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Original Article

Foreign Direct Investment and Job Creation in Saudi Arabia

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Abstract: *This study examines the relationship between Foreign Direct Investment (FDI) and job creation in the Saudi Arabian economy. Saudi Arabia, one of the largest recipients of FDI in the world, has gained in various ways from multinational corporations (MNCs). However, job creation is a significant challenge in Saudi Arabia and other developing countries, and the influence of FDI on job creation needs to be clarified. The outcome depends on the number of jobs foreign firms create and how FDI influences job growth in domestic firms operating in related industries. This study explores the relationship between FDI and job growth in Saudi Arabia by applying time series data and the Ordinary Least Square (OLS) technique to a large sample of macroeconomic data from 1980–2014. The results indicate that FDI has positive effects on employment. The results suggest that FDI increases employment significantly. Additionally, educated people and inflation positively and negatively impact employment, respectively.*

Keywords: *Employment Creation, Foreign Direct Investment, Saudi Arabia.*

I. INTRODUCTION

In the past three decades, FDI has dominated economic writing due to its potential impact on a host country's economy. There are implications on production, employment, income, pricing, exports, imports, economic growth, the balance of payments, and the general welfare of the host nation. In the 1990s, as the global economy became more integrated, the significance of FDI also increased.

Employment is among the most apparent effects of FDI. Job creation is one of the most significant issues developing countries face. FDI can ameliorate the capital shortage problem in emerging economies. In terms of job generation, however, the benefits are more nuanced. It affects employment both directly and indirectly.

The FDI atmosphere and economic structures of various nations vary. Imitating competitors in pursuing FDI is not prudent (Chen, 2012). Trade theory states that FDI inflows improve resource allocation, labor productivity, and employment in leading host nations. This thesis suggests that FDI may have two different effects on labor productivity.

The first one will directly impact foreign companies operating in host nations. The key variables determining how FDI affects employment in these nations are the actions of foreign enterprises and the entry of local technology and investment firms. The second one is indirect aims to enhance these processes (Mahdavi & Aziz, 2004).

The selection of foreign firms directly impacts the employment effects of FDI. These firms concentrate their investments in industries that profit from the relative labor advantages of their host nations, hence increasing labor demand and improving job creation.

FDI supplies host countries, particularly developing countries, with the required infrastructure, including funds, technology, management skills, entrepreneurial know-how, brands, and market access. These are necessary for emerging nations to industrialize, create jobs, reduce unemployment, encourage entrepreneurship, and alleviate poverty (Athukorala, 2013).

FDI is a long-term partnership investment representing a controlled economic entity in the host country. Traditionally, FDI boosts economic growth and employment opportunities. In addition to providing the host economy with a bundle of highly productive resources, FDI has had a noticeable positive effect on employment growth in sectors that attract FDI and the local industries that support them (Abbas & Nishat, 2009). The influx of FDI, also the principal source of external capital, bridges the resource gap between planned investment and locally mobilized savings.

Employment is one of the most influential aspects of the economy. Nations strive to increase their labor force for economic growth. Industry and labor are necessary for the prosperity and development of nations. It is essential to analyze macroeconomic concerns affecting the labor market in economics. Various variables, such as FDI, output level, and inflation, educated people may affect employment and social and economic aspects.

FDI also fosters the development of management and specialized technical skills, innovations in manufacturing procedures, training tools, and hands-on learning in the host countries (Aminu, 2005; Acharyya, 2009). Additionally, FDI inflows stimulate local enterprises to spend more on development initiatives and generate employment possibilities for skilled and unskilled workers in host countries.

Saudi Arabia passed the Foreign Investment Law (FIA) in 1979. The Saudi Arabian government established the Saudi Arabian General Investment Authority (SAGIA) to implement the Foreign Investment Act. Saudi Arabia reformed the FIA in 2000. Saudi Arabia is a member of the WTO and the group of 20. In the past four decades, Saudi Arabia has effectively attracted more FDI due to its capacity to transfer technology, employ and train domestic labor, boost economic growth, and improve local raw materials. The advantages that attract FDI to a country are its closely managed inflation, relatively stable exchange rate, openness to international capital in upstream gas, and extensive privatization plans. This study examines the effect of FDI on employment in the Saudi Arabian economy.

Figure 1 shows Saudi Arabia's mean FDI stock (FDIS) percentage to GDP. The mean percentage of FDIS grew from (1980-1984) to (1990-94) where it reached its highest of 12% and then started dropping from (1995-99). It picked up again between (2005-09) and reached its highest of 29 % between (2010-14). The upturn resulted from the structural and policy changes that Saudi Arabia made in preparation to be attractive to Inward FDI.

