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The Role of Information in Perception of Fossil-Fuel Subsidy Reform: Evidence from Indonesia

March 2015

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Abstract

This paper analyzes household perceptions and the role of information in the fossil-fuel subsidy reforms (FFSR) in Indonesia. The data used in this study were collected by Lembaga Survei Indonesia (LSI), based on an August 2014 survey that involved 2,899 respondents in 34 Indonesian provinces. Survey logistic and multinomial logistic regressions approaches were used in this study. The results show that: (1) those who live outside Java tend to be more receptive to the idea of FFSR (2) The tendency of respondents to oppose the reform is attributable to ownership of motorcycles and cars (3) Providing information about the state budget and the personal impact of the subsidy could change a respondent's opinion from opposition to support of the reform. These results indicated public resistance to a subsidy removal policy was not permanent. Those who own cars and/or motorcycles tend to be more resistant to FFSR than those who do not possess one.

Keyword: fuel subsidy reform, household perception, survey, survey logistic regression, survey multinomial logistic regression

JEL Classification: C31, D12, Q32, Q38,

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1.0 Introduction

Indonesia has subsidized all types of fossil fuels since 1967. In the past, Indonesia was able to produce around 1.6 million barrels of oil per day and used the revenue from oil exports to subsidize all fuel products, including foreign aircraft and ships (Ministry of Energy and Mineral Resources [MEMR], 2010).[1] After the Asian crisis created unprecedented shocks in Indonesia's economy in 1998, various attempts were made to reduce fossil-fuel subsidies in order to trim the state budget. However, the policy has not yet had a significant impact because the domestic consumption of fuel products (especially for gasoline, kerosene and diesel) has increased, while oil production decreased. In addition, the Government of Indonesia (GoI) was reluctant to reduce fuel subsidies, arguing that they are a pro-poor program with the objective of poverty alleviation (World Bank, 2010; Coady, Gillingham, Ossowski, Piotrowski, Tareq & Tyson, 2010; Plante 2013). Energy subsidies, both for fuel and electricity, are still the biggest burden on Indonesia's state budget (30 per cent of the central government budget, or 20 per cent of the total state budget).

Indonesia has not been a net oil exporter since 2004, after its consumption of oil surpassed its production.[2] Fuel subsidies have thus continued to increase and forced the GoI to either cut other allocations or widen the budget deficit (Aswicahyono, 2011). Both strategies basically will only result in a more fragile Indonesian economy. On one hand, adding debt for consumption will raise the interest rate burden instead of generating revenue in the future. On the other hand, cutting capital expenditure allocation, especially for infrastructure, will create an inflation trap since infrastructure is a significant transaction cost in Indonesia. Another reason for the increasing fragility of the Indonesian economy is the increasing importation of fuel: indeed, the importation worsens the country's balance of payments and results in currency depreciation.

While various studies show that fossil-fuel subsidies are not the best way to increase social welfare, most Indonesians still believe that removing them will create poverty and suffering (Bacon & Kojima, 2006; Adam & Lestari, 2008; Agustina, Arze del Granado, Bulman, Fengler, & Ikhsan, 2008; Coordinating Ministry for Economic Affairs, 2008; Yusuf, 2008; Yusuf & Ramayandi, 2008; Askolani, 2010; World Bank, 2010; Aswicahyono, 2011; Granado, Coady, & Gillingham, 2012; Dartanto, 2013; Perdana, 2014). Those studies also showed that most of the benefits of fossil-fuel subsidies are enjoyed by the wealthier groups in society, create problems for developing energy security and are not environmental friendly. Agustina et al. (2008) identified the impact of prolonged implementation of fuel subsidies: (i) in reducing the fiscal space to invest in infrastructure or in human capital; (ii) in inefficiencies in targeting the poor; (iii) in creating disincentives for households to consume in an efficient way; (iv) in undermining macroeconomic stability; (v) in distorting price signals to industry and households; and (vi) in creating opportunities for smuggling and corruption.

Various studies have assessed the impact of fossil-fuel subsidies and the potential impact of reducing or eliminating fuel subsidies in Indonesia (Adam & Lestari, 2008; Agustina et al., 2008; Coordinating Ministry for Economic Affairs, 2008; Yusuf, 2008; Yusuf & Ramayandi, 2008; Askolani, 2010; World Bank, 2010, Aswicahyono, 2011; Dartanto, 2013; Perdana, 2014). However, few studies have attempted to investigate household perceptions of reduction or elimination of the fuel subsidies (Pradiptyo & Sahadewo, 2013a, 2013b; Pradiptyo et al., 2014). Unfortunately, those

[1] During President Suharto's era (new order era), the Government of Indonesia (GoI) subsidized most fuel types starting in the early 1970s. This included kerosene, diesel oil, gasoline, fuel oil and aviation fuel. After President Suharto stepped down in 1997, the fuel subsidy was gradually reduced, starting with the removal of the subsidy for aviation fuel in 1998, gasoline and diesel oil subsidy for marine transport in 1999, and diesel oil subsidy for mining and international transportation in 2001.

[2] Shortly after the Asian crisis in 1998, oil production decreased while consumption increased. In 2004, oil consumption surpassed production and the gap has widened since. One of the negative results of this oil deficit was Indonesia withdrew from OPEC (Organization of Petroleum Exporter Countries) membership in 2008.

studies were carried out only in certain selected areas in Indonesia. A thorough study on household perceptions of FFSR in Indonesia is critical, and the results of such a study will provide hard evidence on how households actually perceive FFSR.

The analysis of this study is based on a survey that was conducted in August 2014, a period during which the Indonesia government faced a tremendous fuel subsidy burden because international oil prices were still high. At the time, the prices of the subsidized gasoline and diesel were Rp6500/litre and Rp5500/litre, respectively, as stipulated by the government decision in June 2013.[3] Soon after President Joko Widodo was sworn in, the new administration took a drastic action by increasing the price of the subsidized gasoline and diesel to Rp8,500/litre and Rp7500/litre, respectively, on November 18, 2014. The substantial reduction in international oil prices gave the Indonesian government a window of opportunity to reform the subsidies that were increasingly weighing on the government's budget. On January 1, 2015 the administration introduced a more market-based energy pricing mechanism by which the government will announce administered fuel prices every two weeks in line with international prices. The prices of gasoline and diesel decreased on January 1, 2015 to Rp7,600/litre and Rp7,250/litre, respectively. Simultaneously, the Jokowi administration capped subsidies for Diesel at Rp1,000/litre, scrapped subsidies on gasoline except those for distribution costs to non-central areas of the country. This policy decision marked a turning point in the history of Indonesian fossil-fuel subsidies policy. On January 19, 2015, the prices of subsidized gasoline and diesel were decreased to Rp6,600/litre and Rp6,400/litre, respectively.

