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RESEARCH PAPER

Role of Foreign Direct Investment in Employment Generation: Evidence from FDI Recipient Economies

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ABSTRACT

Remarkable global FDI flows during last two decades have substantial impact on labor market in developed and developing economies. The present study intends to explore the role of FDI in employment generation. By taking the data from 1991-2020 for top twenty FDI recipient economies (developed and developing) the study used system GMM model to test the hypothesis empirically. Employment level is taken as dependent variable and net inflows of FDI to GDP ratio is taken as principal variable. Other control variables include in the study are, Gross fixed capital formation (GFCF), inflation (INF), Gross domestic product (GDP) per capita, labor force (LF) and trade openness (TOP). The findings of study reveal that inward FDI has strong positive impact on employment levels in both developed and developing economies. As policy suggestion it is recommended that inward FDI should be encouraged in those sectors which can generate more employment opportunities for local labor especially in developing economies.

Keywords Employment Level, FDI, System GMM

Introduction

Foreign Direct Investment (FDI) is considered a category of investment where investor intends to have control over the enterprise. It is not a simple transfer of financial assets but also the transfer of tangible assets as well. FDI is a mixture of transfer of financial assets, managerial skill and marketing skills etc. In the vacant literature it has been extensively explored how FDI can have impact on the host economy. A significant amount of literature has consensus over the traditional argument that FDI has many positive economic, social and distributional impacts on host economy. FDI can contribute to solve a variety of major economic and social issues. FDI can provide huge financial support for government of host economy from overseas investors during the time of financial crises (Balcerzak & Zurek, 2011). FDI promotes expansion, development of the economy and bridges the savings-investment gap by providing capital inflows. Through transfer of capital and technology FDI can create job opportunities and it can improve the access to global markets, all of which increase the domestic economy's overall productivity (Ajayi, 2006 & Kinda, 2010).

Additionally, it is frequently believed that FDI has a strong beneficial impact on the labour market of the host economy, since it can reduce unemployment by creating new employment opportunities. FDI can create job probability not only in FDI attracting sector but it has also a spillover effect on all other related industries (Rizvi & Nishat, 2009).

In case of efficiency seeking FDI, FDI is targeted to exploit the cheap local labor and resources. Therefore, FDI inflows play an important role in employment generation. FDI helps to expand business prospects, create jobs, and raise the amount of money earned by locals in the host country. In many developing countries, policymakers and governments have stressed the importance of FDI in the economy. They have consequently adopted a number of policies aimed at increasing FDI inflows into their countries (Görg & Greenaway, 2004; and Kinda, 2010).

Creating new employment opportunities is a grave challenge for all countries especially for those countries who are having growing population. After Covid-19 the situation of unemployment has become more worse around the globe. Unemployment always remains a major problem so, it is worth consideration that how to reduce unemployment. According to ILO estimates the unemployment rate in India increased from 5.56% in 2015 to 7.11% in 2020 and in USA unemployment rate was 5.28% in 2015 and 8.31% in 2020. Both these countries are included in the list of top 20 FDI recipient economies. USA is the first largest FDI recipient country and India is the fifth largest FDI recipient country in the world (WIR, 2021). At one side countries are the top FDI recipient economies, on the other side they are facing high unemployment rates.

Therefore, the aim of the present study is to investigate the role of inward FDI in employment generation for top 20 FDI recipient economies which includes developed and developing economies by using system GMM model. As unemployment is a major problem all over the world especially in capital poor developing economies. The existing literature on FDI immensely has explored the impact of FDI on economic growth and poverty reduction. However less attention is paid to explore the impact of inward FDI in employment generation into host economy. It is imperative to explore that either FDI has a positive, negative or no impact on employment level. There are studies available which explored the relationship between FDI and employment level but there was not a single study which explored the impact of inward FDI on top FDI recipient economies including developing and developed economies. So, the study will contribute in existing literature to bridge this gap.

