

Scientific
Journal of
**Applied
Social and
Clinical
Science**

**CORRELATION
BETWEEN THE
INDEX OF ECONOMIC
FREEDOM AND
FOREIGN DIRECT
INVESTMENT IN 174
COUNTRIES**

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Abstract: The research objective was to correlate the Economic Freedom Index (ILE) and Foreign Direct Investment (FDI), the methodology was descriptive and correlational. The hypothesis was that the increase in (ILE) increases (IED). The results conclude: a) Both variables have positive asymmetry (figure 3), (figure 4), (figure 5), (figure 6). b) The Pareto Analysis (table 2) shows that 80% of the world's FDI; It is maintained in 27 countries, of which 18 have an ILE greater than 50% and represent 39% of the world's FDI and 9 have an ILE between 40% and 49%, and represent 41% of the world's FDI, integrated mainly by China, Brazil and India. c) The correlation analysis shows that 100 countries have a positive coefficient (+) and 76 countries a negative coefficient (-), therefore the hypothesis is partially accepted because there are countries like China, Brazil and India that attract FDI with an index of freedom economic less than 50%. The conclusion is that for a country to be attractive to FDI, managers must implement a process of economic freedoms that leads them to exceed the rate of at least 50% or more.

Keywords: (JEL): Austrian B25; C25 Proportions; E22 Investment; F21 International Investment; G11 Investment Decisions; D82 Asymmetric and private information

INTRODUCTION

Research is important because it allows you to meet government managers, business managers and investors; the importance of implementing a process of economic freedoms in the long term in order to attract investment. What is economic freedom? Economic freedom is the fundamental right of every human being to control their own work and property. What does Foreign Direct Investment mean? Direct investment is a category of cross-border investment made

by a resident of one economy (the direct investor) with the aim of establishing a lasting interest in an enterprise (the direct investment enterprise) resident in a different economy from that of the direct investor. The research answers the question: What is the minimum value of economic freedom to be attractive to investment?

The objective of the research was to establish the relationship between the Economic Freedom Index, which is made up of 12 freedoms: commercial freedom, tax burden, property rights, monetary freedom, labor freedom, judicial effectiveness, investment freedom, government spending, integrity government, fiscal health, financial freedom, business freedom and Foreign Direct Investment (FDI).

The proposed hypothesis is that the higher the Economic Freedom Index, the greater the FDI. The data of the results (figure 7), (table 3) conclude that: there are 100 countries out of 174 that have a positive correlation (+) that is to say that an increase in the ILE produces an increase in FDI. On the other hand, in 76 countries the correlation is negative (-), that is to say that an increase in the ILE does not generate changes or decreases FDI.

Pareto's 80-20 analysis (table 2) shows that 80% of FDI remains in 27 countries and 20% in 145 countries. If it is related to the economic freedom index, 46% of the 100% of the FDI of the 218 countries is located in countries that have an EFL greater than 50% and 54% of the world's FDI moves in countries that have an index of economic freedom between 0% and 49%, but mainly 62% of the 54% is made up of China, Brazil and India.

Honduras is a developing country, knowing that 46% of the world's FDI is established in countries with an ILE greater than 50%, and reviewing (table 1), we realize that Honduras only manages two freedoms : Government Expenditure +0.37 and Commercial

Freedom +0.58, there are 10 freedoms that the correlation is negative between ILE and FDI and therefore it is necessary to allocate resources to manage these economic freedoms until achieving a minimum qualification or more than 50% in ILE to be more attractive to Investment.

THEORETICAL FRAMEWORK

ECONOMIC FREEDOM INDEX

In the first place, Muñoz et als (2020) In this work, an analysis of the Economic Freedom index has been presented, in which it can be evidenced with the data, that the countries with greater freedom have better economic performance and social conditions than those with lower degrees of freedom, taking into account that this is a fundamental element of life that transcends the market, generating greater well-being for more people and companies in the world.

On the contrary Yangins & Deprens (2021) Similar to studies in the literature, it is revealed that the Tax Burden, Government integrity and government spending are the most crucial factors that have a significant impact on the perception of corruption in this study.

