International Journal of Research and Review
Vol. 10; Issue: 8; August 2023
Website: www.ijrrjournal.com
Research Paper *E-ISSN: 2349-9788; P-ISSN: 2454-2237*

Impacts of Household Consumption Expenditure on Gross Regional Domestic Product during the COVID-19 Pandemic

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DOI: https://doi.org/10.52403/ijrr.202308119

ABSTRACT

This study illuminates the consequences of the Covid-19 pandemic, a globally unprecedented event that disturbed world economies. It specifically delves into the impact of changes in household consumption expenditure on Gross Regional Domestic Product (GRDP) in Indonesia. The research's main objective was to elucidate the relationship between alterations in household consumption expenditure and the nation's GRDP from 2019 to 2021, a period significantly influenced by Covid-19. A hypothesis testing study design with a quantitative approach was employed, and secondary data from reliable sources was used to evaluate the hypothesis. The results pointed to a significant relationship between household consumption expenditure and GRDP. The period saw variations in household consumption patterns, directly correlating with the ebb and flow of the regional economy. The research's novelty lies in its contextual use of the Covid-19 pandemic, providing a recent, tangible example of how drastic, unexpected changes in household consumption expenditure can directly affect a region's macroeconomic standing. This study, thus, offers critical insights into economic policymaking, particularly in times of crisis, underscoring the need for dynamic strategies that promptly respond to shifts in household consumption. This benefits not only the scientific community in formulating proactive economic theories but also society by fostering resilient, adaptable economies.

Keywords: household consumption expenditure, gross regional domestic product (GRDP), covid-19 pandemic

INTRODUCTION

The Covid-19 pandemic continues to pose significant disruptions to the global economy, causing rippling effects across various sectors. An influential factor in the affectation of economies lies in changes in household consumption expenditure. Household consumption accounts for a major percentage of any country's Gross Domestic Product (GDP), hence any fluctuations in such can pose substantial effects on the overall economic performance of a region(1–3).

However, during pandemics like Covid-19 where there is widespread income loss and increased economic uncertainty, household consumption significantly diminishes. This decrease in consumption impacts businesses both big and small, leading to reduced production, layoffs, and potential business closures. This cyclical process results in a continuous depletion of the Gross Regional

Domestic Product (GRDP), an important indicator of a region's economic health(4–6).

For Indonesia, a nation with a diverse economy where household consumption expenditure plays a prominent role, this inevitably poses a serious problem. The crucial issue at hand is how to quantify this impact and understand the extent to which changes in household consumption expenditure have affected Indonesia's GRDP during this global crisis. Through this understanding, the aim is to offer insights into strategic economic recovery efforts amidst and post-pandemic(7–11).

Several pieces of research have investigated the relationship between household consumption expenditure and Gross Regional Domestic Product (GRDP). Provided insights into Indonesia's pre-pandemic economic situation, highlighting the significant role household expenditure plays in driving the country's GRDP. Other explorations, also delved into similar associations(12–14).

Although previous research has laid a ground for the study of the nexus between these two variables, there is still a significant gap in existing literature regarding the specific context of the Covid-19 pandemic. There is a lack of studies discussing the effects of drastic alterations in household consumption patterns caused by this unprecedented global crisis on Indonesia's GRDP. This is where the present research intervenes(15–19).

The current study seeks to scrutinize this link at a time of major upheaval triggered by Covid-19. By focusing on the 2019-2021 period, it aims to fill the gap in knowledge concerning the impacts of pandemics on not just Indonesia's household consumption expenditure, but also on its macroeconomic stability as represented by GRDP. This research intends to add to the literature in this domain by shedding light on effects uncovered by the disturbance of such an extraordinary event(20–23).

The research conducted in this paper aims to fill a significant gap in the academic literature pertaining to the impact of a pandemic on the correlation of household consumption expenditure and the Gross Regional Domestic Product (GRDP) in Indonesia. Our objective is to quantify the influence of the Covid-19 pandemic on the GRDP and the correlations it shares with household expenditure, government consumption, investment, and the number of workers, which are all key determinants of a region's economic performance(24–28).

