Determinants of GDP of Textile and Textile Product Industry

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Abstract: One of the industries that influence the development and growth of the country's economy is the manufacturing sector, including the textile and textile product (TTP). This study expects to decide the variables that could impact the GDP (Gross domestic product) of Material and Material Items in 12 nations in the period 2012 - 2021 and dissect the tremendous impacts of Trade Rates, Exports and Imports of Textile and Clothing, Gross Fixed Capital Formation (GFCF), Textile and Clothing Industrial Competitiveness (Revealed Comparative Advantage) to the GDP of Textile and Textile Product. The outcomes showed that in light of the concurrent f test, it is known that all chosen factors, to be specific trade rates, tpt sends out, tpt imports, and gfcf, uncovered near advantage (RCA) all the while altogether affect the GDP of Materials and Items materials. The swapping scale essentially affects the Gross domestic product of TTP, yet with the other way, and TPT trades fundamentally affect the Gross domestic product of TTP with a unidirectional relationship, TPT imports meaningfully affect Gross domestic product of TTP with the other way, GFCF fundamentally affects the Gross domestic product of TTP with a unidirectional relationship, uncovered similar benefit (RCA) of the material business significantly affects the Gross domestic product of TTP with the other way.

Keywords: Gross Domestic Product, Foreign Exchange, Export-Import, Gross Fixed Capital Formation, Revealed Comparative Advantage

1. Introduction

The important role of industry of textile and textile products in country's economic is significant.[1] That is why every country pay big attention to grow the business of textile and textile products. Government policy is intended to encourage the growth of production, both in volume and in number. This can lead to the escalation of reserve for exchange rate, which will effect positively to the balance of payment and or balance of trade.

As this industry is labor intensive, the magnitude will effect on the readiness of labor. Significant number of labor are accomodated to work in this industry. The more labor work for it the more economic activities will grow.[2] Thus, one might say that this material and material items industry is essential for country financial all in all.

Total national output (Gross domestic product) is a benchmark for the turn of events and development of the nation's economy.[3] One of the enterprises that impact the turn of events and development of the country's economy is the assembling area, which incorporates the material and material item (TTP) industry area. The commitment of the material and material

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items industry is accepted to be very huge, basically as per measurable information, the material and material items area possesses the second situation after the food area.

This study plans to decide the elements that could impact the GDP (Gross domestic product) of Material and Material Items in 12 nations in the period 2012 - 2021 and break down the significancy impacts of Trade Rates, Exports and Imports Textile and Clothing, Gross Fixed Capital Formation (GFCF), Textile and Clothing Industrial Competitiveness (Revealed Comparative Advantage - RCA) to the GDP of Textile and Textile Product.[4]

The information revealed by the World Bank and different sources, the quantity of laborers in the material and material items industry and GDP for 12 nations in the period 2012 - 2021 are as per the following:

GDP TEXTILE AND CLOTHING
(IN MILLION USD)
TAHUN 2012 - 2021

	INDONESIA	INDIA	TIONGKOK	GERMANY	ITALY	TURKEY	SPAIN	AUSTRALIA	GREECE	KOREA SELATAN	RUSSIA	MALAYSIA
2012	20.802	25.612	268.792	9.859	26.937	23.819	5.856	2.982	981	12.594	4.238	1.129
2013	21.718	26.130	293.297	10.126	28.394	27.745	6.085	2.807	783	13.569	4.759	1.146
2014	19.183	26.140	318.166	10.892	29.768	27.934	5.882	2.431	827	14.211	4.082	1.340
2015	19.665	28.521	319.992	8.622	24.956	24.827	5.124	2.269	599	13.506	2.802	1.307
2016	22.932	29.339	315.057	8.861	25.386	24.375	5.063	1.768	624	13.576	2.611	1.277
2017	25.624	34.163	345.753	9.323	26.647	24.828	5.376	1.883	634	13.476	3.686	1.432
2018	26.674	37.150	386.533	9.111	28.206	24.189	5.274	1.932	629	14.151	3.653	1.560
2019	28.410	35.236	382.032	8.618	27.929	23.644	4.874	1.734	574	12.828	3.701	1.594
2020	27.108	33.714	385.756	8.245	25.797	22.176	4.572	1.618	589	12.549	3.369	1.530
2021	29.418	40.999	486.189	9.103	29.303	29.267	5.352	1.867	665	14.201	4.331	1.784

