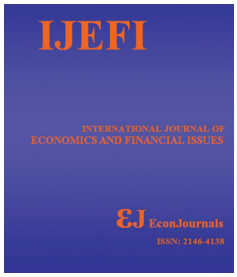

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Inward Foreign Direct Investment and Welfare Nexus: The Impact of Foreign Direct Investment on Welfare in Developing Countries

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ABSTRACT

It is an attempt to estimate the consequence on welfare because of foreign direct investment (FDI) in different developing countries, mainly incorporated with the panel data having 79 countries producing over 1,343 observations from 1998 to 2014. Panel unit root test, panel cointegration, vector error correction model (VECM), panel dynamic least squares, fully modified least square method, fixed effect model and random effect model have used for determining the consequence on welfare due to FDI. According to the VECM, it interprets that there is a long run causality of the variables such as FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy and country risk with the welfare. Concentrating on panel dynamic least squares and fully modified least square method that interprets if the FDI goes up by 1 unit the welfare goes up 0.286751 and 0.227956 respectively and from the both fixed effect model and random effect model elucidate that FDI is a significant variable to explain the welfare.

Keywords: Panel Unit Root Test, Panel Cointegration, Vector Error Correction Model, Foreign Direct Investment
JEL Classifications: C23, F21, I3

1. INTRODUCTION

Foreign direct investment (FDI) promotes the continuous economic and social development by transferring technology, skill development, innovation and management efficiency both developed and developing country. This study is mainly accentuated on determining the host countries' overall welfare gain due to the incessant flow of FDI. Li and Liu (2005) examine a panel of 84 countries over the period 1970-1999 to understand whether FDI triggers economic growth. Their result reveals that FDI not only promotes growth directly, but also increase growth with its interaction term. They further test their hypothesis in two sub-sample; developed and developing countries by dividing the whole sample (84 countries). Again the result confirms that in both developed and developing countries FDI promotes economic growth. They find that a 10 percent increase in FDI (as a percentage of GDP) leads to a 4.1 percentage-point increase in the rate of economic growth. Due to FDI, generates massive and radical transition in socio-economic phenomenon in host countries especially in stronger welfare functions such as increased education and life expectancy, in addition to the increased purchasing power and spillover effects.

Hansen and Rand (2006) search for co-integration and causality relation between FDI and growth in a sample of 31 developing countries for the period 1970-2000 and they confirm the existence of co-integration. Moreover, their result indicates that FDI has a lasting positive impact on GDP irrespective of level

of development. They interpret their findings "as the evidence in favor of the hypothesis that FDI has an impact on GDP via knowledge transfer and adoption of new technology". With the substantial flow of FDI assists to upgrade and accelerate the efficiency level of the labor forces in developing country through schooling, training and compelling layoffs. FDI leads human capital formation through upgrading the skills of human capital of host countries by provision off formal training, schooling and spill-over effects of layoffs and turnover of labor force from international firm to domestic firms. On the demand side, FDI may positively affect the accumulation of human capital. These are technology transfer, spillovers, and physical capital investment. On the supply side the process is less well known and documented, but FDI can affect human capital development via its effect on general education, and official and informal on-the-job training. When the FDI has increased that will increased the employment opportunities, when the employment opportunities is flourishing that reflects increasing the household purchasing power and ultimately that makes consequence significantly on the social welfare (health, standard of living).

Acceleration of FDI makes consequence on infrastructure and other macroeconomic factors. There are a diverse opinion regarding the welfare and FDI. According to the Arcelus et al. (2005); Anand and Sen (2000); Meyer (2004); Meyer and Sinani (2009); Globerman and Shapiro (2003); Rogers (2004), FDI makes a significant effect on welfare and on the other hand according to the Konings (2001); FDI does not effect on the welfare. This article shows empirically that FDI offers a development potential and contributes to the host country's welfare. This article is organized as the following segment literature review, model specification, results and analysis and conclusion.

2. LITERATURE REVIEW

Because of FDI, whether the welfare gain in terms of technology, knowledge, absorbing capacity, management efficiency, infrastructure and manifold social issue for the host countries is conceptually and virtually argumentative issue. Welfare cannot measuring on a conclusive and specific terms. Overall welfare may incorporate with the macroeconomic effects, social issues, and the natural environment. Economic welfare that is usually measured in terms of GDP or other measures such as income and purchasing power, in order to determine functions of utility and efficiency (e.g., Kakwani, 1981; McKenzie and Pearce, 1982). Overall measures of welfare expand on this economic base, highlighting other indicators of prosperity and quality of living (Pyatt, 1987), the most prevalent of these being the United Nations' human development index (Anand and Sen, 2000).

On the concentration of Anand and Sen (2000) elucidation that the overall welfare as encompassing the three components of the human development index (HDI: Life expectancy, education, GDP), as well as a measure of country infrastructure such as its capacity to utilize knowledge from the firm (e.g., Blomstrom and Kokko, 2003; Chen, 1996; Rogers, 2004).

Current literature has been divided by the both positive and negative impacts of FDI on the host country. According to Arcelus et al. (2005) studied the effects of foreign capital flows on each of the three dimensions of the UN's human development index (HDI). They argue that those countries that are more efficient in their utilization of FDI have greater control on their welfare development. Though, this work did not take into account the role of knowledge and government structure that also influence overall welfare.

FDI that makes an affects on the natural environment, social issues, such as health care, government and educational institutions, and local economies (e.g., Anand and Sen, 2000), which are the primary importance factors for the recipient economies. FDI has a strong positive effect on the host country (e.g., Bain, 1951; Buckley, 1990; Hymer, 1968; Penrose, 1956), and the inflow of funds provides additional resources to the market economy (e.g., Mirza and Giroud, 2004). FDI stimulate more capital-intensive investment in host countries and a better-developed domestic financial market is more effective in promoting economic growth.

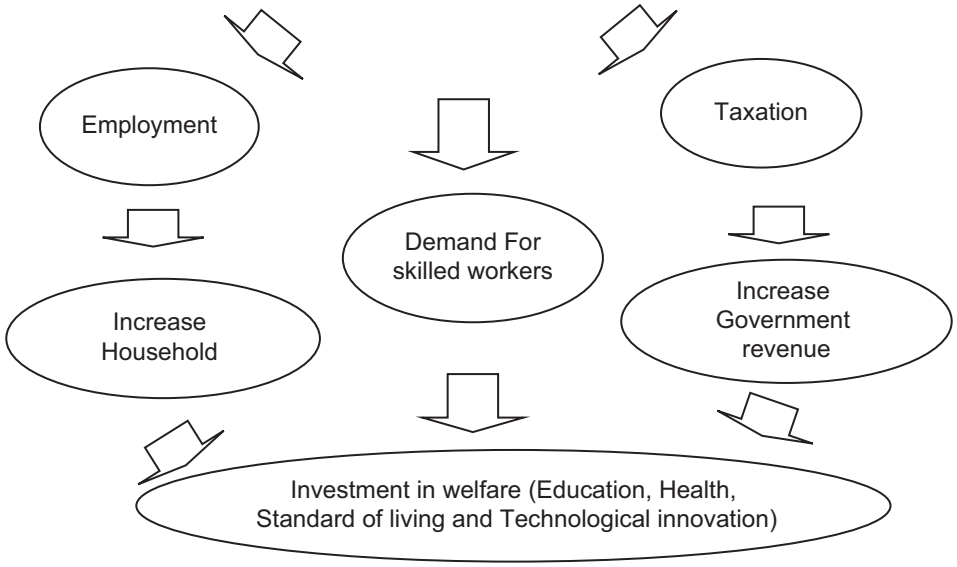
Figure 1 highlights FDI's contributions to the host country's welfare via three channels: The labor market, households, and government. FDI would contribute to welfare by increasing government revenue through taxation by which they can further develop and maintain social welfare such as increasing literacy, health care, and employment benefits; through increased household income and purchasing power; and by driving the need for skilled workforce (MacDougall, 1960). Both host-country governments and households are able to use a portion of the extra income to invest in welfare (i.e., improved education, health, standard of living, technological innovation, and infra- structure). However, the efficiency of such allocation will depend on the absorptive capacity of the host country and quality of governance (e.g., Globerman and Shapiro, 2003; Rogers, 2004).

