

The Impact of Globalization and FDI as a Business Internationalization Entry Mode on GDP: A General Analysis Using the Unifactorial Regression Model

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Abstract. *As business in local markets may face various barriers and losses including local market competition, product similarity, political restrictions, lack of support, and shortage of resources. Companies try to invest abroad to avoid the local market's barriers, saving its business perspective by getting involved in the internationalization process that has got various strategies and entry modes. Many companies decide to internationalize their business and themselves by choosing any of the international, multinational, global or transnational strategies. In this paper we aim to find out whether Foreign Direct Investments (FDIs) in the United States of America (USA), the European Union (EU) and China are correlated with the gross domestic product (GDP) and the impact of the FDI indicator on the GDP. In the research method we focus on a related literature review with a selection criteria and applying the unifactorial regression mode. Moreover, using a descriptive analysis we presented and analyzed the illustrated findings in different figure and we found out that there is a relationship between FDI and GDP and FDI is important for GDP growth in globalization. In conclusion, both FDIs and GDPs are considered drivers of globalization and indicators in local and global economies.*

Keywords: Globalization, Business internationalization, companies, Foreign Direct Investment (FDI), Gross Domestic Product (GDP), impact, internationalization entry mode.

Introduction

Companies face local and global challenges to survive in markets and stabilize their business positions. Globalization has changed the world structure with its economic, technological, social, political, cultural, and environmental dimensions, it has gone through different phases creating opportunities and removing others where the world got divided between developed and developing economies. As companies and business are two main concepts in economy and business, they drive both local and global economies to various perspectives, companies generate profits for their economies while business needs creativity, patience and efficient negotiations.

As business in local markets may face various barriers and losses including local market competition, product similarity, political restrictions, lack of support, and shortage of resource (Benabed, 2023). Companies try to invest abroad to avoid the local barriers saving their business perspectives by getting involved in the internationalization process that has got various strategies and entry modes, many companies decide to internationalize their business and themselves by choosing any of the international, multinational, global or transnational strategies. Foreign direct investments (FDIs) are considered entry modes in business internationalization (Benabed, 2024a) and they are part of the multinational strategy of companies. Back to the past, Buckley and Casson (1998) and Dunning (1977) studied some different aspects like the market entry decision in international business (Benabed, 2024a) introducing later multinational enterprises and foreign direct investments (FDIs) as important keys in internationalization and international business. Both FDIs and GDPs are considered drivers of globalization and indicators in local and global economies.

For more than a century, globalization has been changing the world by introducing changes and challenges in global production and supply between countries where some areas of the planet have become main engines for the world's gross domestic product (GDP) that one of the main criteria and drivers of globalization. Investments may be domestic or from foreign sources (Hagan and Amosh, 2020) that is why their important has led to many efforts to analyze their contribution to the economic progress (Deonanan and Conard, 2022) but it has been always hard because the problem of data availability, lack of support to them made them difficult to be analyzed. Many economies have relied on foreign direct investments (FDIs) to meet their needs due to the limited availability of domestic and investors and their low financial structure (Carbonell and Werner, 2018). Foreign direct investments (FDIs) have powered the economic growth of developing countries and emerging markets (Masron et al., 2012). Besides, the last two decades by 2015 witnessed a fast increase in the flow and stock of foreign direct investments as a result of globalization (Hill and McKaig, 2015). Foreign direct investments contribute to the economic growth of host countries by introducing new technologies, expansion of export volumes, business expansion in new markets, import substitutes and they create jobs (Chen et al., 2010).

This full paper is an additional research and investigation to what was published before in the area of business internationalization, this research is fully originally and it is part of the authors' doctoral research, especially for the first author of this paper it part of his thesis' chapters. In this paper we aim to find out whether Foreign Direct Investments (FDI) placed by multinational companies in the United States of America (USA), the European Union (EU) and China are correlated with the gross domestic product (GDP) and what is the impact of the FDI indicator on the GDP.