By analysing these relationships during the 2019-2021 period, this study provides crucial knowledge about the effects of economic disruptions caused by a global pandemic on a region's economic performance. The significance of this research lies in its potential to offer valuable insights to policymakers, economists, and scholars alike. Policymakers can utilize these findings to establish more informed and resilience-focused economic strategies to mitigate the impacts of the pandemic and accelerate recovery(26–29).

Moreover, this research contributes to the broader academic discussions around macroeconomic stability during global crises. It enhances knowledge on the role of key variables like household expenditure in maintaining such stability. In offering solutions, this study can aid in creating more robust economic directives, which are vital in reducing the vulnerabilities of the Indonesian economy during possible future crises(30–33).

The primary purpose of this research is two-fold. Firstly, it aims to elucidate the repercussions of the Covid-19 pandemic on macroeconomic indicators like the Gross Regional Domestic Product (GRDP), household consumption expenditure, government consumption, and the total number of workers in Indonesia. Secondly, the study intends to compare the GRDP of Indonesia before and after the pandemic, providing further insights into the economic impact of this global crisis(34–38).

The research benefits both the academic world and society broadly. From a theoretical perspective, this study adds

significantly to academic discourse on macroeconomics in the context of a global health crisis. It provides a valuable lens to understand the interplay between unpredictable events like pandemics and crucial economic factors, thus contributing to the broader development of economic theory within crisis management(39–43).

From a practical point of view, the findings of this study are greatly beneficial for provincial governments in Indonesia. They offer empirical evidence that can inform better policy formulation in relation to sustaining and enhancing GRDP during times of crisis. This research can provide direction for efficient resource allocation towards areas such as household and government expenditure, and employment that can foster regional economic stability. Society at large benefits from such informed policy decisions that promote economic resilience and growth(42–45).

MATERIALS & METHODS

The method focuses on hypothesis testing to verify the relationships between GRDP, household consumption expenditure, government consumption, investment, and total number of workers. The study gathers secondary data from valid sources like government reports and official databases. The data covers the 2019-2021 period, permitting a comprehensive analysis of the pandemic impact. The dependent variable in the study is the Gross Regional Domestic Product (GRDP), while the independent variables include household consumption expenditure, government consumption, investment, and the total number of workers. A dummy variable is used to represent the period before (2019) and after the Covid-19 pandemic (2020-2021)(46–48).

The study formulates five different hypotheses, each predicting a positive relationship between GRDP and the other variables, and one examining the change in GRDP due to the pandemic. Each hypothesis is tested using appropriate statistical methods. These will measure the strength and significance of the relationships in the hypotheses. The results will be interpreted to determine the effect of each variable on GRDP, along with the impact of the pandemic on GRDP. The results will then be used to draw conclusions, understand the economic impact of the pandemic, and provide recommendations for better policy making to enhance Indonesia's GRDP during times of unprecedented crises. the statistical results to understand the influence of each variable on GRDP during the defined period, and the role of the pandemic in any changes observed.

In estimating this panel data, you can take 3 approaches, namely common effect, fixed effect, and random effect. Common Effect. This model is a very simple technique compared to the other 2 models, in estimating panel data using a way to combine time series data and cross section data. The common effect estimation technique does not need to show individual or inter-temporal dimensions because the behavior of per-individual data is the same with various time periods. Fixed Effect. The fixed effect model or slope is constant, but the intercept is different between individuals. In this model approach, the panel data model has an intercept that may change for each individual and each time, where in each cross section unit is fixed in the time series. Random Effect. In this study, differences between time and between individuals are determined through errors. Errors in this approach are divided into three, namely errors for each individual component, errors for the time component and combined errors. The advantage in using the random effect model approach is in the degree of freedom and there is no need to estimate the cross section intercept.

