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Covid 19, Inflation Threat, and Domestic Consumption in Indonesia

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Abstract

This study examines inflation, consumption, and economic growth before COVID-19 to see a causal relationship between inflation, consumption, and economic growth in Indonesia so as to provide an overview of the economic impact of post-covid-19 inflation. This research examines data from 2000 until 2020 to be able to produce "autoregressive vectors" that may be used to evaluate the causal link between variables. Based on secondary data from the World Bank, the following multivariate regression model was used to investigate the causal link between Inflation, Gross Domestic Product, and Consumption expenditure in Indonesia. We found that inflation has a significant impact on economic growth and the real sector in Indonesia. Indonesia with a large population contributes greatly to economic growth. The results of this study are quite surprising where inflation actually encourages economic growth and consumption in Indonesia. However, the results of this study need to be confirmed regarding people's purchasing power during the research period. From the period 2000 to 2020, Indonesia has escaped the 1997 Asian crisis so Indonesia's economy is quite stable during the study period. And in 2020 when covid 19 began to spread in Indonesia, online-based purchases supported Indonesian consumption, so inflation during this research period actually boosted economic growth and consumption in Indonesia.

Keyword : Covid 19, Inflation Threat, Domestic Consumption,Indonesia
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Background

Post-covid 19 in 2022 was followed by the weakening of the euro currency and inflation in the European Union. Signs of higher inflation are mounting, with more and more companies warning

of supply shortages, bottlenecks, and spikes in prices for the inputs they use. All of this only leads to higher inflation (cost and supply) which consumers will have to bear in the end. The euro zone will also be affected by higher costs of raw materials that companies use to work and a boost to domestic and foreign demand when economies reopen (Antonio & Luis 2022 ; González-Val & Marcén, 2022).

Raw materials surged, just as demand was starting to recover and the economy was reopening. The combination of these factors can create the perfect kind of price storm. The combination of tight supply, coupled with hungry demand looking to make up for lost time. Global inflation concerns have risen (Černý et al.,2022). Half of the businesses now see inflation as one of the top risks. Global inflation covers various countries. A drop in inventories and a rise in raw materials fueled the government's stimulus program, which has protected family incomes during the crisis. If consumption recovers or exceeds pre-Covid levels (this will only happen if the excess accumulated savings starts to be spent), the economy will have a hard time adapting to the new pace of demand. Inflation can occur at any time massively (Sasongko, Bawono, & Prabowo, 2021).

The impact of covid on the economy is more like a natural disaster followed by a quick 'reset' than a traditional recession ending in a progressive recovery. The distinct nature of these shocks has profound implications for inflation. The pandemic has not caused the typical drop in demand as in a normal recession because it has caused supply and demand shortages. When the economy reopens, both supply and demand bottlenecks, pent-up demand will surface (Bobeica & Hartwig, 2022).

Inflation can surprisingly rise and make markets nervous. For now, the stock market is doing nothing but rising and falling, not only on expectations of a real recovery (real GDP), but also on forecasts of rising prices that allow higher margins in some sectors. Inflation surprisingly rises as the economy recovers. An early warning signal is an increase in transportation fares. However, there are underlying trends that are not being taken into account at this time, but which could also start to play a relevant role. The reversal of globalization may be one of them. The first transition and higher production costs could then push up the prices of many goods currently produced in countries with very low labor costs. In addition, the retirement of the baby boomers can exacerbate a certain profile deficiency in the labor market, increasing the cost of producing (in this case labor costs) some goods and services (Viphindrartin, Wilantari, & Bawono, 2022).

Although concerns about inflation are running high everywhere. Medium-term inflation may surprise on the upside in 2022, as demand recovers in a limited supply environment and higher input costs, which could affect household inflation expectations. However, given the amount of unused labor there is little chance of a substantial wage increase, a key ingredient to advancing underlying inflation (Brouwer & Haan, 2022). In 2008 when the global crisis occurred in the USA also had an impact on Indonesia. Indonesia is a country with a large population. Indonesia is one of the important countries in Asia (Bawono, Zainuri, & Wilantari, 2019). This study examines inflation, consumption, and economic growth before COVID-19 to see a causal relationship between inflation, consumption, and economic growth in Indonesia so as to provide an overview of the economic impact of post-covid-19 inflation.

Research Method

This research examines data from 2000 until 2020 to be able to produce "autoregressive vectors" that may be used to evaluate the causal link between variables. Based on secondary data from the World Bank, the following multivariate regression model was used to investigate the causal link between Inflation, Gross Domestic Product and Consumption expenditure in Indonesia. Here's the model :

$IN_t = \beta_0 + \beta_1 GDP_t + \beta_2 CS_t + e_t$ eql 1
$GDP_t = \beta_0 + \beta_1 IN_t + \beta_2 CS_t + e_t$ eql 2
$CS_t = \beta_0 + \beta_1 IN_t + \beta_2 GDP_t + e_t$ eql 3

Description :

IN: Inflation
GDP : Gross domestic Product
CS : Consumption
E : error term
t : time series
β : the magnitude of the effect of causality
eql: equation

This study uses vector calculations where each regression relationship will be brought together so that each variable will alternately become the dependent variable and the independent variable. The zero theory of Dickey-Fuller, taken from the PP test, and p=1 is the formula in Δyt = (ρ – 1)yt-1 + ut, in which Δ – for the first time different operators. This research used the following equation for the "unit root test":

$$\Delta Y_1 = \alpha_0 + \beta_0 T + \beta_1 Y_{t-1} + \sum_{i-1}^{q} \alpha_1 \Delta Y_{t-1} + e_t$$