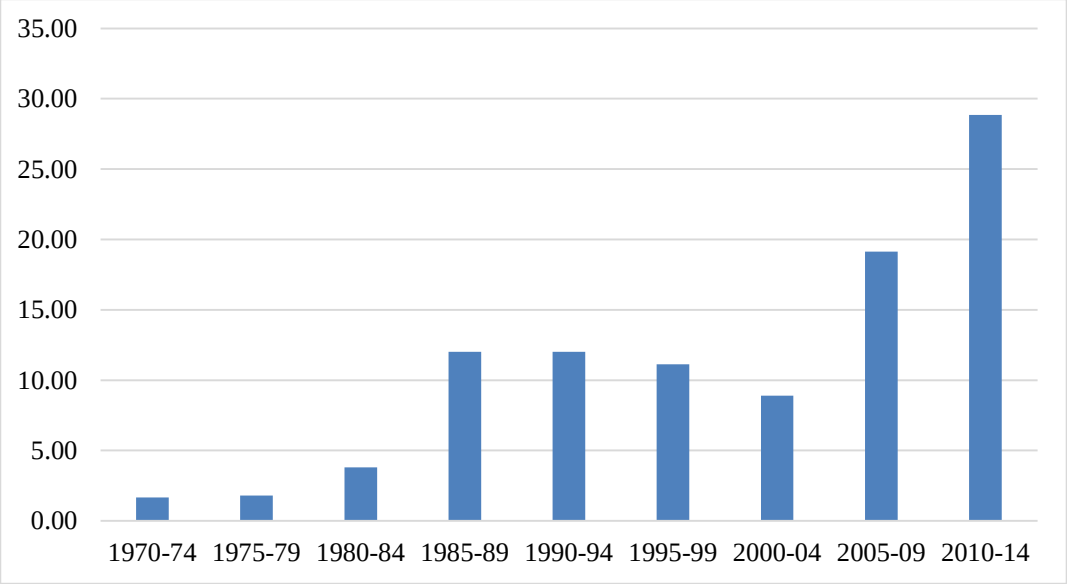

Figure 1: Percentage of FDI Stock to GDP in Saudi Arabia from 1970 to 2014, Source: UNCTAD

II. STUDY OBJECTIVE

The study aims to assess the impact of FDI in Saudi Arabia from 1980-2014, particularly after the FIA was reissued in 1979 and later in 2000, which included several incentives that helped improve the Saudi investment environment to attract FDI. In other words, this study analyzes and estimates the impact of FDI on Saudi Arabia's employment using the OLS method to describe how FDI inflows affect the host country's employment.

III. STUDY PLAN

This study is divided into several parts. The first part provides an introduction. The second part deals with the study's objectives, the third part clarifies the study plan, and the fourth part reviews the literature of relevant previous studies. The fifth part deals with the descriptive analysis of the role of FDI in Saudi Arabia. The sixth part describes the research methodology and design used in the study. After that, the seventh part discusses the investigation results, the eighth part is concerned with the discussion, and the ninth part provides a conclusion and recommendations.

IV. LITERATURE REVIEW

Although no definitive theory describes how FDI affects employment, researchers have a growing consensus that it does, especially in developing economies. It shows that FDI may, directly and indirectly, affect the employment rate (UNCTAD, 1994). Given that a foreign investor actively creates new industries or expands existing ones, they determine the short-term need for workers. As a result, FDI forecasts increased employment in the host countries.

Theoretically, this channel is supported by Rugman (1986) and Caves (1971). They predict enterprises will invest in foreign markets to generate rents using firm-specific resources such as knowledge or human capital. As foreign investors strengthen their strategic position by gaining preferential access to scarce resources such as labor, the unemployment rate will fall, particularly among educated unemployed workers (Chen & Chen, 1998). FDI is more likely to create new jobs in the investment sector if it flows into labor-intensive industries rather than capital-intensive industries engaged in greenfield FDI compared to mergers and acquisition (M&A) FDI. On the other hand, FDI-related technological progress may permit the substitution of machinery for labor. In this scenario, FDI will reduce employment. According to UNCTAD (1994), FDI usually brings restructuring ideas to make enterprises more productive and efficient. Consequently, the labor may be retained only partially or not, lowering employment.

FDI inflows have generally benefited employment in the currently available literature, especially for lower-income countries (e.g., World Bank 2020). For example, studies in China, the Czech Republic, and Uruguay have demonstrated that foreign direct investment (FDI) raises employment rates (Dinga & Münich, 2010; Karlsson et al., 2009; Peluffo, 2014). Additionally, foreign direct investment (FDI) boosted employment in Mexico, particularly in industries focused on exports (Waldkirch et al., 2009).

By developing forward and backward linkages in domestic industry, FDI can indirectly increase employment in the host country. Since FDI supports domestic firms, FDI can positively affect employment. In general, the level of investment affects employment positively in terms of macroeconomics. However, FDI may force out ineffective local firms because they cannot compete with more effective foreign firms. This displacement of local firms could eventually lead to a reduction in host country employment.

Another aspect of the spillover effect of FDI through technical transfer is increased average worker productivity in emerging nations. While output is expected to remain unchanged, fewer workers will be required, leading to a decline in employment. According to empirical investigation, it cannot be assumed that FDI inflows would always positively or negatively affect employment in host nations. Brincikova and Darmo (2014) examined the impacts of FDI inflows on employment in the Visegrad Group, which consists of the Slovak Republic, the Czech Republic, the Republic of Hungary, and the Republic of Poland. While the impact of FDI on employment was mostly unknown, it was confirmed to be favorable for greenfield FDI and harmful to privatization.

Habib and Sarwar (2013) investigated how FDI affects employment in Pakistan. The model considers currency rates, per capita GDP, FDI, and employment level. According to studies employing the Johansen maximum likelihood technique, FDI and GDP per capita are positively connected with employment level, whereas the exchange rate negatively correlates with employment. In addition, Atif et al. (2012) analyzed the effects of FDI on employment in Pakistan between 1980 and 2010. The findings indicated that FDI substantially and positively affects employment in Pakistan.

On the other hand, according to Bayar (2014), globalization was accompanied by significant trade volume growth and FDI flows during the 1980s. Examining the relationship between exports, economic expansion, unemployment, and FDI inflows in 2000: Q1-2013: Q3 in Turkey indicates a long-term correlation between unemployment, economic growth, exports, and FDI inflows. In addition, empirical evidence confirms that unemployment and export growth are inversely connected, but unemployment and FDI inflows are positively correlated.

