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CAN FOREIGN DIRECT INVESTMENT PROMOTE UNEMPLOYMENT?

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Abstract
This study examines the relationship between Foreign Direct Investment (FDI) and unemployment rates across different countries and economic sectors. The findings indicate that while FDI generally contributes to job creation in manufacturing and service industries by fostering economic growth, it can also lead to increased unemployment in sectors such as agriculture and those with high levels of automation. Additionally, the entry of large foreign firms has, in some cases, resulted in the displacement of local businesses, leading to job losses. Given these mixed effects, it is crucial for policymakers to carefully assess the impact of FDI on labor market dynamics and implement strategies to maximize its benefits while mitigating potential risks. Governments should adopt targeted policies, including investment in education and workforce training to equip local labor with the necessary skills to adapt to evolving market conditions. Furthermore, financial and technical support should be provided to local businesses to enhance their competitiveness against foreign firms.

1. Introduction

Today in many developing and developed countries Foreign Direct Investment (FDI) is considered as one of the key elements fostering economic development. As to United Nations Conference on Trade and Development (UNCTAD), the flow of FDI have reached 1.74 trillion United State Dollars (USD) in 2020. This case is believed as FDI provides capital, technology transfer, and access to global markets, so potentially FDI stimulates economic development and creature of new workplaces. For example, in countries like Vietnam, FDI project estimated creation of 10 million job places over a decade period between 2010 and 2020, as to a 2020 report of World Bank. As well as it is believed that FDI reduces Unemployment rates. There are very many researches on platforms where statistically verified these conclusions. The relations between Unemployment and FDI, however, is complex and contentious. Whilst there are some scholars argue that FDI supports job creation, a few studies were conducted suggesting Unemployment rates may rise as displacement of local businesses and promoting labour-saving technologies.

In spite of rising number of researches conducting on impact of FDI on Job creation, there were only few studies learning specifically relationship between unemployment and

FDI. FDI may lead rise of unemployment rates. For instance: times when Mexico entered North American Free Trade Agreement (NAFTA) in 1994. After that FDI surged as foreign firms, particularly from the U.S. and Canada, invested in Mexican industries, specially manufacturing. On the one hand FDI led to improvements in some industries as auto manufacturing, there were cases of job losses in small local firms that were not able to do anything to compete with those multinationals. The inflow of large capital and investments into high-technology, moreover, led to labour displacements with automated industries, especially in small scale production and low-skilled workforces, which affected particularly unemployment rates. This research indicates the possible negative impact of FDI on unemployment reduction, reasons for these cases and how it can be prevented in cases of some countries like Mexico, South Africa and Greece, and main events.

The key objective of this research is to understand how FDI affects unemployment levels in various economic conditions and contexts. This research will particularly answer these questions:

1. How Foreign Direct Investment impact employment rates in some countries?
2. Are there any sectors of economy or regions where FDI promotes Unemployment rates?
3. What solutions can be done to prevent or solve the problems relating to these cases?
4. What are the roles of government and policy makers impacting the relationship between FDI and Unemployment?

It is supposed as crucial for policymakers and economic planners to understand relationship between FDI and Unemployment. This research aims providing helpful insights which will be beneficial in construction of strategies that maximize benefits from flowing FDI, simultaneously minimizing potential risks and negative effects on local employment. Moreover, this study will be contributed as promoter of sustainable economic development and workplace creating in continuously globalising economies.

2. Literature Review

The relationship between FDI and unemployment rates has been crucial factor in economic researches, particularly in the context of economic development and globalization. It is frequently believed that FDI has potential on creation of new workplaces and stimulation economic growth in hosting countries. This literature review is targeted on analysing existing researches on relations between FDI and unemployment rates, marking key identifications and finding potential areas for more investigations.

On the one hand, many literatures reviewed supposed that FDI may lead to increasing job places in host countries. For instance, Nunnenkamp et al (2007) found FDI flows contributes of creation of new industries, continuously new workplaces for local employees in Mexico. Moreover, as to research conducted by Ernst, C. (2005) FDI plays a role of complement scarce domestic financial resources, helping modernization of production, productivity and increase international competitiveness. This case indicates the new market by help of FDI is ready to adapt new skills, so increasing potentials for employment.