Related Literature

Velde (2005) states that globalization is a force that mingles and unites national economies together around the world by amalgamating them together (Velde, 2005), it strengthens and builds up the economic development of economies (Iqbal et al., 2012). According to Hill and McKaig (2015) globalization has led to meaningful raises and ups in both flows and stocks of foreign direct investments (FDIs), Hill and McKaig (2015) introduced an another definition of foreign direct investments (FDIs) considering them as buying and building capitals in another or other countries by other countries or companies (Hill and McKaig, 2015).

Foreign direct investments (FDIs) are considered entry modes in business internationalization (Benabed, 2024a) and they are part of the multinational strategy of companies.

Back to the past, Buckley and Casson (1998) and Dunning (1977) studied some different aspects like the market entry decision in international business (Benabed, 2024a). Besides, foreign direct investment (FDI) introduces benefits to the economic level of host countries (Buthe and Milner, 2008) but it relies on technological aspects and provides quality management and labour opportunities (Masron et al., 2012). As a result, it is a source for jobs and it optimizes the GDP of other states by ameliorating infrastructures, promoting competition and boosting the productivity of host countries (Edrak et al., 2014). FDIs can be brownfield if they involve merging or purchasing existing businesses or firms in other countries and Greenfield when companies take over new business facilities and activities by investing in the countries of destination (Chen et al., 2010).

Botta (2018) identifies that foreign investment is normally used and considered as a catalyst for economic development (Donaubauer et al., 2022). It could be either foreign direct investment (FDI) or foreign portfolio investment (FPI) in the international business areas (Botta, 2018). In many countries, foreign investment is a possibility to collect the necessary capital to overcome liquidity (Agyapong and Bedjabeng, 2020; Sijabat, 2023). According to the international business literature by Johanson and Vahlne (1977) doing business in foreign countries might be beneficial to a firm but it involves costs that come from being unfamiliar with foreign markets (Johanson and Vahlne, 1977). Whereas domestic investments, the acquisition of new factories, foreign investments have greater complexity due to differences in human resource practices, new regulations, and even consumer preferences. Factors such as the poor management of foreign subsidiaries, unfavorable changes in laws and regulations, economic recession in the countries of destination may increase the risk of failure in the process of internationalization (Johanson and Vahlne, 1977).

Some related literature (Lau and Ngo, 2001) suggests that a different variety of firms in China receives large positive overflow from foreign investors of non-Chinese origins (Lau and Ngo, 2011). Internationalization strategies are a system that is used to plan and implement actions that are aimed at fulfilling and positioning a company in the international market. (Benabed, 2023). Internationalization allows companies to achieve at least a competitive advantage to increase their presence in the international market, therefore it is important that they are well designed and since based on this the company will be able to enter new markets to increase value or profit, the number of your customers and your sales. (Benabed, 2023; Benabed, 2024a). Through internationalization, the company can introduce products or services to other countries that do not yet have them or do not have them. (Benabed, 2023). According to Tokman (1978) once the engagement of firms typically outside the field of organized business activities is taken over and considered, the whole degree of internationalization for firms in a given country may turn out to be better estimated (Tokman, 1978).

Foreign direct investments (FDIs) are considered entry modes in business internationalization (Benabed, 2024a) and they are part of the multinational strategy of companies. Back to the past Buckley and Casson (1998) and Dunning (1977) studied some different aspects like the market entry decision in international business (Benabed, 2024a).

Methodology and Research questions

In the methodology we based on a related literature review to our research by identifying first most related studies and research that may help respond to our research questions, selecting with attention most published studies that fulfill the criteria of our research scientifically that have been important for the next literature review step that based on our own method that relied on extracting, managing and analyzing the available data that fit our research and analysis. Evaluating the

literature critically helped describe, review, synthesize and interpret and expound the obtained data in the reduction process.

The key words for the literature review focused on globalization, foreign direct investments, business internationalization, international business and multinational companies from the previous theories, Gross domestic product (GDP) and foreign direct investments (FDIs). To show the importance of this subject and the approach used in dealing with it, we formulated the following research questions that helped structure the literature review and the result and analysis sections, this full paper that is part of our doctoral research:

RQ1: What is the impact of globalization on the gross domestic product (GDP)?

