

## Impact of the greenfield-foreign direct investment on the economic growth of Afghanistan

Tariq Aziz<sup>1,2</sup> | Ali Raza\*<sup>1</sup> | Mawludin Tarakai<sup>1</sup> | Hassan<sup>3</sup>

1. Department of Management Sciences, Khana-e-Noor University, Kabul, Afghanistan.
2. Institute of Management Sciences, The University of Haripur, Haripur, Pakistan.
3. School of Business, Qingdao University, Qingdao, China.

\*Corresponding Author Emails: [aliraza@uoh.edu.pk](mailto:aliraza@uoh.edu.pk) | [alirazaeco@gmail.com](mailto:alirazaeco@gmail.com)

### Abstract:

Afghanistan is a least developed country; during the liberation, about three-fourths of the economy was ruined, and over the past two decades, the country has geared up a slight economic growth. The study's objective is to assess the impact of greenfield foreign direct investment on the economic growth of Afghanistan during the interval 2002-2021. The research also investigates the effect of remittances, foreign aid, and population. In this study, the stationarity of all variables is checked via the Augmented Dickey-Fuller test (ADF). The results were analysed with ARDL and ECM techniques. The results show that greenfield investment and remittances are statistically significant in the short and long run. Foreign aid is insignificant in the short and long run. The population is insignificant in the long run but significant in the short run. First, the government of Afghanistan improved its friendly investment policy to attract foreign investors. Second, the government of Afghanistan signed an agreement with neighbouring countries, especially developed countries, to send their skilled and educated labour so they will easily earn their livelihood and send remittances to their families. Third, the government of Afghanistan should avoid foreign aid that may affect its economy in the short term.

### Article History

Received:  
13-Apr-2023

Revised:  
22-May-2023

Re-revised:  
13-Jun-2023

Accepted:  
15-Jun-2023

Published:  
30-Jun-2023

**Keywords:** Augmented Dickey-Fuller test, ARDL, ECM, greenfield investment, direct investment, remittances, foreign aid, population.

**How to Cite:** Aziz, T., Raza, A., Tarakai, M., & Hassan (2023). Impact of the greenfield-foreign direct investment on the economic growth of Afghanistan. *Liberal Arts and Social Sciences International Journal (LASSIJ)*, 7(1), 187-201. <https://doi.org/10.47264/idea.lassij/7.1.11>

**Publisher's Note:** IDEA PUBLISHERS (IDEA Journals Group) stands neutral with regard to the jurisdictional claims in the published maps and the institutional affiliations.

**Copyright:** © 2023 The Author(s), published by IDEA PUBLISHERS (IDEA Journals Group).

**Licensing:** This is an Open Access article published under the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>)



## 1. Introduction

Over the past two decades, there have been several international capital transfers from rich to poor nations. Such flows of capital from rich to poor countries are aimed at contributing to the economic activities of the host countries (Raza et al., 2020). To oversee the production, distribution, and other operations of a company in another nation, residents of one country acquire ownership of the assets through the procedure recognized as an FDI. International Monetary Fund (IMF) and Organization for Economic Co-operation and Development (OECD) criteria state that foreign direct investment in an enterprise by an economic settlement entity obtains a sustainable return on investment in another economic entity. A direct investor and a direct investment enterprise must have a long-run relationship and strong influence over the ultimate management to make a "sustainably profitable" investment (Raza et al., 2021). Both the initial business dealings that establish the connection between the investor and the enterprise are a part of direct investment. An institution from one country invests in another through foreign direct investment.

The growth model developed by Harrod (1939) and Domar (1946) is based on classical theory. The model shows that investment is important in the process of a growth economy because investment generates income and increases the productive capacity of any economy by increasing the stock of capital. The growth model of Harrod and Domar emphasizes, that as investment increases, so does real income and productivity (Raza et al., 2020). FDI is an investment in the shape of controlling ownership in a business in a host country by investors from another country. FDI is the investment from one country to another and the donor country has its interests in the host country. The governments of developing countries have ties with the foreign investors of developed nations, to compel, attract and bring them into their countries for investment (Raza et al., 2021).

Firms engage in foreign direct investment (FDI) in three ways: merger and acquisition (M&A), international joint venture, and greenfield investment. The various types of FDI differ from one another and each has its own set of advantages and disadvantages (Raff et al., 2009). The general justification for M&A is that when two independent businesses unite, they produce more value than they would individually. Companies continue to evaluate various merger and acquisition opportunities to maximize their wealth.

