The Impact of Foreign Investment on Balance of Payments Based on the Supply Chain Management: An Econometrics Study for the Period of 2005-2017 in Iraq

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***Abstract*- This examination explores the effect of foreign direct investment on the supply chain management and balance of payment in Iraq market. The study is conducted in Iraqi circumstances focusing on the time period of 2005-2017 by considering the supply chain management. Johansen-Juselius co integration technique has been employed to measure the association among variables of interest which is FDI, CAB and GDP. In this context of particular importance are management concepts such as supply chain and chain quality management concepts. Therefore, our aim is to analyze the influence of Foreign Direct Investment (FDI) on the Iraq business. Furthermore, VECM estimation is carried out to determine a long and short run influence of FDI on current account balance. The results revealed that foreign investment is co-integrated with balance of payment. Furthermore, a positive impact of FDI has been recorded on CAB (current account balance). The results infer export led policy can positively affects the balance of payment with the foreign inflows. Therefore, as a policy implication, FDI should be taken into account when policy makers are making policies regarding economic development.**

Keywords- *supply chain management, economic development, Foreign Investment, Balance of Payments.*

1. Introduction

In this persistently evolving arena, the importance of foreign direct investment is essential for the growth and development of economy. Foreign direct investment can lead and impact the economic factors for instance unemployment reduction, production pattern, technological advancement and import and export level. The flow of foreign direct investment can influence and improve essentially and extensively the dimension of yield and the exchange of a nation and can likewise quicken and accelerate its development and advancement. Further, it plays an imperative and central job in accomplishing the nation's social and financial goals and targets. Further, underdeveloped country can benefit the positive impacts of foreign direct investment in terms of economic prosperity, infrastructure development, technology transfer, and innovation, advancing and upgrading its exchange with the world [1]. As a result, the term supply chains is rapidly becoming the new norm in discussing the spread of trade and investment around the globe.

The FDI with its huge, obvious and considerable effect on the volume of exchange likewise renders help to coordinate the household economy with the worldwide economy. FDI is involving a long-term capital investment reflecting a lasting interest and control by a resident entity. FDI inflows are accounted under the balance of payment capital record. Initially a positive influence of foreign direct investment on balance of payment has recorded. However, an indirect impact on the balance of payment has also witnessed for example current account of balance of payment due to noteworthy effect on the volume of import and export. In this manner the foreign direct investment has an important role in the balance of payment accounts. Balance of Payments also known as BOP comprises of current, capital and settlement accounts. The one year record of economic transactions of a country about financial exchanges with the world is attenuated as balance of payment. Foreign direct investment effect of on the BOP is still in debate and has inconclusive evidence. It relies on the two inverse inclinations where FDI inflow stimulates the imports of host nation on the grounds that the FDI organizations import capital and middle products that are not promptly accessible in the host nation. Foreign direct investment influences the GDP growth on one hand due to capital investment and also stimulates the imports on the other hand. Hence, it is important to discuss the association among these economic indicators. Therefore, this study is aimed at investigating the role of foreign direct investment on balance of payment. FDI influence the Balance of Payments is more significant in least developed economies. This influence is separated from FDI benefits, for example, lower costs, higher efficiency, better quality, and so forth. The conspicuous result of such recognition has been which were taken to be proverbial. The undeniable result of such an observation has been continued weighted by the international Organization for Economic support such as OECD to effectively manage balance of payment and thrust FDI as a necessary ingredient of economy. FDI has got the central position in the balance of payment management strategy. Therefore, FDI Inflows are considered as directional methodology towards accomplishing monetary development [2]. Various investigations have been led to evaluate relationship of foreign direct inflows with GDP development, local investment, poverty, economic imbalance and other macroeconomic factors. However, past literature has a lack of arguments to discuss the effect of foreign direct investment on balance of payment. To fill the gap in existing writing for Iraq, this examination aimed to explore the effect of foreign direct investment on current account balance and GDP of Iraq for the period 2003-2016 by utilizing ARDL estimation technique.