EXCHANGE RATES
(1 USD)
YEAR 2012-2021

	INDONESIA	INDIA	CHINA	GERMANY	ITALY	TURKEY	SPAIN	AUSTRALIA	GREECE	KOREA SEL	RUSSIA	MALAYSIA
2012	9.386,63	53,44	6,31	0,78	0,78	1,80	0,78	0,97	0,78	1.126,81	30,84	3,09
2013	10.461,24	58,60	6,20	0,75	0,75	1,90	0,75	1,04	0,75	1.094,98	31,84	3,15
2014	11.865,21	61,03	6,14	0,75	0,75	2,19	0,75	1,11	0,75	1.094,98	38,38	3,27
2015	13.389,41	64,15	6,23	0,90	0,90	2,72	0,90	1,33	0,90	1.052,84	60,94	3,91
2016	13.308,33	67,20	6,64	0,90	0,90	3,02	0,90	1,35	0,90	1.130,95	67,06	4,15
2017	13.380,83	65,12	6,76	0,89	0,89	3,65	0,89	1,30	0,89	1.160,77	58,34	4,30
2018	14.236,94	68,39	6,62	0,85	0,85	4,83	0,85	1,34	0,85	1.100,16	62,67	4,04
2019	14.147,67	70,42	6,91	0,89	0,89	5,67	0,89	1,44	0,89	1.165,36	64,74	4,14
2020	14.582,20	74,10	6,90	0,88	0,88	7,01	0,88	1,45	0,88	1.180,27	72,10	4,20
2021	14.308,14	73,92	6,45	0,85	0,85	8,85	0,85	1,33	0,85	1.143,95	73,65	4,14

EXPORT TEXTILE AND TEXTILE PRODUCT OF 12 COUNTRY FOR YEAR 2012 - 2021
(IN MILLION USD)

	INDONESIA	INDIA	CHINA	GERMANY	ITALY	TURKEY	SPAIN	AUSTRALIA	GREECE	KOREA SEL	RUSSIA	MALAYSIA
2012	14.776	34.250	247.859	31.977	31.621	26.162	13.711	5.953	1.805	15.947	695	3.699
2013	15.011	39.694	260.905	33.529	33.181	33.181	15.126	5.607	1.738	16.287	825	3.551
2014	15.242	39.591	279.718	35.205	34.612	34.162	15.906	4.540	1.682	16.207	909	3.705
2015	14.974	37.117	263.894	30.293	29.583	27.860	14.970	3.512	1.365	14.456	740	6.619
2016	14.286	36.525	249.028	30.681	30.450	27.840	16.327	4.031	1.407	13.578	798	3.281
2017	14.500	37.899	252.652	34.287	32.094	28.697	18.176	4.678	1.537	13.592	993	3.364
2018	14.858	38.051	262.687	37.036	34.687	30.025	18.744	4.466	1.646	13.711	986	3.562
2019	14.356	36.507	255.851	36.396	34.184	29.822	18.732	3.852	2.019	12.581	1.108	3.496
2020	11.944	29.718	275.762	35.889	28.784	28.524	15.519	2.338	1.707	10.837	1.211	3.004
2021	11.600	37.110	316.000	35.420	36.663	27.831	19.392	4.359	1.669	14.320	950	3.245

IMPORT ODF TEXTILE AND TEXTILE PRODUCT FOR 12 COUNTRY FOR THE YEAR 2012 - 2021
(IN MILLION USD)