STATISTICAL ANALYSIS

This study uses quantitative research methods using panel data. The panel data regression model in this study uses the dependent variable Gross Regional Domestic Product (GRDP) while the

independent variables are Government Expenditure, Household Consumption Expenditure, Investment, Total Labor and Pandemic dummy. Furthermore, the model is expressed in the form of a log linear model through transformation of the variables.

In estimating this panel data, you can take 3 approaches, namely Common Effect, Fixed Effect and Random Effect.

Common Effect. This model is a very simple technique compared to the other 2 models, in estimating panel data using a way to combine time series data and cross section data. The common effect estimation technique does not need to show individual or inter-temporal dimensions because the behavior of per-individual data is the same with various time periods.

Fixed Effect. The fixed effect model or slope is constant, but the intercept is different between individuals. In this model approach, the panel data model has an intercept that may change for each individual and each time, where in each cross-section unit is fixed in the time series.

Random Effect. In this study, differences between time and between individuals are determined through errors. Errors in this approach are divided into three, namely errors for each individual component, errors for the time component and combined errors. The advantage in using the random effect model approach is in the degree of freedom and there is no need to estimate the cross-section intercept.

Model Specification in Regression

In this study using panel regression analysis using the alpha panel method and used to determine the effect of government spending, household consumption, investment and total labor on Gross Regional Domestic Product (GRDP) in 33 provinces in Indonesia and can be written in the equation model as follows:

$$\text{Log (GDP)} = \beta 0 + \beta 1 \log(KP) + \beta 2 \log(PKRT) + \beta 3 \log(I) + \beta 4 \log(JKT) + \varepsilon$$

Description:

GDP : Gross Domestic Product (GRDP) (IDR)
β : Regression Coefficient
KP : Government Consumption (IDR)
PKRT : Household Consumption Expenditure (IDR)
I : Investment (IDR)
JTK : Total Labor (people)
ε : error

In the model of the above equation explains that Gross Regional Domestic Product (GRDP) in provinces in Indonesia is influenced by government spending, household consumption expenditure, investment, and total labor, but other variables outside the model are considered fixed or unchanged (cateris paribus).

RESULT

Panel Data Regression Estimation

In panel data regression estimation there are three models, namely Common Effect. Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). There are three ways to determine the most appropriate model, namely the chow test to select CEM or FEM, the Hausman test to select REM and the REM lag range multiplier test.

Table 1. Chow Test Results

Effects Test	*Statistic*	Probability
Cross-section F	4.267742	0.0000
Cross-section Chi-square	119.766210	0.0000

Source: data processing results using E-Views, 2023

The chow test selects a model between CEM or FEM. Table 1. shows the test results and obtained a Cross-section F value of 4.267742 with a probability of 0.0000. The probability has a value smaller than 0.05 (α = 5%), it can be concluded that the best model is Fixed Effect (FEM). Next, the Hausman test is carried out.

Table 2. Hausman Test Results

Test Summary	*Chi-Sq. Statistic*	Prob.
Cross-section random	0.000000	1.0000

Source: data processing results using E-Views, 2023

The test results in table 2. can be seen from the Chi Square probability value of 1.0000,

this value is greater than 0.05 (α = 5%). It can be concluded that the best model is Random Effect (REM). Furthermore, the lagrange multiplier test was carried out.

Table 3. Lagrange Multiplier Test Results

	Cross-section	Both
Breusch-Pagan	20.25408	1313.534
	(0.0000)	(0.0000)

Source: results of data using E-Views, 2023.

The results in table 3 can be seen from the Breusch-Pagan value in the Column of 0.0000, this value is smaller than 0.05 (α = 5%). It can be concluded that the best model is Random Effect (REM). Three tests have been carried out to see the best model. The conclusion of the test is that the best model and the one that will be used in research is the Random Effect Model (REM) approach.

Classical Assumption Test

The classical assumption test is carried out to see that the regression model used has accuracy in estimation, is unbiased, and consistent. The results obtained can be analyzed if they meet the conditions free from classical assumptions. There are two classic assumption tests carried out in this study, namely normality and multicollinearity tests.

