

DYNAMICS OF FDI AND INDUSTRIALISATION INTERPLAY ON G7 GROWTH: PANEL DATA, 1982-2024

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ABSTRACT

This study analyses the dynamics of interaction among Foreign Direct Investment (FDI), industrialisation, and industrial labour and their effects on economic growth in G7 countries during the period 1982-2024. The objective is to examine the relationship among these three factors that can drive long-term growth, while taking into account the roles of international trade and inflation. Using unbalanced panel data from the World Development Indicators, this study applies a fixed-effects model, selected through a Hausman test, to analyse the direct impact of key variables and the interaction effects between FDI and industrial output, as well as between FDI and industrial labour. Empirical results show that, contrary to theoretical expectations, neither FDI, industrialisation, nor industrial labour has a significant positive effect on economic growth among G7 countries. The interaction between FDI and industrialisation has a significant negative impact, indicating diminishing returns in mature advanced economies. The only consistent and significant driver of growth is international trade integration. These findings highlight the complexity of the FDI-growth relationship in developed countries and contribute to the literature by revealing internal heterogeneity and non-linear interaction dynamics, emphasising that the benefits of FDI are not automatic but rather highly dependent on structural conditions and domestic absorption capacity that has reached a certain saturation point. The policy implications of this study call for an approach that focuses more on strengthening trade and innovation rather than simply attracting foreign capital inflows.

Keywords: FDI, Growth, Industrialisation, G7

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I. INTRODUCTION

Ever since Robert Solow developed the theory of the production function in 1957, labour and capital have been considered significant categories of inputs the economy needs (Solow, 2014), while, according to him, the industrial sector has historically been the main contributor to economic growth and employment. Previous studies have often produced inconsistent findings regarding the impact of FDI on economic growth Alfaro et al., (2010). The empirical evidence on the effects of FDI is highly diverse, ranging from beneficial to detrimental. This shows that the benefits of FDI are not necessarily felt by all countries but depend heavily on the domestic economy's absorptive capacity, including the level of financial market development and the availability of skilled labour.

Alfaro et al., (2010) revealed that the main mechanism by which FDI can drive growth is through downstream linkages between multinational companies and local suppliers in the raw materials sector. However, this mechanism is only effective if supported by a well-developed domestic financial market, which enables local entrepreneurs to overcome financing constraints and expand their connections in the raw materials market. Alfaro & Chanda (2000) provides evidence that only countries with well-developed financial markets benefit significantly from FDI in terms of growth rates.

Mthimkhulu et al., (2025) studied in 63 provinces in Vietnam (2006-2021) reinforced the findings of Alfaro et al., showing that FDI significantly reduces the economy through two main channels: economic growth and improvement in the quality of governance. They also found that the economies in the formal and informal sectors alternate. These findings confirm that the benefits of FDI are not automatic, but are highly dependent on the state of domestic institutional and policy conditions.

On the other hand, Mohsin et al. (2022) found that FDI does play a role in increasing production levels and modernising the economy, but also causes environmental consequences such as increased CO₂ emissions. They found that FDI is the cause of a one-way cause-and-effect relationship (Granger) of CO₂ emissions, which shows the complex reciprocal relationship between FDI, economic growth, and environmental degradation. These findings reinforce its importance in assessing the impact of FDI, particularly in industrialised countries such as the G7.

Tariq et al. (2023) studied countries from different income groups and found that FDI, fixed capital formation, and infrastructure consistently drive economic growth, including in high-income countries. They show that a 1% increase in FDI contributes to a 0.003% increase in GDP per capita in high-income countries, while capital and infrastructure formation also have a significant positive impact. These findings corroborate the strategic role of FDI and capital accumulation in economic growth, although the study did not specifically examine the interaction between FDI and industry and workers in industry.