On the other hand, there are some studies where it was highlighted the potential of job losses in cases of FDI inflows. Research by Aitken and Harrison (1999) reveals how enter of foreign firms in Venezuela affected the local market and domestic firms. Research found that the case led to significant workforce reduction, especially in sectors where domestic

firms were obtained by foreign companies. Another significant case of job losses because of FDI were shown in 1994 when Mexico entered North American Free Trade Agreement (NAFTA). Whilst NAFTA attracted FDI to Mexico, it resulted in gradual job losses, especially in agriculture sector, as to research by Lopez (2005). The reasons for the case believed that cheaper agricultural products were mostly imported from USA leading to low demand for local distributors, subsequently leading increased unemployment in rural areas. This example shows that FDI inflows not always can be beneficial as believed and marks to the need of policies to provide security in domestic sectors. Moreover, most frequently FDI is mostly attracted and focused in particular sectors, especially in sectors known as capital-intensive, manufacturing for example. According to this may lead of overall transformation of economies of host countries, continuously leading increase of unemployment rates in some sectors as to Jenkins (2006).

The link between FDI and increasing unemployment rates were illustrated by intermediaries as technological displacement, labor saving technologies and crowding out domestic firms by many researches (Chaudhuri, S. 2001, Ernst, C. 2005). Firstly, about all multinational companies while investing in countries introduce advanced techniques that are frequently cost effective and capital intensive, which lowers the need for local employees. This case was conducted in research by Feenstra and Hanson (1997) of Mexico where the host country had to adapt to this kind of techniques in 1994, while technology transfer and displacement of labor with labor saving techniques became usual, it led to increased unemployment rates in sector where process were relied on manual basis. Secondly, in markets where local firms are dominated by foreign firms, they can be outcompeted, leading to work losses and even closures of these firms. As domestic firms outweigh foreign investing companies in case of employment, it will consider rise of unemployment rates in host country as to Mencinger (2003). In developing countries, moreover, FDI can have a crowd-out effect where foreign firms which have competitive advantage, may reduce the capacity of local firms for invest and growth and also lowering employment potential of this firms (Agosin and Mayer, 2000).

Finally, while understanding the relationship between FDI and Unemployment, it is vital to consider policy framework shaping FDI on labor markets. While flexible market regulations may attract more Foreign Direct Investment, it may lead to higher unemployment rates by help of these regulations as for firms it is easier to lay off their workers, as to study by Criscuolo et al. (2010). As a result, policymakers should have a balance between creating an environment for foreign investors and having appropriate protection for domestic firms.

The above researches have significantly contributed to the relations between Foreign Direct Investment and unemployment, understanding whether it is positive and negative, intermediaries and even the role of policy makers proven with statistics and data. However, there is an existing gap regarding special cases in understanding variables when FDI played a promoter role with these special factors. Most of researches were conducted relying on Ordinary Least Squares (OLS) regression or cross-sectional data analysis, which were extremely effective mainly in all cases, but simultaneously, these models simply have limitations while identifying country specific factors which can have impact on relationship between unemployment and FDI. National policies and labor market characteristics can be clear examples for this case. To address this gap, this research will be conducted with the

help of panel data regression model, which will provide analysis by multiple countries through various factors related to time and other economic conditions. This research will apply quantitative methodology, during which there will be analysis of existing data related to these cases, continuously providing more comprehensive insight to the literature.

3. Methodology

This research targets exploring the relations between FDI and unemployment, mainly whether FDI acts as promoter of unemployment or in all cases it benefits for labour market. Whereas FDI is often identified as stimul of economic growth, the effect on employment is complex and may be different according to economic conditions and investment focuses.