International joint ventures are a type of cooperative strategy in which two or more organizations collaborate. Cooperative strategies, which include alliances, partnerships, contracting forms, and cooperation, are becoming increasingly important as a means of controlling competitive forces or entering into risky activities as independent ventures. International collaboration can also assist organizations in controlling or exploiting regulatory constraints (Raff et al., 2009).

A sort of FDI known as "greenfield investment" occurs when a parent business creates a subsidiary in another nation and starts from scratch with its activities (Ashraf et al., 2016). Greenfield investment "where foreign investors build a new business or develop an existing enterprise," (Bayar, 2017). When a business desires total control over its overseas activities, Greenfield investment is a sort of market entry that is frequently used. It is analogous to other types of foreign direct investment, such as buying foreign securities or getting a bulk portion

in a foreign firm that the parent company has little to no control over when it comes to running its day-to-day operations.

Greenfield investment is widely acknowledged as a growth-enhancing investment in developing countries. Greenfield investment can stimulate economic growth in the host country through a variety of channels (Raza et al., 2021). Greenfield investment promotes capital formation by introducing new technologies such as new manufacturing techniques, ideas, managerial skills, and a wide range of new capital goods. One of the critical functions of Greenfield investment in a poor country is to supplement the domestic savings, allowing the host country to get a higher level of capital formation (Lee & Park, 2020).

There has been a lot of research on the FDI modes and their effect on economic growth in different countries (Neto et al., 2008; Ashraf et al., 2016; Raza et al., 2020 & Ha et al., 2021), but no such study on the impact of Greenfield-FDI versus economic growth of Afghanistan has been studied so far. To fill this gap, the present study added some other variables as well as their effects on the economy.

## **2. Literature review**

Neto et al., (2008) used Greenfield investment effects on economic growth. From 1996 to 2006, 53 countries' worth of panel data were used. The relationship was investigated using causality tests and only growth equations. The study also concludes that the growth of economic Granger causes Greenfields, but not the other way around. According to the study, FDI through Greenfield acquisitions boosts the growth of the economy in both industrialized and unindustrialized countries. Instead, M&A hurts developing-country economic growth while having little impact on developed-country economic growth.

Almsafir et al., (2011) researched the Malaysia data from 1970 to 2009 utilizing the Johansen co-integration, ARDL, and ECM model. The findings revealed that Greenfield investment boosted the growth of the economy and contributed to raising the benefit of the Malaysian economy. According to the study, Greenfield investment also its determinants have a co-integration correlation. The author discovered that both mergers and acquisitions and GI benefit the host country and stimulate economic growth.

Ashraf et al., (2016) employed Greenfield investment and cross-border mergers and acquisitions to examine the impact of FDI host nations' total factor productivity (TFP). The study found that Greenfield investment had no statistically significant influence on total factor productivity, however mergers and acquisitions have a favourable impact on the entire sample, using panel data from up to 123 nations between 2003 to 2011. Mergers and acquisitions and Greenfield investment appear to be in effective in increasing total part productivity in the developing-country subsample. In opposition, in the subsample of developed countries, the combinations and acquisitions have a strong and positive impact on the total factor productivity.

Raza et al., (2020) used the ARDL technique to examine the effect of Greenfield investment on the economic growth of Pakistan and development from 1990 to 2017. Greenfield investments, according to the authors, have a positive effect on the growth of the economy, health, education, and economic development. Other study findings claimed that remittances

improve welfare and per capita income while aid hinders the economic development of country. Study also looked into whether the population has a significant positive impact on economic growth. Lee and Park, (2020) investigated the effects of domestic Greenfield investment on employment by South Korean firms for data collected between 2004 and 2015. Greenfield investment, according to studies, leads to increased employment by domestic firms. This effect is amplified when the source countries for Greenfield investment are developed countries.

Bayar et al., (2020) used Greenfield and Brownfield investment effects on unemployment in 11 post-transition European countries investigated. Use data from the years 2003 to 2017. For analyses, panel co-integration and causality tests were used. The findings indicated that long-term Greenfield investments had no significant effects on total panel unemployment, whereas long-term Brownfield investments increased overall panel unemployment. Conversely, Greenfield investments increased employment in Poland and Slovakia while decreasing it in Croatia, Hungary, and Slovenia, but Brownfield projects only did so in Chika.

