

The Role of Household Consumption in Relationship Between Economic Growth and Foreign Direct Investment in Bulgaria

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Summary

The aim of the article is to identify the role of household consumption and the import of consumption goods as transmission channels between GDP growth and foreign direct investment (FDI) in Bulgaria during the period between 1999 and 2015. The investigation carried out using descriptive and econometric analysis illustrates strong short and long-run causal relationships among variables and confirms significant effect of household consumption and FDI on economic growth.

Keywords: household consumption, import of consumption goods, transmission channels, economic growth

JEL: F10, F21, E20, F41

Introduction

A possible transmission mechanism that illustrates the relationship between foreign direct investment (FDI) and GDP growth is through the use of household consumption expenditure and import of consumption goods. Realistic assumption is that FDI inflows in Bulgaria have crucial direct and indirect effect on consumer expenditure due to rise in real income. Therefore higher

compensation of employees reflects on greater import of consumer goods. As a result higher consumption of households and FDI inflows influence economic growth substantially. Such relationship occurs depending on various prerequisites such as stage of economic development, business cycle phase and etc.

Empirical and descriptive analysis of the relationship between FDI inflows, final expenditure of households and economic growth

The topic about the relationship between FDI, household consumption and economic growth is rarely discussed in the economic literature. Presumably, the effect of FDI on consumer behavior and thus on economic growth is not direct. On one hand, FDI has the ability to provide employment and therefore increases personal incomes that trigger a rise in consumer spending and GDP growth. On the other hand foreign investments induce an increase in the import of consumer goods as real income rises in order to meet a variety of consumer needs. According to **Najabat and Hussain**¹ (2017), technology transfer can take place in the host country through multinational firms, while spillovers could occur by the interaction of domestic firms

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¹ Najabat, A., Hussain, H., Impact of Foreign Direct Investment on the Economic Growth in Pakistan, American Journal of Economics, 2017, pp. 163-170

through the interaction of multinational firms with domestic firms, suppliers, customers and work force. Therefore, FDI can have a positive impact on income and household consumption and thus on economic growth. Frankel and Romer² (1999) argue that FDI and international trade raise income and the key factor in that relation seems to be the geographical component. Their research shows that a rise of one percentage point in the trade to GDP ratio increases income per person by at least one-half percent. From the point of transition economies, Jude and Maska³ (2009) argue that the relationship between FDI, consumption and economic growth is represented as a vicious cycle that allows FDI and consumption to auto maintain themselves and generate unhealthy economic growth in Romania. In this context, main concern is that the growth of real GDP is triggered by the rise in consumption but in the same time household expenditure consists of buying sufficient amount of foreign goods which raises the import and thus widens current account deficit.

Regarding FDI positive spillovers, Alfaro, Chanda, Ozcan and Sayek⁴ (2007) find evidence that financially well-developed economies experience growth rates that are almost twice those of economies with poor financial markets and also that the existence of qualified human capital contributes to proper absorption of FDI and therefore leads to higher real incomes and household consumption.

² Frankel, J., Romer, D., Does Trade Cause Growth?, *American Economic Review*, Vol.89. 1999, pp. 379-399

³ Maska, S., Jude, C., The Vicious Cycle of FDI and Consumption in Romania, University of Oradea, Faculty of Economics, Vol.2, pp. 417-423

⁴ Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S., How Does Foreign Direct investment Promote Economic Growth? Exploring the Effects of Financial Markets and Linkages, NBER Working Paper No. 12522, 2007

Descriptive analysis covers the period between 1999 and 2015, which is conditionally subdivided into two periods: from 1999 to 2008 and from 2009 to 2015.

The first period between 1999 and 2008 was favorable for the Bulgarian economy due to the massive FDI inflows, joining a currency union and also the adequately conducted macroeconomic policy. Moreover, many substantial improvements have been made in the pension system and health care reforms that led to higher employment and labor productivity. In this relation the share of workers in the private sector also increased parallel with the compensation of employees. FDI inflows significantly contributed to these positive trends in economic activity. Additionally, there was a rise in employment in financial intermediation, property transactions and business services, hotels and restaurants, transport and communications, as well as communications services. As a result, the minimum and average wage as well as the qualification of workers also increased. The rapid development of bank services in line with properly implemented monetary policy led to an increase in the number of consumer loans which expanded consumer expenditures, especially those concerning foreign goods. This is a main reason for the significant increase in the import of foreign goods.

