Longitudinal Study- The Impact of the COVID Epidemic on the Asian-Pacific Region in Terms of Balance of Payments, Current account, Total, Net (BPM6), and Percentage of GDP

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The outlook for the global economy has become increasingly gloomy and uncertain due to the impact of the COVID epidemic, with world economic growth stagnating and inflation exceeding expectations. In particular, the Asia-Pacific region, with its large population, has been hit more severely (Emeline Han, 2020). This study is dedicated to investigating the economic development of the Asia-Pacific region for the 8 years before the epidemic and the expected next 8 years, comparing the balance of payments, current account, total, net (BPM6), and percentage of GDP (in USD) for the APDREO region.

Balance of Payments(eurostat, 2021) refers to all monetary payments and receipts of a country in a certain period caused by foreign economic transactions and settlement of foreign debts and liabilities. It is a microcosm of a country's external political and economic relations and is a reflection of a country's position in the world economy and its rise and fall. The balance of payments is usually reflected by the balance of payments statement, which is a systematic record of the country's balance of payments and financial statistics in a certain period of time. This statement is the basic information for countries to fully grasp the country's foreign economic transactions and is the main basis for the government to formulate foreign economic policies, as well as the economic environment that international marketers must consider when making marketing decisions.

This research use a two-way ANOVA repeated measures approach to analyze the known data for the study.

The known balance of payments, current account, total, net (BPM6), and percentage of GDP data for the Asia-Pacific region is obtained from the IMF website secondary data download at the following address:

https://data.imf.org/?sk=388dfa60-1d26-4ade-b505-a05a558d9a42&sId=1479329334655

The original data shows as follows:

Country Name	2,011	2,012	2,013	2,014	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2,025	2,026	2,027
Korea, Republic of	1.33	3.82	5.64	5.59	7.17	6.53	4.64	4.49	3.61	4.63	4.91	2.18	3.23	3.76	4.19	4.18	4.09
Cambodia	-8.03	-8.62	-8.46	-8.56	-8.74	-8.48	-7.91	-11.77	-15.01	-12.13	-26.69	-17.45	-9.47	-8.78	-9.07	-9.12	-9.22
Papua New Guinea	-24.20	-36.68	-31.69	14.13	24.52	28.38	28.42	24.46	20.56	20.94	22.04	25.10	22.35	21.16	20.15	19.39	18.57
Tuvalu	-	-	-	-	-	13	11	53	-	-	2.	-	0.	0.	-	-	-

	84.78	32.12	7.21	3.74	70.56	.90	.54	.95	16.86	7.87	11	8.59	28	79	8.64	11.12	9.71
Indonesia	0.19	-2.66	-3.18	-3.09	-2.04	-1.82	-1.59	-2.94	-2.70	-0.42	0.28	4.47	0.47	-1.09	-1.20	-1.36	-1.50
Lao People's Democratic Republic	-15.26	-21.32	-26.51	-23.27	-22.34	-11.02	-11.15	-12.96	-9.10	-4.52	-4.96	-5.98	-6.93	-8.49	-8.12	-7.15	-7.11
Maldives	-14.82	-6.64	-4.30	-3.66	-7.49	-23.64	-21.63	-28.38	-26.61	-35.53	-15.62	-24.17	-17.71	-14.32	-12.86	-10.53	-8.31
Bhutan	-30.49	-21.93	-25.63	-27.11	-27.90	-30.21	-23.58	-18.40	-20.49	-12.44	-11.77	-10.56	-9.69	-5.63	-1.41	-0.92	0.16
Timor-Leste, Dem. Rep. of	212.85	228.19	171.38	75.58	12.77	-32.99	-17.55	-12.07	6.49	-16.19	1.79	-28.04	-35.33	-38.86	-38.38	-37.76	-38.94
India	-4.29	-4.81	-1.74	-1.31	-1.05	-0.63	-1.84	-2.12	-0.87	0.90	-1.62	-3.10	-2.68	-2.68	-2.62	-2.60	-2.60
Vanuatu	-8.05	-6.76	-3.48	7.77	0.32	3.37	-4.44	12.19	13.61	2.49	-1.86	-7.75	-6.03	-4.21	-4.23	-4.20	-4.30
New Zealand	-2.80	-3.93	-3.17	-3.14	-2.84	-2.12	-2.82	-3.97	-2.91	-0.82	-5.78	-6.48	-5.35	-4.20	-4.21	-4.21	-4.34
Singapore	22.22	17.64	15.71	17.95	18.69	17.65	17.30	15.15	14.45	16.84	18.12	13.04	12.69	12.60	12.50	12.27	11.98
Taiwan Province of China	7.83	8.66	9.74	11.32	13.61	13.12	14.06	11.63	10.66	14.19	14.71	13.22	11.56	10.19	9.52	8.98	8.50
Marshall Islands, Republic of	-0.02	-2.18	-6.73	1.97	15.57	13.46	5.00	3.95	-25.86	16.17	3.35	-4.07	-2.69	-2.35	-3.01	-3.44	-3.91
Mongolia	-43.35	-43.82	-37.61	-15.82	-8.16	-6.27	-10.06	-16.71	-15.22	-5.07	-12.98	0.16	-1.47	-5.87	-3.16	-3.68	-4.99
Thailand	2.54	-1.	-2.	2.86	6.92	10.5	9.63	5.61	6.99	4.23	-2.	-0.	1.98	3.69	3.18	3.24	3.25