2. Literature Review

Foreign direct investment offers rich opportunities for emerging economies to attract middle- and higher-skill operations and to link into multinational corporate global supply chains. The focus on FDI has got attention in the era of 70’s when many developing countries were focusing on local industrialization which affects the balance of payment in negative way. In the meantime expanding FDI in the East Asian countries start of an unavoidable and significant pattern in the development of investment and trade inverted the situation [3]. It is found that in least develop countries FDI increases the productivity and positively impact the balance of payment [4]. In addition, the volume of foreign direct investment was the most important of the host country's remuneration and was becoming increasingly significant in under developed countries. This suggests that any arrangement of managing the exchange rate on exports and imports would be a way of to drive economic development [5]. Hence, countries seeking to come up with a development agenda could derive more prominent benefits from the flow of foreign direct investment. The reality proposes that per capita pay in the host nation has the main impact. In the line of these studies [6] found regardless of whether the FDI swarms out a portion of the domestic enterprises, it may encourage the host economy to extend its manufacture, by utilizing wide range advancements. Countries with a higher per capita gross domestic product (GDP) share greater inflows of foreign direct investment (FDI), has a propitious influence on the balance of payments. It is also witnessed that companies brought FDI had higher trends of exports than domestic companies William Morse. [6] referred to two purposes of FDI, namely, foreign direct investment in the search for markets and the search for efficient foreign direct investment. The former may accelerate imports while leading to an increase in exports. The impact of the balance of payments on FDI is vague and indecisive in terms of the purpose of foreign direct investment. Manufacturing exports of multinational companies in least developed countries in 70’s was very low as compare to post 70’s era [7]. Furthermore, deficiencies in BOP are generally associated with the debt payment problems and committed investment [8]. A study of emerging markets reveled that imports, exports and economic growth are the most influential indicators those have a significant impact over balance of payment [9; 10]. It was reported that the operation of multinational companies reduced the cost of exporting which benefit the domestic enterprises. It refers to factors relevant to the host country, which manipulate the size and nature of the transactions of foreign linkages, including the stage of development, technical capacity, production size and resources [11]. The United Nations reviewed these effects of foreign direct investment (FDI) on the balance of payments of East Asian countries and found parallel results to [11]. The impact of foreign direct investment (FDI) exchange and its impact on the current balance of payments record are associated with term of trade. Although at the beginning, due to the transfer of capital to the host country the change is smaller, it may disturb in due course of time when interest and dividends begin to expatriate. Another effect is determined as the inflationary impact on FDI as a result of the expansion of commerce, consumption and livelihoods. It was found that it was important to analyze the balance of payments when BOP was particularly characterized by the impact of foreign direct investment. Capital inflows to the country have different effects on balance-of-payments accounts and have an extreme impact on the balance of payments equation [12]. This may be more fragile and low if the total amount of the project is fixed in one country and foreign direct investment needs to replace local venture. After a positive link has been established with the current account of the balance of payments, foreign direct investment may encourage transformational exports. Foreign direct investment transfers resources from home countries to host countries by transforming management skills and opportunities for skilled workers to learn new production technologies. Foreign direct investment has an indirect impact and a source of technology transfer. It is also asserted that foreign direct investment inflows gave the impression that FDI inflows posed a threat to the development of under developed economies [13]. Foreign direct investment in long-term capital has led to the payment of capital in dire budget emergencies. Therefore, foreign direct investment could lead to the pain of ending domestic resources and prove unsafe for the economy. The benefits gained through capital investment returned to countries at the beginning of this distant project, which has had a terrible impact on the current account balance. The increase in foreign direct investment inflows had led to a further lack of current account balance as foreign direct investment had pushed domestic participants into bankruptcy. This situation benefits the foreign firm to expanded imports and lower level of efficiency [14]. Conversly, the impact of foreign direct investment on development is significant in case in the context of export progress in developing economies [5]. Few studies have been accounted for in the writing breaking down the effect of FDI on current account balance. This investigation endeavors to make an experimental examination of the effect of FDI on Iraq's current account balance. The examination could enable policymakers to create financial approaches that are in line with the nation's financial conditions to draw in FDI.