The second period covers the years since the start of the global economic crisis and its repercussions on the Bulgarian economy. It occurred at the end of 2008 and to a great extent in 2009 and continued until 2015. The crisis has a significant negative impact on the dynamics of the FDI, employment, economic growth and other macroeconomic variables. In 2008, turbulence in the global economy has had a significant impact on EU countries causing fiscal imbalances, changes in interest rates, lending activity difficulties of banks and

other imbalances in the real sector of the economy.

At the beginning of the second period FDI inflows remained low. The reason for this is the decline in domestic demand. There was a drastic contraction in the investment activity, security and trust of a large number of investors. Uncertainty about future recovery of the economy led to a curtailment of lending activity, a drop in incomes and an increase in

the unemployment rate. In this respect, FDI has remained at a lower level than previous years due to the uncertainty and lack of good prospects for future profitability in the banking sector.

The relationship between the import of foreign goods and FDI inflows is illustrated in diagram 1. This relation proved to be positive, especially during the first period.

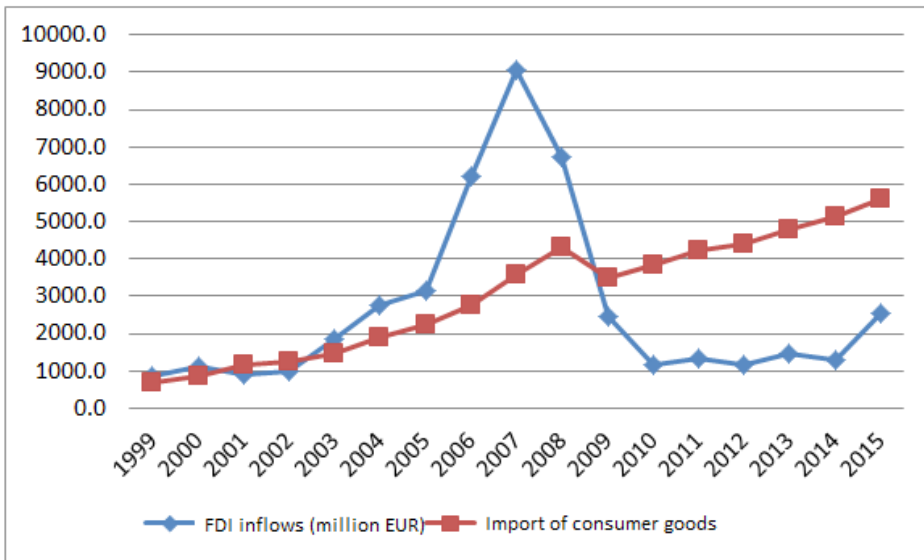
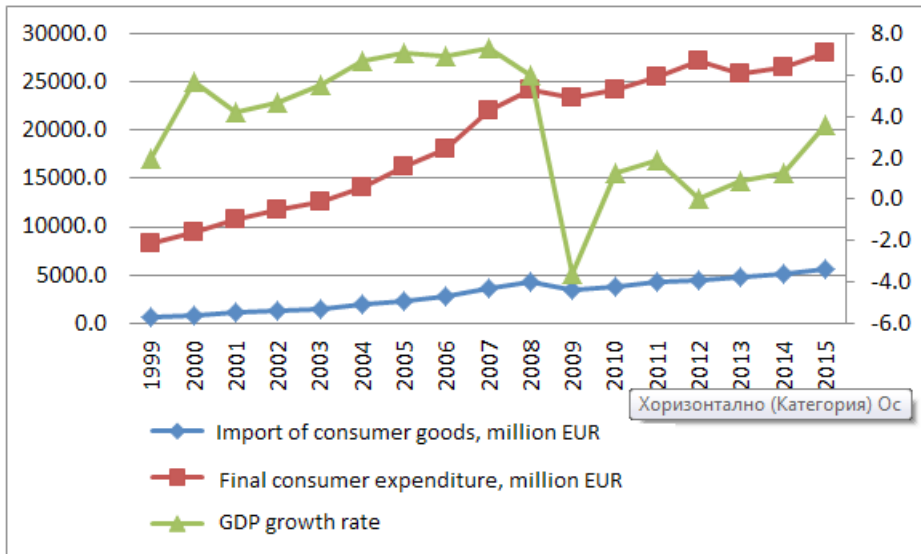


Fig 1. FDI (million EUR) and import of foreign goods (million EUR), 1999 – 2015
Source: BNB

At the beginning of the first period there was a steady increase in both FDI and value of imported consumer goods. Foreign investment in 2001 was EUR 903.4 million, while the import of consumer goods in the same year amounted to EUR 1140.1 million. For a period of three years the value of both indicators has increased significantly. In 2004, FDI reached EUR 2735.9 million while imports of consumer goods amounted to EUR 1894.7 million. Despite the observed decline in FDI inflows since 2009, consumer goods imports

in the second period continued to grow and reached EUR 5599.6 million in 2015.