However, research gaps persist, especially in developed countries such as the G7, where most studies focus on the national level or on aggregate productivity and pay less attention to the interaction between FDI and industrial and labour structures in greater detail (Ferraz et al., 2025). As affirmed by Ferraz et al., (2025), FDI can strengthen local production structures and drive economic complexity, but the impact is non-linear and highly dependent on territorial uptake, including the availability of skilled labour and institutional quality. Their study at the Brazilian municipal level shows that FDI only positively impacts economic complexity when absorption capacity exceeds the minimum threshold, highlighting the need for a more integrated approach between FDI policy and domestic capacity strengthening. Therefore, this study aims to analyse the dynamics of the interaction between FDI and industrialisation on economic growth in the G7 countries for the period 1982-2024, by including the interaction variables of FDI-industrialisation and FDI-industrial labour, as well as several other variables to understand how the synergy between foreign investment, industrial base, and human resources can support long-term growth in a country's economy.

II. LITERATURE REVIEW

2.1. Theory and Conceptual Framework

Based on a review of the studies (Aloui et al., 2024; Emako, 2022; Mohsin et al., 2022; Salvatore & Shankar, 2025; Sichoongwe, 2025; Tariq et al., 2023), this research is built on a solid, multidimensional theoretical foundation. Neoclassical growth theory Solow, (1978) remains the cornerstone, enriched with key concepts. The absorption capacity concept (Emako, 2022; Tariq et al., 2023) and the role of trade as a growth facilitator (Salvatore & Shankar, 2025) confirm that the benefits of external factors are contingent on domestic conditions. Tiberius, (2015) adding important nuances by differentiating the types of foreign investment, revealing the advantages of equity investment over debt instruments. Meanwhile, Kyrkilis & Simeon (2015) provided valuable lessons from case studies on the failure of sectoral linkages between industry and agriculture, which ultimately hinder economic transformation.

Mohsin et al., (2022) adds an environmental dimension by showing that rising environmental costs from CO₂ emissions can erode the economic benefits of FDI inflows. Aloui et al., (2024) emphasises the role of governance as a critical moderation factor in the relationship between FDI and poverty reduction, while Minh & Hoai, (2025) integrating the Resource-Based View (RBV) and highlighting the interaction among energy, finance, and technology in the process of industrialisation. This is very relevant to the G7, as it asserts that, for developed countries, the rate of economic growth and development depends primarily on internal conditions. Based on the foundations of neoclassical and endogenous growth theories and supported by empirical findings from several studies confirming the positive role of FDI and

domestic factors, hypotheses are formulated regarding the direct impact of key variables:

- H1a.* Foreign Direct Investment (FDI) has a positive and significant effect on the economic growth of G7 countries.
- H1b.* The level of industrialisation has a positive and significant effect on the economic growth of the G7 countries.
- H1c.* The number of workers in the industrial sector has a positive and significant effect on the economic growth of G7 countries.

2.2. Interaction Patterns

The empirical findings from the articles provide complementary evidence on the positive yet heterogeneous impact of FDI and the complexity of its interactions with domestic factors. Sichoongwe, (2025) and Emako, (2022) emphasise the importance of the manufacturing sector and human capital. Tariq et al., (2023) found patterns of heterogeneity by income level, with a smaller impact (0.003%) in high-income countries. Salvatore & Shankar, (2025) presents up-to-date comparative evidence that is directly relevant to the G7, showing that for developed countries, exports contribute positively to capital formation and subsequently to economic growth, while industrialisation drives exports. However, they also reveal an internal heterogeneity that is crucial for large-sized developed countries: exports and capital inflows contribute negatively to fixed capital formation, a finding that challenges conventional assumptions. Tiberius, (2015) provides specific evidence that both FDI and FPI liabilities and assets have a positive impact on economic growth. However, this statement applies only to equity instruments.

On the other hand, Kyrkilis & Simeon, (2015) provides an empirical example of the failure of interaction in Greece, where failed industrialisation left the agricultural sector undiversified and less competitive. Aloui et al., (2024) found that FDI's impact on poverty reduction varies across regions and is positively influenced by its interaction with governance quality. Minh & Hoai, (2025) suggests that energy production drives industrialisation, while energy consumption and prices are inhibitory, and that developments in the financial sector and technological advances can moderate this relationship. Mohsin et al., (2022) reminded that FDI can increase CO2 emissions, potentially undermining its economic benefits. For the G7 research, this synthesis affirms the need to analyse the interaction of equity FDI with innovation-based industrialisation, investigate the reasons behind the negative impact of FDI and exports on capital formation in large-sized developed countries, as hinted at (Salvatore & Shankar). With reference to the theoretical framework in Figure 1 and to the interaction at a more detailed level, this hypothesis is proposed to complement the research. In the context of G7 developed countries, industrialisation and labour in industry are thought to be key absorptions that create synergies:

H2a. There is a significant positive effect of the interaction between FDI and industrialisation on economic growth.

