
| RESEARCH ARTICLE

The Impact of Manufacturing, Investment, Labor Force and Technology on Economic Growth in Palestine

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| ABSTRACT

The study aims to explore the impact of manufacturing, investment, labor force, and technology on the economic growth of Palestine using Kaldor's first law of growth and the neoclassical growth model. The study used secondary data from the World Bank Database covering the period from 2000-2020. Correlation analysis and VIF tests were conducted to explore correlations and assess multicollinearity among the variables. A linear regression model was used to measure the relationship between manufacturing output, Investment, labor force, technology, and economic growth in Palestine. The analysis showed that an increase in manufacturing output leads to an increase in economic growth. Labor force participation and technology advancement have a significantly positive impact on economic growth, while investment has a significantly negative relation to economic growth. Based on these findings, policymakers are recommended to prioritize inclusive and sustainable industrialization, enhance the business environment, reduce unemployment rates, and promote competitiveness and innovation.

| KEYWORDS

Economic Growth, Manufacturing, Investment, Labor Force, Technology, Palestine, Kaldor Growth Theory, Neoclassical Growth Theory

| ARTICLE INFORMATION

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1. Introduction

Economic growth plays a crucial role in the development of any country, playing a significant role in improving living standards and reducing poverty (Ayoo,2022). For developing countries, achieving sustained and robust economic growth is important. Consequently, understanding the factors that drive economic growth becomes essential for policymakers, researchers and society at large.

This research contributes to the existing literature by examining the correlation between economic growth and a selected set of determinants. The study explicitly incorporates two prominent theoretical frameworks: Kaldor's first law and the neoclassical growth model. These frameworks offer comprehensive perspectives on the drivers of economic growth and provide valuable insights into the mechanisms by which countries can achieve and sustain high levels of economic development.

Kaldor's growth theory states that manufacturing is the most powerful engine of economic growth, particularly in developing countries facing significant economic challenges and an increasing need for development. Creating a high-quality local manufacturing sector is essential for meeting the basic needs of populations and driving essential growth. Kaldor's first law of growth suggests a positive causal correlation between manufacturing output growth and GDP growth. This correlation is driven by static and dynamic returns within the manufacturing sector, as well as increasing productivity outside of manufacturing, achieved by reallocating resources away from activities with diminishing returns (Pacheco-López and Thirlwall, 2013). Manufacturing also plays a significant role in driving technological advancement and overall productivity gains (Olamade and Oni, 2016).

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In addition to Kaldor's growth theory, the neoclassical growth model developed by Robert Solow provides valuable insights into the factors influencing economic growth. This model identifies three key drivers of economic growth: capital, labor, and technology (Solow, 1956). Capital investment drives economic development by allocating financial resources to productive assets (Nikoloski et al., 2015). Furthermore, the labor force significantly contributes to the country's economic growth, as higher levels of labor force participation will lead to increased production and output (Wu, 2013; Campbell, 2009; Palle et al., 1995). Finally, technological advancement is recognized as a significant determinant of economic growth, as it enhances productivity, efficiency and competitiveness across various sectors (Broughel and Thierer, 2019; Hunady and Orviska, 2014).

The study aims to explore the correlation between economic growth, labor force participation, investment levels, and technological advancements in Palestine. The findings will provide valuable insights that may help policymakers develop effective strategies and policies to promote economic growth in Palestine. Since 1994, West Bank and Gaza Strip have been governed by the Palestinian National Authority, established through the Oslo Accords signed in 1993 between the Palestinian Liberation Organization and the Government of Israel. The essential economic performance of a country is commonly measured by its gross domestic product (GDP). In 2020, the global GDP per capita stood at about USD 10,833; in Palestine, it reached USD 3,233 per capita (Macrotrends, 2021). Palestine is considered a relatively small economy, currently ranked 135 in GDP per capita. The Palestinian economy faces various challenges, including its small size, high unemployment rates, and political instability. The investigation of the long-standing correlation between economic growth and the abovementioned factors for Palestine is highly significant and has been rarely investigated in the literature.