FDI facilitated manifold employment creation especially with the Greenfield investment and created employment generation with the forward and backward linkage with the many domestic firms. Because of FDI, the purchasing power of the host countries citizen is augmented.

According to Chakrabarti (2001); Asiedu (2002) and Zhao (2003) pointed out that higher economic growth results in greater FDI inflows as it is a measure of the attractiveness of the host countries. Lucas (1993) and Cernat and Vranceanu (2002) argued that as economic growth rises, FDI inflows into host countries tend to be encouraged.

FDI also makes a positive effect on education. Borensztein et al. (1998) conclude that FDI is a vehicle for the adoption of new technology, and therefore, the training required to prepare the labor force to work with new technologies suggest that there may also be an effect of FDI on human capital accumulation. The relation between the FDI and human capital is highly linear and multiple equilibrium. Host country with having the accumulation of ambidextrous skill labor forces magnetizes a vast amount of technology intensive. FDI ameliorate the economic advancement

Figure 1: Foreign direct investmentinflow: The mechanism to human development



Source: Lehnert et al. (2013)

of a country along with the enhancing the adaptability and capabilities of the workforces. When an individual incomes propagate due to the FDI that effects on the health security, carefully organize and maintain his subsistent needs.

Direct investment on the concentration of infrastructure ensures efficient production facilities and stimulates economic activities, alleviate transaction cost and trade costs improving competitiveness and ensure ample employment opportunities for the poor. FDI and infrastructure has a positive relationship. Different studies on developing countries (e.g., Mengistu and Adams, 2007); emerging economies (e.g., Zhang, 2001); Western Balkan Countries (e.g., Kersan-Skabic and Orlic, 2007) and Southeast European Countries (e.g., Botric and Skuflic, 2006) show the significant role of infrastructure development in attracting the inflow of FDI. When FDI has increased, over time there will also be an increase in overall welfare as reflected by institutional and macroeconomic effects, social welfare, the natural environment, and local firms (e.g., Anand and Sen, 2000).

The empirical evidence on FDI and economic growth is ambiguous, although in theory FDI is believed to have several positive effects on the economy of the host country (such as productivity gains, technology transfers, the introduction of new processes, managerial skills and know-how, employee training) and in general it is a significant factor in modernizing the host country's economy and promoting its growth. Considerable empirical evidence illustrates that FDI not to be beneficial for economic growth and development in host countries.

FDI creates miserable income inequality gaps rather resolving the problems due to the income inequality economic activities is restraints and economic advancement is deteriorated. Driffield and Girma (2003) demonstrate that there are two distinct effects that contribute to FDI increasing inequality. Firstly, there is the effect that stems from inward investment increasing the demand for skilled labour in the host location, such that the wages of such workers are bid up. Secondly, Barrel and Pain (1996) demonstrate that inward investment replaces unskilled labour, again reducing the returns to such workers. Barrell and Pain (1997) show inward investment introduces new technology and generates a decline in the overall demand for unskilled labour.

There are mixed opinion about the welfare gain for host country from the FDI. Concentrate on the research focus the work generally consider that FDI makes a spillover effects on social issue, health care, education attainment, employment generation and positive effect on individual purchasing power and indubitable propagate economic functions.

3. MODEL SPECIFICATION

This paper is mainly concentrate on determining the relationship with the FDI and the welfare. The paper has used different control variables, debt, governance, inflation, infrastructure, openness, agglomeration and country risk. As part of the methodological design, the basic equation is illustrated below:

$$\text{Welfare} = \alpha_0+\alpha_1\text{FDI}+\alpha_2\text{Agglomeration}+\alpha_3\text{Debt}+\alpha_4\text{Goverance}+\alpha_5\text{Inflation}+\alpha_6\text{Infrastructure}+\alpha_7\text{Openness}+\alpha_8\text{Bureaucracy}+\alpha_9\text{Country Risk}+e_t \quad (1)$$

Where α_0, α_1-α_9 are parameters to be estimated.

e_t is stochastic error terms assumed to be independently and identically distributed.

For estimating the relationship between welfare and FDI, here the paper is using different statistical methods like panel unit root test, panel co-integration, fully modified OLS and dynamic OLS method and fixed effect and random effect regression.

3.1. Panel Unit Root Test: Levin, Lin and Chu

Levin, Lin and Chu start panel unit root test by consider the following basic ADF specification.

$$DY_{it} = \alpha Y_{it-1} + \sum_{j=1}^{Pi} \beta_{it} DY_{it-j} + X_{it}^{*}\delta + \varepsilon_{it} \quad (2)$$

Where, DY_{it} = difference term of Y_{it}
Y_{itl} = panel data
$\alpha = \rho - 1$
p_i = the number of lag order for difference terms
X_{it}^{*} = exogenous variable in model such as country fixed effects and individual time trend
ε_{it} = the error term of equation 2.

LLC panel unit root test has null hypothesis as panel data has unit root as well as can present below that:

H_0: Null hypothesis as panel data has unit root (assumes common unit root process)
H_1: Panel data has not unit root.

3.2. Im, Pesaran and Shin Test

The properly standardized t_{NT}^{*} has an asymptotic standard normal distribution and also it was rewritten to be new t-statistics as well as can show below that: (see equation 3).

$$W_{t*NT} = \sqrt{n}\left[\left(t_{NT} - N^{-1}\sum_{t=1}^{n} E\left(t_{iT}\left(p_i\right)\right)\right)\right] / \sqrt{\left(N^{-1}\sum_{i=1}^{n} var\left(t_{ix}\left(p_i\right)\right)\right)} \quad (3)$$

Where, W_{t*NT} is W-statistics has been used to test panel data based on Im, Pesaran and Shin techniques. Also this technique has non-stationary as null hypothesis as well as to show below that:

H_0: Null hypothesis as panel data has unit root (assumes individual unit root process)
H_1: Panel data has not unit root.

3.3. Fisher-type Test using ADF and PP-test (Maddala and Wu and Choi)

Madala and Wu proposed the use of the Fisher (Pλ) test which is based on combining the P-values of the test-statistics for unit root in each cross-sectional unit. Let p_i are U [0,1] and independent, and $-2\log_e p_i$ has a χ^2 distribution with 2N degree of freedom and can be written in equation 4.

$$P_\lambda = -2\sum_{i=1}^{N} \log_e p_i \quad (4)$$

Where, P_λ = Fisher (P_λ) panel unit root test
N = all N cross-section
$-2\sum_{i=1}^{N} \log_e p_i$ = it has a χ^2 distribution with 2N degree of freedom.

In addition, Choi demonstrates that in equation 5.

$$Z = \left(1/\sqrt{N_{i=1}}\right)\left[\sum_{i=1}^{N}, {}_i^{-1}\left(p_i\right)\right] - - > N(0,1) \quad (5)$$

Where, Z = Z-statistic panel data unit root test
N = all N cross-section in panel data
θ_i^{-1} = the inverse of the standard normal cumulative distribution function
p_i = it is the P-value from the i^{th} test.

Both Fisher (P) Chi-square panel unit root test and Choi Z-statistics panel data unit root test have non-stationary as null hypothesis as well as to show below that:

H_0: Null hypothesis as panel data has unit root (assumes individual unit root process)
H_1: Panel data has not unit root.