Likewise Guallpa & Urbina (2022) The results of this study are relevant for control agencies, where it is important to recognize economic freedom as a strategic element in the revitalization of the economy; thereby contributing to sustainable development. In this context, the government can contribute to the definition of regulations for the financial sector that allow influencing efficiency, intermediation fees, labor reforms, among others, that ensure stability and promote access to credit and savings.

From the perspective of Zambrano&Rodríguez (2022) This indicator, being equal weighted and multivariate, is viable to add others that affect the search for development through the expansion of

the freedoms that people pursue, since by incorporating other related components to the human being and knowing the obstacles that limit people, as stated by Sen (2000), the social, economic conditions and now those related to good living could be generated, adequate to allow the individual the ability to develop, therefore that of homes and consequently cities, as these are the base of society.

FOREIGN DIRECT INVESTMENT

Now, Gligo S (2007) explains: Countries must evaluate their own competencies and advantages and, based on them, realistically outline the appropriate strategies to attract investment. To do this, among other elements, technical and evaluation capacities must be developed to design effective promotion activities, incentive allocation processes that ensure that the benefits of the projects will be greater than their costs, and identification of projects and companies. that contribute positively to the development strategies of the country.

However, for Torres, Polanco & Tinoco (2017) it seems clear that the reforms and the derived economic policy that promotes the attraction of foreign investment must be accompanied not only by a sectoral vision but also by a regional one that promotes the creation of incentives and conditions to motivate the localization of foreign investment in regions with limitations to capture it, with the aim of slowing down the process of divergence in attracting foreign investment and promoting less unequal regional economic progress.

On the other hand, for Leiva, Rodríguez & Monge (2017) On the other hand, currently many nations have applied a strategy of attracting foreign investment, via the installation of MNEs, in which, in addition to certain tangible benefits (i.e. job creation), It is expected that there will be a transfer and spillover of knowledge from said MNEs to the local business sector.

Country	Property rights	Judicial effectiveness	Government Integrity	Tax Burden	Government spending	Fiscal Health
Honduras	-0.47	-0.43	-0.05	-0.53	0.37	-0.62
	Business Freedom	Labor Freedom	Monetary Freedom	Commercial Freedom	Investment freedom	Financial Freedom
Honduras	-0.54	-0.46	-0.45	0.58	-0.53	-0.52

Table 1: Correlation between ILE and FDI from 2013 to 2022 in Honduras

Source 1: Own elaboration year 2023, World Bank database and <https://www.heritage.org/index/>

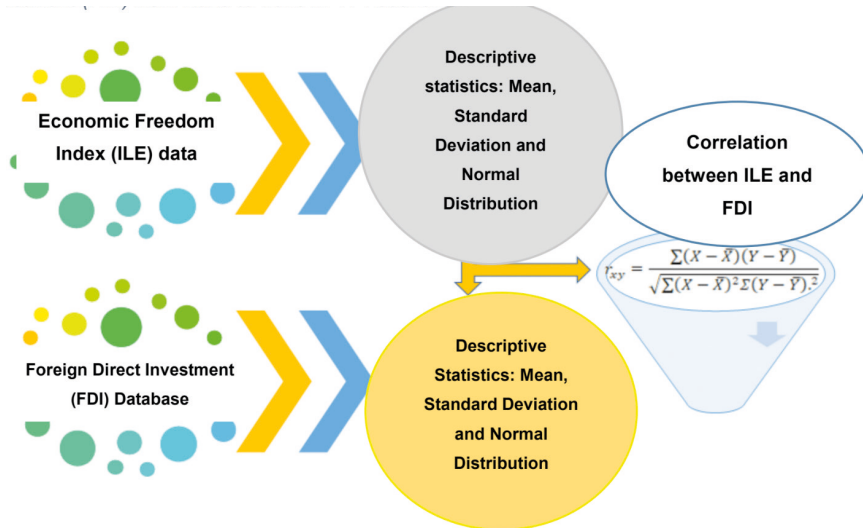


Figure 1: Binary research model Index of Economic Freedom (ILE) and Foreign Direct Investment (FDI) from 2023 to 2019 in 174 countries

