IS GREENFIELD INVESTMENT GREENER FOR THE WELFARE OF LOWER-MIDDLE INCOME COUNTRIES? MARKET BASED EMPIRICAL ANALYSIS WITH GMM APPROACH

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ABSTRACT

Globalization is considered as the catalyst for the progress of economic activities and economic development of lower-middle-income countries. Greenfield investment not only promotes welfare but also helps in the health and education sector of these countries. This study examined thirty-four (34) sampled countries of the lower-middle-income group from different regions for a time span of 1998-2017. Im, Pesaran and Shin (2003) test is applied for testing panel unit root and one step system GMM technique is applied for the complete data analysis. The results of the study concluded that greenfield investment has increased economic growth and helped to push the welfare activities of sampled countries. Besides the increase in economic growth and welfare, greenfield investment also brings improvement in the health and education sectors through the transfer of new and advanced technologies from the developed nation firms to the host countries. Therefore, lower-middle-income countries must approve soft and friendly economic and business policies for the attraction of foreign investors from abroad. Such policies will help in promoting and increasing economic activities and economic development of sampled countries.

Keywords: Greenfield Investment; Lower-Middle Income Countries; Foreign Investment; Economic Development; Welfare.

INTRODUCTION

Foreign Direct Investment is considered as the engine for the economic growth of developing countries. Developing countries are divided into different income categories on the basis of

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income criteria by the World Bank. In the lower-middle income countries’, economies are very open to international market for investment. The increasing consumption makes these countries attractive and interesting market for international investors for investment (Azam, 2019; Azam, & Ahmed, 2015). Lower-middle income countries mostly depend upon the foreign investment especially Greenfield Investment (GF) which is one of the modes of foreign direct investment (Raza et al., 2021a). In terms of the economy, greenfield investment creates a number of positive changes: additional potential capacity, new jobs, latest technology, and new facilities. In developing countries, especially lower-middle income countries, the share of greenfield investment is rising. This is because of the lack of funds that a government of lower-middle income countries face deprivation, however greenfield investment proves to be a blessing that endorse economic activities and impel the economic progression in these countries (Harms & Meon, 2011).

Whether a corporation decides to invest in a greenfield project is determined by a number of factors, including investment size, market knowledge, present and projected market growth. There is a general consensus that greenfield investments have a greater impact on economic growth when the foreign investors takeover local firms through mergers or acquisitions. Greenfield investment has a longer-lasting impact because of the commitment required (Stepanok, 2015). To make them more appealing, greenfield investment not only increases production capacity and create jobs, but also heightens competition by increasing the number of market suppliers (Calderón, Loayza & Servén, 2004). Due to the fact that greenfield investment increases the economy's production, it increases demand for the labour, resulting in higher pay for newly qualified labours. Greenfield investments can be thought of as several types of investment strategies with varying amounts of local resource deployment, adaptability, and market-specific transaction costs (Kim, 2009).

In greenfield investment, a corporation ploughs and prepares an entire green field before starting a new venture. There are no existing facilities or land in a greenfield venture; everything is built from scratch. Investors have complete control over facilities. An expansion strategy known as greenfield investment involves establishing up a new business, hiring local staff and adapting to the local institutional framework (Alon et al., 2020). Investors prefer to invest in greenfield projects in countries with strong ties to their investors, which provide them full control and protection over their investments. As the name implies, greenfield investment is fundamentally different from other types of investments since investors bring their own technology, finance, and other intellectual property rights (Zhuang, 2017). One option for firms
looking to internalize their foreign activities is the creation of a new wholly owned subsidiary. Greenfield investment approach involves forming a start-up company, hiring, and training new staff, sending expatriates, and progressively growing the firm using local institutions' knowledge (Zhuang & Griffith, 2013).

