



The Impact of Triple Crises of Fuel, Food, and Finance on Household Consumption in Indonesia

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ARTICLE INFO

Article history:

Received 07 April 2023

Received in revised form 04

June 2023

Accepted 03 November 2023

ABSTRACT

Post-pandemic challenges are more formidable than during the pandemic. Global supply chain disruptions, geopolitical tensions, the war in Ukraine, and global warming all contribute to the emerging triple crises of fuel, food, and finance. These crises most affect vulnerable households. This study aims to examine the effects of the triple crises on household consumption using consumption theory based on the Keynesian economic model. This research performs a multiple regression model with time-variant and spatial fixed effects and clustering methods on four lower-decile households across four years, 2019 – 2022, using Susenas data. The analysis findings are that the triple crises negatively impact household consumption, with the fuel and food crises showing a significant effect, while the financial crisis does not directly affect consumption. The study proposes a policy recommendation for the government to compensate households for the negative impact of the crisis by providing the amount and the type of policy. In addition, it is best to consider the timing and collaboration opportunity in the implementation phase and set policy success indicators for macro and micro evaluation.

Keyword:

triple crises, fuel, food,
finance, consumption

INTRODUCTION

The global economy has just emerged from a health crisis brought on by the COVID-19 pandemic but must now contend with geopolitical polarization and the conflict in Ukraine. After the pandemic, these conditions exacerbated the supply-demand mismatch, resulting in greater demand than supply. This hampered the emerging economy's ability to recuperate. The result was an increase in the prices of the primary commodities consumed by households, namely food and energy, which resulted in high inflation (IRU, 2022a).

If not adequately addressed, the economic impact of this condition will result in "triple F-crises" (Azad & Ghosh, 2020; Heltberg et al., 2013; IMF, 2022a; Samuels et al., 2011; UN, 2022). The first of these converging crises is the fuel crisis caused by the conflict in Ukraine's

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<https://doi.org/10.21831/jnp.v11i2.60121>

impact on the global energy market; consequently, energy prices are soaring (IEA, 2022). Next, due to the conflict in Ukraine, food insecurity disrupts the global food supply chain and fertilizer markets, causing food prices to reach an all-time high (GFRC, 2022). Thirdly, the energy and food price shocks cause global inflation to skyrocket from 4.7% in 2021 to 8.8% in 2022 (IMF & Fund, 2022), compelling the majority of central banks to rapidly and dramatically increase interest rates, resulting in higher debt servicing costs (UN, 2022) and volatility in exchange rates and financial markets, which increase the risk of a financial crisis (IRU, 2022b).

Researchers have long used the term triple crisis to describe a situation in which multidimensional threats exist and negatively impact organizations, societies, or nations (Perry, 2021). Headey et al. (2010) use the food, energy, and financial crises to examine their effects on developing nations. Samuels et al. (2011) and Heltberg et al. (2013) use a similar definition of the triple crises as the triple F-crises: food, fuel, and finance. Samuels et al. (2011) analyzed the impact of triple F shocks on families and children in Nigeria. They found that the crises had a negative impact on the well-being of children and contributed to their poverty. From 2008 to 2011, Heltberg et al. (2013) described the crisis's effects and analyzed how people dealt with them. Surprisingly, their findings indicated that assistance from family, friends, and community-based and religious organizations was more prevalent than formal social protection and government aid.

In addition, there was research on triple crises that focused on other combination issues, such as finance, climate, and food (Addison et al., 2011); finance, unemployment, and fiscal (Romer, 2012); economy, environment, and security (Rogers, 2019); economy, health, and climate (Azad & Ghosh, 2020); debt, demand, and decarbonization (Perry, 2021); and a recent study on triple COVID-19 crises, namely health, economic, and social (de la Cruz et al., 2022).

This study examines the impending fuel, food, and financial crises caused by the conflict in Ukraine. As Russia and Ukraine are major global players in food production, and Russia is one of the largest energy exporters, the impact of the war can be felt by many countries worldwide (IMF, 2022a). Therefore, this conflict has disrupted the global energy and food supply chains. Through rising energy prices, food prices, and tightening financial conditions, 1.7 billion people in 107 countries are severely exposed to at least one of the triple crises (UN, 2022). Consequently, people in these nations struggle to afford nutritious food, affordable fuel, and escalating energy bills during the upcoming winter. In addition, the government was burdened with debt. It had limited fiscal capacity to protect the populace from the triple crises, as just one of these shocks—blackouts, food shortages, or debt distress—is sufficient to cause a collapse (UN, 2022) and spark social unrest (IMF, 2022a).

The triple crisis will have a negative impact on household consumption, particularly among the most vulnerable, if the government does not intervene with policy measures (GFRC, 2022; IEA, 2022; IMF, 2022b; UN, 2022). The rise in food and energy prices has increased households' living costs, thereby decreasing their real incomes (IMF, 2022b). According to the (IMF, 2022b), a rise in food prices predominantly affects low-income households, particularly those who spend a significant portion of their income on food (IEA, 2022). Increasing prices for necessities such as food and energy can cause catastrophic and enduring damage to the household.

The triple crises have also affected Indonesian households, particularly the most vulnerable. Figure 1 demonstrates that four of the lowest deciles of household consumption will experience a higher cost of living in 2022 compared to other categories above 15 percent

compared to the average year of 2019. The effect is worst on the lowest household groups because a significant proportion of their spending is on food and fuel (77 percent) compared to the top decile at around 57 percent. These numbers corroborate the reports that the crisis's adverse effects will disproportionately affect households that spend more than sixty percent of their income on food, which is the case for households with lesser incomes (IEA, 2022; IMF, 2022b).

