UNIVERSIDAD DEL AZUAY

Faculty of Legal Sciences

School of International Studies

Relationship between Foreign Direct Investment and Economic Growth of the Manufacturing Sector in Ecuador (2014-2024)

Project prior to obtaining a Bachelor's Degree in International Studies

Author:
Evelyn Anahí Cordero Sarmiento

Advisor:
Luis Santiago Sarmiento Moscoso

Cuenca – Ecuador
2026

I dedicate this work first and foremost to God, for giving me the strength and wisdom to complete this very important stage of my life. To my parents, for all their unconditional love, sacrifice, and encouragement throughout my education, for believing in me, and for being my greatest source of motivation to keep moving forward. To everyone who has been part of this process my family and my classmate for all your constant support, which has been essential in helping me move forward and achieve this goal.

ACKNOWLEDGEMENT

I am deeply grateful to God for granting me the health and strength to complete this work. To my parents, for being my rock, my greatest inspiration to keep going, and for all their support and unconditional love. To my colleagues, for being there every step of the way, sharing experiences, lessons learned, and moments that have left a lasting impression on me throughout this process. Finally, I want to thank everyone who stood by me and supported me in achieving this goal.

Table of Contents

List of Figures, Tables and Appendices

List of Figures

List of Tables

List of Appendices

The Relationship Between Foreign Direct Investment and Economic Growth in Ecuador´s Manufacturing Sector, (2014-2024)

ABSTRACT

Foreign direct investment (FDI) influences economic growth in the manufacturing sector, as it is considered a major driver and source of financing for developing economies. The objective of this study was to analyze FDI flows in the growth of the manufacturing sector during the 2014-2024 period and the impact of foreign direct investment on the economic growth of the manufacturing sector. To this end, data published by the Central Bank of Ecuador were collected. Similarly, stationarity tests, the Autoregressive Distributed Lag (ARDL) model, the Bounds Test for cointegration, and an Error Correction Model (ECM) were applied to analyze the short and long-term relationships between the variables of FDI, gross value added (GVA), gross fixed capital formation (GFKF), and country risk. The main findings indicate that FDI has a positive effect on long-term manufacturing sector growth among the analyzed variables, given that greater economic growth or better domestic investment conditions increase the inflow of foreign capital; likewise, in the short term, it demonstrates that country risk has a significant effect, since changes in risk perception influence FDI; therefore, attractive policies must be implemented and social stability guaranteed to improve the country´s perception.

Keywords: Economic Growth, Economy, Manufacturing Industry, Foreign Investment, Economic Model

Relación entre la Inversión Extranjera Directa y el Crecimiento Económico del Sector Manufacturero en Ecuador (2014-2024)

RESUMEN

La inversión extranjera directa (IED) influye en el crecimiento económico del sector manufacturero, ya que, es considerada como un impulso importante como fuente de financiamiento para las economías en desarrollo. El objetivo de este estudio fue analizar los flujos de IED en el crecimiento del sector manufacturero en el período 2014-2024 y la incidencia de la inversión extranjera directa en el crecimiento económico del sector manufacturero. Para ello, se procedió a recolectar datos publicados en el Banco Central del Ecuador. Del mismo modo, se aplicó pruebas de estacionariedad, el modelo Autorregresivos de Rezagos Distribuidos (ARDL), la prueba de cointegración Bounds Test y un Modelo de Corrección de Errores (ECM) para analizar las relaciones de corto y largo plazo entre las variables de la IED, valor agregado bruto (VAB), formación bruta de capital fijo (FBKF) y el riesgo país. Los principales hallazgos indicaron que la IED tiene un efecto positivo sobre el crecimiento del sector manufacturero a largo plazo entre las variables analizadas, dado que a un mayor crecimiento económico o mejores condiciones de inversión interna, aumenta la entrada de capital extranjero, asimismo en el corto plazo demuestra que el riesgo país tiene un efecto significativo, ya que los cambios en la percepción de riesgo influyen en la IED, el cual se debe implementar políticas atractivas y garantizar estabilidad social para mejorar la percepción del país.

Palabras clave: Crecimiento Económico, Economía, Industria Manufacturera, Inversión Extranjera, Modelo Económico

1. Introduction

Foreign Direct Investment (FDI) can play a strategic role in the growth of the manufacturing sector; nevertheless, its impact on the international competitiveness of national industries depends on certain economic conditions, institutional environments and productive factors of the host country. In the case of Ecuador, FDI plays an important role as a source of external financing, contributing to the country's economic development. Even so, the behavior of FDI has been volatile, since in recent years there has been a decline in the evolution of FDI, limiting the capacity to generate employment and strengthen its competitiveness in international markets.

Recent studies argue that the positive effects of FDI depend to a large extent on the institutional, macroeconomic and structural conditions of the host countries. (Economic Commission for Latin America and the Caribbean (ECLAC), 2021). On the other hand, Saucedo et al. (2020), Rangel and López (2022), argued that the effects of FDI are not homogeneous, since they depend on the receiving sector, human capital and the institutional environment, as is the case when investment is directed to high value-added activities. Likewise, the international literature agrees that the reduction in FDI flows is due to economic uncertainty and structural factors that affect developing economies.

In this context, the overall objective of this study is to analyze the relationship between FDI and economic growth in Ecuador's manufacturing sector. Additionally, the specific objectives are to identify how FDI flows have varied between 2014 and 2024 and to examine the impact of FDI on economic growth in the manufacturing sector. Ecuador has not always been highly attractive to foreign direct investment due to factors such as political instability and security indicators. Therefore, as Espín et al. (2016) observed, FDI in Ecuador is concentrated primarily in natural resource extraction activities, such as oil and other minerals, which are limited to raw material processing that promotes technology transfer and the generation of added value.

Based on an analysis of the relationship between foreign direct investment (FDI) and economic growth in the manufacturing sector, the main findings indicated that these variables have a positive long-term effect, but their influence is not immediately apparent in the short term, as adjustment periods tend to consolidate over time rather than generate instantaneous changes in economic dynamics; on the contrary, country risk in the short term

has a significant effect, reflecting that risk perceptions play a more important role in immediate economic fluctuations.

This analysis is structured, initially, around the development of the theoretical framework, addressing the conceptual foundations related to foreign direct investment (FDI), economic growth, and the manufacturing sector. Subsequently, the state of the art is presented, with the aim of analyzing the existing empirical evidence on the impact of FDI on economic growth, as well as the main econometric approaches used to study the short- and long-term relationships among the variables under analysis. Finally, the results obtained are presented, along with their respective analysis and interpretation, concluding with the main findings of the study.

2. Theoretical Framework and State of the Art

2.1 Theoretical Framework

Foreign Direct Investment (FDI) is defined as an international investment, whereby an investor in one economy establishes a lasting relationship and exerts significant influence over the management of a company in another economy (Organization for Economic Cooperation and Development, 2011). Therefore, FDI constitutes a mechanism, by consolidating a stable relationship between the investor and the recipient company.

In this sense, FDI is considered a fundamental element to promote the development and economic growth of nations, since it contributes to the generation of employment, increase in productivity and integration into international markets (Bonilla et al., 2021). Likewise, Ajila (2023), argues that its purpose is to establish long-term business relationships, allowing foreign investors to obtain a permanent stake in a resident entity of another economy.

Various authors, such as Mesa et al. (2021), López and García (2020), point out that FDI can generate positive effects on host economies, such as human capital, financial development and quality of institutions, among others. It also acts as an engine of economic growth, since it allows the entry of new capital flows, strengthens the country's productive capacity, generates the level of employment and contributes to the increase of incomes (Organization for Economic Cooperation and Development, 2021).

In this way, FDI generates attraction to investment flows, where countries must implement favorable economic policies, and allocate them efficiently to the strengthening of the productive and industrial sectors. For this reason, FDI also plays a key role in promoting job creation, and participation in international markets, through exports, facilitating the incorporation of innovative technology and knowledge (Tinoco & Guzmán, 2019). In addition, FDI is used by developing countries as a source of financing, as they do not have sufficient economic and technological resources to carry out the implementation of planned projects (Agurto et al., 2018).

In the same vein, Vela (2015), points out several negative effects on FDI, such as the decrease in local investment, the effect of displacement on the host economy, economic dependence, among others. Therefore, FDI is concentrated in extractive or low value-added activities, limiting economic diversification in the face of international commodity prices (United Nations Conference on Trade and Development (UNCTAD), 2022).

In the case of Ecuador, the reduction in FDI inflows was affected by various internal factors, including national paralysis, political instability, and criminal events. These events generated oil and non-oil losses, affecting the performance of economic activities such as manufacturing, construction, commerce, agriculture, and fishing. Given that several of these sectors have foreign investment partners, the environment of uncertainty can discourage the arrival of new investors, who are looking for territories that generate legal, political and financial confidence (Guadamud & Pinargote, 2024).

In this context, it is necessary to understand economic growth, especially in the manufacturing sector. Acs and Sanders (2021), defines economic growth as the sustained increase in the production of goods and services within an economy, as measured by the growth of the Gross Domestic Product (GDP). Therefore, economic growth does not act alone, but is also connected to the attraction of FDI, promoting the development of sectors such as manufacturing (Doytch & Uctum, 2011).

Acs and Sanders' Endogenous Growth Theory (2021), argues that the generation and transmission of knowledge is important to achieve sustained economic growth. The quality of institutions, which encompass property rights, the rule of law, and governance that works

and builds trust. A country grows more when it is committed to knowledge, and has clear rules, where it applies responsible economic policies.

In this sense, FDI is incorporated into the manufacturing sector, as this sector offers greater opportunities for technology transfer, increased productivity and integration into international value chains (Pérez & Alonso, 2023). The manufacturing sector, also called the industrial or production sector, is one of the most important within a country's economy, since it transforms raw materials and components into final or semi-finished products through industrial processes, therefore, a greater number of products in less time. (Bonilla et al., 2021).

Similarly, Orellana et al. (2020) pointed out that the manufacturing sector faces technological, global and innovative challenges, as well as environmental, social and economic sustainability. Innovation becomes a key element for the permanence and development of the sector within a highly competitive and dynamic global market. The challenges identified show the need for manufacturing companies to adopt flexible strategies and incorporate innovation as an essential source in business management.

For Landa et al. (2020), the manufacturing sector represents a fundamental element within countries, due to production, employment, innovation and economic competitiveness. Nevertheless, they warn that a manufacturing structure characterized by technological dependence limits capacity in other sectors, reducing its impact on productivity and economic development.