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Bangladesh	-1.73	-0.34	1.59	0.81	1.79	1.92	-0.53	-3.49	-1.48	-1.68	-1.28	-3.20	-2.86	-2.67	-2.41	-2.33	-2.36
Brunei Darussalam	34.71	29.84	20.88	31.93	16.68	12.90	16.37	6.91	6.64	4.52	5.58	18.20	15.04	14.73	13.94	13.23	13.04
Samoa	-6.97	-9.50	-1.51	-9.09	-2.75	-4.47	-1.91	0.86	3.04	0.15	-15.30	-12.52	-7.22	-4.08	-3.15	-2.72	-2.40
Malaysia	10.74	5.09	3.43	4.33	2.99	2.39	2.79	2.23	3.50	4.24	3.46	3.90	3.88	3.77	3.68	3.71	3.61
Nepal	-0.83	4.19	2.86	4.00	4.38	5.46	-0.32	-7.10	-6.93	-1.00	-8.24	-11.40	-7.42	-5.11	-3.94	-3.56	-2.68
Kiribati	-9.57	1.91	-5.47	31.47	32.97	10.76	37.44	38.84	48.77	39.15	16.88	7.13	9.87	9.72	10.01	9.98	10.05
Japan	2.08	0.95	0.88	0.75	3.07	3.95	4.13	3.53	3.43	2.95	2.87	2.39	2.69	3.01	3.15	3.18	3.23
Myanmar	-1.88	-1.82	-1.23	-4.47	-3.47	-4.21	-6.79	-4.71	-2.83	-3.38	-1.28	-0.14	-0.51	-0.88	-0.89	-1.17	-1.05
Micronesia, Federated States of	-19.26	-13.56	-9.94	6.11	4.46	7.15	10.28	21.04	16.59	2.48	0.66	-0.74	-2.47	-4.69	-4.64	-4.90	-5.54
China, P.R.: Mainland	1.82	2.52	1.54	2.24	2.64	1.70	1.54	0.17	0.72	1.67	1.82	1.07	0.98	0.86	0.72	0.50	0.41
Australia	-2.99	-4.36	-3.36	-3.04	-4.64	-3.28	-2.57	-2.14	0.61	2.60	3.54	2.97	0.53	0.35	0.23	0.07	-0.14
China, P.R.: Hong Kong	5.57	1.58	1.52	1.39	3.32	3.96	4.57	3.74	5.88	6.98	11.20	10.93	9.35	8.99	8.35	7.68	7.38
Sri Lanka	-7.07	-5.82	-3.42	-2.51	-2.34	-2.12	-2.64	-3.18	-2.20	-1.34	-4.28	-7.13	-4.61	-3.88	-3.55	-3.24	-3.10
Tonga	-20.25	-14.86	-9.62	-6.33	-10.11	-6.49	-6.38	-6.32	-0.85	-3.92	4.85	-3.09	-18.32	-8.24	-7.55	-14.62	-15.27
Vietnam	0.14	4.75	3.64	3.70	-0.	0.25	-0.	1.90	3.71	4.39	-0.	-0.	0.82	0.64	0.34	0.13	-0.

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Solomon Islands	-7.24	1.37	-3.00	-3.75	-2.70	-3.54	-4.23	-3.04	-9.81	-1.62	-5.78	-11.90	-11.90	-10.52	-9.66	-9.15	-9.52
Fiji	-4.82	-1.26	-9.38	-5.78	-4.47	-3.56	-6.70	-8.27	-12.47	-12.63	-16.90	-13.01	-10.61	-8.70	-8.75	-8.22	-8.15
Philippines	2.41	2.65	4.01	3.62	2.37	-0.38	-0.65	-2.56	-0.81	3.20	-1.76	-2.74	-2.21	-1.78	-1.81	-1.81	-1.79
Palau	-13.25	-15.93	-14.79	-19.43	-8.92	-13.43	-19.40	-15.59	-31.10	-48.30	-56.91	-51.49	-27.03	-23.53	-23.02	-21.70	-20.37
China, P.R.: Macao	40.38	38.83	39.34	32.71	23.34	26.52	30.75	32.99	33.84	15.16	13.80	3.53	14.88	22.39	26.34	27.11	26.24

1. **Arrange and analyze for TWO WAY ANOVA with SPSS format.**

Total Variances for the table:

Descriptive Statistics

	GroupBeforeAfter	Mean	Std. Deviation	N
C1	Before	4.7578	1.74866	9
	After	3.8963	.86010	8
	Total	4.3524	1.43144	17
C2	Before	-9.5089	2.36006	9
	After	-12.7413	6.35269	8
	Total	-11.0300	4.81733	17
C3	Before	5.3222	27.64823	9
	After	21.2125	2.02137	8
	Total	12.8000	21.23296	17
C4	Before	-15.0978	42.91530	9
	After	-5.3437	5.41192	8
	Total	-10.5076	30.96546	17
C5	Before	-2.2033	1.06159	9
	After	-.0438	1.97010	8
	Total	-1.1871	1.86978	17