Source 2: Own elaboration 2023, World Bank database, <https://www.heritage.org/index/download#>

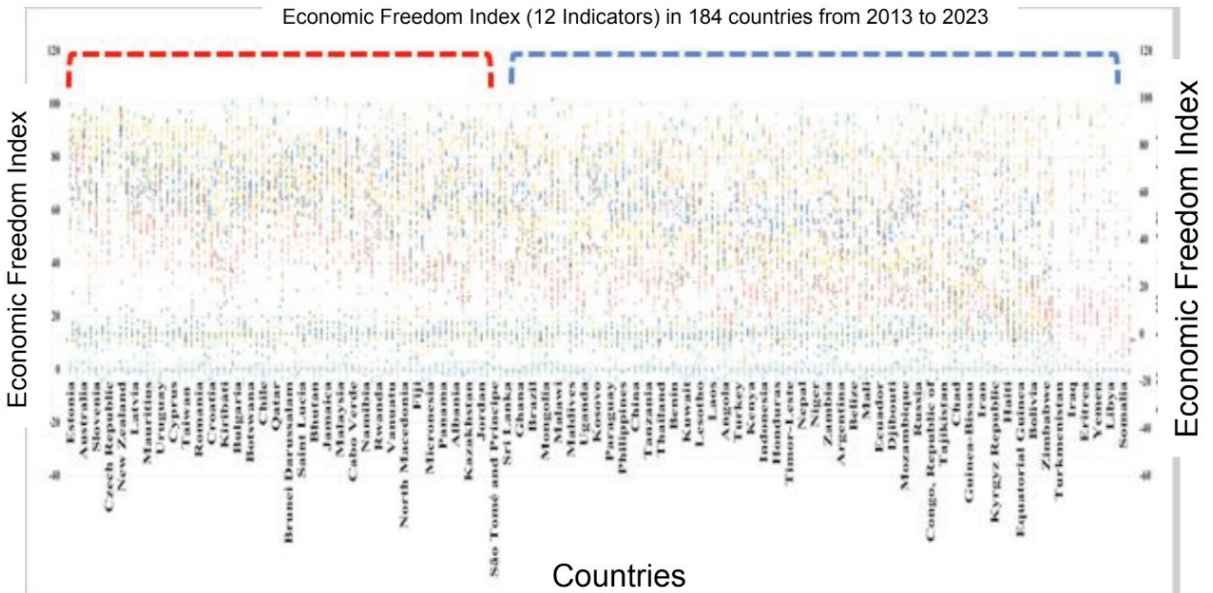


Figure 2: Descriptive graph of the Index of Economic Freedom, from 2013 to 2023 in 174 countries

Source 3: Own elaboration, database <https://www.heritage.org/index/>

Consequently, for Torres, Gaytán & Tinoco (2017) Framed in the national economic policy, the federal entities in Mexico have been involved in a national competition to attract the largest number of foreign investment flows, with diverse results. In this sense, some entities have been more successful than others; Such is the case of Mexico City and Nuevo León, which concentrate approximately 60% of direct investment accumulated in recent years. In turn, some entities such as Chiapas, Oaxaca, Tabasco, Nayarit and particularly Zacatecas have made important efforts that have translated into an increase in their capacity to attract FDI.

From the vision of Velázquez, Vázquez & Morales (2017) Indeed, in Mexico, foreign direct investment does not generate significant technological spillovers that allow progress towards development and technological change, the above is evident in table 9 Summary of the Causality Test Granger bivariate between FDI and Patents applied for by nationals, where the Null Hypothesis: FDI does not cause PSNAC in the Granger manner, presents probabilities above 95%.

In summary Rivas, Garcia & Bell (2023) Once the research is completed, it can be stated that FDI is a highly important tool for any developing economy that applies appropriate public policies, special incentive regimes and an attractive investment climate, which that can provide important contributions to the growth of the GDP and the development of that country.

Consistent for Varela (2023) Net foreign income (as a proxy for FDI) negatively affects human development. While real PPP GDP positively affects human development, but to a lesser extent than improvements in health and education, given that economic growth affects less than life expectancy (health) or the average number of years of schooling (education), variables that can be improved through government action, therefore, the negative effect on development is greater than the positive effect on growth.