Within the analysis of the industrial sector, it is important to consider the indicators that allow analyzing its performance. In this sense, manufacturing gross value added (GVA) is crucial to understand national economic development, since it implies the interaction of various economic indicators important for the country's growth. FDI is related to job creation in the host country; therefore, foreign manufacturing firms increase their GVA, and employment levels are likely to increase as well. Likewise, companies bring more advanced technology and knowledge, which would benefit local companies through cooperation and knowledge transfer (Pérez & Alonso, 2023).

On the other hand, when analyzing the level of investment within the productive sector. Gross fixed capital formation in the manufacturing sector corresponds to a country's investment, represented by the change in both private and public non-financial fixed assets (Banco Central del Ecuador, 2021). Likewise, GFKF is understood as investment in physical assets such as machinery, infrastructure and equipment, which allows increasing the productive capacity of an economy, so in the Ecuadorian case limitations have been evidenced within the economy, especially in the manufacturing sector (Armijos et al., 2022).

In addition, it is important to consider the elements related to the economic and financial stability of the country. In this sense, country risk allows us to measure the perception of investors, both national and international, about the level of risk associated with investing in a given economy. This indicator reflects political, economic and financial conditions that can generate instability or uncertainty directly affecting the inflow or outflow of capital. This makes it possible to explain changes in economic variables such as FDI or the growth of the productive sector, since a higher risk tends to reduce investment, while a lower risk encourages it (Dans, 2012).

The relationship between FDI and manufacturing growth according to Azolibe (2021), stated that FDI has positive effects on the manufacturing sector, as FDI contributes to manufacturing growth by providing capital, technology and productivity improvements. Sahoo (2012), stated that providing capital is an important source, especially in developing countries, covering domestic savings and investment, which that additional capital allows to finance investments necessary for the manufacturing sector to grow and expand.

Savvides and Zachariadis (2005), argued that FDI favors the transfer of technology from multinational firms to local firms, either directly or through the importation of machinery. These benefits can be extended throughout the production chain and their impact depends on the country's ability to use such technology.

Goss et al. (2007), argued that FDI has a positive influence on productivity growth in the manufacturing sector. In the case of the United States, foreign capital has played an important role in productivity growth during periods of high FDI inflows. Even so, FDI can generate improvements in the efficiencies of companies, although these effects are not

uniform, and in some cases they are significant, in others they are reduced, because their resources are not used properly.

2.2 State of the Art

Studies carried out over the years have analyzed Foreign Direct Investment (FDI) and economic growth in the manufacturing industry, both internationally and regionally. The main theoretical and empirical contributions developed by the different authors will be analyzed, identifying the most relevant results, which contribute to support the approach and relevance of the study.

Foreign Direct Investment in Latin America and the Caribbean, Economic Commission for Latin America and the Caribbean (ECLAC) (2021), analyzed from a quantitative and comparative approach between the countries of Latin America and the Caribbean, identifying trends, sectors and effects on economic development. ECLAC identified that in 2020 FDI fell by 34.7%, reaching its lowest level in the last decade. The share of FDI in regional GDP fell to 2.5%, compared to an average of 3.5% in the previous decade, where the most affected sectors were natural resources and manufacturing. Nonetheless, FDI was mostly concentrated in services, without generating deep structural changes. For this reason, ECLAC concluded that FDI alone does not guarantee sustained economic growth. To achieve this, FDI must be part of an active industrial policy aimed at productivity, innovation and economic diversification.

In the same way, the United Nations Conference on Trade and Development (UNCTAD) (2022), analyzed international tax reforms and sustainable investment, using an analytical-descriptive methodology with a mixed approach, combining theoretical analysis, regulatory review and comparative empirical evidence, using FDI as a dependent variable and international tax reforms as an independent variable. He concluded that international tax cooperation strengthens investor confidence and allows states, especially developing countries, to increase their financial capacity to boost development. A well-designed fiscal policy, focused on sustainability and investment, can become an engine of inclusive and responsible economic growth.

Also, a study by Agurto et al. (2018) analyzed the relationship between FDI and economic growth at the global level. They applied an econometric model of Ordinary Least Squares

(OLS), considering economic growth as the dependent variable, while FDI as the independent variable. The results indicated that there is no direct and significant positive relationship between FDI and economic growth in base regressions, the strength between FDI and growth is weak, at the individual level, and is stronger in low-income countries when analyzed by groups. The authors recommended that developing countries should not rely exclusively on FDI, but should implement policies aimed at improving economic stability and productivity in FDI trade agreements.

In addition, the World Bank (2025) analyzed the global economic outlook for Foreign Direct Investment (FDI) at the global level. Applied a quantitative and descriptive-analytical method based on the analysis of time series and macroeconomic data, where they use FDI as a dependent variable, while macroeconomic stability, political risk, regulatory framework and legal certainty as independent variables. As a result, there is a sustained contraction in FDI globally, with developing countries bearing the brunt of falling investment flows, due to higher levels of risk and institutional weakness. It determined that the lack of regulatory stability and legal certainty is positioned as one of the main obstacles to the recovery of investment flows.

On the other hand, Alvarado et al. (2017), studied Foreign Direct Investment (FDI) and economic growth in Latin America, with the aim of determining whether there was a relationship between FDI and Economic Growth. From a quantitative approach, estimating models with fixed effects by country and by time, using a dependent variable GDP, while FDI as an independent variable. Like Anaya (2022), examined the relationship between FDI and economic growth using an econometric model of autoregressive vectors (VAR), using GDP as the dependent variable and FDI as the independent variable. Overall, both studies agreed that FDI generates greater benefits in more developed economies, while in countries with low productive diversification its impact tends to be limited or unstable. Therefore, they concluded that countries should not only focus on attracting FDI, but also on strengthening domestic structural conditions to promote long-term sustainable growth.

Similarly, Salazar et al. (2025) analyzed Foreign Direct Investment (FDI) in Latin America and the Caribbean. They applied a descriptive-analytical methodology with a quantitative approach, which takes FDI as an independent variable, and economic growth (GDP, Value Added) as a dependent variable. The authors found that while FDI continues to be a relevant

source of external financing for Latin America and the Caribbean, its contribution to sustainable economic development remains limited due to structural weaknesses and the lack of productive policies. The authors suggest that the real challenge for the region lies not in increasing FDI flows, but in improving its quality, directing it towards strategic sectors with higher added value and strengthening institutional frameworks, quality employment and social inclusion.

The Organization for Economic Cooperation and Development (2025), also analyzed the socioeconomic impact of FDI in Latin America and the Caribbean, adopting a mixed methodology, predominantly quantitative and analytical, combined with descriptive and comparative analysis, taking FDI as an independent variable, while economic growth as a dependent variable. In this way, the study concluded that FDI is a fundamental instrument to promote sustainable, inclusive and resilient development in Latin America and the Caribbean, which particularly goes towards high value-added sectors. Despite this, to maximize the benefits of FDI, countries in the region must strengthen their institutional frameworks, improve their public policies, and promote strategies that guide FDI towards productive transformation, social cohesion, and equal opportunities.

Calderón et al. (2018) analyzed Foreign Direct Investment (FDI) and the manufacturing and industrial sector in Latin America, with the aim of studying the economic behavior arising from FDI and the structural changes of the industry. They applied a qualitative-descriptive approach, using the main variables such as FDI, manufacturing sector and productivity. As a result, FDI has favored the expansion of manufacturing exports, although with high dependence on external markets. It has contributed to the economic growth and international integration of the region. Even so, this process has been uneven since the authors point out that the region has not managed to consolidate an intensive industrial structure due to weak technological capacity, low innovation, and where investors prefer political stability and legal certainty, avoiding economies with high institutional uncertainty.

On the other hand, Castillo et al. (2020) investigated the determinants of Foreign Direct Investment (FDI) in Latin America. They analyzed using a Generalized Least Squares (GCM) regression model, where they used FDI as the dependent variable, while the growth rate, inflation and unemployment rate as independent variables. They identified a positive and statistically significant relationship between lagging FDI and current FDI, GDP growth

rate and FDI, Gross National Income (GNI) per capita and FDI, but inflation and the unemployment rate were not significant, so they do not have a decisive influence on FDI attraction.

Saucedo et al. (2020) investigated the effects of Foreign Direct Investment (FDI) by comparing the manufacturing and services sector in Latin America, specifically in Mexico, using an econometric approach, employing panel data models at the sectoral level. The analysis reveals that FDI in Mexico does not benefit all workers in a homogeneous way. While it boosts employment and wages, these effects are mainly concentrated in highly skilled workers, which increases labor inequality. They also pointed out that in order to maximize the benefits of FDI, it is essential that the State implements policies, especially in the formation of human capital, linking FDI and local productive development. Otherwise, FDI can reinforce exclusionary productive structures and limit their positive impact.

In the same line Rangel and López (2022), studied FDI and labor productivity in the manufacturing industry in Latin America. Meanwhile, they used a generalized method of moments (GMM), using manufacturing labor productivity as a dependent variable and FDI as an independent variable. They affirmed that FDI contributes to the increase of labor productivity in the manufacturing sector through technology transfer and productive modernization. In spite of that, its effects are conditioned by structural factors such as human capital, infrastructure, and economic stability, which demonstrates the need to implement public policies to promote better quality FDI and help reduce regional inequalities.

Recent studies by Matute and Borja (2022) and Cedeño and Mendoza (2020) analyzed crime, its incidence of FDI, and what was the impact of country risk in different periods of analysis in Ecuador, using a quantitative approach. Nevertheless, they used an autoregressive model of distributed lags (ARDL), and a Pearson correlation analysis. Together, the authors concluded that factors such as crime and country risk significantly influence foreign capital. They argued that FDI not only depends on economic variables, but also on institutional, financial and security factors to attract FDI flows.

FDI in Ecuador's Economic Growth, Villagómez et al. (2024), applied a correlational analysis, using Pearson's correlation coefficient, which takes FDI as an independent variable and economic growth as a dependent variable. They determined that FDI has not played a

relevant role in Ecuador's economic growth, mainly due to its low levels of participation in GDP. In addition, factors such as political instability, high tax burdens, and lack of adequate incentives have limited the country's ability to attract greater flows of foreign investment. Consequently, the authors emphasize the need to improve the investment climate through public policies aimed at institutional stability, tax incentives, strengthening infrastructure, and human capital development.