	INDONESIA	INDIA	CHINA	GERMANY	ITALY	TURKEY	SPAIN	AUSTRALIA	GREECE	KOREA SEL	RUSSIA	MALAYSIA
2012	9.617	6.243	34.940	50.314	25.231	11.661	19.852	8.682	2.411	12.185	17.477	5.244
2013	10.004	6.432	34.882	54.337	25.929	13.102	21.157	9.084	2.539	13.948	19.967	5.913
2014	10.746	7.416	29.965	57.708	27.539	13.609	23.854	9.602	2.819	15.251	18.794	6.619
2015	9.294	7.388	26.791	51.375	24.201	11.418	22.503	9.575	2.408	15.474	12.204	6.777
2016	9.321	7.753	24.586	53.236	24.564	11.053	23.941	9.201	2.700	15.146	12.303	5.451
2017	9.725	7.953	27.149	57.001	25.840	12.183	25.885	9.426	2.910	15.940	13.605	4.935
2018	10.658	8.442	28.966	61.393	28.052	11.482	27.599	9.905	3.411	17.408	14.480	5.014
2019	9.902	9.361	28.187	59.525	27.065	11.131	27.503	9.754	4.249	17.655	14.014	4.965
2020	7.700	6.267	25.744	63.033	25.748	9.286	24.606	10.785	3.129	16.434	13.255	5.140
2021	8.600	6.270	25.700	49.820	27.085	10.476	24.367	9.738	2.756	17.040	11.183	4.097

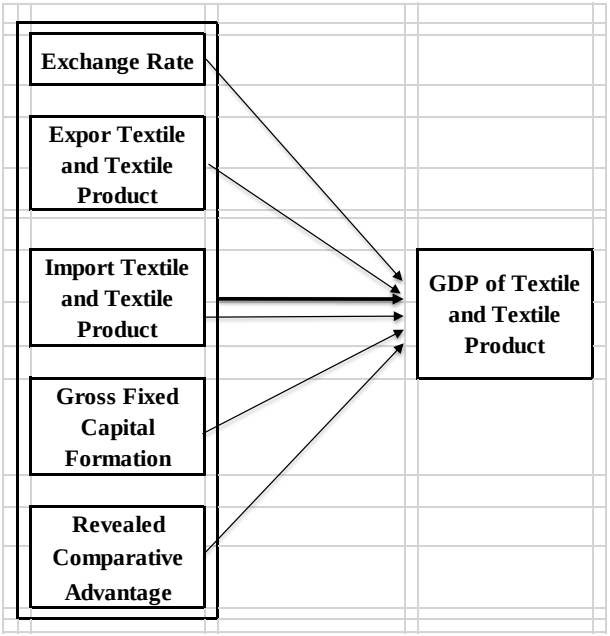
GROSS FIXED CAPITAL FORMATION (GFCF)
FOR THE YEAR 2012 - 2021

	Australia	China	Germany	Spain	Greece	Indonesia	India	Italy	Republik Korea	Malaysia	Russian Federation	Turkiye
2012	424.104	3.775.497	716.754	245.443	27.905	300.324	611.106	382.102	377.829	79.754	476.135	238.265
2013	439.105	4.260.627	743.082	235.396	26.750	291.695	581.076	368.509	398.801	85.594	502.973	271.498
2014	394.523	4.594.225	779.385	243.800	25.510	289.664	613.374	361.535	429.826	87.810	441.032	269.909
2015	354.204	4.656.286	672.183	215.381	21.075	282.463	604.427	311.043	425.230	77.947	281.035	255.445
2016	305.880	4.667.692	704.321	221.434	21.262	303.585	646.868	322.312	445.825	76.874	279.377	253.152
2017	318.386	5.153.283	753.357	245.064	23.560	326.629	747.127	342.937	511.716	79.979	346.043	256.472
2018	348.364	5.952.961	837.225	276.339	23.639	336.534	796.366	373.329	523.932	86.829	342.313	230.915
2019	324.764	6.115.038	831.054	279.311	21.936	361.994	809.293	361.818	496.845	83.759	353.900	196.879
2020	300.357	6.240.217	840.824	259.924	22.591	335.824	709.205	340.331	514.676	70.576	319.995	197.400
2021	348.572	7.425.976	927.037	282.143	28.517	365.376	907.307	420.617	571.729	71.959	352.577	230.493