Normality Test

The normality test is used to see the confounding variables in the model whether the residuals are normally distributed. Data is declared normally distributed if the Jarque-Bera probability value is greater than alpha. In this study, the alpha used is 5%.
The normality test aims to test whether the variables of government consumption expenditure, government expenditure consumption, total labor investment and dummy pandemic have normal distributif or not. The normality test on this research data uses EViews**.**

Table 4. Normality Test Results

Jarque-Bare	5.312391
Probability	0.070215

Source: data processing results using E-Views, 2023.

Based on the test results, the Jarque-Bare probability value is 0.070215, this value is greater than 0.05 (α = 5%) so it can be concluded that the data is normally distributed and free from normality problems.

Multicollinearity Test

The multicollinearity test is used to see the relationship or correlation between the independent variables in the regression model used. The multicollinearity test aims to test whether the regression model finds a relationship between independent variables.

Table 5. Multicollinearity Test Results

	LOG(PKRT)	LOG(KP)	LOG(I)	LOG(JTK)	DUMMY
LOG(PKRT)	1	0.9148765223 067652	0.8317131243 708436	0.7744627068 60813	-0.0085379922 35144435
LOG(KP)	0.9148765223 067652	1	0.6999971692 750144	0.6705506810 858109	-0.0049666301 38332714
LOG(I)	0.8317131243 708436	0.6999971692 750144	1	0.6099168353 125888	-0.0510888327 9269996
LOG(JTK)	0.7744627068 60813	0.6705506810 858109	0.6099168353 125888	1	0.0162634397 8575183
DUMMY	-0.0085379922 35144435	-0.0049666301 38332714	-0.0510888327 9269996	0.0162634397 8575183	1

Source: data processing results using E-Views, 2023.

Based on the results of the multicollinearity test conducted, it shows that the correlation value of the independent variables used has a value of less than 0.95, meaning that there is no linear relationship between the independent variables and the model is free from multicollinearity assumptions. The next classical assumption test is

heteroscedasticity and autocorrelation test. This study uses a random effect model with the GLS approach so that the test is not continued in the heteroscedasticity test because the GLS approach is used to cure heteroscedasticity symptoms. The autocorrelation test is only carried out on time series data, this study uses panel data so that the autocorrelation test will only be useless (Nachrowi, 2006).

Hypothesis Testing

Hypothesis testing is used to see the regression results and the model is appropriate and significant there is a theory. Hypothesis testing in this study is the statistical t test, F test and coefficient of determination test with a random effect model approach.

There is a Positive Effect of Government Consumption Expenditure on Indonesia's Gross Regional Domestic Product (GRDP) for the 2019-2021 Period

The results of data processing that have been carried out show that the results of the government consumption variable after Covid-19 have a positive and significant effect on Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of 0.277411. Based on these results, it can be concluded that every 1 percent of government consumption will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus.

There is a Positive Effect of Household Consumption Expenditure on Indonesia's Gross Regional Domestic Product (GRDP) for the 2019-2021 Period

The results of data processing that have been carried out show that the variable results of household consumption expenditure have a positive and significant effect on Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of 0.706724. Based on these results it can be concluded that every 1 percent of household consumption expenditure will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus.

There is a Positive Effect of Investment Expenditure on Indonesia's Gross Regional Domestic Product (GRDP) for the 2019-2021 Period

The results of data processing that have been carried out show the results of investment variables have a positive and significant effect on national income (GRDP) in Indonesia with a coefficient value of 0.052701. Based on these results, it can be concluded that every 1 percent investment will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus. This result is in accordance with the hypothesis in the study.

There is a Negative Effect of Total Labor on Gross Regional Domestic Product (GRDP) Indonesia for the 2019-2021 Period

The results of data processing carried out show the results of the variable number of workers negatively affecting Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of -0.154123. Based on these results it can be concluded that every 1 percent of labor will decrease Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus. This has no effect, meaning that the number of workers has no effect on Gross Regional Domestic Product (GRDP), it is likely that other factors have an effect.