3.4. Hadri Test

The Hadri test for panel data has the hypothesis to be tested is H_0 is null hypothesis and H_1 is against null hypothesis and can show below that:

H_0: Null hypothesis as panel data has not unit root (assumes common unit root process)
H_1: Panel data has unit root.

Five different panel unit test is being accomplished (Levin, Lin and Chu, Im, Pesaran and Shin, Fisher-type test using ADF and PP-test (Maddala and Wu and Choi) and Hadri for measuring that the data are stationary or not.

3.5. Panel Cointegration Test

In order to solve the spurious regression problem and violation of the assumptions of the classical regression model, co-integration analysis is used to examine the long run relationship between the variables. This test is mainly accomplished for identifying the long run relationship between welfare and FDI.

The starting point of the residual-based panel co-integration test statistics of Pedroni is the computation of the residuals of the hypothesized co-integrating regression.

$$Y_{i,t} = \alpha_1 + \beta_{1i}x_{1i,t} + \beta_{2i}x_{2\,i,t} + \ldots + \beta_{Mi}x_{M\,i,t} + e_{i,t}, t=1,\ldots T; i=1,\ldots N \quad (6)$$

Here, Y indicates the dependent variable like welfare and X_1 to X_m indicates the different independent variables (see in details Table 1).

Another method have used that is known as a Kao for estimating the long run relationship between the variables.

Kao uses both DF and ADF to test for co-integration in panel as well as this test similar to the standard approach adopted in the EG-step procedures. Also this test start with the panel regression model as set out in equation 7.

$$Y_{it} = X_{it}\beta_{it} + Z_{it}\gamma_0 + \varepsilon_{it} \quad (7)$$

Where Y and X are presumed to be non-stationary and (see equation 8):

$$e_{it} = \rho e_{it} + V_{it} \quad (8)$$

Where e_{it} = $(Y_{it} - X_{it}\beta_{it} - Z_{ity})$ are the residuals from estimating equation 31. To test the null hypothesis of no co-integration

Table 1: Description of the variables

Variable			Description	Source	Expected sign
Dependent variable	Welfare	Life expectancy	Health dimension is assessed by life expectancy at birth	HDI, 2014	(+)
		Education attainment	The education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age		
		GDP per capita (PPP US$)	The standard of living dimension is measured by gross national income per capita		
Independent variable	FDI inflow	Total FDI inflows a host country receives at time t divided by the host country's total population (i.e., FDI per capita)		UNCTAD, 2014	(+)
Control variable	Agglomeration	Assesses the prevalence of foreign firms in the country. Based on the item: "Foreign ownership of companies in your country is (1=rare and limited, 7=prevalent and encouraged."		Global competitiveness report, 2014	
	Debt	Total debt/GDP		WDI, 2014	(−)
	Governance	Governance includes voice and accountability, political stability and violence, government effectiveness, regulation quality, rules of law, control of corruption		Worldwide governance indicators, 2014	(+)
	Inflation	Inflation as measured by the consumer price index which measures annual % change in a fixed basket of goods		WDI, 2014	(−)
	Infrastructure	Telephone mainlines per 1000 people for entire country		WDI, 2014	(+)
	Trade openness	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product		WDI, 2014	(+)
	Bureaucracy	Number of days to start a business.		Global competitiveness report, 2014	(−)
	Country risk	Terror scale: 1 (very safe) and 5 (very risky)		Global competitiveness report, 2014	(−)

amounts to test H_0: ρ = 1 in equation 21I against the alternative that Y and X are co-integrated (i.e., H_1: ρ < 1).

3.6. Vector Error Correction Model (VECM)

The purpose of VECM model is to indicate the speed of adjustment from the short run equilibrium to the long run equilibrium state between the variables from welfare to country risk. The greater the coefficient of the parameter the higher the speed of adjustment of the model from short runs to long run. Considering the basic equation (1), the VECM model is specified as follows:

$$\begin{aligned}\Delta DWelfare = {} & \alpha_0 + \alpha_1 \sum_{t=1}^{K} \Delta DFDI_{t-1} + \alpha_2 \sum_{t=1}^{K} \Delta Agglomeration_{t-1} \\ & + \alpha_3 \sum_{t=1}^{K} \Delta DDebt_{t-1} + \alpha_4 \sum_{t=1}^{K} \Delta DGoverance_{t-1} + \\ & \alpha_5 \sum_{t=1}^{K} \Delta DInflation_{t-1} + \alpha_6 \sum_{t=1}^{K} \Delta DInfrastruc_{t-1} + \\ & \alpha_7 \sum_{t=1}^{K} \Delta DOpenness_{t-1} + \alpha_8 \sum_{t=1}^{K} \Delta Burea_{t-1} + \\ & \alpha_9 \sum_{t=1}^{K} \Delta DCountry\ Risk_{t-1} + €_I \end{aligned} \quad (9)$$

Where the $€_I$ is the error term, ECM (−1) is the error correction term, βi captures the long run impact. The short run effects are captured through the individual coefficients of the differenced terms (α) while the coefficient of the ECM variable contains information about whether the past values of variables affect the current values. The size and statistical significance of the coefficient of the ECM measures the tendency of each variable to return to the equilibrium. A significant coefficient implies that past equilibrium errors play a role in determining the current outcomes.

3.7. Fully Modified OLS and Dynamic OLS Method

A standard panel OLS estimator for the coefficient β_i given by:

$$\beta_i, OLS = [\sum_{i=1}^{N} \sum_{t=1}^{T} (X_{it} - X_i^*)^2]^{-1} \sum_{i=1}^{N} \sum_{t=1}^{T} (X_{it} - X_i^*)(Y_{it} - Y_i^*) \quad (10)$$

Where, i = cross-section data and N is the number of cross-section
t = time series data and T is the number of time series data
β_i,OLS = a standard panel OLS estimator
X_{it} = exogenous variable in model
X_i^* = average of X_i^*
Y_{it} = endogenous variable in model
Y_i^* = average of Y_i^*.

FMOLS estimator that incorporates the Phillips and Hansen (1990) semi-parametric correction to the OLS estimator to adjusts for the heterogeneity that is present in the dynamics underlying X and Y. Specifically, the FMOLS statistics is: (see equation 11).

$$\beta^{i}, FMOLS = N^{-1}\sum_{i=1}^{N}[\sum_{t=1}^{T}(X_{it} - X_{i}^{*})^{2}]^{-1} \sum_{t=1}^{T}(X_{it} - X_{i}^{*})(Y_{it}^{+} - TY_{i}) \quad (11)$$

Where, i = cross-section data and N is number of cross-section data
t = time series data and T is number of time series data
β_i,FMOLS = full modified OLS estimator
X_{it} = exogenous variable in model
X_i^* = average of X_i^*
Y_{it} = endogenous variable in model
Y_i^* = average of Y_i^*

$Y_{it}^{+} = \alpha X_{it} - X_{i}^{*}) - \left[(\Omega_{21i} / \Omega_{22i})\Delta X_{it}\right]$ and Ω is covariance.

In contrast to the non-parametric FMOLS estimator, Pedroni has also constructed a between-dimension, group-means panel DOLS estimator that incorporate corrections for endogeneity and serial correlation parametrically.

$$\beta_i, DOLS = [N^{-1}\sum_{i=1}^{N}(\sum_{t=1}^{T} Z_{it}\, Z_{i}^{*})^{-1}\sum_{t=1}^{T} Z_{it}\, Z_{it})] \quad (12)$$

Where, i = cross-section data and N is number of cross-section data
t = time series data and T is number of time series data
β_i,DOLS = dynamics OLS estimator
Z_{it} = is the 2(K+1)×1
$Z_{it} = (X_{it} - X_i^*)$
X_i^* = average of X_i^*
$\Delta X_{i,t-k}$ = differential term of X.