H2b. There is a significant positive effect of the interaction between FDI and industrial labour on economic growth.

2.3. Research Gap

This collection of articles critically identifies multidimensional research gaps. Previously identified gaps, such as sectoral data limitations (Sichoongwe, 2025), a short analysis period (Tariq et al., 2023), and a lack of consideration of institutional quality (Emako, 2022), were strengthened and expanded by the latest articles. Contributions from other Articles Salvatore & Shankar, (2025) explicitly highlight a gap: the limited number of studies exploring how geoeconomic fragmentation is changing trade-growth relations. Their findings on the heterogeneity of impacts within the group of developed countries also hint at a gap in understanding of their internal dynamics. Of the studies reviewed here, only Salvatore and Shankar (2025) and Tariq et al. (2023) look specifically at developed or high-income economies, and neither tests how FDI interacts with industrial structure or industrial-labour absorption under conditions of trade fragmentation — the G7-specific dynamics this study addresses remain largely untouched. Tiberius, (2015) filled the gap by focusing on the FDI-FPI comparison and the instrument type. Kyrkilis & Simeon, (2015) Contribute through in-depth historical case studies of industrial policy failures and sectoral linkages. Mohsin et al. (2022) identified gaps in the consideration of the environmental impact of FDI and called for adaptation towards green resources. Aloui et al., (2024) fill the gap by examining the role of governance moderation in the FDI-poverty relationship and conducting a comparative analysis between regions. Minh & Hoai, (2025) emphasising the gap in understanding the interaction of energy, finance, and technology in the process of industrialisation in Sub-Saharan Africa. In the context of a study of G7 countries, this study leverages long-term panel data from 1982 to 2024 to bridge the era of full globalisation and the early phases of geoeconomic fragmentation. The analysis focuses on the G7 group of countries, which are homogeneous in terms of economic development, but it is precisely the differences in policies and industrial structures that provide space to investigate the internal heterogeneity that occurs. This study is deepened by differentiating the types of foreign investment and analysing the interactions that occur in various sectors. In direct response to the latest academic call, this study explicitly examines the implications of geoeconomic fragmentation and trade tensions on the dynamic relationship between FDI, industrialisation, and growth. In addition, integrating insights from failure case studies aims to provide a more mature perspective for developing a more resilient policy framework in the future.

The theoretical framework underpinning this study positions economic growth as the primary outcome variable driven by the simultaneous dynamics among FDI, industrialisation, and industrial labour, with trade serving as a facilitative

channel. The model is rooted in a synthesis of neoclassical and endogenous growth theories, enriched by the concepts of absorptive capacity and the role of trade as a handmaiden of growth. Within this construct, industrialisation and FDI are not treated as separate forces but as mutually reinforcing drivers operating through direct and multiplicative interaction channels.

Industrialisation contributes directly to economic growth via two main pathways: the expansion of industrial sector output and the absorption of labour into that sector. These contributions materialise through several fundamental mechanisms. First, manufacturing sector expansion creates employment opportunities, thereby raising household incomes and domestic consumption capacity. Second, industrialisation facilitates technology transfer that enhances productivity and innovation capability, processes often deepened by the presence of foreign investment and international trade. Third, industrial deepening fosters labour skill development, improving overall economic competitiveness. The structural transformation from agriculture to a more productive manufacturing base establishes the foundation for sustainable growth, while the simultaneous expansion of trade, finance, and transportation sectors generates positive multiplier effects throughout the economy.

On the other hand, FDI serves as a vital catalyst that accelerates economic growth through multiple channels. Capital inflow, particularly in the form of equity instruments, transfers advanced technology and managerial expertise from developed economies, thereby raising productivity and innovation capacity in the host economy. FDI also supplies the necessary capital for infrastructure and industrial development, helping overcome domestic savings constraints. The presence of multinational enterprises intensifies market competition, compelling local firms to improve efficiency and product quality. Furthermore, FDI creates employment opportunities that stimulate domestic demand.