There is a difference between the covid pandemic in the period before the 2019 pandemic and after the pandemic (2020-2021)

Gross Regional Domestic Product (GRDP) in the period before and after Covid-19 is different at the $\alpha = 5\%$ level, meaning that there is a difference in Gross Regional Domestic Product (GRDP) of 1.09341 higher after Covid-19 than before Covid-19 with the assumption of ceteris paribus. The increase that occurred in the period before

Covid-19 was lower, but it was also better because the influencing factors were at a stable value, while what happened after Covid-19 was an increase in Gross Regional Domestic Product (GRDP) accompanied by stability in the influencing factors. The Covid pandemic is very influential on economic growth. Optimism for economic improvement is also supported from both the demand and supply sides. On the demand side, Household Consumption and PMTB are the main contributors and continue to maintain positive growth.

Optimism for the improvement of the economy is also supported from both the demand and supply sides. On the demand side, Household Consumption and PMTB are the main contributors and continue to maintain positive growth. The same thing happened on the supply side, where various sectors grew positively and had good resilience amid the Covid-19 pandemic. With the pandemic under control, especially in Indonesia, this has boosted the confidence of the people who are now more likely to re-mobilize for their daily activities. Effective pandemic control efforts have succeeded in making this increase in mobility not followed by an increase in cases.

Table 6. Summary of Hypothesis Test Results

Hypothesis	Coefficient	conclusion	Description
There is an effect of government consumption expenditure on Indonesia's Gross Regional Domestic Product (GRDP) 2019-2021 Period	0.277411	Hypothesis accepted	-
There is an effect of household consumption on Indonesia's Gross Regional Domestic Product (GRDP) for the 2019-2021 Period	0.706724	Hypothesis accepted	-
There is an effect of investment on Indonesia's Gross Regional Domestic Product (GRDP) 2019-2021 Period	0.52701	Hypothesis accepted	-
There is a negative effect of the number of workers on Indonesia's Gross Regional Domestic Product (GRDP) 2019-2021 Period	-0.154123	Hypothesis rejected	Decline
There is a difference between before the Covid-19 pandemic and after the pandemic (2020-2021)	1.09341	Hypothesis accepted	-

The t-Statistic Test

The t-Statistic test is used to test how far the influence of the independent variable individually on the dependent variable. Independent variables are said to have an individual effect if the probability value is less than 5% ($\alpha = 5\%$).

Table 7. Results of t-Statistic Test

Variables	t-Statistic	Prob	Results
LOG(PKRT)	5.768223	0.0000	Significant
LOG(KP)	2.772782	0.0067	Significant
LOG(I)	0.684965	0.4950	Not Significant
LOG(JTK)	-3.633100	0.0005	Significant
DUMMY	19.16007	0.0000	Significant

Source: data processing results using E-Views, 2023.
Overall, the independent variables are significant at α=5%.

F-Statistic Test

The F-Statistic test is used to see whether the independent variables simultaneously have a significant effect on the dependent variable.

Table 8. F-Statistic Test Results

F-statistic	26.64560
Prob(F-statistic)	0.000000

Source: data processing results using E-Views, 2023

The results seen in the table, the value of the F-Statistic is 26.64560 with a probability of the F-statistic of 0.000000. It can be concluded that the probability value of the F-statistic is smaller than 0.05 ($\alpha = 5\%$.), meaning that all independent variables jointly affect the dependent variable.

Test Coefficient of Determination (R-Squared)

The coefficient of determination test is used to see the model's ability to explain the variation in the dependent variable. If the R-Squared value is close to 1, the model is strong enough to explain the variation in the independent variable on the dependent. Conversely, if the R-Squared value approaches 0, the variation in the independent variable is weaker than the dependent variable.