C6	Before	-16.9922	6.40969	9
	After	-6.6575	1.41057	8
	Total	-12.1288	7.04875	17
C7	Before	-15.2411	10.00817	9
	After	-17.3812	8.76449	8
	Total	-16.2482	9.21419	17
C8	Before	-25.0822	4.26942	9
	After	-6.5325	5.23538	8
	Total	-16.3529	10.59192	17
C9	Before	71.6278	104.89972	9
	After	-28.9637	14.70590	8
	Total	24.2906	90.96735	17
C10	Before	-2.0733	1.48878	9
	After	-2.1250	1.29110	8
	Total	-2.0976	1.35581	17
C11	Before	1.6144	8.09727	9
	After	-3.7612	3.03913	8
	Total	-.9153	6.66883	17
C12	Before	-3.0778	.57883	9
	After	-4.4237	1.69288	8
	Total	-3.7112	1.37873	17
C13	Before	17.4178	2.28985	9
	After	13.7550	2.34462	8
	Total	15.6941	2.92883	17
C14	Before	11.1811	2.18237	9
	After	11.3587	2.42986	8
	Total	11.2647	2.22998	17
C15	Before	.5733	12.16505	9
	After	.0063	6.95081	8
	Total	.3065	9.75790	17
C16	Before	-21.8911	15.28556	9
	After	-4.6325	3.92021	8
	Total	-13.7694	14.22649	17
C17	Before	4.6367	4.45087	9
	After	2.1713	2.18397	8
	Total	3.4765	3.68793	17
C18	Before	-.1622	1.85734	9
	After	-2.3488	.61909	8

	Total	-1.1912	1.77710	17
C19	Before	19.6511	10.48607	9
	After	12.2850	4.75108	8
	Total	16.1847	8.90041	17
C20	Before	-3.5889	4.31553	9
	After	-5.9050	5.39532	8
	Total	-4.6788	4.84431	17
C21	Before	4.1656	2.62826	9
	After	3.7813	.23369	8
	Total	3.9847	1.87533	17
C22	Before	.6344	4.82617	9
	After	-5.4187	3.39123	8
	Total	-2.2141	5.13581	17
C23	Before	20.7911	21.55427	9
	After	14.0988	10.49486	8
	Total	17.6418	17.09784	17
C24	Before	2.5300	1.38148	9
	After	2.9338	.28294	8
	Total	2.7200	1.01608	17
C25	Before	-3.4900	1.76004	9
	After	-1.1625	.96874	8
	Total	-2.3947	1.84212	17
C26	Before	2.5411	13.81776	9
	After	-2.4800	2.98230	8
	Total	.1782	10.29709	17
C27	Before	1.6544	.80590	9
	After	1.0038	.51026	8
	Total	1.3482	.74211	17
C28	Before	-2.8633	1.52223	9
	After	1.2688	1.49836	8
	Total	-.9188	2.58078	17
C29	Before	3.5033	1.71226	9
	After	8.8575	1.57638	8
	Total	6.0229	3.18456	17
C30	Before	-3.4778	1.76392	9
	After	-3.8912	1.64025	8
	Total	-3.6724	1.66674	17
C31	Before	-9.0233	5.66140	9

	After	-8.2700	7.64137	8
	Total	-8.6688	6.45924	17
C32	Before	1.8478	2.16013	9
	After	.7138	1.54232	8
	Total	1.3141	1.92723	17
C33	Before	-3.9933	3.10300	9
	After	-8.7563	3.46856	8
	Total	-6.2347	4.01033	17
C34	Before	-6.3011	3.35997	9
	After	-10.8712	3.11058	8
	Total	-8.4518	3.92511	17
C35	Before	1.1844	2.31253	9
	After	-1.3375	1.86482	8
	Total	-.0024	2.42465	17
C36	Before	-16.8711	6.22933	9
	After	-34.0437	15.35798	8
	Total	-24.9524	14.16531	17
C37	Before	33.1889	5.80394	9
	After	18.6813	8.28790	8
	Total	26.3618	10.12954	17

Most mean of the countries changed, it shows there are differences between Before COVID group and After COVID group.

2. **Analyze it with TWO ANOVA with tables and make interpretations for the results, main effects, interaction effects, statistical analysis tables, and chart plotting. (Put all the tables here)**

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Countries	Sphericity Assumed	72753.039	36	2020.918	8.476	<.001	.361	305.136	1.000

	Greenhouse-Geisser	72753.039	1.434	50751.647	8.476	.004	.361	12.150	.879
	Huynh-Feldt	72753.039	1.649	44122.361	8.476	.003	.361	13.976	.912
	Lower-bound	72753.039	1.000	72753.039	8.476	.011	.361	8.476	.777
Countries * GroupBeforeAfter	Sphericity Assumed	49745.605	36	1381.822	5.796	<.001	.279	208.640	1.000
	Greenhouse-Geisser	49745.605	1.434	34701.937	5.796	.016	.279	8.308	.730
	Huynh-Feldt	49745.605	1.649	30169.097	5.796	.012	.279	9.556	.775
	Lower-bound	49745.605	1.000	49745.605	5.796	.029	.279	5.796	.615
Error(Countries)	Sphericity Assumed	128751.143	540	238.428					
	Greenhouse-Geisser	128751.143	21.503	5987.684					
	Huynh-Feldt	128751.143	24.733	5205.560					
	Lower-bound	128751.143	15.000	8583.410					

a. Computed using alpha = .05

As the data shown in the chart above, we can see that the Greenhouse-Geisser of countries equals 0.04, less than 0.05, and the Huynh-Feldt of countries equals 0.03, also less than 0.05, which means that there are differences between different countries. And the Greenhouse-Geisser of Countries * GroupBeforeAfter equals 0.016, less than 0.05, and the Huyn-Feldt equals 0.012, less than 0.05, which means that there are differences between the group Countries * GroupBeforeAfter. The Both of two groups is very significant.

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	19.894	1	19.894	.504	.489	.033	.504	.102
GroupBeforeAfter	1358.788	1	1358.788	34.417	<.001	.696	34.417	1.000
Error	592.198	15	39.480					

a. Computed using alpha = .05

As the data shows in the chart above, the sig. of GroupBeforeAfter is .001<.05 and the F value is 34.417. It means the independent variance of Before COVID group and After COVID group show reality to the dependent variance of Balance of Payments, etc.. It is really meaningful, which means the COVID epidemic really create the differences between the two groups of 8 years.