RESEARCH METHODOLOGY

The research is of an applied type, due to its depth it is descriptive and correlational, its inference is hypothetical, the databases of the variables are quantitative, and the temporality is diachronic. The general objective was to establish the degree of correlation between both variables (X) and (Y), the specific objective was to determine the shape of the variables using descriptive statistics and was completed with the 80-20 Pareto analysis. The population of the databases is 218 countries (includes islands and administrative areas), in the normal distribution of the Index of Economic Freedom 218 countries were considered (includes islands and administrative areas), for the normal distribution of Foreign Direct Investment (FDI) a sample of 218 countries was taken, in the correlation analysis 174 countries were included and a correlation analysis was made for each freedom.

1. The proposed hypothesis was that the increase in the Index of Economic Freedom (ILE) increases Foreign Direct Investment (FDI).
2. In the variable (X) we use the Economic Freedom Index (ILE) from 2013 to 2023, which includes 12 freedoms: commercial freedom, tax burden, property rights, monetary freedom, labor freedom, judicial effectiveness, investment freedom, government spending, government integrity, fiscal health, financial freedom, business freedom, prepared by: <https://www.heritage.org/index/download#>
3. For the variable (Y) Net Foreign Direct Investment (FDI), inflows minus outflows, in millions of dollars \$ USD from 1970 to 2020 at current prices, prepared by the World Bank, obtained in: <https://datos.bancomundial.org/indicador/BN.KLT.DINV.CD>

4. Research model used was binary variables: Index of Economic Freedom (X) 12 freedoms and Foreign Direct Investment (FDI) variable (Y), a correlation analysis was made for each freedom index from 2013 to 2019, in 174 countries.

RESULTS

1. The graph shows us that at least 27 countries have advanced in economic freedoms by 2023 reaching an index greater than 70%, labor freedom and financial freedom being largely pending, these countries maintain an index above 70%, among them We can mention the 10 most important: Singapore, Switzerland, Ireland, Taiwan, New Zealand, Estonia, Luxembourg, the Netherlands, Denmark, Sweden, Finland. Instead, there are some 147 with an index of less than 70% of economic freedom (enlarged graph: <https://photos.app.goo.gl/Z66PXxAWfVtqM9kJ9>).
2. The three graphs (figure 3) of the normal distribution of the economic freedom index show that: between 2013 and 2016 it has negative asymmetry and an index greater than 40% in advance of freedoms in the world (enlarged graph: <https://photos.app.goo.gl/XfG4ePRgSobabNvZA>).
3. The normal distribution (figure 4) of the Freedom Index from the period 2017 to 2019, has negative asymmetry, but with a displacement of freedoms to positive asymmetry, that is, a decrease in the index (enlarged graph: <https://photos.app.goo.gl/LBCFAPR9N12WaHqm8>).
4. The Normal distribution (figure 5) of the Freedom Index in the period 2020 to 2023 shows a normalization of economic freedoms, with a negative asymmetry, and pending progress in labor freedom and financial freedom (graph enlarged: <https://photos.app.goo.gl/Pj3xdc3X7QQ3ntQt9>).
5. The Normal distribution of Foreign Direct Investment (FDI) has positive asymmetry, this is because 80% of the FDI average from 1970 to 2020 is concentrated in 27 countries and 20% of FDI remains in 145 countries (Alvarado Martinez, Centeno, & Lopez, 2021), (augmented graph: <https://photos.app.goo.gl/p8cE6UAoPWW17kvi9>).
6. The 80-20 analysis confirms that of 172 countries in the world: 18 countries receive 39% of FDI and have an economic freedom index between 50% and 100%, in these countries we can cite: Australia, Mexico, Singapore, Liechtenstein, Ireland; 9 countries manage 41% of FDI and have an economic freedom index of 40% to 49%, which mainly corresponds to China, Brazil and India, the remaining 20% of the world's FDI is received by 145 economies, with different indices of economic freedom but does not exceed 63%.
7. The correlation coefficient in (figure 7) and (table 2); 100 countries have a positive correlation, among them there are 12 countries that have a correlation greater than + 0.50, which we can cite: Mali, Senegal, Romania, the Philippines, the Dominican Republic, Sao Tome and Principe, Serbia, El Salvador; In these nations, as the index of economic freedom increases, Foreign Direct Investment (FDI) increases and we have 76 countries with a negative correlation coefficient, that is to say that increasing the index