The distinctive feature of this model lies in its explicit treatment of the interaction effects of FDI on industrialisation and on industrial labour. These interaction terms capture the synergistic effects that arise when foreign investment coexists with a robust industrial base and an adequate industrial workforce. When FDI enters an economy with a certain level of industrial capacity, technology transfer and productivity gains are realised more effectively due to enhanced absorptive capacity. Conversely, industrialisation unaided by foreign capital and technology tends to proceed more slowly. Accordingly, the interaction variables represent multiplier effects that amplify the positive impacts of each element on growth and accelerate structural transformation. The directional relationships in this framework constitute a self-reinforcing feedback cycle; the economic growth achieved subsequently attracts further FDI and encourages deeper industrialisation.

Ultimately, the interactive dynamics between industrialisation and FDI form a cycle that enhances national productive capacity, international competitiveness, and economic resilience. This entire mechanism facilitates sustainable and inclusive growth in the context of advanced economies such as the G7, where domestic conditions ranging from institutional quality and innovation policies to the structure of the industrial sector are the decisive factors in converting external potential into tangible growth performance.

III. METHODOLOGY

3.1. Data

We use unbalanced panel data, with secondary data from the World Bank Development Indicators, covering the period from 1982 to 2024 and G7 countries such as Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The choice of this period is based on the research's focus on the era of global economic liberalisation and international financial market integration, which is particularly relevant for understanding the patterns of economic growth in G7 countries driven by industrialisation and FDI. Over the period 1982-2024, the analysis aims to accurately assess the impact of structural reforms, changes in economic policy, and the integration of G7 countries into the global economic system. This period encompasses significant economic transformations and policy initiatives aimed at encouraging innovation-based industrialisation and enhancing global competitiveness, such as globalisation and digitalisation.

3.2. Research Model

To find a complete influence on the impact of the dynamics of FDI, industrialisation, and labour interactions on the industrial sector, as well as other variables, *trade* and inflation, which are influential in determining the effect on economic growth in the G7 countries for the period 1982-2024, we used several research models:

a) Basic Model

$$GDP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 INDS_{it} + \beta_3 UMN_{it} + \beta_4 TRADE_{it} + \beta_5 INF_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

b) Interaction model (FDI*INDS)

$$GDP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 INDS_{it} + \beta_3 UMN_{it} + \beta_4 TRADE_{it} + \beta_5 INF_{it} + \beta_6 (FDI \times INDS)_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

c) Interaction model (FDI*UMN)

$$GDP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 INDS_{it} + \beta_3 UMN_{it} + \beta_4 TRADE_{it} + \beta_5 INF_{it} + \beta_6 (FDI \times UMN)_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (3)$$

Where *i* and *t* express the country and time of year in a row and the constant way; β is the regression coefficient, β_1 - β_7 is the magnitude of the influence of the variable on GDP, μ is a fixed effect, λ is the temporal effect, and ε is the error term.

The fixed-effects model (GEF) and the random-effects model (REM) are the most commonly used techniques for panel data analysis (Bokpin & Arko, 2002). Many researchers use and recommend fixed-effects (FE) and random-effects (REM) models to address recommend fixed-effects (FE) and random-effects (REM) models to address this issue. Based on the results of the Hausman test, the Prob > Chi2 number was 0.0045, which is smaller than < 0.05, so it was selected using the fixed effect models (FEM) (Hausman, 1978).

IV. RESULTS AND ANALYSIS

The results for all variables used in the study are presented in Table 1. The GDP and FDI variables had positive mean values of 1.56 and 2.00, respectively, but exhibited a fairly high spread, with standard deviations exceeding their means. This indicates a fairly wide variation in the data distribution, reflecting sharp economic fluctuations between GDP and FDI during the study period.