The tendency toward a constant reduction in international oil prices may not be prolonged in the long term. They may bounce back, fluctuate or tend to increase as in previous years. Consequently, the government may be forced to increase the price of fuel. In these circumstances it will be important that the government be informed about the perception of fossil-fuel pricing and subsidies in order to communicate effectively about its energy pricing policies. This paper aims at contributing to that debate. The results of this study are therefore highly relevant for policy-makers.

This study aims to analyze household perceptions toward FFSR in Indonesia, using survey data collected by the LSI (*Lembaga Survei Indonesia*) in all 34 provinces of Indonesia in August 2014. This is the first comprehensive dataset of household perceptions toward FFSR, which covers sufficient respondents in all 34 provinces in Indonesia. Based on this comprehensive dataset, this study aims to answer several questions:

a. Which groups in society have a higher acceptance for a fuel subsidy removal policy?
b. What factors are attributable to the public's familiarity with the price of subsidized fuel?
c. What factors are attributable to the public's familiarity with the government's budget allocation for fossil fuels?
d. What factors are attributable to changing the public's preferences for FFSR after they receive actual information about the fuel subsidy?
e. What factors determine the public's preference for reduction strategies (sudden and/or gradual removal)?
f. Which factors may be attributable to the public's preferences for compensation and/or reallocation policies if the fuel subsidy cuts will be undertaken?

[3] During the period January 2009 to May 2013 the price of subsidized gasoline and diesel was Rp4500, irrespective of the tendency of international oil prices. Despite various attempts and plans to reduce the subsidies to gasoline and diesel during the period, the administration did not have sufficient courage to increase the price of subsidized gasoline and diesel in order to reduce the fuel subsidy.

2.0 Methodology

2.1 Data

According to the description of the LSI's database on its survey of fuel subsidies, the number of respondents in the LSI's dataset was 2,900. Of the 2,900 respondents, 13.8 per cent could not be contacted and replacement of the respondent was made. Owing to the failure to contact one respondent and to find a substitute, the data actually are based on 2,899 respondents. As Indonesia's population is 237.6 million, the sample number is proportional to 0.0012 per cent of the population.[4] The sample size of 2,899 will have a ± 1.86 per cent margin of error at the 95 per cent confidence level, assuming a simple random sampling was conducted by LSI. This study focused only on Premium[5] (a subsidized gasoline, RON 88), so that most questions in the survey relate exclusively to this fuel type. Pertamina (Indonesia's state-owned oil and natural gas corporation) sells Premium through their gas stations nationwide.

2.2 Regression Method

How people perceive subsidized fuels may be investigated from several perspectives. Firstly, people's perception toward of whether they agree with fuel subsidy reform or not, prior to receiving information about the fuel subsidy, may be determined by the heterogeneity of personal attributes. In this case, the respondents' perceptions serve as the dependent variable, and their personal attributes serve as the independent variables that may consist of age, gender, education, rural/urban location, income, and island/location. Thus, a logistic regression (logit) model approach was used since we have a binary dependent variable (the dependent variable can have only two possible types: agree vs disagree). The logit model provides for a binary response by maximum likelihood; it models the probability of outcome for a given set of repressors. Logistic regression is used to predict the odds of respondents agreeing with FFSR based on the values of their personal attributes. The odds are defined as the probability of respondents agreeing with fuel subsidy reform divided by the probability that they disagree.

Like other forms of regression analysis, logistic regression makes use of one or more predictor variables that may be either continuous or categorical data. Unlike ordinary linear regression, however, logistic regression is used for predicting binary outcomes of the dependent variable (treating the dependent variable as the outcome of a Bernoulli trial) rather than a continuous outcome. A brief elaboration of the assumptions of logistic regression:

1. The true conditional probability is actually a logistic function of the independent variables.
2. No important variables are omitted.
3. No extraneous variables are included.
4. The independent variables are measured without error.
5. The observations are independent.
6. The independent variables are not linear combination of each other.

To assure a unique estimate of the regression coefficients (avoiding multicollinearity problem), this study dropped variables (respondents' personal attributes) that are a perfect linear combination of the others, leaving only the variables that are not exactly a linear combination of others in the model. The results should be interpreted carefully since correlation between independent variables was noticed. The correlation coefficients can be seen in Appendix B.

[4] We do not address this sample size to have a fully representative of the population as it is too huge to reach. However, its objective is to cover all 34 provinces in Indonesia by the stratified sampling method.

[5] In Indonesia there are three types of gasoline: Premium (subsidized, RON 88), Pertamax (non-subsidized, RON 92) and Pertamax Plus (non-subsidized, RON 95).

Secondly, people's perception toward whether they agree with fuel subsidy reform or no was determined by receiving certain information about the fuel subsidy. This study investigated the effects of information on the respondents' perceptions toward subsidized fuel. In the LSI survey, each respondent was initially asked about his/her perception toward whether they agree with fuel subsidy reform or not. Afterwards the interviewers, explained the fuel subsidy budget and the state budget, and then they asked the same question again to record any difference in the respondents' perceptions. Taking the difference in answers before and after providing the information, there were three possible outcomes: (1) changed answers from agree to disagree, (2) same answers, and (3) changed from disagree to agree. In this case, we have three possible discrete outcomes. A multinomial logistic regression model was used to analyze this outcome. Slightly different from the logit model, a multinomial logit model is a model that fits maximum likelihood models with discrete dependent variables when the dependent variable takes on more than two outcomes and the outcomes have no natural ordering.

LSI conducted a random selection multistage cluster sampling in eight stages. There are several potential pitfalls in ignoring complex sample design, such as LSI's multistage sampling, which was used in this survey. Neglecting complex survey design implies treating LSI's dataset as a simple random sample, which it actually is not. The effects of clustering and stratification will incorrectly estimate a biased standard error (Skinner & Vieira, 2007). In order to minimize bias in the standard error, LSI's dataset needs to be readjusted since LSI used multistage cluster random sampling instead of simple random sampling. After the dataset was readjusted by taking into account the multistage cluster random sampling, the dataset was characterized as follows:

a. Sampling weights (also known as probability weights) are proportional to the inverse of the probability of being sampled. Since LSI's survey did not have significant differences between survey findings and Indonesia's census data, the weight variable was considered as equal to one for all respondents (i.e., no different weight should be applicable to different respondent).
b. The collection of respondents will be sampled as a group or known as a cluster. Following the LSI's approach, villages were characterized as the primary sampling units (PSUs). Cluster sampling was conducted to incorporate the possibility of a larger variability if we sampled the respondents directly.
c. Since different groups of clusters are sampled separately or independently (even though with the same random sampling approach), respondents' strata are more homogeneous than the population as a whole. Accordingly, this study stratified LSI's dataset based on LSI's sampling stratification.