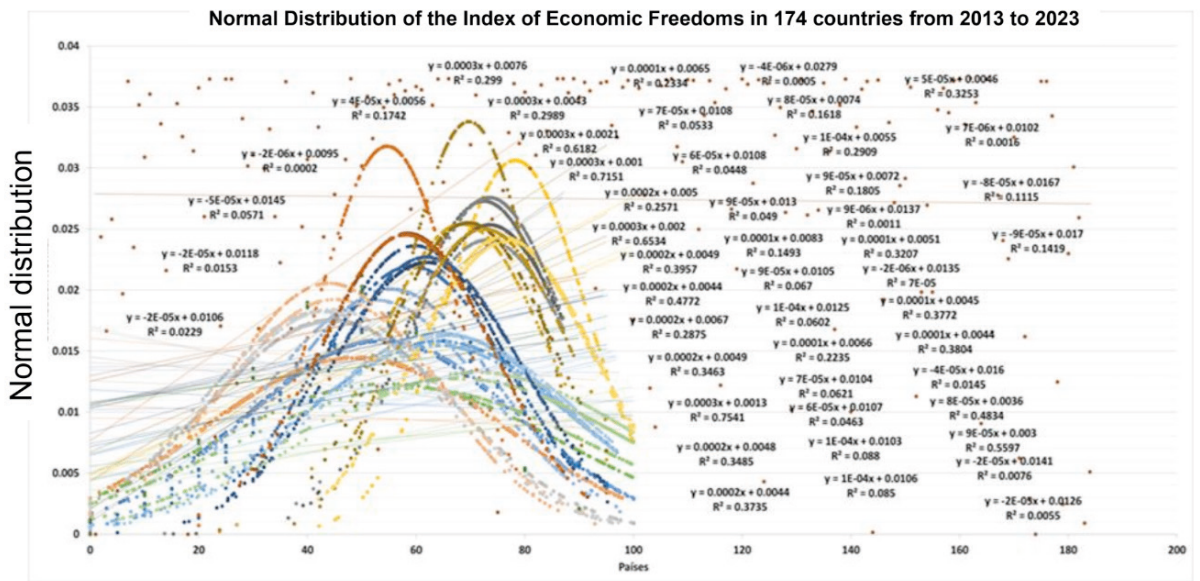


Figure 3: Normal Distribution of the Index of Economic Freedom from 2013 to 2016, in 174 countries

