Analysis The Gross Domestic Product of The Textile and Apparel Industry Sub-Sector in Indonesia 1990-2022

Dewi Kartikasari[1], Yustirania Septiani[2], Jalu Aji Prakoso[3]

[1]Development Economics, Universitas Tidar, Indonesia

[2]Development Economics, Universitas Tidar, Indonesia

[3]Development Economics, Universitas Tidar, Indonesia

Abstract

The labor-intensive nature of the textile and garment industry stems from its ability to both drive the growth of other sectors and absorb a significant amount of labor. The objective of this research is to examine the impact of labor, number of industries, foreign and domestic investment, and labor supply on the GDP of the textile and apparel sector over both the short and long run. The Investment Coordinating Board and the Central Statistics Agency provided the time series data for this research, which covered the years 1990–2022. In this work, the Eviews 12 software was used to perform Autoregressive Distributed Lag (ARDL) analysis. The analysis's findings indicate that (1) Foreign Direct Investment has a negative and insignificant effect in the short and long terms, (2) Domestic Investment has a significant positive influence in both the short and long terms, (3) Labor has no influence in the short term but a significant positive influence in the long term, and (4) Number of Industries has no influence in the short term but has a significant positive influence in the long run.

Keywords: gross domestic product; foreign investment; domestic investment; labour; number of industries; autoregressive distributed lag (ARDL)

1. Introduction

Gross Domestic Product (GDP) is defined as the total products obtained by a country usually within one year (Muryani & Hutajulu, 2023). The Indonesian state, focuses on development in the economic sector, if the economy develops it is expected to encourage development in various fields. The expected economic realisation can be seen from the large contribution of the business sector to economic growth. There are 17 business sectors in Indonesia, the highest sector in contributing to Gross Domestic Product is the manufacturing sector with a percentage of 18.3% in 2022. The processing industry sector in 2018 - 2022 managed to be a higher sector than other sectors. The processing industry continues to grow along with the development of today's industrialisation sector.

Textile and apparel is one of the largest industries in the world. In fact, food, air, clothing are also essential human needs. In fact, textiles are at the heart of human progress, as the first industrial revolution, the forerunner of modern marvels such as aeroplanes, began in Britain when textile mills switched to automated spinning. Research by Faradilla et. al. (2022) stated that the textile and apparel industry is able to contribute to Indonesia's economic growth.

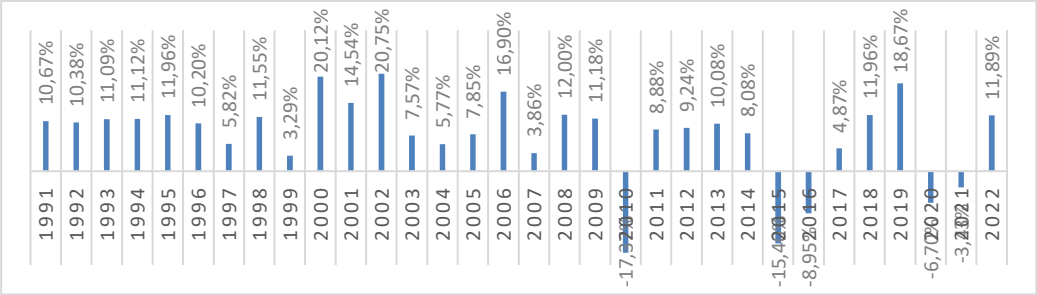

Figure 1: Growth Rate of Textile and Apparel Industry
Source: Central Bureau of Statistics (1991-2022)

Based on Figure 1.1 the growth rate of the textile and apparel industry tends to fluctuate, when the growth of the textile and apparel industry has increased automatically the Gross Domestic Product of the textile and apparel industry has also increased significantly, but the increase in the Gross Domestic Product of the textile and apparel industry is still small as evidenced by the low market share of only 1.7% in 2022 (World Trade Organization, 2022). The textile and apparel industry sector is starting to advance and shift the agricultural sector due to the development of the times. Based on this, it is important to continue to increase the Gross Domestic Product of the textile and apparel industry sub-sector.