The paper has five sections; the first section introduces the research work. The second section explores the theories utilized to investigate the correlation between the chosen factors and economic development from previous research studies. The third section focuses on the research methodology, including the explanation of data collection, the study model, and the various methods employed. The fourth section presents the study's results, outlines the obtained findings, and discusses the implications derived from the findings. Finally, the fifth section contains the concluding remarks of the study, as well as the study limitations and the proposed future research.

2. Literature Review

Economic growth is a vital aspect of development for any country, but it is especially important for developing countries. Economic growth is the process by which a country's GDP (Gross Domestic Product) increases over time (Investopedia, 2021). It measures the increase in the overall value of goods and services produced within a country's borders. Developing countries, specifically, need economic growth to improve their citizens' living standards and reduce poverty (Ayoo, 2022). According to experts, when there is an increase in the economy, it indicates a growth in the production of goods or services within a specific time frame, and it can also be interpreted as an improvement in the nation's ability to produce goods or services (Suprpto et al., 2022).

Several factors contribute to the country's economic growth. Kaldor's first law of growth theory shows the importance of manufacturing output as a factor influencing real GDP. Moreover, neoclassical growth theory displays the level of technology, investment, and human resource as essential variables that affect steady long-term economic growth.

2.1. Kaldor Growth Theory

Nicholas Kaldor is a well-known economics professional. Kaldor's first growth law was published in 1966 (Kaldor, 1967). He argued that manufacturing was the most powerful engine of economic growth and that the development of the manufacturing sector was necessary for achieving sustained economic growth (Thirlwall, 2015). He observed a positive correlation between a country's economic growth rate and the share of its GDP devoted to manufacturing. This relationship is built upon the manufacturing sector's unique characteristics, which drive the economy's growth and improve living standards. Manufacturing has both static and dynamic increasing returns, and when its output increases, it attracts labor from non-manufacturing areas leading to productivity growth (Olamade and Oni, 2016). The distinctive features of the manufacturing sector will eventually strengthen its competitiveness and promote beneficial externalities to other significant segments of the economy (Cantore et al., 2014).

The linear specification of Kaldor's first law is:

$$g_{GDP} = a_1 + b_1 \cdot g_m \quad (1)$$

Where g_{GDP} is the growth of total output, and g_m is the growth of the manufacturing output.

The fundamental aspect of Kaldor's engine of growth hypothesis is that it represents a theoretical basis for a developing strategy that places manufacturing output growth at the center of efficient physical and human capital accumulation and factor productivity growth (Olamade and Oni, 2016). As Kaldor proposed, if there is a positive correlation between productivity growth in both the manufacturing and non-manufacturing sectors and output growth in the manufacturing industry, then a shift of resources from other areas to manufacturing can lead to faster overall growth (Szirmai, 2011; Cantore et al., 2014). In developing countries, there

is clear evidence of the dynamic shift effect, where the productivity growth in manufacturing has outpaced that in the primary sector (Szirmai, 2011). Additionally, the manufacturing sector has a greater demand for capital and investment compared to other sectors, which can foster opportunities for capital accumulation and boost the private saving ratio (Su and Yao, 2016).

Compared to other sectors, the manufacturing sector provides opportunities to employ technological advancements that are critical for the progress of developing countries. Rapid capital accumulation can enable firms to install new machines that integrate the latest technological advances, leading to productivity growth for both firms and the overall economy (Olamade and Oni, 2016).

According to Herzer (2007), compared to non-manufacturing activities, manufacturing creates more significant and robust linkages with and spillovers into the economy. These linkages can lead to economies of scale. At the same time, the spillover effect can foster an environment for the emergence of new product and process technology concepts, thus contributing to the expansion of both the manufacturing and non-manufacturing sectors.