Source 4: Own elaboration year 2023, database <https://www.heritage.org/index/>

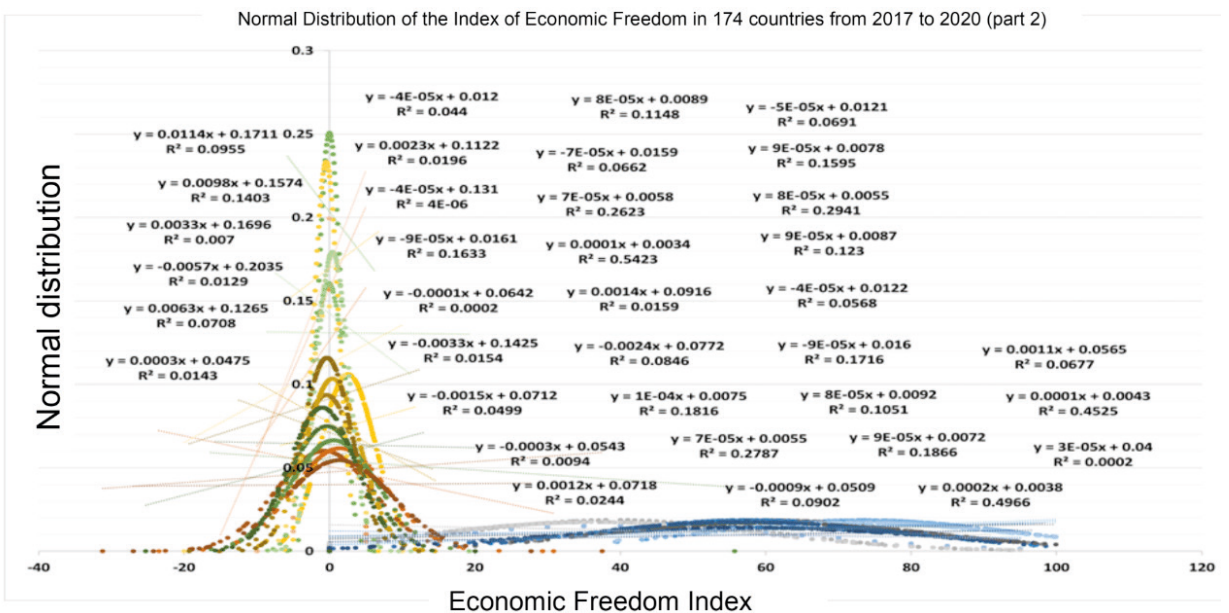


Figure 4: Normal Distribution of the Index of Economic Freedom in 174 countries from 2017 to 2020

Source 5: Own elaboration year 2023, database <https://www.heritage.org/index/>

Normal Distribution of the Economic Freedom index in 174 countries from 2020 to 2023

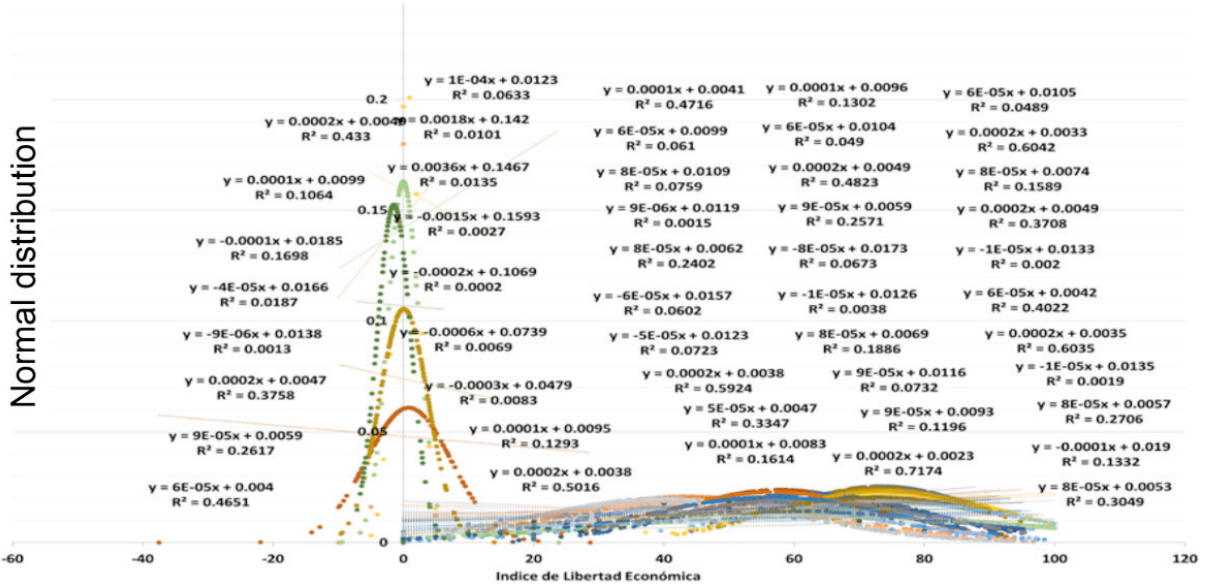


Figure 5: Normal Distribution of the Index of Economic Freedom in 174 countries from 2020 to 2023

Source 6: Own elaboration year 2023, database: <https://www.heritage.org/index/>

Distribución Normal de 1970 a 2020, Inversión Extranjera Directa en Millones \$USD en 218

