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# IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH

**Abstract**

This research paper investigates how foreign direct investment (FDI) affects economic expansion. FDI is a vital source of outside money, technology, and knowledge that can support economic expansion. The effect of FDI on economic growth, however, is not clear-cut and depends on a number of variables, including the host country's capacity for absorption, the standard of its institutions, and the nature of FDI. In addition to reviewing the empirical data on this relationship, this paper offers a theoretical examination of the connection between FDI and economic growth. The results imply that FDI can contribute to economic expansion. However, different nations and industries experience different effects of FDI on the economy. The paper's recommendations are provided for policymakers and host nations who want to draw FDI inflows and foster economic growth. These suggestions include raising environmental and social standards, encouraging small and medium-sized businesses, and achieving a balance between FDI and domestic investment. For policymakers and host nations looking to draw FDI inflows and foster economic growth, the conclusions of this paper have significant implications.

**Key words:** Foreign Direct Investment, Economic Growth, Technology Transfer, Human Capital, Azerbaijan

**UOT:** 339
**JEL:** O11
**DOI:** https://doi.org/ 10.54414/OFJI4204

## Introduction

In recent decades, foreign direct investment (FDI) has grown to be a critical source of external financing. The results of numerous research looking at how FDI affects economic growth are conflicting. Most studies have identified a favourable relationship between FDI and economic growth, but some have found no definitive link.

FDI drives growth especially in emerging economies by boosting exports, productivity, and employment. It also enhances managerial skills, facilitates technology transfer, and opens international markets, strengthening domestic firms' competitiveness. However, the effectiveness of these measures in fostering economic growth varies across nations, and economists and policymakers continue to disagree about how FDI affects economic growth. It is essential for policymakers to comprehend how FDI affects economic growth in order to build strategies that would effectively entice FDI and advance economic development. Therefore, research on FDI's effects on economic growth is important for firms and policymakers alike who want to understand how FDI supports economic development.

Examining the link between FDI and economic growth as well as identifying the variables that affect FDI's ability to successfully foster economic growth are the main goals of the study. Employing a mixed-methods approach, quantitative analyses will be combined with qualitative techniques to offer comprehensive insights into the drivers and channels of FDI-induced growth.

## Literature review

Theoretical work on the connection between FDI and economic expansion is fragmented. Some research papers contend that FDI may benefit economic expansion. Blomström and Kokko (1998), for instance, contend that FDI

can boost the host nation's economy through transferring technology, knowledge, and organizational skills, thereby enhancing productivity and fostering development. Alfaro et al. (2004) also show that FDI can benefit economic growth in underdeveloped nations, particularly in areas with more advanced technology, which allows these countries to leapfrog domestic innovation gaps.

However, other research indicates that FDI may not always result in economic growth. For instance, according to Rodrik (1999), FDI may have a detrimental impact on economic growth if it causes domestic industries in the host country to become less competitive, leading to market concentration in foreign-owned firms. Similarly, Aitken and Harrison (1999) find that the productivity of domestic businesses in the host country might be negatively impacted by FDI when spillovers fail to materialize or when local firms cannot absorb new technologies.

Additionally, empirical research on the effect of FDI on economic growth has produced conflicting findings. Borensztein et al. (1998), for example, report that FDI can positively affect economic growth, especially in nations with sound institutions and sufficient human capital, which help ensure that investment translates into higher output. In contrast, Nair-Reichert and Weinhold (2001) discover that FDI can have a detrimental effect on economic growth in nations with weak institutions, where regulatory shortcomings and governance failures undermine the benefits of FDI.

Overall, the research points to a complex relationship between FDI and economic growth that is dependent on a number of variables, including the type of FDI (horizontal versus vertical), the size and sector of the investment, the quality of the host country's institutions, and its capacity for absorption.

**Impact of FDI on economic growth: Theoretical framework**

***Theories explaining effect of FDI on economic growth***

There have been multiple theories put forth to clarify how Foreign Direct Investment (FDI) affects economic growth. Some theories suggest that FDI has a positive effect on economic growth, while others argue that it has a negative effect. Although different theories exist, there are two main theories explaining FDI: exogenous-growth theory (neoclassical growth model) and the endogenous growth model.

The Solow growth model is a neoclassical growth model which concentrates on factors that speed up production and examines how much a production rise is brought on by more inputs, increased productivity, or both. Savings, increase in population, and technical advancement are the three sources of growth in this concept. Technological advancement increases the productivity of both humans and machines, which raises production, but in this scenario, technological advancement is exogenous.