In this study, the characterization was conducted by specifying the variables that identify the survey dataset (province, rural-urban, and gender). The logit and multinomial logit regression were used by this rearranged dataset to reduce any potential bias. Applying characterization to the variables into a logistic/multinomial logistic model is also known as a survey logistic/multinomial logistic approach. Thus, a survey logistic approach was used throughout the logistic model and a survey multinomial logistic approach was used throughout the multinomial logistic model.

This study has an exploratory nature, of which a number of different models have been developed to explain the behaviour of a dependent variable of interest. This study did not postulate "theoretical" coefficients from the regression model. Analysis of LSI's survey was guided by substantive (social or economic) theory in choosing explanatory variables and in determining the form of the relationship. This study neglected complex ratio adjustments for each estimation since LSI's sampling proportion was already based on the "real world" or actual population proportion. This was supported by the finite population correction (FPC) numbers that were equal or almost equal to one. It should be noted that the odds ratios from the estimations were not displayed, the marginal effects ($\partial Y/[\![\partial X]\!]\_i$) from each explanatory variable are the ones which are displayed on the regression results throughout this paper. It estimates the margin of responses for each specified value of covariates from each exploratory variable.

3.0 Results and Discussions

3.1 Individual's Perception of the Subsidy Removal Policy

There are several questions on the LSI's survey that will help us to expose the relationship between the individual's personal attributes and their opinion of FFSR. In this survey, the respondents were asked whether they agreed or disagreed that the GoI should conduct FFSR. There were also questions to reveal each respondent's personal attributes. The questions to identify whether the respondents agreed with FFSR can be seen in Box 1. Several questions in the box are modified from the original questions in the questionnaire. We have modified it to present them in a simpler way. For question (d), level of education was converted into year of education in the regression analysis. For question (g), provinces were converted into five regions: Sumatera, Java-Bali, Kalimantan, Sulawesi (Celebes), Nusa Tenggara and Moluccas-Papua. Detailed description of the questions can be seen in the appendix. We explored the relationship between the individual's personal attributes and their opinion on FFSR to understand which groups in society have a higher acceptance of FFSR.

BOX 1. QUESTIONS ON RESPONDENTS' OPINIONS ABOUT FFSR AND THEIR PERSONAL ATTRIBUTES IN THE LSI SURVEY

a. In your opinion, do you think that it is better for the government to reduce the fuel subsidy?
b. What is your gender?
c. Do you live in an urban or rural area?
d. What level of education did you last study at?
e. Do you or members of your household own a vehicle (i.e. motorcycle, car, truck, boat)? How many?
f. On average, how much do you earn a month?
g. Which province do you live in?
h. How do you perceive your wealth status at the moment?

According to Figure 1, we found that only 21 per cent of the respondents (618 from 2,899) agreed with the FFSR proposal. Male respondents tended to be more receptive to the idea of FFSR with 27 per cent of them agreeing to it, 9 percentage points more than their female counterparts. Individuals who live in urban areas had a marginally bigger proportion of respondents (23 per cent) who agreed with FFSR than those who live in rural areas (20 per cent). A similar result occurred for respondents' education levels, as the higher their education level, the more they agreed with FFSR, compared with individuals with less education.

We did not find any difference in the perception of FFSR (whether agree or disagree) by income distribution in Figure 2, but there was a different for the average of the top 50 per cent of earners (26.5 per cent agree with FFSR) and the bottom 50 per cent of earners (18.5 per cent agree with FFSR). Regarding wealth status, 50 per cent of those who categorize themselves as very rich are open to the idea of the government reducing fuel subsidies, compared to 20 per cent who are in the very poor group. It indicates that the richer the respondent, the more they were to agree with the idea of FFSR.

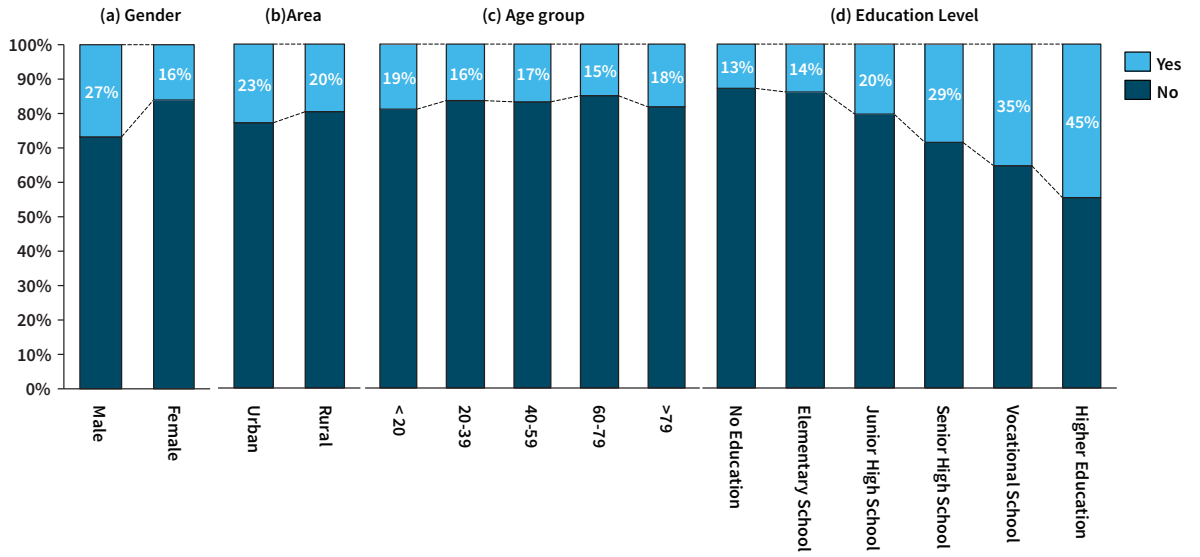

FIGURE 1. INDIVIDUAL'S OPINION OF FUEL SUBSIDY REFORM, BY GENDER, URBAN/RURAL AREA, AGE GROUP, AND EDUCATION

Source: Authors' calculations using data from LSI's survey.