High real incomes stimulated growth in household consumer spending (FCEH – final consumer expenditure of households), which is to a large extent oriented to the consumption of foreign goods. This circumstance generated additional increase in imports of consumer goods in order to meet a wider range of needs. Figure 2 below shows the dynamics of the import of consumer goods, final consumer expenditures of households and the growth rate of GDP.



* Data on the left-hand scale depict the import of consumer goods and consumer expenditure in million euros. The right scale shows the rate of GDP growth in%.

Fig. 2. *Import of consumer goods, final consumer expenditure (million EUR) GDP growth rate (in %), 1999 – 2015*
Source: BNB

Traditionally, consumer expenditure of households forms the bulk of the structure of GDP and therefore their growth correlates with rising economic growth rates. Figure 2 shows a positive correlation between the growth of consumer spending of households and the import of consumer goods, which is a typical trend throughout the whole period.

In 2000, FCEH reached 9403 million euro, while in 2006 their amount was 18043.1 million euro. During the first period the real growth of average wages increased in all sectors of the economy, which stimulated further increase in household expenditures. FDI inflows have contributed significantly to the positive dynamics of labor market by increasing labor productivity and speeding up the competitiveness of the economy.

At the beginning of the second period, the worsened global economic conjuncture adversely affected domestic demand, resulting in a substantial slowdown in consumption

dynamics. This negative trend contributed also to reduction in credit activity of financial institutions. The rate of unemployment has also risen simultaneously with the slowdown of income growth, which had a direct negative impact on the economic activity. In 2008 household consumption expenditure amounted to EUR 24301.8 million, while in 2009 it decreased to EUR 23377.1 million, which corresponded with negative GDP growth rate in 2009 that reached 3.6%. In 2014 and 2015 economic growth rates, consumer spending of households and the import of consumer goods began to rise steadily. Thus, in 2014 and 2015 GDP growth rates were respectively 1.3% and 3.6%, while in this period FCEH rose by 5.5% and reached 28035 million in 2015. At the same time, import of consumer goods increased from EUR 5114.4 million in 2014 to EUR 5599.6 million in 2015.

As Figure 3 shows, there is a noticeable parallel increase in the value of FCEH and

FDI inflows during the first period. More precisely, household consumption expenditure amounted to EUR 14157.8 million in 2004 and FDI inflows totaled EUR 2735.9 million, while in 2007, when FDI inflows reached their maximum of EUR 9051.8 million and final consumer expenditure rose to EUR 22126.5 million, which proves the strong dependence between these two variables.

In particular, the increase in employment due to the high value of FDI in the first period led to a rise in real incomes, which contributed to higher household spending. A significant decrease in FCEH (3.8%) was registered in 2009 compared to 2008 as a result of the

unfavorable impact of the global crisis on the Bulgarian economy.

Revival in household consumption has been observed since 2010, despite the significant and sustained decline in FDI inflows during the second period. After 2012 the rate of employment increased together with the improvement in consumer confidence and therefore contributed to higher consumer spending. For example, in 2012 the FCEH reached EUR 27276 million, whereas in 2015 their amount was EUR 28035 million. The positive trend of household consumption growth also corresponds to the higher rates of economic growth at the end of the second period.