REVEALED COMPARATIVE ADVANTAGE OF TEXTILE AND CLOTHING												
	INDONESIA	INDIA	CHINA	GERMANY	ITALY	TURKEY	SPAIN	AUSTRALIA	GREECE	SOUTH KOREA	RUSSIA	MALAYSIA
2012	1,82	3,28	2,66	0,46	1,68	5,51	0,90	0,59	1,67	0,68	0,04	0,28
2013	1,92	3,33	2,59	0,47	1,70	5,55	0,89	0,56	1,51	0,66	0,04	0,28
2014	1,99	3,29	2,45	0,48	1,71	5,36	0,89	0,44	1,28	0,62	0,05	0,27
2015	2,08	3,26	2,21	0,44	1,53	4,72	0,85	0,39	1,20	0,57	0,05	0,29
2016	2,07	3,03	2,14	0,45	1,53	4,79	0,89	0,46	1,22	0,56	0,07	0,26
2017	1,91	3,02	2,11	0,49	1,51	4,87	0,91	0,45	1,26	0,52	0,07	0,26
2018	1,88	2,99	2,11	0,51	1,61	4,84	0,91	0,48	1,09	0,51	0,06	0,24
2019	1,89	2,78	2,10	0,50	1,61	4,76	0,92	0,34	1,33	0,52	0,07	0,23
2020	1,60	2,56	2,28	0,50	1,44	4,72	0,95	0,21	1,13	0,44	0,08	0,18
2021	1,60	2,56	2,28	0,50	1,44	4,72	0,95	0,21	1,13	0,44	0,08	0,18

2. Research Model

The research are about the determinants of GDP Textile and Textile Product, which is Exchange Rate, Export TTP, Impor TTP, Gross Fixed Capital Formation, and Revealed Comparative Advantage.
Research model is as follows:



Equation model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon_t$$

Where:

$\beta_0 \ldots n$ = Equation Constants 1 s/d n

ε_1 ….n = Standard Error equation 1 s/d n
Y, $\hat{Y}$ = Gross Domestic Product of Textiles and Textile Products
X_1 = Exchange rate
X_2 = Export of TPT
X_3 = Import of TPT
X_4 = GFCF
X_5 = RCA

Board information relapse model involving cross segment and time series information for this examination utilizes **Normal Impact Model, Fixed Impact Model, and Arbitrary Impact Model.** The choice between common effect, fixed effect and random effect methods is carried out in 2 stages, namely:

1. Selection between common effect and fixed effect methods (Redundant Fixed Effects Test)
Method selection is carried out using the F test, with the hypothesis:
H0 : $\alpha 1 = \alpha 2 = \ldots = \alpha n$ (same intercept/common effect)
H1 : $\alpha 1 \neq \alpha 2 \neq \ldots \neq \alpha n$ (unequal intercept/fixed effect)

2. Choice between fixed impact and arbitrary impact techniques (Hausman Test)
Choice is finished by Hausman test. The speculation of the Hausman test is:
H0 : random effect is better
H1 : the fixed effect is better

The test system is completed involving the menu in the EViwes program, by taking a gander at the likelihood of the Chi-square. If the probability regard is under 0.05, reject H0 or the appropriate effect is better.

3. Result Model

Stationary Test

Result of stationary test show as follows:

1. On the chart of Material and Material Item Gross domestic product, Indonesia, China, India, South Korea and Malaysia have a rising pattern. While the nations of Spain, Australia, Greece, have a descending pattern. Germany, Italy, Turkey, and Russia don't appear to have a pattern. From the above perceptions, out of 12 nations, there are 8 nations that have a noticeable pattern, so it very well may be anticipated that the Gross domestic product of Materials and Material Items is non-fixed at level.[5]
2. On the conversion standard diagram, all nations have a rising pattern, so it very well may be anticipated that the swapping scale variable is non-fixed at level.
3. On the TPT Export chart, only Indonesia has a downward trend, where other countries do not seem to have a trend, so the TPT Export variable is predicted to be stationary at level.
4. On the TPT import graph, Spain and South Korea have a rising pattern. Russia and Malaysia have a descending pattern. Indonesia, China, India, Germany, Italy, Turkey, Australia, and Greece don't appear to have a pattern. Of the 12 nations, there are 8 nations that don't appear to have a pattern, so the variable import of TPT can be anticipated to be fixed at level.
5. On the Gross Fixed Capital Arrangement diagram, Indonesia, China, India, Germany, Spain and South Korea have a rising pattern. Turkey has a