Literature Review

Different studies analyzed different impact of FDI on labor market. Mishra and Palit (2020) investigated the FDI's role on employment scenario in India. Secondary data for the period of 1991 to 2018 was used. The study concluded that FDI inflows had not any significant contribution in employment generation for Indian economy. Another study for Indian economy was conducted by Gupta (2020). The study intended to explore the impact of inward FDI on employment level of manufacturing industry of India. The second objective of the study was to explore the link between FDI and wage rate. The study used data on 12 industries of India for the period of 2004-2018. Regression Models were used to evaluate the effect of

FDI on employment level. Results of the study showed that there was a substantial positive impact of FDI on employment level. But the effect is different on different workers, since FDI had positive impact for full time worker but had no effect on temporary workers. Moreover, it is also explored that FDI had no significant impact on wage rate. Nevertheless, Rekha and Karan (2017) carried out a research study to explore the impact of inward FDI and GDP on employment level of India. A time series data from 1991 to 2013 was used on the study variables including, FDI, GDP and employment level. Taking employment level as dependent variable the study demonstrated that FDI and GDP can enhance the employment opportunities in India for the sample period.

A study by Saurav and Kuo (2020) showed that FDI had a constructive impact on the job creation and also had a positive impact on the wage rate. The study showed that for high skilled workers the wage effect was high. Similar to Saurav and Kuo (2020) another study by Adeyemi (2018) found the positive impact of inward FDI on Nigerian Economy. Data from 1999-2016 on study variables was used to study the impact of FDI on employment generation. By taking employment level as dependent variable and GDP, FDI and exchange rate as explanatory variables, the finding of the research revealed that FDI can contribute to enhance the job opportunities. A similar study for Nigerian economy was conducted by Oluwatoyin and Temiloluwa (2017) to study the role of foreign direct investment in employment generation. Data was taken for the time period of 1981-2014. The study's results exposed that FDI had a strong constructive influence on employment generation in Nigeria.

Makhoba (2018) carried out a study for South African economy to investigate the role of FDI in employment generation. Time series data for the period 1980 to 2015 was used and VAR and VECM were used as estimation technique. Employment level was treated as dependent variable while FDI, GDP, Inflation, Unit cost of labor and trade openness were taken as explanatory variables. It was revealed by the findings of the research that FDI reduce the job opportunities instead to increase the employment level.

Sarwar, Jadoon, Butt and Sair (2016) studied association between FDI and employment in Pakistan. Using time series data for the period 1980-2014, the study employed Johansen Cointegration Technique and VECM to empirical test the hypothesized relationship. Dependent variable was employment level and independent variables included were, FDI and GDP. The study's results revealed that there was a negative long run relationship between employment and FDI, indicating that FDI cannot deteriorate employment situation in Pakistan. However, GDP was found to have constructive bearing on employment level. Similar to Sarwar, Jadoon,Butt and Sair (2016), Habib and Sarwar (2013) also had found the impact of inward FDI on employment level of Pakistan. To check the long run relationship between study variable the research used time series data for Pakistan economy from 1970 to 2011 and employed Johanson Co-integration technique. Results demonstrated that inward FDI can increase the employment opportunities in Pakistan.

Irpan, Saad, Nor and Ibrahim (2016) carried out an analysis to check the impact of inward FDI on employment level of Malaysia. Time span was taken from 1980 to 2012 for the time series data and ARDL model was used for analysis. The study used unemployment rate instead of employment level in contrast with the

above cited studies. Independent variables were FDI, GDP, number of foreign workers and exchange rate. Results of the study showed that FDI can contribute to reduce the unemployment rate in Malaysia. Rizvi and Nishat (2009) studied the impact of FDI on employment opportunities. The study was carried out to find the empirical evidence from three countries Pakistan, India and China. The main objective of the study was to check the impact of inward FDI on employment generation opportunities during 1985 to 2008. The study concluded that FDI had no significant effect on employment generation in any of three countries. The results of the study also showed that average of employment creation in three countries was extremely low.

Dissimilar to above documented literature Colak and Alakbarov (2017) studied the contribution of FDI in employment generation for the panel of commonwealth Independent States (CIS). Using panel data from 1995-2013, Pedroni's and kao's cointegration tests were applied to test the hypothesis. Employment was taken as dependent variable and FDI and GDP were as independent variables. The study's results demonstrated the existence of a positive long-term relationship between FDI and employment level of the states under discussion. Another panel data study was conducted by Milanovic, Kurtovic, and Siljkovic (2015). They studied the long-term impact of FDI on the reduction of unemployment for the panel of Western Balkans (WB) countries and the panel data covered the time period from 1998 to 2012. Vector Error Correction Model (VECM) and Granger causality test were performed for empirical investigation. The study's results revealed that there was a long run causality between FDI and unemployment.