Household Consumption Before vs. After the Crises

The first four deciles of households are the most affected by the crises, excluding the richest household.

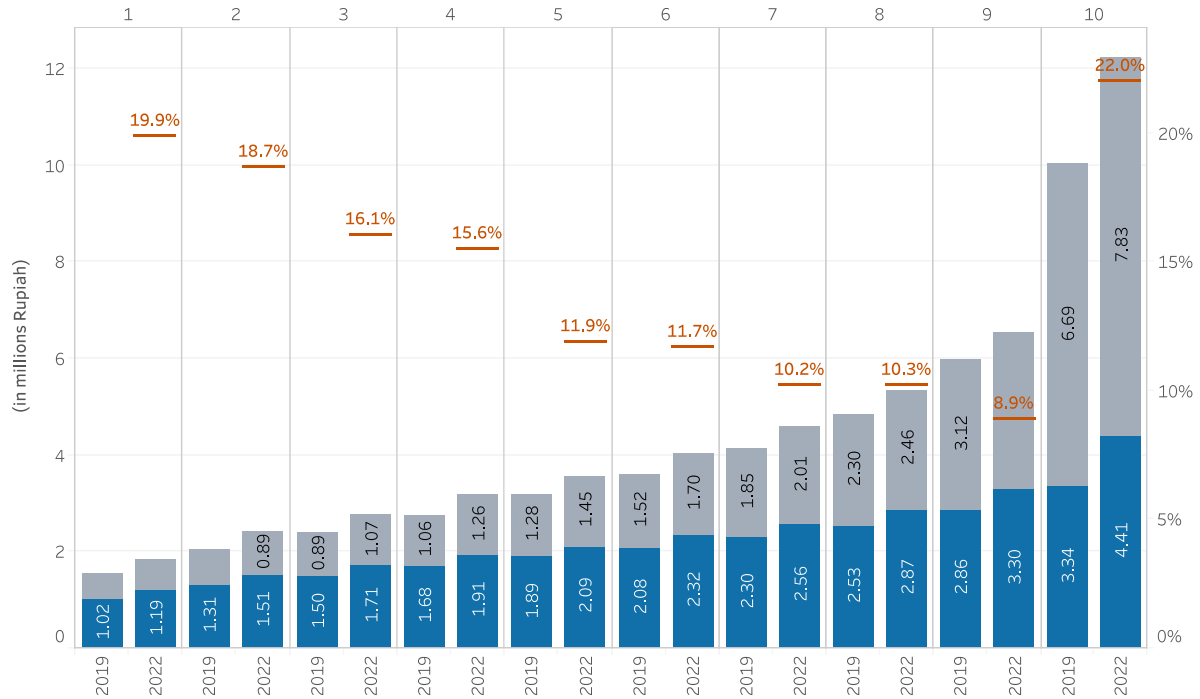


Figure 1. Household Consumption Before and After the Crisis

Source: Susenas (processed)

The rising global commodity prices, particularly energy and food prices, affected the most vulnerable households, which impacted domestic prices. According to the theory of public finance, the government must act to contain crises and improve conditions (Addison et al., 2011; Aronson, 1985; Bui et al., 2022; Siallagan, 2020; UN, 2022). Keynesian economic theory elaborates that the government must intervene through public expenditure to cushion households from the impact of rising food and energy prices (IMF, 2022a; Keynes, 2018). This theory also explains that the degree of household consumption for a given income depends on the changes in real (disposable) income due to price changes and government policies (Keynes, 2018; Zainuddin et al., 2022).

This paper examines the triple crises' effects (individual, dual, and combined effects) on household consumption. The researchers will then advise on policy changes that can be implemented to mitigate the effects of the crisis and maintain the same level of household consumption.

METHODS

Sampling and Data

Based on Keynes' (1964) economic theory, this study employs a quantitative method to analyze the effect of price changes on the identified variable, which is household consumption. Explanatory research attempts to determine the causes and effects of the

investigated events, test hypotheses based on theory, and identify the most effective intervention alternative (DeCarlo, 2018; Neuman, 2013). This study's population includes every household in Indonesia. Non-probability sampling with selection based on the criteria that households reside in the four lowest deciles of the household consumption group is utilized. The reasoning behind this is that these households are the most affected by the crisis so the analysis would have a more significant impact on them. The selection of the sample size is depicted in Table 1.

Table 1. Sample Selection

Year	Population	Sample Decile 1-4
2019	71.438.289	24.815.230
2020	72.792.285	25.177.860
2021	75.615.092	26.080.955
2022	72.857.566	25.250.037

Source: Susenas (processed)

The analysis utilizes secondary data, primarily from the National Socioeconomic Survey (*Survei Sosial-ekonomi Nasional*, or Susenas), which illustrates the behavior or changes in household consumption and can be analyzed using frequency weight to represent all households. The remaining data come from the Center for Strategic Food Price Information (*Pusat Informasi Harga Pangan Strategis*, or PIHPS), the Monitoring System for Market and Staple Food (*Sistem Pemantauan Pasar dan Kebutuhan Pokok*, or SP2KP), CEIC data, and the Ministry of Finance.

Data Analysis Model

The data is then analyzed using a multivariate regression model comparable to the consumption model from Bui et al. (2022); Curi-Quinto et al. (2021); JÖNsson (2007); and Zainuddin et al. (2022) with the following formula:

$$Y_{it} = \alpha + (\gamma_1 EC_{it} + \gamma_2 FC_{it} + \gamma_3 SC_{it}) + \delta X_{it} + \varepsilon_{it}$$

where Y is the outcome of interest, household consumption, and EC, FC, and SC represent fuel, food, and financial crises, respectively. X represents control variables. The letter γ denotes the coefficient of interest of the effect of the triple crises, while the letters α and δ symbolize the constant of the model and the coefficient of control variables, respectively; the letter ε denotes the error term of the model.