According to the idea, economic growth results from the accumulation of exogenous elements of production like the stock of labor and capital. Through this paradigm, it has been demonstrated that capital accumulation directly affects economic growth in proportion to the capital's part of the nation's output. The expansion of the labor force and advancements in technology are also important for economic growth. This hypothesis contends that FDI boosts the capital stock in the host nation, which would impact economic expansion. However, according to Solow's model, continuous economic development cannot be completely dependent on building up of physical capital. Without a corresponding increase in the working population, an increase in fixed investments would only temporarily accelerate per-capita productivity. Since there is a cap on how much a country's labor force may grow, another component must be present in order to generate and sustain a high pace of economic growth. One of the key drivers of long-term growth, often known as the "residue" of economic expansion that cannot be traced to increases in labor or capital, is technical advancement, also known as "Solow residue" or "total factor productivity" [1]. However, Solow's growth model is exogenous to the mechanism of economic growth because it fails to explain the origin of this technical advancement.

According to De Jager [2], if FDI brings new technology, which raises labor and capital productivity, this will subsequently result in

more reliable returns on investment and exogenous labor growth. It has been demonstrated that foreign direct investments can have the direct effect on economic growth through capital accumulation and the integration of new inputs and imported technology into the production function of the host country through the exogenous or neo-classical growth model. The neo-classical growth model demonstrates how FDI encourages economic growth by boosting the amount and/or effectiveness of investment in the host nation.

By the middle of the 1980s, a novel growth theory that was put forth by Romer, Lucas and Mankiw claimed that the causes of economic growth rates were endogenous. This approach was predicated on the idea that continuing greater investments in physical and human capital would allow for increasing returns to scale. The economic growth rate would be raised permanently as a result of these investments. Endogenous growth models place a strong emphasis on human capital. Therefore, the main drivers of long-term productivity increase according to endogenous growth theory are externalities generated by the accumulation of human and physical capital.

The new economic growth model suggests that FDI may boost GDP endogenously if greater returns to production are brought about by externalities and spillover effects. This school's proponents contend that, unlike physical items, knowledge and technology serve as the growth process's accelerators rather than being linked by the law of diminishing returns to scale. Contrast this and exogenous economic growth model, where foreign direct investments only influence the level of income rather than long-term growth and its impact on the growth speed of output is constrained by the presence of declining returns on physical capital.

The endogenous growth theory states that including unskilled labor, physical capital, and human capital in the production function can totally postpone the physical capital's diminishing earnings. In other words, the ability of high-quality human capital to absorb the technology spillovers caused by FDI is a key aspect, and as a result, it determines how FDI affects economic growth. FDI may considerably increase human capital in a number of ways, including by introducing new organizational structures and management techniques as well as through investing in worker training. Impacting R&D could spur innovation and aid in the development of the host nation.

The consideration of technological advancement varies between the exogenous and endogenous growth theories, despite the fact that both contend that capital accumulation or formation is a significant factor in determining economic growth. The endogenous theory claims that technological progress is enhanced endogenously—via rise in expertise and innovation. The exogenous theory views technological advancement as exogenous to the model. According to Barro and Sala-i-Martin [3], FDI from multinational corporations is expected to bring research and development along with the accumulation of human capital, which could have a beneficial or negative impact on the host country's businesses and the economy. These growth factors, also known as FDI spillovers, are thought to result from investments in physical assets, human capital, or R&D development.

***Channels through which FDI impacts on economic growth***

There are various intricate channels through which foreign direct investment (FDI) affects economic expansion. To comprehend FDI's role and develop policies to optimize its benefits, it is crucial to understand these channels.

**Technology transfer**

The role of technology as a driver of economic growth has received particular focus in endogenous growth theories. Many models concentrate on technological innovation and R&D's contribution to growth. The level of technology a nation employs can explain its growth rate: "growth rates in emerging nations are clarified by a 'catch-up' process in technological level" [4]. Multinational corporations, the primary source of R&D, often lead in technology. Rogmans and Ebbers [5] note that FDI brings technology transfer, management experience, and increased productivity. Less developed nations' ability to adopt technologies from wealthy countries significantly affects their expansion; by adopting new ideas, they can catch up. Thus, FDI is a crucial conduit for disseminating new

technology. However, technology transfer can also create dependence on technologies from multinationals and industrialized nations.