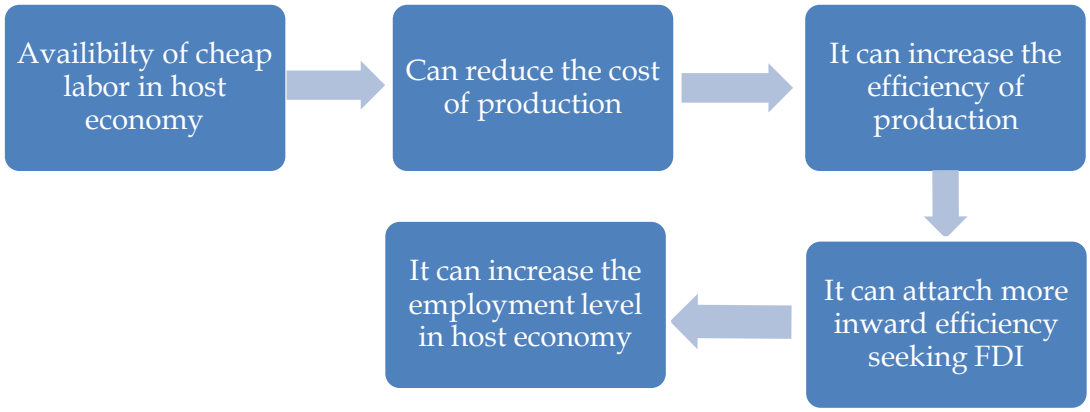
The present study is fairly different from the vacant literature. First, the above cited literature on the topic demonstrated that most of the studies done to check the impact of FDI on employment level are time series studies for individual economies. Only few studies were conducted on the panel data set. However, none of the available studies was conducted for the panels of top FDI host economies. Second, the cited literature has reported mixed evidence about the impact of inward FDI on employment level. Hence it is worth exploring how FDI can impact the labor market situation in top FDI host economies (including developed and developing economies). Third, mostly study used the cointegration and causality analysis to explore the relationship among study variables. None of the studies used dynamic panel model by employing the system GMM (Generalized Method of Moment) technique. Hence the prime objective of the present research is to explore the impact of inward FDI for the panel of top 20 FDI host economies. Then the panel is disintegrated between developed and developing economies again to check the impact of inward FDI on employment level.

Conceptual Framework

It is widely admitted fact that inward FDI can enhance the employment opportunities in host economy especially when the FDI is targeted to exploit local cheap resource (Hisarciklilar, Gultekin-Karakas, & Asici, 2014). Keynes (1936) argued that considering competitive labor markets would bring perfect employment over time or that full-time employment is a natural and equitable financial equity.

To understand the link of employment level and FDI it is important to mention the determinantal factors to attract FDI. There are certain factors that can

attract FDI, these factors can be classified as market, resources and efficiency seeking factors. Market seeking FDI normally consider, size of the market, consumption capacity and growth potential of the host economy. Market seeking FDI also called horizontal FDI. Resource seeking FDI is attracted by cheap raw material and natural resources of the host economy and takes place in low labor-intensive sectors, hence has less impact on labor market. The efficiency seeking FDI is concerned to produce output more efficiently by reducing the cost of production. This form of FDI is also called vertical FDI and it takes place where investors can exploit the cheap labor of the host economy to reduce the production cost (Ernst, 2005). How efficiency seeking FDI can impact the labor market, can be shown through appended flow chart.



The relationship between FDI and employment is discussed above. Other explanatory variables included in the model are GDP per capita, Inflation, trade openness, labor force and gross fixed capital formation. The theoretical relationship between GDP and employment is supported by the Okun's law which says that 3% increase in GDP leads to 1% decrease in unemployment rate. Phillips curve explain the theoretical relationship between inflation and employment. According to Phillips curve unemployment can be reduced by increasing the inflation rate/nominal wages. The relationship between employment and trade openness is theoretically supported by the hypothesis of Ricardian and Heckscher-Ohlin (HO) theory. Ricardian hypothesis claimed if there is increase in international trade it can increase the employment opportunities in a country. However, Heckscher-Ohlin proposed that employment will enhance only in that case when the exports of labor-intensive sector increased in more populated countries.

