Economic Determinants of Foreign Direct Investment in Armenia, Kyrgyz Republic and Turkmenistan: Theory and Evidence

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Abstract

The aim of the present study is to investigate the effects of different economic determinants on foreign direct investment (FDI) for three countries selected from Central Asia namely Armenia, Kyrgyz Republic and Turkmenistan. Secondary data for the period from 1991 to 2009 taken from World Development Indicator (various issues) have been utilized. Simple econometric model in log form and the least squares technique have been used. Result found indicates positive effects of market size, official development assistance on FDI and negative effect of inflation on FDI. However, in case of Armenia, the effect of official development assistance on FDI has been found insignificant and such as in case of Kyrgyz Republic, the effect of inflation on FDI has been found insignificant with expected negative sign. Thus, findings of the study recommend that market size and official development assistance needs to be encouraged and inflation needs to be managed in order to achieve higher level of FDI and accelerate the process of economic development.

Keywords: Economic Determinants of FDI, Armenia, Kyrgyz Republic, Turkmenistan

JEL Classification Codes: F43,O11

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1. Introduction

Globalization refers to the way in which commerce, information and culture are increasingly exchanged and managed on a globally, rather than local or national basis. Because, globalization broadening and deepening linkages of national economies into a worldwide market for goods, services and especially capital. Growth of foreign direct investment (FDI) to developing countries is one most visible feature of globalization. Since FDI has now become an important source of private external capital for developing countries. It is not only helps in filling the saving-investment gap and the foreign exchange gap in these developing countries but is also a means of transferring to them production, modern technology, skills, innovative capacity and organizational and managerial practices. Further, the multinational corporations[1] (MNCs) that are the main source of FDI in developing countries facilitate the growth of their exports through their vast trading networks. To the extent the MNCs are linked to the local economy through forward and backward linkages, demonstration and learning effects and boosting the growth rate.

A foreign direct investment is the amount invested by resident of a country in a foreign enterprise over which they have effective control (Ragazzi, 1973).

FDI is an important tool for the economic growth and development. Most of the governments enhance FDI as priority, particularly in low income and transition economies. FDI not only encourages capital formation but also because it can attract the quality of the capital stock (Gorg and Greenaway, 2004). FDI is comparatively stable and less prone to crises because direct investors usually investing for long term and they cannot with draw their invested capital with in limited short period. Generally, it is believed that FDI provides a stronger motivation to economic growth in recipient countries than other types of capital inflows (The Economist 2001). Ikiara, (2003), stated that even FDI brings both costs and benefits, which must be properly assessed at the point of decision making on the best policy approach to be adopted.

It is usually believed that FDI is vital source of capital, that it complements local investment, generates new jobs opportunities and transferring technology, which indeed bolstered economic growth. While the positive FDI-growth relationship is not unambiguously accepted, macroeconomic studies nevertheless support a positive role for FDI especially in particular environments. Available literature indicates three main channels through which FDI can bring about economic growth. The first is through the release it affords from the binding constraint on domestic

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[1] Multinational corporation is a corporation or enterprise that owns and controls productive activities in more than one country. For example the largest MNCs in 1993 General Motors had sales revenues in excess of the GDP of Thailand, General Motors (US) sales revenue was 133.6 billion dollars and Thailand GDP was 124.8 billion dollars.

savings. In this case, foreign direct investment augments domestic savings in the process of capital formation. Second, FDI is the main channel through which technology transfer takes place. The transfer of technology leads to an increase in factor productivity and efficiency in the utilization of resources, which leads to economic growth. Third, FDI leads expand exports as a result of increased capacity and competitiveness in domestic production (Ajayi, 2006).

The main objectives of this study are to know about the significance of FDI in economic growth, to investigate empirically the effects of economic determinants on FDI and to present some appropriate measure for the encouragement of significant factors in light of the study findings.

1.2. Hypotheses to be tested

The study focuses on testing the following hypotheses:

H1: The greater (less) is the host country market size, the more (less) will be the FDI inflows.

H2: The lower (higher) is the inflation, the more (less) will be the FDI inflows.