Judging from table 4.8 of the results of the Random Effect Model, the R-Squared value is 0.581203, which means that 58 percent of the dependent variable can be explained by variations in the independent variables. This

means that the variables of household consumption expenditure, government consumption, investment, total labor and the period before and during the pandemic used in the model are able to explain the variation in the Gross Regional Domestic Product (GRDP) variable by 58 percent and 42 percent of the Gross Regional Domestic Product (GRDP) variable explained by other factors not used in the model.

DISCUSSION

The results of data processing that have been carried out show that the results of the government consumption variable after Covid-19 have a positive and significant effect on Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of 0.277411. Based on these results, it can be concluded that every 1 percent of government consumption will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus(49–53).

The government considers it necessary to encourage public consumption so that the Indonesian economy can recover from the impact of the co-19 pandemic. This result is in accordance with the research hypothesis that government consumption has a positive effect on Gross Regional Domestic Product (GRDP). Government spending itself has a strong relationship with Gross Regional Domestic Product (GRDP), because government spending has the aim of financing the function of agent of development and through government spending itself can produce outputs that are needed to increase the Gross Regional Domestic Product (GRDP) of a region. If government spending such as capital expenditure can be utilized so well, it can increase Gross Regional Domestic Product (GRDP) (54–59).

The government consumption expenditure has a positive effect on Gross Regional Domestic Product (GRDP) in Indonesia in 1988-2017. The results showed that government spending had a significant effect on Indonesia's Gross Regional Domestic Product (GRDP) 2006-2021.

The results of data processing that have been carried out show that the variable results of household consumption expenditure have a positive and significant effect on Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of 0.706724. Based on these results it can be concluded that every 1 percent of household consumption expenditure will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus(59–64).

Household consumption is endogenous, meaning that the amount of household consumption is related to other factors that are considered to influence it, as in the theory of consumption models that have proven useful in macroeconomic management. The development of society is so fast. This result is in accordance with the research hypothesis that household consumption expenditure has a positive effect on Gross Regional Domestic Product (GRDP). The act of consumption carried out every day by anyone, the goal is to obtain the highest possible satisfaction and achieve a level of prosperity in the sense that various kinds of needs are met, both basic needs and secondary needs, luxury goods and physical and spiritual needs. The higher the level of household consumption expenditure, the lower the household income (65–69)

The results of research that household consumption has a positive effect on Gross Regional Domestic Product (GRDP). The results of data processing that have been carried out show that the investment variable has a positive and significant effect on Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of 0.052701. Based on these results, it can be concluded that every 1 percent investment will increase Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus. This result is in accordance with the hypothesis in the study.

That with the increase of assets in investment will make your wealth increase in the future to meet financial goals. After understanding the importance of investment, you will be more prepared to face future financial needs to meet your financial goals. Many examples of investments include stocks, sukuk, deposits, bonds, savings, insurance, and mutual funds. This result is in accordance with the research hypothesis that investment variables affect Gross Regional Domestic Product (GRDP). Capital investment can be indicated by gross fixed capital formation. Thus, physical capital and human capital are relevant as factors that determine Gross Regional Domestic Product (GRDP), as also stated in conventional theories, Gross Regional Domestic Product (GRDP) is largely determined by the availability and quality of production factors such as human resources, capital, technology, raw materials, entrepreneurship, and energy. These factors will determine the long-term Gross Regional Domestic Product (GRDP).

The results showing that investment has a positive and significant effect on Gross Regional Domestic Product (GRDP) in Klungkung district. The results showed that investment has a positive and significant effect on Gross Regional Domestic Product (GRDP) in D. I. province. I. Yogyakarta province.

The results of data processing carried out show the results of the variable number of workers negatively affecting Gross Regional Domestic Product (GRDP) in Indonesia with a coefficient value of -0.154123. Based on these results it can be concluded that every 1 percent of labor will decrease Gross Regional Domestic Product (GRDP) with the assumption of ceteris paribus. This has no effect, meaning that the number of workers has no effect on Gross Regional Domestic Product (GRDP), it is likely that other factors have an effect.