Asharf et al., (2021) analyzed that GFDI increases pollution while brownfield investment has negative impact on pollution. The authors used the data of 116 countries from 2003 to 2013 and used GMM technique for results. The authors assessed that poor countries must implement strict rules for foreign investors. Similarly, Zhou et al., (2021) worked on the Chinese firms from 2000 to 2013 and revealed that with the higher economic policy uncertainty the M&A has low impact on firms' productivity while GFDI has inverse relationship with the firm's productivity.

Ahmed et al., (2022) used the data of Chinese firms from 2003 to 2016 and found that GFDI requires more strategic insight for higher productivity. The study also analysed that both economic and institutional factors have an impact on the location strategies of Chinese businesses, institutions tend to have a more dynamic influence on where Chinese GFDI are made. This shows that the relationship between M&A investment objectives and GFDI activity is more moderated by the institutional framework.

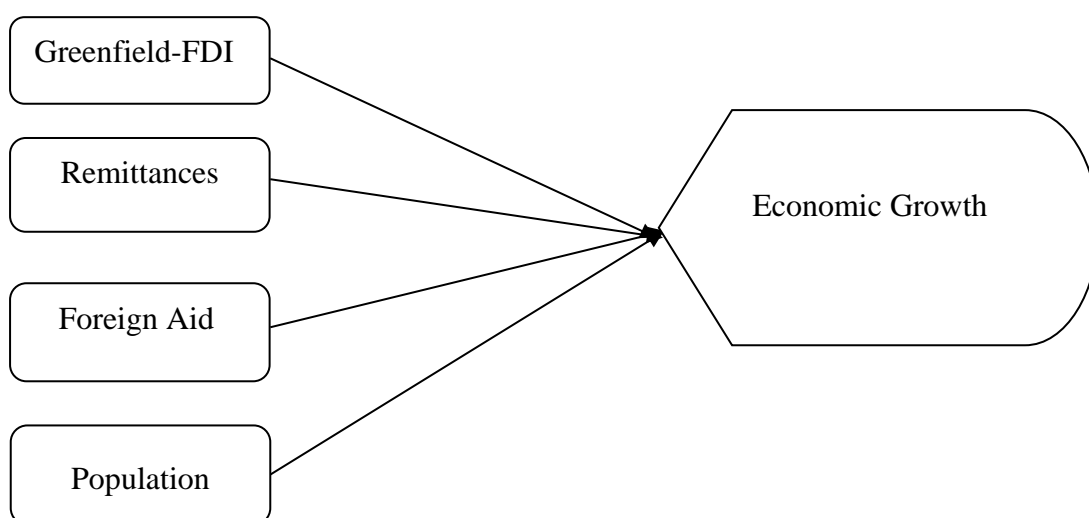


Figure 1: Conceptual framework

The figure 1 shows the conceptual framework of this study. This study used GFDI as target variable and rest of the variables are control variables to analyse the effect on dependent variable i.e., economic growth of Afghanistan. Classical theory forms the basis of the growth model developed by Harrod and Domar in 1939 and 1946, respectively. The model demonstrates the significance of investment in the development of a growing economy since investment produces revenue and boosts an economy's productivity by expanding its stock of capital. Regarding conceptual framework, this study used classical theory. This country has shortage of capital due to saving investment gap and will increase stock of capital when developed countries investors invest and bring more advance technologies. Similarly with new investment, the local skilled labour will find employment and will save some portion from their earning for their future investment. Similarly, least developed countries like Afghanistan needs more capital inflows in shape of assistance, remittances, and foreign investment. So, this study explicitly looks into the impact of these variables versus economic growth of Afghanistan.

### 3. Methodology

The methodology in a study is the part in which a researcher describes the actions applied and investigate a problem and explain reasoning to identify and collect information in research.

#### 3.1. Data and its sources

The data used in this study is secondary data and is collected from the World Bank data statistics site i.e., World Development Indicator (WDI, 2022). The data for Greenfield-FDI is available on the site of the United Nations Conference on Trade and Development (UNCTAD, 2022) as well as on United Nations Development Program statistics (UNDP, 2022). The variables of this study are economic growth, Greenfield investment, remittances, foreign aid and population. The economic growth is taken as dependent variable while Greenfield investment is targeting independent variable. The rest of variables such as population, foreign aid and remittances are taken as control variables.

Augmented Dickey Fuller (ADF) test is used for verifying all variables' unit roots of this study. Error Correction Model (ECM) and Autoregressive Distributed Lag (ARDL) approaches are used to explore the long-term, and short-term dynamics correlations between the variables under consideration. The long-term relationship among series with various integration orders is determined using the ARDL (Pesaran et al., 2001).