GroupBeforeAfter:

Estimates

Measure: MEASURE_1

GroupBeforeAfter	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Before	1.294	.344	.560	2.028
After	-1.650	.365	-2.429	-.872

In the chart of Estimates of GroupBeforeAfter, we can see that the mean of After Covid decreased, compares to the group Before Covid. The epidemic does really affect the economy of the Asia-Pacific region.

Pairwise Comparisons

Measure: MEASURE_1

(I) GroupBeforeAfter	(J) GroupBeforeAfter	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]

					Lower Bound	Upper Bound
Before	After	2.945*	.502	<.001	1.875	4.014
After	Before	-2.945*	.502	<.001	-4.014	-1.875

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Measure: MEASURE_1

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Contrast	36.724	1	36.724	34.417	<.001	.696	34.417	1.000
Error	16.005	15	1.067					

The F tests the effect of GroupBeforeAfter. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

Multivariate Tests

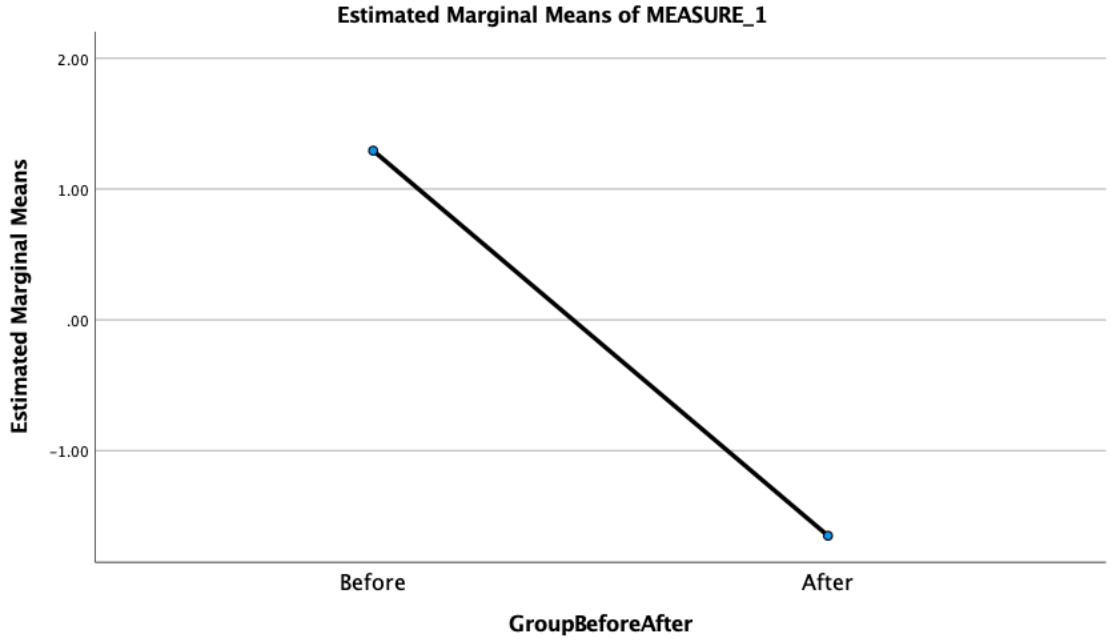
	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Pillai's trace	1.000	3086.527[a]	15.000	1.000	.014	1.000	46297.901	1.000
Wilks' lambda	.000	3086.527[a]	15.000	1.000	.014	1.000	46297.901	1.000
Hotelling's trace	46297.901	3086.527[a]	15.000	1.000	.014	1.000	46297.901	1.000
Roy's largest root	46297.901	3086.527[a]	15.000	1.000	.014	1.000	46297.901	1.000

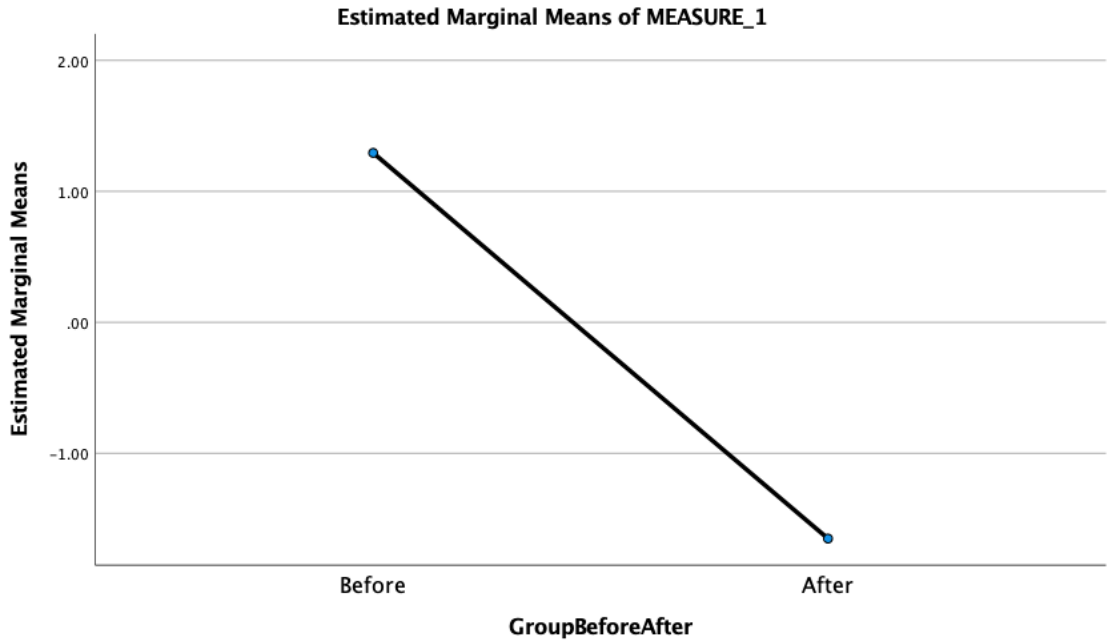
Each F tests the multivariate effect of Countries. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