Higher the gross fixed capital formation (GFCF) has expected to have negative impact on the employment level because the increase in gross fixed capital formation advances in innovation, science, and technology which have resulted in labour being displaced by machines, resulting in a condition described as "jobless growth," which may jeopardize the role of investment in increasing an economy's growth (Coombs & Green, 1981; Hodge, 2009). The last explanatory variable is labor force which has an expected positive impact on employment level because increase in labor force can increase the supply of labor which can build downward pressure on wage rate and hence can increase the employment level. Therefore, labor force has a positive impact on employment level (Guerrero & Axtell, 2013; Elmeskov & Pichelmann 1993).

Functional form of the model can be specified as under

Employment level = f (FDI net Inflows, GDP per Capita, Inflation, Trade Openness, Total Labor Force, Gross Fixed Capital Formation).

Research Design

Econometric equations of the model, to evaluate the relationship among variables used in the analysis is as follows.

$$EMP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GDP \text{ per Capita}_{it} + \beta_3 INF_{it} + \beta_4 TOP_{it} + \beta_5 LF_{it} + \beta_6 GFCF_{it} + \varepsilon_t \quad (01)$$

Where:

i = Indicates each country

t = indicates time series yearly

εt = indicates the error term

β = Coefficient

The description of the variables that are used in equation 01 are following: Data on study variables is obtained from the database of world development indicators (WDI) and the database of United Nations Conference on Trade and Payments (UNCTAD).

Table 01
Variable Description

Variable	Description/Measurement
EMP	Employment to population ratio, 15+, total (%) (modeled ILO estimate)
FDI	Foreign direct investment net inflows (% of GDP)
GDP Per Capita	Gross domestic product per capita growth (Annual %)
GFCF	Gross Fixed Capital Formation (% of GDP)
TOP	Trade Openness (Exports of goods and services as percentage of GDP)
LF	Labor Force, total
INF	Inflation, GDP deflator (Annual%)

The study used the panel data of 20 top FDI recipient countries for the time duration of 1991 to 2020. Table 02 shows the list of countries included in the analysis.

Table 02
Foreign Direct Investment inflows, Top 20 Host Economies, 2020

01	United States of America	11	Brazil
02	China	12	Israel
03	Hong Kong	13	Canada
04	Singapore	14	Australia
05	India	15	United Arab Emirates
06	Luxembourg	16	United Kingdom
07	Germany	17	Indonesia
08	Ireland	18	France
09	Mexico	19	Vietnam
10	Sweden	20	Japan

Data Source: World Investment Report 2021

The study has employed the system GMM model which is most useful in obtaining the results for panel data. The GMM model suggests accurate results in the presence of various sources of endogeneity, such as unobserved heterogeneity, simultaneity, and dynamic endogeneity. The GMM estimation reduces endogeneity by "transforming the data internally and is a mathematical model in which a variable's past value is subtracted from its current value (Roodman, 2009). This procedure (internal transformation) decreases observation number and increases GMM model reliability (Wooldridge, 2012). For the present study system, GMM equations for the specified model can be written as under.

Level Form

$$\boldsymbol{EMP_{it} = \beta_o + \beta_1 FDI_{it-1} + \beta_2(\text{GDP per Capita}_{it}) + \beta_3(GFCF_{it}) + \beta_4(TOP_{it}) + \beta_5(LF_{it}) + + \beta_6(INF_{it}) + \varepsilon_{it}} \quad \textbf{(02)}$$

Difference form

$$\boldsymbol{\Delta EMP_{it} = \beta_1 \Delta FDI_{it-1} + \beta_2 \Delta(\text{GDP per Capita}_{it}) + \beta_3 \Delta(GFCF_{it}) + \beta_4 \Delta(TOP_{it}) + \beta_5 \Delta(LF_{it}) + + \beta_6 \Delta(INF_{it}) + \Delta v_{it}} \quad \textbf{(03)}$$

Results and Discussion

The summary statistics of current study presented below in table 03 for a better understanding of the data series used for analysis. Characteristics of each variable, including mean, standard deviation, minimum and maximum values along with total number of observations are reported in the table 03.