The common form of the ARDL model is:

$$Y_t = C_0 + \sum_{i=1}^p \alpha_i Y_{t-i} + \sum_{i=1}^q \beta_i X_{t-i} + \varepsilon_t \quad (\text{Model-3})$$

In this model,  $Y_t$  is the dependent element and  $X_{t-i}$  is the independent variable, while  $t$  is the time,  $p$  and  $q$  are the ideal delays. This model was created to examine how GFDI affects economic growth and is used in the study of (Raza et al., 2020).

$$\Delta EG_t = \alpha_0 + \alpha_1 \sum_{i=1}^{n1} \Delta EG_{t-i} + \alpha_2 \sum_{i=1}^{n2} \Delta GFDI_{t-i} + \alpha_3 \sum_{i=1}^{n3} \Delta RE_{t-i} + \alpha_4 \sum_{i=1}^{n4} \Delta AID_{t-i} + \alpha_5 \sum_{i=1}^{n5} \Delta POP_{t-i} + \varepsilon_t \quad (\text{Model-4})$$

The above model is developed to simulate the effect of the total variable on economic growth, this model did apply in the study by (Almsafir et al., 2011).

Following Pesaran et al., (2001), the Error Correction Model (ECM) version of the ARDL model is written as follows:

$$\Delta EG_t = \gamma_0 + \gamma_1 EG_{t-1} + \gamma_2 GFDI_{t-1} + \gamma_3 RE_{t-1} + \gamma_4 AID_{t-1} + \gamma_5 POP_{t-1} + \gamma_6 \sum_{i=1}^{n1} \Delta EG_{t-i} + \gamma_7 \sum_{i=1}^{n2} \Delta GFDI_{t-i} + \gamma_8 \sum_{i=1}^{n3} \Delta RE_{t-i} + \gamma_9 \sum_{i=1}^{n4} \Delta AID_{t-i} + \gamma_{10} \sum_{i=1}^{n5} \Delta POP_{t-i} + \varepsilon_t \quad (\text{Model-5})$$

This model, which was employed in the study, was created to examine how GFDI affects economic growth (Raza et al., 2020). Model (5) is the final model of this current study.

Where  $\alpha_0$ , and  $\gamma_0$  is the intercept and  $\alpha_i$ , and  $\gamma_i$  the coefficients of independent variables and  $\varepsilon$  is the error expression in all models.

## 4. Results and description

### 4.1. Descriptive analysis

Descriptive analysis is the comprehensive statistics about the data of all variables. Analysis of frequency distribution is important for tablets and captured data. In this study dependent variable is GDP, and independent variables are Greenfield foreign direct investment, remittances, foreign aid and population.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	20	2.523409	5.947467	-4.16819	18.51542
GFDI	20	1.099424	1.257903	0.121323	4.364535
RE	20	2.36476	1.378592	0.88573	4.378074
AID	20	26.19108	8.083123	19.93769	49.28498
POP	20	3.062316	0.758053	2.268273	4.668344

### 4.2. Correlation

A common tool for describing straightforward relationships without stating cause and effect is a correlation, a statistical measure that illustrates the affiliation between two variables. There are three possible results from a correlational study: a negative correlation, a positive correlation, or no correlation. A relationship between two variables is said to have a positive correlation when both variables move in the same direction. Table 2 shows outcomes of all-variables positive and negative correlation matrix.

Table 2: Correlation

Variables	GDP	GFDI	RE	AID	POP
GDP	1.0000				
GFDI	0.2353	1.0000			
RE	0.4176	-0.4235	1.0000		
AID	-0.2559	-0.1750	-0.3147	1.0000	
POP	-0.0628	0.4230	-0.4769	0.1041	1.0000

### 4.3. Unit Root test

One of the most well-known and frequently used unit root test is the Dickey-Fuller test. Its foundation is the first-order autoregressive process model. Table 3 shows what the variable is unit root and what a stationary is, or where the alternative hypothesis is accepted, and the null rejected:

Table 3: Dickey-Fuller test for Stationarity

Variable	I (0)	I (1)	I (0)	I (1)
GDP	(-3.455) 0.0092	-----	Stationary	-----
GFDI	(-1.404) 0.5803	(-3.092) 0.0271	Unit root	Stationary
RE	(-0.859) 0.8011	(-4.572) 0.0001	Unit root	Stationary
AID	(-2.332) 0.1617	(-5.000) 0.0000	Unit root	Stationary
POP	(-1.766) 0.3975	(-1.604) 0.017	Unit root	Stationary

### 4.4. Lag Length Selection

This lag length is frequently selected using explicit statistical criteria such as AIC. ARDL lag models are easily predictable. To create the lag, a small AIC number of the variable is written in one table. After lag length selection, the ARDL technique is used. Table 4 shows the minimal AIC discovered for every model with the greatest possible lag period to do additional investigation. The least AIC for each model with the proper lag length is displayed.