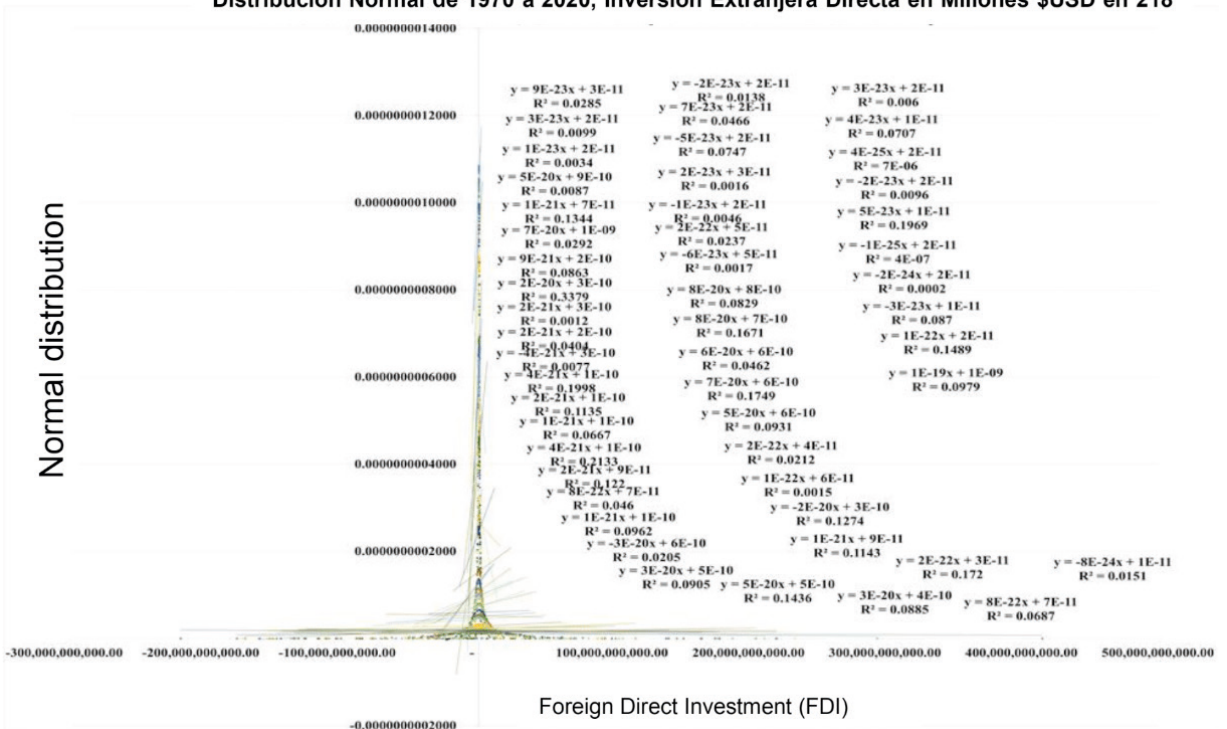


Figure 6: Normal Distribution of Foreign Direct Investment (FDI) in Millions of \$ USD from 1970 to 2020 at current prices