descending pattern. Italy, Australia, Greece, Russia and Malaysia don't appear to have a pattern. Of the 12 nations, there are 7 nations that appear to have a pattern, so it tends to be anticipated that the Gross Fixed Capital Development variable is non-fixed at level.

6. On the chart of the Seriousness of the Material Business and Material Items, the nations of Germany, Spain, Russia have a rising pattern. India, Italy, Turkey, Australia, South Korea and Malaysia have a descending pattern. Indonesia, China and Greece don't appear to have a pattern. Of the 12 nations, there are 9 nations that appear to have a pattern, so it very well may be anticipated that the variable Intensity of the Material Business and Material Items is non-fixed at level.

To test quantitatively, the stationary test can be carried out using the second generation method of the unit root test, namely by using the Cross-Sectionally Augmented Im-Pesaran-Shin (CIPS) test. The criteria that need to be fulfilled is that if the CIPS probability value is < α 0.05 or 5%, then the data is considered stationary but if the CIPS probability value is > α 0.05 or 5% then the data is considered not stationary.

Unit root test results for each variable show result as follows

Variable	Level	1st -difference	Integration Orde
	Intercept	Intercept	
Pesaran CIPS			
Model 1			
GDP TTP	-1,418	**-5,3009***	I(1)
Exchange Rate	-0,2728	**-2,8199****	I(1)
Export TTP	-0,8669	**-2,6025****	I(1)
Import TTP	**-3,3507***	-2,4459***	I(0)
Gross Fixed Capital Formation	-1,4008	**-5,4581***	I(1)
Revealed Comparative Advantage of TTP	-1,4765	-2,2124	I(2)

Note: * 1% significance level, ** 5% significance level, *** 10% significance level.

From the results of the unit root test with the CIPS test, it was found that the Import of TTP variable (- 3.3507) is a decent factor at the level, while the elements GDP of Materials and Material Things (- 5.3009), Trading scale (- 2.8199), Wares TTP (- 2.6025), and Gross Fixed Capital Turn of events (- 5.4581) are non-fixed factors at level, but fixed at level first differentiation. The RCA Variable is a non-fixed variable at the level and first qualification level, but fixed at the subsequent difference level.

Preliminary Hypothesis Testing

Preliminary result of regression model show as follows:

Regression Model												
Dependen Variable: Ln GDP TPT												
Variabel	Coefisien			Standard Error			t-Statistic			Prob.		
	C.E.	F.E.	R.E.	C.E.	F.E.	R.E.	C.E.	F.E.	R.E.	C.E.	F.E.	R.E.
C	-3.800645	1.320464	-0.833409	0.494935	1.295488	0.967273	-7.679074	1.019279	-0.861607	0.0000	0.3105	0.3907
Ln Kurs	0.104939	0.030738	0.078908	0.013535	0.062301	0.037001	7.753074	0.493379	2.132560	0.0000	0.6228	0.0351
Ln Ekspor TTP	0.430336	0.080336	0.164277	0.050195	0.075883	0.066589	8.573255	1.058693	2.467045	0.0000	0.2922	0.0151
Ln Impor TTP	0.076194	-0.389031	-0.362974	0.078532	0.080010	0.076103	0.970230	-4.862266	-4.769516	0.3340	0.0000	0.0000
Ln GFCF	0.589194	0.837585	0.907048	0.058033	0.085057	0.069627	10.15280	9.847368	13.02733	0.0000	0.0000	0.0000
Ln RCA TTP	0.303689	0.047293	0.123418	0.037960	0.076013	0.058142	8.000249	0.622171	2.122692	0.0000	0.5352	0.0359