Similarly, the impact of foreign direct investment on Ecuador's economic growth, Vásquez et al. (2024), used a mixed methodology, using the PRISMA method, taking FDI, gross fixed capital formation (GFKF) as independent variables and economic growth as the dependent variable. The analysis of the study concluded that FDI has a relevant but conditioned impact on Ecuador's economic growth. While FDI could make a positive contribution through the transfer of technology, the strengthening of human capital and increased competitiveness, Ecuador should strengthen its institutions, promote productive diversification policies and integrate FDI into a long-term economic development strategy.

In the same vein, Cárdenas et al. (2025) analyzed the role of Foreign Direct Investment (FDI) in economic growth in Ecuador, the authors analyzed an Ordinary Least Squares (OLS) model, using GDP as the dependent variable and FDI as the independent variable. Cárdenas et al. concluded that FDI does not have a direct impact on Ecuador's aggregate economic growth, and attracting FDI without improving institutions does not guarantee development. In addition, its effects can be positive when analyzing specific sectors, where the economy and its impact depend on the institutional quality and stability of the country.

Aguirre-Inga et al. (2023) measured the evolution of FDI: an approach to the manufacturing sector in Ecuador, using a linear regression using the Ordinary Least Squares (ORS) method, taking the manufacturing sector as the dependent variable and FDI as the independent variable. The authors analyzed that FDI in Ecuador's manufacturing sector decreased significantly from 2019 onwards, mainly due to COVID-19, inflation, and high-country risk, which decreased investor confidence. FDI can boost growth for Ecuador, but its benefits depend on the existence of a stable, predictable and positive environment for productive investment.

Otherwise, Manufacturing and Economic Growth in Ecuador, Ochoa et al. (2022), adopted a quantitative approach and a static and dynamic panel data model, taking gross value added (GVA) as the dependent variable and manufacturing employment as the independent variable. The study concluded that the manufacturing sector in Ecuador does contribute positively to economic growth and regional productivity. Notwithstanding, its impact is still limited due to structural problems such as the geographical concentration of industries, low productive diversification and dependence on primary activities.

Also Camacho and Bajaña (2020) investigated the impact of Foreign Direct Investment (FDI) between Ecuador, Peru and Colombia, applying an econometric analysis of Ordinary Least Squares (MCO), where FDI is used as an independent variable and economic growth as a dependent variable, for which the study concluded that FDI does not guarantee economic growth by itself, since it depends on structural conditions, institutional and macroeconomic of each country. Ecuador has had a weak effect, while Peru and Colombia have contributed positively to growth thanks to greater stability, legal certainty and better investment attraction policies.

Finally, Pérez and Alonso (2023) addressed the Impact of Foreign Direct Investment (FDI) on the gross value added of manufacturing companies in Ecuador, using an econometric method of Ordinary Least Squares (OLS), as a dependent variable the gross value added (GVA) and as an independent variable FDI. The study showed that FDI is a relevant driver of growth in the Ecuadorian manufacturing sector, based on the VECM model, where FDI has a positive impact on the growth of manufacturing gross value added (GVA) in the short and long term.

3. Methods

This research was conducted using a mixed-methods approach that combines both qualitative and quantitative methods. On the one hand, the quantitative approach is correlational in nature, as it analyzes the relationship between FDI and economic growth in the manufacturing sector for the period 2014–2024, with the aim of examining trends, changes, and current economic performance. On the other hand, this was complemented by a qualitative approach, allowing for a deeper interpretation of the results, contextual factors, and dynamics that influence the relationship between FDI and growth in the manufacturing

sector. To this end, the quarterly percentage change rate was calculated to measure the relative changes in the variable between each consecutive quarter.

It was developed based on the model proposed by Bonilla et al. (2021), taking into account Foreign Direct Investment (FDI) as the dependent variable, and Gross Value Added (GVA), Gross Fixed Capital Formation (GFKF) and Country Risk (PR) as independent variables, measured by the EMBI (Emerging Markets Bond Index) indicator, published by the Central Bank of Ecuador as an indicator, which reflects investors' perception of risk and the country's ability to meet its financial obligations (Central Bank of Ecuador (BCE), 2024).

Model equation:

$$IED_t = \beta_0 + \beta_1 VAB_t + \beta_2 FBKF_t + \beta_3 RP_t + \varepsilon_t$$

In the equation, the subscript *t* denotes the period under analysis, followed by the term β_0 which is the model constant, while $\beta 1\ \beta_2\ \beta_3$ represent the effect of each independent variable on FDI. Finally, ε_t is the error term that includes unobserved factors.

The statistical information used in this research was collected from official sources, from the Central Bank of Ecuador (BCE), specifically from the economic statistics corresponding to the external sector for FDI and Country Risk, and from the real sector in quarterly and annual national accounts for the manufacturing GVA and the FBKF.

A stationarity analysis was conducted using the Augmented Dickey-Fuller test (ADF), a test to determine the order of integration of the variables and the presence of unit roots. Next, we opted to estimate a Distributed Lag Autoregressive (ARDL) model, given that the analyzed variables exhibit different orders of integration, specifically stationary variables at level I(O) and stationary variables are first difference I(1), This approach allows for the analysis of both the short-term and long-term relationships between the variables, being particularly useful when they exhibit a mixed order of integration.

Subsequently, the bounds test for cointegration was used to determine the existence of a long-run equilibrium relationship between the variables. This test identifies whether the series are cointegrated, confirming that the series exhibit a stable relationship over time.

Therefore, once cointegration was identified, an error correction model (ECM) was estimated, which aims to analyze the immediate effects and the speed of adjustment in the long term. Its primary function is to understand how variables react to adjustments and imbalances and how they converge back to their equilibrium relationship. The R software was used for data processing and the estimation of econometric models, allowing us to perform statistical tests and obtain better results.

4. Results

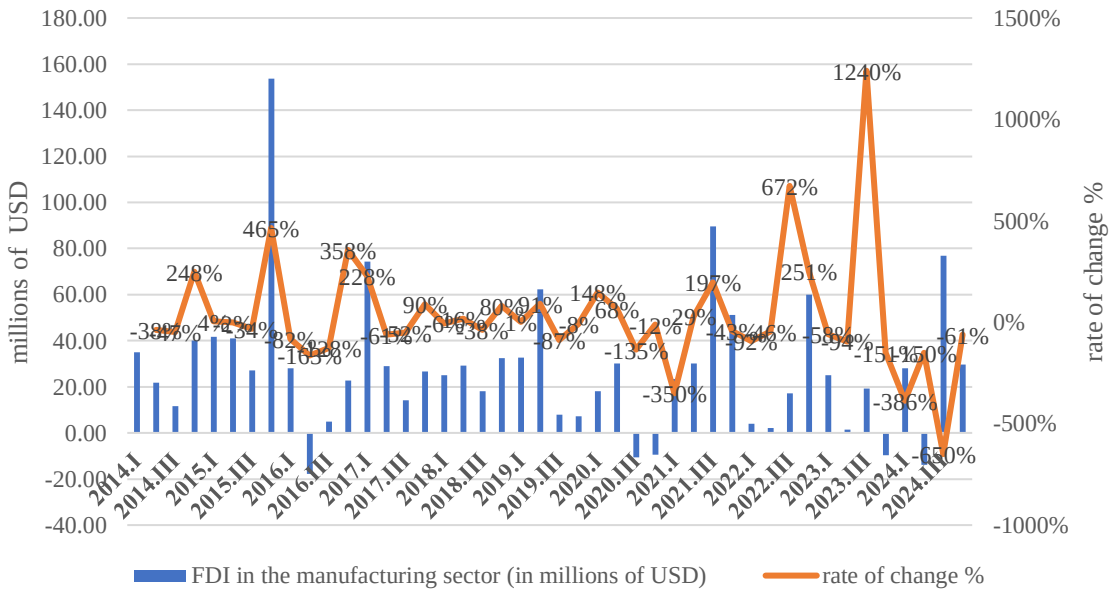
In this section, the proposed methodology was developed to verify the research, which is why FDI in the manufacturing sector during the period 2014-2024 was evaluated. Subsequently, the behavior of FDI, GFKF and manufacturing GVA was examined, as well as country risk. This allows us to identify the growth of the sector, and the influence of the macroeconomic environment on its performance.

4.1 Foreign Direct Investment (FDI) Flows

Figure 1 presents the results of the analysis of FDI in the manufacturing sector, as well as events of significant contraction, reflected in the quarterly percentage changes, the results of which are presented below.

Figure 1

FDI Flows From the Manufacturing Sector in Ecuador Period 2014-2024



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

In Ecuador, during Rafael Correa's administration (2014–2017), FDI in the manufacturing sector averaging $36.66 million, as shown in Annex B exhibited a favorable trend, reaching an inflow of $40.13 million in the fourth quarter, reflecting increased foreign capital investment in manufacturing activities. In 2015, FDI fluctuated during the first three months; still, in the fourth quarter, it rebounded to $153.77 million. During that year, the manufacturing industry was one of the main sectors receiving foreign capital (Banco Central del Ecuador, 2016).

In 2016, Ecuador experienced a sharp decline in investment flows influenced by the economic impact of the April earthquake, which increased uncertainty in the national productive sector. In 2017, investment rebounded strongly, driven by new foreign investment projects and policy changes under the government of Lenín Moreno, with an average of $21.08 million. Expectations of greater economic openness were high, as FDI growth was driven by the implementation of Presidential Decree 252, which establishes investment attraction as a state policy (Ajila, 2023).

In 2018, FDI in the manufacturing sector showed quarterly fluctuations, reflecting an unstable trend in foreign capital inflows. This performance is linked to the political transition and adjustments in the domestic economic environment. Later in 2019, a moderate recovery in investment flows to the sector was observed. During that year, manufacturing activity increased as it remained one of the main sectors attracting foreign capital, recording FDI inflows in several quarters and demonstrating its importance within the national productive structure (Banco Central del Ecuador (BCE), 2020).

Likewise, in 2020, investment experienced a sharp contraction, especially during the third quarter, as a result of the economic impact caused by the COVID-19 pandemic, which affected international trade, created difficulties in the supply of production inputs, and increased economic uncertainty factors that diminished foreign investors' interest in directing capital toward manufacturing activities (Economic Commission for Latin America and the Caribbean (ECLAC), 2020).