RQ2: Are the foreign direct investments (FDIs) in the US, EU and China correlated with the (GDP)?

RQ3: What is the impact of the FDI indicator on the GDP?

In this section we explain the qualitative and quantitative methods used and how the research has been designed and performed. This section makes references to some previous research relevant to ours mentioned in literature review and references sections. In this paper we aim to find out whether Foreign Direct Investments (FDI) placed by multinational companies in the United States of America (USA), the European Union (EU) and China are correlated with the gross domestic product (GDP) and what is the impact of the FDI indicator on the GDP.

In this sense, we collected data on the evolution of FDI and GDP from the period 2013-2022 from the USA, the EU and China, and we applied a quantitative analysis using the unifactorial linear regression model, to test the relationship between the two indicators.

By this analysis we want to find out how strong the relationship between FDI and GDP is and what impact FDI has on GDP in the USA, EU and China to make a comparative analysis.

Accordingly, we have got here the equation of the linear regression model:

$$Y = a + bx + u \quad (1)$$

Y assumes the real values of the dependent variable, respectively of the gross domestic product (GDP); x assumes the real values of the independent variables, namely foreign direct investments (FDI); a and b represent the model parameters; and u assumes the residual variable that signifies the influence of other factors on Y .

To develop the analysis, we need to find out whether the econometric model is linear. To test the linearity of the model we will make the correlogram of the variables y and x . To find out the influence of the variable x on the variable y , we will follow the estimation of the parameter b , only if the estimators calculated by the least squares method are of maximum veracity.

The parameter b is estimated by the following formula:

$$\hat{b} = \frac{n \cdot \sum y_t x_t - \sum x_t \cdot \sum y_t}{n \cdot \sum x_t^2 - \sum x_t \cdot \sum x_t} \quad (2)$$

In the parameter b formula, n implies the number of observations. The analysis we propose has 10 observations because the data collected covers a period of 10 years, namely 2013-2022.

The analysis was developed in eViews.

Results and discussions

Using critical thinking we analyzed realistically the results obtained in our research and how the research questions that we set are relevant. The following table includes data on the evolution of the gross domestic product (GDP) and foreign direct investment (FDI) inflows in the USA, EU and China in the period 2013-2022 (See table 1).

Table 1. The evolution of the Gross Domestic Product (GDP) and the Foreign Direct Investments (FDI) inflows in USA, EU and China in the period 2013-2022

Year	USA (current USD)		EU (current USD)		China (current USD)	
	GDP	FDI	GDP	FDI	GDP	FDI
2013	16.843.190.993.000	288.131.000.000	15.294.695.568.087	617.106.816.508	9.570.471.111.848	290.928.431.467
2014	17.550.680.174.000	251.856.000.000	15.651.155.752.826	432.595.731.409	10.475.624.944.290	268.097.181.064
2015	18.206.020.741.000	511.434.000.000	13.553.676.666.876	817.291.317.821	11.061.572.618.595	242.489.331.627
2016	18.695.110.842.000	474.388.000.000	13.888.512.857.169	722.626.856.236	11.233.313.730.289	174.749.584.584
2017	19.477.336.549.000	380.823.000.000	14.765.543.450.855	529.598.946.721	12.310.491.333.981	166.083.755.722
2018	20.533.057.312.000	214.715.000.000	15.980.992.271.825	-76.787.459.544	13.894.907.857.926	235.365.050.036
2019	21.380.976.119.000	315.984.000.000	15.693.432.719.570	502.886.494.956	14.279.968.506.243	187.169.822.365
2020	21.060.473.613.000	138.363.000.000	15.381.174.426.002	214.650.142.684	14.687.744.162.801	253.095.616.059
2021	23.315.080.560.000	493.085.000.000	17.315.524.857.576	461.366.584.618	17.820.459.508.852	344.074.977.062
2022	25.439.700.000.000	388.078.000.000	16.746.223.630.459	94.516.642.771	17.963.171.479.205	180.166.881.345

Source: World Bank, World Development Indicators [Accessed 14 February 2024].