3. Methodology

The study used time series data from World Bank data sources during the 2005-2016 period. The variables selected for the model are foreign direct investment, current account balances and real gross domestic product (GDP). The following equation is used to explain the basic econometric equation.

$$\text{LnCAB} = f(\text{LnFDI}, \text{LnGDP}) \quad (1)$$

In the above equation natural log of current account balance is used as dependent variable while natural log of FDI and GDP are used as independent model. This model expects a positive change in current account balance due to capital inflows and GDP. This induces that an increase in foreign investment increases the local production and increase the exports of country. As an export oriented country, FDI inflows in Iraq will bring positive changes in BOP and particularly current account balance. Although [15] argued that capital inflows increases imports due to change in consumption pattern however this study follow the [5] argument that export led countries can get positive changes in balance of payment due to foreign inflows.

To avoid pseudo-relationships, we use Augmented Dickey and Fuller (ADF) test to analyze the stationarity in the variable of interest by supply chain strategy. The ADF test is follow by regression estimates In order to show the long-term relationship between variables. For this purpose Johansen and Juselius estimation are used to simulate the relationship between integrated variables. Further we employed VECM to evaluate the short-term characteristics of co-integrated variables. The VECM equation for the proposed model is presented below:

$$CAB_t = \alpha_0 + \gamma_1 ECT + \sum_{k=0}^{n} \beta_1 \mathrm{FDI}_{k-1} + \sum_{k=0}^{n} \beta_1 \mathrm{GDP}_{k-1} \quad (2)$$

3.1. Empirical Results

The tendency of supply chain development programs to be captured by small-business lobbies, and the willingness of international donors to tolerate, even promote this, has adverse consequences for emerging economies. The ADF test results are presented I table

1. The results shows that all the variables are non-stationary at level and stationary at I(1).

Table1. ADF Estimation

Variables	ADF test	
	I(0)	I(1)
LnCAB	-2.152	-3.634**
LnFDI	-2.825	-3.833**
LnGDP	-2.264	-5.724*

*, ** and *** denote significance level at 1%, 5% and 10%, respectively. ADF tests include intercept and trend.

Further, to apply Johansen co-integration test the length of lag has determined through AIC test. On the basis of AIC (Akaike information criteria) the maximum lag length of 2 lags is estimated. Further, Johansen co-integration test is applied and results are presented at table 2 and 3.

Table2. Co-Integration Rank Test-Trace Value

No of CEs	Eigen value	Trace statistics	5% critical value	Prob**
None*	0.782630	92.77343	36.2668	0.00
At most 1*	0.681892	47.81243	23.9667	0.023
At most 2*	0.169023	8.912462	17.1315	0.011

Table3. Co-Integration Rank Test-Maximum Eigen Value

No of CEs	Eigen value	Trace statistics	5% critical value	Prob**
None*	0.782630	56.823712	25.18252	0.00
At most 1*	0.681892	36.13256	20.32677	0.001
At most 2*	0.169023	5.824222	13.82314	0.034