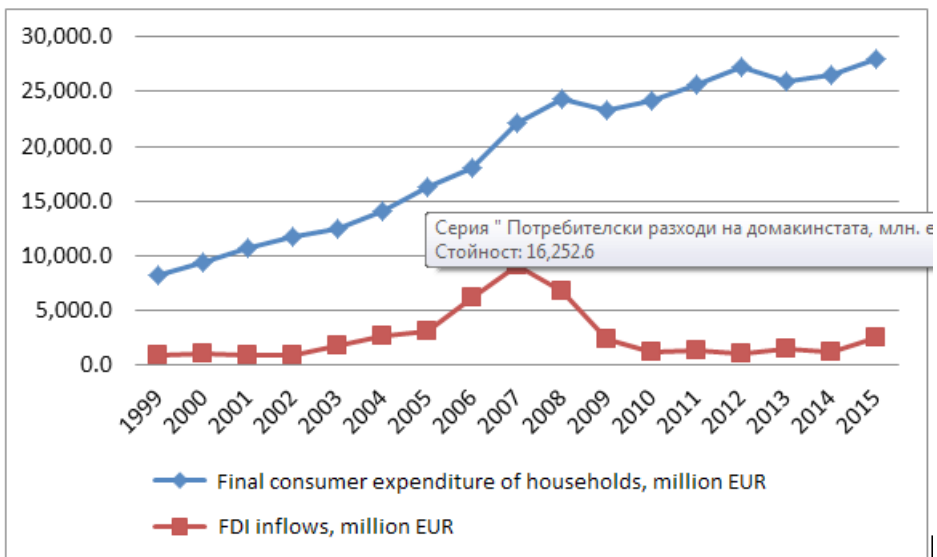


Fig. 3. FDI inflows (million EUR) and final consumer expenditure of households (million EUR), 1999 – 2015
Source: BNB

The second period is associated with a reversal in the dynamics of FDI inflows and FCEH, which reflected in a continuous increase in the consumer expenditure of households and a decline in FDI. An explanation of the opposite development of the two indicators illustrated in Figure 3 can be sought in changing the type and quality of

FDI in the second period. Foreign investment in recent years has been concentrated in services-related sectors, including IT, outsourcing, etc., which do not require a high initial investment but in the same time generate significant profits and benefits for those working in these areas. Relatively high remuneration in these predominantly foreign

business entities contributed to an increase in the incomes, employment and skills of the employees, which at some degree determined the increase in household expenditures at the end of that period.

Long-run and short-run relationships between FDI inflows, final expenditure of households and real GDP

Econometric analysis methodology

The econometric analysis consists of four indicators: *lgrgdp_sa* (real GDP), *lgfdi_sa* (FDI inflows), *lgfceh_sa* (final consumer expenditure of households) and *lgimch_sa* (import of consumer goods) and has sufficient number of observations covering the period from the first quarter of 1999 to the fourth quarter of 2015. The main source of data is generated from the statistical platform of the Bulgarian National Bank. All time series involved in the study are presented as growth rate in order to achieve statistically valid comparisons and assessments.

The whole econometric analysis goes through several consecutive steps following a clearly defined algorithm. Initially, all four variables have been seasonally adjusted by using the econometric program **EVIEWS 9 by method called TRAMO / SEATS**. Subsequently, these variables were transformed into natural logarithms. The next step was to check all indicators for stationarity by using Dickey-Fuller and Phillips-Perron unit root tests. **Tests show that all variables**

become stationary at first difference. (Appendix 1)

After determining the order of which indicators become stationary, it was necessary to calculate the corresponding differences of the logarithm transformed variables, making it possible to interpret them in the sense of a rate of change, which also allows the use of a wide range of econometric tests.

Next step was the determination of optimal lag length of time series through the use of vector autoregressive model. The optimal number of time lags was chosen on the basis of several information criteria: Akaike (AIC), Schwartz (SC), Hannan – Quinn (HQ), final prediction error (FPE) and likelihood ratio (LR). **According to AIC and HQ information criterion the optimal number of lags included in the model was suggested to be 3 (Appendix 2)**. Then all variables were tested for long-term cointegration relationship by using Johansen cointegration test (**Appendix 3**). When it was proven that the variables in the research are cointegrated, the research proceeded to specific subsequent tests that measure short and long-term relationships between variables. Pairwise Granger Causality Test was used for short-run relations, whereas long-run relationships were tested by constructing Vector Error Correction Model (VECM)⁵ and VAR Granger Causality / Block Exogeneity Wald Test.

⁵ In the current research VECM is used when variables are proven to be stationary at first differences, whereas VAR models mainly deal with level data.

Table 1. illustrates all short and long-run relationships between FDI inflows, final consumer expenditures of households, the import of consumer goods and GDP.