Ying Wei (2013) investigated the impact of FDI on employment in China. This analysis uses time series regression models constructed between 1985 and 2011. The results indicate no positive link between FDI and employment in the Chinese economy and that this relationship differs by industry. Employment in the primary sector and FDI are highly positively connected. There is no significant association between FDI and secondary industry employment.

Meanwhile, the study conducted by Chen (2012) examined the correlation between employment and FDI in the context of China. From 1991 to 2010, using the GMM method, he identifies that historical and present employment and FDI are favorably associated.

According to Velnampy et al. (2013), there is no discernible link between FDI and unemployment in Sri Lanka. FDI and unemployment do, however, have a substantial long-term association.

Turkey's relationships with FDI, exports, unemployment, and GDP from 2000 to 2007 were studied by Aktar and Ozturk (2009). They discovered that the jobless rate is unaffected by changes in GDP. The study's findings indicate that FDI had a limited effect on reducing unemployment. However, using a sample of 19 sectors from 2000 to 2007, Hisarciklilar et al. (2010) show the potential impact of FDI inflows on sectoral employment within the Turkish economy. The results show that there is little correlation between FDI inflows and employment. Real wages, current and lagging FDI inflows, and trailing

employment are considered when determining employment. The findings show that FDI inflows are still negatively impacting employment levels.

Brincikova and Darmo (2014) computed the changes by factoring in the effects of FDI from the V4 countries (the Czech Republic, Hungary, Poland, and Slovakia) from 1993 to 2012. The findings allow the researchers to conclude that FDI has no effect on employment in the study area, either favorably or adversely.

Furthermore, Vijay (2013) studied the government's policy responses, explicitly concerning FDI in the Indian automobile industry from 2001 to 2011. The findings demonstrate a significant correlation between FDI, turnover, and the quantity of production personnel hired. In comparison, Deshmukh (2012) examined the impact of FDI on employment in India from 2000 to 2010. The results confirmed that FDI positively and substantially affected employment in various sectors.

Ayumu (2012) researched the effects of FDI on domestic employment and worker composition in Japan between 2003 and 2005. According to the data, companies that initiated FDI enjoyed more job growth than firms that only conducted domestic business. In addition, manufacturing firms had a more significant increase in the proportion of non-regular workers.

Lee et al. (2011) used the ARDL method from 1970 to 2007 to explore and empirically evaluate the impact of FDI on employment in Malaysia. Rather than the other way around, they discovered that FDI is the key driver of Malaysia's job growth. The results demonstrate no cointegration relationship between employment and FDI over the long term. Nevertheless, a direct causal link exists between FDI and employment, whereby FDI positively impacts employment.

Harari et al. (2012) evaluate the effects of FDI on Malaysia's unemployment rate and economic development from 1980 to 2010 using the OLS method. The results demonstrate that FDI contributed to declining unemployment and increased GDP.

Derek (2010) evaluated the impact of FDI on job growth and skill development in South Africa. The results indicated that FDI significantly impacts economic growth and promotes skill development and job creation in South Africa.

Using the OLS approach, Haddad (2016) evaluated the linkages and impacts of FDI on unemployment and real GDP in his research on the Jordanian economy. According to the analysis, Jordanian's unemployment rate was reduced as FDI increased between 1998 and 2015.

Mohammadv and Ketabforoush (2013) assessed the effect of trade and FDI on employment in 13 developing countries between 2002 and 2010 using panel data. The results indicate that trade and FDI positively and substantially affect employment. Additionally, the additional value has a positive effect, as inflation harms the economy and employment.

Vacaflores (2011) investigated how foreign direct investment (FDI) affected job creation in several Latin American states between 1980 and 2006. The findings show that foreign direct investment (FDI) significantly and favorably influences the generation of jobs in the 12 nations studied. The most notable effect of FDI is an increase in the share of men in the labor force. The beneficial effect is significant for the later sample period, particularly in developing nations with low inflation. Therefore, the benefits are only available to countries with high levels of informality and low average FDI inflows.

In Tanzania, Mpanju (2012) examined how FDI affected job creation from 1990 to 2008. The findings revealed a significant influence of FDI on the allocation of job opportunities and a robust positive association between FDI inflows and employment creation.

Using annual time series data from 1970 to 2012, Stamatiou and Dritsakis (2014) assessed the correlation between Greece's unemployment rate, FDI, and economic development. The findings are consistent with a long-term link between the variables considered. These findings offer various viewpoints and ideas for creating fresh approaches to investment and economic growth and lowering unemployment.

Balcerzak and żureck (2011) concentrated on the effects of FDI on labor markets. In Poland, an econometric analysis was conducted on the interdependencies between FDI and unemployment. The VAR approach was applied to quarterly data collected in aggregate from 1995 to 2009. The results highlighted the links between FDI and employment in Poland. The unemployment rate decreases when FDI increases. However, FDI often has a short-lived positive effect on the Polish labor market. It may imply that government attempts to promote FDI must be changed to provide favorable conditions for the long-term influence of foreign capital on the Polish labor market.

In a study conducted by Schemerer (2012), a straightforward framework for analyzing multi-industry commerce was introduced, considering the presence of labor market search frictions. The relationship between FDI and unemployment is evaluated by analyzing macroeconomic data obtained from 20 countries that are members of the OECD. The data was utilized to analyze a set of 20 countries during the time frame spanning from 1980 to 2003. The findings suggest a global correlation between the net FDI model and reduced levels of unemployment.