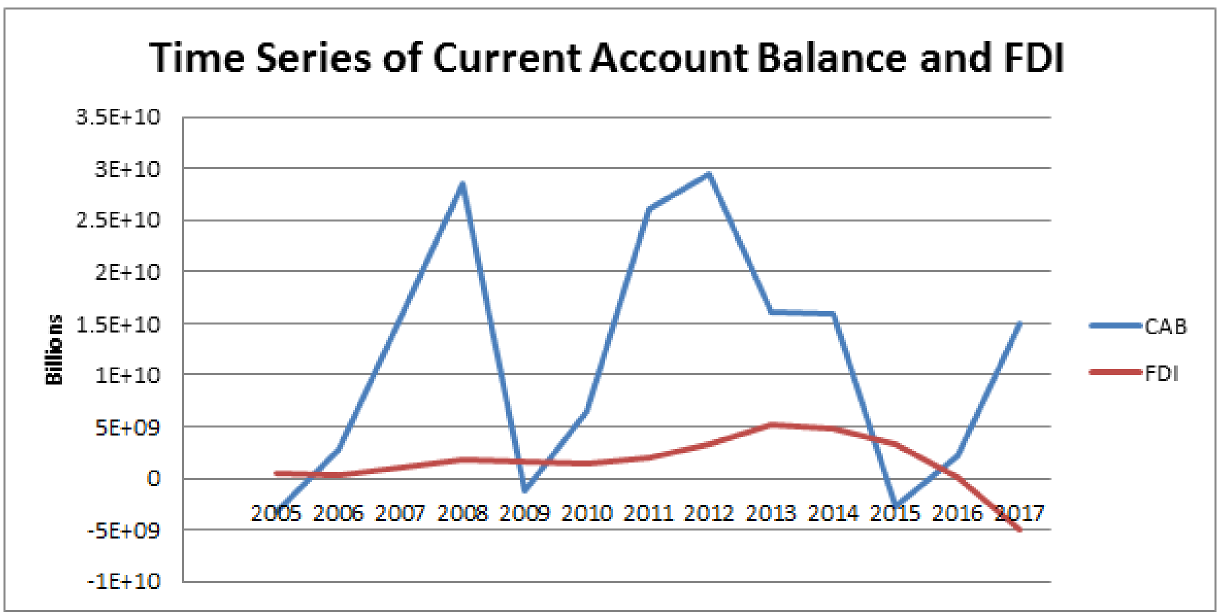

Figure1. Time Series of CAB and FDI

Since the results indicated the co-integration among the series, the Johansen test has confirm a long run relationship among foreign direct investment and balance of payment. The outcomes in Table (2) and (3) demonstrate that FDI and CAB have long run association. The Eigen estimations and trace statistics values are greater than critical values. Hence, there exists a stable long run connection among FDI and current account balance. Further vector error correction model is employed to determine the equilibrium of long run relationship. The results for VECM are presented in table (4).

Table 4. Vector Error Correction Model Estimation in SCS

Independent Variable= CAB			
Variables	Coefficient	t-value	Prob**
Constant	278151.7***	4.28363	0.000
LnCAB(-1)	0.18634***	3.99176	0.000
LnCAB(-2)	0.12846	4.26122	0.179
LnFDI(-1)	803862.25***	6.92375	0.000
LnFDI(-2)	317835.11	3.87778	0.000
LnGDP(-1)	642835.76***	9.98234	0.000
LnGDP(-2)	729437.54***	7.35715	0.000
ECMt-1	0.52721***	11.5562	0.000

R^2	0.718
Adjusted R^2	0.683
F-statistics	45.12634
Jarque-Bera Chi^2	5.820374
Breusch-Godfrey LM	0.046223
Hetroskedasticity test	0.058236

*** Represent the level of significance at 1%.

VECM estimation uncovers long-run balance relationship which has been recorded by the evaluated parameter (γ) of the term (ECM_{t-1}). Te value of ECM_{t-1} is positive as expected in the theoretical model based on the work of [5]. The outcomes show that FDI inflows identified as a positive instrument to balance the current account and balance of payment. The estimation of coefficient of ECM is (0. 52721) infers that error correction process merges to balance with the modification speed of 52.72% from current to next timeframe. The model diagnostic tests named as Jarque-Bera Chi^2, Normality test, Breusch-Godfrey LM test, ARCH LM test and Hetroskedasticity tests are incorporated. The measurements detailed above in table (3) are demonstrating that the residuals are ordinarily distributed having no sequential relationship and ARCH impacts.

4. Conclusion

International retailers, trying to bring their established supplier relationships with them to Iraq, are forced to start working with local suppliers due to the existing tax and customs regulations in Iraq, which complicate the import of goods by foreign companies. Therefore, the international retailers are forced to use locally produced resources and goods which needs supply chain strategy to improve its fluency and adaption. The study endeavors to investigate the conceivable heading of causality and long run balance connection between FDI, GDP and CAB of Iraq over the period of 2005-2017 by applying a VECM estimation technique under the supply chain strategy. Augmented Dicker and Fully test results demonstrate all the variables are stationary at 1st difference. Further, co-integration test results demonstrate a long run connection between foreign investment and balance of payment where current account balance (CAB) is considered as a proxy of BOP. The error correction model is then carried out to investigate the long run equilibrium among FDI and BOP. Vector Error Correction Model estimation exhibit FDI impacts BOP both in short-run and long-run for the investigation time frame. The positive parameter of the mistake remedy term affirmed that a long-run harmony relationship existed among the factors. Furthermore, the motivation reaction work uncovered a positive impact of FDI and SCC for Iraq in the selected time frame.

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