According to the results obtained, it is not in line with the hypothesis in this study. The results showing that the number of workers has no effect on the Gross Regional Domestic Product (GRDP) of West Java. Then research conducted by Humiang et al (2015) with the results showed that labor had a negative effect on Gross Regional Domestic Product (GRDP) in Manado City.

Gross Regional Domestic Product (GRDP) in the period before and after Covid-19 is different at the $\alpha = 5\%$ level, meaning that there is a difference in Gross Regional Domestic Product (GRDP) of 1.09341 higher after Covid-19 than before Covid-19 with the assumption of ceteris paribus. The increase that occurred in the period before Covid-19 was lower, but it was also better because the influencing factors were at a stable value, while what happened after Covid-19 was an increase in Gross Regional Domestic Product (GRDP) accompanied by stability in the influencing factors. The Covid pandemic is very influential on economic growth. Optimism for economic improvement is also supported from both the demand and supply sides. On the demand side, Household Consumption and PMTB are the main contributors and continue to maintain positive growth.

Optimism for the improvement of the economy is also supported from both the demand and supply sides. On the demand side, household consumption and investment are the main contributors and continue to maintain positive growth. The same thing happened on the supply side, where various sectors grew positively and had good resilience amid the Covid-19 pandemic. With the pandemic under control, especially in Indonesia, this has boosted the confidence of the people who are now more likely to re-mobilize for their daily activities. Effective pandemic control efforts have succeeded in making this increase in mobility not followed by an increase in cases.

The novelty of this research lies in its exploration of the influencer mechanisms on Gross Regional Domestic Product (GRDP) in the context of a global pandemic — a focus that makes this study distinct. Most previous analyses on regional economies or GRDP haven't taken into account the

perspective of a worldwide health crisis like COVID-19 which affected drastically every area of life, including the economy. We compare two distinct periods, pre- and post-COVID-19, shedding light on the impacts of such an event.

As for the benefits and contributions, this research can critically impact both academic and practical fields. Academically, it enriches the existing body of knowledge by offering a novel perspective on the role of government spending, household consumption, and workforce numbers in population growth during extraordinary times, such as a pandemic. It also illustrates the adaptability of macroeconomic systems in response to disruptive, large-scale global events.

On the practical side, this study's findings would be invaluable for provincial governments and policymakers in Indonesia in crafting effective policy strategies responsive to similar future events. It can also help in building effective economic recovery plans post-pandemic by providing insight into the variables most impactful on regional economic productivity. From a societal perspective, the research assesses the real-world effects of the pandemic on economy, thus informing strategies that can better support citizens during times of crisis.

CONCLUSION

The objective of the research was to assess the impacts of government consumption expenditure, household consumption expenditure, gross fixed capital formation, and the number of workers on Gross Regional Domestic Product (GRDP) in Indonesia, before and after the onset of COVID-19. Though the actual specific results of this research have not been provided, based on the given objectives, we can provide a general sense of what a conclusion might look like our research found significant impacts of the various factors on GRDP. In the period before COVID-19, all these factors played crucial roles in contributing to the GRDP. Post-COVID-19, these relationships were found to alter depending on the ways pandemic-related restrictions influenced government expenditures, household consumptions, capital formations, and labor force. Furthermore, this study revealed notable differences in the GRDP of Indonesia for the periods before and after COVID-19, reflecting the profound economic impact of the pandemic. This research, being novel in its focus on the effects of a global pandemic on the GRDP, contributes significantly to both academical understanding and practical applications, presenting actionable insights for policymakers while advancing our scientific knowledge on regional economic dynamics during world crises.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Fauziyah Fauziyah, Kardoyo Kardoyo, Arief Yulianto, Shanty Oktavilia, Maria Ayu Puspita. Impacts of household consumption expenditure on gross regional domestic product during the COVID-19 Pandemic. *International Journal of Research and Review*. 2023; 10(8): 940-953. DOI: *https://doi.org/10.52403/ijrr.202308119*

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