Several studies have raised similar topics, namely regarding the Gross Domestic Product of the textile and apparel industry and the efficiency of the textile industry studied by Hamzah (2021) in Indonesia. The study states that raw materials, capital and labour can affect the production of the textile and apparel industry in the textile industry. However, it has not highlighted more specific capital such as what can affect the production of the textile and

apparel industry and other factors that can affect the production of the textile and apparel industry.

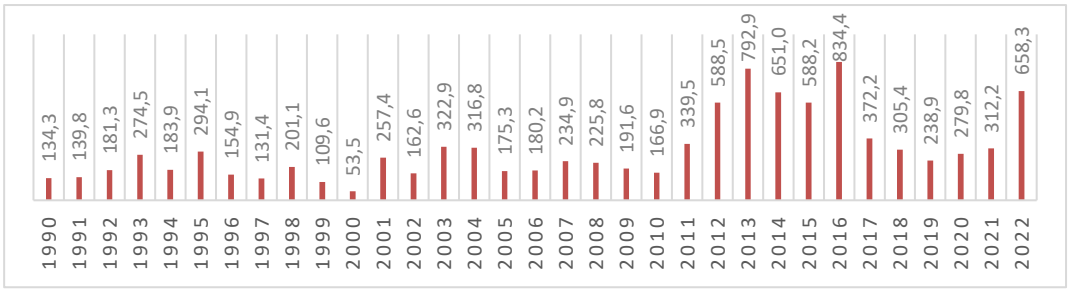

Figure 2: Foreign Direct Investment in the Textile and Apparel Industry
Source: Central Bureau of Statistics (1990-2022)

In 1999 Indonesia experienced a monetary crisis which resulted in a decline in foreign investment. In 2020 the *Covid-19* pandemic resulted in economic instability which reduced foreign investment. In addition, domestic regulations related to the Investment Law No. 25 of 2007 which includes aspects of coordination services, facilities, investor rights and obligations, labour, and sectors permitted for foreign investors still face obstacles in terms of licensing (Ningrum, 2008). (Ningrum, 2008).

Figure 3: Domestic Investment in Textile and Apparel Industry
Source: Indonesia Investment Coordinating Board (1990-2022)

In 1990 and 1991, domestic investment in Indonesia's textile and apparel industry tended to be small. In 2017, domestic investment experienced an increase, It was followed by a 157654.1 billion rupiah growth in the gross domestic product. The state of domestic banking and credit, which is still in bad shape and has interest rates set by the government at 14% to 16%, is another factor contributing to the erratic character of domestic investment (Financial Services Authority, 2018).

Figure 4: Labour force in the textile and apparel industry
Source: Central Bureau of Statistics (1990-2022)

The Covid-19 pandemic epidemic that crippled the global economy in 2020 resulted in a decline in the workforce in the textile and garment sector. Prior to the Covid-19 pandemic in 2019, there were 1379182 million workers in the textile industry. 1081311 million persons were employed in the textile and garment industrial sector in that year. 2020 saw a large number of layoffs in the textile business, which contributed to the workforce loss. Due to internal economic uncertainty, the number of business units in the textile and clothing industry sector declined once again in 2021, which resulted in a reduction in the industry's gross domestic product.

Figure 5: Number of Textile and Apparel Industries
Source: Central Bureau of Statistics (1990-2022)

The 1998 monetary crisis caused the number of industries to fall due to currency instability. In 2020 the number of business units in the textile and apparel sector also decreased, as did the workforce. To produce production output, the textile and apparel industry is influenced by capital, namely the number of industrial business units (Arzia & Sentosa, 2019).

2. Literature Review

2.1 Theory

Based on Mankiw and Gregory (2002) in Amalia (2014) states that one equation that demonstrates the relationship between the inputs employed and the intended outcome is the Cobb-Douglas function. A functional version of the production function that is often used to illustrate the link between input and output is the Cobb-Douglas method. based on the neo-classical growth theory proposed in (Fatmawati, 2015) by Robert M. Solow and T.W. Swan in 1956. The Solow-Swan model makes use of the exogenous components of advanced technology, capital accumulation, population growth, and the size of related production. Relying on the Solow-Swan framework, the technology problem is considered a function of time which is systematically described as follows:

$$Y(t) = F\ [\ K(t),\ L(t),\ A(t)\ ]$$

Where: Y = production/output; K = capital; L = labour; A = technology; (t) = time.