Various econometric models employed in empirical economic growth research have examined and established the manufacturing industry's validity as an engine of growth. Studies conducted at both national and regional levels have predominantly agreed that the growth of output in the manufacturing sector is crucial to the national economic growth process, and aggregate economic growth positively correlates with both output growth and productivity growth in the manufacturing sector. Many researchers have examined this in their work. For instance, Wan et al. (2022) study examined the significance of manufacturing development in sustainable growth and the impact of exports and export-oriented policies on the manufacturing industry's contribution to growth. The research data covers a 24-year period from 1996-2019 from 130 developing countries. Szirmai (2011) studied a panel of 63 developing countries and 16 advanced countries over the period between 1950 and 2005. Dasguptan and Singh (2005) evaluated the engine of growth hypothesis in 30 developing countries. Wells and Thirlwall (2003) evaluated Kaldor's law in various African nations. Fagerberg and Verspagen (1999) studied the role of manufacturing as a driving force for economic growth in developing countries in East Asia and Latin America.

2.2. Neoclassical Growth Theory

The theory of economic growth was formulated by Robert Solow, an American economist, in 1956 (Solow, 1956). According to the theory, the three essential components of a growing economy are labor, capital, and technology. It recognizes technological advancement as an important element in the economic development of nations (Solow, 1956). As an economy may have limited resources in terms of labor and capital, the potential contribution of technology to growth is limitless (Banton, 2020). Solow's model provided a more comprehensive framework than prior models because of integrating labor and technology into the growth process (Khang and Nguyễn, 2021). He further stated that technological advancement is a crucial contributor to short- and long-term growth (Khang and Nguyễn, 2021). The linear specification of the Solow model is as follows:

$$Y_t = A \cdot F(K_t, L_t) \tag{2}$$

Where K is level of capital in period t, L is Level of labor in period t, A is technology efficiency in period t, and Y is level of output (GDP) in period t

2.2.1. Capital Investment

In economic theory, investment refers to spending on capital goods and production equipment. Its purpose is not only to replace existing capital goods but also to add new ones to the economy (Tuovila, 2022). These capital goods will be utilized to produce goods and services in the future. There are two types of investments based on their nature (Suprpto et al., 2022). The first type is government investment, carried out by the central and local governments and not intended for profit. The second type is private investment, which includes investments made by the national private sector, known as Domestic Investment, and investments made by foreign private companies, referred to as Foreign Investments (Suprpto et al., 2022).

Several researchers worldwide have examined the relationship between investment and economic growth using various models and periods. Based on the research findings, there were contradictory statements regarding the influence of investment on economic growth (Khang and Nguyễn, 2021). For instance, studies conducted by Jwan and James (2014), Tiwari and Mutascu (2011), and Hadjimichael and Ghura (1995) indicated the positive effect of investment on economic growth. However, other studies by Carkovic and Ross (2002), Devarajan et al. (1996) either found no correlation or observed an inverse relationship between investment and economic growth.

Capital investment is a crucial factor in the development of developing nations. The accumulation of production factors, particularly capital, has a greater impact on developing countries than on developed countries (Nikoloski et al., 2015). The study on the impact of investment on economic growth in several developing countries produced varying results from research conducted in economically developed nations. For instance, a study covering seven Latin American countries from 1960-1996 revealed that

capital accumulation played a significantly larger role in driving economic development than other factors (Nikoloski et al.,2015). Research conducted by an American team to study the impact of various factors on economic growth in 20 developing countries concluded that capital accounts for approximately 40% of the annual increase in production (Chenens et al., 2015). Adebayo and Kalmaz (2020) conducted a study to examine the relationship between economic growth, foreign aid, trade, gross fixed capital formation, and inflation rates in Nigeria from 1980-2018. The study affirmed the existence of a long-term relationship between the analyzed indicators.

2.2.2. Labor Force

Labor force is a significant input for a country's GDP growth. A country's economic growth primarily depends on its labor supply. To achieve the desired economic growth, countries can increase output by increasing labor efforts or enhancing labor productivity. As labor force growth slows and unemployment remains low, countries need to focus on productivity improvements to sustain high output and income growth (Highfill,2002). Labor productivity refers to the output generated by an employed person in a given unit of time. Physical, human capital and technological advancement are the key factors determining labor productivity (Dieppe, 2021).

Several studies have indicated that labor force participation benefits economic growth and development (Wu,2013; Campbell,2009; Palle et al.,1995). Several pioneering research studies have recently examined the impact of female labor force participation on their country's output (Haque et al.,2019). However, some studies show contradictory results. For instance, a study by Evangelista et al. (1996) shows that the reform of essential economic sectors reduces the correlation between economic growth and employment. Boltho and Glyn's (1995) study concluded that the economic situation of each country affects the relationship between employment and economic growth.