In this study, household consumption is the dependent variable (Bui et al., 2022; JÖNsson, 2007; Komalawati et al., 2021; Kyriopoulos et al., 2019; Zainuddin et al., 2022). The total consumption, food consumption, and non-food consumption are analyzed.

The variable used for explanation is the changes caused by the triple crises (Curi-Quinto et al., 2021). Price changes indicate a crisis because they directly affect household consumption (IMF, 2022b; UN, 2022; Zainuddin et al., 2022). The Keynesian Consumption Theory derives price changes from the objective factor of propensity to consume, which is the difference between income and net income. Since household income is relatively inelastic concerning price changes, rising food and energy prices will strain household budgets and reduce their net income (IMF, 2022a; UN, 2022). Prices of staple foods (Republic of Indonesia, 2020) as an indicator of the food crisis, fuel, and gas prices as an indicator of the energy

crisis, and overall price increase or inflation as an indicator of the financial crisis are utilized in the analysis.

Additionally, this study controls three sets of variables commonly used in the literature to analyze household consumption. Household income is the first control variable (JÖNsson, 2007; Keynes, 2018; Komalawati et al., 2021; Kyriopoulos et al., 2019; Zainuddin et al., 2022). The second set of regressors includes several characteristics of the household head characteristics: marital status, sex, age, and educational attainment, as well as employment status (Bui et al., 2022; Kyriopoulos et al., 2019; Zainuddin et al., 2022). Third, a set of household demographics, including household size, the number of toddlers (0 to 4 years old), and residence status (Bui et al., 2022).

According to prior research, triple crises in the form of price-related shocks have had a direct negative impact on household consumption (Bui et al., 2022; Samuels et al., 2011; Zainuddin et al., 2022). Accordingly, the hypothesis of this study is consistent with the findings that the triple crises have a negative impact on household consumption.

RESULTS AND DISCUSSIONS

Household Profile

This research focuses on analyzing the impact of the triple crisis on vulnerable households, which are the most affected by the crisis. The number of households accounted for is around 25 million during the four years from 2019 to 2022: the household profile and their social and demographic characteristics are shown in Table 2.

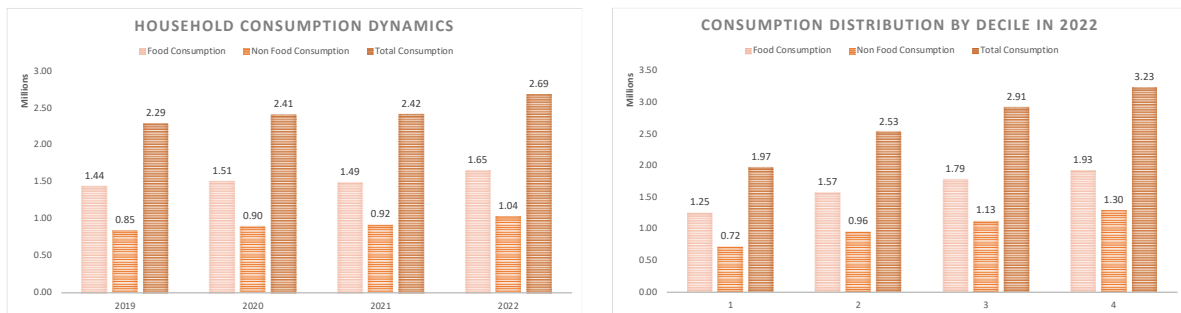
Table 2. Household Profile

Variables	N	%	Mean	Std. Dev.	Min.	Max.
Household Income	25,249,797		624,557	179,559	138,983	1,368,202
Household Head Characteristics						
Marital Status						
Married	22,156,415	87.8%				
Unmarried	3,093,382	12.2%				
Sex						
Male	22,645,005	89.7%				
Female	2,604,792	10.3%				
Age	25,249,797		49	14	9	97
Educational Attainment						
Uneducated	4,007,067	16.7%				
Primary/Lower	13,564,852	56.6%				
Upper secondary	5,599,172	23.3%				
Higher educ.	816,410	3.4%				
Employment Status						
Worker	22,091,546	90.0%				
Volunteer	722,783	3.0%				
Unemployed	1,718,249	7.0%				
Household Demographics						
Size	25,249,797		4.3	1.6	1	23
Toddlers	25,249,797		.41	.59	0	6
Residential Status						
Urban	12,587,542	49.8%				
Rural	12,662,255	50.2%				

Source: Susenas (processed)