Short-run and long-run relationships			
GDP (d/lgrgdp), FDI (d/lgfdi), FCEH (d/lgfceh) u IMCH (d/lgimch)			
Short-run relationships: Pairwise Granger Causality Test			
Independent/dependent variables:	F-statistics	Lags	Prob.
DLGRGDP → DLGIMCH	2.30756	3	0.0424**
DLGFCEH → DLGIMCH	1.95540	3	0.0828*
Cointegration equation (VECM)			
$D(DLGRGDP_SA) = -0.883149*(DLGRGDP_SA(-1) + 0.0221669824327*DLGFDI_SA(-1) + 0.0722537951893*DLGIMCH_SA(-1) + 0.248919822808*DLGFCEH_SA(-1) - 0.00104420055951*@\text{TREND}(99Q1) - 0.504999534227) + -0.055253*D(DLGRGDP_SA(-1)) + -0.094260*D(DLGRGDP_SA(-2)) + 0.267687*D(DLGRGDP_SA(-3)) + 0.017375*D(DLGFDI_SA(-1)) + 0.011396*D(DLGFDI_SA(-2)) + 0.004801*D(DLGFDI_SA(-3)) + 0.040121*D(DLGIMCH_SA(-1)) + 0.025502*D(DLGIMCH_SA(-2)) + 0.016584*D(DLGIMCH_SA(-3)) + 0.805791*D(DLGFCEH_SA(-1)) + 0.406619*D(DLGFCEH_SA(-2)) + 0.174925*D(DLGFCEH_SA(-3)) + 0.008209+ -0.025572*CR$			
Error correction coefficient = -0.883149	Prob. = 0.0000***; R squared=0.65; Adj.R-sq: 0.54		
VAR Granger Causality /Block Exogeneity Wald Test			
Independent/dependent variables:	Chi-sq	df	Prob.
LGIMCH → LGRGDP	25.52013	9	0.0024***
LGFDI → LGRGDP	27.80572	9	0.0010***
LGFDI → LGRGDP	61.51159	9	0.0000***
LGIMCH, LGFDI u LGFCEH → LGRGDP	98.14420	27	0.0000***
LGRGDP → LGFDI	22.48231	9	0.0075***
LGFDI → LGFCEH	16.27689	9	0.0613*
LGIMCH, LGRGDP u LGFCEH → LGFDI	45.34266	27	0.0150**

Source: BNB, own calculations

Short-run relationships between variable pairs tested by Pairwise Granger Causality Test show that GDP influences the import of consumer goods. Additionally, the test shows that household consumption expenditures have an impact on the import of consumer goods in the short term.

Typically, a large part of household consumption is satisfied by the import of consumer goods. **Contrary to expectations, the long-run relationship constructed by VECM cointegration equation shows that FDI, FCEH and the import of consumer goods have a negative impact on GDP due to the fact that positive numbers related to the first part of the equation that present long-run relationships used to be interpreted as having negative influence.** The value

of the error correction coefficient indicates that disequilibrium is corrected within 88.3% for a period. **The possible reason for the negative long-run relationship could be the lack of additional macroeconomic variables that would to some extent influence the relation between GDP, FDI, final consumer expenditure of households and the import of consumer goods.**

Block Exogeneity Wald Test indicates several significant relationships that prove positive relations between variables **in the long run.** According to the first one, the import of consumer goods, FDI and FCEH affect GDP both independently and jointly **which indicates that VECM and Wald tests lead to different results and conclusions.**

Other relationship shows that GDP and FCEH influence FDI inflows in the long-run.

Presumably, the increase in foreign direct investment has led to an increase in employment and real incomes. Therefore higher personal disposable income leads to an increase in consumer spending, which in turn exacerbates consumer demand of foreign goods. Increased imports in this case may lead to a deficit in the trade balance, which implies a decrease in the economic growth rate. According to the data in Table 1 and the Wald test, it could also be argued that the lag values of the import of consumer goods, GDP and household consumption have a long-term effect on FDI.

Finally, the reliability of the model was verified in order to prove that there is no autocorrelation of the residues and also that they are normally distributed.⁶

Conclusion

The current research demonstrates that real GDP in Bulgaria is positively influenced by FDI inflows, final consumer expenditure

⁶ The pre-tests performed pass through several tests using the econometric program EVIEWS 9. Firstly, a Residual Portmanteau Tests and LM autocorrelation test were performed. Portmanteau test formulates two hypotheses. The zero hypothesis states that there is no autocorrelation of the residuals, whereas, according to the alternative, the residuals are autocorrelated. To denote the presence of autocorrelation, the probability (Prob) must be greater than 0.05, which means there is no problem with variables that are not included in the model. The LM test sets out two hypotheses. According to the null hypothesis, there is no serial correlation of the residuals, whereas, according to the alternative, there is a serial correlation of the residuals. Similarly, there is no problem with variables not included in the model due to the fact that the level of significance is greater than 0.05. The next step was the evaluation of residual normality by performing Jarque-Berra Test. The null hypothesis states that the residuals are normally distributed, whereas the alternative hypothesis postulates the opposite. Again, the significance is greater or less than 0.05 which proves that the residuals are normally distributed. Finally, Residual Heteroskedasticity Tests was performed. According to all tests, there is no autocorrelation of residuals and there is no problem with variables not included in the model.

