOGTO_DC

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-0.41285	0.0015	0.0017	4	4	5.0	20
Egypt	-0.31732	0.0017	0.0057	4	4	2.0	20
Indonesia	-0.79125	0.0122	0.0033	4	4	11.0	20
Iran	-0.40838	0.0017	0.0080	4	4	2.0	20
Malaysia	-0.60999	0.0004	0.0025	4	4	3.0	20
Nigeria	-0.77170	0.0109	0.0120	4	4	1.0	20
Pakistan	-0.37400	0.0020	0.0029	4	4	2.0	20
Turkey	-0.66271	0.0013	0.0062	4	4	4.0	20

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.50143	-9.829	1.034	-0.703	1.003		160

(ii) 1st difference

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGTO_DC)
Date: 06/19/19 Time: 14:23
Sample: 1993 2017
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 184
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.71122	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGTO_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.10597	0.0035	0.0006	0	4	13.0	23
Egypt	-0.45072	0.0029	0.0008	0	4	22.0	23
Indonesia	-1.26935	0.0176	0.0037	0	4	11.0	23
Iran	-0.51559	0.0034	0.0005	0	4	22.0	23
Malaysia	-0.46419	0.0008	0.0006	0	4	3.0	23
Nigeria	-1.12425	0.0145	0.0064	0	4	6.0	23
Pakistan	-0.99106	0.0027	0.0054	0	4	0.0	23
Turkey	-0.89173	0.0084	0.0014	0	4	12.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.80048	-11.219	1.058	-0.554	0.919		184

Null Hypothesis: Unit root (common unit root process)
Series: D(LOGTO_DC)
Date: 06/19/19 Time: 14:24
Sample: 1993 2017
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 180
Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-5.51378	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LOGTO_DC)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bangladesh	-1.18791	0.0031	0.0005	0	4	13.0	23
Egypt	-0.48547	0.0029	0.0004	0	4	22.0	23
Indonesia	-3.41365	0.0068	0.0036	4	4	11.0	19
Iran	-0.51773	0.0034	0.0005	0	4	22.0	23
Malaysia	-0.50053	0.0008	0.0002	0	4	5.0	23
Nigeria	-1.16979	0.0135	0.0063	0	4	6.0	23
Pakistan	-1.03125	0.0026	0.0054	0	4	0.0	23
Turkey	-0.89970	0.0083	0.0014	0	4	12.0	23

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.86346	-10.541	1.117	-0.703	1.003		180

Appendix 15 : Model 2 (FDI-LOGIV*DC) - POLS & REM & FEM

(A) Pooled Ordinary Least Squares (POLS)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 12:19
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.545061	3.866390	0.916892	0.3603
LOGEXR_DC	0.270016	0.798274	0.338249	0.7355
LOGGDP_DC	-0.636202	0.358958	-1.772356	0.0779
LOGINF_DC	0.397852	0.352568	1.128442	0.2605
LOGLC_DC	-1.967596	0.666709	-2.951206	0.0036
LOGTO_DC	3.320128	0.531281	6.249287	0.0000

R-squared	0.277817	Mean dependent var	1.681255
Adjusted R-squared	0.259204	S.D. dependent var	1.665534
S.E. of regression	1.433516	Akaike info criterion	3.587679
Sum squared resid	398.6640	Schwarz criterion	3.686628
Log likelihood	-352.7679	Hannan-Quinn criter.	3.627722
F-statistic	14.92602	Durbin-Watson stat	0.596764
Prob(F-statistic)	0.000000		

(B) Random Effects Model (REM)

Dependent Variable: FDI
Method: Panel EGLS (Cross-section random effects)
Date: 06/19/19 Time: 12:17
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.202239	6.030377	-0.033537	0.9733
LOGEXR_DC	0.356795	0.854527	0.417535	0.6767
LOGGDP_DC	-0.456579	0.618529	-0.738169	0.4613
LOGINF_DC	0.652781	0.352878	1.849879	0.0659
LOGLC_DC	-0.300485	1.384596	-0.217020	0.8284
LOGTO_DC	1.844014	0.911107	2.023927	0.0443

Effects Specification

	S.D.	Rho
Cross-section random	0.849353	0.2978
Idiosyncratic random	1.304179	0.7022

Weighted Statistics

R-squared	0.105857	Mean dependent var	0.493563
Adjusted R-squared	0.082812	S.D. dependent var	1.362766
S.E. of regression	1.305120	Sum squared resid	330.4477
F-statistic	4.593491	Durbin-Watson stat	0.698956
Prob(F-statistic)	0.000554		

Unweighted Statistics

R-squared	0.220886	Mean dependent var	1.681255
Sum squared resid	430.0916	Durbin-Watson stat	0.537022

(C) Fixed Effects Model (FEM)

Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 12:18
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.733841	8.243151	0.574276	0.5665
LOGEXR_DC	-0.161015	0.924351	-0.174193	0.8619
LOGGDP_DC	-1.104766	0.910980	-1.212723	0.2268
LOGINF_DC	0.799357	0.367324	2.176160	0.0308
LOGLC_DC	2.367622	2.172813	1.089657	0.2773

LOGTO_DC	0.753271	1.121887	0.671432	0.5028

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.423823	Mean dependent var	1.681255
Adjusted R-squared	0.386849	S.D. dependent var	1.665534
S.E. of regression	1.304179	Akaike info criterion	3.431816
Sum squared resid	318.0651	Schwarz criterion	3.646206
Log likelihood	-330.1816	Hannan-Quinn criter.	3.518576
F-statistic	11.46275	Durbin-Watson stat	0.710548
Prob(F-statistic)	0.000000		

Appendix 16 : Model 2 (FDI-LOGIV*DC) - LR & LM & Hausman Test

(A) Likelihood Ratio [LR] - (POLS vs FEM)

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.769507	(7,187)	0.0000
Cross-section Chi-square	45.172614	7	0.0000

Cross-section fixed effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 12:22
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.545061	3.866390	0.916892	0.3603
LOGEXR_DC	0.270016	0.798274	0.338249	0.7355
LOGGDP_DC	-0.636202	0.358958	-1.772356	0.0779
LOGINF_DC	0.397852	0.352568	1.128442	0.2605
LOGLC_DC	-1.967596	0.666709	-2.951206	0.0036
LOGTO_DC	3.320128	0.531281	6.249287	0.0000

R-squared	0.277817	Mean dependent var	1.681255
Adjusted R-squared	0.259204	S.D. dependent var	1.665534
S.E. of regression	1.433516	Akaike info criterion	3.587679
Sum squared resid	398.6640	Schwarz criterion	3.686628
Log likelihood	-352.7679	Hannan-Quinn criter.	3.627722
F-statistic	14.92602	Durbin-Watson stat	0.596764
Prob(F-statistic)	0.000000		

(B) Breusch-Pagan Lagrange Multiplier (BP-LM) Test (POLS vs REM)

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	40.50443 (0.0000)	6.411655 (0.0113)	46.91609 (0.0000)
Honda	6.364309 (0.0000)	2.532125 (0.0057)	6.290729 (0.0000)
King-Wu	6.364309 (0.0000)	2.532125 (0.0057)	6.803088 (0.0000)
Standardized Honda	10.58731 (0.0000)	2.741258 (0.0031)	3.546313 (0.0002)
Standardized King-Wu	10.58731 (0.0000)	2.741258 (0.0031)	5.475506 (0.0000)
Gourieroux, et al.*	--	--	46.91609 (0.0000)

(C) Hausman test (FEM vs REM)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.280109	5	0.3827

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOGEXR_DC	-0.161015	0.356795	0.124209	0.1418
LOGGDP_DC	-1.104766	-0.456579	0.447307	0.3325
LOGINF_DC	0.799357	0.652781	0.010405	0.1507
LOGLC_DC	2.367622	-0.300485	2.804013	0.1111
LOGTO_DC	0.753271	1.844014	0.428515	0.0957

Cross-section random effects test equation:
Dependent Variable: FDI
Method: Panel Least Squares
Date: 06/19/19 Time: 12:20
Sample: 1993 2017
Periods included: 25
Cross-sections included: 8
Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.733841	8.243151	0.574276	0.5665
LOGEXR_DC	-0.161015	0.924351	-0.174193	0.8619
LOGGDP_DC	-1.104766	0.910980	-1.212723	0.2268
LOGINF_DC	0.799357	0.367324	2.176160	0.0308
LOGLC_DC	2.367622	2.172813	1.089657	0.2773
LOGTO_DC	0.753271	1.121887	0.671432	0.5028

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.423823	Mean dependent var	1.681255
Adjusted R-squared	0.386849	S.D. dependent var	1.665534
S.E. of regression	1.304179	Akaike info criterion	3.431816
Sum squared resid	318.0651	Schwarz criterion	3.646206
Log likelihood	-330.1816	Hannan-Quinn criter.	3.518576
F-statistic	11.46275	Durbin-Watson stat	0.710548
Prob(F-statistic)	0.000000		