2.2.3. Technology Efficiency

Technology plays a significant role in driving economic growth. Technological development refers to the inventions and innovations that facilitate the creation of new goods or the production of existing goods at a lower cost, resulting from improved efficiency of production factors (Hunady and Orviska, 2014). Technological advancement significantly determines a country's economic status, making it a crucial consideration for the nations. Accordingly, the key factor distinguishing developed and developing countries is their levels of technological advancement (Funda,2022).

The strength of an economy heavily relies on the level of technological advancement it attains, and with the continuous emergence of new technologies, developing countries can develop and prosper significantly (Grossman and Helpman,1994). The focus on technological innovation is a primary factor driving developing countries towards progress and ambition (Mohamed et al., 2022). Technology innovation can appear in three ways: cost reduction, enhancement of quality, or diversification of products, services, and manufacturing techniques (Broughel and Thierer,2019). It involves discovering new or improved approaches to conducting business and introducing new ideas or products to the market (Broughel and Thierer,2019).

Extensive empirical research has been conducted on the relationship between technological innovation and economic growth, demonstrating that technological innovation is vital in stimulating economic growth (Mohamed et al., 2022). One of those studies is the study by Ekananda and Parlinggoman (2017), which investigated the impact of high-tech exports and foreign direct investment on economic growth. They found that high-tech exports positively affect GDP by enhancing productivity. Freimane and Bāliņa (2016) employed research and development to indicate innovative activities. A study by Schumpeter (Mohamed et al., 2022) revealed that innovation is a crucial productive function by exploring the role of entrepreneurship in driving economic growth. Furthermore, Abdelaoui and Abdelaoui (2020) investigated the influence of innovation on economic progress in several Arab countries between 2007 and 2016. The research showed that innovation has a significant positive effect on both per capita output growth and unemployment rates. However, a study by Lomachynska and Padgorna (2018) on a sample of 27 OECD countries between 2001 and 2016 stated that there is no causal relationship between innovation and economic growth.

2.3. Research Hypothesis

After reviewing the literature, it has been stated that manufacturing, investment, labor force, and technology strongly impact GDP. As a result, the following hypotheses have been determined to explain the impact of each explanatory variable on GDP based on the majority of previous research findings:

- H1: Manufacturing has a significant and positive influence on GDP.
- H2: Investment has a significant and positive influence on GDP.
- H3: Labor force has a significant and positive influence on GDP.
- H4: Technology has a significant and positive influence on GDP.

3. Methodology

Annual time series data of Palestine for the period of 2000-2020 were collected from World Bank Database. The period was chosen due to data availability for the study factors.

The Gross Domestic Product (GDP) is considered the dependent variable in the model, reflecting the size of the economy. The proxies that are used to measure the research independent variables are presented as follows (Karami et al.,2019; Srholec, 2007; Fagerberg and Verspagen, 2002; Kaderábková and Srholec, 2001): manufacturing value added for manufacturing output, gross fixed capital formation for investment, employment to population ratio for labor force, and high technology exports for technology. Abbreviations of these variables and their forms used in the model are provided in Table 1. The model used to investigate the relationship between variables and economic growth combines Kaldor's first law and neoclassical growth theory.

Table 1. Summary of Variables

Name of variables	Measurement	Abbreviation
Economic Growth	Gross Domestic Product (GDP) (Constant 2015) (USD)	GDP
Manufacturing Output	Manufacturing Value Added (Constant 2015) (USD)	MVA
Investment	Gross Fixed Capital Formation (% of GDP)	GFCF
Labor Force	Employment to Population Ratio (% of population) National Estimate	EPR
Technology	High-Technology Exports (current USD)	HTE

The model specification is as follows:

$$GDP_t = \beta_0 + \beta_1 MVA_t + \beta_2 GFCF_t + \beta_3 EPR_t + \beta_4 HTE_t + \epsilon_t \tag{3}$$

Where GDP_t is economic growth, MVA_t is manufacturing output, GFCF_t is capital, EPR_t is labor force, HTE_t is technology, ε_t is an error term, and b₁, b₂, b₃, and b₄ are regression coefficients. All terms are determined in period t.