Table 4: Lag Length Selection based on AIC

Variables	Lags
GDP	0
GFDI	1
RE	1
AID	1
POP	4

### 4.5. Long-run and Short-run analysis

To explain the study's over all findings, based on the results of a bound co-integration test, this part examines the long and short run model estimations. A long-term correlation between a variable is indicated by the calculated test-statistic value in the bound test if it is outside the upper critical value, and the opposite is true if it is below the lower critical value. However, if the calculated value is in doubt because it is between the lower and upper critical values, there may not be a long-term relationship.

Table 5 shows that GFDI and remittances are statistically significant and have a positive impact on economic growth (GDP). This result is also shown by the study of (Raza et al., 2020). Most poor nations can easily manage the foreign investment policies and the foreigners easily convinced and attracted for investment. With this investment, job market is in full swing and can accommodate many of the local skilled labour.

According to the findings, remittances significantly and favourably affect Afghanistan's economic expansion. Mostly the brain drain happens in poor nations where the skilled labour did not find suitable jobs and left their homeland. So, the workers send maximum of their earnings portion to their homeland for family. Most of the family incomes becomes uplifted and they can spend on their health, education, and other necessities. Some of the money is saved for future investment, that further helps in economic progress of a society. Contrarily, AID is negligible and has a detrimental impact on economic growth, and the finding is consistent with that of the study (Albiman, 2016). In a poor country like Afghanistan, AID is misused due to poor management. If there is a controlled management of AID distribution, then it might have positive sign on society growth. Additionally, although population growth is negligible, it positively affects economic expansion. The findings of this study demonstrates that Afghanistan's economy grows as its population increases. The research of also supports this outcome of Obere et al. (2013).

Table 5: The model estimations of economics by the ARDL model

Variables	Coef.	Std. Err	t-statistic	P-value
GFDI	0.0830629	2.716034	2.03	0.007
GFDI_L1.	0.820247	2.258171	2.81	0.005
RE	0.1473735	2.621235	2.06	0.008
RE_L1.	0.553998	3.551365	3.00	0.003
AID	-0.1471492	0.3139582	-0.47	0.664
AID_L1.	-0.329349	0.4971909	-2.67	0.056
POP	0.598834	5.650549	0.46	0.669
POP_L1.	0.89135	4.543255	0.36	0.714
Const	4.407823	15.7637	0.28	0.794

Table 6, show the results of the (ECM) model, which explained that sign and symbol of ECT coefficient suggested that 4% In order to converge to the equilibrium path, modifications are done annually. GFDI and remittances are substantial and have a long-term favourable effect on economic growth. these outcomes are also confirmed by the study of Ekanayake and Moslares (2020). GFDI is considered as the most influential investment for the underdeveloped countries. Therefore, there is a dire need of this investment that will uplift the worst economic condition of Afghanistan. Similarly, remittances are the second largest source of income of a poorer nation because of the non-availability of jobs and business opportunities in Afghanistan, most of her skilled labour migrated or flew to other countries for the sake of bread earning. So, the remittance earing workers mostly invest in their family life standard. Therefore, with this investment the overall social welfare of the society increases.

Aid is insignificant and has a negative impact on economic growth, in the long run; these results are also confirmed by Mbah and Amassoma (2014). If there is no foreign investment, then the developed countries and foreign institutions send foreign aid to the poor and poorer countries, thereby increasing the daily income of the people, and they save extra money from expenses and then run domestic businesses that increase supply and demand in the market, increasing government GDP. If Aid distribution is properly managed at the gross root level, then it will have far better impact on the society. Otherwise, it is considered as a curse for the economic growth of an underdeveloped country like Afghanistan.

A population is insignificant but has a positively effect on the economy, in the long run. Also, if the population increases in a country, then the daily income of the people decreases, resulting in a balance between the supply and demand for goods in the market decreases, so the market will weaken, and the country's GDP will decrease in the short run. Other than in the long run, the newborn population may be employed, the scholars will be trained they will start private businesses which will increase their daily income increasing supply and demand. So, in the long run the population the population has a beneficial impact on economic growth (Obere et al., 2013).