Table 1. Variable Explanation

Variable	Description	Source
Economic growth rate(%GDP) (GDP)	An annual percentage change in GDP, which indicates economic growth.	World Bank (Indicator, 1945)
Foreign Direct Investment, Net inflows (% GDP) (FDI)	The net value of investment inflows. It is expressed as a percentage of GDP.	World Bank (Indicator, 1945)
Industry (including construction), (% of GDP) (INDS)	Contribution of the industrial sector to total GDP	World Bank (Indicator, 1945)
Employment in industry (% of total employment) (UMN)	The proportion of total labour employed in the industrial sector	World Bank (Indicator, 1945)
Trade (% of GDP) (TRD)	The amount of export and imports of goods and services, expressed as a percentage of GDP	World Bank (Indicator, 1945)
Inflation, consumer prices (annualized %) (INF)	Percentage change in the consumer price index (CPI)	World Bank (Indicator, 1945)
Interaction of FDI and industrialization (inte_fdi_inds)	Interactions that have a combined effect of FDI and industrial activities on economic growth	Writer
Interaction between FDI and workers in industry (inter_fdi_umn)	Interactions that derive the combined effect of FDI and worker activities in industry on economic growth	Writer

Figure 1 illustrates the economic growth trend (GDP) of the G7 countries during the period 1991-2023. It is clear that all G7 members experience fluctuations in economic growth with a fairly synchronous pattern, showing the high level of integration in this group of countries, several global economic phenomena can be

identified visually, such as the recession in 2008-2009, COVID-19 in 2020 which triggered a sharp decline and a relatively rapid recovery, although it shows a similar pattern, there are variations in the level of volatility and resilience of each country.

FDI fluctuations can be driven by dependence on dynamic external conditions, such as global economic turmoil and policy and political uncertainty in recipient countries (Zardoub, 2025). FDI flows can exhibit significant fluctuations due to political issues, conflicts, and global economic crises (Kenh, 2025). In addition, fluctuations driven by high exchange-rate volatility and interest-rate differentials can create a risky, potentially negative currency-competition environment for capital flows, including FDI (Neeraj & Trofimov, 2024). These fluctuations can also occur due to differences in policies across countries and the type of FDI that enters (Ozkan et al., 2024).

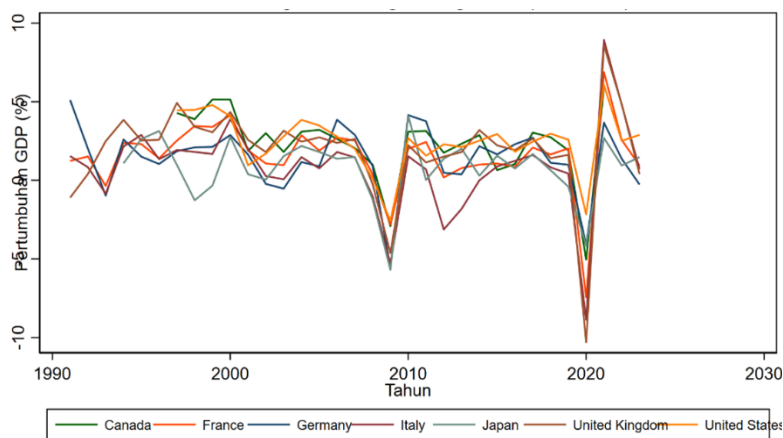


Figure 1. GDP Trends

The industrial structure and the level of workers in the industry reflect a long-term economic transformation that is moving slowly. Industrialisation is a process of change from an agriculture-based economy to large-scale production of goods, while workers in industry develop along with industrialisation itself, so the changes are short-term fluctuations. (Sichoongwe, 2025). Structural transformations, such as the shift from dependence on agriculture to labour-intensive manufacturing, are long-term processes that have unfolded over decades. (Kenh, 2025). This stability is also supported by the services sector, which tends to be less sensitive to exchange rate fluctuations than the goods sector, because it relies more on non-price factors such as service differentiation and long-term contract relationships. (Neeraj & Trofimov, 2024).