3.1. Theoretical framework

This framework provides basis for understanding the link between FDI and unemployment, through some economic theories those who offer various ideas and statements. Firstly, as to neoclassical theory, FDI stimulates economic growth and employment opportunities as it provides capital, technology and knowledge sharing. As a result of increased productivity and created workplaces, FDI should reduce significantly unemployment rates, especially in developing countries where capital is in shortage (Vintilla D., 2010). However, another economic theory namely dependency theory (Theotonio, 1970) gives more critical point, suggesting that FDI may rise dependency and have negative impacts on host countries. For example, investors can be favour of more capital-intensive production processes or simply these foreign firm can crowd out local businesses, resulting in job displacement and increased unemployment rates. Moreover, Dual Sector Model or Lewis Model suggests that economy of a country consists of two main sectors including traditional(agriculture) and modern(industry). In most cases FDI concentrates on modern sector, continuously leading to labour surplus in traditional sectors and structural unemployment if investors imply capital-intensive techniques (Todaro et al, 2015).

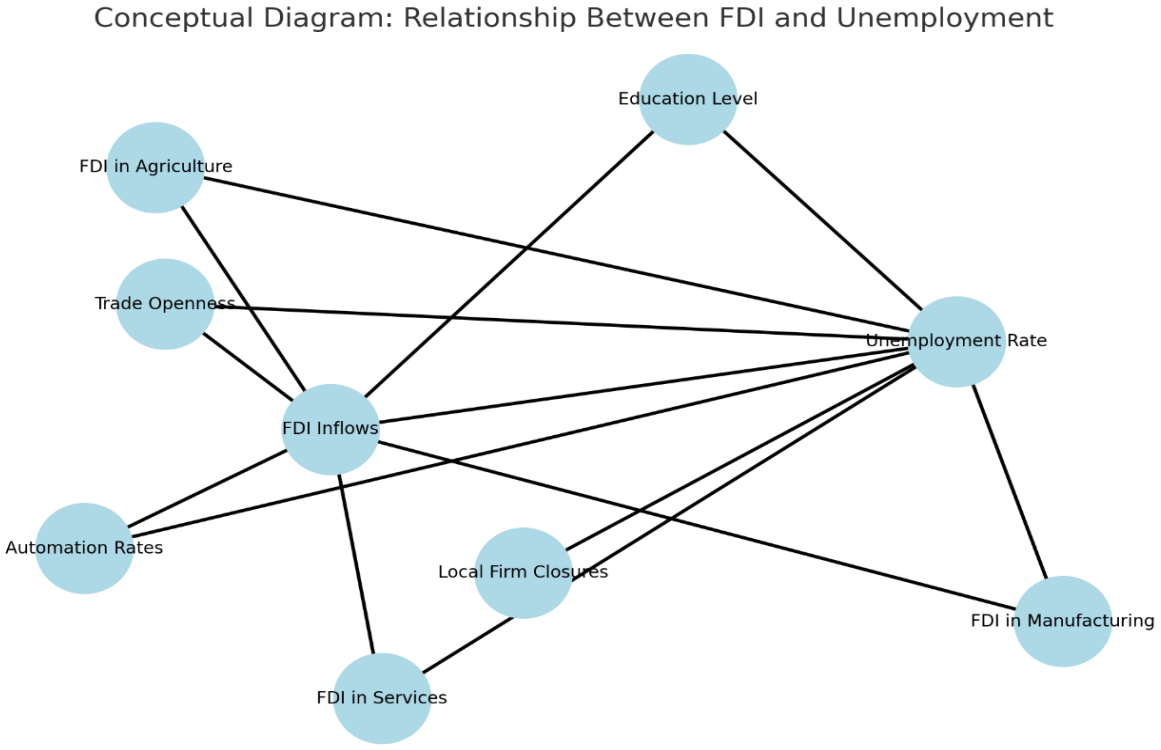

Figure 1: Conceptual Diagram

Source: Created by author

3.2. Empirical framework

The empirical analysis in this research will be conducted using panel data, regression analysis, which will provide more details of each country, sector and every year of analysis, to identify relationship between unemployment rate and FDI.