Table 6: Error Correction Model (ECM) Estimation Results

Variables	Coef.	Std. Err.	t-statistic	Prob.
ECT	-0.0439374	0.0931185	-0.47	0.435
LR				
GFDI	0.7802453	0.6673503	3.17	0.007
RE	0.396516	0.546942	3.55	0.003
AID	-0.4846326	0.1228102	-1.95	0.197
POP	0.06536	0.673766	0.64	0.559
SR				
D1_GFDI	1.820247	2.258171	2.81	0.005
D1_RE	0.553998	3.551365	2.00	0.004
D1_AID	-1.329349	0.4971909	-2.67	0.296
D1_POP	0.6754434	3.0034567	3.452	0.004
Constant	4.407823	15.7637	0.28	0.794

#### 4.6 Diagnostic Test

The use of diagnostic checks to find autocorrelation and heteroskedasticity in a data has become standard practice. Serial correlation is a problem that affects the majority of time series data. The Breusch-Godfrey test was used in this study to check serial auto-correlation, and the White test (used to test for heteroscedasticity) was used to check the model's heteroscedasticity (which refers to instances where the variance of the residuals is unequal over a range of measured values).

Table 7, explain that there is no autocorrelation and heteroscedasticity in the model construct for the estimates of coefficients for the dependent variable and targeted variable. Because of the higher P-values, rejecting the null hypothesis i.e., there is no heteroskedasticity and autocorrelation in the model.

Table 7: Diagnostic tests for Heteroskedasticity and autocorrelation

Heteroskedasticity (white test)	F-Stat = 1.695230 Prob.= 0.1936
Autocorrelation (Breusch-Godfrey test)	F-Stat =1.219065 Prob. = 0.3831
Decision	No heteroskedasticity and no autocorrelation

## 5. Conclusion

This study discussed the impact of Greenfield investment along with other control variables on the economic growth of Afghanistan. Secondary data from 2002-2022 was used to analyse the final outcomes of the study. After Stationarity test of all variables, the final results were analyzed with ARDL and ECM. The study finding shows that GFDI and remittances are significant and have a positive effect on GDP. If developed nations make investments in the type of GFDI in Afghanistan, it will provide employment to the local people, increase their daily income. After saving some of the portion from their income they start doing their own business. This increases trade, which further increases the country's GDP. So, it can be said that GFDI has a positive effect on the GDP.

Similarly, remittances also show positive effect on the economy of Afghanistan. So, the government of Afghanistan should allow her skilled labour to other developed countries for their livelihood. Aid shows negative and insignificant impact, so the government of Afghanistan must prevent AID because its further harm. Population is insignificant but has a favourable effect on economic expansion. So, the result of this study shows that excessive growth in Afghanistan's population leads to harm the economic growth.

This study suggests that Afghanistan has a plenty of natural resources, whereas industrialised nations have an abundance of money as well as cutting-edge and modern technology. Afghanistan should then make use of its natural resources and invite wealthy nations to invest on the basis of incentives. Similarly, as many of the biggest businesspeople and investors in Afghanistan operate and invest abroad, if they do so domestically, Afghanistan's GDP will increase, and the country's economic growth will be better. This report therefore calls on the Afghan government to encourage domestic investment in order to stop capital flight.

### **Declaration of conflict of interest**

The author(s) declared no potential conflicts of interest(s) with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship and/or publication of this article.