**Human Capital**

Human capital plays a crucial role in economic growth and societal welfare. Increasing human capital yields various advantages, such as higher productivity where new technology is used. Coe and Helpman [6] show that foreign R&D, combined with domestic efforts, positively influences factor productivity, easing the integration of foreign technology and accelerating knowledge transfer. FDI inflows create significant "spillover effects": they increase demand for trained professionals to manage advanced technical and managerial jobs. Transferred management and technological skills thus foster host countries' human capital. By offering training in modern production and management techniques, FDI raises labor expertise. Foreign firms typically invest more in staff training than local businesses. However, FDI's impact on human capital may be detrimental: OECD [7] reports that MNC affiliates use advanced technology and fewer workers than local firms, potentially raising unemployment and threatening growth.

**Domestic competition**

FDI influences economic growth by affecting domestic competition. Foreign companies can stimulate domestic investment and pressure local firms to adopt their marketing strategies or enhance management. This competitive pressure improves capital formation and production factors: the presence of multinationals raises supply, prompting local firms to increase productivity, lower prices, and use resources more efficiently. However, in some cases, FDI may crowd out domestic investment. Because of superior technology and brand recognition, foreign firms can dominate licensing and finance opportunities, displacing local investment and potentially harming economic progress.

**Empirical Analysis**

***Methodology:***

Data for Azerbaijan will be sourced from the Central Bank of Azerbaijan Republic (cbar.az) and the State Statistical Committee (stat.gov.az), with all variables expressed in millions USD. The starting year 1995 reflects post–First Karabakh War stabilization and the onset of major oil contracts. Last available data for some variables was for 2021, so 2021 was selected as ending date.

As the primary drivers of economic growth, non-oil FDI and domestic investments will be taken into account in this study. A time-series multiple regression model will estimate how non-oil FDI and domestic investment drive nominal GDP (dependent variable). The specification is:

*GDP = b0 + b1*Non_oil_FDI + b2*Domest_invest*

**GDP:** Total value of all final goods and services produced in Azerbaijan during a given period, calculated at current prices.

**Non-oil FDI:** foreign direct investment into Azerbaijan's non-oil sectors.

**Domestic investments:** total local investment across all sectors in Azerbaijan.

Multiple regression analysis in STATA will quantify the impact of non-oil FDI and domestic investment on GDP. A correlation matrix will detect potential multicollinearity among independent variables. Coefficient estimates (b1, b2), their significance levels, and $R^2$ will indicate each factor's contribution to economic growth.

***Regression analysis***

Our dataset comprises 27 annual observations (1995–2021) on three numerical variables—nominal GDP (dependent), non-oil FDI, and domestic investments (independent)—all in millions USD. Data were sourced from the Central Bank of Azerbaijan Republic and the State Statistical Committee.

**Data Preparation**

Using STATA's *codebook* command, we confirmed there are no missing values and each variable has 27 unique entries. Summary statistics (*sum*) yielded means, standard deviations, minimum, and maximum for each series.

**Linearity and Correlation**

I plotted scatterplots in Excel for non-oil FDI and domestic investments against GDP to verify the linearity assumption—no nonlinear patterns appeared. A STATA correlate command showed strong positive correlations between GDP and both independent variables.

**Chart 1. Non-oil FDI**

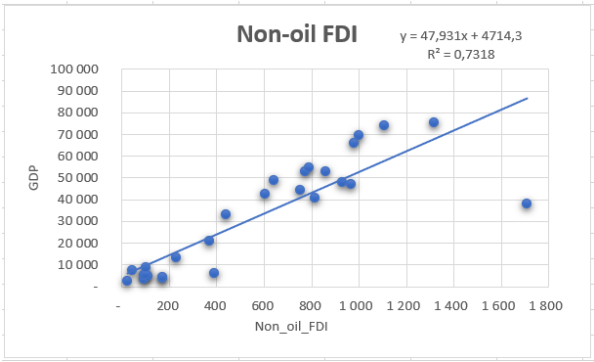
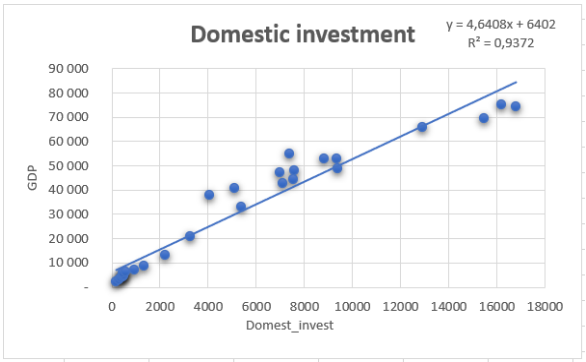