Descriptive Statistics

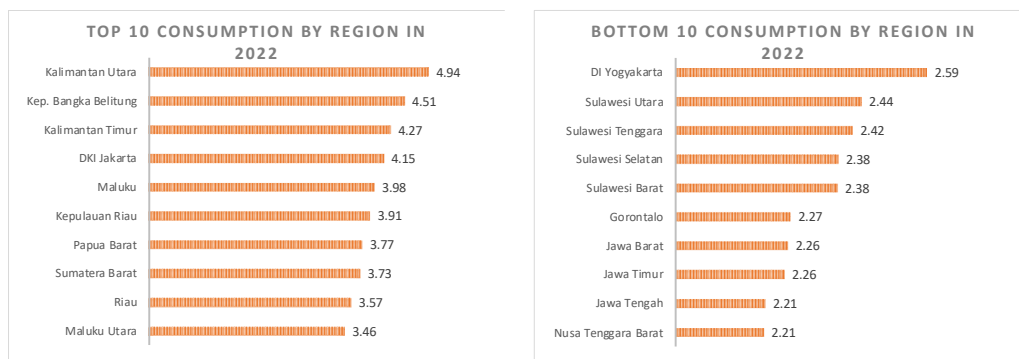
Household consumption for vulnerable households showed a dramatic increase last year to above the inflation level, which is an 11.3 percent increase year-on-year compared to last year's general inflation of 5.51 percent and volatile goods inflation which is 5.61 percent—the significant change derived from the increase in both food and non-food consumption. Figure 2 depicts that monthly average food consumption in the household's four lower deciles has risen to Rp1,65 million from Rp1,49 million in 2021 (a 10.5 percent increase). The same goes for the consumption of non-food products and services, with a 12.6 percent increase from Rp0.92 million to above Rp1.04 million last year. This trend was predicted to continue as the threat of triple crises emerged. This condition is exacerbated by the government policy to lift some of its fuel subsidies as global energy prices soar. This, in turn, leads to an increase in fuel prices and transportation costs that directly affect household consumption behaviors. The effects are not limited to fuel consumption, but also essential goods and services affected by fuel price changes (Samuels et al., 2011), for instance, food consumption.



Source: Susenas (processed)

Figure 2. Household Consumption Dynamics & By Decile

The vulnerable households are most affected by this crisis and spend more than half their income on food. The lower households in the decile, the higher the percentage of their spending on food. Figure 2 shows that even though the value of food consumption is smaller in the lower decile (Rp1.25 million in decile 1 compared to Rp1.93 million in decile 4) but it constitutes a higher proportion of the total consumption which is 63.5 percent for decile 1 compared to 59.7 percent for decile 4. However, the case, the four deciles of households bear the burden of the triple crisis impact because the crisis will squeeze their budgets (IMF, 2022a; UN, 2022), and consequently, they have to adjust their spending behaviors. This discourse will be proven further by the analysis in the next section.

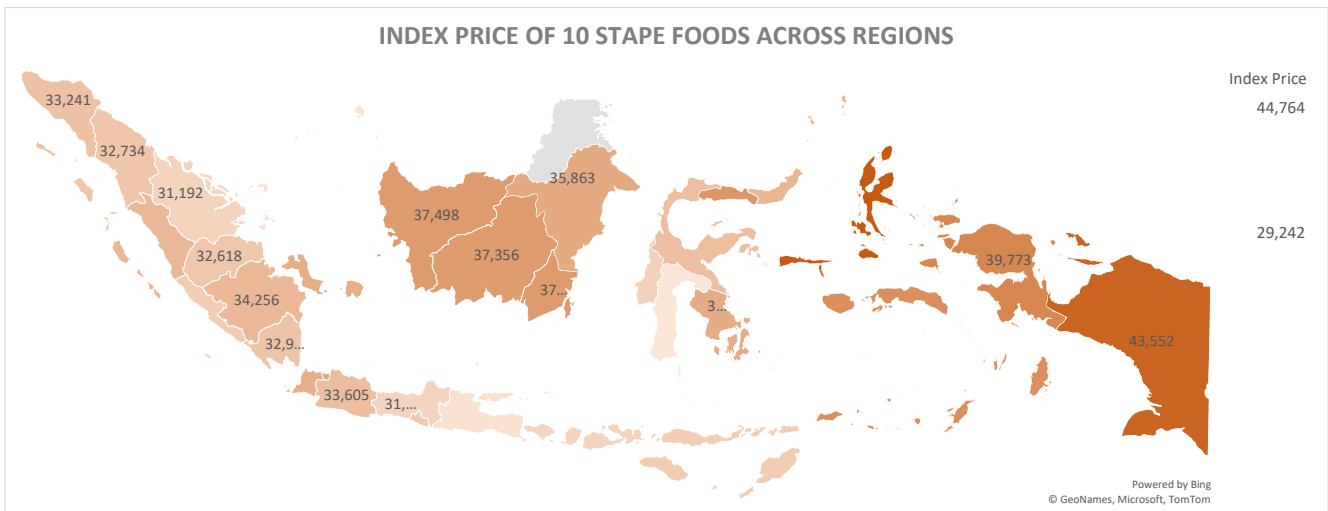


Source: Susenas (processed)

Figure 3. Consumption Distribution by Region

Looking at more details on household consumption in 2022 by provincial level, we can see in Figure 3 that the average monthly household consumption ranges from the highest of Rp4.94 million in North Kalimantan province to the lowest in West Nusa Tenggara of Rp2.21 million. This figure implies that high spending mainly occurs in the high-income region, such as East Kalimantan (Rp4.27 million), Jakarta Special Capital Region (Rp4.15 million), and Riau Islands (Rp3.91 million). In addition, there are some provinces with high consumption because of the effect of the surging price of transportation costs that impact the prices of goods and services in those regions, for example, North Kalimantan (Rp4.94 million), Maluku (Rp3.98 million), and West Papua (Rp3.77 million). On the other hand, lower consumption generally occurs in Java and Sulawesi islands, which might be due to the security of food availability and food access coupled with the seamless connectivity that negates the effect of fuel price increase, thus keeping the transportation costs and food prices low.

The food crisis indicators used are the prices of staple foods stipulated by the (Republic of Indonesia, 2020) that comprises ten food commodities, namely rice, soybean (raw materials of tofu and tempeh), chili (both red chili and cayenne pepper), onion, sugar, cooking oil, wheat flour, beef, chicken meat, and egg. Figure 4 shows the price index of these food commodities. The index ranges from the lowest price of Rp29,242 in South Sulawesi to the most expensive region in North Maluku (Rp44,764). From the spatial analysis depicted in Figure 4, Maluku, Papua, and Kalimantan are regions with higher food prices, whereas Java, Nusa Tenggara, Sulawesi, and Sumatera are relatively at the same level in food prices.