3.1. Data Analysis and Results

Correlation analysis is used to examine the correlation between the dependent and independent variables. Belsley collinearity diagnostics is conducted to assess the strength and sources of collinearity among variables. And a linear regression analysis is performed to develop the prediction model for economic growth trained by the collected data. The coefficient of determination was used to test the quality of the developed model.

The variables have different ranges of values, and regression models will be sensitive to the order of the magnitude of the variables. Therefore, there is a need to transform the variables to give the same order of magnitude; this is known as scaling transformation. Standardization of one of the good techniques when linear regression is used. Every considered independent variable entry has been standardized by subtracting the variable's mean and dividing the result by the variable's standard deviation. The prefix (Std) is used to indicate the standardized variable. For example, StdGFCF stands for the standardized Gross Fixed Capital Formation (GFCF) values.

3.1.1. Correlation Analysis

A correlation analysis has been utilized to present correlation coefficients for various variables, as shown in Table 2. It can be seen from Table 2 that the manufacturing output strongly influences GDP. Labor force and technology offer an intermediate level of influence on GDP, while investment shows a much lower impact on GDP. This agrees with several observations from the reviewed research work.

Table 2. Correlation Analysis

	GDP	StdMVA	StdGFCF	StdEPR	StdHTE
GDP	1	0.952	-0.185	0.542	0.651
StdMVA	0.952	1	-0.103	0.480	0.592
StdGFCF	-0.185	-0.103	1	-0.041	0.185
StdEPR	0.542	0.480	-0.042	1	0.081
StdHTE	0.651	0.592	0.185	0.081	1

3.1.2. Multicollinearity

Belsley collinearity diagnostics have been used to assess the strength and sources of collinearity among variables in the matrix of time series data (Belsley et al.,1980). Table 3 shows the condition indices. The size of the indices is a measure of how near dependencies are to collinearity. If all condition indices are less than the default tolerance of 30, then there is no multicollinearity between the variables. This test is used to guide the choice of the regression model. It can be seen from Table 3 that none of the conditional indices is larger than 30; therefore, this is an indication that no multicollinearity exists between input variables.

Table 3. Collinearity Test

condIdx	StdMVA	StdGFCF	StdEPR	StdHTE
1	0.11	0.00	0.08	0.09
1.26	0.00	0.51	0.09	0.08
1.48	0.00	0.32	0.41	0.12
2.73	0.87	0.17	0.40	0.69

3.1.3. Linear Regression Model

Based on the above, a linear regression model is employed to investigate the relationship between the response variable and other explanatory variables (manufacturing output, investment, labor force, and Technology). Table 4 presents the results of the model.

Table 4. Linear Regression Analysis

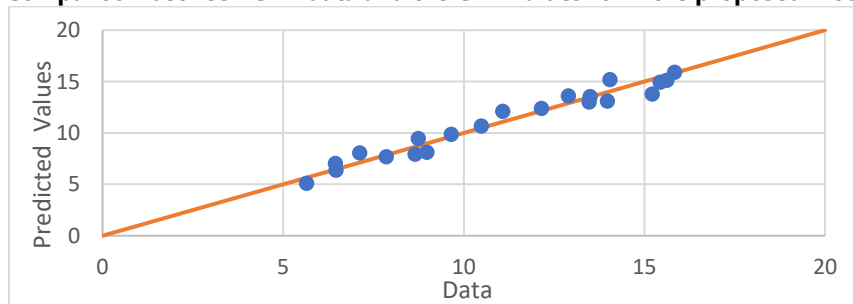
	Regression coeff.	P-value for coeff.
Stdtercept	11.105	8.4335E-21
StdMVA	2.389	1.433E-07
StdGFCF	-0.511	0.014
StdEPR	0.595	0.012
StdHTE	0.836	0.003
Root Mean Squared Error: 0.785		
R-squared: 0.957		
p-value for the overall model = 1.03e-10		