Subsequently, at the start of the third quarter of Guillermo Lasso's administration, with an average of $26 million, according to the calculations presented in Annex B, in 2021, a

significant recovery in investment is observed, with 350% growth in the first quarter, as a result of the economic recovery following the shock caused in 2020, thus ending the year with $194 million in 2021. In 2022, a 92% drop was observed at the start of the year due to nationwide protests and political uncertainty, marked by tensions between the government and the National Assembly, which heightened perceptions of instability and affected investor confidence. On the other hand, the final quarter saw a 251% recovery, driven by the implementation of productive projects, expansion in the manufacturing sector, investments in agribusiness, and the reinvestment of profits by foreign companies established in the country.

In 2023, FDI fell by 58% compared to the last quarter of the previous year; yet; the decline was particularly sharp due to the high level of political uncertainty throughout 2023, stemming from the crisis between the government and the National Assembly that culminated in the “mutual stalemate” declared by President Guillermo Lasso in May 2023. There was also a recovery, with foreign capital flowing in; in spite of this , a capital outflow of $9.7 million was recorded, reducing investments due to political and economic uncertainty.

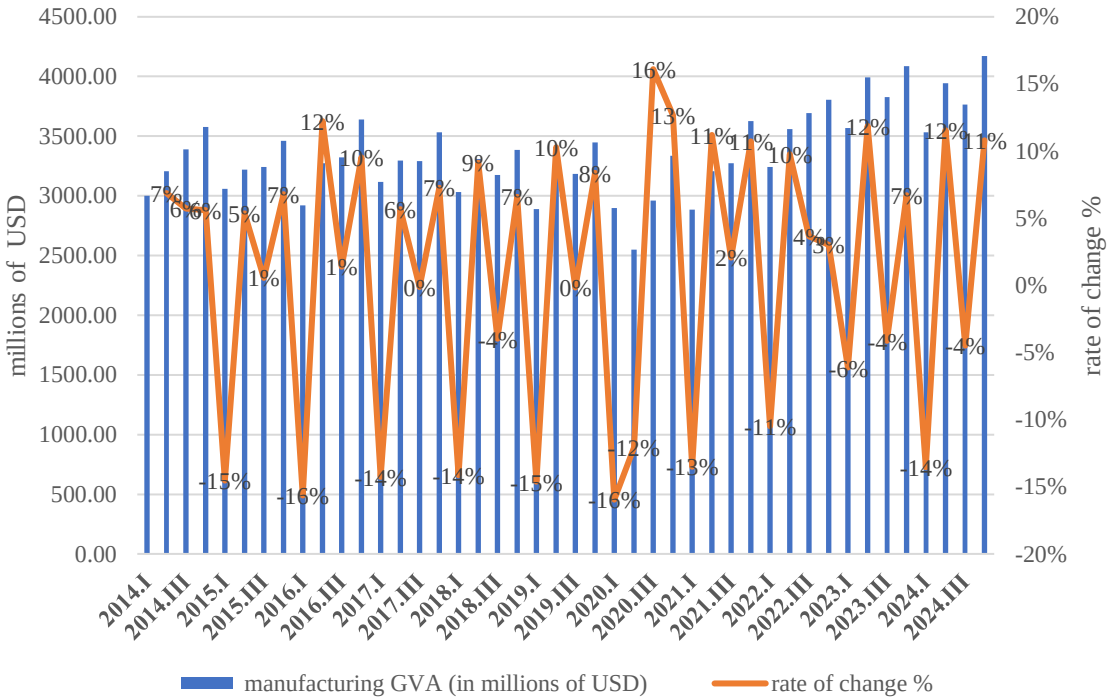
In 2024, with the inauguration of Daniel Noboa´s administration, foreign direct investment in the manufacturing sector averaging $30.1 million, as shown in Annex B exhibited fluctuations, reflecting an economic environment marked by domestic uncertainty and security challenges. Despite this context, the manufacturing sector attracted approximately $67.7 million in FDI, positioning itself as one of the main recipients of foreign capital in the country.

4.2 Gross Value Added (GVA)

As can be seen in Figure 2, the GVA of the manufacturing sector, and its quarterly rate of change. This variable allows analyzing the productive performance of the sector and its growth dynamics over time.

Figure 2

Gross Value Added (GVA) of the Manufacturing Sector Period 2014-2024



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

During Rafael Correa's administration (2014–2017), the manufacturing sector averaged $3.265 billion, as shown in Annex B, marking a period of productive stability; by contrast, in 2014 and 2015, the Ecuadorian economy faced a significant external shock due to falling oil prices and the appreciation of the dollar, which caused trade problems in Ecuador by reducing domestic liquidity and affecting the competitiveness of non-oil exports, negatively impacting the manufacturing sector (Organization for Economic Cooperation and Development (OCDE), 2020).

Subsequently, during the administration of Lenín Moreno (2017–2021), the average manufacturing GVA declined slightly to $3.141 billion, as detailed in Annex B. In the early years of the administration, an increase in production was observed, associated with improved international liquidity conditions and macroeconomic stabilization; nevertheless, the domestic context was marked by fiscal adjustments and a slowdown in private consumption, which affected economic activity. The critical point occurred in 2020 due to the COVID-19 pandemic, which caused supply chain disruptions, mobility restrictions, a drop in both domestic and foreign demand, as well as a partial halt in industrial activities,

affecting the manufacturing sector's productive capacity (Banco Central del Ecuador (BCE), 2020b). Nevertheless, in 2021, a gradual recovery began, driven by economic reopening, increased household consumption, and the normalization of productive activity.

Likewise, during Guillermo Lasso's administration (2022–2023), the manufacturing sector showed signs of recovery, averaging $3.667 billion, as shown in Annex B, driven by the post-pandemic recovery, domestic demand, and the normalization of industrial activity; nonetheless, factors such as global inflation, social protests, and political uncertainty limited the sector's further growth.

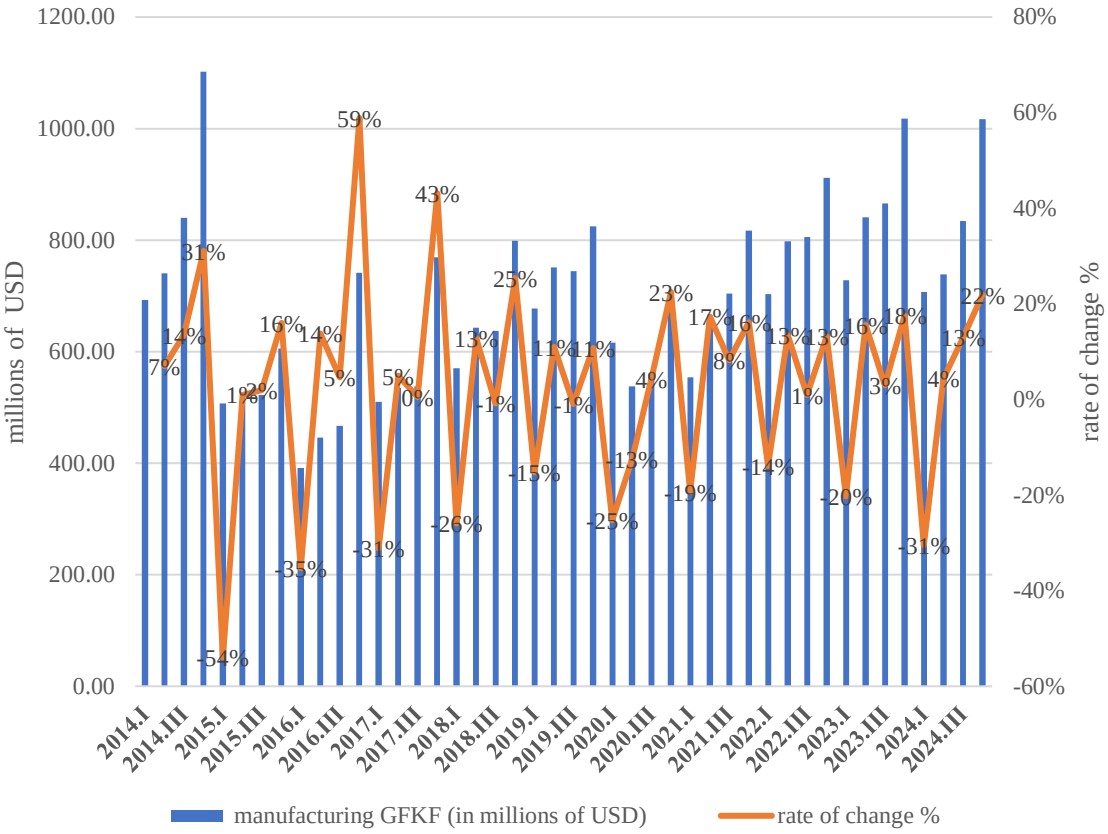
In 2024, at the start of Daniel Noboa's administration, manufacturing GVA reached an average of $3.852 billion, according to Annex B. This result demonstrates the sector's adaptability in the face of a national context in which Ecuador faced a crisis of security and instability that affected industries and led to reduced operations in companies. In this regard, although the political and social environment continues to pose a risk factor, the manufacturing sector maintained its adaptability and productive resilience (Banco Central del Ecuador (BCE), 2025a).

4.3 Gross Fixed Capital Formation (GFKF)

Figure 3 shows the gross fixed capital formation (GFKF) in the manufacturing sector, as well as its quarterly rate of change. The GFKF allows us to observe the level of real productive investment, business confidence, and the capacity for future growth.

Figure 3

Gross Fixed Capital Formation (GFKF) of the Manufacturing Sector Period 2014-2024



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

The FBKF has shown fluctuating trends over time. During Rafael Correa's administration (2014–2017), the GFKF averaged $615 million, as shown in Annex B, driven primarily by high levels of public investment and economic expansion. Even so, falling oil prices and fiscal constraints reduced investment (Anchundia et al., 2025).

During Lenín Moreno's administration (2017–2021), the GFKF averaged $659 million, as shown in Appendix B, exhibiting stable performance, influenced by fiscal adjustments, reduced dynamism in public investment, social unrest, and the severe economic impact of the COVID-19 pandemic in 2020, which led to a decline in productive investment.