Source: PIHPS, SP2KP, CEIC Data (processed)

Figure 4. Staple Food Price Index Across Region

Classical Assumption Test Result

Normality Test

The Saphiro-Wilk test for normality results indicates that the significance value (p-value) is 0.0000. The null hypothesis that the residual values are normally distributed is rejected at 95 percent. This can be explained because the dependent variable utilized is not normally distributed as it only estimates around forty percent of the household population. Two solutions exist to resolve this issue: transforming the dependent variable using natural logarithm or conducting regression with robust standard errors using Huber-White estimators. This analysis uses the latter method because it keeps the dependent variables at their original value so that they can be easily interpreted, and robust standard errors can

accommodate a variety of concerns regarding failure to meet classical assumptions, including normality and heteroscedasticity (UCLA, 2021).

Multicollinearity Test

This assumption states that independent variables in the multiple regression model are not perfectly multicollinear or correlate to each other. In this study, the tolerance values for all the independent variables are greater than 0.10, and the variance inflation factor (VIF) values are less than 10, indicating no deviation in the regression model from the classical assumption. The linear correlation among independent variables is less than the linear relationship with the dependent variables.

Homoscedasticity Test

This assumption examines whether the variance of the residual value is constant or homoscedastic. The Breusch-Pagan test results show the significance value is 0.000, meaning the null hypothesis that states the variance of the residuals is constant is rejected. Robust standard errors and weighted least squares (WLS) can address this issue (Stock & Watson, 2020). WLS, however, requires an understanding of conditional variance, which is uncommon. In practice, (Torres-Reyna, 2007) recommends using robust standard errors to deal with heteroskedasticity problems. This model uses robust standard errors with clustering based on year and region to control the standard errors.

Autocorrelation Test

This assumption aligns with the notion that the error term and the independent variables in the model are not correlated; in other words, no omitted variable is necessary to explain the dependent variables (Stock & Watson, 2020). The omitted-variable test shows that the model has no omitted variables with a significance value of 0.0630 (failing to reject the null hypothesis that there are no omitted variables).

Hypothesis Test Result

The findings of the hypothesis test are utilized to identify whether or not the dependent variables are affected jointly or separately by the independent variable being investigated in this study. The hypothesis test is conducted by examining the estimated coefficient in two ways. First, performing simultaneous tests with the F-test (analysis of variance or ANOVA), and second, performing partial tests with the statistical t-test (Table 3).

Table 3. Regression Analysis Result

Variables	Model 1		Model 2		Model 3	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Fuel Crisis						
Petrol price	-53.69**	-1.994	22.63	0.773	-76.31**	-2.511
Food Crisis						
Rice price	-24.85*	-1.645	-70.70***	-3.981	45.85**	2.573
Soybean price	-5.807	-1.609	-0.662	-0.167	-5.145	-1.332
Chili price	-0.458	-0.563	2.353**	2.569	-2.811***	-3.034
Onion price	-2.665*	-1.837	-3.383*	-1.833	0.718	0.390
Sugar price	-4.870	-1.246	2.529	0.540	-7.400	-1.564
Cooking oil price	10.02	1.004	-8.792	-0.788	18.81*	1.652
Wheat flour price	-11.88**	-2.031	-21.67***	-3.487	9.798	1.587
Beef price	2.031	1.274	-1.028	-0.595	3.059*	1.681
Chicken meat price	1.329	0.499	2.313	0.773	-0.984	-0.329
Egg price	-5.499	-1.618	-1.195	-0.302	-4.303	-1.087
Financial Crisis						
Inflation	75,068	1.355	30,513	0.491	44,554	0.672
Constant	-2.223e+06***	-6.743	-521,593	-1.374	-1.701e+06***	-4.379

Variables	Model 1		Model 2		Model 3	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Observations		6,190,211		6,190,211		6,190,211
R-squared		0.952		0.841		0.784
F-statistic		2,260.58		861.80		488.30
Prob (F-statistic)		0.0000		0.0000		0.0000
Y Variable	Total Consumption		Food Consumption		Non-Food Consumption	
Regional FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Multiple sources (processed)

The R-squared values for the coefficient of determination are relatively high on all the models at above 75 percent. The first model with an R-squared 95.2 percent suggests that the independent variables used in the model from triple crisis indicators and control variables can explain 95.2 percent of the variation of the total consumption. On the other hand, the remaining 4.8 percent can be accounted for by other factors not included in this analysis.

Simultaneous Test (Anova)

The test results indicate that household consumption is affected by the triple crises of fuel, food, and finance using price indicators, with an F-statistic of 2,260.58 and a significance value of 0.0000. Using significance level (α) 0.01, we reject the null hypothesis because the significance value of the F-statistic is below 0.01 and conclude that the research hypothesis that the triple crises have a negative impact on household consumption must be accepted. This also means that the independent variables simultaneously affect household consumption. This brings us to the conclusion that the hypothesis cannot be rejected when the significance value is below 0.01, and the regression coefficients are statistically significant.

Partial Tests (t-Test)

According to the t-test results, the fuel crisis negatively impacts total consumption (Model 1) and non-food consumption (Model 3). The effects are statistically significant at 0.05 level. This finding has successfully demonstrated a significant negative relationship between the fuel crisis and household consumption. On the other hand, the fuel crisis shows no significant relationship between food consumption and with positive coefficient at any given significance level.