The study conducted by Massoud (2008) examined the inflow of FDI in Egypt for the period spanning from 1974 to 2005. The empirical evidence suggests that FDI has an impact on labor demand. In general, the effect of FDI on labor demand is minimal, except when there is an interaction with the technology gap. In contrast to mergers and acquisitions, agricultural, and services FDI, which had direct adverse and negligible interactive effects, greenfield manufacturing FDI had favorable interactions with human capital and exports.

Ajaga and Nunnekamp (2008) examined the long-term connections between state-level economic results regarding employment and value-added and inward foreign direct investment. They discovered strong proof of the advantageous effects of FDI on employment and production. Feedback effects are also quite significant.

Craigwell (2006) examined the relationship between employment and FDI between 1990 and 2000 for twenty English- and Dutch-speaking Caribbean countries. He found a one-to-one link between FDI and job creation within the sample of Caribbean states.

Lipsey et al. (2010) studied the employment increase in a broad sample of Indonesian plants from 1975 to 2005, focusing on foreign investors purchased from domestic ones. The researchers discovered that while changes in domestic ownership significantly impacted job growth rates, changes in foreign ownership had no discernible effects on factories whose ownership changed during our study.

Using panel data analysis, Mucuk and Demirsel (2013) examined the connection between FDI and unemployment in seven developing nations: Thailand, Turkey, Uruguay, the Philippines, Chile, Argentina, and Chile. Over the long run, all the statistics point to a correlation between FDI and unemployment; in Thailand, FDI reduces unemployment, whereas in Argentina and Turkey, it raises it. However, causality studies only show a long-term association between FDI and unemployment.

Using a three-sector general equilibrium model, Chaudhuri and Banerjee (2010) assessed the effects of FDI on agricultural land in a developing country with simultaneous unemployment for skilled and unskilled workers. The research showed how FDI could improve social welfare in agriculture. FDI can help address the issue of unemployment across the board for the workforce. Whether concentrating on the agriculture, secondary, or service sectors will increase economic growth and decrease poverty in a developing country is still debatable.

Nucu (2011) asserts that FDI inflows can strengthen a nation's balance of payments by generating new employment opportunities and easing access to cutting-edge technologies. Furthermore, FDI promotes economic expansion in Central and Eastern European countries. The analysis showed a positive association between FDI and GDP and a negative correlation between FDI and the unemployment rate.

Jayaraman and Singh (2007) examined the connections between Fiji's GDP, employment, and FDI from 1970 to 2003. The findings show a sustained, one-way causal relationship between FDI and FDI-driven employment.

In their 2007 analysis, Ramady and Saee focused on how FDI has changed Saudi Arabia's economic growth. Their study demonstrated that FDI has boosted GDP and created jobs in Saudi Arabia. Additionally, indigenous enterprises have profited from the new technology and production techniques these international firms have brought. It also mentioned that a sizable portion of the populace in the nation now had access to new jobs and infrastructure because of FDI.

A study by Hamrouni et al. (2019) showed that FDI positively affected employment in Saudi Arabia between 1980-2016. In addition, they found that both human capital and GDP impacted employment positively and significantly.

Additionally, Alkofahi (2020), utilizing OLS in her analysis, uses output and FDI as two explanatory factors and the unemployment rate as a dependent variable from 2005 to 2018. The study backs up the hypothesis that Saudi Arabia's unemployment rate is substantially and adversely impacted by both total output and FDI inflows, with FDI inflows creating more job possibilities and lowering the country's unemployment rate.

On the contrary, Khodeir and Alnuwaiser (2016) showed that FDI did not positively impact the employment of industrial workers between 1990 and 2014 in Saudi Arabia, which is contrary to the study's hypothesis. The empirical results have shown positive and significant effects of exports and inflation on industrial employment in the long run.

A growing interest has been in analyzing how FDI influences employment creation. Studies repeatedly demonstrate that FDI has a positive effect on employment, such as Alkofahi, 2020; Hamrouni et al., 2019; Haddad, 2016; Peluffo, 2015; Brincikova and Darmo, 2014; Stamatiou and Dritsakis, 2014; Habib and Sarwar, 2013; Goenka, 2013; Vijay, 2013; Muck, and Demirsel 2013; Deshmukh 2012; Schemerer 2012; Mohammadv and Ketabforoush 2013; Ayumu 2012; Chen 2012; Atif et al. 2012; Ayumu, 2012; Mpanju 2012; Shaari et al. 2012; Lee et al. 2011; Vacaflores 2011; Balcerzak and Żurek 2011; Nucu 2011; Liu, 2011; Balcerzak et al., 2011; Derek 2010; Chaudhuri and Banerjee 2010; Lipsey et al. 2010; Dinga and Münich

2010; Karlsson et al. 2009; Waldkirch, Nunnenkamp, and Bremont 2009; Ajaga and Nunnekamp 2008; Ramady and Saee (2007); Jayaraman & Singh, 2007; Craigwell, 2006; Craigwell, 2006; Mickiewicz et al., 2000). These studies support the notion that attracting FDI will enhance job creation.

However, other studies found a negative or no relationship between FDI and employment (Khodeir & Alnuwaiser, 2016; Bayar, 2014; Ying Wei, 2013; Velnampy et al., 2013; Aktar & Ozturk, 2011; Hisarciklilar et al., 2010; Massoud, 2008).