2.2 Foreign Investment

Based on research by Dhea Putri (2019), it explains that foreign investment has a positive and significant impact on the GRDP of the processing industry. While research Mawutor

et. al. (2023) stated that foreign direct investment has a negative and significant effect on the process of economic growth as measured by Ghana's Gross Domestic Product in the long term.

2.3 Domestic Investment

Based on research Sari et. al. (2021) domestic investment has a significant long-term effect on Gross Domestic Product in the Manufacturing Industry sector because domestic capital is needed in the industry.

2.4 Labour

The labor and materialintensive nature of the textile and garment industry may be the cause of this. Findings reveal that human capital, agglomeration effects, and incentive systems are the main drivers of capital in the textile and garment sector in research (Aderibigbe, 2018).

2.5 Number of Industries

Based on Qushoy et. al. (2022) shows that the number of industrial companies has a significant influence in a positive direction on GDP growth in the manufacturing industrial sector.

3. Materials and Method

3.1 Design Study

This research is descriptive and uses quantitative techniques. The theoretical method used to support claims based on previous observations and assumptions is known as the deductive approach. The variables used are Gross Domestic Product of the Textile and Apparel Industry, Domestic and Foreign Investment in Textile and Apparel Industry, Employment in the Textile and Apparel Industry, and the Number of Textile and Apparel Industries in Indonesia for the period 1990–2022, are quantitative data figures used in this research. The Investment Coordinating Board (BKPM) and the Central Statistics Agency (BPS) provide the data used.

3.2 Data Analysis

ARDL (*Autoregressive Distributed Lag*) model was used in this study. This Autoregressive Distributed Lag (ARDL) approach was tested using several methods including the cointegration test,test unit root, testoptimum lag, stability test, long and short term test, stability test, classical assumption test, and hypothesis test using the t test, F test, and R-Squared.

1. **Cointegration Test**

The cointegration test looks for a long-term relationship between each research variable and the research variable itself. Cointegration Bound Test, which compares the calculated F-statistic value with the critical value, was used in this study.

2. Unit Root Test

Time series data is classified as non-stationary if the average fluctuates over time and is not constant, and stationary if the variance, covariance and average at each lag are constant (Widarjono, 2018).

3. *Optimum Lag* Test

Criteria in the *optimum lag* test can be seen using several approaches, such as *Akaike Information Criterion* (AIC), *Final Prediction Error (*FPE), *Likehood Ration (*LR), *Schwarz Bayesian Criterion (*SBC), and *Hanan-Quin* (HQ) (Widarjono, 2018).

4. ARDL estimation

A regression model that describes the current value and historical value of a variable is called Autoregressive Distributed Lag (ARDL). Based on research in Fadhilah & Sukmana (2017), it is explained that the ARDL model provides an alternative procedure in the form oflagsuch as AIC and SBC to determine which model is the most optimal.

The regression equation of this study is as follows:

$$PDB_t = \beta_0 + \beta_1 logPMA_t + \beta_2 logPMDN_t + \beta_3 logTK_t + \beta_4 logJI_t + e_t$$

Meanwhile, the modal ARDL equation is explained as follows:

$$\begin{aligned}\Delta logPDB_t = {} & \beta_0 + \sum_{i=1}^{n} \beta_{1i}\, \Delta logPDB_{t-1} + \sum_{i=1}^{n} \beta_{2i}\, \Delta logPMA_{t-1} \\ & + \sum_{i=1}^{n} \beta_{3i}\, \Delta logPMDN_{t-1} + \sum_{i=1}^{n} \beta_{4i}\, \Delta logTK_{t-1} \\ & + \sum_{i=1}^{n} \beta_{5i}\, \Delta logJI_{t-1} \\ & + \theta_1 logPDB_{t-1} + \theta_2 logPMA_{t-1} + \theta_3 logPMDN_{t-1} + \theta_4 logTK_{t-1} \\ & + \theta_5 logJI_{t-1} + e_t\end{aligned}$$