In the EU, the evolution of GDP was upward at the end of the period starting from 15.294 billion USD in 2013 and reaching 16.746 billion USD in 2022. In the USA, the evolution was upward starting from 16.843 billion USD in 2013 and reaching to USD 25.439 billion in the year 2022, registering the highest value among the 3. In China. The GDP evolution was upward, starting from 9.570 billion USD in 2013 and reaching 17.963 billion USD in 2022 (See table 1 and figure 1).

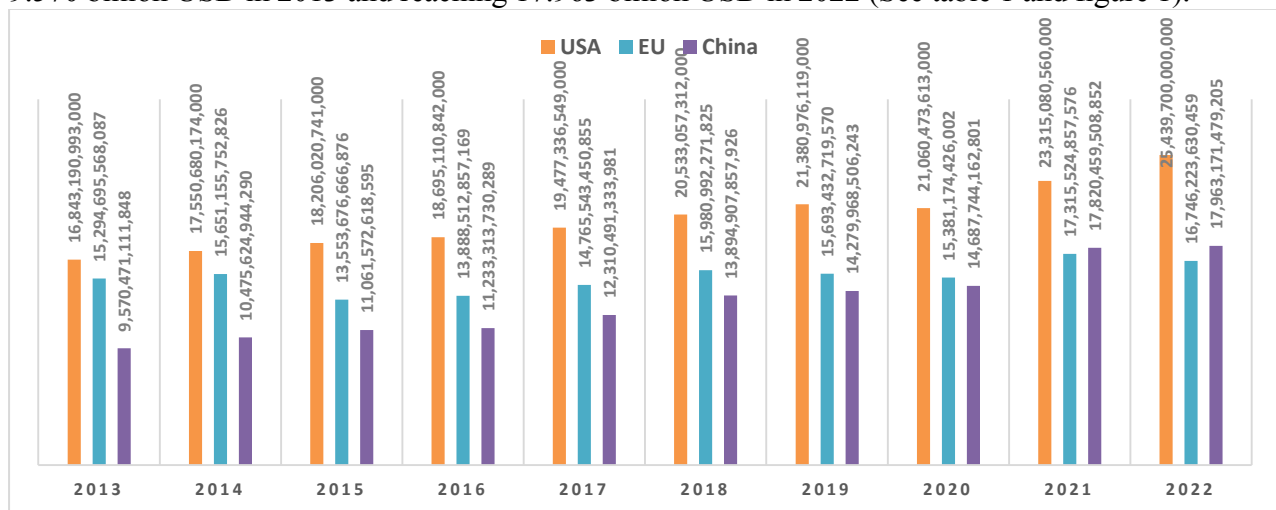


Figure 1. The evolution of GDP in USA, EU and China in the period 2013-2022 (current USD)

Source: Authors' own data processing, based on the data from Table 1.

As far as foreign direct investment (FDI) is concerned, both the US and the EU, as well as China, had oscillating developments (See table 1 and figure 2).