V. RESEARCH METHODOLOGY AND DESIGN

Determine the extent to which FDI influences employment in Saudi Arabia, directly and indirectly, through employment and ties to or spillovers from locally owned enterprises. The subsequent questions aim to determine how much FDI inflows contribute to job creation in Saudi Arabia.

A) Study Hypotheses

1) What types of FDI are prevalent in Saudi Arabia?
2) What is the ratio of capital to labor for Saudi Arabian FDI projects?
3) How does FDI affect Saudi Arabia's employment?

B) Methodology

a. Descriptive analysis

FDI helps diversify the economy by transferring knowledge and technology, which boosts economic growth. In addition, it works to produce new long-term jobs and recruits in the host economy. FDI will most likely lead to a net increase in the innovatory capacity of a host country, including job creation. Mainly there are two types of FDI: greenfield FDIs and acquisitions and mergers (M&As) FDI. The first is when new companies are formed, and the other is when ownership of pre-existing companies is transferred to foreign investors, which has less impact. Greenfield investments do not displace local businesses since they do not compete with local industries. Greenfield investment is beneficial for industrialization and job growth in developing nations. New jobs are invariably created at entry by greenfield FDI.

FDI through M&As does not generate employment when it enters a host country because no new production capacity is made in a merger or acquisition. Furthermore, it may lead to layoffs, although it can conserve employment if the acquired firm otherwise goes bankrupt.

In many economies, particularly in Emerging Europe in the early 2000s, jobs were produced by FDI in manufacturing, even for lower-skilled laborers who lived outside of capital cities. Countries have benefited from greenfield FDI flows as they transition from extraction to manufacturing and manufacturing to services (Zsoka Koczan et al., 2021).

On the other hand, employment may finally be created through cross-border M&A if successive investments are made, and the connections of the acquired companies are maintained or improved. As a result, the two modes' differences in creating jobs tend to blur over time and are more influenced by the reason for entering the workforce than by the form of entry. Restructuring for increased efficiency may result in job losses, but the effects might not be as severe as when greenfield FDI is eliminated.

The OECD FDI Qualities indicators approve that greenfield FDI projects produce jobs unequally across countries. The number of employments made by FDI projects in capital-intensive industries like mining or biotechnology is lower per dollar invested than it is, for example, in labor-intensive industries like clothing manufacture or healthcare. For instance, implementing greenfield FDI in Costa Rica or the Czech Republic creates approximately six employment opportunities per one million dollars invested. This figure is three times higher than the jobs generated by greenfield FDI in Kazakhstan or Luxembourg.

Providing jobs was one of the most critical government goals regarding the increasing unemployment rate. Therefore, it is of utmost importance for FDI to actively solve this problem by selecting the type of investment capable of creating many job opportunities through direct employment by MNCs. Moreover, increasing job opportunities in complementary local front and back firms is vital to increase national income and thus be reflected in economic growth.

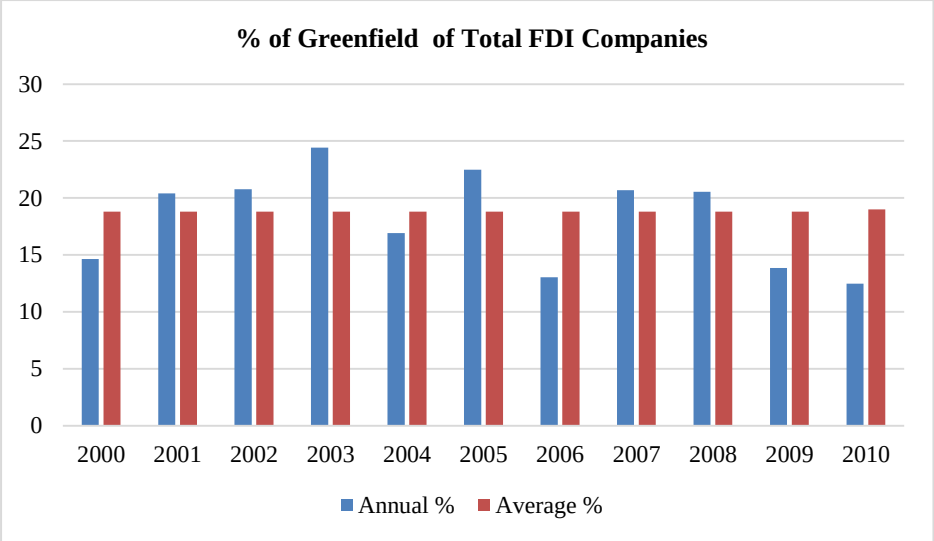

Figure 2: Percentage of number of Greenfield FDI Companies to the total number of FDI companies in Saudi Arabia from 2000 to 2009, Source: UNCTAD

Figure 2 indicates that only 15% of MNCs invested in Saudi Arabia in 2000 can be included under greenfield FDI. It increased to 21% in 2005, then decreased to 12.5% in 2010, with an average of 17% during the period (2000 -2010), which indicates the limited impact of FDI in diversifying the productive base by establishing new projects. In addition, in terms of value, Figure 3 shows a minor average percentage of greenfield FDI to total FDI stock (18%) during the period (2003-14); therefore, it can be concluded that the limited effect of FDI on job creation.