The research question is whether any relationship among greenfield investment and economic growth, welfare, health, and education persist. This paper is different from previous studies in many aspects as there is a gap in literature to know about the impact of greenfield investment on health, education, economic growth, and welfare of lower-middle income countries. Before this study, only the greenfield investment nexus with economic growth of developing countries has been assessed in literature. This study used the original data of greenfield investment method of Calderon et al., (2004) while other studies have used greenfield projects data. This study has also used some other foreign capital inflows like remittances and foreign aid to build in-depth analysis and has recommended policies for future strategies. The main objectives of this study are as follows:

1. To investigate the impact of Greenfield investment on economic growth
2. To investigate the impact of Greenfield investment on welfare
3. To investigate the impact of Greenfield investment on health
4. To investigate the impact of Greenfield investment on education

LITERATURE REVIEW

Moon et al. (2003) conducted the first study on FDI and its mode and found a favorable association between Brownfield Investment (BF) and economic growth for the tested nations. The author employs the diamond model to argue that the brownfield investment has boosted economic growth in those countries. Calderon et al. (2004) found that both brownfield and greenfield investments have a positive impact on economic development. For a sample of 72 nations from 1978 to 2003, the authors utilized a vector self-regression estimator. Neto et al. (2008) employed a Random Influence Model for 53 chosen countries from 1996 to 2006 and found that greenfield investment has a one-way causality towards developing countries economic growth, but M&A has a statistically unfavorable effect on developed countries economic development.

Greenfield investment, according to Wang, Sunny, and Wong (2009), has an active role in boosting economic growth, whereas M&A just increases capital levels. Furthermore, the
authors showed that greenfield investment caused economic growth in both emerging and established economies using instrumental analyses on 84 chosen nations from 1987 to 2001. From 1990 to 2009, Park et al. (2012) employed a Sys-GMM estimator to investigate a sample of 40 developing nations. According to the authors’ findings, GDP is more closely tied to M&A per capita than greenfield investment. The study of Zhuang and Griffith (2013) looked at greenfield and brownfield investment inflows in 93 countries between 1990 and 2009. The authors confirm that the impact of greenfield investment on income inequality is highly positive, but the impact of BF on income inequality is negligible.

Between 2003 and 2012, Ashraf and Herzer (2014) employed the GMM estimate methodology on a sample of 135 nations. The author concluded that greenfield investment had a beneficial influence on trade in all of the nations studied, whereas M&A had no effect. Eren and Zhuang (2015) discovered that greenfield investment and BF had a negative influence on economic growth in a sample of 12 European Union nations from 1999 to 2010. Contrarily, Greenfield investment and the corporations, who invest in it, according to Stepanok (2015), lower the host country’s productivity and welfare.

Azam (2016) employed GMM estimators on selected data from 2003 to 2014 and concluded that Greenfield investment and M&A have aided economic growth, and that developed countries would gain more if human capital levels were enhanced. Ashraf et al. (2016) studied a sample of 123 nations from 2003 to 2011, including both developed and developing countries. According to the findings, GF did not contribute to overall efficiency, and neither Greenfield investment nor M&A had a significant impact on productivity in emerging nations. From 2003 to 2015, Bayar (2017) examined the impact of mergers and acquisitions and greenfield investment on economic growth in European Union countries. When examined using the Basher and Westerlund co-integration test, both M&A and greenfield investment were found to have favorable effects on economic growth. Amoroso and Muller (2018) investigated the European Union sampled countries and discovered that greenfield investment boosts investment in the host country.

Luu et al. (2019) employed the GMM approach on a sample of 131 nations from 2003 to 2015. The study found that corruption has a substantial favorable influence on greenfield investment in developing countries, while it has a significant detrimental impact in industrialized countries. Raza et al. (2020a) used the ARDL technique to examine time series data from 1990 to 2018 in Pakistan and discovered that GF is effective at increasing individual income and improving the health of the host nation’s population. Greenfield investment also helps in the well-being
of a host nation (Luu, 2016). In another study by Raza et al. (2020b), GMM technique was used to show the position of African developing countries between 1998 and 2017. According to the findings of the study, greenfield investment enhanced the economic growth and development of African host developing countries. Greenfield investment was also found beneficial to individual economies and positively impacted the health situations. Raza et al. (2021b) also reported similar results for a sample of low-income nations using a one-step system GMM estimation technique.

METHODOLOGY

For this study, a sample of 34 lower-middle income developing nations was chosen from 1998 to 2017. This time period was chosen due to the availability of data. During this time period, there has been a tremendous inflow of greenfield investments as well as a rapid expansion in globalization process was evidenced in the lower-middle income developing countries. The proxies for each of the variable like greenfield investment is gf, remittances as rt, foreign aid as fa, trade as tr, population as po, inflation as in, welfare as wf, education as en, health as hl and economic growth as eg. The most popular data sources from which the data is taken are World Development Indicators (WDI, 2020); United Nations Development Program (UNDP, 2020); and United Nations Conference on Trade and Development (UNCTAD, 2017; 2020).