3.2.1. Data sources

The data for this analysis were collected from open data sources like: UNCTAD(United Nations Trade & Development) for FDI inflows and sector-specific data, World Bank(World development Indicators) for unemployment rates, trade openness and GDP(Gross Domestic Product), ILO (International Labour Organization) for skill level data and sectorial unemployment rates, OECD (Organization for Economic Co-operation and Development) for labour market flexibilities and automation rates and McKinsey & Company for further information on automation.

3.2.2. Variables and Model

1. Unemployment_{it} is dependent variable presenting unemployment rate in country i in t year.
2. FDI_{it} is independent variable showing impact of inflows of FDI on unemployment rates.
3. Automation_{it} illustrates automation rates and technology adoption rates in a country.
4. Trade Open_{it} shows the ratio between exports and imports to GDP, which represents internal and external integration.
5. Education level_{it} considers labour's skill-level, which may reduce negative effects of FDI on unemployment.
6. FDI in Agro (Man, Ser) $_{it}$ presents FDI inflows in specific sectors of economy.
7. Local Closure_{it} shows crowd effect of foreign firms on local firms forcing for closure or exit from market
8. $\text{EnteringLargeCorps}_{it}$ illustrates number of large corporations or multinationals entering to this market.
9. B0: Intercept (constant term).
10. β1,β2,…,β6: Coefficients representing the effect of each independent variable on the unemployment rate.
11. ϵ_{it}: Error term capturing unobserved factors affecting unemployment in country I at time t.

$$\text{Unemployment}_{it} = \beta0 + \beta1 \cdot \text{FDI}_{it} + \beta2 \cdot \text{Automation}_{it} + \beta3 \cdot \text{Trade Open}_{it} + \beta4 \cdot \text{EducationLevel}_{it} + \beta5 \cdot \text{FDI (Agro, Man, Ser)}_{it} + \beta6 \cdot \text{LocalClosure}_{it} + \beta6 \cdot \text{EnteringLargeCorps}_{it} + \epsilon_{it} \quad (1)$$

The formula was generated in the basis of panel data regression model which is:

$$Y_{it} = \beta0 + \beta1 X_{it} + \beta2 X_{it} + \ldots + \beta n X n_{it} + \epsilon_{it}. \quad (2)$$

4. Results and Discussion

The primary objective of this research is to examine the impact of FDI through control variables as FDI in specific sectors, Automation rates, trade openness, entering large corporations and local firms closure, on unemployment rates in specific countries through years beginning from 1990 till 2022. This section will provide results obtained from

econometric analysis, including OLS regression model, correlation analysis and descriptive statistics.

4.1. Main results

Table 1: Results of OLS regression analysis in case of Mexico

Source	SS	df	MS	Number of obs	=	15
				F(9, 5)	=	26.41
Model	8.09894299	9	.899882554	Prob > F	=	0.0011
Residual	.170389653	5	.034077931	R-squared	=	0.9794
				Adj R-squared	=	0.9423
Total	8.26933264	14	.590666617	Root MSE	=	.1846

unemploymentrate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fditotalm	-.0015724	.0004941	-3.18	0.024	-.0028425	-.0003022
fdiinagriculturem	.000215	.0086165	0.02	0.981	-.0219345	.0223645
fdiinservicesm	-.0028367	.001105	-2.57	0.050	-.0056772	3.91e-06
fdiinmanufacturingm	-.005203	.0015402	-3.38	0.020	-.0091621	-.0012438
automationrate	3.262437	.6681403	4.88	0.005	1.544928	4.979947
tradeopenness	-.4701239	.1009484	-4.66	0.006	-.7296201	-.2106278
entryoflargecorporationsno	.2069044	.0655753	3.16	0.025	.0383378	.375471
localfirmclosuresno	-.0463467	.0187899	-2.47	0.057	-.0946476	.0019542
educationlevelavgyears	3.433733	.9238606	3.72	0.014	1.058874	5.808592
_cons	-12.23374	5.554391	-2.20	0.079	-26.51175	2.044282

Source: Calculated by author.