The food crisis, with several food price indicators overall, proves that the food crisis has a negative impact on household consumption. The effect of the food crisis on total consumption and food consumption presents a negative or statistically significant relationship between seven food commodities out of ten commodities (70 percent of staple foods). The significance of the effect ranges from 0.1 to 0.01 significance level. In comparison, the impact on non-food consumption is less apparent only five out of ten commodities (50 percent).

Lastly, the effect of the financial crisis on household consumption is not statistically significant on all consumption groups and shows a positive relationship which contradicts previous research findings.

Based on both statistical tests, it can be concluded that overall, the triple crises negatively impacted household consumption (total consumption, food consumption, and non-food consumption). However, only the fuel and food crises are proven to affect consumption significantly and negatively; whereas the financial crisis shows no significant effect on household consumption.

Discussion

The Impact of The Triple Crises on Household Consumption

The fuel crisis shows a negative impact on household consumption, particularly on total consumption and non-food consumption. This finding is corroborated by previous research (Samuels et al., 2011) and the reports from IMF (2022a) and UN (2022). This can be explained by the fact that with the increasing fuel petroleum price, households in the lower deciles (decile 1 and 2) needs to spend more money to acquire the same amount of fuel consumption, as depicted in Figure 5. In contrast, as a household move to a higher decile starting from decile 3, the increase in fuel price encourage them to consume fuel efficiently. This can imply that the government to formulate policy to shape consumer behavior regarding fossil fuel consumption.

Although from the statistical model, the food crisis proved to have an adverse effect on household consumption as predicted by Samuels et al. (2011) and WFP (2022), the estimated impact is not as prominent as those of the fuel crisis and varies across deciles. The three commodities most consumed by households based on their percentage of food consumption, namely rice, cooking oil, and chicken meat, are relatively stable amidst the food price fluctuation. From a policy perspective, this can be seen that the existing government policies, such as staple food cards and village direct cash assistance, have successfully controlled the impact of the food price changes. However, the fourth most significant household spending, cigarette consumption, is estimated to experience significant change. The poorest household (decile 1) will spend Rp13.35 thousand more on a cigarette; the same goes for decile 4 households but not as significant at Rp6.94 thousand increase (see Figure 5). On the brighter side, the decile 2 and 3 households will likely reduce their cigarette consumption by Rp11.32 thousand and Rp7.70 thousand, respectively.

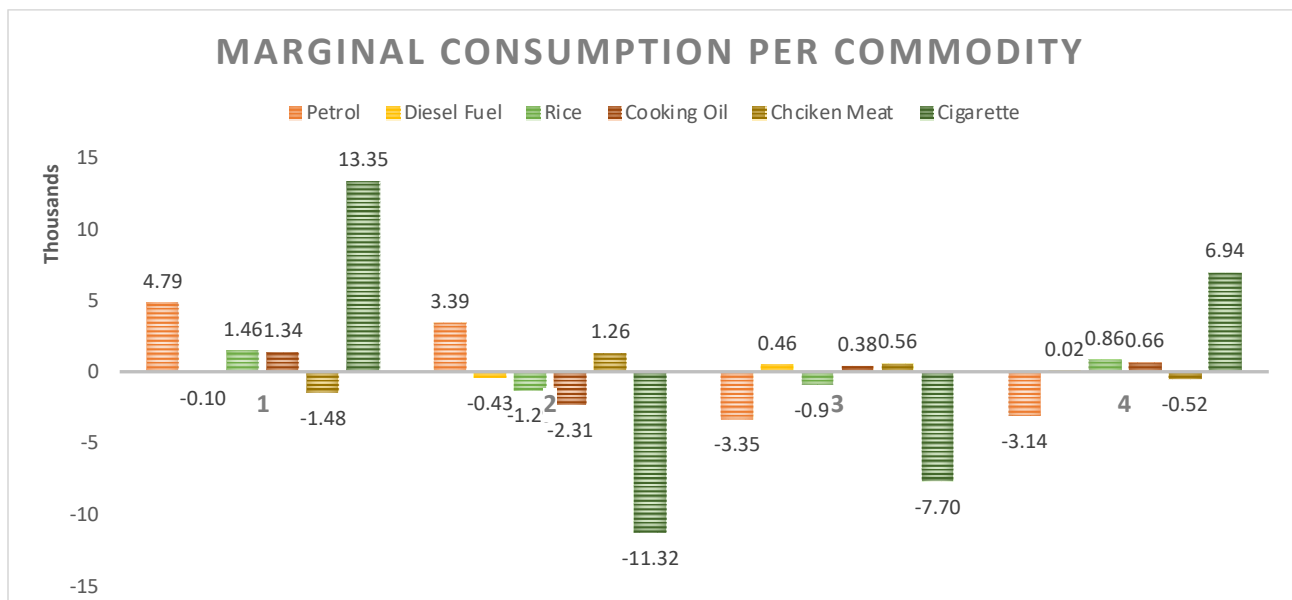


Figure 5. Estimated Marginal Consumption per Commodity

As indicated by general inflation, the financial crisis does not directly affect household consumption. This is in contrast to Claessens' et al. (2013) finding. However, this finding

supports a previous study that a financial crisis indirectly impacts household consumption through job losses (Samuels et al., 2011) or income reduction (IMF, 2022b).