This study employed a multivariate regression model, which has already been used in investigations and may be written as:

\[ Y_{it} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 Z_{it} + \gamma_i + \eta_t + \mu_i \] .............................. (1)

As the first to incorporate capital into an economic growth model, the Harrod-Domar theory (Harrod, 1939; Domar, 1946) was used in this research, which was later adopted by Lehnert et al. (2013) and Bayar (2017). Thus, rearranging the equation (1):

\[ eg_{it} = \alpha_0 + \alpha_2 gf_{it} + \alpha_3 rt_{it} + \alpha_4 fa_{it} + \alpha_5 tr_{it} + \alpha_6 po_{it} + \alpha_7 in_{it} + \nu_{it} \] ............. (2)

As a result of equation (2), all subsequent equations, which have been employed in prior investigations, were created. In this study, the final equation utilized to assess each dependent variable is give below:
\[ eg_{it} = \alpha_0 + \alpha_1 eg_i(t-1) + \sum_{j=0}^{p} \alpha_2 gf_{it-j} + \sum_{j=0}^{q} \alpha_3 ri_{it-j} + \sum_{j=0}^{r} \alpha_4 fa_{it-j} + \sum_{j=0}^{h} \alpha_5 tr_{it-j} + \sum_{j=0}^{s} \alpha_6 po_{it-j} + \sum_{j=0}^{m} \alpha_7 in_{it-j} + \varepsilon_{it} \]

\[ hl_{it} = \alpha_0 + \alpha_1 hl_{i(t-1)} + \sum_{j=0}^{p} \alpha_2 gf_{it-j} + \sum_{j=0}^{q} \alpha_3 ri_{it-j} + \sum_{j=0}^{r} \alpha_4 fa_{it-j} + \sum_{j=0}^{h} \alpha_5 tr_{it-j} + \sum_{j=0}^{s} \alpha_6 po_{it-j} + \sum_{j=0}^{m} \alpha_7 in_{it-j} + \varepsilon_{it} \]

\[ en_{it} = \alpha_0 + \alpha_1 en_{i(t-1)} + \sum_{j=0}^{p} \alpha_2 gf_{it-j} + \sum_{j=0}^{q} \alpha_3 ri_{it-j} + \sum_{j=0}^{r} \alpha_4 fa_{it-j} + \sum_{j=0}^{h} \alpha_5 tr_{it-j} + \sum_{j=0}^{s} \alpha_6 po_{it-j} + \sum_{j=0}^{m} \alpha_7 in_{it-j} + \varepsilon_{it} \]

\[ wf_{it} = \alpha_0 + \alpha_1 wf_{i(t-1)} + \sum_{j=0}^{p} \alpha_2 gf_{it-j} + \sum_{j=0}^{q} \alpha_3 ri_{it-j} + \sum_{j=0}^{r} \alpha_4 fa_{it-j} + \sum_{j=0}^{h} \alpha_5 tr_{it-j} + \sum_{j=0}^{s} \alpha_6 po_{it-j} + \sum_{j=0}^{m} \alpha_7 in_{it-j} + \varepsilon_{it} \]
RESULTS AND DISCUSSION

Table 1. Descriptive Statistics

| Variable | Obs | Mean   | Std. Dev. | Min    | Max    | Skewness | Kurtosis |
|----------|-----|--------|-----------|--------|--------|----------|----------|
| gf

| r

| fa

| tr

| po

| in

| en

| hl

| eg

| wf

| Source: Data Analysis

A full review of all variables of the lower middle income developing countries is provided in Table 1. There are 680 observations in each panel dimension.