3.8. Fixed Effect and Random Effect Regression

Fixed and random effect regression model is used to see that whether the FDI is a significant element to explain the welfare.

Here the fixed effects regression model is

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \ldots + \beta_K X_{k,it} + \gamma_2 E_2 + \ldots + \gamma_n E_n + \delta_2 T_2 + \ldots + \delta_t T_t + u_i \quad (13)$$

Where, Y_{it} = is the dependent variable (DV) (welfare) where i = entity and t = time
$X_{k,it}$ = represents independent variables (FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy, country risk
β_k = is the coefficient
u_{it} = is the error term
E_n = is the entity n
γ_2 = is the coefficient for the binary regressors (entities)
T_t = is time as binary variable (dummy), so we have t–1 time periods
δ_t = is the coefficient for the binary time regressors.

The random effects model is:

$$4Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it} \quad (14)$$

Table 2: List of the countries

Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Benin, Bhutan, Bolivia, Botswana, Bulgaria, Burundi, Cambodia, Chad, Colombia, Comoros, Cuba, Dominica, Ecuador, El Salvador, Ethiopia, Figgie, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guyana, Haiti, Honduras, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kosovo, Lebanon, Liberia, Libya, Madagascar, Maldives, Mali, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Peru, Senegal, Serbia, Sierra Leone, Somalia, South Sudan, Sri Lanka, Sudan, Suriname, Tajikistan, Timor-Leste, Togo, Tonga, Tunisia, Uganda, Ukraine, Venezuela, Vietnam, Yemen, Zambia and Zimbabwe

3.9. Data Sources

This article has employs panel data for 79 countries over the period from 1998 to 2014 among different developing countries (Table 2). For the dependent variable (Welfare), the data that have used from the UN Development Program, 2014. The FDI which is noted as an independent variable is measured in current U.S. dollars divided by the host country's total population as the dependent variable, and data come from UNCTAD. Data on FDI are provided by several sources, such as Balance of Payments Statistics Yearbook and International Finance Statistics by the international monetary fund (IMF), European Union Direct Investment Yearbook by EUROSTAT, World Investment Report by UNCTAD, World Development Indicators by the World Bank, and International Direct Investment Statistics Yearbook by OECD. Only the UNCTAD, OECD, and EUROSTAT offer a sectoral breakdown of FDI flows and stocks. The drawback is that OECD and EUROSTAT only cover a very limited number of world countries and thus the total direct investment received by any given country cannot be completely assessed. Moreover, the paper is more interested in FDI inflows than FDI stocks because policy recommendations are usually formulated to boost FDI inflows rather than to accumulate FDI stocks for a given period. However, only UNCTAD provides a break down into two different categories: FDI figures for developed and for developing countries that really serve our purpose. Because of making contemplative judgment FDI related data from accumulated from the UNCTAD.

For accomplishing the research purpose for different control variables data are accumulated from the manifold sources, the data on the degree of openness, the inflation rate, debt and the infrastructure come from the World Bank's World Development Indicators (Table 2). Governance variable that including the six different factors, voice and accountability, political stability and violence, government effectiveness, regulation quality, rules of law and control of corruption. Data are aggregating from the worldwide governance indicators. Data collection method and research methodology all the things can be access in that particular website: www.govindicators.org. For another control variable, like agglomeration the data that have used from the global competitiveness report, the index value from 1 to 7, 1 represent rare and 7 represent prevalent. Country risk relevant data are aggregating from the global competitiveness report, 2014 which terror scale 1 (very safe) and 5 (very risky). For Bureaucracy related data are also aggregating from the global competitiveness report, 2014.

4. RESULT AND ANALYSIS

Concentrate on the model specification the following Table 3 interprets whether the panel data are stationary or not. For identifying this, five different panel unit test is being accomplished (Levin, Lin and Chu, Im, Pesaran and Shin, Fisher-type test using ADF and PP-test (Maddala and Wu and Choi) and Hadri.

Base on the five different type of panel unit root test such as Levin, Lin and Chu, Im, Pesaran and Shin, Fisher-type test using ADF and PP-test (Maddala and Wu and Choi) and Hadri method the variables are not stationary at a level. Now let's see at first difference the data are stationary or not. Here again using the five different methods for identifying the data are stationary or not at first differences. The following table illustrate that according to the Levin, Lin and Chu, Im, Pesaran and Shin, Fisher-Type test using ADF and PP-test (Maddala and Wu and Choi) and Hadri methods the variables are stationary or not at first differences.

From the Table 3 concentrate on the five different type of panel unit root test such as Levin, Lin and Chu, Im, Pesaran and Shin, Fisher-type test using ADF and PP-test (Maddala and Wu and Choi) and Hadri methods the variables are stationary at a first differences.

To solve the spurious regression problem and violation of the assumptions of the classical regression model, co-integration analysis is used to examine the long run relationship between the variables.

From the no deterministic trends there are 7 different and separate outcomes (Table 4). Out of 7 outcomes, 3 outcomes interpret that accept the null hypothesis (H_0 = no co-integration), because the P > 5. On the other hand 4 outcomes illustrates that reject the null hypothesis and accept the alternative hypothesis. Therefore it is to be noted that base on the no deterministic trend elucidate that the variables are co-integrate. On the other hand from the deterministic intercept and trends way out of 7 outcomes 5 outcomes interpret that accept the null hypothesis (H_0 = no co-integration), because

Table 3: Panel unit root test

Variables	Levin Lin and Chu-t test values** and prob.	Im, Pesaran and Shin W-stat test values** and prob.	ADF-Fisher Chi-square test values** and prob.	PP-Fisher Chi-square test values** and prob.	Hadri
Welfare	−2.56830	−0.76448	27.90346	16.93201	4.27015
	P=0.5417	P=0.3408	P=0.0549	P=0.1519	P=0.0000
Foreign direct investment	−7.89426	−5.29863	65.05825	29.26923	5.89275
	P=0.0592	P=0.1672	P=0.1349	P=0.1983	P=0.0000
Agglomeration	−8.29840	−3.72194	18.27883	29.83105	4.05187
	P=0.0629	P=0.2107	P=0.0794	P=0.1896	P=0.0000
Debt	−8.70441	−4.04716	32.09108	12.14092	6.35341
	P=0.0582	P=0.1732	P=0.0694	P=0.2806	P=0.0000
Governance	−9.25603	−3.94825	22.14929	17.65124	4.23109
	P=0.0652	P=0.2805	P=0.0729	P=0.1896	P=0.0000
Inflation	−7.42094	−5.42707	36.9294	29.84003	5.85103
	P=0.0898	P=0.1904	P=0.0676	P=0.1192	P=0.0000
Infrastructure	−3.94202	−11.25209	29.16720	18.56825	5.75719
	P=0.0794	P=0.1129	P=0.0604	P=0.1658	P=0.0000
Openness	−3.29886	−12.10126	22.54892	11.62627	4.29087
	P=0.0529	P=0.0852	P=0.1107	P=0.1628	P=0.0000
Bureaucracy	−5.00092	−4.89426	39.54804	11.65720	4.84107
	P=0.0927	P=0.1837	P=0.0672	P=0.1128	P=0.0000
Country Risk	−4.76442	−15.94623	22.84627	27.20194	4.77009
	P=0.0458	P=0.3205	P=0.1124	P=0.0937	P=0.0000