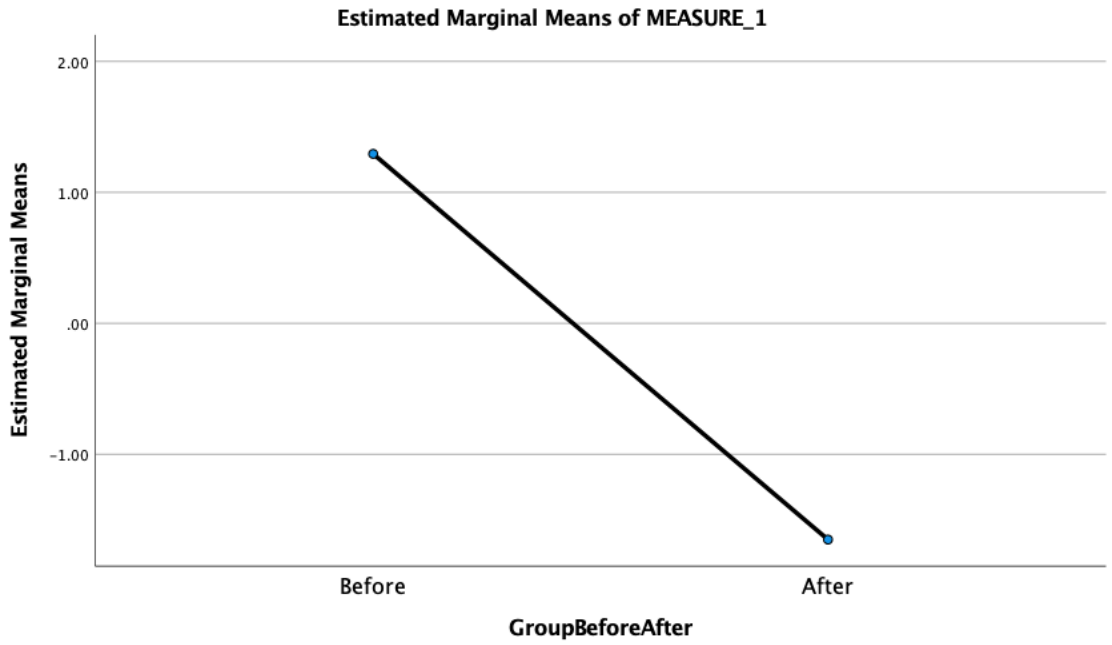
a. Exact statistic

b. Computed using alpha = .05

The univariate tests of GroupBeforeAfter have sig.<.001, F=34.417, and partial eta squared=0.696. And in the multivariate tests, Wilk's lambda of GroupBeforeAfter has sig.=.014, and partial eta squared=1.000. To compare these two groups of scale, the data of the Group (Before COVID, After COVID) shows the differences in the dependent variables. That means the COVID epidemic do have created an impact on the economies of the Asia-Pacific region.







In the line graph, the marginal mean after the COVID epidemic is much lower than the marginal mean before the COVID epidemic, which indicates that the COVID epidemic did have a negative impact on the economic level of the Asia-Pacific countries.

3. **Write down the information for this research**

Longitudinal Study- The Impact of the COVID Epidemic on the Asian-Pacific Region in Terms of Balance of Payments, Current account, Total, Net (BPM6), and Percentage of GDP

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Abstract

Due to the impact of the COVID epidemic, growth in the world's three largest economies has stagnated, inflation has exceeded expectations, and the global economic outlook is bleak and full of uncertainty This study aims to analyze the phenomena of economic decline following the COVID

outbreak by comparing the effects of the epidemic in 37 nations in the Asia-Pacific area (Korea, the Republic of; Cambodia; Papua New Guinea; Tuvalu, etc.) before and after the outbreak. The approach employed in this study is a longitudinal survey that analyzes the balance of payments, current account, total, net (BPM6), and percentage of GDP for eight years before and after the epidemic for various nations in the Asia-Pacific area. The data are then processed and analyzed in SPSS using the two-way ANOVA repeated measures method. The study's findings indicate that the COVID-19 epidemic had a major economic impact on the Asia-Pacific area. In the Asia-Pacific area, the COVID outbreak did have an impact on the balance of payments, current account, gross, net, etc. It should be emphasized that the Asia-Pacific region has stricter national control requirements than other regions, which may have an impact on the study's findings.

Keywords: Balance of Payments, Current Account, Total, Gross, Net Income, Percentage of GDP, Impact of Asian-Pacific Region, COVID-19 Epidemic.

INTRODUCTION

The beginning and velocity of the COVID-19 pandemic transmission have had an effect on EMDEs with significant pathogenicity (Kohlscheen E. B., 2020). Titelman and Pérez Caldentey (Titelman, 2015) and Ocampo (Ocampo, 2011) contend that the dominance of BOPs has a major impact on output, consumption, investment, wages, and employment through external transmission channels. The COVID-19 pandemic's influence on commerce and financial channels reveals some of its significant consequences on these macroeconomic indicators (BIS 2020).