Table 2. Descriptive Analysis

variable	mean	sd	min	Max
gdp	1.55604	2.44717	-10.2969	8.93106
fdi	1.99832	2.08862	-0.89387	12.6085
inds	23.6732	4.4441	16.08773	34.5539
umn	25.4472	4.98896	17.7684	39.0814
trd	50.577	17.305	15.81031	89.0641
inf	1.96613	1.63409	-1.35284	8.20129

Source: Author's work

The trd variable recorded the highest average value, which was 50.58% of GDP, with a large standard deviation of 17.31. This suggests that despite the relatively high average level of economic openness, there is a striking difference between highly open and less open countries in the sample. This variation is greatly influenced by each country's policy towards trade liberalisation. Some countries are actively pursuing global integration through policies that promote exports and imports, while others are more protectionist, resulting in significant variation across G7 countries (Sichoongwe, 2025). Trade openness has different impacts across continental regions, such as between Asia and Europe, reflecting differences in policies, domestic economic structures, and levels of integration with global markets (Thi et al., 2025). Financial globalisation, which reflects a country's openness to international financial flows, also has diverse effects on economic growth across countries, influenced by each country's domestic policies and conditions (Ozkan et al., 2024).

Table 3. Variable Correlation

Variables	gdp	fdi	inds	umn	trd	inf	inte_fdi _inds	inter_fdi _umn
gdp	1.000							
fdi	0.189	1.000						
inds	0.028	-0.173	1.000					
umn	-0.061	-0.246	0.651	1.000				
trd	0.053	0.330	-0.151	-0.158	1.000			
inf	0.215	0.046	-0.140	0.007	0.172	1.000		
inte_fdi_inds	0.202	0.973	-0.034	-0.171	0.365	0.041	1.000	
inter_fdi_umn	0.190	0.969	-0.097	-0.102	0.330	0.038	0.974	1.000

Source: Author's work

The inflation rate (inf) has a low, controlled average of 1.97%, with a negative minimum and a maximum of 8.20%, indicating that most observations experience

moderate inflation, although there are periods of higher price pressures. Table 3 shows that FDI has a positive relationship with its interaction variables. This can be seen from the FDI correlation values with *inte_fdi_inds* (0.973) and *inter_fdi_umn* (0.969). However, the relationship between FDI and economic growth (GDP) looks weak (0.189). On the other hand, the variables for the level of workers in industry (*umn*) and the level of industrialisation (*inds*) showed a fairly strong positive correlation (0.651), indicating that increases in *inds* are related to increases in the number of *umn*, or vice versa. Meanwhile, the relationship between FDI and *inds* and *UMN* was negative, at -0.173 and -0.246, respectively. The *trd* variable has a positive effect on GDP but tends to weaken, with FDI strengthening the effect. Inflation (*inf*) has a weak positive relationship with all variables; however, the correlation coefficients are not necessarily significant.

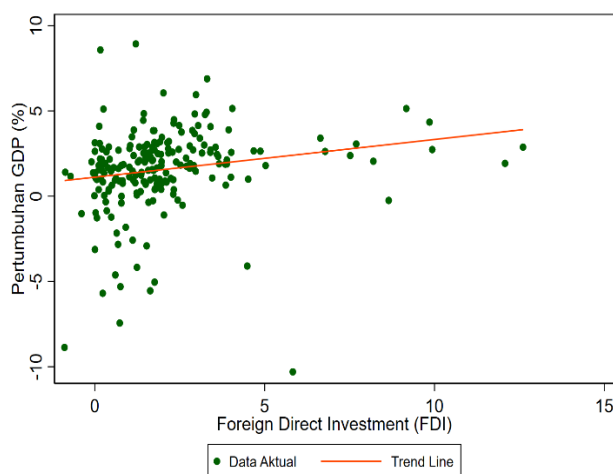


Figure 2. Relationship between FDI and GDP Growth

Source: Author's Work

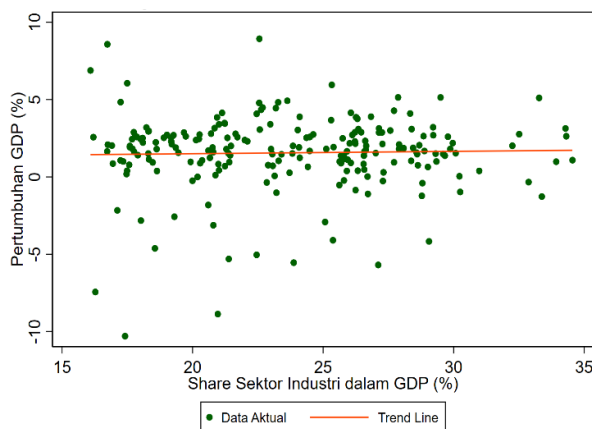


Figure 3. Relationship between Industrial Relations and GDP Growth

Source: Author's Work

Figure 2 shows an interesting relationship between FDI and GDP. Randomly scattered dots, which become absurd between the highest points of FDI, coincide with sluggish economic growth. Meanwhile, high economic growth actually occurred at a time of fairly moderate FDI. This pattern explains that in mature countries such as the G7, the relationship between FDI and economic growth is no longer valid.