H3: The higher (lower) is the official development assistance, the more (less) will be the FDI inflows.

2. Literature review

In the available literature many studies emphasizing on the positive impact of FDI on economic growth. In the new growth literature the importance of technological change for economic growth has been emphasized (Barro and Sala-i-Martin, 1995). Theoretically, it is viewed that FDI is positively correlated to economic growth. However, it is found in the literature that the empirical evidence that FDI generates positive spillovers for domestic firms is mixed. But on balance, the literature on FDI agrees that the positive effects of FDI tend to outweigh the negative effects (Lim, 2001). A number of studies have been carried out on the determinants of FDI but literature found on determinants of FDI for Central Asian countries are negligible. Shamsuddin (1994) examined the economic determinants of FDI using cross-section data for the year 1983 on 36 developing countries. The study found that the most important factors in attracting FDI are the per capita GDP in the host country, wage cost, investment climate represented by as per capita debt, per capita inflow of public aid, volatility of prices, and the availability of energy in the recipient country. According to the findings of Stephen et al, (1997) the gross domestic product (GDP), exports, imports, physical infrastructure, political risk, are significant influences on the decisions of multinational corporations to invest abroad. Many researchers have also studied the impact of specific policy variables on FDI in the recipient countries. These policy variables include trade openness, tariff, taxes and exchange rate respectively. Sayek (1999), in his thesis 'FDI and

inflation: theory and evidence' explained the relationship between FDI and inflation. The results from an impulse response analysis supported the theoretical model, shown a 3 percent increase in Canadian inflation reducing United State FDI in Canada by 2 percent and increasing United State domestic investment by 1 percent. Similarly, a 7 percent increase in Turkish inflation reduces United State FDI in Turkey by 1.9 percent, increasing United State domestic investment by 0.3 percent. Resmini (2000), found statistically significantly positive relationship between FDI and market size, wage differential, and trade openness as well. Holland et al (2000) reviewed so many studies for Eastern and Central Europe and indicated evidence of the significance of market size as FDI determinant. Nnadozie (2000) found the most significant variables are gross national product (GNP) and inflation and political risk. Asiedu (2002), found trade openness, return on investment and GDP as proxy variable for market size, are significant variables for FDI fostering, while infrastructure and political risk found insignificant. Niels and Robert (2003), argued that the development of the financial system of the host country is an important prerequisite for attracting FDI to have a positive impact on economic growth. A more developed financial system positively contributes to the process of technological transformation connected with FDI. The study empirically investigated and found that the role the development of the financial system plays in enhancing the positive relationship between FDI and economic growth. Hubert et al (2004), used cross section data for 1997 and found the key determinants of FDI inflows in Central and East European Candidate (CEECs) are host country economy size, host country risk, labour costs, openness of trade. Naeem, Ijaz, and Azam (2005), used time series data from 1970-71 to 1999-2000 for Pakistan and found the main economic factors are market size, domestic investment, trade openness, indirect taxes, inflation, and external debt. Yasin (2005), stated that FDI is believed to have a positive impact on the economies of the less developed countries. The study empirically examined the relationship between official development assistances and FDI in flows used panel data for the period from 1990 to 2003. Results of the study indicated that bilateral official development assistance has a significant and positive influence on FDI flows. Further, the results found that trade openness, and exchange rates have a positive and significant effect on FDI flows, while multilateral development assistance, the country's composite risk level, and the index for political freedom and civil liberties do not have a statistically significant effect on FDI inflows. Mottaleb (2007) analyzed panel data from 60 less developed countries and found that market size and GDP growth rate, business environment, modern communication facilities significantly affect the FDI inflow and FDI positively and significantly affects the GDP growth of a country. Jana (2008) reported that as one would expect that GDP and access to European common market are important determinants of the foreign direct investment level in the transition economies. Azam (2009), conducted study on the significance of FDI in economic development in Pakistan and Afghanistan and used secondary data from 1991-2006. The study revealed that FDI is imperative for the

economic development. Further, the study showed that the more profitable areas which have been identified for FDI in Afghanistan and Pakistan are energy sector, information technology & telecommunication, education, engineering, mining, machinery, construction, pharmaceutical and the power sector.