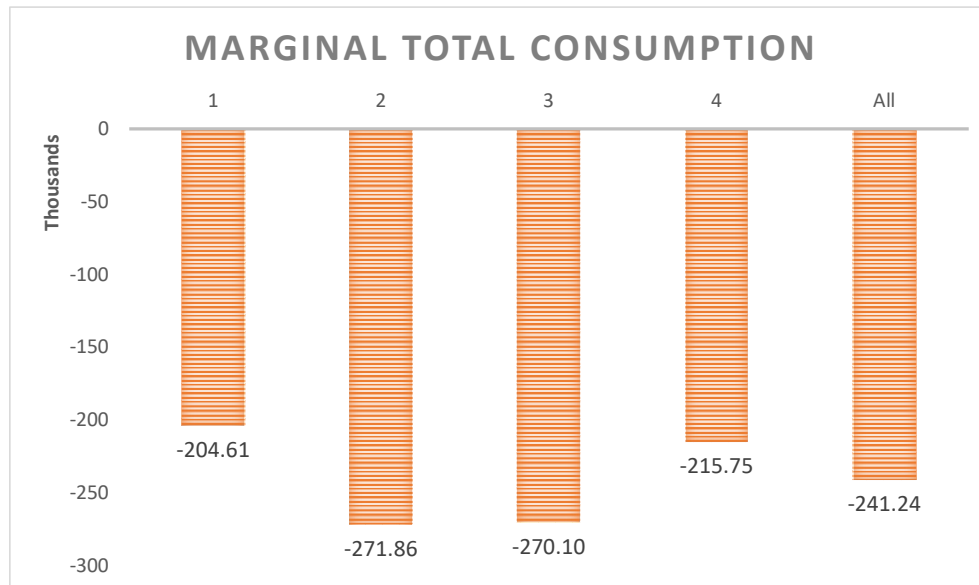


Figure 6. Estimated Marginal Total Consumption

However, the impact of the combined triple crises on household consumption is estimated to decrease household consumption considerably across the four deciles, which is around 10 percent (Rp241 thousand decrease) of the current consumption (Rp2.2 million). The numbers in Figure 6 convey that vulnerable households bear the marginal cost of consumption loss due to the triple crises. Thus, the government needs to play its role in correcting market failures in maintaining price stability and unemployment (Aronson, 1985). It also becomes the government's responsibility to protect households from the impact of the triple crises not only to keep the aggregate consumption and achieve economic growth but also to save the people from social unrest due to economic instability.

Policy Responses to Protect Household Consumption

The government's part is played out through the fiscal policy and, depending on the nature of the crisis and if it is related to the financial market or the money supply, they can collaborate with the central bank through the monetary policy (Keynes, 2018). However, there are still some debates regarding which fiscal policies are more effective in addressing particular crises. Some economists contend that revenue-side fiscal policies, such as tax rate reductions, are more advantageous (Ramey, 2019). Others, however, concurred that fiscal stimulus (Siallagan, 2020) in the form of government spending on social protection programs (Heltberg et al., 2013; Samuels et al., 2011) or financial support (Bui et al., 2022) or fiscal supports (IMF, 2022b) is more prevalent in advanced economies (Gechert, 2015) and had a more significant impact on the economy and household consumption (Bui et al., 2022; Kyriopoulos et al., 2019; Riza & Wiriyana, 2021; Siallagan, 2020). Moreover, revenue-side fiscal policies may only benefit specific groups of individuals and businesses, while government spending on social protection programs or financial support can relieve a broader range of struggling people. Additionally, such spending can swiftly bring household consumption back to normal levels.

To successfully mitigate the triple crisis risk to protect the household, the government needs to pay attention to each phase of the policy process.

Policy Formulation Process

Policy formulation is the process of developing policy alternatives for addressing problems on the public agenda (Dye, 2017). It involves a systematic approach to analyzing and evaluating different options, considering each alternative's political, economic, and social implications. Effective policy formulation requires collaboration between policymakers, stakeholders, and experts in various fields.

1) The magnitude and length of the policy and the budget allocation

The amount required for the government to protect vulnerable households from the triple crises is already calculated based on the estimated marginal cost based on the regression model from the previous sections (see Figure 6). The government may opt to: (option 1) generalize the financial support to Rp245 thousand per household or (option 2) differentiate the supports according to household deciles which are Rp205 thousand (decile 1), Rp275 thousand (decile 2 and 3), Rp220 thousands (decile 4). The budgets for each policy option are Rp6,091 billion for option 1 and Rp6,084 billion for option 2. There is also the third option in which the government involves the local government providing financial support for households with the amount adjusted based on the marginal cost each household bears in which they reside and the local government's capacity. Figure 7 presents the estimated marginal cost per household in each province. The number of financial supports will range from Rp110 thousand in East Nusa Tenggara to Rp750 thousand in North Sulawesi.

The government must also exercise the length of the policy that will be implemented based on economic conditions, triple crisis indicators, and budget capacity. The longer the policy, the bigger the budget needed to execute the policy. It is best to plan the financial assistance as a temporary intervention, for example, for three to four months, so that the government can evaluate the effectiveness of the policy as the conditions change, whether the policy is worth continuing or need refining.

2) The types and combination of policy

After deciding which options the government chooses, it is a matter of what kind of financial support best protects household consumption. The government may learn from previous policies, but it may be better also to consider selecting from international best practices. Luckily, (IMF, 2022b) has developed fiscal tools ready to deploy for countries to tackle significant adversity. The triple crisis includes major disruption in the essential goods and services category, which consist of three fiscal tools: (i) cash transfers, (ii) tax incentives, or (iii) scaling up social protection. Because the immediate effect of the policy is needed, it is best to choose the fiscal tools that will immediately protect households, that is, cash transfers. Cash transfers are also superior to the other two by providing *flexibility* for households to use based on their needs, *efficiency* in cost and time for implementation, and *practicality* to swiftly counteract adverse conditions such as crises.