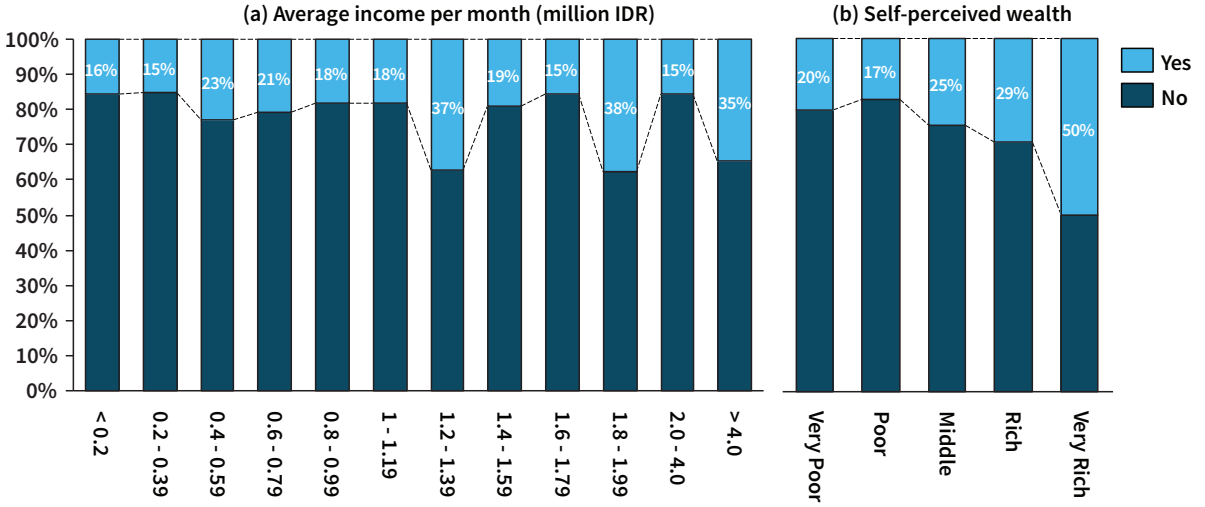

FIGURE 2. INDIVIDUAL'S OPINION OF FFSR, BY AVERAGE MONTHLY INCOME AND SELF-PERCEIVED WEALTH STATUS

Source: Authors' calculations using data from LSI's survey.

The individual's acceptance of FFSR also differs on a regional scale. Hereafter we categorize the islands of Java and Bali as one region, remembering those two islands do not differ too much in terms of population structure, economy, competitiveness, infrastructure and access to the Premium (subsidized fuel) retail price. The urban population in

Java and Bali amounts to around 69 per cent of the total urban population in Indonesia in 2010, while 60 per cent of the Indonesia GDP 2012 is contributed by Java and Bali (BPS, 2014). The seven provinces in Java and Bali are the highest ranked on the competitiveness index in Indonesia (BKPM Province DKI Jakarta, 2013). This competitiveness index measures macroeconomic stability, planning of government and institutions, financial condition, business and labor, and quality of life and infrastructure development. On the access to Premium, approximately 60 per cent of the Premium stations are located in Java and Bali (BPH Migas, 2013).

Our findings, as presented in Figure 3, show that regions other than Java/Bali have a higher proportion of those who agree with FFSR[6], except in Sulawesi (Celebes) which also has a low level of acceptance.

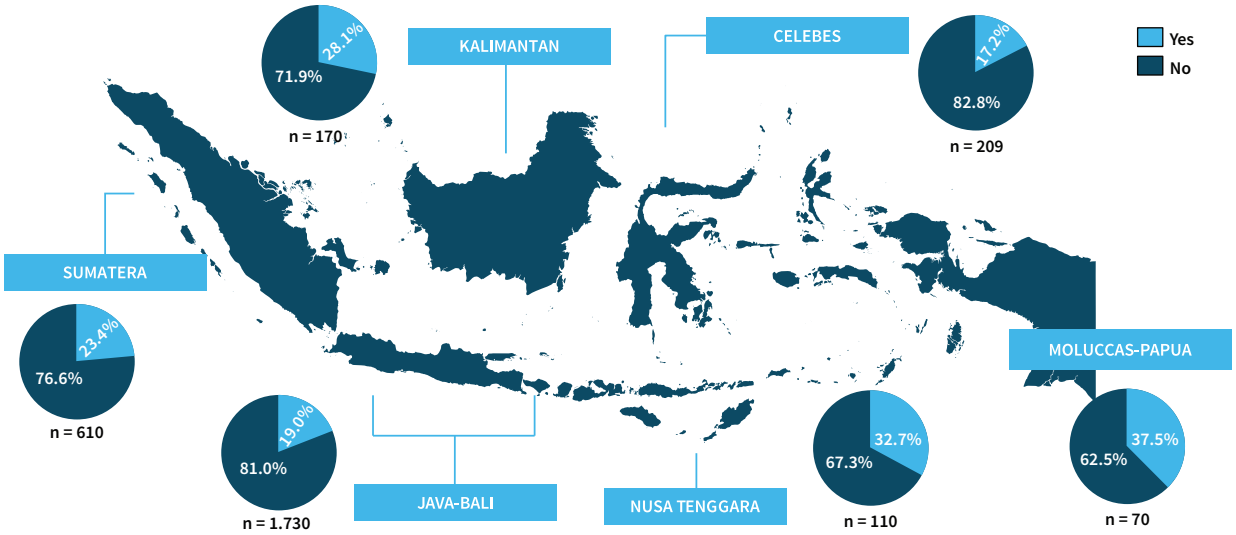

FIGURE 3. INDIVIDUAL'S OPINIONS OF FFSR, BY REGION

Source: Authors' calculations using data from the LSI's survey.

Further exploration was conducted using logistic regression on several models. We converted the individual's opinion into a binary dependent variable: 1 if they agreed that the government should reduce the fuel subsidy and 0 if otherwise. The regression on five different models allows us to obtain the marginal effects of each independent variable as in Table 1. Those five models are a simulation to find a robustness and consistency of the interaction of variables.

[6] There is an anecdote that individuals in regions other than Java, especially the eastern parts of Indonesia, have a higher acceptance of subsidy reform. The lack of availability of subsidized fuel forces them to pay an exorbitant price to buy it. Thus they are insensitive to the Premium price increase.