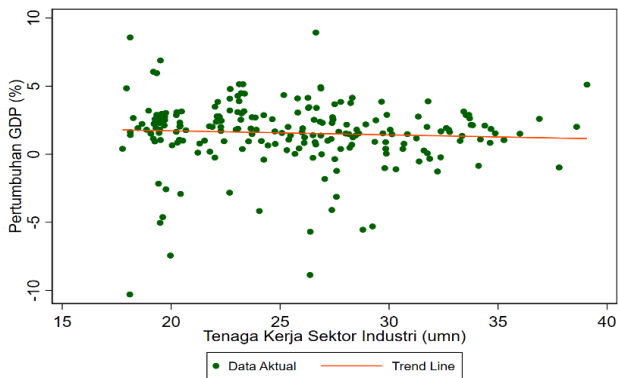


Figure 4. The relation between UMN and GDP

Source: Author's Work

Figure 3 illustrates the role of the industrial sector in the economy. The data points gathered in the 20-30% range of the industry's contribution to GDP do not show a systematic increase in economic growth. Even at a time when the industry is at the highest point of mediocre economic growth, this indicates that the economies of developed countries no longer rely on the industrial sector's large contribution but on its quality and productivity.

Figure 4 shows changes in the employment structure across the G7 countries. It has a similar pattern to industrialisation, but is more offensive to the human side of economic transformation. The dots are gathered in the range of 20-30%. The nearly flat trend line indicates that changes in the share of workers in the industrial sector no longer automatically lead to higher economic growth.

Based on Table 4, the results of observational regression for G7 countries during the period 1982-2024 reveal a typical growth pattern in developed economies, with complex dynamics between external and domestic factors. Of the five hypotheses proposed, only one variable consistently supports the growth theory, while the others yield findings contrary to expectations.

Table 4. Regression Results

	Basic Model	Interaction Model (FDI*INDS)	Interaction Model (FDI*UMN)
fdi	0.111 (0.090)	0.307 (0.755)	0.186 (0.684)

inds	0.172 (0.181)	0.191 (0.170)	0.292 (0.164)
umn	0.230 (0.173)	0.231 (0.134)	0.140 (0.131)
trd	0.103*** (0.035)	0.106** (0.030)	0.102** (0.028)
inf	0.143 (0.117)	0.139 (0.083)	0.143 (0.087)
inte_fdi_inds		-0.009 (0.029)	-0.037 (0.034)
inter_fdi_umn			0.031 (0.019)
_cons	-14.077*** (3.531)	-14.675** (4.359)	-14.546** (4.411)
N	214	214	214
r2	0.139	0.140	0.148
r2_a	0.092	0.115	0.119

Standard errors in parentheses
 $*p < 0.10$, $**p < 0.05$, $p < 0.01$

Source: Author's work

Hypothesis H1a, which states that FDI has a positive effect on economic growth, is not proven in the context of G7 countries. Although the FDI coefficient is 0.111 in the base model, a significance value of 0.090 indicates that the inconsistency in the relationship is significant. Even in the interaction model, the significance value weakened, with a p-value of 0.755, the same as the study Bassem, (2025), showing that although FDI contributes positively to GDP, the magnitude of the impact is smaller in developed countries globally. These findings are also in line with research, Carbonell et al., (2018) Quoted from the research Arya et al., (2022) concluding that there is no consistent relationship between FDI and economic growth in developed countries, the findings of this decline are in line with neoclassical growth theories about diminishing of return that the addition of physical capital and labour will increase economic output, but the increase in capital will provide a smaller additional yield (Solow, 1978). As revealed Sichoongwe, (2025), the effectiveness of FDI is highly dependent on certain socio-economic contexts, and in G7 countries that have achieved a high level of progress, the impact of FDI is experienced diminishing returns significant", research Elian, (2025) found that in developed countries such as Japan, which is a member of the G7, provides evidence that the impact of FDI on GDP is asymmetrical and tends to be weak in the long term, which is suspected due to

already high levels of technology and domestic capacity.