Since the end of 2019, the emergence of COVID-19 has had an effect on the global economy (Centers for Disease Control and Prevention, 2022). The year 2019 has been marked by worry over how the U.S.-China trade war, the U.S. presidential election, and the U.K.'s withdrawal from the European Union may affect the global economy. The International Monetary Fund predicted that these factors would cause the rate of world economic growth to drop to 3.4%. In late 2019 COVID first appeared, and in January 2020 it was deemed a pandemic. In 2021, SARS-CoV-2 was widespread. And COVID-19 mutates into the omicron version, followed in 2022 by the delta and delta Cron variations. The world's perception has changed as a

result of COVID-19's unexpected birth. Growth in the global economy will slow down as a result of the coronavirus due to fear, uncertainty, and the realistic assessment that COVID-19's influence may result in fewer corporate earnings.

This article's objective is to track how the COVID-19 pandemic crisis has affected EMDEs, with a particular emphasis on the health of their Balance of Payments (BOPs). As they work to deal with the home effects of the COVID-19 epidemic, EMDEs are experiencing simultaneous hits in their BOPs. Due to these effects, the Keynesian Approach to BOPs needs to be rethought in some ways, and the international financial markets need to be seen as volatile, hierarchical entities.

LITERATURE REVIEW

Balance of Payments

In terms of international economics, a country's balance of payments (Andrzejczak, 2021), also referred to as its balance of international payments and abbreviated as BOP or BoP, is the difference between all of the money that enters the country over a specific time period (such as a quarter or a year) and all of the money that leaves the country for the rest of the world. To compare revenues and payments resulting from the exchange of goods and services, people, businesses, and governmental entities engage in these financial transactions. The balance of payments provides standardized data on international transactions that are included in the capital and financial accounts as well as on transactions that are included in the current account (goods, services, primary and secondary revenue). The worth of financial assets owned outside the economy is shown, as well as how much debt the country has to the rest of the globe.

BOP is a crucial macroeconomic indicator that is used to determine how an economy is positioned in relation to the outside world (in terms of credit or debit for current and capital

accounts, net purchases of financial assets, or net incurrences of liabilities for BOP financial account, and international investment position). Some indices of the EU and Member States' global standing are generated from BOP data.

Current Account

A country's current account includes information on its transactions with other countries' field (eurotat, 2021). It comprises all exchanges of goods, services, primary income, and secondary income between residential and non-residential units (apart from those involving financial things). The MIP scoreboard indicator is the current account balance as a percentage of GDP for the past three years. Additionally, information on the BoP sub-balances and its components is provided on a yearly and quarterly basis under the MIP domain (eurostat, 2021).

The European System of National and Regional Accounts for the Numerator (ESA 2010) (Dzebisauri, 2018), as defined in Regulation (EU) No 549/2013 of the European Parliament and of the Council of May 21, 2013, and the Balance of Payments and International Investment Positions Manual, Sixth Edition (BPM6) of the IMF, both define the methodology used in the compilation of the Balance of Payments (eurostat, 2021). The Balance of Payments Manual, Fifth Edition (BPM5), was the reference for the figures published by Eurostat up to 2014.

Total and Net

Total refers to completion, particularly of a subfield (Financial Glossary, 2011). A transaction's total cost comprises the sale price as well as commissions, interest charges, and other costs.

Regarding disposable income, information on net earnings (net pay taken home, in absolute terms) (eurotat, 2016) and associated tax-benefit rates (in%) is complementary to gross earnings data. In order to convert from gross to net earnings, income taxes and social security

contributions from the gross amounts must be subtracted, as well as any necessary family allowances added.

The quantity of these elements and, thus, the proportion of net to gross earnings, depending on the particular circumstance. Numerous diverse family scenarios are taken into account, all of which refer to the ordinary worker. There are differences in terms of marital status (married vs. single), the number of employees (only for couples), dependent children, and the number of gross earnings expressed as a percentage of an average worker's gross earnings.

Sixth Edition of the IMF's Balance of Payments and International Position Manual (BPM6)

The sixth edition (BPM6) of the 1993-released Balance of Payments and International Investment Position Manual (BPM5) contains updates (International Monetary Fund, 2013). The update took place over a long period of time and entailed extensive consultations with national compilers, regional organizations, and international organizations. It was carried out in close cooperation with the IMF Committee on Balance of Payments Statistics (Committee).

Percentage of GDP

The market worth of all the final goods and services produced and sold (not resold) in a certain time period by countries is measured in dollars using the term "gross domestic product" (GDP) (International Monetary Fund, 2020). Due to the measurement's complexity and subjectivity, it must be repeatedly adjusted before it can be considered a reliable indicator. In contrast to nominal GDP, which is better for comparing national economies on the international market, utilizing GDP per capita at purchasing power parity (PPP) may be more beneficial for comparing living standards between nations. However, differences in the cost of living and inflation rates of the nations are not reflected in GDP (nominal) per capita. It is also possible to quantify the contribution of each industry or sector to the overall GDP. A region's per capita

GDP is derived by dividing its GDP by its entire population. (also called the Mean Standard of Living).

Research Question:

Is there a significant economic impact of the COVID-19 epidemic on the Asia-Pacific region?

Null Hypothesis

There is no significant economic impact of the COVID-19 epidemic on the Asia-Pacific region.

METHODS

Sample and Data Collection

This study selects the balance of payments, current account, total, and net (BPM6) as a share of GDP for the nine years prior to 2020 and the balance of payments, current account, total, and net (BPM6) as a share of GDP for the multi-country Asia-Pacific region for 2020 and the following nine years (including the given forecast data) based on the data provided by the IMF as the scale of the study to compare COVID-19 (2020) before and after the emergence of the Asia-Pacific region to observe the economic changes and differences.