In estimating ARDL, ECT (*Error Correction Term*) is used to determine the impact over an extended period of time. The rate of adjustment towards long-term equilibrium is represented by the error correction term (Safiah et al., 2021). If the coefficient is negative with a substantial probability at the 5% level, the ECT value is considered legitimate. The following is the ARDL model, which is an error correction model derived from the preceding equation:

$$\begin{aligned}\Delta logPDB_t = {} & \beta_0 + \textstyle\sum_{i=1}^{n} \beta_{1i}\, \Delta logPDB_{t-1} + \sum_{i=1}^{n} \beta_{2i}\, \Delta logPMA_{t-1} + \\ & \textstyle\sum_{i=1}^{n} \beta_{3i}\, \Delta logPMDN_{t-1} + \sum_{i=1}^{n} \beta_{4i}\, \Delta logTK_{t-1} + \\ & \textstyle\sum_{i=1}^{n} \beta_{5i}\, \Delta logJI_{t-1} + \mathrm{P}ECT_{t-1} + e_t\end{aligned}$$

Where:

Δ	= Inertia (*lag*)
β	= *Intercept*
$\beta 1, \beta 2, \beta 3, \beta 4$	= Variable Coefficient
GDP	= Gross Domestic Product of thetextile and apparel industry
FI	= Foreign Investment
DI	= Domestic Investment

L	= Labour
NI	= Number of Industries
t	= Time
e	= *error term*
$\beta 1i$ - $\beta 3i$	= Short-term relationship model
$\theta 1$ - $\theta 4$	= Long-term relationship model
ECT_{t-1}	= Prior period error variable

5. Stability Test

Based on the ARDL method, the stability test uses the *Cumulative Sum* (CUSUM) and *Cumulative Sum of Square* (CUSUMQ) plots developed by Brown, Durbin, & Evans in 1975. (Ahmad Ridha et. al., 2021). The model is said to be stable if the blue line on the CUSUM and CUSUMQ graphs does not leave the red line boundary.

6. Classical Assumptions

The classic assumption test is a method used to determine the degree to which a regression model may be considered the most optimal model. Assumption tests, such as normality tests, multicollinearity tests, heteroscedasticity tests, autocorrelation tests, and linearity tests, are used to ensure accurate estimation results and an unbiased estimated model.

7. Hypothesis Test

Hypothesis testing is statistical analysis used to test hypotheses, as well as determine the relationship between the dependent variable and the independent variable. Hypothesis testing consists of the t test, F test and coefficient of determination test.

4. Result

Based on Pesaran et. al. (1996) research using ARDL, the correlation or relationship between the short run will remain with the long run relationship that will remain in a small sample size.

4.1 Cointegrity Test Results (*Bound Test*)

This test was conducted using the ARDL *Bound Testing Approach* introduced by Pesaran et. al. (2001) The *Bound Testing Approach* test is based on the F test.

Table 1. Cointegration Test Results

F-Bounds Test		Null Hypothesis: No Levels Relationship		
Test Statistic	Value	Signif.	I (0)	I (1)
F-statistic	7.631070	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: *Eviews*, (processed)

The results of the cointegration test show that the calculated f is greater than I(1), which is equal to 7.631070. This result is greater than I (1) at the 5% significance level, namely 3.49. This means that in the research there is short and long term cointegration in the equation model.

4.2 *Unit Root Test* Results

Table 2. Unit Root Test Results

Variables	Level Level Unit Root Test		*First Difference* Unit Root Test	
	Prob.	Description	Prob.	Description
GDP	0.5826	Not Stationary	0.0000	Stationer
FI	0.1510	Not Stationary	0.0000	Stationer
DI	0.0659	Not Stationary	0.0000	Stationer
L	0.2151	Not Stationary	0.0010	Stationer
NI	0.0126	Stationer	0.0000	Stationer

Source: *Eviews*, (processed)

GDP, FI, and L variables are not stationary at the level level because the probability value is more than 0.05 or 5% so that testing is continued at the *first difference* level. While the NI variable is at the level level because the probability value is less than 0.05 or 5%.

4.3 *Optimum Lag* Test Results

Akaike Information Criterion (AIC), where *lag* information is indicated by an asterisk and the *lag* used is the lag on the AIC criterionwith an asterisk (*)(Sanjaya & Anis, 2022).