of households and imports of foreign goods in the long-run. Descriptive and econometric analysis also shows that FDI inflows possess the ability to affect GDP both directly and indirectly **depending on the choice of methodology used**. The indirect effect could be revealed through a transmission mechanism that includes final consumer expenditure of households and the import of consumer goods.

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APPENDIX

Appendix 1: Stationarity tests

Variable	ADF statistics (Level)				PP statistics	
	AIC		SIC		Bartlett kernel	
	t stat.	Prob	t stat.	Prob	t stat.	Prob
lgfdi_sa	-2.558040	0.3004	-2.558040	0.3004	-2.435296	0.3586
lgfceph_sa	-1.076237	0.9248	-0.830189	0.9572	-0.901104	0.9495
lgimch_sa	-1.664903	0.7558	-1.664903	0.7558	-1.686343	0.7465
lgrgdp_sa	-0.186477	0.9921	-0.186477	0.9921	-0.438412	0.9841

Variable	ADF statistics (First difference)				PP statistics	
	AIC		SIC		Bartlett kernel	
	t statistics	Prob	t statistics	Prob	t statistics	Prob
lgfdi_sa	-9.784960	0.0000	-9.784960	0.0000	-10.36143	0.0000
lgfceph_sa	-3.311266	0.0438	-3.311266	0.0438	-9.148815	0.0000
lgimch_sa	-8.113746	0.0000	-8.113746	0.0000	-8.113835	0.0000
lgrgdp_sa	-4.337904	0.0051	-7.390117	0.0000	-7.527475	0.0000

Appendix 2: Lag order selection criteria

VAR Lag Order Selection Criteria

Endogenous variables: DLGRGDP_SA DLGFDI_SA DLGFCEH_SA DLGIMCH_SA

Exogenous variables: C CR

Date: 02/14/18 Time: 23:10

Sample: 1999Q1 2015Q4

Included observations: 60

Lag	LogL	LR	FPE	AIC	SC	HQ
0	375.6146	NA	5.60e-11	-12.25382	-11.97457	-12.14459
1	520.7015	261.1565	7.60e-13	-16.55672	-15.71898	-16.22903*
2	529.1055	14.00666	9.89e-13	-16.30352	-14.90729	-15.75737
3	539.5049	15.94586	1.22e-12	-16.11683*	-14.16211	-15.35223*
4	554.9091	21.56589	1.30e-12	-16.09697	-13.58376	-15.11392
5	573.0772	23.01282	1.29e-12	-16.16924	-13.09753	-14.96773
6	598.7802	29.13007	1.03e-12	-16.49267	-12.86247	-15.07270
7	641.3804	42.60019	4.94e-13	-17.37935	-13.19066	-15.74092

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Appendix 3: Johansen Cointegration test**(1999 – 2015)**

Variables	Hypothesized No. of CE(s)	Trace statistic	Critical value 0.05	Prob.	Max - Eigen statistic	Critical value 0.05	Prob.
GDP, FDI, FCEH and IMCH	None	173.0389	29.79707	0.0000***	86.85665	27.58434	0.0000***
	At most 1	86.18229	29.79707	0.0000***	52.69008	21.13162	0.0000***
	At most 2	33.49221	15.49471	0.0000***	18.23966	14.26460	0.0112***
	At most 3	15.25255	3.841466	0.0001***	15.25255	3.841466	0.0001***

Appendix 4: Statistical significance of coefficients

Coefficient	t-statistic	P-statistic
C1	0.067060	0.0000
C2	0.311072	0.7571
C3	0.556365	0.0805
C4	0.004860	0.0628
C5	0.092425	0.0000
C6	0.679300	0.0006
C7	0.514837	0.0153
C8	1.823193	0.0745
C9	1.007933	0.1185
C10	0.809177	0.0224
C11	0.033791	0.0729
C12	0.961293	0.0412
C13	0.459059	0.0483
C14	0.480637	0.0167
C15	0.010214	0.0000