**Chart 2. Domestic investments**




Source: by author, based on the data from Central Bank of Azerbaijan Republic

**Table 1. Correlation results**

```
. correlate
(obs=27)

             |      GDP Non_oi~I Domest~t
-------------+---------------------------
         GDP |   1.0000
 Non_oil_FDI |   0.8554   1.0000
Domest_inv~t |   0.9681   0.7684   1.0000

.
```

**Regression Model**

A multiple linear regression analysis in STATA produced the estimated equation:

$$GDP = 3207.52 + 15.264*Non\_oil\_FDI + 3.637*Domest\_invest$$

Coefficients imply that a one-unit increase in non-oil FDI raises GDP by 15.264 units, while a one-unit increase in domestic investment raises GDP by 3.637 units.

**Table 2. Regression results**

```
. reg GDP Non_oil_FDI Domest_invest

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F(  2,    24) =  358.21
       Model |  1.5935e+10     2  7.9676e+09            Prob > F      =  0.0000
    Residual |   533828517    24  22242854.9            R-squared     =  0.9676
-------------+------------------------------           Adj R-squared =  0.9649
       Total |  1.6469e+10    26   633427829            Root MSE      =  4716.2

------------------------------------------------------------------------------
         GDP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 Non_oil_FDI |   15.26363   3.217371     4.74   0.000      8.6233    21.90396
Domest_inv~t |   3.637423    .275266    13.21   0.000    3.069302    4.205544
       _cons |   3207.052   1500.329     2.14   0.043     110.524    6303.579
------------------------------------------------------------------------------
```

**Hypothesis Testing**

*Null Hypothesis ($H_0$):* $\beta_1 = \beta_2 = 0$ (no joint effect of non-oil FDI and domestic investments on GDP)

*Alternative Hypothesis ($H_1$):* At least one $\beta \neq 0$

Here I used jointly significant hypothesis test. To check the significance, I compared F and F critical. We need to reject null hypothesis when F is higher than F critical. As indicated in the table our P value of F equals to 0 which is lesser than value of significance level which is 0.05 according to the 95% confidence level. So, we reject Null Hypothesis means that our independent variables have jointly significant effect on GDP. R square in our model equals to 0.9676, means that 96.76% of total deviation of dependent variable is captured by our model.

To check the significance of variables we use P value. Here I will compare the value of P and α for each independent variable. The P value for Non-oil FDI variable equals to 0.000 and α is 0.05 %. If P value is less than α, then we reject our null hypotheses which claims that Non-oil FDI have significant effect on GDP, and in alternative we claim the opposite. So according to the rule, as P value is less than α, we reject null hypothesis which means that Non-oil FDI is statistically significant. The P value of Domestic investments variable is 0.000, which is again lesser than α, so Domestic investments is statistically significant.

Now, we should check Multicollinearity problem which means strong relationship between independent variables. If there is MC problem, we cannot measure the real impact of our independent variables on dependent variables. I will use VIF (Variance Inflation Factor) method to check multicollinearity. VIF for all variables is lower than four, which indicates that there is no multicollinearity problem in our model.

**Table 3. VIF**

```
. vif

    Variable |      VIF       1/VIF
-------------+----------------------
Domest_inv~t |     2.44    0.409617
 Non_oil_FDI |     2.44    0.409617
-------------+----------------------
    Mean VIF |     2.44
```

***Result***

The regression analysis findings suggest that foreign direct investment is advantageous to economic expansion. In accordance with the research, there is a statistically significant relationship between FDI and the economic growth. This result is in line with earlier studies on the subject and gives support to the notion that FDI can be a significant engine of economic growth. But it's crucial to remember that the connection between FDI and economic growth is complicated and affected by a range of variables, including national policies, the caliber of institutions, and the level of human capital in a nation. The study also has several drawbacks, such as the model's choice of variables and the potential existence of omitted variable bias.

**Conclusion**

Theoretical research suggests that FDI can enhance a host country's economic expansion by transferring technology, expertise, and managerial skills, which boost productivity, exports, and employment. FDI also helps countries specialize in industries of comparative advantage and access international markets, raising competitiveness. Its impact varies by development level: in developing countries, FDI can close investment and technology gaps and foster domestic industry growth, whereas in developed economies—with advanced firms and technologies—the marginal effect may be smaller. Moreover, human capital quality, infrastructure, political and economic stability, and institutional strength influence how effectively FDI translates into growth. Since technology and knowledge integration takes time, FDI's effects often materialize over

the medium to long term rather than immediately. Empirical studies generally confirm FDI's positive effect on growth, including regression-based analyses. In my own empirical research on Azerbaijan, I likewise find that FDI significantly boosts economic development. Based on these findings, the following policy recommendations emerge:

**Increase FDI inflows:** Offer incentives—tax rebates, investment guarantees, streamlined regulations—to attract foreign investors, thereby enhancing employment, productivity, and exports.