Source 7: Alvarado et als year 2021, World Bank database

Correlation coefficient between ILE and FDI from 2013 to 2019 in 174 countries

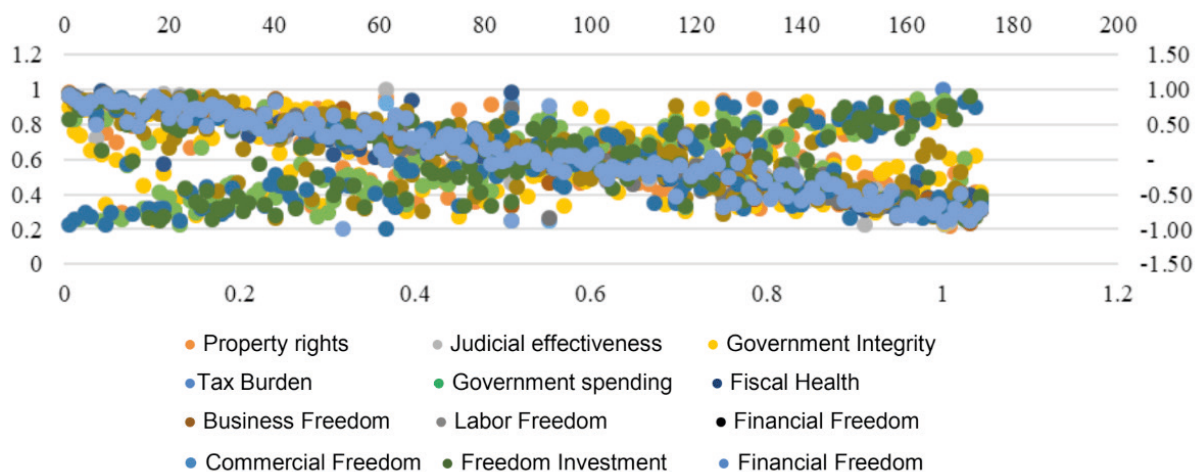


Figure 7: Correlation coefficient between the Economic Freedom Index and FDI from 2013 to 2019 in 174 countries

Source 9: Own elaboration year 2023, World Bank database and <https://www.heritage.org/index>

Correlation value	Number of countries	Correlation value	Number of countries	Strength of the relationship
from -1.0 to -0.50	3.00	from 0.50 to 1	12	Strong
from -0.49 to -0.31	20.00	from 0.31 to 0.49	35	Moderate
from -0.30 to 0	53.00	from 0 to 0.30	53	Weak
	0		0	None

Table 3: Correlation coefficient between ILE and FDI in 174 countries, from 2013 to 2019

Source 10: Own calculations for 2023, World Bank database and <https://www.heritage.org/index/>

Freedom index	Countries	Amount of FDI \$ Millions	80-20
50-100	18	76,717,880,000.00	39%
40-49	9	82,264,140,000.00	80%
50-68	9	8,151,030,000.00	84%
22-49	15	11,395,130,000.00	90%
50-63	28	4,937,000,000.00	93%
0-49	93	14,407,940,000.00	100%

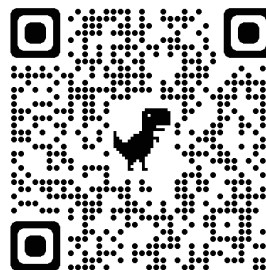
Table 2: Pareto 80-20 analysis, between the Index of Economic Freedom and FDI in 172 countries

Source 8: World Bank database and <https://www.heritage.org/index/>

of economic freedom (ILE) does not produce changes or decreases the FDI, (enlarged graph: <https://photos.app.goo.gl/5u1tpS2JpoZGRjNp9>).

CONCLUSIONS

1. The general objective of establishing the degree of correlation was achieved (figure 7) and (table 2) in both variables: Economic Freedom Index (ILE) “X” and Foreign Direct Investment (FDI) “Y”, it is verified partially the hypothesis: “the increase in the Index of Economic Freedom (ILE) increases Foreign Direct Investment (FDI)” because in 100 countries they have a positive correlation (+) and only in 12 countries out of 100 the relationship is strong. Then there are 76 countries (table 2) that the correlation is negative (-), that is to say that an increase in the Economic Freedom Index does not change or decreases FDI.
2. The specific objective of determining the shape of the variables using descriptive statistics was achieved. The (figure 3), (figure 4), (figure 5); the normal distribution shows that the Index of Economic Freedom has a negative skewness, and the normal distribution of FDI has negative skewness (figure 6).
3. Pareto’s 80-20 analysis (table 1) shows that 80% of the world’s FDI; It is maintained in 27 countries, of which 18 countries have an Economic Freedom Index greater than 50% and represents 39% of the world’s FDI and 9 countries that have an Economic Freedom Index between 40% and 49%, and represents the 41% of the world’s FDI, mainly made up of China, Brazil and India.
4. We observe that; When implementing a process of 12 economic freedoms in a country, nation or economy, to attract investment, management must reach at least or more than 50% in the freedom index, because in (Table 1) 46% of the world’s FDI is located in that range of freedom. In contrast, 62% of the remaining 54% of FDI in the world corresponds mainly to China, Brazil and India, which are an exception to the rule.
5. Expanded correlation in:



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