### **ORCID iD**

Tariq Aziz <https://orcid.org/0009-0005-3383-1809>

Ali Raza <https://orcid.org/0000-0003-1246-0162>

Hassan <https://orcid.org/0000-0001-6740-9896>

## References

- Ahmed, B., Xie, H., Ali, Z., Ahmad, I., & Guo, M. (2022). Internationalization of emerging economies: empirical investigation of cross-border mergers and acquisitions and greenfield investment by Chinese firms. *Journal of Innovation and Knowledge*, 7(3), 100200. <https://doi.org/10.1016/j.jik.2022.100200>
- Albiman, M. M. (2016). What are the impact of foreign aid to the economic growth. Time series analysis with new evidence from Tanzania. *Business and Economics Journal*, 7(3), 1-7. <https://doi.org/10.4172/2151-6219.1000237>
- Almsafir M.K., Latif N.W.A., Bekhet H.A. (2011) Analyzing the Green Field investment in Malaysia from 1970 to 2009: A Bounds Testing Approach. *Australian Journal of Basic and Applied Sciences*, 5(3) 561– 570. <http://www.ajbasweb.com/old/ajbas/2011/561-570.pdf>
- Ashraf, A., Herzer, D., & Nunnenkamp, P. (2016). The effects of Greenfield FDI and cross-border M&As on total factor productivity. *The world economy*, 39(11), 1728-1755. <https://doi.org/10.1111/twec.12321>
- Ashraf, A., Doytch, N., & Uctum, M. (2021). Foreign direct investment and the environment: disentangling the impact of greenfield investment and merger and acquisition sales. *Sustainability Accounting, Management and Policy Journal*, 12(1), 51-73. <https://doi.org/10.1108/SAMPJ-04-2019-0184>
- Bayar, Y. (2017). Greenfield and brownfield investments and economic growth: evidence from central and Eastern European Union countries. *Naše gospodarstvo/Our economy*, 63(3), 19-26. <https://doi.org/10.1515/ngoe-2017-0015>
- Bayar, Y., Remeikienė, R., Žufan, J., & Novotný, M. (2020). Unemployment effects of greenfield and brownfield investments in post-transition European Union members. <https://doi.org/10.15240/tul/001/2020-2-001>
- Box, G. E., & Pierce, D. A. (1970). Distribution of residual autocorrelations in autoregressive-integrated moving average time series models. *Journal of the American statistical Association*, 65(332), 1509-1526. <https://doi.org/10.1080/01621459.1970.10481180>
- Domar, E. (1946). Capital expansion, rate of growth, and employment. *Econometrica*, 14(2), 137-147. <https://doi.org/10.2307/1905364>
- Ekanayake, E. M., & Moslares, C. (2020). Do remittances promote economic growth and reduce poverty. *Evidence from Latin American Countries. Economies*, 8(2), 35. <https://doi.org/10.3390/economies8020035>
- Fedorová, D. (2016). Selection of unit root test based on length of the time series and value of AR (1) parameter. *Statistika*, 96(3), 3. <https://doaj.org/article/ca92920816ef46e0b9e874642271805e>

- Ghatak, S., & Siddiki, J. U. (2001). The use of the ARDL approach in estimating virtual exchange rates in India. *Journal of Applied statistics*, 28(5), 573-583. <https://doi.org/10.1080/02664760120047906>
- Greene, W. H. (2008), *Econometric Analysis*, 7th edition. Prentice-Hall.
- Ha, T. S., Chu, V. T., Nguyen, M. T. T., Nguyen, D. H. T., & Nguyen, A. N. T. (2021). The impact of Greenfield investment on domestic entrepreneurship. *Journal of Innovation and Entrepreneurship*, 10(1), 1-16. <https://doi.org/10.1186/s13731-021-00164-6>
- Hamilton, J. D. (2020). *Time series analysis*. Princeton university press. <http://mayoral.iae-csic.org/timeseries2021/hamilton.pdf>
- Harrod, R. F. (1939). An essay in dynamic theory. *The Economic Journal*, 49(193), 14-33. <https://doi.org/10.2307/2225181>
- Hossain, B (2013) The Effect of Foreign Aid on the economic development of Bangladesh. *Journal of Economic and Development Studies*, 2(2), 93-105. <http://jedsnet.com/journals/jeds/Vol 2 No 2 June 2014/6.pdf>
- Kim, Y. H. (2009). Cross-border M&A vs. greenfield FDI: economic integration and its welfare impact. *Journal of Policy Modeling*, 31(1), 87-101. <https://ideas.repec.org/a/eee/jpolmo/v31y2009i1p87-101.html>
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International. <https://ccsuniversity.ac.in/bridge-library/pdf/Research-Methodology-CR-Kothari.pdf>
- Lee, H. H., & Park, D. (2020). Effects of Inward and Outward Greenfield FDI on Employment by Domestic Firms: The Korean Experience. *Korea and the World Economy*, 21(1), 1-33. [http://www.akes.or.kr/wp-content/uploads/2020/05/1\\_MS191104\\_pageproof\\_3.pdf](http://www.akes.or.kr/wp-content/uploads/2020/05/1_MS191104_pageproof_3.pdf)
- Liu, X., & Zou, H. (2008). The impact of greenfield FDI and mergers and acquisitions on innovation in Chinese high-tech industries. *Journal of world business*, 43(3), 352-364. <https://doi.org/10.1016/j.jwb.2007.11.004>
- Ljung, G. M., & Box, G. E. (1978). On a measure of lack of fit in time series models. *Biometrika*, 65(2), 297-303. <https://doi.org/10.1093/biomet/65.2.297>
- Marinescu, N., & Constantin, C. (2008, September). Greenfield vs. Acquisition in FDI: evidence from Romania. In *Paper presented on the 10th ETSG Annual Conference-Warsaw*. <https://api.semanticscholar.org/CorpusID:2766641>
- Mbah, S., & Amassoma, D. (2014). The linkage between foreign aid and economic growth in Nigeria. *International Journal of Economic Practices and Theories*, 4(6), 1007-1017. <https://api.semanticscholar.org/CorpusID:56282201>