**Strengthen absorption capacity**: Invest in infrastructure, technology, and human capital to maximize FDI spillovers, and improve the business environment to draw further inflows.

**Raise environmental and social standards**: Ensure FDI adheres to regulations that prevent pollution and labor exploitation, and guard against displacement of local firms and workers.

**Support SMEs:** Facilitate SME access to technology transfer and knowledge spillovers—through training programs, finance access, and linkages with foreign firms—so small businesses can benefit fully from FDI.

**Balance foreign and domestic investment:** Prevent crowding out by coordinating FDI with domestic investment policies, and foster partnerships between multinational affiliates and local firms to promote technology diffusion.

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**BXİ-nin iqtisadi artıma təsiri**

**Xülasə**

Bu tədqiqat işi birbaşa xarici investisiyaların (BXİ) iqtisadi genişlənməyə necə təsir etdiyini araşdırır. BXİ iqtisadi genişlənməni dəstəkləyə biləcək xaricdən pul, texnologiya və biliklərin mühüm mənbəyidir. Bununla belə, BXİ-nin iqtisadi artıma təsiri aydın deyil və bir sıra dəyişənlərdən, o cümlədən ev sahibi ölkənin qəbuletmə qabiliyyətindən, onun institutlarının standartlarından və BXİ-nin təbiətindən asılıdır. Bu əlaqəyə dair empirik məlumatları nəzərdən keçirməklə yanaşı, bu məqalə BXİ ilə iqtisadi artım arasında əlaqənin nəzəri araşdırmasını təklif edir. Nəticələr göstərir ki, BXİ

iqtisadi genişlənməyə töhfə verə bilər. Müxtəlif xalqlar və sənayelər BXİ-nin iqtisadiyyata fərqli təsirlərini yaşayırlar. Sənədin tövsiyələri XBİ axını cəlb etmək və iqtisadi artımı təşviq etmək istəyən siyasətçilər və ev sahibi ölkələr üçün təqdim olunur. Bu təkliflərə ekoloji və sosial standartların yüksəldilməsi, kiçik və orta biznesin həvəsləndirilməsi, BXİ ilə daxili investisiyalar arasında balansın əldə edilməsi daxildir. BXİ daxilolmaları və iqtisadi artımı təşviq etmək istəyən siyasətçilər və ev sahibi ölkələr üçün bu sənədin nəticələri əhəmiyyətli nəticələrə malikdir.

***Açar sözlər:*** Birbaşa Xarici İnvestisiya, İqtisadi İnkişaf, Texnologiya Transferi, İnsan Kapitalı, Azərbaycan

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## ВЛИЯНИЕ ПИИ НА ЭКОНОМИЧЕСКИЙ РОСТ

**Резюме**

В этой исследовательской работе рассматривается, как прямые иностранные инвестиции (ПИИ) влияют на экономический рост. ПИИ являются важным источником внешних денег, технологий и знаний, которые могут поддерживать экономический рост. Однако влияние ПИИ на экономический рост не является однозначным и зависит от ряда переменных, включая способность принимающей страны к поглощению, уровень ее институтов и характер ПИИ. Помимо обзора эмпирических данных о данной взаимосвязи, в этой статье предлагается теоретическое исследование связи между ПИИ и экономическим ростом. Результаты подразумевают, что ПИИ могут способствовать экономическому росту. Однако разные страны и отрасли испытывают разное влияние ПИИ на экономику. Рекомендации в статье предназначены для политиков и принимающих стран, которые хотят привлечь приток ПИИ и способствовать экономическому росту. Эти предложения включают повышение экологических и социальных стандартов, поощрение малого и среднего бизнеса и достижение баланса между ПИИ и внутренними инвестициями. Для политиков и принимающих стран, которые хотят привлечь приток ПИИ и способствовать экономическому росту, выводы этой статьи имеют важное значение.

***Ключевые слова:*** Прямые иностранные инвестиции, экономический рост, передача технологий, человеческий капитал, Азербайджан