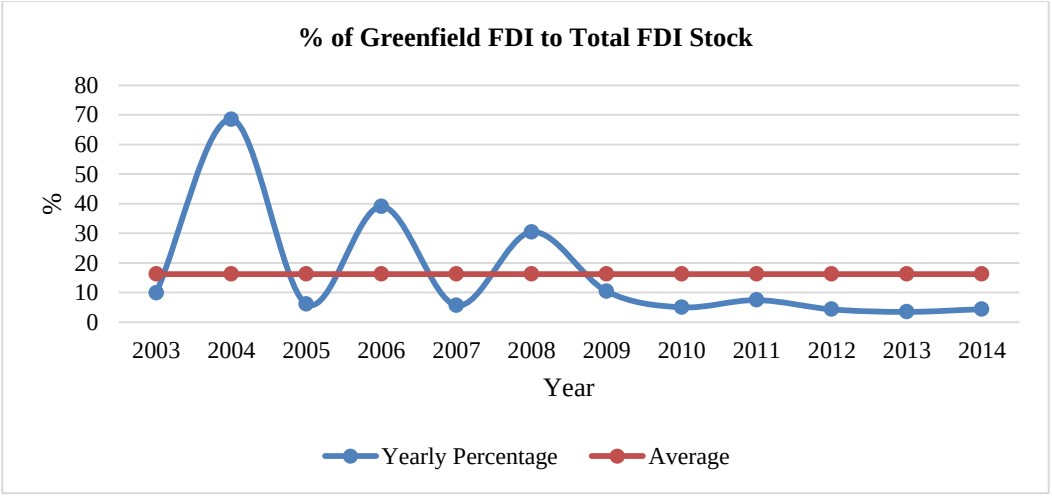

Figure 3: Percentage of Value of Greenfield FDI to the total value of FDI Stock in Saudi Arabia from 2003 to 2014,
** Source: World Investment Report, (2015, 2016) UNCTAD*

Regarding the second question of study hypotheses, table (1) shows that the ratio of capital to labor increased between 2005 and 2009, in the sense that the number of jobs created with increasing FDI decreased. For example, the capital-to-labor ratio numbers were equal to 151 in 2005. In other words, for every 151 thousand dollars of FDI, only one job is created. Table (1) also shows that this ratio increased to 392 in 2009, indicating the need to increase FDI volume to make only one job. By calculating the average ratio of foreign investment capital to employment numbers between (2005-2009), we find that it was 280 thousand dollars per worker. An average of 280 thousand dollars must be invested during the period above to provide only one job (one million creates three jobs). Undoubtedly, the average capital-to-labor ratio is considered high, which means that FDI needs to be more vital in creating new job opportunities. This situation degrades when the total capital of projects (foreign and joint) is used. The data indicate that these projects' total capital amounted to 329 thousand dollars, which doubles the capital-to-labor ratio and reduces the power of FDI in creating new job opportunities, as necessary. An average investment of 610 thousand dollars (2005-2009) produced only one job opportunity. FDI can be

considered capital intensive since the capital-labor ratio is high; consequently, it seems that FDI had a limited role in creating new jobs in Saudi Arabia in that period.

Table 1: Foreign and joint investment and the capital ratio to labor (2005-2009)

Years / Investment Volume and the Capital Ratio to labor	2005	2006	2007	2008	2009	(2005-2009)
Total projects investment (foreign and joint) (billion dollars)	74	125	173	235	300	907
Balance of FDI (billion dollars)	34	51	73	112	147	417
Total number of workers in FDI projects (thousands)	225	254	299	335	375	1488
Capital ratio (total project investment for foreigners and joint) to labor (numbers of employment) (thousand dollars)	329	492	579	701	800	610
The ratio of FDI capital to labor (thousand dollars)	151	201	244	334	392	280

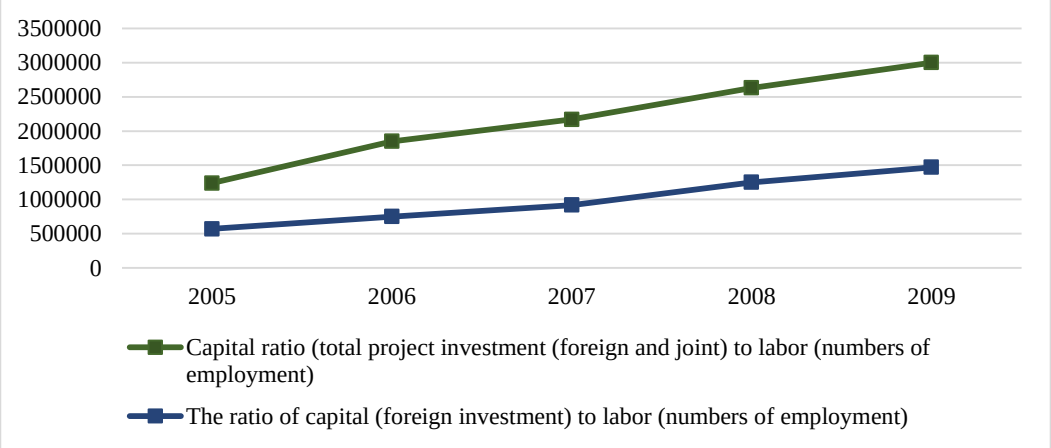

Figure 4: Investments (Foreign and Joint) to the labor between 2005-2009

* Source: The figure is calculated from the data published in the Annual Report of Saudi Arabia General Investment Authority (SAGIA) 2010.

b. Empirical Results

This study evaluated several models to determine how FDI has affected Saudi Arabia's employment. Educated population, inflation, and FDI stock are independent variables, with employment level as the dependent variable. This inquiry spans the years 1980 through 2014. OLS is utilized to determine how FDI has affected Saudi Arabia's employment. Regression analysis is constructed with the following model and hypotheses:

$$EMPL = \alpha + \beta 1\ EduP + \beta 2\ Inf + \beta 2\ FDIs + \varepsilon \quad (1)$$

Hβ1: A positive and significant link is anticipated between employment and the educated population (EduP).
Hβ2: A negative and significant link is anticipated between employment and the inflation rate (Inf).
Hβ3: A positive and significant link between employment and FDI stock (FDIs) is anticipated.