Appendix 17 : Model 2 (FDI-LOGIV*DC) - Diagnostic Testing

(A) Multicollinearity

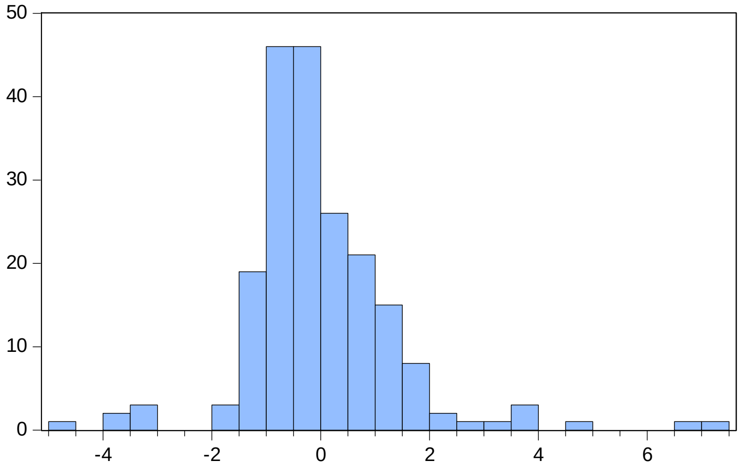
(i) VIF

Variance Inflation Factors
Date: 06/19/19 Time: 12:31
Sample: 1 200
Included observations: 200

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	14.94897	1454.910	NA
LOGEXR_DC	0.637242	757.6836	6.813735
LOGGDP_DC	0.128851	2090.661	2.763421
LOGINF_DC	0.124304	72.99334	1.497776
LOGLC_DC	0.444501	434.1997	9.937818
LOGTO_DC	0.282260	287.2905	7.263327

(B) Normality Test

(i) Panel dated data



Series: Standardized Residuals
Sample 1993 2017
Observations 200

Mean	7.92e-16
Median	-0.253018
Maximum	7.342645
Minimum	-4.570560
Std. Dev.	1.412703
Skewness	1.368273
Kurtosis	9.674940
Jarque-Bera	433.6959
Probability	0.000000

(C) Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.309173	Prob. F(2,190)	0.2725
Obs*R-squared	2.705096	Prob. Chi-Square(2)	0.2586

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 08/06/19 Time: 10:53
Sample: 2 200
Included observations: 199
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	0.201133	2.924232	0.068782	0.9452
LOGEXR_DC	0.039753	0.569622	0.069788	0.9444
LOGGDP_DC	-0.037472	0.276955	-0.135301	0.8925
LOGINF_DC	0.001169	0.271024	0.004312	0.9966
LOGLC_DC	-0.181756	0.570660	-0.318501	0.7505
LOGTO_DC	0.269434	0.498550	0.540436	0.5895
FDI(-1)	-0.090565	0.106246	-0.852408	0.3951
RESID(-1)	0.167881	0.120792	1.389836	0.1662
RESID(-2)	-0.000137	0.099284	-0.001380	0.9989

R-squared	0.013593	Mean dependent var	-1.04E-15
Adjusted R-squared	-0.027939	S.D. dependent var	1.067880
S.E. of regression	1.082695	Akaike info criterion	3.040956
Sum squared resid	222.7235	Schwarz criterion	3.189899
Log likelihood	-293.5751	Hannan-Quinn criter.	3.101237
F-statistic	0.327293	Durbin-Watson stat	1.995201
Prob(F-statistic)	0.954816		

(D) Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.997574	Prob. F(5,194)	0.0807
Obs*R-squared	9.792614	Prob. Chi-Square(5)	0.0813
Scaled explained SS	39.96489	Prob. Chi-Square(5)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/06/19 Time: 10:54
Sample: 1 200
Included observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	30.45673	15.42101	1.975015	0.0497
LOGEXR_DC	-4.891695	3.022649	-1.618347	0.1072
LOGGDP_DC	-2.499802	1.452270	-1.721306	0.0868
LOGINF_DC	1.835896	1.422143	1.290937	0.1983
LOGLC_DC	1.078185	2.805659	0.384289	0.7012
LOGTO_DC	4.141246	2.052277	2.017878	0.0450

R-squared	0.048963	Mean dependent var	1.985750
Adjusted R-squared	0.024452	S.D. dependent var	5.863357
S.E. of regression	5.791229	Akaike info criterion	6.380107
Sum squared resid	6506.436	Schwarz criterion	6.479056
Log likelihood	-632.0107	Hannan-Quinn criter.	6.420150
F-statistic	1.997574	Durbin-Watson stat	0.762951
Prob(F-statistic)	0.080680		

Appendix 18: First Generation and Second Generation of Panel Unit Roots Model

First Generation	**Cross-sectional independence**
1. Non stationarity tests	Levin and Lin (1992, 1993) and Levin, Lin and Chu (2002)
	Im, Pesaran and Shin (1997, 2003)
	Maddala and Wu (1999) and Choi (1999, 2001)
2. Stationarity tests	Choi's (2001) extension
	Hadri (2000)
Second Generation	**Cross-sectional dependence**
1. Factor Structure	Pesaran (2003)
	Moon and Perron (2004a)
	Bai and Ng (2002, 2004)
	Choi (2002)
	Phillips and Sul (2003)
2. Other Approaches	O'Connell (1998)
	Chang (2002, 2004) (covariance approach)