3. Overview on the Economic Performance of Armenia's, Kyrgyz Republic's and Turkmenistan's Economies

3.1. Armenia

According to the report of Asian Development Outlook (2010)[2], exports, foreign remittances, and private capital inflows of Armenia are badly affected by regional and global downturns and all these pushed the country into its worst recession since just after independence. Armenia's important industrial activities, such as chemical products, building materials, mining and metallurgy and the diamond-processing trade, all slumped due to recession. No sustained growth in agriculture sector was recorded; the services sector grew by only 0.7 percent due to narrow activity in finance, tourism, communications, and transport. Private investment fall down by 25 percent as net inflows of remittances, which had driven the housing boom, sank by one-third and net foreign direct investment declined by about one-fourth to about US$ 700 million. Private consumption also withered due to the meager amount of remittance inflows and the economic downturn. Inflation rate was recorded 6.5 percent in December 2009, sugar, fuel, medicine, and household utilities, in that order, recorded the highest price increases (ranging from 34 percent to 20 percent). Due to lower remittance inflows and transfers, the current account deficit narrowed slightly to US$ 1.3 billion from US$ 1.4 billion, though it enlarged in relation to the shrunken GDP, to 15.4 percent from 11.6 percent in 2008.

3.2. Kyrgyz Republic

Because of the global and regional recessions and power supply issues, the Kyrgyz Republic economy's showed modest growth in 2009 while the contribution of agriculture sector was commendable. GDP growth was driven mainly by a healthy performance of agriculture sector (due to favorable weather conditions), which grew by 7.3 percent. Infrastructure particularly construction increased by 6.3 percent, after a 10.8 percent reduction the prior year, a rebound primarily due to activity in the hydropower generation and mining subsectors, rehabilitation and construction of roads, and house building. Though, overall industries mitigated by 3.4 percent because of decease level of output in the textile and sewing industry,

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[2] Kiyoshi Taniguchi of the Uzbekistan Resident Mission, ADB, Tashkent; and Grigor Gyurjyan of the Armenia Resident Mission, ADB, Yerevan, has written this chapter for Asian Development Outlook, (2010)

transport equipment, electric energy, gas and water distribution. However, gold production also declined. Foreign remittances from migrant workers, which constituted around 20 percent of GDP in 2008, and foreign direct investment inflows increased. Inflation rate fell gradually and the external position comparatively improved (Asian Development Outlook, 2010)[3].

3.3. Turkmenistan

According to the report of Asian Development Outlook, (2010)[4], due to shut of major gas export pipeline for most of the year, the Turkmenistan's economy slowed in 2009, though public and foreign direct investment increased which helped in GDP expansion. Inflation rate sharply declined due to lower import prices and tight monetary policy. Total forgone gas export revenue almost estimated amounted to US$ 7.0 billion to US$ 10.0 billion. Still, GDP growth rate in 2009 estimated at 6.1 percent on robust growth in construction, services, and agriculture sector. The major contribution in the growth was public investment, which amounted to US$ 8.8 billion, or 1.6 times the 2008 level. Investment was supported by a government program to support small and medium-sized enterprises in Turkmenistan. Official statistics indicate that consumer price inflation rate sharply decreased in 2009 to an average of 0.1 percent, as it was 14.5 percent in 2008. The decrease in inflation in 2009 was mostly due to the sharp fall in global non-oil commodity prices (the country imports much machinery and food).

4. Classification of Theories on FDI

Extensive arguments exist in support of the various sets of classifications regarding FDI theories. In this regard Razin (2003), states that the FDI theories can essentially be divided into two categories, namely micro and macro theories. Kojima and Ozawa (1984) also support this distinction between micro and macro models of FDI, but give more emphasis on macro models.