TABLE 1. MARGINAL EFFECT ESTIMATION RESULTS OF THE INDIVIDUAL'S OPINION ON FUEL SUBSIDY REFORM

INDEPENDENT VARIABLES	AGREE GOVERNMENT SHOULD REDUCE THE FUEL SUBSIDY				
	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5
Education year	0.029 a)	0.027 a)	0.019 a)	0.027 a)	0.017a)
Income	0.006 a)	0.008 a)	0.007 a)	0.008 a)	0.008 a)
Sex (*1 if male; 0 if otherwise*)	0.107 a)	0.108 a)	0.108 a)	0.107 a)	0.107 a)
Age	0.003 a)	0.003 a)	0.003 a)	0.003 a)	0.003 a)
Domicile Area (*1 if urban; 0 if otherwise*)	-0.048 a)	-0.041 a)	-0.040 a)	-0.041 a)	-0.040 a)
Own motorcycle (*1 if yes; 0 if otherwise*)	-0.062 a)	-0.038 a)	-0.103 a)	-0.039 a)	-0.120 a)
Own car (*1 if yes; 0 if otherwise*)	-0.058 a)	-0.035 a)	-0.168 a)	-0.037 a)	-0.164 a)
Own boat (*1 if yes; 0 if otherwise*)	-0.137 a)	-0.104 b)	0.046	-0.122 a)	0.021
Lives in Sumatera (1 if yes; 0 if otherwise)		0.011	0.012	0.041a)	0.044 a)
Lives in Kalimantan (1 if yes; 0 if otherwise)		-0.010 a)	-0.013 a)	0.083 a)	0.069 a)
Lives in Nusa Tenggara (*1 if yes; 0 if otherwise*)		0.230 a)	0.229 a)	0.239 c)	0.239 c)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)		-0.070 a)	-0.068 a)	-0.179 a)	-0.176 c)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)		0.313 a)	0.332 a)	0.183 a)	0.145 c)
Education year x Own motorcycle			0.008 a)		0.010 a)
Education year x Own car			0.019 a)		0.019 a)
Education year x Own boat			-0.015 a)		-0.015 a)
Education year x Lives in Sumatera				-0.003 b)	-0.003 b)
Education year x Lives in Kalimantan				-0.009 a)	-0.009 a)
Education year x Lives in Nusa Tenggara				-0.001	-0.001
Education year x Lives in Sulawesi				0.021 a)	0.020 a)
Education year x Lives in Maluku/Papua				0.010 a)	0.015 a)

Notes: Dependent variable is a dummy; 1 if the respondents agree that the government should reduce the fuel subsidy, 0 if otherwise. Significance levels: a) p-value < 0.01; b) p-value < 0.05; and c) p-value < 0.1.

Source: Authors' calculations using data from the LSI's survey. All reported coefficients are the marginal effect.

The results in Table 1 confirmed our previous findings. In all regression results, it was found that respondents who were older, with a higher education level and a higher income were more likely to agree with the FFSR plan. The results also confirmed that male respondents were more likely to agree with the FFSR than women, as do the individuals who live in urban area. Individuals who own a motorcycle or car were more likely to reject the idea of the FFSR than those who do not own any motor vehicles.

Other findings deduced from Table 1 above show that those who live outside the Sulawesi region are more likely to agree with FFSR, with a relative comparison of Java–Bali region for regression 4 and 5. In regression 3 and 4, the respondents in Kalimantan also reject the idea of FFSR. Extra care should be taken in interpreting the result in regression for Kalimantan since the sign of the coefficient changes when we incorporated the interaction between Kalimantan and education year (see regression 2 and 3 vs regression 4 and 5). Similar patterns have been found in other models throughout this paper.

The higher the individual's education, the more likely he/she would be to agree to the fuel subsidy reform—each additional year of schooling increased this probability by 1.7 per cent. However, the higher the education level attained by those who live in Sumatera, Kalimantan, and Nusa Tenggara lessened the likelihood of agreement with FFSR. In contrast, education increased the likeliness of the respondents who live in Sulawesi and Papua approving of FFSR. Education also had a positive effect on those who own motorcycles or cars compared to those who do not own. Higher education levels increase the likelihood that motorcycle and car owners agreed with the FFSR.

3.2 Individual Ignorance and the Government's Lack of Information Dissemination

The dataset from LSI shows that many respondents failed to state thecorrect official price for Premium gasoline set by the government,[7] or did not know that the GoI is subsidizing it. Furthermore, most of them did not know how much of the government's budget is allocated for fuel subsidies. This problem may arise owing to either an individual's ignorance or the government's failure in disseminating information related to fuel subsidies. In this section, we investigate which groups in society are familiar with the official retail price of Premium fuel, know that the government is subsidizing it, and know how much the government is budgeting for the fuel subsidy.

Our first analysis in this section is to identify which groups are familiar with the official retail price of Premium fuel. We use Premium's (RON 88) retail price since it is the most commonly consumed subsidized fuel. Box 2 displays the questions in the survey that were used in this analysis.

BOX 2. QUESTIONS RELATED TO RESPONDENTS' AWARENESS OF THE OFFICIAL PRICE OF PREMIUM AND THEIR PERSONAL ATTRIBUTES IN LSI'S SURVEY[8]

a. According to your knowledge, what is the official price of Premium fuel per litre?
b. What is your gender?
c. Do you live in an urban or rural area?
d. What level of education did you last study at?
e. Do you or any members of your household own a vehicle (i.e. motorcycle, car, truck, boat)? How many?
f. On average, how much do you earn a month?
g. Which province do you live in?
h. How do you perceive your wealth status at the moment?

Findings shown in Figure 4 reveal that 65 per cent of the respondents correctly answered with the official retail price of Premium. Almost 75 per cent of male respondents knew the official Premium retail price; about 20 per cent more than the same proportion within the female group. 73 per cent of the respondents in urban areas stated the right retail price of Premium, while only 55 per cent of those who live in the rural areas were correct. The older respondents had a lower proportion of those who mentioned the correct retail price of Premium relative to those in the younger age groups. Groups with a higher level of education had a bigger proportion of those who knew the right official Premium retail price compared to those with a lesser level. In the higher education group, 85 per cent gave the right

[7] In this section, we distinguish between the "official" Premium price and the "non-official" Premium price. The "official" price is the government-administered price that is used in gas stations. The "non-official" price is the price that may be charged by illegal vendors of Premium fuel, when they buy fuel from gas stations and then sell it on to others outside the gas station. Survey respondents were asked if they knew the "official" Premium price.