Table 3. *Optimum Lag* Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	40.63538	NA	5.89e-08	-2.457612	-2.221872	-2.383781
1	108.4128	107.5090*	3.18e-09*	-5.407777	-3.993333*	-4.964791
2	125.0810	20.69159	6.69e-09	-4.833172	-2.240024	-4.021030
3	151.9889	24.12430	9.59e-09	-4.964749	-1.192898	-3.783452
4	201.7490	27.45387	5.95e-09	-6.672344*	-1.721791	-5.121893*

Source: *Eviews*, (processed)

Based on Table 3. it can be seen that the *Akaike Information Criterion (AIC)* shows a sign (*) on *Lag* 4 with the smallest value of -6.672344 *. So it can be concluded that *lag* 4 is the *optimal lag* used for estimation of the ARDL general equation in this study.

4.4 ARDL Estimation Results

ARDL estimation results with parameter coefficients (1,4,1,0,3) obtained from the selection of AIC results that have been done before. In the model, the *R-squared* value is relatively high at 0.915961, meaning that the independent variables (FI, DI, L and NI) are able to influence the dependent variable (GDP) by 91.59% while the remaining 8.41% is influenced by other variables outside the model.

Table 4. Long-Term ARDL Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FI	-1.628273	0.589666	-2.761349	0.0146
DI	0.903676	0.245782	3.676739	0.0022
L	4.610876	0.905083	5.094424	0.0001
NI	3.380853	0.960850	3.518607	0.0031
C	-37.33911	5.201666	-7.178297	0.0000
EC = GDP - (-1.6283*FI + 0.9037*DI + 4.6109*L + 3.3809*NI-37.3391)				

Source: *Eviews*, (processed)

Based on these results, it is concluded that the FI variable is negative and significant, the DI, L, NI variables are positive and significant. Based on the long-term estimation results, the next is the test result of ARDL estimation in the short term as follows:

Table 5. Short-Term ARDL Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D (FI)	-0.252808	0.184989	-1.366607	0.1919
D (FI(-1))	1.206493	0.268005	4.501760	0.0004
D (FI(-2))	1.166612	0.239305	4.875000	0.0002
D (FI (-3))	1.021184	0.203471	5.018813	0.0002
D (DI)	0.520999	0.112124	4.646635	0.0003
D (NI)	0.167221	0.508883	0.328604	0.7470
D(NI(-1))	-2.108010	0.546551	-3.856929	0.0016
D (JN(-2))	-0.869612	0.563594	-1.542976	0.1437
CointEq(-1)*	-0.989961	0.126701	-7.813358	0.0000
R-squared	0.792086			
Adjusted R-squared	0.708920			

Source: *Eviews*, (processed)

Based on the table above, the short-term ARDL estimation results that the ECT or *CointEq* (-1) value is negative at -9.89961 and significant at 5% *alpha* or 0.05 so that the short-term model is declared valid and shows cointegration between the independent variable and the dependent variable. It can be concluded that the FI variable is negative and insignificant. The DI variable is positive and significant, the L variable is positive and insignificant.

4.5 Stability Test Results

This research uses a structural stability test model with Cumulative Sum plot (CUSUM) as well Cumulative Sum of Squares (CUSUMQ). The model stability test is a reference for determining the long-term stability of variables. The model stability test was used as a test which was considered good enough (Pesaran et al., 2001). The test results are shown below:

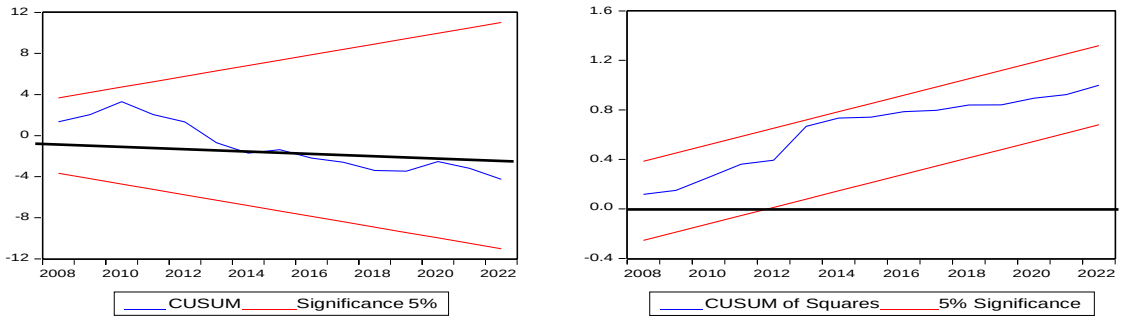

Figure 5. CUSUM and CUSUMQ Test Results

Source: *Eviews*

The test shows that the blue line does not come out above the red line with a significance level of 5%, and forms a linear line. Therefore, the results of the CUSUM and CUSUM tests of Square it can be concluded that the coefficient of the regression results is stable.

4.6 Classical Assumption Test Results

Classic assumption test to see whether the regression results fulfill the BLUE characteristic (Best, Linear, Unbiased, Estimator) and there is no violation of the classical assumptions in the ARDL model.

Table 6. Classical Assumption Test Results

Normality	Jarque-Bera	1.867651
	Probability	0.393047
Heteroscedasticity	Prob.Chi-Square (13)	0.2878
Autocorrelation	Prob. Chi-Square (2)	0.4328
Linearity	Prob. df (14)	0.2517

Source: *Eviews (*processed)

Test resultsJarque-Bera is 1.867651 with a probability of 0.393047 greater than 0.05, as determined by the normality test findings mentioned above. Research data may be determined to be distributed on a regular basis. The Chi-Square probability value is 0.2878, more than 0.05 based on the results of the heteroscedasticity test. In conclusion, the research data does not show heteroscedasticity problems. Mark Chi-Square Probability (0.4328 more than 0.05) is greater than the significance threshold indicated by the autocorrelation test findings. Thus, it can be said that there is no autocorrelation in the research data. Based on the findings of the Linearity test, the probability value is higher than the significance threshold, namely 0.2517, greater than 0.05. Therefore, it can be concluded that it has passed the linearity test with the data used in this research.

Table 7. Multicollinearity Test Results

Variables	VIF
GDP (-1)	7.327848
FI	3.714620
DI	2.063702

L	13.27852
NI	1.626071
C	NA

Source: *Eviews (*processed)

The test findings indicate that the independent variable TK (Labor) has a VIF value greater than 10. Thus, the information in this study's data has a multicollinearity problem. Meanwhile, in this study multicollinearity was left alone because the estimator remained BLUE even though the observation data consisted of more than 30 observations. As stated by Widarjono (2018), the BLUE estimator only relates to disturbance variables.

4.7 Hypothesis testing

a. Long-term t-test results

Table 8. Long-term t-test results

Variable	t-Statistic	Prob.
FI	-2.761349	0.0146
DI	3.676739	0.0022
L	5.094424	0.0001
NI	3.518607	0.0031

Source: *Eviews, (*processed)

a) The foreign investment variable concludes that the calculated t value is greater than the t table value, namely -2.761349 < - 1.701, so it can be concluded that the impact of foreign investment is significant and negative on the gross domestic product subsector, including the textile and apparel industry.
b) The domestic investment variable can be concluded that the calculated t value is greater than the t table value, namely 3.676739 > 1.701, so it can be concluded that the impact of domestic investment is significant and positive on the Gross Domestic Product of the textile and apparel industry sub-sector.
c) The labor variable is concluded that the calculated t value is greater than the t table value, namely 5.094424 > 1.701, it can be concluded that labor has a positive and significant impact on the Gross Domestic Product of the textile and apparel industry sub-sector.
d) The variable number of industries is concluded that the calculated t value is greater than the t table value, namely 3.518607 > 1.701, this shows that the number of industries has a positive and significant impact on the Gross Domestic Product of the textile and apparel industry sub-sector.