Instrumentation and Measures

The data showed the balance of payments, current account, total, net (BPM6), and Percentage of GDP information with a longitudinal study. First, use EXCEL to sort data. And then use SPSS as the instrument to analyze data. This research uses two-way ANOVA for analysis. The IV is Group (Year) and Group ("Before COVID" =1, "After COVID"=2), and DV is Balance of Payments, Current Account, Total, Net (BPM6), and Percentage of GDP. The IV

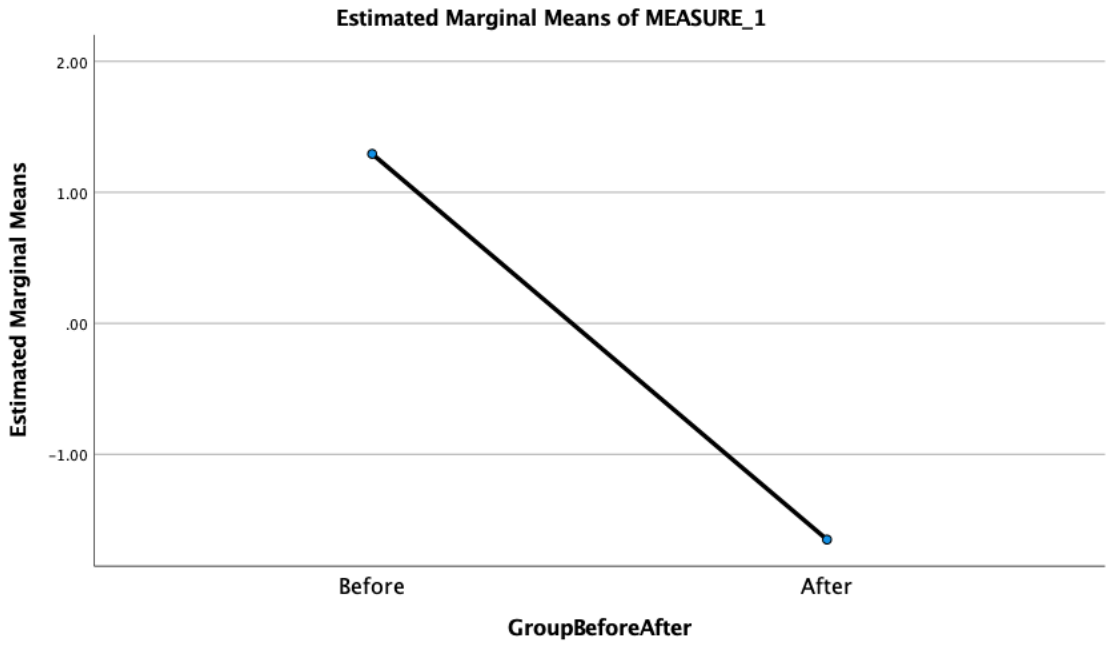
of Group (Year) and Group (Before COVID, After COVID) are set as ordinal measures, and the data of the balance of payments, current account, total, net (BPM6), and Percentage of GDP are set as scale measures.

DISCUSSION

Results and Implications

The main effect of this study is the group (Before COVID, After COVID), its F (1, 37) = 34.417, p<.001, Partial Eta Squared = .696 such that the Before COVID group (M=1.294, SD=.344) had a significant high than the After COVID group (M= -1.650, SD= .365) indicated that the COVID epidemic create differences in the size of the economies of the Asia-Pacific region. And the interaction effect of this study is for Asia-Pacific countries with a significance of 0.014 and a partial eta square of 1.000. As a result, the analysis disproves the null hypothesis that the COVID-19 outbreak has had no discernible economic impact on the Asia-Pacific area. In total, the research indicates that the occurrence of the epidemic did have a negative impact on the economies of the Asia-Pacific countries as indicated by the estimated marginal mean of measure shown as follows:

Figure 1

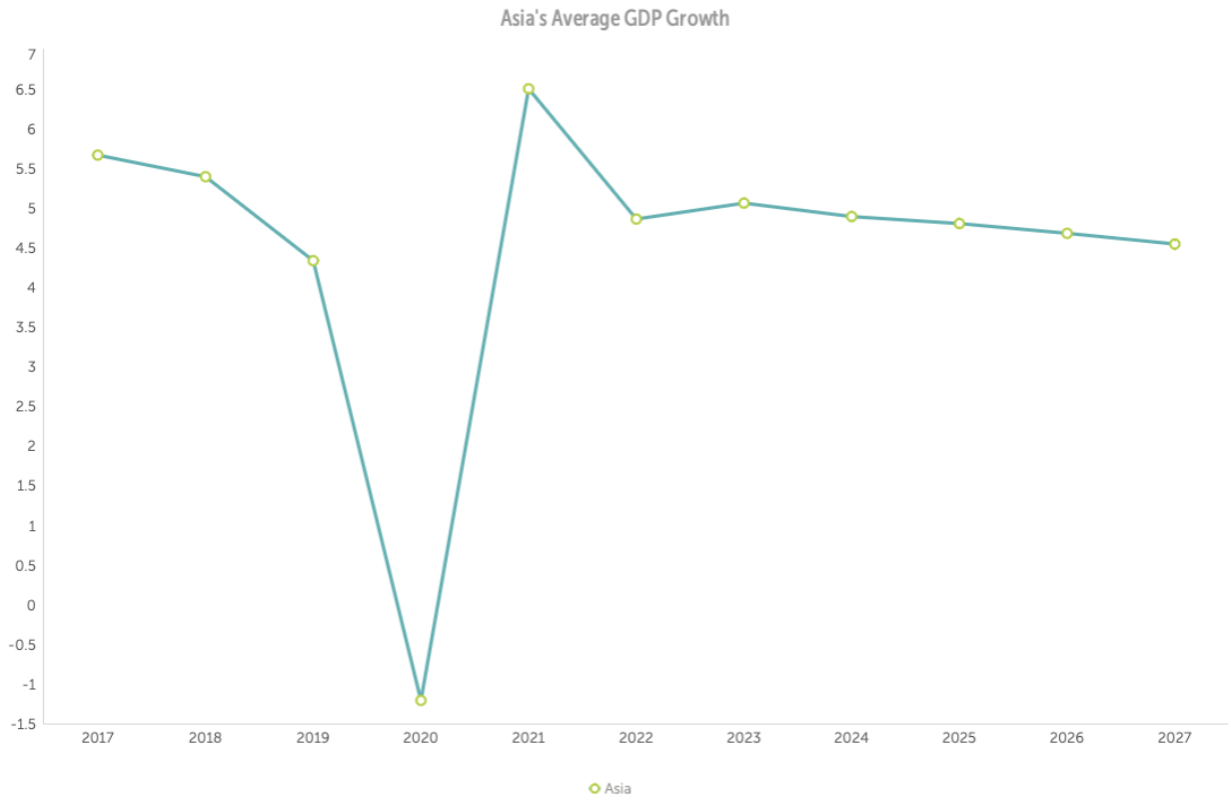


The results of this study show that there Is Indeed a significant difference in the balance of payments in the Asia-Pacific region before and after the emergence of COVID-19. The balance of payments averages for several countries in the Asia Pacific region decreased significantly under the impact of the epidemic. This study suggests that the COVID-19 epidemic did have a negative impact on the economies of the Asia-Pacific region.

The emergence of the COVID-19 epidemic has caused changes in the international economy as well as in the structure of customer consumption. The epidemic caused a significant drop in travel and tourism. This had severe ramifications for larger tourism-dependent economies as well as a major negative impact on the account balances of nations that rely on tourism. The decline in oil consumption and energy costs was relatively brief, with oil prices beginning to rise in the second half of 2020. However, current account balances in oil-exporting countries fell precipitously in 2020. Countries that import oil had equivalent improvements in their oil trade balances. Trade in medical products grew significantly: The demand for things such as personal protective equipment—which is essential for battling the pandemic—rose by around 30%, with

repercussions for both importers and exporters of these products. Consumption patterns in homes changed as a result of the need for people to stay at home, moving away from services and toward consumer items. In industrialized economies, when there was a rise in the purchasing of durable items such as electrical appliances used to support teleworking and virtual learning, this occurred most frequently.

Figure 2



Source: Asia and Pacific Regional Economic Outlook (APDREO) (04/25/2022)

(https://data.imf.org/?sk=e4186bbc-21f4-48d4-ba53-cb6645e0c72d&hide_uv=1)

Figure 3

Source: Asia and Pacific Regional Economic Outlook (APDREO) (04/25/2022)

(https://data.imf.org/?sk=e9d943e5-1e9b-4951-b76e-dbf7e69e3f05&hide_uv=1)

In the charts above, as a result of the epidemic, the average GDP growth in Asia and Australia falls abruptly in 2020. However, since the spring of 2021, the epidemic has gotten worse in Asia and Australia, and the GDP prognosis has been lowered more than in any other region in comparison to the April WEO estimates. Asia remained vulnerable to the transmission of the Delta form because of the pandemic's successful early containment, even though vaccination rates there have since sharply increased. Although emerging markets and developing economies (EMDEs) in Asia and the Pacific continue to grow at a faster rate than Asian advanced economies (AAEs), medium-term output levels in EMDEs are anticipated to remain below pre-pandemic trends. This divergence is due to vaccination coverage and policy support. In order for the policy to be responsive to the altered circumstances, efforts must be increased to speed up immunizations, macroeconomic support must continue (if policy space permits), but

with improved targeting, and reforms must be accelerated to provide new growth drivers (investing in digital and green sectors and expanding trade).

The COVID-19 epidemic has worsened in some regions of the world, and it is anticipated that the global economy will expand by 5.9 percent in 2021 and by 4.9 percent in 2022 (International Monetary Fund, 2021). The primary fault line along which the global recovery divides into those who may anticipate further activity normalization (mainly advanced economies) and others who must contend with increased hospitalizations and death tolls due to rising illnesses has emerged as vaccine access. Global growth is anticipated to slow after 2022, stabilizing at roughly 3.5 percent. Although there is still a lot of uncertainty, the current inflation increase is anticipated to be temporary.

Limitations of the Study

This survey does have some limitations because different countries have different national conditions. Some countries have strict controls and are able to achieve universal access to the COVID-19 vaccine, so the impact of the COVID-19 epidemic will not be significant. However, some countries do not have strict control and it is difficult to achieve universal coverage of the COVID-19 vaccine, so the impact of the COVID-19 epidemic is greater. Moreover, the national strength of different countries should be a condition that needs to be measured in this study. Otherwise, the data collected will not be as accurate.

Directions for Future Research

This research shows the impact of the COVID epidemic on economic conditions in the Asia-Pacific region. Which economic model researchers should apply to counteract the economic downturn caused by the pandemic as well as inflation is the direction of future research.

CONCLUSION

In this research, we wanted to see if the COVID epidemic affected the economic situation in the Asia-Pacific region, and by analyzing it we can see the credibility of the data that the COVID epidemic did affect the balance of payments, current account, gross, net, etc. in the Asia-Pacific region. However, it is important to be aware of some limitations in this study.

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