H1b's hypothesis regarding the positive influence of industrialisation also lacked sufficient empirical support. The industrialisation coefficient, which ranged from 0.172 to 0.292, was not statistically significant (p-values: 0.164-0.181). Likewise, for H1c on the influence of industrial sector labour, although the coefficient shows a positive result (0.140-0.230), the statistical insignificance, with p-values of 0.131-0.173, makes this hypothesis unacceptable.

The dynamics of the tested interactions yielded quite surprising findings. Hypothesis H2a, which posits a positive interaction between FDI and industrialisation, actually shows a significant negative relationship. The FDI*INDS interaction coefficient of -0.037, with a p-value of 0.034, indicates that the industrial structure is mature or peaked, allowing for diminishing returns. The presence of FDI is actually counterproductive to economic growth. While H2b regarding the interaction of FDI and labour in the industrial sector, although positive (0.031), is not statistically significant with a p-value of $0.019 < 0.05$, so this hypothesis cannot be supported or fails to accept the hypothesis H2b. The complexity of the interaction between FDI and industry lies in the fact that its impact depends heavily on the institutional context and a country's level of development (Arya et al., 2022; Bassem, 2025).

In all estimated models, international trade integration (trd) consistently emerged as the most influential and statistically significant driver of growth. The trd coefficient was stable at approximately 0.103, with p-values of 0.001 in the base model and 0.005 in the interaction model, indicating that trade resilience is a growth factor. These findings are in line with research Kim & Lee, (2012) which concludes that both trade openness and trade globalisation contribute most to economic growth, with trade openness showing greater sensitivity to growth. In the context of G7 countries that have already established trade infrastructures, more concrete mechanisms, and resource efficiency through international trade work optimally, making them a key driver of sustainable growth, according to the study Xuan, (2025) in Singapore, affirming that trade openness is a key driver of economic growth, especially in countries with advanced trade infrastructure.

V. CONCLUSION AND RECOMMENDATION

The study examined the dynamics of the interaction among Foreign Direct Investment (FDI), industrialisation, industrial labour, inflation, and international trade in G7 countries over more than four decades (1982-2024), yielding a number of crucial findings that differ from conventional narratives about the drivers of economic growth in developed countries. The empirical analysis reveals a complex economic reality in which the mechanistic, direct relationship between traditional input variables and growth output no longer holds.

These observational findings consistently fail to confirm the initial hypothesis that FDI, the rate of industrialisation (represented by industrial sector output), and the number of workers in the industrial sector individually have a positive and significant impact on economic growth. The positive but statistically insignificant coefficients for these three variables provide clear evidence that, for the world's most developed economies, diminishing returns are evident. The economies of the G7 countries have reached the maximum level in terms of physical capital accumulation and basic industrial structures. Additional foreign investment, in the measured aggregate form, is no longer easily a productivity jump. Similarly, the further expansion of the industrial sector, whose contribution to GDP has stabilised at 23-24%, is no longer the main engine of economic growth.

The economic growth models of the G7 countries have evolved beyond reliance on the accumulation of physical capital and the expansion of traditional manufacturing industry sectors. They have entered a phase of 'post-industrial' growth driven by innovation, knowledge, and deep global integration, with trade as its main channel.

Based on these findings, we recommend that (1) G7 governments need to shift from policies that merely pursue the quantity of FDI inflows to a highly selective and qualitative approach, incentives should focus on the types of FDI that actually create added value; (2) strengthening the foundations of innovation and trade-based growth, budget and policy priorities should be focused on strengthening the pillars of the post-industrial economy; (3) Industrial policies should no longer aim to protect or grow traditional industrial output, but should be focused on creating highly competitive industries; and (4) FDI screening mechanisms should distinguish greenfield investment from mergers and acquisitions, since the negative FDI-industrialization interaction identified in this study appears concentrated in ownership-transfer deals that add comparatively little new productive capacity.

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