Table 4: Pedroni residual co-integration test

Test method	Pedroni residual co-integration test		
	No deterministic trend	Deterministic intercept and trend	No deterministic intercept or trend
Panel v-statistic	−0.051728	0.8256	−0.743317
	P=0.6523	P=0.8256	P=0.4529
Panel rho-statistic	−1.290032	0.2954	−0.852204
	P=0.3518	P=0.2954	P=0.1824
Panel PP-statistic	−2.632710	0.1762	−1.430953
	P=0.0026	P=0.1762	P=0.0026
Panel ADF-statistic	−2.861629	0.4369	−1.679403
	P=0.0014	P=0.4369	P=0.0054
Group rho-statistic	0.853944	0.8311	1.243960
	P=0.6518	P=0.8311	P=0.4326
Group PP-statistic	−3.167729	0.0006	−2.620219
	P=0.0006	P=0.0006	P=0.0002
Group ADF-statistic	−4.258803	0.0042	−2.187723
	P=0.0001	P=0.0042	P=0.0076

the P > 5. On the other hand 2 outcomes illustrates that reject the null hypothesis, it means that accept the alternative hypothesis. Therefore it is to be noted that base on the deterministic intercept and trend elucidate that the variables are not co-integrate. From the no deterministic intercept and trends out of 7 outcomes 4 outcomes interpret that reject the null hypothesis (H_0 = no integration), because the P < 5. On the other hand 3 outcomes illustrates that accept the null hypothesis, it means that reject the alternative hypothesis Therefore it is to be noted that base on the no deterministic intercept and trend method elucidate that the variables are co-integrated. On the two different methods out of three of the pedroni residual co-integration Test the variables are co-integrate. Another lucid method (Kao residual co-integration) is used to find out the co-integration regarding the variables (Table 5). From the table it exhibits that the P < 5%, means it reject the null hypothesis (H_0 = no co-integration).

So from the two methods of co-integration (Pedroni residual co-integration test, Kao residual co-integration test) reveals that the variables are co-integrate. On the evidence of co-integrating relationship, a VECM is estimated to model the long run causality and short run dynamics. The purpose of VECM model is to indicate the speed of adjustment from the short run equilibrium to the long run equilibrium state. The greater the coefficient of the parameter the higher the speed of adjustment of the model from short runs to long run.

From the Table 6, the first model (details in the Appendix Table 1) is the main consideration where the welfare is the dependent variable.

First model specification = D(Welfare) = C(1)* (Welfare(−1) −0.194788256127*FDI(−1)−0.398426932314*Agglomeration(−1)+15.198624391828*Debt(−1)−12.198234621453*Govt(−1)+23.031842951672*Inflation(−1)−19.36789215*Infrastructure(−1)+11.728193174235*Open(−1)−14.832566170912*Bureaucracy(−1)+22.029901479319*CountryRisk(−1)+C(2)*D(Welfare(−1))+C(3)*D(welfare(−2))+C(4)*D(FDI(−1))+C(5)*D(FDI(−2))+C(6)*D(Agglomeration(−1))+C(7)*D(agglomeration(−2))+C(8)*D(Debt(−1))+C(9)*D(Debt(−2))+C(10)*D(Governance(−1))+C(11)*D(Governance(−2))+C(12)*D(Inflation(−1))+C(13)*D(Inflation(−2))+C(14)*D(Infrastructure(−1))+C(15)*D(Infrastructure(−2))+C(16)*D(Open(−1))+C(17)*D(Open(−2))+C(18)*D(Bureaucracy(−1))+C(19)*D(Bureaucracy(−2))+C(20)*D(Country Risk(−1))+C(21)*D(Country Risk(−2))+C(22).

The following Table 7 interprets the first model.

Here C (1) means speed of adjustment towards long run equilibrium but it must me significant and the sign must be negative. There is long run causality from the variables such as FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy, and country risk. It interprets that the independent variables such as FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy and country risk have an influence on the dependent variable such as welfare.

Table 5: Kao residual co-integration test

Kao residual co-integration test	t-statistic	Prob.
ADF	−3.291844	0.0028
Residual variance	2193.654	
HAC variance	725.8439	

Table 6: Vector error correction model

Co-integrating Eq.	Coint Eq. 1
Welfare(−1)	1.000000
FDI(−1)	0.018239
	(0.00294)
	[6.203741]
Agglomeration(−1)	0.015586
	(0.00289)
	[5.393079]
Debt(−1)	0.013209
	(0.00256)
	[5.159765]
Governance(−1)	0.038856
	(0.00415)
	[9.362891]
Inflation(−1)	0.014929
	(0.00386)
	[3.867845]
Infrastructure(−1)	0.016153
	(0.00329)
	[4.909972]
Openness(−1)	0.014516
	(0.00394)
	[3.684263]
Bureaucracy(−1)	0.011901
	(0.00416)
	[2.860817]
Country risk(−1)	0.012985
	(0.00459)
	[2.828976]
C	329.1592

The different variables like FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy and country risk have an influence on the dependent variable such as welfare in the short run. For measuring this Wald Statistics is being used. Here, C(4)=C(5)=0 meaning that there is no short run causality running from FDI to welfare. C(6)=C(7)=0 meaning that there is no short run causality running from agglomeration to welfare. C(8)=C(9)=0 meaning that there is no short run causality running from debt to welfare. C(10)=C(11)=0 meaning that there is no short run causality running from governance to welfare. C(12)=C(13)=0 meaning that there is no short run causality running from inflation to welfare. C(14)=C(15)=0 meaning that there is no short run causality running from infrastructure to welfare. C(16)=C(17)=0 meaning that there is no short run causality running from openness to welfare. C(18)=C(19)=0 meaning that there is no short run causality running from bureaucracy to welfare. C(20)=C(21)=0 meaning that there is no short run causality running from country risk to welfare.

From the Table 8, it is explore that the P values of each of the independent variables are <5%. It means that there is a short run causality running from the variables like FDI, agglomeration, debt, governance, inflation, infrastructure, openness, bureaucracy and country risk to welfare.

According to the Panel dynamic least squares method (DOLS), it is seen that if the FDI goes up by 1 unit the welfare goes up 0.018675. On the other hand in the case of agglomeration the paper has also found that if agglomerations have increased 1 unit then welfare also has increased 0.184572. Reduction of debt 1 unit, the welfare has increased 0.124457. Increased of governance 1 unit, welfare has increased 0.152892.Reduction of inflation 1 unit, welfare has increased 0.115223. On the other hand, the paper has also explore that if the improving the infrastructure 1 unit, welfare has increased 0.135191. In the case of openness variable, 1% increasing openness, welfare has increased 0.195623. Reduction of bureaucracy by 1%, the welfare goes up 0.115985 along with the reduction of 1% of country risk, welfare has increased 0.016218 (Table 9).

From the method of fully modified least square (FMOLS) it is seen that if the FDI goes up by 1 unit the welfare goes up 0.027956. On the other hand in the case of agglomeration the paper has seen that if agglomerations have increased 1 unit then welfare has increased 0.110327. The other independent variable debt has found that reduction of debt 1 unit, the welfare has increased 0.078451. Increased of governance 1 unit, welfare has increased 0.091872. Reduction of inflation 1 unit, welfare has increased 0.107263. On the other hand, the paper has seen that if the improving the infrastructure 1 unit, welfare has increased 0.111348. In the case of openness variable, 1% increasing openness, welfare has increased 0.130955. If the bureaucracy diminishes by 1%, the welfare goes up 0.108327. Reduction of 1% of country risk, welfare has increased 0.079931.