Description:

Y as the variable is being examined for unit root
T as the variable which indicates the “linear trend,” the “lag difference” means is $\Delta Yt-1$,
$\alpha 0$ are shown as “constant term,” with the
"t" as a "time trend" indicator.
The null and alternative hypotheses for the "unit root test" are as follows:
H_0: α=0
H_1: α≠0

Result and Discussion

The ADF test evaluates the probability of autocorrelation in the error component if the series being evaluated is non-stationary. The following are the results of the unit root test:

Table 1: ADF's Unit Root Test on IN, GDP, and CS data in Indonesia

Variable	Unit	Include in the	Statistics for the	5% Critical	Description

	Root	examination Equation	ADF Test	Value	
Inflation (IN)	Level	Intercept	-1.603876	0.4613	
	First Diff	Intercept	-5.809191	0.0002	Stationer
GDP (GDP)	Level	Intercept	-0.527808	0.8660	
	First Diff	Intercept	-1.929268	0.3129	
	Second Diff	Intercept	-3.319458	0.0293	Stationer
Consumption (CS)	Level	Intercept	-1.838596	0.3523	
	First Diff	Intercept	-1.811369	0.3640	
	Second Diff	Intercept	-3.197277	0.0371	Stationer

The IN data at the first difference, the data are stationary, and the CS and GDP data at the second difference level is stationary. The ADF test is worth -5.809191 with a critical value of 0.0002. Smaller than the p-value, in this case, the IN data shows stationary at the first difference compared to the original data. From here we can take the next step in determining vector analysis.

The lag duration sensitivity is required for both the VAR and the causality tests. It's vital to pick an appropriate optimal lag time before starting a VAR or causality test inquiry. The following are the findings of the lag test:

Table 2 : Optimum lag test at Lag 0 to 4 IN, GDP, and CS data.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-103.5307	NA*	55.68981	12.53302	12.68006	12.54764
1	-95.66058	12.03661	65.31845	12.66595	13.25410	12.72441
2	-88.24534	8.723822	89.53049	12.85239	13.88166	12.95470
3	-79.00208	7.612095	125.2750	12.82377	14.29415	12.96993
4	-44.66062	16.16069	16.20416*	9.842425*	11.75391*	10.03243*

Table 2 shows the findings of the Optimum Lag test. At Lag 0 to 4, the results show that the variable lengths of lag IN, GDP and CS data are at FPE, AIC, SC, and HQ at Lag 4. Because the findings of the five components are identical, then lag 4 will be chosen.

Table 4 : VAR Model Analysis

	CS	GDP	IN
CS	-1.428551	-1.950035	-3.071788
	(1.26998)	(1.44146)	(2.12021)
	[-1.12486]	[-1.35282]	[-1.44882]
GDP	-2.752893	-2.904813	-0.217993
	(1.71217)	(1.94337)	(2.85845)

	[-1.60784]	[-1.49473]	[-0.07626]
IN	0.289278	0.253250	0.341307
	(0.14239)	(0.16162)	(0.23772)
	[2.03154]	[1.56694]	[1.43573]
C	22.35043	25.37660	50.55688
	(9.28866)	(10.5429)	(15.5073)
	[2.40621]	[2.40698]	[3.26020]
R-squared	0.821719	0.790297	0.943350
Adj. R-squared	0.286876	0.161190	0.773402
Sum sq. resids	9.435906	12.15621	26.29958
S.E. equation	1.535896	1.743288	2.564156
F-statistic	1.536375	1.256220	5.550802
Log likelihood	-19.11808	-21.27129	-27.83084
Akaike AIC	3.778598	4.031916	4.803628
Schwarz SC	4.415761	4.669079	5.440792
Mean dependent	4.526973	5.017747	7.483479

The relationship between IN and IN itself is significantly positive, with something like a coefficient of 0.341307 and a t-statistic of 1.43573. The relationship between IN and GDP is significantly positive with a coefficient of 1.43573 and a t-statistic of 1.56694, meaning that the higher the IN, the higher the GDP. Likewise, the relationship between GDP and CS is significantly negative, with a coefficient of -2.752893 and a t-statistic of -1.60784, meaning that the lower the CS, the higher the GDP. The relationship between CS and GDP is significantly negative, as evidenced by the coefficient -1.950035 and the t-statistic -1.35282. This shows that an increase in Inflation will increase GDP, a decrease in Gross Domestic Product in this study will also decrase Consumption.

Table 5 : Granger Causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause CS	17	0.41215	0.7956
CS does not Granger Cause GDP	17	0.14840	0.9585
IF does not Granger Cause CS	17	1.52659	0.2826
CS does not Granger Cause IF	17	0.75646	0.5814
IF does not Granger Cause GDP	17	0.84297	0.5354
GDP does not Granger Cause IF	17	4.09513	0.0427

Table 4 shows the findings of the Granger causality test study. The findings reveal that there is no single causal link between variables, as shown by the fact that none of them has a probability of less than 5%.

Conclusion

Inflation has a significant impact on economic growth and the real sector in Indonesia. Indonesia with a large population contributes greatly to economic growth. The results of this study are quite surprising where inflation actually encourages economic growth and consumption in Indonesia.

However, the results of this study need to be confirmed regarding people's purchasing power during the research period. From the period 2000 to 2020, Indonesia has escaped the 1997 Asian crisis so Indonesia's economy is quite stable during the study period. And in 2020 when covid 19 began to spread in Indonesia, online-based purchases supported Indonesian consumption, so inflation during this research period actually boosted economic growth and consumption in Indonesia.

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