3) The political supports

Public policy formulation does not stop on the technocratic side. The government still needs to seek political support from parliament to approve the proposed policy. Without political support, good policies will end up just a formality on paper or, worse, policy cancellation because the legislative and the stakeholders reject them.

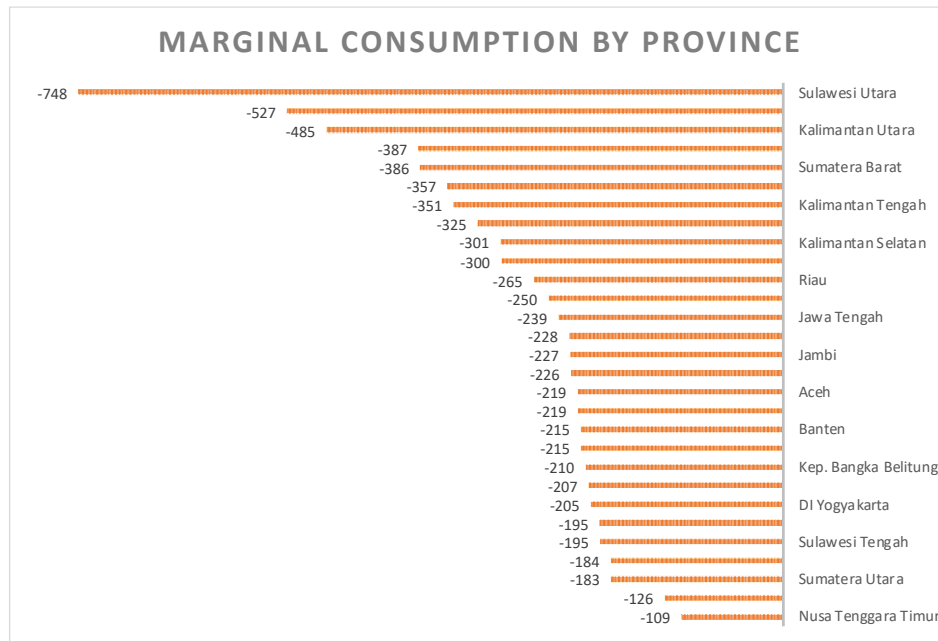


Figure 7. Estimated Marginal Consumption by Province

Policy Implementation Process

Policymaking does not end after the government gets full support from the legislative and a law or regulation has been enacted (Dye, 2017). Instead, the government has to perform and execute the policy to meet its objectives.

- 1) Implementing the policy needs perfect timing.

Determining the implementation timing and the financial support disbursement is as important as formulating the policy. Too late to carry out policies due to unplanned implementation leads to ineffective and missed opportunities to solve the problem in time, whereas too early to execute them will result in inefficiency, improvidence, and waste of public money to be spent on unnecessary needs. In this case, the government must consider economic conditions (prefer when the condition is relatively stable) and the time when the government performance is evaluated, for instance, through social and economic surveys by statistics agencies.

- 2) Collaboration and coordination among stakeholders are crucial.

There is no single policy that a single government institution can implement. Every policy will likely involve several government agencies and stakeholders. The government has to maintain good governance practices in implementing every policy. This can be done by exchanging information, sharing know-how during the implementation phase, and supporting each other when problems arise.

Policy Evaluation Process

Policy evaluation is the assessment of the overall effectiveness of a program in achieving its goals or the relative effectiveness of two or more programs in achieving shared goals (Dye, 2017). Policy evaluation is crucial in identifying areas where policies may need to be adjusted or improved and can inform future policy decisions. It involves analyzing data, assessing outcomes, and providing recommendations for improvement.

- 1) Determine indicators used to assess the success of the policy

In the formulation process, the government may also state the performance indicators for evaluating the policy's success. For the problem analyzed in this paper, to control commodity price fluctuation, the success indicator may be maintaining moderate inflation. The main goal is to protect household consumption, and the indicator may be household

consumption at a normal level before the triple crises and reduced poverty rate, which also reflects household consumption and public welfare due to public spending (Nourmanita, 2016).

2) Conducting both macro and micro evaluations of the policy

Assessing the effectiveness of the policy is not enough only on the macro level using economic indicators. The government must also conduct a field survey of the targeted policy, which is vulnerable households, by asking how the policy has or has not helped them from the impact of the crisis. The government may also seek input and suggestions from the non-targeted group if the current policy impacts them (spillover effects).

CONCLUSION

The triple crises of fuel, food, and finance haunt policymakers worldwide, for its impact will be felt at a macroeconomic level and in households, particularly their consumption. These impending crises, characterized by soaring commodity prices, directly and indirectly affect households. This research found a negative impact of the triple crises on household consumption. The two crises, fuel and food, have a significant adverse effect and are predicted to reduce household consumption, while the financial crises have no significant effect on consumption. The household consumption model can be utilized to estimate the marginal costs households bear due to the crises, which can then be used to formulate government policies to protect household consumption. The policy recommendation for policymakers to alleviate households from the crises impact are which are determining the appropriate amount and length of financial support considering household burden and budget capacity, selecting the best policy both based on lessons learned from previous policies and international best practices, and ensuring political support in the formulation process. In the implementation, the government should consider the most appropriate timing to execute the policy and collaborate with stakeholders. Lastly, for the policy evaluation, it is best first to determine key success indicators and perform both macro and micro evaluations for the policy.

ACKNOWLEDGEMENTS

Thank the Fiscal Policy Agency, the Directorate General of Fiscal Balance, the Financial Education and Training Agency of the Ministry of Finance, and the Faculty of Administrative Science, University of Indonesia.

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