- Neto, P., Brandão, A., & Cerqueira, A. (2008). The impact of FDI, cross-border mergers and acquisitions, and greenfield investments on economic growth. *The IUP Journal of Business Strategy*, 1(2), 24-44. <https://ssrn.com/abstract=1765844>
- Nguyen, H. T., Luu, H. N., & Do, N. H. (2021). The dynamic relationship between greenfield investments, cross-border M&As, domestic investment, and economic growth in Vietnam. *Economic Change and Restructuring*, 54(4), 1065-1089. <https://doi.org/10.1007/s10644-020-09292-7>
- Obere, A., Thuku, G. K., & Gachanja, P. (2013). The impact of population change on economic growth in Kenya. *International Journal of Economics and Management Sciences*, 2(6), 43-60. <https://doi.org/10.4172/2162-6359.1000137>
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. <https://doi.org/10.1002/jae.616>
- Raff, H., Ryan, M., & Stähler, F. (2009). The choice of market entry mode: Greenfield investment, M&A, and joint venture. *International review of economics & finance*, 18(1), 3-10. <https://doi.org/10.1016/J.IREF.2008.02.006>
- Raza, A., Akbar, S. & Raza, Z. (2021). Does Greenfield-foreign direct investment inflow contribute in socioeconomic development? Empirical evidence from developing countries. *Pakistan Journal of Humanities and social sciences*, 9(3), 469-481. <https://doi.org/10.52131/pjhss.2021.0903>
- Raza, A., Akbar, S., & Sadiqa, B. A. (2021). Relationship among Economic Growth, Health, Education, Economic Development and Greenfield Investment as Mode of FDI: Evidence from MENA Countries. *International Review of Social Sciences*, 9(5), 271-280. [https://irss.academyirmbr.com/paper\\_details.php?id=934](https://irss.academyirmbr.com/paper_details.php?id=934)
- Raza, A., Iqbal, M. & Hussain, N. (2021). Is Greenfield investment greener for the welfare of lower-middle income countries? Market-based empirical analysis with GMM approach. *Journal of Marketing Strategies*, 3(3), 194-206. <https://doi.org/10.52633/jms.v3i3.111>
- Raza, A., Tariq, M., & Sadiqa, B. A. (2021). An Empirical data investigation of the Greenfield investment: Welfare nexus from low-income countries. *International Journal of Innovation, Creativity and Change*, 15(8), 820-835. [https://www.ijicc.net/images/Vol\\_15/Iss\\_8/15837\\_Raza\\_2021\\_E1\\_R1.pdf](https://www.ijicc.net/images/Vol_15/Iss_8/15837_Raza_2021_E1_R1.pdf)
- UNCTAD, S. (2022). Unctad Stat Data Center. *World statistical database*. <https://bit.ly/21GbfKX>.
- UNDP, HDR. (2022). Human Development index Report. <http://hdr.undp.org/en/content/2022-human-development-index-ranking>.

- Wang M., & Wong M. C. (2009). What Drives Economic Growth. The Case of Cross-Border M&A and Greenfield FDI Activities. *Kyklos*, 62(2), 316–330. <https://doi.org/10.1111/j.1467-6435.2009.00438.x>
- WDI, T. (2022). World development indicators (Data Bank). <https://databank.worldbank.org/source/world-development-indicators>
- Zhou, K., Kumar, S., Yu, L., & Jiang, X. (2021). The economic policy uncertainty and the choice of entry mode of outward foreign direct investment: Cross-border M&A or Greenfield Investment. *Journal of Asian Economics*, 74, 101306. <https://doi.org/10.1016/j.asieco.2021.101306>