According to the previous analysis, the manufacturing value added (MVA) exerts a significant positive impact on GDP at the 5% significant level. Conversely, gross fixed capital formation (GFCF) negatively affects GDP at the 5% significant level. The employment to population ratio (EPR) significantly impacts GDP at the 5% significant level. Similarly, high-technology export (HTE) significantly affects GDP at a 5% significant level. The linear regression model yields the following equation.

$$\text{GDPT} = 11.105 + 2.389 \cdot \text{StdMVA}_t - 0.511 \cdot \text{StdGFCF}_t + 0.595 \cdot \text{StdEPR}_t + 0.836 \cdot \text{StdHTE}_t + \epsilon_{it} \tag{4}$$

The p-value for the overall test in the total model indicates that it is significant overall. The manufacturing value added (MVA), employment to population ratio (EPR), and high-technology exports (HTE) have a positive impact, while the gross fixed capital formation (GFCF) has a negative impact. This analysis suggests that a 1% increase in the explanatory variables results in a 2.39% increase in the economic growth rate due to manufacturing value added, a 0.6% increase due to employment to population ratio, a 0.84% increase due to high-technology exports, and a 0.51% decrease due to gross fixed capital formation. Figure 1 compares the data and the proposed model for the GDP.

Figure 1. Comparison between GDP data and the GDP values form the proposed model



4. Results and Discussion

According to the linear regression model, MVA, EPR, and HTE are positively associated with GDP at a 5% significant level. Therefore, hypotheses 1,3 and 4 are accepted. Table 5 illustrates the entire hypotheses' results.

Table 5. Hypothesis' Results

Hypothesis	Results
H1: Manufacturing has a significant and positive influence on GDP.	Supported
H2: Investment has a significant and positive influence on GDP.	Rejected
H3: Labor force has a significant and positive influence on GDP.	Supported
H4: Technology has a significant and positive influence on GDP.	Supported

The study analysis indicates a significant positive correlation between manufacturing output and economic growth in Palestine. According to data from the World Bank, the manufacturing sector accounted for 11% of Palestine's GDP in 2020, which is below the average for the Middle East and North Africa (excluding high-income countries) and the world average of 14% and 16%, respectively (The World Bank,2020a). Palestine shares similar characteristics with other developing countries, where large firms are favored in terms of regulations, subsidies and bank loans. The market size is small, and the per capita income scale is lower than in other countries (Tybout, 2000). Additionally, the range of domestically produced intermediate inputs and capital equipment is often limited, and infrastructure such as roads, transportation, and communication facilities tend to be relatively limited (Tybout, 2000). However, there are many opportunities and motives to invest in the Palestinian industrial sector because of the availability of human capital and the capability of the market to absorb more investments (USAID, 2009).

Policymakers in Palestine are obligated to prioritize the establishment of inclusive and sustainable industrialization by driving institutional reforms within the industrial sector, enhancing the business environment, and improving the necessary infrastructure for industries. It is also crucial to strengthen small businesses to become key industries and improve competitiveness by providing incentives.

On the other hand, the model demonstrates that gross fixed capital formation (GFCF) has a negative impact on economic growth through investment. Gross fixed capital formation measures the net increase of fixed capital after deducting the disposal of fixed assets. GFCF includes investment by private and public firms but not by central or local government (Woolcott, 2017). Gross fixed capital formation in Palestine is about 23% of its GDP, which is higher than the average of 20% for the Middle East and North Africa (excluding high-income countries) (The World Bank, 2021a). However, most of the investment has been directed towards non-traded sectors instead of sectors with productive investments (The World Bank, 2022).

Developing economies are often called "capital-poor economies" due to the prevalent absence of real capital (Seth, 2023). Various factors lead to this absence of real capital, such as the small size of domestic savings, the lack of investments by entrepreneurs, and the weakness of incentives for investment. Data for Palestine from 1995-2001 showed that the average value of Palestinian savings as a percentage of GDP is 9.23% (The Global Economy, 2021a). The level of savings is low primarily due to the lower per capita income for Palestinians. In 2020, the annual per capita income was 3233\$ (The World Bank, 2021b), which is low compared to developed countries. Consequently, a significant portion of earnings is used for consumption, leaving only a small amount for investment. Accordingly, insufficient investment reduces capital and productivity, resulting in lower income.