b. Short-term t-test results

Table 9. Short-term t-test results

Variable	t-Statistic	Prob.
FI	-1.366607	0.1919

DI	4.646635	0.0003
NI	0.328604	0.7470

Source: *Eviews, (*processed)

a) The foreign investment variable is concluded that the calculated t value is greater than the t table value, namely -1.366607 ≥ -1,701, this shows that foreign investment has a negative and insignificant impact on the Gross Domestic Product of the textile and apparel industry sub - sector.
b) The domestic investment variable concluded that the calculated t value is greater than the t table value, namely 4.646635 > 1.701, this shows that domestic investment has a positive and significant impact on the Gross Domestic Product of the textile and apparel industry sub-sector.
c) The variable number of industries concludes that the calculated t value is greater than the t table value, namely 0.328604 ≤ 1.701, this shows that the number of industries has a positive and insignificant impact on the Gross Domestic Product of the textile and apparel industry sub-sector.

c. F Test Results

Table 10. F test results

F-statistic	12.57597
Ftable	2.73

Source: *Eviews*, (processed)

It can be concluded that the variables of foreign investment, domestic investment, labor and the number of textile and apparel industries simultaneously have a significant relationship to the Gross Domestic Product of the textile and apparel industry in Indonesia in 1990-2022.

d. Coefficient Test Results (*R-squared)*

Table 11. Coefficient Test Results (*R-squared)*

R-squared	0.915961

Source: *Eviews*, (processed)

The estimate results indicate that the R-squared value is 0.915961, indicating that the independent variables (FI, DI, L, and NI) have a significant impact on the dependent variable (GDP) by 91.59%, while the remaining 8.41% is affected by other factors not included in the model.

5. Discussion

Mawutor et. al. (2023) explains that foreign direct investment has a negative and significant effect on Ghana's Gross Domestic Product in the long term. Foreign investment inflows lower local savings rates in developing countries. As a consequence, domestic interest rates will increase and domestic investment will decrease. In addition, foreign investment can form a monopoly industry in a country, which can lead to loss of influence on domestic policies and reduced market share (Appleyard, Field, and Cobb, 2010) in (Nurul et. al., 2015).

Based on the findings of Umam (2019), it was found that domestic investment had a positive and significant impact on the GRDP of the industrial sub-sector on the island of Java between 2010 and 2017, because the industrial sector absorbed a lot of workers. Meisi et. al. (2021) stated that labor has a good and large influence on the GRDP of the processing industry in Jambi Province. The same conclusion is also supported by research by Laxa & Soliestyo (2020) which shows that the large number of industries in the Gatekertasusila area has had a positive and significant impact on the economic development of the industrial sector between 2014 and 2018

6. Conclusion, Implication, and Recommendation

6.1 Conclusion

The study findings show that raw materials for the domestic textile and clothing industry have not been well integrated. Research findings show that the variables Foreign Investment (FI) and Domestic Investment (DI) have a positive and significant effect on the Gross Domestic Product of the textile and apparel industry in Indonesia from 1990 to 2022. Labor (L) has a significant influence in short term, but also has a positive and significant influence in the long term. The Number of Industries (NI) variable experiences a positive and significant influence in the long term but does not experience a significant influence in the short term.

6.2 Implication and Recommendation

Practical perspective, to increase Gross Domestic Product in the textile and apparel industry subsector, it is necessary to have a textile and apparel industry regulator to maintain the stability of the number of textile and apparel industries. This will ensure that increasing GDP does not result in disconnection. the efforts of employees and the government's ability to design investment and trade policies in the textile and apparel sector in line with the country's political and economic stability requirements, as well as the ability to effectively manage foreign and domestic investment in this sector.

7. References

Aderibigbe. (2018). Productivity Determinants in the Manufacturing Sector in Ethiopia: Evidence from the Textile and Garment Industries. *Energies*, *6*(1).

Ahmad Ridha, Nurjannah, & Ratna Mutia. (2021). Analisis Permintaan Uang di Indonesia: Pendekatan Autoegressive Distributed lag (Ardl). *Jurnal Samudra Ekonomika*, *5*(2). https://doi.org/10.33059/jse.v5i2.4273

Amalia, F. (2014). Analisis Fungsi Produksi Cobb-Douglas Pada Kegiatan Sektor Usaha Mikro Di Lingkungan Uin Syarif Hidayatullah Jakarta. *Signifikan: Jurnal Ilmu Ekonomi*, *3*(1). https://doi.org/10.15408/sigf.v3i1.2056