4.1. Microeconomic classification of the FDI theories

Razin (2003) focuses on market imperfections and on the desire of transitional corporations (TNCs) to expand their market power. Moreover, recent literature concentrates on firm-specific advantages, product superiority or cost advantages flowing from economies of scale, multi-plant economies, advantages in technology and superior marketing and distribution. Thus according to this view, multinational enterprise will find it cheaper to expand directly into a foreign country, rather than by increasing trade. Further the micro theories show that firms may have

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[3] Nurbek Jenish, consultant of the Kyrgyz Resident Mission, ADB, Bishkek; and Gulkayr Tentieva of the Kyrgyz Resident Mission, ADB, Bishkek, has written this chapter for Asian Development Outlook, (2010).
[4] Kiyoshi Taniguchi of the Uzbekistan Resident Mission, ADB, Tashkent; and Nariman Mannapbekov of the Central and West Asia Department, ADB, Manila, has written this chapter for Asian Development Outlook, (2010).

objectives when investing abroad. Profit maximization (which is of primary importance in the long run) may in the short run be such as market access.

4.2. Macroeconomic classification of the FDI theories

The macro theories concentrate on comparative advantages as well as environmental dimensions, and how the latter may affect comparative advantages. Hymer (1976) makes it more comprehensive and emphasizes that certainly transitional corporations possessed more advantages while the local firm does not.

4.3. Micro and Macroeconomic classification of the FDI theories

A more modern theory based on micro and macroeconomic aspects, which seeks to give a general answer to location question related to FDI, is the eclectic theory of Dunning (Agarwal, 1991). Moon and Roehl (1993) highlight this statement by saying that none of the general theories of FDI, except perhaps Dunning's eclectic theory, which is based on the ownership, location and internationalization advantages (OLI) paradigm succeed in satisfactorily explaining the international activities of firms. According to Chakrabarti (2003), this is only Dunning (1980) that provides a conceptual framework, to which literature on multinationals has converged in recent years.

5. Determinants of FDI

Determinants of foreign direct investment are usually divided into two groups i.e., the supply side determinants and the demand side determinants (Ragazzi, 1973; and Aseidu, 2005). Ownership advantages and Internalization advantages are supply-side determinants of FDI and it consists of economies of scale, oligopoly reaction, product life cycle, intangible assets and internalization (Ragazzi, 1973; Tsai, 1991). While location advantages are the demand side determinants and it's referred to the advantages that host countries have in attracting more FDI inflows from abroad. In general the demand side determinants are classified into three categories like economic determinants, policy framework for FDI and business facilitation (Poon, 2000).

Though there are a number of economic determinants determining FDI but this study uses only market size, inflation and official development assistance[5]. The brief justifications of these incorporated economic determinants in the study are given below;

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[5] IMF, (2003), defined official development assistance is the flows of official financing administered with the promotion of the economic development and social welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 % (using a fixed 10% rate of discount).

5.1. Market Size (proxy used GDP)

Market size of the host country, which also represents the host country's economic conditions and the potential demand for their output as well, is an important element in FDI decision-makings. Market size has proved to be the most important determinants of FDI, particularly for those FDI flows that are market seeking. Those countries which have large markets, the stock of FDI is expected to be large. The importance of the market size has been confirmed in many previous empirical studies (Schneider and Frey, 1985; Asiedu 2002; Hubert et al (2004) Mottaleb (2007); Jana (2008). Several proxies for the relevance of the domestic market are available. Market size is normally measured by real GDP, GDP per capita GNP, while private and public consumption can also be used as alternatives (see Lucas, 1993). This study also uses GDP as proxy for market size and expected a positive relationship between this variable and FDI inflows.

A famous Washington hostess of the 1950s used to tell young girl "you either have to be pretty or I suggest you learn to speak French" The same is true for the host countries. "Being pretty" means: being perceived by investors as having inherent attractions such as a large and expanding market. Investors will overlook the most elementary requirements in order to be present in such countries. But if you don't happen to be "pretty", if your market is small and unlikely to expand very rapidly and your country doesn't possess inherent attractions, then the only way you can attract private capital may be by "learning to speak French", that is: making yourself attractive (Guy, 1996).