Table 2:

Results of OLS regression analysis in case of South Africa Republic

Source	SS	df	MS	Number of obs	=	15
				F(8, 6)	=	170.83
Model	354.751923	8	44.3439904	Prob > F	=	0.0000
Residual	1.5574509	6	.259575151	R-squared	=	0.9956
				Adj R-squared	=	0.9898
Total	356.309374	14	25.4506696	Root MSE	=	.50949

unemploymentrate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fdiinagriculturemillionusd	-.6015056	.2574041	-2.34	0.058	-1.231351	.0283395
fdiinmanufacturingmillionusd	-.0074686	.0238333	-0.31	0.765	-.0657866	.0508495
fdiinservicesmillionusd	.0209624	.0105872	1.98	0.095	-.0049435	.0468683
totalfdimillionusd	-.0071399	.005875	-1.22	0.270	-.0215155	.0072357
automationrate	17.07268	6.47606	2.64	0.039	1.226331	32.91903
tradeopenness	0	(omitted)				
entryoflargecorporations	10.30931	3.621458	2.85	0.029	1.447919	19.17069
localfirmclosures	.556622	.4302572	1.29	0.243	-.4961794	1.609423
averageeducationlevelyears	-298.6228	106.6044	-2.80	0.031	-559.4743	-37.77129
_cons	2398.219	856.398	2.80	0.031	302.6883	4493.749

Source: Calculated by author.

Table 3:

Results of OLS regression analysis in case of Greece

Source	SS	df	MS	Number of obs	=	15
				F(8, 6)	=	19253.63
Model	282.386332	8	35.2982915	Prob > F	=	0.0000
Residual	.010999989	6	.001833331	R-squared	=	1.0000
				Adj R-squared	=	0.9999
Total	282.397332	14	20.171238	Root MSE	=	.04282

unemploymentrate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fdiinagriculturemillionusd	-.02	.0106143	-1.88	0.109	-.0459722	.0059722
fdiinmanufacturingmillionusd	-.0394	.0096839	-4.07	0.007	-.0630957	-.0157044
fdiinservicesmillionusd	-.046	.0114895	-4.00	0.007	-.0741139	-.0178861
totalfdimillionusd	.04	.0095743	4.18	0.006	.0165726	.0634274
automationrate	-14.976	4.767886	-3.14	0.020	-26.6426	-3.309407
tradeopenness	6.500002	1.915172	3.39	0.015	1.813744	11.18626
entryoflargecorporations	3.161335	1.333257	2.37	0.055	-.101027	6.423696
localfirmclosures	-1.633334	.7660158	-2.13	0.077	-3.507707	.2410389
averageeducationlevelyears	0	(omitted)				
_cons	-170.3134	51.70084	-3.29	0.017	-296.8208	-43.80598

Source: Calculated by author.

On the table 1, there were shown analysis conducted in case of Mexico. Moving to details of analysis, it was calculated that R squared is 0.9794, showing that the variation in unemployment rates can, for approximately 98%, be explained by independent variables. In spite of small sample size, high R squared suggests good fit of this model. The negative coefficients and high significance level in some control variables including total FDI, FDI in manufacturing, service and trade openness, demonstrates increase or development in these sectors can be associated with reduction of unemployment rates in this country. Through high significance of p=0.024, p=0.020, p=0.05 and p=0.006 respectively, this model aligned with studies of Driffield and Taylor(2000), Dollar and Kraay(2004) and Alfaro (2003). On the other hand, Automation rate has shown p=0.043 statistical significance with coefficient of 3.262437 illustrating higher automation rates can lead to increased unemployment rates in this country, possibly as to job displacement, as to the research conducted by Acemoglu and Restrepo's in 2017. Moreover, positive coefficient and high significance were seen in control variable of entering large corporations to this country, making evident that increased number entering multinationals or large corporations can lead to rise of unemployment rates. This phenomena was observed by Görg and Strobl in their research in 2002, where the analysis cleared that this case is as to out competence of large companies over local firms leading to job crowding or even displacement of workers.