Table 2. Correlation Matrix

| Variables | gf | rt | fa | tr | po | in | en | hl | eg | wf |
|-----------|----|----|----|----|----|----|----|----|----|----|
| gf        | 1  |    |    |    |    |    |    |    |    |    |
| rt        | 0.512 | 1  |    |    |    |    |    |    |    |    |
| fa        | 0.491 | 0.391 | 1  |    |    |    |    |    |    |    |
| tr        | -0.075 | -0.084 | -0.111 | 1  |    |    |    |    |    |    |
| po        | 0.613 | 0.599 | 0.531 | -0.381 | 1  |    |    |    |    |    |
| in        | -0.013 | -0.124 | 0.041 | -0.281 | 0.101 | 1  |    |    |    |    |
| en        | 0.068 | 0.189 | -0.041 | 0.361 | -0.209 | -0.160 | 1  |    |    |    |
| hl        | 0.014 | 0.249 | -0.031 | 0.179 | -0.233 | -0.167 | 0.406 | 1  |    |    |
| eg        | 0.291 | 0.421 | 0.049 | 0.181 | 0.059 | -0.201 | 0.551 | 0.464 | 1  |    |
| wf        | 0.191 | 0.369 | 0.009 | 0.276 | -0.149 | -0.230 | 0.801 | 0.701 | 0.733 | 1  |

Source: Data Analysis

Table 2 examines the results of the correlation matrix of all variables in developing nations with lower middle incomes. Trade and inflation have a slight to moderately significant negative association with Greenfield investment. All other factors, except inflation and trade, are positively correlated with remittances, however the link is modest or moderately significant. Other than health, trade, and education, foreign aid have a modest negative connection with all variables.
other variables. With the exception of population and inflation, trade shows only a weak negative association with the other factors. Education, welfare, and health have a weak and negative association with the population, while other variables have a weak and positive link. With regard to education, health, welfare and economic growth, inflation has a weakly negative association. At the end of the day, welfare indicates a favorable association with health, education, and economic growth.

Table 3. Unit Root Test

| Variables | At Level | First Difference |
|-----------|----------|-----------------|
|           | Constant | Constant+Trend  | Constant | Constant+Trend |
| $gf_{it}$ | -1.901** (0.032) | -5.691** (0.000) | -------- | -------- |
| $rt_{it}$ | 0.1721 (0.566) | -0.7922 (0.223) | -10.8131** (0.000) | -11.8991** (0.000) |
| $fa_{it}$ | -5.5899** (0.000) | -8.1001** (0.000) | -------- | -------- |
| $tr_{it}$ | -0.8992 (0.182) | -2.8451** (0.000) | -11.6021 | -------- |
| $po_{it}$ | 4.5037 (1.000) | 6.8911 (1.000) | -3.4009** (0.008) | -3.1233** (0.000) |
| $in_{it}$ | -8.5001** (0.000) | -10.4101** (0.000) | -------- | -------- |
| $en_{it}$ | -4.8922** (0.000) | 4.411 (1.000) | -------- | -4.8881** (0.000) |
| $hl_{it}$ | -0.7991 (0.214) | 0.0901 (0.499) | -8.8011** (0.000) | -10.7023** (0.000) |
| $eg_{it}$ | 5.7021 (1.000) | -1.4381 (0.059) | -9.3991** (0.000) | -10.5116** (0.000) |
| $wf_{it}$ | 0.49991 (0.699) | 1.2101 (0.792) | -7.7991** (0.000) | -10.0811** (0.000) |

Brackets ( ) denote P-value, ** denote 5% significance level.
Source: Data Analysis

According to Table 3, all variables in both situations of deterministic terms resulted in the panel unit root test for lower middle income developing nations. Both deterministic and nondeterministic terms of inflation, foreign aid and Greenfield investment are identified as steady here. When it comes to trade and health, they’re both classified as stationary when it comes to drift and trend. However, when constant or both trend factors are included, welfare as welfare, education, remittances, economic growth, and population are observed to have a unit root. However, the unit root variables at level are now proved to be stationary in both situations at the first difference.
Table 4. Final Results

| Variables           | $e_{it}$ | $en_{it}$ | $hl_{it}$ | $wf_{it}$ |
|---------------------|----------|-----------|-----------|-----------|
| Constant            | -0.1599 (0.599) | -0.0988 (0.102) | -0.0052 (0.761) | -0.0281 (0.491) |
| Lag of each dependent variable | 0.6992** (0.000) | 0.8034** (0.000) | 0.8155** (0.000) | 0.8691** (0.000) |
| $gf_{it}$           | 0.0801** (0.038) | 0.0756** (0.019) | 0.0075** (0.036) | 0.0799** (0.038) |
| $rt_{it}$           | 0.0291** (0.019) | 0.0888** (0.032) | 0.0131** (0.031) | 0.0291** (0.039) |
| $fa_{it}$           | -0.0079 (0.356) | -0.0088 (0.299) | -0.0007 (0.287) | -0.0063 (0.261) |
| $tr_{it}$           | -0.0291** (0.032) | 0.0501** (0.036) | 0.0491 (0.599) | -0.0399** (0.038) |
| $po_{it}$           | 0.0213** (0.038) | 0.0321** (0.034) | -0.0189** (0.021) | -0.0071 (0.121) |
| $in_{it}$           | 0.0003 (0.611) | -0.0039** (0.039) | 0.0041** (0.031) | -0.0004** (0.039) |