On the basis of the above mentioned saying, it is necessary to consider market size an important factor regarding attracting FDI flows; however it is not the only factor influencing FDI. It is pertinent to mention that the more successful countries "speak reasonably fluent French", meaning that the more fundamental development conditions are met: law and order, secured property rights, deal with poverty reduction programs, financial incentives, provision of good health facilities, market determined prices, improving infrastructure, increasing the capability of workers through technical education, maintaining appropriate inflation rate, political risk, including exchange and interest rates, etc.

5.2. Official Development Assistance

Official development assistance (ODA) is taken as an indicator of development activities. Hence, expenditures financed by official development assistance likely promote physical infrastructure and also indicates the good terms with international institutes that increase the confidence of foreign investors, therefore, foreign investors like to come in these countries. Luger and Shetty (1985) used official development assistance as determinant of FDI. Likewise, Yasin (2005) reported that bilateral official development assistance has a significant and positive influence on FDI flows. Recently, Youn (2008), found that total net ODA of the

recipient countries is strongly associated with FDI flows. This study also expected a positive impact of official development assistance on FDI during the study period.

5.3. Inflation

Price stability is one indicator of a stable macroeconomic environment of a country. Usually, high rate of inflation in a country can reduce the return on investment and is an indicator of macroeconomic instability and considered a sign of internal economic tension and unwillingness of the government to balance its budget and failure of the central bank to conduct appropriate monetary policy (Schneider and Frey 1985). High rate of inflation could have a negative effect on investors, as they need to spend more time, energy, and money in this environment to adjust to the rising price level. A history of low inflation and sensible fiscal activity signals to investors about the commitment and credibility of the government. So, low inflation rate is taken to be a sign of internal economic stability in the host country and low or manageable level of inflation in country encourages FDI. Nnadozie (2000) proved inflation statistically insignificant, while Shamsuddin (1994) and Nath (2004) have found that inflation has a negative effect of FDI. This study also expected a negative effect of inflation on FDI.

6. Methodology and Data Description

6.1. Econometric Model

The following model is formulated in the light of literature to examine the impact of various economic determinants on FDI during the study period from 1991-2009. The model[6] uses in this study can be written as;

fdi= f(gdp, inf, oda)   (1)

More specifically equation (1) can be expressed as follows;

$$fdi = \gamma_0 + \gamma_1 gdp + \gamma_2 \inf + \gamma_3 oda + \varepsilon$$

(2)

$\gamma 1 > 0 \; \gamma 2 < 0 \; \gamma 3 > 0$

Where

fdi= foreign direct investment (in log form),

gdp= gross domestic product used as proxy for market size (in log form)

inf= inflation (in log form),

oda=official development assistance (in log form)

ε= stochastic term and it show effects of the other factors

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[6] The model uses in this study also used by Asiedu (2002); Hubert et al (2004) and Mottaleb (2007).

The explanatory variables and error term ε followed the least squares assumptions.

6.2. Data and Estimation Techniques

The present study is based on secondary data for the period from 1991 to 2009. For analysis the data have been taken from the World Bank, World Development Indicator (various issues). Simple linear regression model in log form has been used and the method of least squares has been applied as an analytical technique for investigating the impacts of economic determinants on FDI inflows. The data have been converted into log form for overcoming on non-linearity problem in data. E.View computer software has been used for results derivation.

7. Empirical Results and Interpretation

Empirical results of the study are given in Table 1 in details. The following equation 3, 4 and 5 represents the estimated regression lines for Armenia, Kyrgyz Republic and Turkmenistan respectively.