According to the fixed effect model the FDI variable is significant. Here the probability value is <5%, it means that FDI is significant variable to explain welfare. Agglomeration variable is significant because the probability value is <5%, it interprets that FDI is significant variable to explain welfare. Debt variable is not significant because the probability value is not <5%, it means that debt is not significant variable to explain welfare. Governance and inflation variable is not significant. Here the probability value is not <5%, it means that governance variable and inflation is not significant variable to explain welfare. Infrastructure variable is significant. Here the probability value is <5%, it means that infrastructure variable is also significant variable to explain welfare. Openness variable is also found significant because the probability value is <5%, it means that openness is significant variable to explain welfare. Bureaucracy variable is also found significant because the probability value is <5%, it means that bureaucratic variable is significant variable to explain welfare. Country risk variable is significant. Here the probability value is <5%, it means that country risk is significant variable to explain welfare (Table 10).

From the random effect model, FDI variable is significant. Here the probability value is <5%, it means that FDI is significant variable to explain welfare. Agglomeration variable is significant because the probability value is <5%, it interprets that FDI is significant variable to explain welfare. Debt variable is significant because the probability value is not <5%, it means that debt is not significant variable to explain welfare. Governance and inflation variable is also found significant. Here the probability value is <5%, it means

Table 7: Model specification one

Variable	Coefficient	Std. error	t-statistics	Prob.
C (1)	−12.213562	4.103572	2.976324	0.0072
C (2)	83.498006	34.296092	2.434621	0.0095
C (3)	93.256631	24.321098	3.834392	0.0043
C (4)	56.356986	37.192983	1.515258	0.0061
C (5)	132.956621	53.154672	2.501315	0.0326
C (6)	55.602284	19.113441	2.909067	0.0562
C (7)	135.124318	42.496539	3.179654	0.0865
C (8)	183.850921	54.392092	3.380103	0.0946
C (9)	210.643302	39.311549	5.358305	0.0328
C (10)	146.932035	78.396613	1.874214	0.0463
C (11)	129.567304	95.236394	1.360480	0.0288
C (12)	57.298803	49.210993	1.164349	0.0050
C (13)	221.215349	126.254902	1.752132	0.0088
C (13)	205.156225	138.132547	1.485212	0.0031
C (14)	139.219410	134.119832	1.038022	0.0232
C (15)	102.194527	101.138546	1.010440	0.0167
C (16)	134.158324	126.102392	1.063884	0.0328
C (17)	76.136670	72.143109	1.055356	0.0263
C (18)	84.561065	34.347341	2.461939	0.0434
C (19)	113.321442	66.223091	1.711207	0.0245
C (20)	94.278809	42.198057	2.234197	0.0382
C (21)	72.810021	61.298513	1.187794	0.0015
C (22)	31.258841	29.843619	1.047421	0.0196

Table 8: Wald statistics

Independent variable	Hypothesis	Prob.
FDI	C (4)=C (5)=0	0.0008
Agglomeration	C (6)=C (7)=0	0.0004
Debt	C (8)=C (9)=0	0.0002
Governance	C (10)=C (11)=0	0.0003
Inflation	C (12)=C (13)=0	0.0007
Infrastructure	C (14)=C (15)=0	0.0005
Open	C (16)=C (17)=0	0.0002
Bureaucracy	C (18)=C (19)=0	0.0001
Country risk	C (20)=C (21)=0	0.0003

that government variable and inflation is significant variable to explain welfare. Infrastructure variable is not significant. Here the probability value is not <5%, it means that infrastructure variable is not significant variable to explain welfare. Openness variable is not significant because the probability value is not <5%, it means that openness is not significant variable to explain welfare. Bureaucratic variable is also found significant because the probability value is <5%, it means that bureaucratic variable is significant variable to explain welfare. Country risk variable is significant. Here the probability value is <5%, it means that country risk is significant variable to explain welfare.

5. CONCLUSION

FDI escalates the economic advancement by improving the productivity of the labor forces through the inception of modern and sophisticated technology especially for the developing country. The main substantive explore is that FDI that makes a significant and positive impact over the exploration of the welfare in the developing countries. Host countries government accentuate on extinguishing the multitudinous trade related impediment for the purpose of unrestricted movement of FDI and also the government needs to establish a constructive and commensurate procedures and

Table 9: Panel dynamic least squares and fully modified least square method

Variables	Panel dynamic least squares method				Fully modified least square method			
	Coefficient	Std. error	t-statistic	Prob.	Coefficient	Std.error	t-statistic	Prob.
FDI	0.286751	2.82E-12	6.62E+03	0.0000	0.227956	3.47E-15	8.05E+07	0.0006
Agglomeration	0.184572	1.45E-11	1.27E+15	0.0000	0.110327	2.21E-05	4.99E+11	0.0003
Debt	−0.124457	1.09E-09	1.14E+10	0.0000	−0.078451	1.27E-04	6.17E+09	0.0002
Governance	0.152892	1.11E-03	1.37E+18	0.0002	0.091872	1.25E-06	7.34E+07	0.0003
Inflation	−0.115223	1.15E-07	1.00E+09	0.0004	−0.107263	1.43E-03	7.50E+09	0.0001
Infrastructure	0.135191	1.12E-11	1.20E+12	0.0000	0.111348	1.29E-07	8.63E+15	0.0000
Openness	0.195623	1.13E-10	1.73E+07	0.0000	0.130955	1.45E-08	9.03E+11	0.0000
Bureaucracy	−0.115985	1.11E-09	1.04E+11	0.0000	−0.108327	1.37E-10	7.90E+11	0.0000
Country risk	−0.016218	1.09E-12	1.48E+10	0.0000	−0.079931	1.57E-11	5.09E+09	0.0000

Table 10: Fixed effect model and random effect model

Variables	Fixed effect model				Random effect model			
	Coefficient	Std. error	t-statistic	Prob.	Coefficient	Std. error	t-statistic	Prob.
C	−215862.9	183945.3	−1.173516	0.0069	87248.15	38729.36	2.252765	0.3218
FDI	1580.312	756.283	2.089577	0.0003	295.4537	89.18327	−3.312882	0.0002
Agglomeration	1329.185	829.170	1.603030	0.0009	183.8943	75.15193	2.446967	0.0018
Debt	−1295.031	729.582	−1.775031	0.1339	−167.4298	68.13662	2.457266	0.0031
Governance	255.181	202.102	1.262634	0.1035	176.9044	132.9371	1.330737	0.0015
Inflation	−562.183	359.250	−1.564879	0.1132	−231.7033	145.1833	1.595936	0.0021
Infrastructure	287.829	205.114	1.403263	0.0023	139.0552	65.01310	2.138879	0.0839
Openness	168.182	132.194	1.272236	0.0005	123.7381	72.52992	1.706028	0.0615
Bureaucracy	−157.039	136.154	1.153392	0.0197	−115.5982	83.75541	1.380187	0.0175
Country risk	−145.236	122.021	1.190254	0.0095	−45.1667	23.88316	1.891152	0.0003

program for the uninterrupted engagement of the foreign firms to strengthening the welfare accumulation for the host countries that indubitably assists to propagate the socio-economic and macro-economic utility of the developing countries.

REFERENCES

Anand, S., Sen, A. (2000), Human development and economic sustainability. World Development, 28(12), 2029-2049.

Arcelus, F.J., Sharma, B., Srinivasan, G. (2005), Foreign capital flows and the efficiency of the HDI dimensions. Global Economy Journal, 5(2), 1058-1060.

Asiedu, E. (2002), On the determinants of foreign direct investment to developing countries: Is Africa different? World Development, 30(1), 107-119.

Bain, J.S. (1951), Relationship of profit rate to ındustry concentration in American manufacturing, 1936-1940. Quarterly Journal of Economics, 65, 293-324.

Barrell, R., Pain, N. (1997), Foreign direct ınvestment, technological change and economic growth within Europe. Economic Journal, 107, 1770-1786.