Subsequently, during Guillermo Lasso's administration (2022–2023), the GFKF increased by an average of $819 million, as detailed in Annex B. This performance was driven by the post-pandemic economic recovery, the rebound in private investment, and the renewal of productive capital in the manufacturing sector. Similarly, in 2024, under the administration

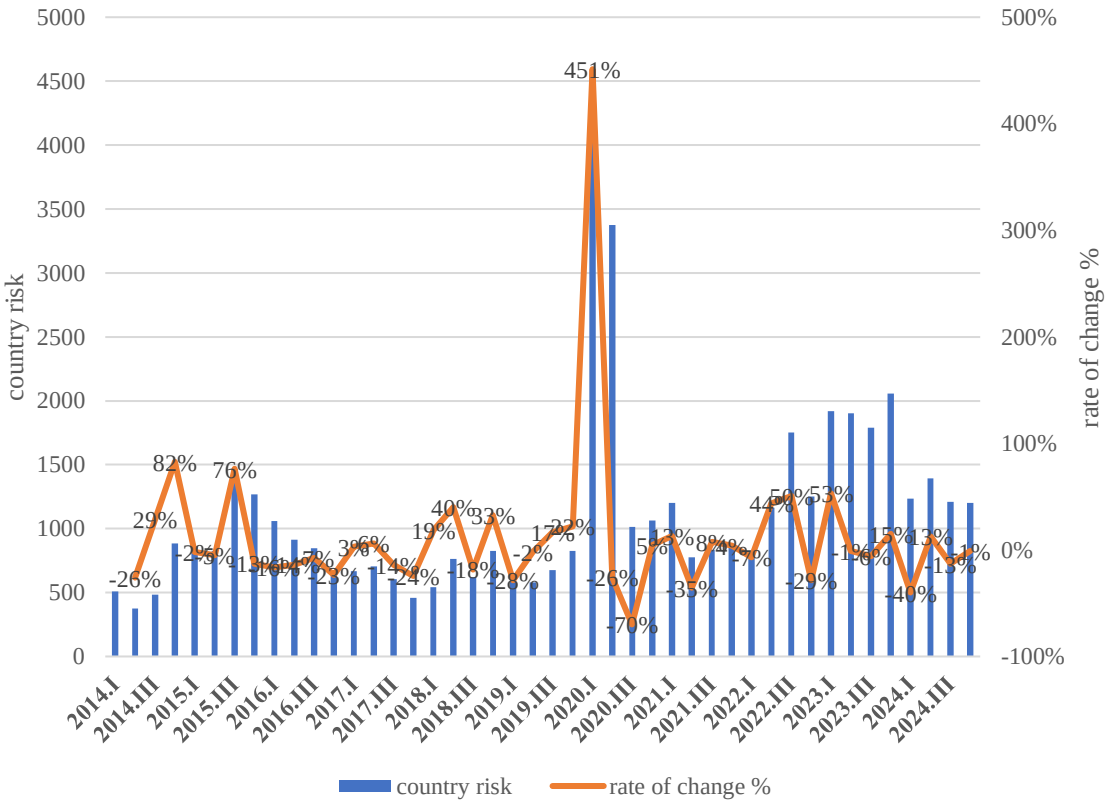
of Daniel Noboa, the FBKF recorded an average of $707 million, despite the context of insecurity and internal uncertainty, reflecting the manufacturing sector's ability to adapt to volatile environments (Banco Central del Ecuador (BCE), 2025b).

4.4 Country Risk

Figure 4 shows Ecuador's Country Risk (CR) for the periods 2014-2024, which reflects Ecuador's financial and political stability, influencing investment decisions, both foreign and domestic.

Figure 4

Country Risk in Ecuador Period 2014-2024



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

The chart shows the evolution of country risk, indicating that during Rafael Correa's administration (2014–2017), the indicator started at 508 points in 2014, reflecting a moderate perception of risk by international markets. On the contrary, starting in 2015, country risk showed an upward trend, ranging between 824 and 865 points and reaching 1,451 points in the third quarter. Subsequently, by 2017, the index fell to 459 points, driven by improved

economic expectations and the change in government under Lenín Moreno due to the economic measures he intended to implement.

The index's sensitivity to political decisions in 2018 was evident in the first quarter, when country risk reached 544 points. The response from international markets was immediate, as Viteri, while serving as finance minister in 2008, declared a partial default on the public debt, thereby causing the increase in country risk (Gómez, 2021). In 2019, Ecuador started off with relatively low figures, but the index skyrocketed due to the October national strike; the decline in oil production and the economic measures drove the index up to 826 points in the last quarter of the year.

In 2020, Ecuador was grappling with a political stability crisis stemming from Lenin Moreno's administration and the 2019 protests. Compounding this were two crises: an economic crisis and a health crisis caused by the COVID-19 pandemic. The most critical point came in the first quarter of 2020, when the index stood at 4,553 points, a 451% drop, just months after the lockdown began in Ecuador. That year saw two major events: the first was the pandemic, which caused a collapse in international markets and a plunge in commodity prices such as oil, whose value fell about $20 below what was projected in the national budget; the second event stemmed from the measures proposed by the government to combat the economic crisis (Gómez, 2021).

Starting in 2021, country risk remained at high levels, registering 1,201 points in the first quarter, reflecting the persistent economic uncertainty stemming from the COVID-19 pandemic. Still, in the second quarter, with 776 points, a 35% drop, there was an improvement in economic expectations following the presidential election of Guillermo Lasso; in the third and fourth quarters, a slight increase was observed due to external factors such as volatility in international markets and oil price trends.

In 2022, country risk exhibited volatile behavior but showed an upward trend, as evidenced by the 1,753-point reading in the third quarter. This increase was influenced by social protests and the national strike led by the Confederation of Indigenous Nationalities of Ecuador (CONAIE), which generated political and economic instability in the country.

Likewise, in 2023, the indicator remained at high levels, showing fluctuations throughout the year and linked to the deterioration of the domestic political landscape, rising insecurity, and state conflicts. By the fourth quarter, country risk rose to 2,055 points, driven by the uncertainty generated following Guillermo Lasso's declaration of a political stalemate and the early electoral process in Ecuador (Asociación de Bancos Privados del Ecuador, 2022).

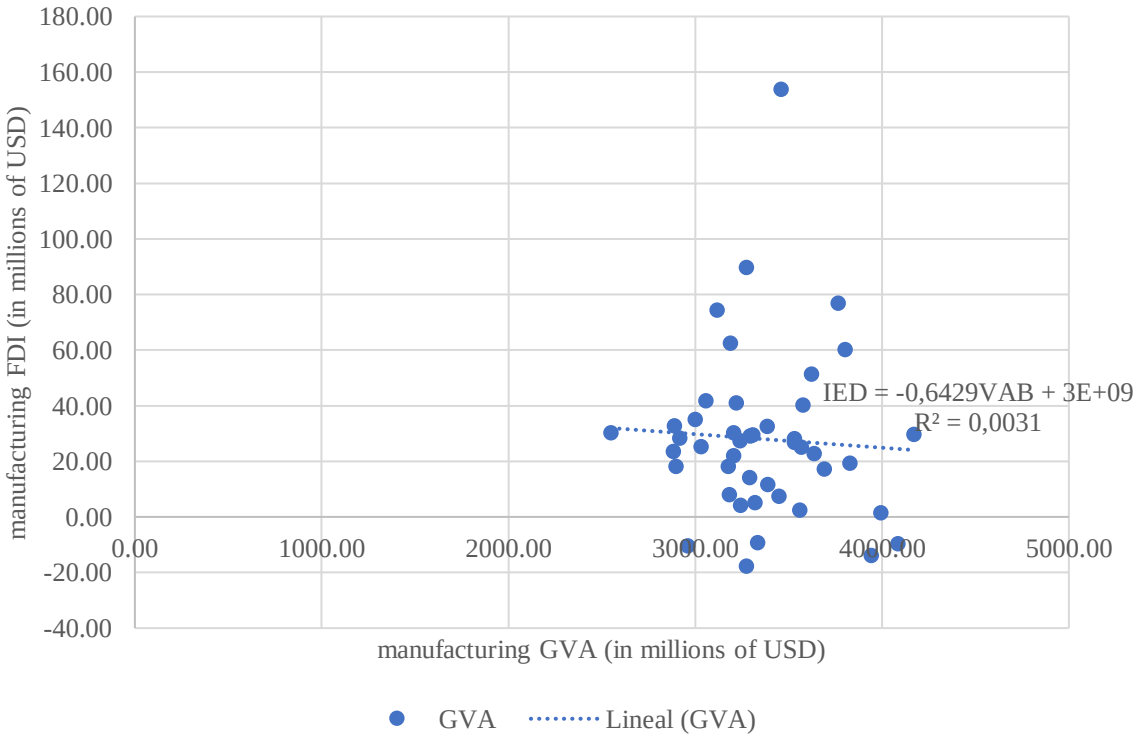
Subsequently, during 2024, the index showed a downward trend, reaching 1,200 points, associated with a moderate improvement in economic expectations, the implementation of fiscal and tax reforms, stabilization of the macroeconomic environment, internal armed conflict, and the social and economic crisis stemming from the Organic Law on Economic Efficiency (Banco Central del Ecuador (BCE), 2024).

4.5 Dispersion between FDI and GVA

Figure 5 shows the relationship between FDI and manufacturing GVA, examining whether there is a correlation between the variables.

Figure 5

Dispersion between FDI and Manufacturing GVA



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

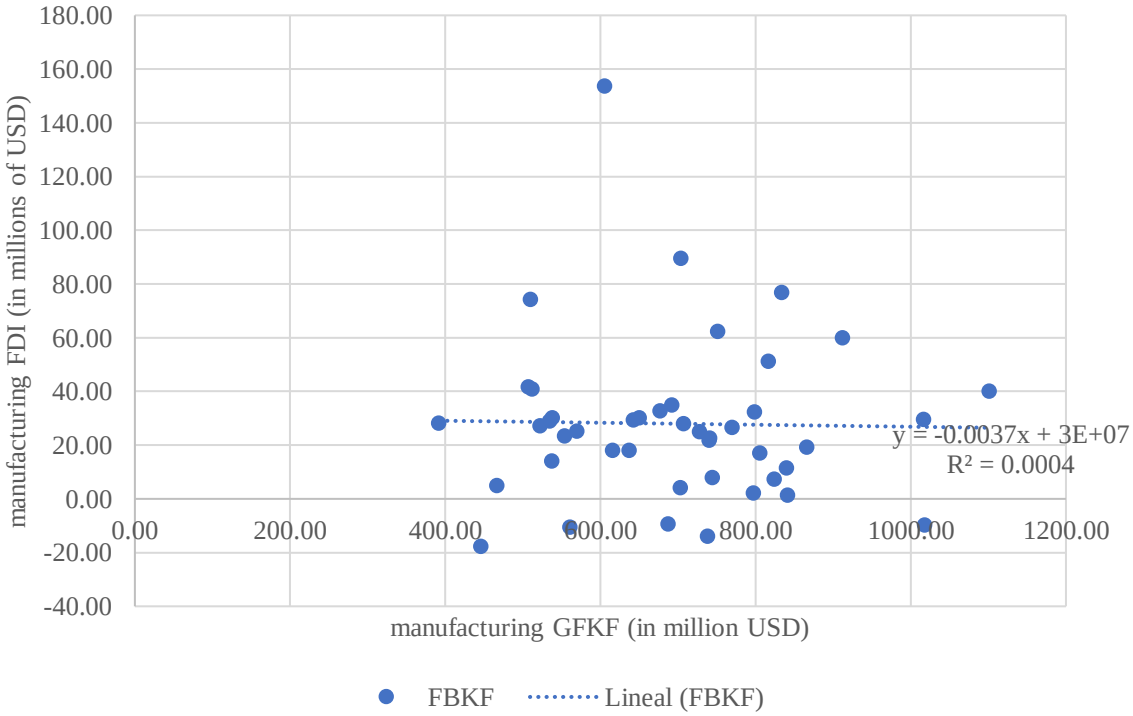
There is a high degree of dispersion, with no discernible pattern among the variables. The linear trend line has a negative slope, suggesting an inverse relationship between GVA and FDI. At the same time, the coefficient of determination $R^2 = 0.0031$ indicates that only 0.31% of the variation in FDI is explained by changes in GVA, suggesting that other more relevant factors such as macroeconomic stability, the institutional environment, or market conditions determine the behavior of the manufacturing sector.