Arzia, F. S., & Sentosa, S. U. (2019). Faktor-Faktor Yang Mempengaruhi Produksi Industri Manufaktur Di Indonesia. *Jurnal Kajian Ekonomi Dan Pembangunan*, *1*(2). https://doi.org/10.24036/jkep.v1i2.6178

Fadhilah, N., & Sukmana, R. (2017). Pengaruh Sertifikat Bank Indonesia Syariah (SBIS), Jakarta Islamic Index (JII), Tingkat Inflasi, dan Index Harga Saham Gabungan (IHSG) Terhadap Nilai Tukar: Pendekatan Autoregressive Distributed LAG (ARDL). *Jurnal Ekonomi Syariah Teori Dan Terapan*, *4*(10). https://doi.org/10.20473/vol4iss201710pp833-846

Faradilla, C., Rahmaddiansyah, R., & Hakim, L. (2022). Aspek Pertumbuhan Industri Tekstil Indonesia Dalam Upaya Mewujudkan Pertumbuhan Ekonomi: Analisis Faktor-Faktor

Yang Mempengaruhi Pertumbuhan Industri Tekstil. *Jurnal Ekonomi Dan Pembangunan*, *13*(2). https://doi.org/10.22373/jep.v13i2.773

Fatmawati, I. (2015). Analisis Pertumbuhan Ekonomi Indonesia Dengan Model Solow Dan Model Schumpeter. *Jurnal Ilmiah Mahasiswa FEB*.

Hamzah, L. M. (2021). Efficiency and Productivity of Textile Industry Sub-sector with Total Factor Productivity Approaches. *International Journal of Economics and Statistics*, *9*. https://doi.org/10.46300/9103.2021.9.7

Mawutor, J. K. M., Sogah, E., Christian, F. G., Aboagye, D., Preko, A., Mensah, B. D., & Boateng, O. N. (2023). Foreign direct investment, remittances, real exchange rate, imports, and economic growth in Ghana: An ARDL approach. In *Cogent Economics and Finance* (Vol. 11, Issue 1). https://doi.org/10.1080/23322039.2023.2185343

Meisi, R. C., Zulfanetti, Z., & Hidayat, M. S. (2021). Pengaruh investasi, tenaga kerja dan unit usaha terhadap PDRB industri pengolahan di Provinsi Jambi. *E-Journal Perdagangan Industri Dan Moneter*, *9*(2), 71–82. https://doi.org/10.22437/pim.v9i2.6408

Muryani, S., & Hutajulu, D. M. (2023). Analisis Pengaruh Inflasi, Produk Domestik Bruto, Dan Kurs Bagi Impor Indonesia. *Jurnal Ilmiah Ekonomi Bisnis*, *28*(2). https://doi.org/10.35760/eb.2023.v28i2.7290

Ningrum, V. (2008). Penanaman Modal Asing Dan Penyerapan Tenaga Kerja Di Sektor Industri. *Jurnal Kependudukan Indonesia*, *III*(2).

Qushoy, L. N., Murniati, N., & Marzan, J. (2022). Determinan Pertumbuhan Sektor Industri Jawa Barat. *Jurnal Riset Ilmu Ekonomi*, *2*(2). https://doi.org/10.23969/jrie.v2i2.31

Sanjaya, I. W., & Anis, A. (2022). Analisis Kausalitas Penerimaan Pajak, Pengeluaran Pemerintah, dan Pertumbuhan Ekonomi di Indonesia. *Jurnal Kajian Ekonomi Dan Pembangunan*, *4*(3). https://doi.org/10.24036/jkep.v4i3.13765

Sari, A. I., Destiningsih, R., & Islami, F. S. (2021). Analisis PDB Sektor Industri Manufakur Di Indonesia Tahun 1990- 2019 Dengan Pendekatan ECM. *DINAMIC: Directory Journal of Economic*, *3*(1).

Umam, K. (2019). Pengaruh Penanaman Modal Asing (PMA), Penanaman Modal Dalam Negeri (PMDN) Dantenaga Kerja Terhadap Pdrb Sektor Industri Di Pulau Jawa Tahun 2010-2017. In *UIN Syarif Hidayatullah Jakarta*.

Widarjono, A. (2018). Ekonometrika: Pengantar dan aplikasinya, Ekonosia. *Yogyakarta: Penerbit YKPN*.