Preliminary test of statistical of regression model shows as follows:

Regression Model			
Statistics	Common Effect	Fixed Effect	Random Effect
R-squared	0.942174	0.997083	0.648414
Adjusted R-squared	**0.939638**	**0.996630**	**0.632994**
S.E. of regression	0.401260	0.094808	0.099832
Sum squared resid	18.35508	0.925816	1.136173
Log likelihood	-57.61749	121.6017	-
F-statistic	371.4897	2200.699	42.04900
Prob(F-statistic)	0.000000	0.000000	0.000000
Mean dependent var	9.197241	9.197241	0.528677
S.D. dependent var	1.633221	1.633221	0.164791
Akaike info criterion	1.060291	-1.743361	-
Schwarz criterion	1.199666	-1.348466	-
Hannan-Quinn criter.	1.116892	-1.582992	-
Durbin-Watson stat	**0.064085**	**0.750284**	**0.574126**

Taking into account the association of the computation results above, utilizing the changed r-square worth and the Durbin-Watson detail as the essential reference, it will overall be expected that for model 1, the Fitting Impact is the model actually hanging out there to be utilized stood apart from different models, explicitly Average Impact and Unusual Impact. The changed r-square catalyst for the Suitable Impact is 0.996630, higher than the Normal Impact (0.939638) and Inconsistent Impact (0.632994). The Durbin-Watson detail an inspiration for Fixed Impact is 0.750284, nearer to the worth 2 or the most raised wandered from Common Impact (0.064085) and Conflicting Impact (0.574126).

Model Selection
GDP TTP = f(Exchange Rate, ExportTTP, ImportTTP, GFCF, RCA)
F test (Chow Test)

Table Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	176.278255	(11,103)	0.0000
Cross-section Chi-square	358.438294	11	0.0000

H0: Common Effect Model
H1: Fixed Effect Model
Prob value 0,00 < 0,05. H1 accepted (Fixed Effect model)

Hausman Test

Table Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.402841	5	0.0038

H0: Random Effect Model
H1: Fixed Effect Model
Prob value 0,0038 < 0,05. H1 accepted (**Fixed Effect** model)

After deciding to use fixed effect, the result is as follows:

Fixed Effect

Dependent Variable: LN_GDP_?
Method: Pooled Least Squares
Date: 02/08/23 Time: 08:27
Sample: 2012 2021
Included observations: 10
Cross-sections included: 12
Total pool (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.320464	1.295488	1.019279	0.3105
LN_USD_EXCHANGE_RATE_?	0.030738	0.062301	0.493379	0.6228
LN_EXPORT_?	0.080336	0.075883	1.058693	0.2922

LN_IMPORT_?	-0.389031	0.080010	-4.862266	0.0000
LN_GFCF_?	0.837585	0.085057	9.847368	0.0000
RCA_?	0.047293	0.076013	0.622171	0.5352
Fixed Effects (Cross)				
AUSTRALIA--C	-1.508523			
GERMANY--C	-0.154073			
GREECE--C	-0.800310			
INDIA--C	0.109025			
INDONESIA--C	0.565155			
ITALY--C	1.236692			
KOREASELATAN--C	0.000416			
MALAYSIA--C	-0.905496			
RUSSIA--C	-0.781144			
SPAIN--C	-0.042786			
TIONGKOK--C	1.303544			
TURKIYE--C	0.977499			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.997083	Mean dependent var	9.197241
Adjusted R-squared	0.996630	S.D. dependent var	1.633221
S.E. of regression	0.094808	Akaike info criterion	-1.743361
Sum squared resid	0.925816	Schwarz criterion	-1.348466
Log likelihood	121.6017	Hannan-Quinn criter.	-1.582992
F-statistic	2200.699	Durbin-Watson stat	0.750284
Prob(F-statistic)	0.000000		

Handling Assumptions

GDP TPT= f(Kurs, ExportTPT, ImportTPT, GFCF, RCA)

Regression model results show as follows:

Level **Dependent Variable: Ln GDP TPT**				
Variable	**Coeffisien**	**Standard Error**	**t-Statistic**	**Prob.**
C	-0.064034	1.091603	-0.058661	0.9533
Ln Exchange Rate	0.072562	0.049651	1.461428	0.1469
Ln Export of TTP	0.119501	0.070365	1.698313	0.0925
Ln Import of TTP	-0.274930	0.069960	-3.929806	0.0002
Ln GFCF	0.819856	0.066046	12.41340	0.0000
Ln RCA of TTP	0.086073	0.060494	1.422824	0.1578
1st-difference **Dependent Variable: (Ln GDP TPT)**				
Variable	**Coeffisien**	**Standard Error**	**t-Statistic**	**Prob.**
C	0.020434	0.007732	2.642860	0.0097
(Ln Exchange Rate)	-0.421018	0.117551	-3.581570	0.0006
(Ln Export of TTP)	0.084727	0.044591	1.900105	0.0606
(Ln Import of TTP)	-0.042392	0.057880	-0.732414	0.4658

(Ln GFCF)	0.606535	0.091651	6.617854	0.0000
(Ln RCA TTP)	0.069872	0.060660	1.151873	0.2524
ECT(-1)	-0.091030	0.046074	-1.975722	0.0512
2nd-difference Dependent Variable: (Ln GDP TPT)				
Variable	**Coeffisien**	**Standard Error**	**t-Statistic**	**Prob.**
C	0.009441	0.005369	1.758502	0.0826
(Ln Exchange Rate)	-0.142320	0.089631	-1.587846	0.1164
(Ln Export of TTP)	0.211454	0.043750	4.833189	0.0000
(Ln Import of TTP)	0.061644	0.062622	0.984386	0.3280
(Ln GFCF)	0.675811	0.079315	8.520586	0.0000
(Ln RCA TTP)	0.063200	0.051132	1.236021	0.2202
ECT(-1)	-0.801350	0.105684	-7.582530	0.0000
3rd-difference Dependent Variable: (Ln GDP TPT)				
Variable	**Coeffisien**	**Standard Error**	**t-Statistic**	**Prob.**
C	0.015218	0.007912	1.923407	0.0587
(Ln Exchange Rate)	-0.136945	0.083529	-1.639489	0.1059
(Ln Export of TTP)	0.286929	0.046144	6.218108	0.0000
(Ln Import of TTP)	0.080401	0.057949	1.387443	0.1700
(Ln GFCF)	0.577690	0.084446	6.840964	0.0000
(Ln RCA TTP)	0.109945	0.044772	2.455678	0.0167
ECT(-1)	-1.248606	0.109376	-11.41567	0.0000

Regression model statistics result as follows:

Statistics	**Integration Orde**			
	Level	**1st-difference**	**2nd-difference**	**3rd-difference**
R-squared	0.998271	0.777284	0.880904	0.903119
Adjusted R-squared	0.998003	0.735216	0.854948	**0.878165**
S.E. of regression	0.092713	0.060304	0.079835	0.114013
F-statistic	3716.996	18.47661	33.93737	36.19127
Prob(F-statistic)	0.000000	0.000000	0.000000	0.000000
Mean dependent var	11.12500	0.019954	0.019753	0.045832
S.D. dependent var	5.453103	0.118881	0.209640	0.327466
Sum squared resid	0.885364	0.327296	0.497145	0.857926
Durbin-Watson stat	0.832674	2.473884	2.375535	**2.341094**

From the statistics of the regression model above, utilizing the Changed r-square and Durbin-Watson stat approaches, the integration order chosen is the **third difference** which results in an adjusted r-square of 0.878165 and a Durbin-Watson of 2.341094.