4.6 Dispersion between FDI and GFKF

Figure 6 shows the dispersion between FDI and FBKF, demonstrating a negative relationship between the two variables.

Figure 6

Dispersion between FDI and Manufacturing GFKF



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

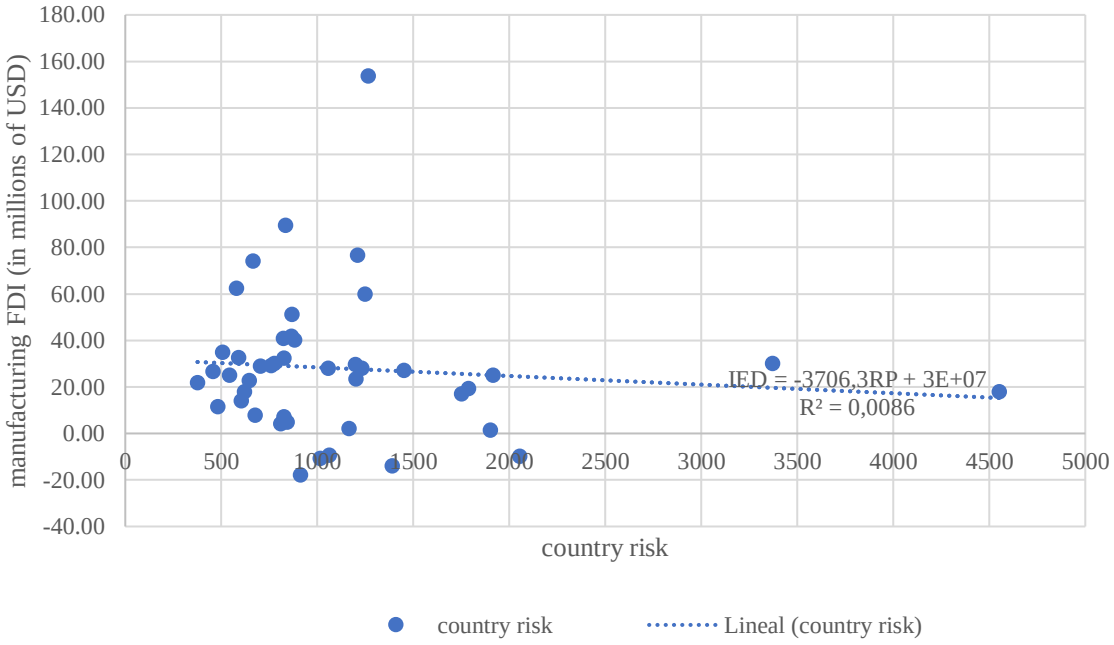
The scatter plot reflects a distribution of the data, with no clear pattern of a relationship between FBKF and FDI. The trend line has a slightly negative slope, indicating a very weak relationship. Even though this is the case, the coefficient of determination $R^2 = 0.0004$ indicates a very low explanatory power, showing that variations in the FBKF account for the low level of FDI. Consequently, it can be inferred that FDI is more strongly influenced by other structural factors, such as macroeconomic stability, country risk, and legal certainty.

4.7 Dispersion between FDI and Country Risk

Figure 7 shows the dispersion between FDI and country risk, which shows an inverse relationship between the two variables, which suggests that higher levels of risk discourage FDI.

Figure 7

Dispersion between FDI and Country Risk



Fuente: Basado en datos del Banco Central del Ecuador 2014-2024

The scatter plot shows a wide range of variation in the data, with no clear pattern between country risk and FDI. The trend line has a negative slope, suggesting an inverse relationship; that is, as country risk increases, FDI tends to decrease. In contrast, the coefficient of determination $R^2 = 0.0086$ has limited explanatory power, indicating that country risk, while it does influence investor perception, is not the sole determinant. Furthermore, as country risk increases, investors tend to refrain from investing, demonstrating that FDI does not depend solely on this factor, but rather on economic, political, and institutional factors.

4.8 Stationarity Test

Table 1 shows and determines the order of integration of the variables, where the Augmented Dickey Fuller test (ADF) was applied. This test will identify if the series are stationary in levels.

Table 1
Stationarity Test

Variable	ADF Statistic	p-value	Order of integration
FDI	-4.29	0.01	l(O)
GVA	-0.73	0.9597	l(1)
GFKF	-4.68	0.01	l(O)
Country Risk	-3.41	0.0678	l(1)

The results of the ADF test will show whether the time series exhibits stable behavior over time; meanwhile, a variable is considered stationary when the p-value is less than 0.05. The data show that FDI and FBKF are stationary in level, indicating that both variables fluctuate around a relatively constant mean over time, without showing any permanent trends of growth or decline. On the other hand, GVA and country risk do not exhibit stationarity in levels, as there is a trend over time. GVA indicates sustained economic growth, while country risk reflects structural changes in the country's economic and political stability.

4.9 Bounds Test

Table 2 shows the cointegration results (bounds test), which are used to determine whether there is a long-term relationship between the variables, analyzing if they move together over time.

Table 2
Cointegration (Bounds Test)

Statistic F	p-value	Conclusion
5.5544	0.0098	There is co-integration

The test results show an F-statistic of 5.5544 and a p-value of 0.0098. Since this value is significant, there is a long-term equilibrium relationship between FDI, GVA, FDI stock, and country risk. This means that, although there may be fluctuations in the short term, the variables tend to converge toward a stable relationship in the long term.

4.10 Error Correction Model (ECM)

Table 3 shows that, once cointegration was confirmed, an Error Correction Model (ECM) was estimated, enabling an analysis of short-term dynamics and long-term trends. This model will allow us to quantify the immediate impact of the determinants on FDI.

Table 3
Error Correction Model (ECM)

Variable	Coefficient	p-value
ECT (L(fdi,1))	-1.162	0.0000
L(gva,1)	0.0095	0.7008
L(gfkf,1)	-0.0434	0.4645
L(cr,1)	-13920	0.1451
ΔCR(-1)	19600	0.0403

$R^2 = 0.5847$
p-value = 0.0016
ECT: Error Correction Term → rate at which dependent variables return to their long-run equilibrium after a short-run shock.

The results of the Error Correction Model show a negative and statistically significant coefficient of -1.162 ($p < 0.01$), which is crucial because it indicates that the system corrects imbalances, thereby demonstrating that there is indeed a long-term relationship between FDI, GVA, the current account balance, and country risk. The negative sign meets the condition of convergence toward equilibrium, demonstrating that in the face of short-term deviations, the system corrects 116.2% of the imbalance in the following period and shows a rapid long-term adjustment.

With regard to the variables, the one-period lag of the GVA variable has a positive coefficient of 0.0095; nevertheless, it is not statistically significant ($p = 0.7008$), suggesting that the GVA from the previous period does not have a significant effect on the short-term dynamics of the dependent variable. Similarly, the one-period lag of the FBKF variable shows a negative coefficient of -0.0434 and is not significant ($p = 0.4645$), indicating that the lagged FBKF has no short-term impact. In the case of the one-period lag of the country risk variable, a negative coefficient of -13,920 is observed; even so, its significance level ($p = 0.1451$) prevents us from asserting a robust impact on the variable. In contrast, the variation in country risk in the previous period showed a positive coefficient of 19,600 and was statistically significant ($p = 0.0403$), indicating that changes in country risk during the period generate a positive effect on FDI in the short term.

The model shows that the coefficient of determination indicates that approximately 58.47% of the variation in FDI is explained by the variables GVA, FBKF, and country risk. This model demonstrates moderate explanatory power, which is consistent with macroeconomic models, indicating that multiple factors influence the behavior of the variables.

The short-term variables show fluctuations or different behaviors; all the same, in the long term, they have a stable relationship. In this sense, the variables do not evolve independently but are interrelated and tend to move together over time. From an economic perspective, this relationship is justified because FDI is influenced by key factors such as the level of economic activity (GVA), domestic investment (FBKF), and perceptions of country risk. Thus, greater economic growth or better investment conditions increase the inflow of foreign capital, while an increase in country risk can decrease it.

5. Discussion

The results show that FDI flows fluctuate over the period, reflecting their sensitivity to prevailing economic and financial conditions. This finding is consistent with Pérez y Alonso (2023), demonstrating that manufacturing FDI does exhibit significant fluctuations influenced by external factors such as oil prices, public policy decisions, and the COVID-19 health crisis.

Based on the estimated ECM model, a long-term equilibrium relationship is observed between the GVA, FBKF, and country risk variables, confirmed by the Bounds Test. The short-term analysis shows that country risk influences FDI, indicating that the short-term adjustment process is not immediate for all variables. These results support the findings of Bonilla et al. (2021), who agreed that FDI has a positive long-term effect on GVA and GFKF, while country risk constitutes a significant barrier to attracting FDI, highlighting issues of political stability, tax regulations, and economic uncertainty. This finding is consistent with that of Pérez y Alonso (2023), as FDI has a positive impact on GVA in the long term, highlighting the need to implement policies aimed at improving investment, strengthening legal certainty, and promoting trade liberalization, with the goal of enabling FDI to contribute to Ecuador's economic development.