Blomstrom, M., Kokko, A. (2003), Multinational corporations and spillovers. Journal of Economic Surveys, 12(2), 1-31.

Borensztein, E., De Gregorio, J., Lee, J.W. (1998), How does foreign direct investment affect economic growth? Journal of International Economics, 45(1), 115-127.

Botric, V., Skuflic, L. (2006), Main determinants of foreign direct ınvestment in the Southeast European countries. Transition Studies Review, 13(2), 359-377.

Buckley, P.J. (1990), Problems and developments in the core theory of ınternational business. Journal of International Business Studies, 21(4), 657-665.

Cernat, L., Vranceanu, R. (2002), Globalization and development: New evidence from central and Eastern Europe. Comparative Economic Studies, 44, 119-136.

Chakrabarti, A. (2001), The determinants of foreign direct investment: Sensitivity analyses of cross-country regressions. Kyklos, 54, 89-113.

Chen, M. (1996), Competitor analysis and inter firm rivalry: Toward a theoretical integration. Academy of Management Review, 21(1), 100-134.

Driffield, N., Girma, S. (2003), Regional foreign direct ınvestment and wage spillovers: Plant level evidence from the U.K electronics ındustry. Oxford Bulletin of Economics and Statistics, 65(4), 453-474.

Globerman, S., Shapiro, D. (2003), Governance infrastructure and US foreign direct investment. Journal of International Business Studies, 34(1), 19-39.

Hansen, H., Rand, J. (2006), On the causal links between FDI and growth in developing countries. World Economy, 29, 21-41.

Hymer, S. (1968), The efficiency (contradictions) of multinational corporations. American Economic Review, 60(2), 441-448.

Kakwani, N. (1981), Welfare measures: An international comparison. Journal of Development Economics, 8(1), 21-45.

Kersan-Skabic, I., Orlic, E. (2007), Determinants of FDI in CEE, Western balkan countries (ıs accession to the EU ımportant for attracting FDI? Economic and Business Review, 9(4), 333-350.

Konings, J. (2001), The effects of foreign direct ınvestment on domestic firms: Evidence from firm and level panel data in emerging economies. Economics of Transition, 9(3), 619-633.

Lehnert, K., Benmamoun, M., Zhao, H. (2013), FDI ınflow and human development: Analysis of FDI's ımpact on host countries' social welfare and ınfrastructure. Thunderbird International Business Review, 55(3), 285-298.

Li, X., Liu, X. (2005), Foreign direct ınvestment and economic growth: An ıncreasingly endogenous relationship. World Development, 33(3), 393-407.

Lucas, R. (1993), On the determinants of direct foreign ınvestment: Evidence from East and Southeast Asia. World Development, 21(3), 391-409.

MacDougall, G.D.A. (1960), The benefits and costs of private investment from abroad: A theoretical approach. Economic Record, 36(73),

13-35.
McKenzie, G.W., Pearce, I.F. (1982), Welfare measurement: A synthesis. The American Economic Review, 72(4), 669-682.
Mengistu, B., Adams, S. (2007), Foreign direct ınvestment, governance and economic development in developing countries. Journal of Social, Political and Economic Studies, 32(2), 223-249.
Meyer, K. (2004), Perspectives on multinational enterprises in emerging economies. Journal of International Business Studies, 3, 35-44.
Meyer, K., Sinani, E. (2009), When and where does foreign direct investment generate positive spillovers? A meta-analysis. Journal of International Business Studies, 40, 1075-1094.
Mirza, H., Giroud, A. (2003), Regionalization, foreign direct ınvestment and poverty reduction. Journal of the Asia Pacific Economy, 9(2), 223-248.
Penrose, E. (1956), Foreign ınvestment and the growth of the firm. The Economic Journal, 66(262), 220-235.
Phillips, P., Hansen, B. (1990), Statistical ınference in ınstrumental variables regression with I(1) processes. Review of Economic Studies, 57, 99-125.
Pyatt, G. (1987), Measuring welfare, poverty and inequality. The Economic Journal, 97(386), 459-467.
Rogers, M. (2004), Absorptive capacity and economic growth: How do countries catch up? Cambridge Journal of Economics, 28, 577-596.
Zhang, K.H. (2001), What attracts foreign multinational corporations to China? Contemporary Economic Policy, 19(3), 336-346.
Zhao, H. (2013), Technology imports and their impacts on the enhancement of China's indigenous technological capability. Journal of Development Studies, 31(4), 585-602.