[8] Respondents were given seven options to answer: Rp4,500, Rp5,500, Rp6,500, Rp7,500, Rp8,500, others, and do not know/answer. The official Premium retail price during the survey was Rp6,500; other answers were categorized as being wrong.

answer, 45 percentage points more than the same proportion in the no education group. These results are very likely to be affected by unobservable factors, such as the fact that older groups do not drive as much as the younger groups and the higher education groups receive more information than those in lower education groups.

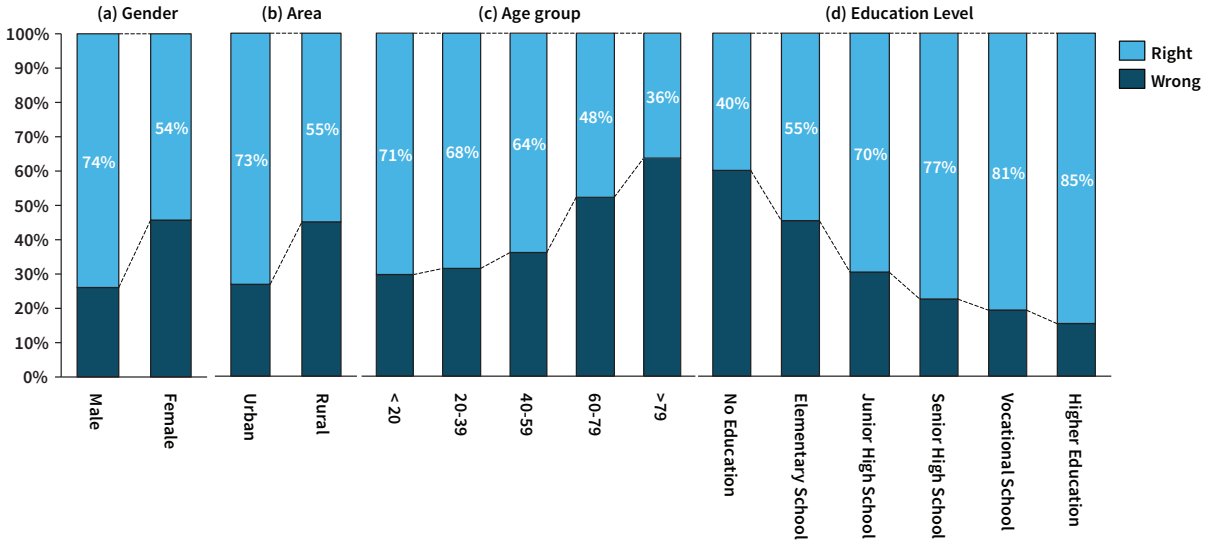

FIGURE 4. KNOWLEDGE OF THE OFFICIAL PREMIUM RETAIL PRICE, BY GENDER, AREA, AGE GROUP, AND EDUCATION LEVEL

Source: Authors' calculations using data from LSI's survey.

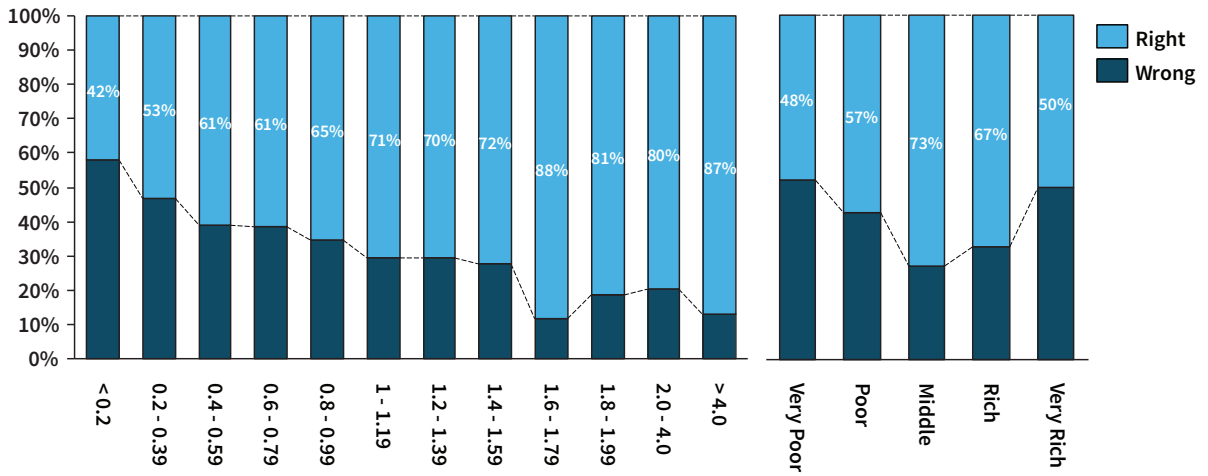

FIGURE 5. KNOWLEDGE OF THE OFFICIAL PREMIUM RETAIL PRICE, BY AVERAGE INCOME PER MONTH AND SELF-PERCEIVED WEALTH

Source: Authors' calculations using data from LSI's survey.

Our findings in Figure 5 suggest that the higher the income, the bigger the proportion of those who answered with the correct official retail price of Premium. The self-described wealth groups show a similar pattern except for the middle group. The rich and very rich groups have a lower proportion of respondents who know the official retail price compared with the relatively less wealthy groups. Several unobserved factors, once again, may play a role in this result, as there is a strong possibility that these groups require a higher octane of fuel for their vehicles. However, it leads them to be ignorant of the official retail price of Premium even though they should have better access to information.

In Figure 6, we can see that the eastern part of Indonesia has a lower proportion of those who know the official Premium retail price. Maluku & Papua have the lowest proportion, with only 33 per cent of respondents giving the right retail price. This might indicate the government's failure in disseminating information.