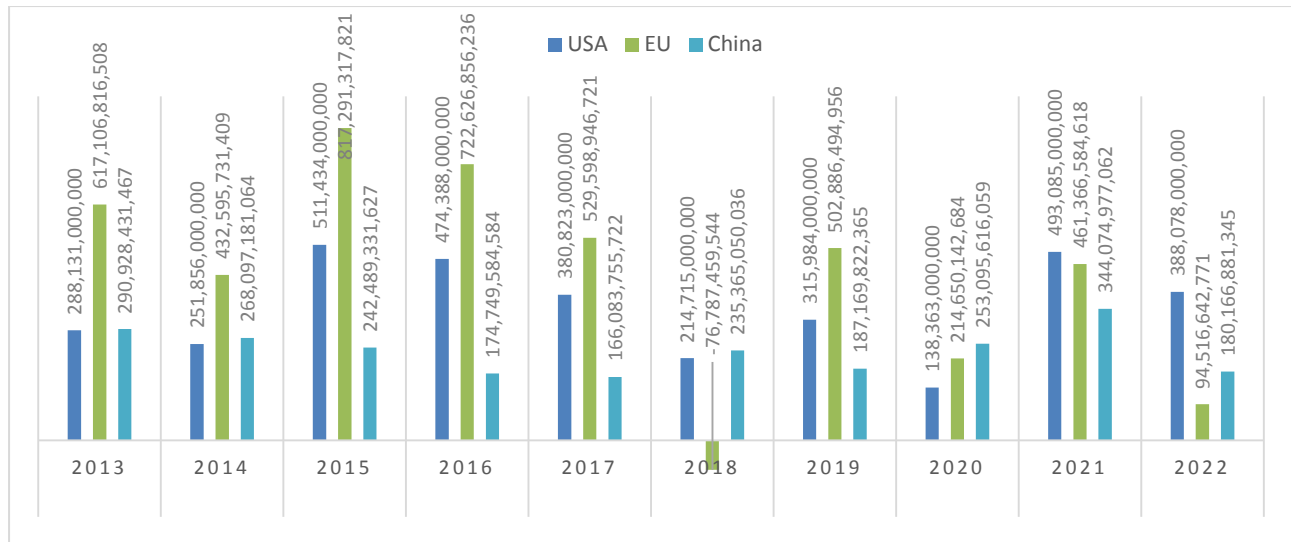


Figure 2. The evolution of FDI in USA, EU and China in the period 2013-2022 (current USD)

Source: Authors' own data processing, based on the data from Table 1

A downward evolution of Foreign direct investment (FDI) during the period (2013-2022) is noted in the case of China, with few exceptions but also in the case of the EU with the mention that among the three, the largest investments were made in the EU, especially in the years 2013, 2014, 2015, 2016, 2017 and 2019. Therefore, the EU has been supported with massive foreign direct investment in recent years (see figure 2).

Regarding the correlations between GDP and FDI, we will start testing in the EU, as follows in figure 3:

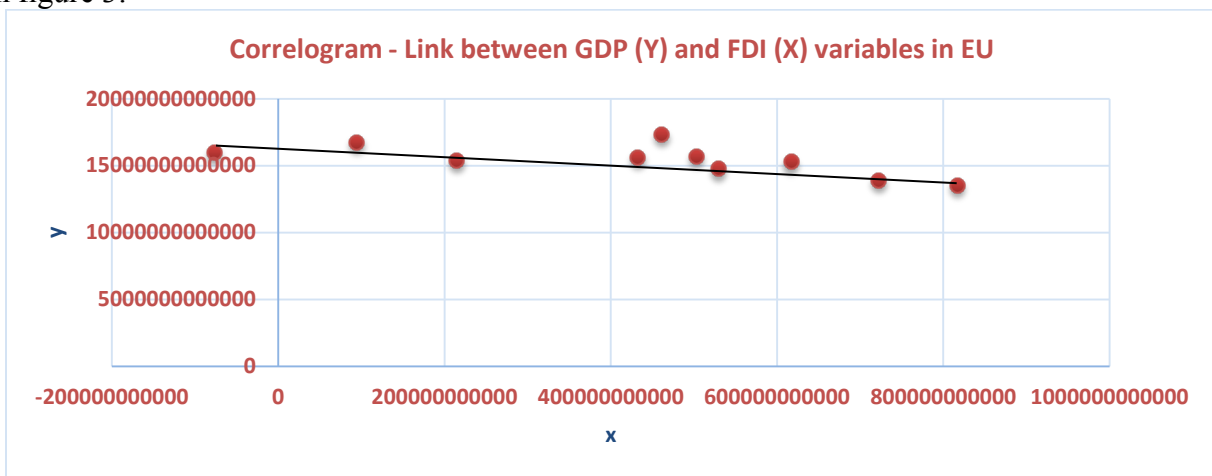


Figure 3. Link between GDP (Y) and FDI (X) variables in EU

Source: Authors' own data processing, based on the data from Table 1.