Table 03
Summery Statistics of the Study Variables

Variables	Observations	Mean	Std. Dev	Minimum	Maximum
EMP	560	45.6201785	10.247225	20.36	74.33
FDI	556	4.20023	0.67748	1.41397	5.669898
GDP per Capita	595	4.189169	0.65257	2.141285	5.074903
INF	578	3.52399198	4.7511488	-4.4781033	58.451044
LF	600	7.292033	0.860147	5.219084	8.896076
TOP	584	1.5570749	0.3806589	0.8280285	2.3598236
GFCF	584	11.17684	0.687197	9.538154	12.7864

Estimation results of system GMM is reported in Table 04. Three different models are estimated, first for the complete panel, second for developed economies and the third for developing economies. The coefficient of FDI has positive sign for all three panel and the coefficient is statistically significant. Results shows that, as net inflows of FDI to GDP ratio increases then as a response employment level also increases. FDI shows positive and significant relationship with employment level. However, the coefficient of inward FDI is stronger in case of developing economies than the same coefficient for the panel of developed countries. The difference in the magnitude of the FDI coefficient can be justified by considering the fact that developing economies normally have more unemployed labor available to foreign investors at cheap rates. Moreover, FDI in developing economies are mostly efficiency seeking FDI which target the cheap local resources including labor. FDI has positive coefficient in case of developed economies with smaller magnitude, indicating that FDI can increase employment level even in case of developed economies.

Table 04
Impact of Inward FDI on Employment Level of FDI Host Economies

Variables	Complete Panel Model 01	Developed Economies Model 02	Developing Economies Model 03
FDI	0.707*	0.029***	0.297**
	(0.07)	(0.00)	(0.01)
GDP per Capita	0.264***	0.163**	0.465*
	(0.00)	(0.02)	(0.07)
GFCF	-0.254 ***	2.174***	-2.601***
	(0.00)	(0.00)	(0.00)
TOP	-0.047***	0.037***	-0.021***
	(0.00)	(0.00)	(0.00)
INF	0.005**	1.077***	0.006**
	(0.01)	(0.00)	(0.01)
LF	1.65***	1.973***	0.917***
	(0.00)	(0.00)	(0.00)
Sargan P-Value		**0.5693**	
AR (01) P-Value		**0.0008**	
AR (02) P-Value		**0.4816**	

***significance at 1% **significance at 5% *significance at 10%

The results of this study are closely related to the studies of Adeyemi (2018), Ajayi et al., (2019), Khandare (2016), Habib and Sarwar (2013), Rekha and Karan (2017), Saurav and Kuo (2020), and Oluwatoyin and Temiloluwa (2017) which also showed that FDI has a positive and significant impact on employment level. The results of the study can also be clarified by the idea of Keynesian theory. Foreign direct investment is closely related to the Employment level, the reason is that Foreign Direct Investment serves as a way to increase business opportunities and provide employment opportunities and increase people's income (Habib & Sarwar, 2013).

The positive coefficient of GDP per capita indicates that GDP per capita grwoth has positive effects on employment level. The results can be explained by Okun's law which says that there is a negative relationship between GDP and unemployment level. To put it another way it means a positive relationship between

GDP and employment level. This law states that if the gross domestic product (GDP) of a country grows by about 3% in one year then it will achieve a 1% reduction in unemployment mean 1% increase in employment level. Theocratical channel of this relationship can be explained as when GDP per capita increases it increases consumption of household. When consumption of household increases it will increase overall aggregate demand for consumption of goods and when demand of consumption goods increases it will definitely increase demand for more labor to produce more consumer goods and in this way employment level increases. such results can also be supported by the study of Khandare (2016) and Rekha and Karan, (2017), as they also showed that GDP has a significant positive impact on the employment level.

Results shows that there exists a significant negative relationship between Gross fixed capital formation and employment level in all three panels. Because an increase in investment should ideally result in the creation of more jobs or an increase in employment, but due to the development of innovation, science and technology, which has led to the removal of workers and the result in a situation known as "idle growth" may undermine the role of investment in accelerating economic growth. So, due to improvements in capital intensive technology and innovation workers are displaced by machines which decreases the employment level even if investment is going on increase (Coombs & Green, 1981; Hodge, 2009). Some of the tasks previously performed by humans are either computerized or mechanical, a method for doing particular types of work more quickly and cost-effectively, therefore increasing productivity (Davis, 1991). All this process may result in job losses in the economy (Frey & Osborne, 2015).

Results shows that there exists a significant negative relationship of trade openness with employment level in case of complete panel and the panel of developing economies. The study results can be supported by Heckscher-Ohlin theory. This theory suggests that employment may decline if there is a significant import expenditure. This theory says that countries may have less employment level due to rising demand for capital goods and spending more money for the purchase of imported consumption items. Increasing consumption of imported item is a leakage from domestic income circular flow and can reduce the demand for local labor. Matkovic et al. (2010) and Choudhry et al. (2010) also stated that trade openness can reduce the employment level by increasing the demand for imported consumption goods and resultantly reduction in low demand for domestic labor. Additionally, Uddin and Chowdhury (2020) also confirmed that trade openness has negative impact on employment level in case of low-income countries.