Panel Data Regression Interpretation

Interpreation for panel data regression use **third difference**, which the result is as follows:

GDP TPT = f(Kurs, ExportTPT, ImportTPT, GFCF, RCA)

Using the **third difference** regression model, show the result equation as follows:

$$(\text{Ln\_PDB\_TPT}) = 0{,}015218 - 0{,}136945\ (\text{ln\_Kurs}) + 0{,}286929\ (\text{ln\_ExportTPT}) + 0{,}080401\ (\text{ln\_ImportTPT}) + 0{,}577690\ (\text{ln\_GFCF}) + 0{,}109945\ (\text{RCA}) - 1{,}248606\ (\text{ECT}(-1))$$

Constant Value = 0.015218

• Value of Regression Coefficient ß1 = -0.136945. Changes from changes in exchange rates are inelastic to GDP.

• Value of Regression Coefficient ß2 = 0.286929. Changes from changes in changes in TTP exports are inelastic to GDP.

• Value of Regression Coefficient ß3 = 0.080401. Changes from changes in changes in TTP imports are inelastic to GDP.

• Value of Regression Coefficient ß4 = 0.577690. Change of change of change of change of GFCF is inelastic to GDP.

• Value of Regression Coefficient ß5 = 0.109945. Changes from changes in changes in inelastic Competitiveness to GDP.

• Value of Regression Coefficient ß6 = -1.248606. This is a model error correction.

Simultaneous F Test

The importance esteem is 0.0000 <0.05 which implies that all factors at the same time altogether affect Gross domestic product.

Partial t test

1. Changes from changes in exchange rates (X1) have a t-statistic value of -1.639489 with a p-value of 0.1059. greater than the 5% significance level, so that H0 (not significant effect) is accepted, and H1 (significant effect) is rejected. Negative t-statistic values indicate the opposite direction of the relationship.
2. Changes from changes in sends out (X2) have a t-measurement worth of 6.218108 with a p-worth of 0.0000. more modest than the 5% importance level, so H0 (not massive impact) is dismissed, and H1 (huge impact) is acknowledged. Positive t-measurement values demonstrate a unidirectional relationship.
3. adjustments resulting from import adjustments (X3) have a t-assessment worth of 1.387443 and a p-worth of 0.1700 less fundamental than the 5% importance level, therefore H0 (superfluous influence) is perceived and H1 (large impact) is excused. T-values that are positive indicate a one-way relationship.
4. The t-estimation value of changes from changes in GFCF changes (X4) is 6.840964, and the p-value is 0.0000. more modest than the 5% criterion of significance, hence H0 (not

a big influence) is excused and H1 (a big effect) is acknowledged. A unidirectional link is indicated by positive t-estimation values.

5. The t-estimation value for changes resulting from changes in earnestness (X5) is 2.455678, and the p-value is 0.0167. more obvious than the 5% level of significance, H0 (not a huge influence) is dismissed, and H1 (a huge effect) is acknowledged. A unidirectional association is shown by positive t-estimation values.
6. Changes resulting from variations in the Error Correction Value (ECT) have a t-measurement value of - 11.41567 with a p-value of 0.0000, less significant than the 5% importance level, indicating that the error rectification coefficient has a really respectable significance.

Autocorrelation Test (Durbin-Watson)

The GDP backslide figures according to Durbin-Watson are 2.341094. 4-dU (2.220) is the result of the dL regard being 1.571 and the dU regard being 1.780. 4-dL (2.429) and Durbin Watson (2.341), really suggesting that there is no relationship.

Coefficient of Determination (R-Squared)

R-squared = 0.878165 measures how much the simultaneous influence of the factors on the backslide outcomes on TTP GDP has changed. Elements may concurrently predict 87.81% of changes in GDP, with the remaining changes being influenced by numerous factors not included in the model.

4. Conclusion

In light of the synchronous f test it is known that all chosen factors, namely Exchange Rates, Exports of Textiles and Textile Products, Imports of Textiles and Textile Products, Gross Fixed Capital Formation (GFCF), Uncovered Similar Benefit all the while altogether affect GDP. Materials and Material Items. While in light of the fractional test it is known that: The exchange rate has no significant effect on GDP of TTP with the opposite direction, TTP Exports, GFCF and Revealed Comparative Advantage have a tremendous impact on Gross domestic product of TTP with a unidirectional relationship, and Imports of TTP have no significant effect on GDP of TTP with the same relationship direction.

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