According to the correlogram in Figure 3, there is a relationship between GDP and FDI that can be appreciated with a straight line in the EU, but it is not a very strong one (See figure 3).

Dependent Variable: GDP
Method: Least Squares
Date: 02/14/24 Time: 17:26
Sample: 2013 2022
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.66E+13	5.62E+11	29.51356	0.0000
FDI	-2.705118	1.110146	-2.436723	0.0408
R-squared	0.426014	Mean dependent var	1.54E+13	
Adjusted R-squared	0.354266	S.D. dependent var	1.16E+12	
S.E. of regression	9.31E+11	Akaike info criterion	58.13278	
Sum squared resid	6.93E+24	Schwarz criterion	58.19329	
Log likelihood	-288.6639	Hannan-Quinn criter.	58.06639	
F-statistic	5.937619	Durbin-Watson stat	1.947419	
Prob(F-statistic)	0.040772			

Figure 4. Estimation of the impact of FDI (X) on GDP (Y) in UE

Source: Authors' own data processing, based on the data from Table 1.

According to Figure 4, under the conditions of an R-squared of 0, 42, the model explains 42% of the relationship between the dependent and the independent variable. The Durbin Watson test shows a value of 1,947, which implies that the errors are independent. Under these plausibility conditions, the estimation of parameter b assumes that when FDI decreases by 2.702 units, EU GDP increases by one unit (See figure 4).

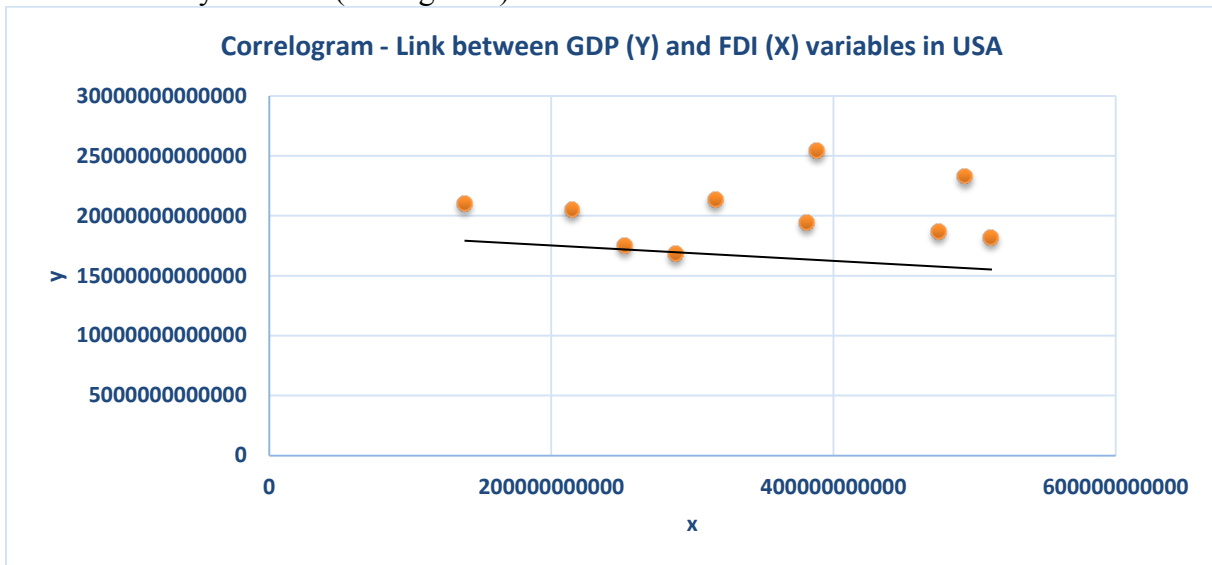


Figure 5. Link between GDP (Y) and FDI (X) variables in USA

Source: Authors' own data processing, based on the data from Table 1.

According to the correlogram in Figure 5, there is no a strong relationship between GDP and FDI in the USA (See figure 5).