APPENDIXTABLE

Appendix Table 1: Different model specification

Error correction	Welfare	FDI	GDP	DEBT	Govt. spend	INFLA	Infras	Open	Human	Country risk
Coint Eq. 1	−0.120295	2.560248	3.952673	−0.087613	0.189921	−0.157205	1.764339	0.187622	0.079472	0.188152
	(0.06475)	(1.17635)	(2.01852)	(0.03284)	(0.07105)	(0.09521)	(1.27042)	(0.05988)	(0.04968)	(0.09621)
	[−1.857837]	[2.176433]	[1.958203]	[2.667874]	[2.673061]	[1.651139]	[1.388784]	[3.133329]	[1.599677]	[1.955638]
D {Welfare(−1)}	−0.015728	0.005373	0.321562	0.013558	0.236619	0.958924	0.074182	0.298491	0.091331	0.052183
	(0.0138)	(0.00829)	(0.11892)	(0.02615)	(0.03752)	(0.71682)	(0.03916)	(0.33492)	(0.08629)	(0.06518)
	[−1.139710]	[0.648130]	[2.704019]	[0.518470]	[6.306476]	[1.337747]	[1.894330]	[0.891230]	[1.058419]	[0.800598]
D {Welfare(−2)}	−0.183953	0.451986	0.598213	0.036721	0.088394	0.586392	0.274893	0.008276	0.023410	0.814194
	(0.14272)	(0.41137)	(0.43183)	(0.04903)	(0.09462)	(0.34662)	(0.21684)	(0.00294)	(0.03625)	(0.73416)
	[−1.288908]	[1.098733]	[1.385297]	[0.748949]	[0.934199]	[1.691743]	[1.267722]	[2.814965]	[0.645793]	[1.109014]
D {FDI(−1)}	0.709755	0.009427	0.029811	0.064192	0.779801	0.851936	0.521964	0.416580	0.461925	0.033184
	(0.52214)	(0.00776)	(0.05418)	(0.08462)	(0.54825)	(0.95193)	(0.48962)	(0.07419)	(0.26193)	(0.04518)
	[1.359319]	[1.214819]	[0.550221]	[0.758591]	[1.422345]	[0.894956]	[1.066059]	[5.615042]	[1.763543]	[0.734484]
D {FDI(−2)}	0.156209	0.076342	0.029518	0.970928	1.037782	1.075329	0.821673	0.008294	0.023195	0.042819
	(0.11774)	(0.01835)	(0.04513)	(0.83625)	(0.85138)	(0.92816)	(0.29136)	(0.00569)	(0.01988)	(0.03414)
	[1.326728]	[4.160326]	[0.654066]	[1.161049]	[1.218941]	[1.158559]	[2.820129]	[1.457644]	[1.166785]	[1.254217]
D {Agglomeration(−1)}	1.856616	1.434628	0.821942	0.694552	0.002988	0.721734	0.621592	0.490855	0.551929	0.351986
	(0.43759)	(0.97425)	(0.71661)	(0.84291)	(0.00964)	(0.68549)	(0.25730)	(0.07629)	(0.38216)	(0.32146)
	[4.242820]	[1.472546]	[1.146986]	[0.823993]	[0.309958]	[1.052873]	[2.415825]	[6.433814]	[1.444235]	[1.094960]
D {Agglomeration(−2)}	0.973326	0.008735	0.093195	0.568325	1.078842	0.884216	0.741829	0.008094	0.498615	0.628125
	(0.65198)	(0.00946)	(0.08215)	(0.44528)	(0.95884)	(0.93198)	(0.62194)	(0.00629)	(0.41294)	(0.35147)
	[1.492870]	[0.929255]	[1.134449]	[1.276331]	[1.125153]	[0.948749]	[1.192766]	[1.286804]	[1.207475]	[1.787136]
D {Debt(−1)}	0.076295	0.784516	1.179037	0.872902	0.937748	0.004561	0.598236	0.093887	0.201552	0.298417
	(0.04182)	(0.28925)	(0.96772)	(0.95182)	(0.95828)	(0.00365)	(0.41837)	(0.07725)	(0.07053)	(0.32156)
	[1.824366]	[2.712242]	[1.218365]	[0.917087]	[0.978574]	[1.249589]	[1.429920]	[1.215365]	[2.857677]	[0.928028]
D {Debt(−2)}	1.167925	1.135198	0.098337	0.397451	0.761825	0.689243	0.008296	0.003966	0.006718	0.182643
	(1.35266)	(0.93821)	(0.17527)	(0.48942)	(0.39832)	(0.44183)	(0.02916)	(0.00437)	(0.00821)	(0.27182)
	[0.863428]	[1.209961]	[0.561060]	[0.812085]	[1.912595]	[1.559973]	[0.284499]	[0.907551]	[0.818270]	[0.671926]
D {Governances(−1)}	0.298142	0.006741	0.079183	0.008726	0.198563	0.063184	0.512783	0.901812	0.008321	0.004839
	(0.08563)	(0.00863)	(0.05981)	(0.00782)	(0.08126)	(0.05610)	(0.08871)	(0.28391)	(0.58920)	(0.00542)
	[3.481747]	[0.781112]	[1.323909]	[1.115856]	[2.443551]	[1.126274]	[5.780441]	[3.176400]	[0.014122]	[0.892804]
D {Governance S(−2)}	0.853442	0.794831	0.006744	0.008125	0.078183	0.524631	0.197533	0.947718	0.082183	0.246218
	(0.38498)	(0.56159)	(0.00729)	(0.00939)	(0.08326)	(0.39183)	(0.07320)	(0.75192)	(0.72551)	(0.33192)
	[2.216847]	[1.415322]	[0.925102]	[0.865282]	[0.939022]	[1.338923]	[2.698538]	[1.260397]	[0.113276]	[0.741799]
D {Inflation(−1)}	0.196749	0.005642	0.379721	0.002947	0.662916	0.458231	0.328719	0.043170	1.076618	0.125579
	(0.09216)	(0.00521)	(0.09822)	(0.00375)	(0.09833)	(0.37829)	(0.09217)	(0.53930)	(0.95183)	(0.05613)
	[2.134863]	[1.082917]	[3.866025]	[0.785866]	[6.741747]	[1.211322]	[3.566442]	[0.080048]	[1.131103]	[2.237288]
D {Inflation(−2)}	0.491503	0.025774	0.068352	0.416382	0.941829	0.432015	0.387292	0.698364	0.921712	0.428694
	(0.21882)	(0.05375)	(0.05219)	(0.26941)	(0.58762)	(0.58259)	(0.41256)	(0.45283)	(0.93151)	(0.06352)
	[2.246152]	[0.479516]	[1.309676]	[1.545532]	[1.602785]	[0.741542]	[0.938753]	[1.542221]	[0.989481]	[6.748960]
D {Infrastructure(−1)}	0.051603	0.004672	0.052183	0.952981	0.082951	0.067182	0.007284	0.072903	0.451662	0.048625
	(0.03929)	(0.07528)	(0.07943)	(0.66382)	(0.07682)	(0.04961)	(0.00298)	(0.08294)	(0.58021)	(0.03516)
	[1.313387]	[0.062061]	[0.656968]	[1.435601]	[1.079809]	[1.354202]	[2.444295]	[0.878984]	[0.778445]	[1.382963]
D {Infrastructure(−2)}	0.039156	0.731946	0.498325	0.764092	0.064798	0.212412	0.091829	0.562904	0.006518	0.274512
	(0.02158)	(0.46675)	(0.07131)	(0.34839)	(0.05541)	(0.43192)	(0.05683)	(0.09418)	(0.00531)	(0.05619)
	[1.814457]	[1.568175]	[6.988150]	[2.193208]	[1.169427]	[0.491785]	[1.615854]	[5.976895]	[1.227495]	[4.885163]

(Contd...)

Appendix Table 1: (*Continued*)

Error correction	Welfare	FDI	GDP	DEBT	Govt. spend	INFLA	Infras	Open	Human	Country risk
D {Openness(−1)}	1.215615	1.139452	0.745528	0.929061	0.589427	0.298316	0.072529	0.095182	0.042188	0.596632
	(0.53283)	(0.95186)	(0.32983)	(0.89548)	(0.14962)	(0.21721)	(0.62195)	(0.03218)	(0.03845)	(0.34139)
	[2.281431]	[1.197079]	[2.260340]	[1.037500]	[3.939827]	[1.373399]	[0.116615]	[2.957799]	[1.097217]	[1.747655]
D {Openness(−2)}	0.769514	0.070547	0.008326	0.007982	0.258815	0.043942	0.053174	0.043189	0.613692	0.095281
	(0.43182)	(0.06518)	(0.03962)	(0.00859)	(0.19438)	(0.02942)	(0.09715)	(0.05614)	(0.72195)	(0.03617)
	[1.782024]	[1.082341]	[0.210146]	[0.929220]	[1.331489]	[1.493609]	[0.547339]	[0.769308]	[0.850047]	[2.634254]
D {Bureaucracy(−1)}	1.132518	0.004785	0.612736	1.156358	0.986632	0.243016	0.356625	0.471809	0.341694	1.103992
	(0.69183)	(0.00851)	(0.73992)	(0.89663)	(0.29851)	(0.11582)	(0.46183)	(0.08395)	(0.47188)	(0.87104)
	[1.636988]	[0.562279]	[0.828111]	[1.289671]	[3.305189]	[2.098221]	[0.772199]	[5.620119]	[1.801405]	[1.267441]
D {Bureaucracy(−2)}	0.791037	0.007925	0.086439	0.006283	0.005728	0.054329	0.431673	0.059883	0.613527	0.042194
	(0.44816)	(0.00849)	(0.33168)	(0.00735)	(0.00398)	(0.03982)	(0.48260)	(0.00972)	(0.73103)	(0.06715)
	[1.765077]	[0.933451]	[0.260609]	[0.854829]	[1.439195]	[1.364364]	[0.894473]	[6.160802]	[0.839263]	[0.628354]
D {Country R(−1)}	1.092614	0.005281	0.092177	0.843295	0.007413	0.004528	0.002803	0.371740	0.054290	0.372984
	0.59332	(0.00832)	(0.04942)	(0.43693)	(0.00804)	(0.00312)	(0.00414)	(0.29551)	(0.04163)	(0.24120)
	1.841525	[0.634735]	[1.865176]	[1.930046]	[0.922014]	[1.451282]	[0.677053]	[1.257960]	[1.304107]	[1.546368]
D {Country R(−2)}	1.298694	0.031988	0.298715	0.650629	0.961914	0.035321	1.042293	0.721094	0.047193	0.003863
	(0.95183)	(0.0216)	(0.36441)	(0.72507)	(0.83152)	(0.04329)	(0.95194)	(0.18035)	(0.04820)	(0.04612)
	[1.364418]	[1.480925]	[0.819722]	[0.897332]	[1.156814]	[0.815915]	[1.094914]	[3.998303]	[0.979107]	[0.083759]