There was illustrated analysis on data about variables which were collected in case of South Africa republic from 1990 to 2022 in Table 2. Overall, the model achieved statistically significance as shown by the F statistic and approximately 99.56% variability in unemployment rates can be explained through given variables. Going to details of this model, first of all, in the case of South Africa Republic FDI in specific sectors did show high significance levels, revealing that FDI in manufacturing, service or agriculture does not directly impact unemployment rates. However, high significance level was illustrated in relationship between Automation rate and unemployment rate, with the coefficient of 17.0727. As a previous case of Mexico, increased automation rates led to job displacement and also positive coefficient and high significance level of p = 0.029 was observed in control variable namely entry of large corporations. Moreover, negative coefficient for average years of education (Coef. = -298.6228) and (p = 0.031) statistical significance, indicates

higher education level may lead to decreased unemployment rates, this finding suits the observation about importance of education in enhancing employability by Hanushek and Woessmann in 2008.

Finally, in the Table 3, it is illustrated findings of analysis in case of Greece. The results of the analysis illustrate perfect fit of model as R squared is 1.0000, indicating approximately all variability of unemployment rate is included in model's independent variables. Then, the F-statistic of 19253.63 ($p < 0.0001$) confirms that the model is statistically significant. Firstly, coefficients of FDI in sectors like manufacturing, service and agriculture were calculated (-0.0394), (-0.046), (-0.02) respectively, where all variables were statistically significant, indicating negative relationship between FDI in these sectors and unemployment rates in this country. Nevertheless, the coefficient of total FDI flows to country is positive and significant at 0.006, illustrating that FDI inflows lead to rise of unemployment rates, in spite of negative relationships in sectors of economy. These results were also calculated and observed in the research by Rama in 2003. Like both two previous analysis, automation rate has shown high significance level, indicating that higher automation rates correlate to higher unemployment. Entering large corporations and local firms' closure have demonstrated high significance levels, 0.055 and 0.077 respectively, clearing that entering large corporations will disrupt local employment dynamics and outcompete local businesses leading to their closure, so continuously leading to job displacement. Finally, the coefficient of trade openness is 6.500 and significant at 0.015, this finding represents that increased openness to trade is linked with lower unemployment rates. The reason for this phenomenon was observed by Winters et al in 2004, where they noted that trade can enhance market access and competitiveness, sequentially leading to job creation.

5. Conclusion and Recommendations

The analysis of FDI have illustrated relationship with unemployment rates across different countries and sectors. In sectors like manufacturing and service, FDI can have positive impact on employment by creating new job places and fostering economic growth. On the other hand, there were observed some negative consequences where FDI lead to increased unemployment rates, particularly in agriculture and sectors experiencing high level of automation. Moreover, through entrance of large foreign firms in these markets there were shown increased unemployment rates, as sequentially leading to closure of local businesses in the economies. So overall, it is vitally significant for policymakers to identify these dynamics and create strategies or methods by which it will be maximized benefits from FDI, simultaneously, solving the negative outcomes or avoiding potential risks. Approximately in all cases FDI led to job creation in sectors like manufacturing and service, however, the results were various as to different economic conditions and regulatory framework. Before possible investment flow from foreign economies, policymakers should assess total effects on labour force market dynamics and act accordingly, by minimizing the risk. There was observed that there was increased unemployment when FDI flew in agriculture and sectors where there was high automation, while FDI led to job creation, market experienced job displacement as entering foreign firms overcrowded and out competed local businesses. For the government in these cases it is recommended to organize direct policies to support impacted sectors and regions.

To prevent these negative outcomes there are some solutions where policymakers and government play crucial roles. First of all, for governments it is recommended to invest

in education and training, continuously equipping local labour force with needed skills and knowledge to adapt changing labour market environments. Secondly, to support local businesses in competition with large foreign firms entering to the market, government should provide financial and technical assistance. This assistance can be given in the form of special programs generated by policymakers and government authorities. To sum up, government and policymakers are responsible in creation favourable investment environment, with balanced taxation, fair competition and also provision of protection for local businesses. Furthermore, it is essential to monitor overall effects of FDI on unemployment all the time and make decision based on changing trends and analysis.

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