Saudi Arabian central bank, international publications, and various reports are used to get the data. Employment responds to changes in the explanatory factors. The dependent variable employment is included in the linear regression model. The primary assumption underlying this formulation is that the explanatory factors cause engagement in a unidirectional manner. In addition, a collection of explanatory variables complying with the weak exogeneity assumption is utilized to explain the variation of employment as an endogenous variable.

One of the model's explanatory variables is FDI stock, which attempts to quantify how FDI affects employment. Employment is expected to increase as FDIs increase, assuming all other variables remain constant. As a result, the FDI coefficient is projected to be positive.

Inflation attempts to assess how price stability affects employment levels. In addition, the macroeconomic performance of the government's fiscal policy is captured. In economics, a higher inflation rate signifies an increase in production costs caused by a spiraling wage price, resulting in layoffs and a decline in employment. Consequently, it is expected that inflation will be negative.

The educated population is expected to affect employment positively; a rise in the total educated people may reduce the wage rate due to an excess of skilled workers in the labor market, which will likely raise labor demand.

The following results were obtained by performing regression analysis on the data entered from Government Statistics. First, as seen in Table 2, the Model Summary revealed an adjusted R2 of 933.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.969[a]	.939	.933	.90747
a. Predictors: (Constant), Foreign Direct Investment, Educated People, Inflation b. Dependent Variable: Employment				

The regression analysis found that it best described the impact of FDI on employment in Saudi Arabia. FDI contributes to the rise in employment, although many other factors also have a significant role. Squaring the adjusted R2 =.933 shows that the model explains 93.3% of the variation, indicating a good predictive value. Additionally, Table 3 presents the outcomes of the ANOVA test.

Table 3: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	394.130	3	131.377	159.533	.000[b]
	Residual	25.529	31	.824		
	Total	419.658	34			
a. Dependent Variable: Employment						
b. Predictors: (Constant), Foreign Direct Investment, Educated People, Inflation						

The outcome indicates that the linear model is the most effective for estimating since the F statistic is highly significant at .000, indicating that the significance is less than .0005. The results of the ANOVA indicate that the independent variables utilized are very significant employment predictors, and the null hypothesis of zero difference is rejected.

The beta values for each independent variable are displayed in Table 4.

Table 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.456	1.842		6.219	.000
	Educated People (EduP)	1.730	.159	1.936	10.870	.000
	Inflation (Inf)	-14.172	2.650	-1.638	-5.349	.000
	Foreign Direct Investment (FDI)	4.017E-5	.000	.661	3.738	.001
a. Dependent Variable: Employment						

We can create the model formula after implementing the values in the Standardized Coefficients column. As the table illustrates, the t statistics for the three independent variables are significant. Standardization causes the constant to become 0 as a result, and:

$$\text{Employment} = 0 + 1.936 * \text{EduP} - 1.638 * \text{Inf} + .661 * \text{FDIs} \quad (2)$$

The relative significance of the explanatory factors as employment determinants is indicated by the t-ratios of the computed parameters in Table 4. Each explanatory variable directly impacts employment in Saudi Arabia, as evidenced by the significant coefficients of each variable at the 1% level and the predicted signs of all the coefficients. These findings align with the economic theory.

Table 5: The mean and standard deviation values for the employment (dependent variable) and FDI (independent variable)

	Mean	Std. Deviation	N
Total employment	7.8939	3.51325	34
FDI	34261.8587	57818.29442	34

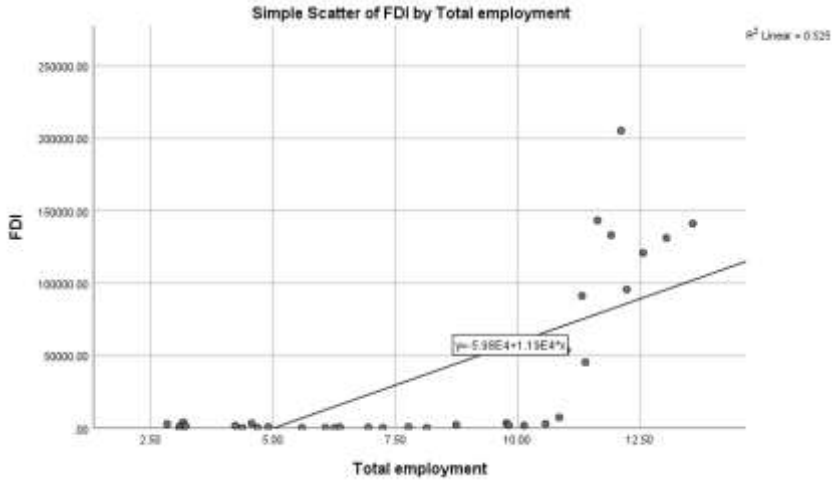

Figure 5: a simple scatter of FDI by total employment.

The model considered the 'Total employment' level during 34 years from 1980 until 2014 and its relation to the level of FDI and the increase in FDI capital buildup.