This is consistent with the findings of authors such as Matute y Borja (2022), who agreed that country risk has a negative impact on FDI inflows, depending not only on economic variables but also on institutional factors. The bounds test similarly confirms the existence of cointegration among the variables analyzed. Similarly, Vásquez et al. (2024), found that FDI positively influences economic growth, as it affects the GFKF and trade openness, with a positive long-term relationship observed, although it is sensitive to external shocks. It was

identified that FDI is concentrated in extractive sectors, which has limited the capacity to generate diversified and sustainable economic growth.

The findings of this study are consistent with the World Bank´s (2025), findings, which indicate that trends in FDI flows are influenced by structural factors; this perspective aligns with the results obtained in this study, demonstrating that, in the short term, country risk exerts a significant influence on FDI, reflecting that investment decisions respond sensitively to changes in the perception of economic and political stability. Nonetheless, in this regard, the idea that attracting foreign capital depends not only on the productive dynamism of the manufacturing sector but also on a stable institutional environment that reduces uncertainty and strengthens investor confidence.

The results of this study are consistent with the findings of Vásquez et al. (2024), demonstrating through a VECM model a positive long-term relationship between FDI and economic growth, while also highlighting the importance of the GFKF as a component associated with the accumulation of productive capital. Similarly, this study confirms the existence of a long-term equilibrium link between FDI and manufacturing sector growth. That said, the results also show that this effect is conditioned by cyclical and structural factors such as perceptions of country risk and macroeconomic stability, confirming that FDI generates greater benefits when there is a solid institutional environment and adequate integration with the national productive structure.

This finding contrasts with that of ECLAC (2021), as it was shown that FDI alone does not guarantee sustained economic growth, because FDI must contribute to the country's economic growth. Even so, Alvarado et al. (2017), argued that FDI does generate benefits, but primarily in more developed economies, whereas in countries with low productive diversification its impact tends to be limited. This study found that in the case of Ecuador, FDI is concentrated in primary products particularly oil, bananas, shrimp, flowers, and cocoa meaning that a large portion of the country's revenue depends on natural resources or minimally processed goods.

Similarly, Agurto et al. (2018), highlights the existence of cointegration between FDI and economic growth in both the short and long term, indicating that they maintain a long-run equilibrium relationship. This finding is consistent with the results of the present study,

where the ARDL model and the ECM model also validate a long-term equilibrium relationship between FDI and the growth of the Ecuadorian manufacturing sector. By contrast, the main difference lies in the fact that the aforementioned study argues that FDI is not a direct determinant of economic growth at the global level, whereas in the Ecuadorian context, there is evidence of a significant impact of FDI on manufacturing production dynamics, suggesting that the impact of FDI may vary depending on the structural characteristics of each economy, its level of industrial development, and its internal macroeconomic conditions.

In summary, the findings of this analysis suggest that the relationship between FDI and its main determinants is stronger in the long run than in the short run, as over time these variables tend to converge toward a common trajectory, with FDI being determined by structural macroeconomic events. At the same time, in the short term, the effects are more limited, meaning that adjustments in FDI are not immediate in response to changes in the variables. In this regard, the results identify factors that influence the attraction of FDI. Therefore, this analysis not only supports the findings of the literature but also provides evidence on the behavior of FDI in developing economies, highlighting both long-term structural factors and short-term dynamics as key to attracting investment.

6. Conclusions

By analyzing FDI flows, the relationship between FDI and the growth of Ecuador's manufacturing sector was examined, allowing for an identification of its evolution and performance during the 2014-2024 period and highlighting its role within the national productive structure. Similarly, it is concluded that FDI has a significant impact on the growth of the manufacturing sector by promoting productive investment, strengthening industrial competitiveness, and contributing to the country's economic development. It was also evident that the evolution of FDI during the 2014-2024 period has been volatile, with growth occurring as projects were launched to attract investment and generate employment; still, there was also a decline due to political instability that has generated uncertainty, as in 2016, 2020, and 2024, particularly due to the COVID-19 pandemic.

Regarding the performance of manufacturing GVA, a cyclical pattern emerged, characterized by cycles of expansion, contraction, and recovery. In this regard, the drop in oil prices in early 2014 limited its growth, and the 2020 pandemic caused a contraction due

to the shutdown of production activities. This behavior demonstrates the manufacturing sector's sensitivity to external shocks within the national and international economic context. Regarding the FBKF, its evolution during the analyzed period highlights its role as an essential component for boosting productive activity in the manufacturing sector. Regardless, its impact is limited in contexts of economic contraction, such as during the pandemic, as well as due to the decline in oil revenues and the implementation of fiscal restrictions factors that reduced public investment and limited industrial expansion. Despite this, the FBKF has established itself as a structural determinant of growth, given its relationship with capital accumulation and the development of productive infrastructure.

On the other hand, when assessing the impact of FDI on manufacturing sector growth, country risk has a significant effect on investment dynamics and manufacturing sector growth, as high levels of country risk create uncertainty among investors and discourage the inflow of foreign capital, thereby reducing financing options. Thus, an increase in country risk is linked to negative effects on FDI and on the performance of the manufacturing sector.

Through econometric analysis, the existence of a positive long-term equilibrium relationship between FDI, GVA, GFKF, and the country risk indicator was validated using cointegration tests. In turn, the Autoregressive Distributed Lags (ARDL) model and the Bounds Test confirmed the existence of cointegration among the variables, indicating a long-term relationship. This demonstrated that, in the short term, country risk is significant, as variations in risk affect FDI, and investors evaluate the stability of the environment when making investment decisions.

7. References

Acs, Z., & Sanders, M. (2021). Endogenous Growth Theory and Regional Extensions. In *Handbook of Regional Science: Second and Extended Edition: With 238 Figures and 78 Tables* (pp. 615–634). Scopus. https://doi.org/10.1007/978-3-662-60723-7_13

Aguirre, D., Caizapasto, P., & Cadena, O. (2023). Trends in Foreign Direct Investment: A Study of Ecuador´s Manufacturing Sector During the Period 2010-2020. *593 Digital Publisher CEIT*, *8*(1–1), 240–253. https://doi.org/10.33386/593dp.2023.1-1.1120

Agurto, A., Castro, A., & Cartuche, I. (2018). The Relationship Between Foreign Direct Investment and Global Economic Growth: Panel Data.

Ajila, J. M. V. (2023). Foreign Direct Investment and Employment in Ecuador´s Agricultural, Industrial, and Service Sectors, period 2014 – 2021. *2023*.

Alvarado, R., Iñiguez, M., & Ponce, P. (2017). Foreign direct investment and economic growth in Latin America,. *2017*, *56*, 176–187. https://doi.org/https://doi.org/10.1016/j.eap.2017.09.006

Anaya, Á. J. (2022). Foreign Direct Investment and Economic Growth: Evidence from Latin America 1980-2010. Caribbean Economic Review, (10), 36–64. https://doi.org/10.14482/ecoca.10.006.899

Anchundia, H. I., Mejía, M. S., Chang, F. S., Núñez, E. J., & Suárez, S. S. (2025). Correlational Analysis of Gross Fixed Capital Formation in Ecuador: Public or Private Investment. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades*, *6*(3). https://doi.org/10.56712/latam.v6i3.4165

Armijos, A. C., Sagbay, D. E., Freire, M., & Freire, A. I. (2022). A Statistical Econometric Analysis of the Relationship Between the Manufacturing Sector, Gross Fixed Capital Formation, and Ecuador´s Gross Domestic Product (1970-2015). *UDA AKADEM*, (9), 44–77. https://doi.org/10.33324/udaakadem.v1i9.477

Asociación de Bancos Privados del Ecuador. (2022). Macroeconomic Bulletin. https://asobanca.org.ec/wp-content/uploads/2022/10/Boletin-Macroeconomico-Octubre-2022-1.pdf

Azolibe, C. B. (2021). Does foreign direct investment influence manufacturing sector growth in the Middle East and North African region? *International Trade, Politics and Development*, *5*(1), 71–85. https://doi.org/10.1108/ITPD-04-2020-0010

Banco Central del Ecuador (BCE). (2016, March 31). The current account balance for 2015 shows a wider deficit, driven primarily by the drop in oil prices. https://www.bce.fin.ec/el-resultado-de-la-cuenta-corriente-para-2015-refleja-un-mayor-deficit-determinado-principalmente-por-la-caida-de-los-precios-del-petroleo/?TSPD_101_R0=084bf782c7ab2000566240d601f557a9244399d1b6168558b72d22ce7c7987073257a45f32e8929b08edf4c7601430002614a1aa6fc722c70dd3420d56cce0023ea4d2d6891210b8916293e5846f7b1eb4c1d3ee5fb276858423e85a0f587df1

Banco Central del Ecuador (BCE). (2020a). The Ecuadorian economy grew by 0.1% in 2019. https://www.bce.fin.ec/la-economia-ecuatoriana-crecio-01-en-2019/?utm_source

Banco Central del Ecuador (BCE). (2020b, June 2). COVID-19 is taking a toll on the Ecuadorian economy: it is expected to contract by between 7.3% and 9.6% in 2020. https://www.bce.fin.ec/el-covid-19-pasa-factura-a-la-economia-ecuatoriana-decrecera-entre-7-3-y-9-6-en 2020/?TSPD_101_R0=084bf782c7ab2000dda39b440c593d1bff752949aaaafc60afb0e483b2bbcd5912f76f47e8670ce0088fd8c22e143000eacecae704d0b9093867ffccb235e05d9782cb610097d541c29004b074e53f35468e74f697862ef4d40d1513e342d9e5

Banco Central del Ecuador (BCE). (2021). Gross fixed capital formation *2007 – 2019p*. https://contenido.bce.fin.ec/documentos/publicacionesnotas/catalogo/cuentasnacionales/anuales/dolares/FBKFvd.pdf

Banco Central del Ecuador (BCE). (2024). *Mornitoring of key international indicators*. https://contenido.bce.fin.ec/documentos/informacioneconomica/SectorExterno/ix_SegmentoInternacional.html#

Banco Central del Ecuador (BCE). (2025a). *Quarterly National Accounts Results Report* https://contenido.bce.fin.ec/documentos/informacioneconomica/cuentasnacionales/trimestrales/Informe_CNTIVTrim2024.pdf