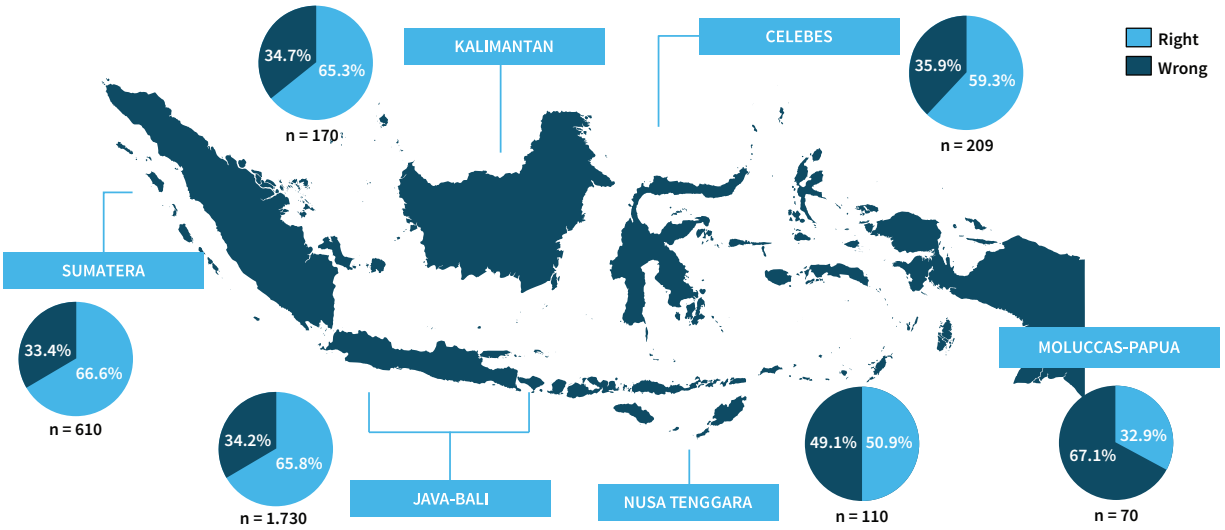

FIGURE 6. KNOWLEDGE OF THE OFFICIAL PREMIUM RETAIL PRICE, BY REGION

Source: Authors' calculations using data from LSI's survey.

Subsequently we used a logistic regression to estimate the probability of correctly answering the official retail price of the Premium (RON 88) question, and obtained the marginal effect as shown in Table 2. It shows that the personal attributes of the respondents' correlate with the probability of correctly answering the official retail price of Premium. Educated to a higher level, being male, of a younger age and living in an urban area increased the probability of answering the official retail price of Premium correctly. These respondents tend to be more exposed to information about fuel prices, and hence are more likely to answer correctly. The negative coefficient on age might have three reasons: (i) the decline in the cognitive functions affects their ability to recall the correct price; (ii) the older respondents are less inclined to obtain information related to Premium's characteristics; or (iii) they ask the younger ones to buy Premium for them.

TABLE 2. MARGINAL EFFECT ESTIMATION RESULTS OF THE RESPONDENT KNOWLEDGE OF THE OFFICIAL RETAIL PRICE OF PREMIUM (RON 88)

INDEPENDENT VARIABLES	CORRECTLY ANSWER THE OFFICIAL PRICE OF PREMIUM				
	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5
Education year	0.021 a)	0.023 a)	0.034 a)	0.023 a)	0.029 a)
Income	0.010 a)	0.008 a)	0.009 a)	0.009 a)	0.009 a)
Sex (*1 if male; 0 if otherwise*)	0.197 a)	0.197 a)	0.198 a)	0.198 a)	0.199 a)
Age	-0.003 a)	-0.003 a)	-0.002 a)	-0.003 a)	-0.003 a)
Domicile Area (*1 if urban; 0 if otherwise*)	0.142 a)	0.135 a)	0.134 a)	0.135 a)	0.136 a)
Own motorcycle (*1 if yes; 0 if otherwise*)	0.271 a)	0.273 a)	0.346 a)	0.287 a)	0.320 a)
Own car (*1 if yes; 0 if otherwise*)	0.229 a)	0.230 a)	0.342 a)	0.239 a)	0.334 a)
Own boat (*1 if yes; 0 if otherwise*)	0.158 a)	0.152 a)	0.099 a)	0.143 a)	0.132 a)
Education year*own motorcycle			-0.010 a)		-0.005 c)
Education year*own car			-0.026 a)		-0.022 a)
Education year *own boat			0.006 b)		0.0003
Education year*Lives in Sumatera				-0.006 a)	-0.006 a)
Education year*Lives in Kalimantan				0.012 a)	0.011 a)
Education year*Lives in Nusa Tenggara				-0.073 a)	-0.073 a)
Education year*Lives in Sulawesi				0.025 a)	0.026 a)
Education year*Lives in Maluku/Papua				0.056 a)	0.051 a)
Lives in Sumatera (*1 if yes; 0 if otherwise*)		-0.071 a)	-0.070 a)	-0.015	-0.011
Lives in Kalimantan (*1 if yes; 0 if otherwise*)		0.051 a)	0.055 a)	-0.029 a)	-0.015 c)
Lives in Nusa Tenggara (1 *if yes; 0 if otherwise*)		-0.076	-0.074	0.296 a)	0.298 b)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)		0.034 a)	0.031 a)	-0.203 a)	-0.208 a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)		-0.013 b)	-0.031 a)	-0.499 a)	-0.481 a)

Note: dependent variable is a dummy; 1 if the respondents know the official retail price of Premium (RON 88), 0 if otherwise. Significance levels: a) $p \leq 0.01$; b) $p \leq 0.05$; c) $p \leq 0.1$.

Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

Other findings from the logistic regression in Table 2 are that the knowledge of the official price of Premium is affected by whether the respondents own a vehicle and where they live. Those who have a vehicle (motorcycle, car or boat) answer correctly with the official price of Premium. In addition, results in Table 2 show that only respondents living in Nusa Tenggara gave the right answer according to the regression 5. This regression is assumed to be consistent because regressions 2 to 4 were addressed to test the control variables. Once again, education level plays a key role in the regression, as the well-educated owners of motorcycles or cars were less able to answer the question correctly. Also, the respondents with higher education levels who live in Kalimantan, Sulawesi, Maluku and Papua were more likely to answer the question correctly, whereas the contradictive result applies to the well-educated respondents in Nusa Tenggara and Sumatera. It indicates that information and knowledge received by the respondent, regarding to the fuel subsidies policy, are different in each region.

The second analysis in this section examined which groups in society know that the GoI is subsidizing Premium gasoline fuel. During the interviews, respondents were given information about the official retail price of the Premium at the time—IDR 6,500 per liter—and also informed that the GoI had to acquire the fuel from domestic and international sources. The respondents then were asked whether the price of fuel paid by the GoI was lower, the same, or higher than the official retail price of the Premium. It was assumed that who answered that the price the GoI paid to acquire the fuel was lower or the same as the official price of the Premium did not know that the government subsidizes Premium.