Dependent Variable: GDP
Method: Least Squares
Date: 02/14/24 Time: 17:49
Sample: 2013 2022
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.95E+13	2.74E+12	7.111447	0.0001
FDI	2.229280	7.491496	0.297575	0.7736
R-squared	0.010948	Mean dependent var	2.03E+13	
Adjusted R-squared	-0.112684	S.D. dependent var	2.68E+12	
S.E. of regression	2.82E+12	Akaike info criterion	60.35189	
Sum squared resid	6.37E+25	Schwarz criterion	60.41241	
Log likelihood	-299.7595	Hannan-Quinn criter.	60.28550	
F-statistic	0.088551	Durbin-Watson stat	0.189389	
Prob(F-statistic)	0.773609			

Figure 6. Estimation of the impact of FDI (X) on GDP (Y) in USA

Source: Authors' own data processing, based on the data from Table 1.

According to figure 6, in the case of the link between GDP and FDI in the USA, R-squared has a value of 0.01, which indicates that the model does not explain the relationship between the two variables (See figure 6).

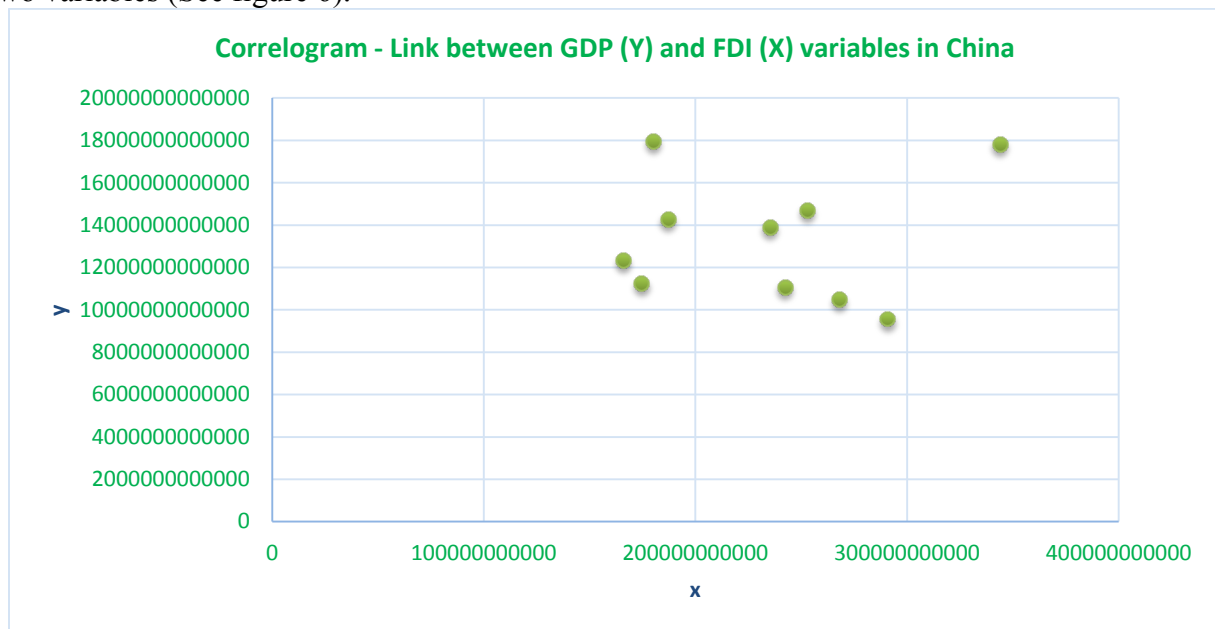


Figure 7. Link between GDP (Y) and FDI (X) variables in China

Source: Authors' own data processing, based on the data from Table 1.

According to figure 7, the correlogram between the variable Y and X, representing GDP and FDI, shows that there is no connection between the variables in the case of China (See figure 7). Figure 8 illustrates the main participations and goals of foreign direct investments (FDIs) as an entry mode for multinational companies in the multinational strategy of business internationalization, the foreign direct investment (FDI) participates in increasing the level of exports especially between the home and host countries, optimizing the infrastructure of developing countries, introducing and creating jobs, boosting the economic growth with an impact on GDP, merging new locations to multinational companies, boosting economic cultural

cooperation between countries and leading companies that choose to internationalize to leave the barriers of their domestic markets (Sere figure 8).