However, the coefficient of trade openness has positive and significant impact on employment level in case of the panel of developed economies, indicating that developed economies are mostly net exporters. More trade openness means less barriers to trade. It can increase the demand for exports. Increase in demand for exports means more labor demand, which can lead to high employment level in developed economies.

The findings reveal that there is a considerable positive association between inflation and the level of employment. The results can be supported by the Phillips curve. According to Phillips curve there exists a negative relationship between inflation and unemployment rate. when inflation increases then in response

unemployment decreases and its mean employment increases but in short run. Inflation always has short run positive relationship with employment level. When inflation increases, it provides incentives for producer to produce more, to produce more they hire more labor and as result employment level increases. The same result is also found by Fratto and Uhlig (2014), who reported that inflation can have positive impact on employment level. The result is also consistent with the results of N'Guessan (2018), who suggested that employment level can be increased by increasing inflation in African countries when the employment level is less than 10%

There is a substantial positive association between labor force and employment level. When labor force increases then as a response supply of labor increases which can build downward pressure on wage rate and in this way cheap labor available to the employers that can increase the employment level. So, labor force has a positive impact on employment level (Guerrero & Axtell, 2013; Elmeskov & Pichelmann 1993).

Diagnostic tests for instrument validity and serial correlation of predicted residuals are carried out. First is Sargan test which is proposed by John Denis (1958). It is used to determine whether a statistical model has any over-identifying restrictions. The Sargan test investigates the validity of instruments over-identifying restrictions that parameters of the model are defined a prior to coefficient constraints. The statistics are asymptotically distributed under the hypothesis as a Chi-square vector, which has the degree of freedom m-k (where m is the number of instruments and k is the number of endogenous variables). The Sargan test's P-value must be Greater than 5% (0.05). The results of Sargan test indicates that p-value is greater than 0.05 indicates that all the instruments are accurately defined. The second test is performed to check the Serial correlation/Autocorrelation in first and second order. The p value of AR (2) should be greater than 5% (0.05). Results indicate that P value of AR (2) is greater than 0.05 which demonstrate no series correlation in the model.

Conclusion and Policy Recommendations

The study's major goal was to determine the impact of FDI on employment level in FDI recipient economies. The study's dynamic analysis was conducted by using seven macroeconomic variables: employment level, FDI, GDP per capita, inflation, trade openness, labor force and gross fixed capital formation in which employment level was taken as dependent variable, FDI as principle independent variable and other five were taken as explanatory/ control variables. The study used system GMM model to find out the relationship between FDI and employment level. Secondary data for the period of 1991-2020 for 20 economies was used in the study. GMM model is applied first for the panel of all countries. At second stage the panel is segregated as developing economies and developed economies.

The results for three different panels were almost similar except few differences. The results of the study showed that there is a positive and significant relationship between FDI and employment level in all cases mean in the analysis of developed, developing and aggregate economies. The positive coefficient of FDI showed that as FDI increases, it can enhance the employment level in host economies. Results also showed that three control variables that were GDP per capita, inflation and labor force also have a significant positive impact on employment level while other two control variables that were TOP and GFCF have a significant negative

impact on employment level. All the results were statistically significant. Sargan test was performed to check the validity of instruments which indicated all instruments were properly specified and the AR (2) was performed to check the autocorrelation of order 2, and results confirmed there was no issue of AR (2) in the residual of the model.

As policy suggestion it is suggested based on the findings of the research that if FDI can enhance the employment level of the host economies, then Govt. should formulate policies to attract more inward FDI especially in employment creation sectors. The developing nations can adopt more rigorous effort to facilitate foreign investors, since the issue of unemployment is more serious in developing nations. Second policy recommendation is based on the impact GDP on employment level. Findings suggest that countries can improve their employment situation by expanding their productive capacity. At last but not the least it is suggested that countries can get more benefit from trade openness by increasing the exports growth. Especially developing economies, which have currently negative impact of trade openness on employment because these countries are net importers and use most of the available foreign exchange to buy the imported consumption items. So, by enhance their export-oriented sectors developing countries not only can improve their employment situation but also can improve their external balance position by earning foreign exchange reserves.

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