Table 6 shows the statistics of the residual.

Table 6: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.3863	15.4214	7.8939	2.54451	34
Residual	-3.67125	4.14220	.00000	2.42247	34
Std. Predicted Value	-.592	2.958	.000	1.000	34
Std. Residual	-1.493	1.685	.000	.985	34
a. Dependent Variable: Total employment					

To rule out any outliers in the data, we checked the residuals not exceeding the boundary of ±3.29, and the study data was within the range of -1.493 and + 1.685.

Table 7: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.724[a]	.525	.510	2.45890
a. Predictors: (Constant), FDI				
b. Dependent Variable: Total employment				

The r^2 of .525 means the level of FDI predicted 52.5% of the variance in total employment in those years. We checked the residuals not exceeding the boundary to rule out any outliers in

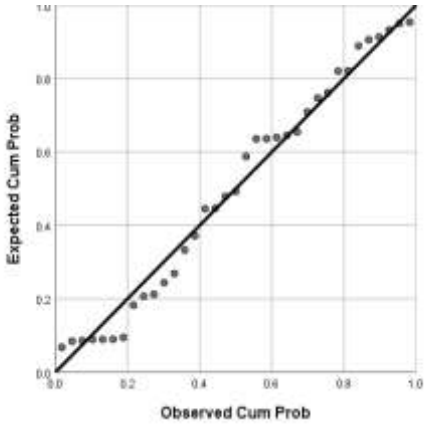

Figure 6: Normal P-P Plot of Regression Standardized Residual

The study checked for the normality of data through a Normal P-P Plot, which suggests the data is normally distributed along the line.

Table 8: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	220.134	1	220.134	36.409	.000[b]
	Residual	199.524	33	6.046		
	Total	419.658	34			
a. Dependent Variable: Total employment						
b. Predictors: (Constant), FDI						

ANOVA test showed that our model with one predictor (FDI) is better at predicting the level of employment than taking the mean. The model using FDI as a predictor was statistically significant in predicting employment level p<.001.

Table 9 shows the Beta values for FDI as an independent variable.

Table 9: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.386	.485		13.168	.000	5.399	7.373
	FDI	4.401E-5	.000	.724	6.034	.000	.000	.000
a. Dependent Variable: Total employment								

$$\hat{y} = 6.386 + .000044\ (x)$$

A bivariate linear regression was conducted to examine how the increase in FDI affects total employment, taking FDI values of the past 34 years, from 1980 to 2014. A scatter plot showed that the relationship between FDI and Total employment was positively linear and did not reveal any bivariate outliers. The correlation between FDI and total employment was statistically significant, $r(33) = .724$, $p < .001$.

The regression equation for predicting the total employment from the FDI level was $\hat{y} = 6.386 + .000044\ (x)$. The r^2 for this equation was .525, which means the level of FDI predicted 52.5% of total employment variance that year, suggesting a moderately strong predictor from the level of FDI. Each unit of increase in FDI value will affect the outcome, which is total employment by 4.401E-5; for every one unit of FDI, the total employment will increase by .000044 points (Unstandardized Beta coefficient value). For one SD increase in FDI, the total employment will increase by .724 of the SD.

VI. DISCUSSION

This study utilizes empirical analysis to investigate the impact of FDI on employment using the OLS method. According to the study's hypotheses, FDI and educated people positively impact employment in Saudi Arabia. However, inflation negatively affects employment.

As evidenced by the model estimation outcomes, all coefficients have signs consistent with the underlying theory. In other words, the results demonstrate that coefficients for all variables were statistically significant and had the predicted signs. During the study period, FDI and educated people had positive effects; however, inflation is detrimental to employment. Thus, it can be concluded that:

- According to the findings of the model, the hypothesis is accepted. The Edup coefficient's values indicate the independent variable Edup's influence on the dependent variable Empl significantly at 1%. Moreover, a value of 1.936, which implies a 194% increase in employment for every 1% increase in educated people, clearly demonstrates the influential role of educated people.
- According to the findings of the model, the hypothesis is accepted. The values of the inf coefficient indicate that the influence of the independent variable Inf on the dependent variable Empl is significant at 1%, a value of 1.638, which implies a 169% decrease in employment for every 1% increase in employment, clearly demonstrating the influential role of inflation.
- The values of the FDIs coefficient indicate that the independent variable FDIs influence on the dependent variable Empl is significant at 1%. Furthermore, a value of .66 can be attributed to each 1% change in FDI, clearly demonstrating the influential role of FDI.
- The hypothesis is accepted based on the model's results. The results validate the present study's fundamental hypothesis, which shows a direct positive correlation between the increase in FDI and overall employment in Saudi Arabia.

VII. CONCLUSION AND RECOMMENDATIONS

Attracting and growing FDI boosts employment in Saudi Arabia but is not the key driver during the study period. The appropriate policy is needed to handle these concerns to maintain and increase FDI in the country. FDI favors employment in Saudi Arabia, although other solutions exist to the country's employment problems. Policymakers should be concerned about FDI to boost the Saudi Arabian economy. The outcomes of our study are significant for policy implementation. FDI can grow jobs and accelerate economic expansion. It also can pursue the modernization and productivity of Saudi Arabia's highly qualified human resources. These outcomes are essential for creating and executing policy, and policymakers should be concerned about greenfield FDI because it can stimulate domestic job growth and employment possibilities.

Interest Conflicts

The author declares that there is no conflict of interest concerning the publishing of this paper.

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