Furthermore, the insufficient presence of capable entrepreneurs who can utilize savings and create innovations is another element of limited investments in developing countries (Seth, 2023). Karaki (2021) studied the entrepreneurial ecosystem (EE) of Palestine and concluded that the EE of Palestine is still in its early stages of development due to many factors, e.g., the political situation of Palestine, ineffective credit market, inadequate strategies, lack of policies and legal structure to support small and medium businesses.

Additionally, the size of a market affects the level of investment. Palestine's economy is characterized by a weak market, marked by average productivity, limited competition, and poor innovation performance (Karaki, 2021). This is further evidenced by high unemployment rates (average rate of unemployment was 24%), a growing disparity between consumption and investment (the average consumption rate is about 89% of GDP) and the weakness of foreign trade (Karaki, 2021).

Furthermore, labor force has a positive impact on economic growth. The average labor force participation rate in Palestine from 2000 to 2020 is 40.6% (The World Bank,2023), placing Palestine at a global rank of 168 out of 180 countries (The Global Economy, 2021b). Therefore, it is recommended that the government should take measures to reduce the unemployment rate and create

new employment opportunities. This can be achieved through adopting several monetary and fiscal policies, improving education and training programs, and promoting productive investments.

High technology exports are considered a fundamental component of sustained long-term economic growth. High-technology exports are products with high R&D intensity and electrical machinery (Knoema, 2020). In Palestine, the percentage of high-technology exports as a share of exports is 1.7% (Knoema, 2020), representing a marginal share of total export. Moreover, medium and high-tech exports account for only 2% of manufactured exports in Palestine (The World Bank, 2020b), similar to other non-high-income countries in the Middle East and North Africa (The World Bank, 2020b). This figure is below the average for the Arab world and the world in 2020, which were 4% and 22%, respectively (The World Bank, 2020b).

Palestine has not undergone a significant technological upgrade in its exports. Therefore, it is crucial to target key drivers of high-tech exports to enhance the level of technological sophistication in exports (Zapata et al., 2023). In analyzing the drivers of technology-intensive exports, research studies have identified variables that play a role in the technological level of countries' export. These variables include research & development expenditures, the quality of human capital, foreign direct investment, technological specialization, level of economic freedom, and countries' openness to international trade (Zapata et al., 2023). To improve high-tech exports in Palestine, enhancing policies and investments targeted towards the technology and innovation sector can drive economic development.

5. Conclusion

For developing countries, exploring the factors that significantly improve their economy and achieve sustainability is substantial. The research investigates the key variables that drive economic growth in Palestine. The study analyzed data from 2000-2020, focusing on four independent variables: manufacturing, investment, labor force and technology, and the dependent variable: Gross Domestic Product (GDP). Several data analysis techniques were employed. A correlation analysis was used to examine the correlation between dependent and independent variables, while Belsley collinearity diagnostics was utilized to assess the strength and sources of collinearity between the variables. Finally, a linear regression model was developed for measuring GDP. The study revealed a significant positive correlation between economic growth and the manufacturing sector, labor force, and technology. It also uncovered a significantly negative association between economic growth and investment.

The study relied on the availability of data, and due to the lack of data, the overall influence of the manufacturing sector, not the sub-sector contributions, was considered; and the study period was chosen from 2000 onwards for the analysis. Additionally, the study adopts Kaldor's first growth law, and neoclassical growth model, to examine the relationship between economic growth and the chosen factors. However, other external factors, including trade policies, political stability, and infrastructure, could affect economic development in Palestine.

Future studies could investigate the specific manufacturing sectors and their impact on Palestinian economic growth. Such investigations can offer valuable insights into sector-specific policies and strategies to enhance economic development. Additionally, a comparative analysis can be conducted to examine the patterns of economic growth in Palestine in relation to other countries in the region or with similar socio-economic characteristics. Such an analysis will help identify the similarities and differences in the impact of manufacturing, investment, labor force, and technology on economic growth.

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