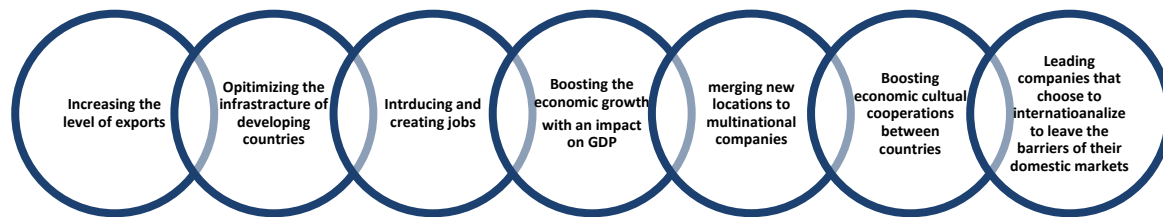


Figure 8. FDI's participations and goals in the business internationalization process

Source: Authors' design and research, 2024.

Conclusion

In conclusion, we provided a synthesis of the main contributions of the paper, showing discussing our research relevance confirming that our results and these results are supplementary to what the first author of this paper had published in the doctoral area and what had author authors found out, we confirm that the literature review helped well in the part of findings and research structure. More research will paper following this one in our upcoming publications. Mainly, Following the illustrated data and results, the correlogram of figure 3, shows a relationship between GDP and FDI that can be appreciated with a straight line in the EU, but it is not a very strong one. Whereas, the correlogram of figure 5, shows that there is not a strong relationship between GDP and FDI in the USA. According to figure 5, the correlogram between the variable Y and X, representing GDP and FDI, shows that there is no connection between the variables in the case of China.

A downward evolution of FDI during the period is noted in the case of China, with few exceptions, but also in the case of the EU, with the mention that, among the three, the largest investments were made in the EU, especially in the years 2013, 2014, 2015, 2016, 2017 and 2019. Therefore, the EU has been supported with massive foreign direct investment in recent years. Foreign direct investments are considered drivers and indicators of globalization since they represent the local and global economies that are part of its economic dimensions. Internationalization allows companies to achieve at least a competitive advantage to increase their presence in the international market, therefore it is important that they are well designed and since based on this the company will be able to enter new markets to increase value or profit, the number of your customers and your sales, through internationalization, the company can introduce products or services to other countries that do not yet have them or do not have them (Benabed, 2023).

As business in local markets may face various barriers and losses including local market competition, product similarity, political restrictions, lack of support, and shortage of resources. Companies try to invest abroad to avoid the local barriers, saving its business perspective by getting involved in the internationalization process that has got various strategies and entry modes. Many companies decide to internationalize their business and themselves by choosing any of the international, multinational, global or transnational strategies. Foreign direct investments (FDIs) are considered entry modes in business internationalization (Benabed, 2024a) and they are part of the multinational strategy of companies. After our research we consider that our results are compatible with the provided literature review presented in the literature review section of this paper based on the presented methodology, our research question have been answered and we may consider that Globalization impacts both foreign direct investments (FDIs) and the Gross domestic

product (GDP) especially if we talk about the global level because globalization created them. Both FDI and GDP drive the process of globalization and internationalization.

Using a descriptive analysis we presented and analyzed the illustrated findings in different figures and we found out that there is a relationship between FDI and GDP and FDI is important for GDP growth in globalization. In conclusion, both FDIs and GDPs are considered drivers of globalization and indicators in local and global economies. foreign direct investment participates in increasing the level of exports especially between the home and host countries, optimizing the infrastructure of developing countries, introducing and creating jobs, boosting the economic growth with an impact on GDP, merging new locations to multinational companies, boosting economic cultural cooperation between countries and leading companies that choose to internationalize to leave the barriers of their domestic markets.

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