| Countries           | 34       | 34       | 34       | 34       |
|---------------------|----------|----------|----------|----------|
| Observations        | 612      | 612      | 612      | 612      |
| AR (2) P-value      | 0.671    | 0.989    | 0.602    | 0.611    |
| Sargan/Hansen P-value | 0.599  | 0.821    | 0.844    | 0.449    |

*Brackets ( ) denote P-value, ** denote 5% significance level.
*Source: Data Analysis*

Table 4 shows that the theoretically constant term is statistically negligible and negative, while the lag of economic growth is statistically significant and positively correlated. As a result of this study, Greenfield investment was determined to have a large and favorable impact on the economic condition of lower middle income developing countries. The same findings were also found by Harms and Meon (2013). No one can overlook the importance of remittances in the economic growth of poor countries. This study confirms that remittances have a favorable impact on economic growth. A similar conclusion was reached by Gosh Dastidar (2017), who asserted that developing countries can benefit economically by sending more money back home by being more accessible to the rest of the globe. As a consequence of this analysis, foreign aid was shown to be statistically inconsequential and negative (2016). Statistics show that trade is a statistically significant and negative factor, but population and inflation are positive factors in relation to economic development (Raza et al., 2021b).

Researchers found that Greenfield investment had a statistically significant and favorable impact on education, and the same was found by researchers Miningou and Tapsoba (2017) in their respective research study. Remittances also help to the education of children in remittance-receiving families, according to the study. This analysis concludes that foreign aid is statistically insignificant and detrimental, and Asiedu and Nandwa (2007) concluded the same. Government support for primary and secondary education had an adverse impact. Statistically important in terms of trade, population, and inflation, but the former is positive.
while the latter is negative. According to this study, greenfield investment has the potential to improve the quality of life for individuals. Zhunio et al. (2012) found that remittances on health expenditures decreased infant mortality and enhanced life expectancy. The results of this study show that foreign aid is useless in enhancing health. Similarly, Williamson's (2008) research indicated that aid was unsuccessful. There's no correlation between trade and population, which is statistically significant, but plays a negative effect, and inflation, which plays a positive function.

In this study, Greenfield investment had a statistically significant and favorable relationship with the welfare of the participants. Results are in line with those of Sharma and Gani (2004), who concluded that FDI increases wellbeing in lower middle-income developing nations. It has been shown that remittances have a good and considerable impact on people's well-being. Remittances are the best way to increase a society's welfare, according to Naeem and Arzu's (2017) research. According to Kumler's analysis (2007), foreign aid has a negligible and negative impact on the economic development of lower-middle income countries. Population, trade, and inflation all have major negative effects on a society's welfare.

**CONCLUSION**

This study aims to find the impact of greenfield investment on economic development and economic growth of lower-middle income countries. The thirty-four (34) sampled countries with time period of 1998 to 2017 and using GMM technique analyzed that greenfield has positively influence on welfare of these countries. health, education, and per capita income has increased with the foreign investment in the form of greenfield investment and other controlled variables like remittances has also shown improvement in the living standard and quality education of the remittance receiving families. Foreign aid usually has negative influence on the economic growth and welfare of the host countries, this might be due to bad governance or corruption. Inflation and population have also negatively affected while trade has positive impact on the health, education, and welfare. From the analysis, it is observed that Greenfield investment is better for the economic activities that further boost economic development. Therefore, it is recommended that these countries must make friendly, business and investment policies to accommodate foreign investors. By adopting such policies, the foreign investors will bring more and more Greenfield investment that will further generate employment with latest technologies. These technologies will be used in high quality health facilities and high education sector bringing improvement in these two sectors.
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