$$fdi = 9.003044 + 1.565228\,gdp - 0.314459\inf - 1.238523\,oda \quad (3)$$

$$fdi = -41.02696 + 1.722595\,gdp - 0.17923\inf + 1.105028\,oda$$

$$(4)$$

$$fdi = -43.40757 + 4.048013\,gdp - 0.54214\inf + 1.890018\,oda \quad (5)$$

Table 1 shows that market size proxy used GDP has been found positively significant at 1% level of significance. The study hypothesized positive relationship between GDP and FDI and the result found strongly support the study hypothesis. In case of Armenia the coefficient size found 1.565228, and indicates that one unit change in the GDP will bring 1.565228 unit changes in the total FDI inflows into Armenia. In case of Kyrgyz Republic the coefficient size found 1.722595, and indicates that one unit change in the GDP will bring 1.722595 unit changes in the FDI inflow into Kyrgyz Republic. Likewise, in case of Turkmenistan the coefficient size found 4.048013, and indicates that one unit change in the GDP will bring 4.048013 unit changes in the FDI inflows into Turkmenistan. The positive significant relationship between FDI and market size have also found by Aseidu, (2002), Mottaleb (2007), and Jana (2008). If the GDP increases, the inflow of FDI will also be increases and vice versa. An expansion in the market size of a country/location leads to an increase in the amount of FDI through increased demand. The effect of official development assistance has been found statistically significant at 1% level of significance for Armenia, Kyrgyz Republic and Turkmenistan. The result shows positive relationship between official development assistance and FDI. Yasin (2005) and Youn (2008) also found positive impact of official development assistance on FDI. Likewise, the effect inflation on FDI has been significant for Armenia and Turkmenistan at 1% and 5% level of significance while for Kyrgyz Republic it is

found insignificant. The negative relationship has also been found by Shamsuddin (1994) and Nath (2004). The results demonstrate that high price level discourages FDI inflows.

Table 1: OLS Estimates from 1991 to 2009

	Armenia	Kyrgyz Republic	Turkmenistan
Dependent Variable: FDI			
Method: Least Squares			
Variables	**Coefficients**	**Coefficients**	**Coefficients**
c	9.003044 (-0.87542)	-41.027 (-3.018712)	-43.4076 (-5.125740)
gdp	1.565228 (3.492585)*	1.722595 (3.125316)*	4.048013 (4.048013)*
inf	-0.31446 (-2.125820)**	-0.17923 (-0.903704)	-0.54214 (-4.692495)*
oda	-1.23852 (-4.306441)*	1.105028 (2.596494)*	1.890018 (7.643044)*
R-squared	0.675995	0.464683	0.920029
Adjusted R-squared	0.611194	0.357619	0.904035
S.E. of regression	1.264113	1.032472	0.896338
Sum squared resid	23.96971	15.98997	12.05133
Log likelihood	-29.1672	-25.3213	-22.6348
Durbin-Watson stat	3.186986	1.380267	1.427469
Mean dependent var	18.73697	0.610627	20.07834
S.D. dependent var	2.027307	1.288196	2.89345
Akaike info criterion	3.491282	3.086452	2.803666
Schwarz criterion	3.690111	3.285282	3.002495
F-statistic	10.43187	4.340255	57.52298
Prob(F-statistic)	0.000584	0.021675	0
Number of observations	19	19	19

Note: Values in parentheses are t-statistics. Asterisk * and ** shows significant at 1% and 5% level of significance respectively.

8. Conclusion and Recommendations

The aims of the present study are to investigate the effects of different economic determinants on FDI, because the study of the effects of these economic determinants is important when multinationals making decision about investment in other countries. The home and host countries both have some advantages of FDI, the home country desires to utilize the cheap labour, abundant raw materials etc in order to maximize profit, while the host/recipient country interested to gain the advantages of managerial skill, capital, advanced technology, generate employment opportunities and increase revenue etc. For this purpose secondary data for the period from 1991 to 2009 have been utilized for three countries from

Central Asia namely Armenia, Kyrgyz Republic and Turkmenistan. This study has been confined to three countries only because of non availability of authentic data on other countries in the region. Results found show positive effects of market size, official development assistance on FDI and negative effect of inflation on FDI during the study period. However, in case of Armenia, the effect of official development assistance of FDI has been found insignificant and such as in case of Kyrgyz Republic, the effect of inflation on FDI has been found insignificant with expected negative sign. However, it does not mean that insignificant variables have no effect on FDI but it may be due to problem in the available utilized data. Thus, findings of the study recommend that the market size needs to be strengthened, inflation needs to be managed and official development assistance may be encouraged for enhanced level of FDI. It is hope that the higher level of FDI will certainly encourage national economic development.

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