Banco Central del Ecuador (BCE). (2025b, March 15). The Ecuadorian economy reported an annual contraction of 2.0% in 2024. https://www.bce.fin.ec/la-economia-ecuatoriana-reporto-una-contraccion-anual-de-20-en-2024/?TSPD_101_R0=084bf782c7ab200052d1596ec4937f26a5dd84593c06adc62dfd9f88a732165e0aecdadbcb7707e908f487299d1430001522086cf7a4b12f5ec51500b7e92bf20a69a9cb3348b3323a855415c7ef913c6760d871630cdbfb0cf36eb4454a4cb8

Banco Mundial. (2025). *Global Economic Prospects, June 2025*. World Bank, Washington DC. https://doi.org/10.1596/978-1-4648-2193-6

Bonilla, S., Viera, J., & Caicedo, F. (2021). Foreign Direct Investment: Factors Contributing to Development and Economic Growth in the Industrial Sector. *593 Digital Publisher CEIT*, *6*(6–1), 298–310. https://doi.org/10.33386/593dp.2021.6-1.729

Calderón, M. N., Calle, R. B., & Moncayo, J. H. (2018). Foreign Direct Investment in the Manufacturing and Industrial Sectors in Latin America. *Polo del Conocimiento*, *3*(9), 100. https://doi.org/10.23857/pc.v3i9.714

Camacho, F. R., & Bajaña, Y. S. (2020). Impact of foreign direct investment on economic growth: comparative analysis in Ecuador, Peru and Colombia 1996-2016. *International Journal of Economics and Financial Issues*, *10*(4), 247–257. https://doi.org/10.32479/ijefi.9937

Cárdenas, D. A., Loor, A. O., Vargas, M. E., Chango, J. G., & Merino, A. E. (2025). The Role of Foreign Direct Investment in Economic Growth in Ecuador. *Ciencia Latina Revista Científica Multidisciplinar"*, *9*(5), 7874–7890. https://doi.org/10.37811/cl_rcm.v9i5.20125

Castillo, E. E., González, M. G., Universidad Nacional de Chimborazo. Ecuador, Universidad Nacional de Chimborazo. Ecuador, Zurita, E. G., & Universidad Nacional de Chimborazo. Ecuador. (2020). Determinants of Foreign Direct Investment in Latin America (2000 – 2017). *Espacios*, *41*(50), 299–315. https://doi.org/10.48082/espacios-a20v41n50p21

Cedeño, O. A., & Mendoza, Á. E. (2020). *Impact of the Country Risk Index on Foreign Direct Investment in Ecuador 2016-2018*. *5*(03). https://www.polodelconocimiento.com/

Economic Commission for Latin America and the Caribbean (ECLAC). (2020). *Foreign Direct Investment in Latin America and the Caribbean 2020*. https://repositorio.cepal.org/server/api/core/bitstreams/ad93baee-b904-45d4-ab4e-d778d3934fa2/content

Economic Commission for Latin America and the Caribbean (ECLAC). (2021). *Foreign Direct Investment in Latin America and the Caribbean* 2021. *2021*.

United Nations Conference on Trade and Development (UNCTAD) (Ed.). (2022). *International tax reforms and sustainable investment*. United Nations. https://investmentpolicy.unctad.org/publications/1263/world-investment-report-2022-international-tax-reforms-and-sustainable-investment

Dans, N. (2012). Country Risk in Foreign Direct Investment: Concept and Types of Risk. Concepto y modalidades de riesgo. *Papeles de Europa*, *25*, 109–129. https://doi.org/10.5209/rev_PADE.2012.n25.41100

Doytch, N., & Uctum, M. (2011). Does the worldwide shift of FDI from manufacturing to services accelerate economic growth? A GMM estimation study. *Journal of International Money and Finance*, *30*(3), 410–427. Scopus. https://doi.org/10.1016/j.jimonfin.2011.01.001

Espín, J. A., Córdova, A. C., & López, G. E. (2016). Foreign Direct Investment: Its Impact on Ecuador´s Employment Rate. *Retos*, *6*(12), 215. https://doi.org/10.17163/ret.n12.2016.06

Gómez, L. (2021). *Country risk as a barometer of government decisions*. https://www.gastopublico.org/informes-del-observatorio/el-riesgo-pais-como-barometro-de-las-decisiones-del-gobierno

Goss, E., Wingender, J. R., & Torau, M. (2007). The contribution of foreign capital to U.S. productivity growth. *Quarterly Review of Economics and Finance*, *47*(3), 383–396. Scopus. https://doi.org/10.1016/j.qref.2006.09.001

Guadamud, M. F. A., & Pinargote, B. V. M. (2024). *Analysis of Foreign Direct Investment and Its Impact on Ecuador´s Economy, año 2022.* https://dspace.ups.edu.ec/bitstream/123456789/27527/1/UPS-GT005013.pdf

Landa, H. Ó., Cerezo, V., & Perrotini, I. (2020). The structural vulnerability of the Mexican economy in the face of the crisis caused by the COVID-19 pandemic. *Contaduría y Administración*, *65*(5), 208. https://doi.org/10.22201/fca.24488410e.2020.3026

López, A., & García, P. M. (2020). *Foreign Direct Investment: Definitions, Determinants, Impacts, and Public Policy*. Inter-American Development Bank. https://doi.org/10.18235/0002601

Matute, J. B., & Borja, M. E. (2022). Crime and Its Impact on Foreign Direct Investment in Ecuador, *periodo 2001-2021*.

Mesa, R. J., Villar, C., & Pla-Barber, J. (2021). Spillovers from Foreign Direct Investment and Their Impact on Exports: An Empirical Application in an Emerging Market. *El Trimestre Económico*, *88*(350), 455–482. https://doi.org/10.20430/ete.v88i350.862

Ochoa, D., Armas, R., & Pereira, C. (2022). Manufacturing and Economic Growth in Ecuador from a Regional Perspective. Un modelo de panel dinámico, 2007 -2020. *Revista Vista Económica*, *10*(1), 31–44. https://doi.org/10.54753/rve.v10i1.1290

Orellana, I., Pinos, L., Tonon, L., Reyes, M., & Cevallos, E. (2020). Analysis of Business Closures in Ecuador´s Manufacturing Sector, periodo 1901—2018. *Ecos de Economía*, *24*(50), 45–79. https://doi.org/10.17230/ecos.2020.50.3

Organisation for Economic Co-operation and Development (OECD). (2020). *The Macroeconomic Impact of COVID-19 in Ecuador: Desafíos y respuestas*. *5*. https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/05/impacto-macroeconomico-del-covid-19-en-ecuador_2c77995c/b4575bff-en.pdf

Organisation for Economic Co-operation and Development (OECD). (2011). *OCDE Definition of the Foreign Direct Investment Framework: Cuarta edición*. OECD. https://doi.org/10.1787/9789264094475-es

Organization for Economic Cooperation and Development (OECD). (2021). The Impact of Regulation on International Investment in Finland. OECD Publishing. https://doi.org/10.1787/b1bf8bee-en

Organization for Economic Cooperation and Development (OECD). (2025). Assessing the Socioeconomic Impact of Foreign Direct Investment in Latin America and the Caribbean: A focus on EU investments. OECD Publishing. https://doi.org/10.1787/13c7d291-es

Pérez, E. J., & Alonso, J. (2023). The Impact of Foreign Direct Investment on the Gross Value Added of Manufacturing Firms. *Pacha. Revista de Estudios Contemporáneos del Sur Global*, *4*(12), e230213. https://doi.org/10.46652/pacha.v4i12.213

Rangel, E., & López, L. F. (2022). Foreign Direct Investment and labor productivity in the regional manufacturing industry. *EconoQuantum*, 20–52. https://doi.org/10.18381/eq.v19i1.7252

Sahoo, P. (2012). Foreign direct investment in India: Unfinished agenda. In *Economic Reform Processes in South Asia: Toward Policy Efficiency* (pp. 109–135). Scopus. https://doi.org/10.4324/9780203117644-13

Salazar, J. M., Vásquez, J. M., Vargas, M. L., & Shaw, S. (2025). *Foreign Direct Investment in Latin America and the Caribbean, 2025*. https://www.cepal.org/es/publicaciones/82116-la-inversion-extranjera-directa-america-latina-caribe-2025

Saucedo, E., Ozuna, T., & Zamora, H. (2020). The effect of FDI on low and high-skilled employment and wages in Mexico: A study for the manufacturing and service sectors. *Journal for Labour Market Research*, *54*(1), 9. https://doi.org/10.1186/s12651-020-00273-x

Savvides, A., & Zachariadis, M. (2005). International Technology Diffusion and the Growth of TFP in the Manufacturing Sector of Developing Economies. *Review of Development Economics*, *9*(4), 482–501. https://doi.org/10.1111/j.1467-9361.2005.00289.x

Tinoco, M., & Guzmán, L. (2019). Regional Factors Attracting Foreign Direct Investment in Mexico, *35*(88), 89–119. https://doi.org/10.24275/uam/azc/dcsh/ae/2020v35n88/Tinoco

Vásquez, M. F., Gonzabay, L. A., Vicuña, T. A., & Coello, G. O. (2024). Foreign Direct Investment on Economic Growth in Ecuador: Una Revisión Sistemática. *Reincisol.*, *3*(5), 767–792. https://doi.org/10.59282/reincisol.V3(5)767-792

Vela, G. A. (2015). Impact of Foreign Direct Investment on the Human Development Index. *25 de Agosto de 2015*. https://repositorio.usfq.edu.ec/bitstream/23000/4832/1/120968.pdf

Villagómez, L. C., Aldás, F. K., & Nuñez, S. A. (2024). The Influence of Foreign Investment on Ecuador´s Economic Growth. *Polo del Conocimiento*, *9*(12), 669–684. https://doi.org/10.23857/pc.v9i12.8505

8. Appendices

Appendix A

FDI Correlation between GVA, GFKF and Country Risk

	FDI
FDI	1
Manufacturing GVA	-0,05605287
Manufacturing GFKF	-0,019327228
Country Risk	-0,092899348

Appendix B

Calculations of Average Values for Variables by Administration in Ecuador, 2014-2024

Cálculo trimestral de promedios de las variables 2014-2024				
	FDI	**GVA**	**GFKF**	**Country Risk**
2014T1-2017T2	$36.663.269	$3.265.456.779	$615.033.348	821
2017T3-2021T2	$21.086.338	$3.141.519.233	$659.869.576	1155
2021T3-2023T4	$26.000.009	$3.667.464.899	$819.112.617	1435
2024T1	$30.103.016	$3.852.595.657	$707.135.504	1259