Table 3 below shows that of the 2,899 respondents, less than 45 per cent knew that the government was subsidizing fuel. More than half of the samples did not know, or gave the wrong answer.

TABLE 3. PROPORTION OF RESPONDENTS WHO KNEW THAT PREMIUM IS A SUBSIDIZED FUEL

OPINION	FREQ.	PROPORTION
1. Lower than retail price	978	33.74%
2. Same with retail price	556	19.18%
3. Higher than retail price	1,296	44.71%
4. Don't know or don't answer	69	2.38%
Total	2,899	100%

Source: Authors' calculation using LSI's data.

In Figure 7, we can see that a larger proportion of male respondents knew that Premium is a subsidized fuel compared to the female group; nevertheless, both are below 50 per cent. The urban area group has a smaller proportion of respondents who are aware of it than those in rural areas, despite putatively having more access to information. There is relatively little difference between age groups, all having well-informed respondents below 50 per cent of the group. On the other hand, there is a pattern within education levels. Those with higher levels of education made up a larger proportion of those who are well-informed.

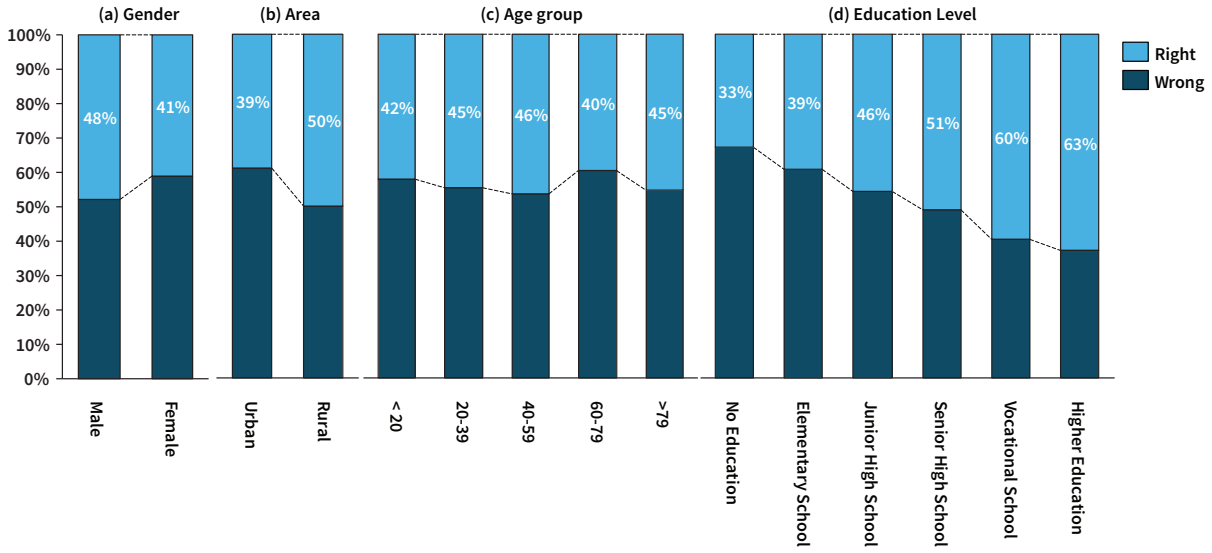

FIGURE 7. AWARENESS THAT PREMIUM IS A SUBSIDIZED FUEL, BY GENDER, DOMICILE AREA, AGE GROUP, AND EDUCATION LEVEL

Source: Authors' calculation using LSI's data.

The same pattern can be seen in the average monthly income distribution in Figure 8. Higher monthly average income groups had a larger proportion of respondents aware that Premium is subsidized by the government (Figure 8a). Meanwhile in Figure 8b, we can see that the very rich group has less proportion of well-informed respondents about the government's role in subsidizing fuel. Similar to the official retail price issue, this indicates that the very rich group is ignorant of the fossil-fuel subsidy issues.

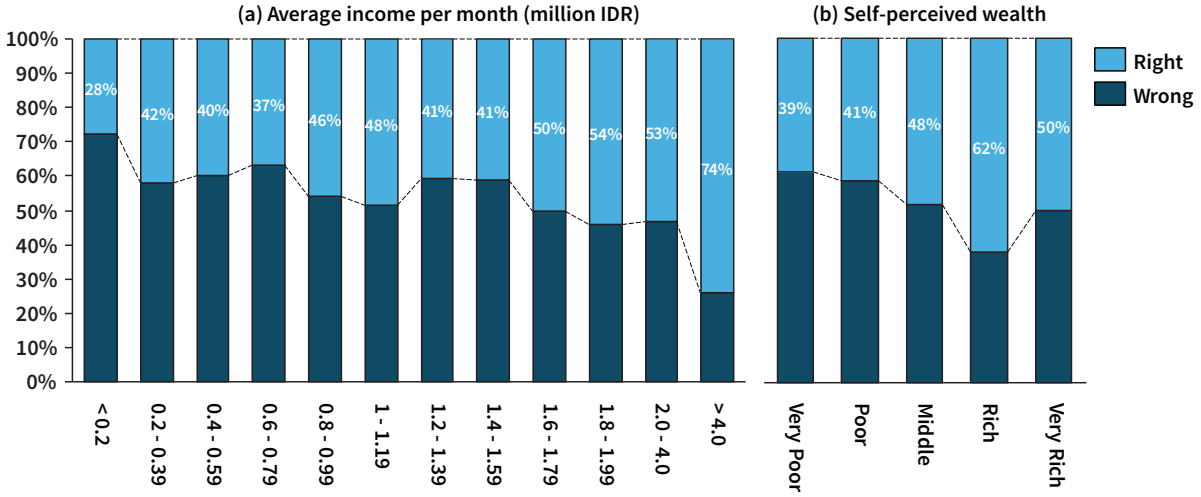

FIGURE 8. AWARENESS THAT PREMIUM IS A SUBSIDIZED FUEL, BY AVERAGE INCOME PER MONTH AND SELF-PERCEIVED WEALTH

Source: Authors' calculation using LSI's data.

The conjecture that wealthier groups are ignorant of fossil-fuel subsidy issues is supported in Figure 9. Similar to the age and gender groups, the percentage point differences between the well-informed groups in each region are relatively small. This indicates that the very rich group in Figure 8b might choose to be ignorant of the issue.

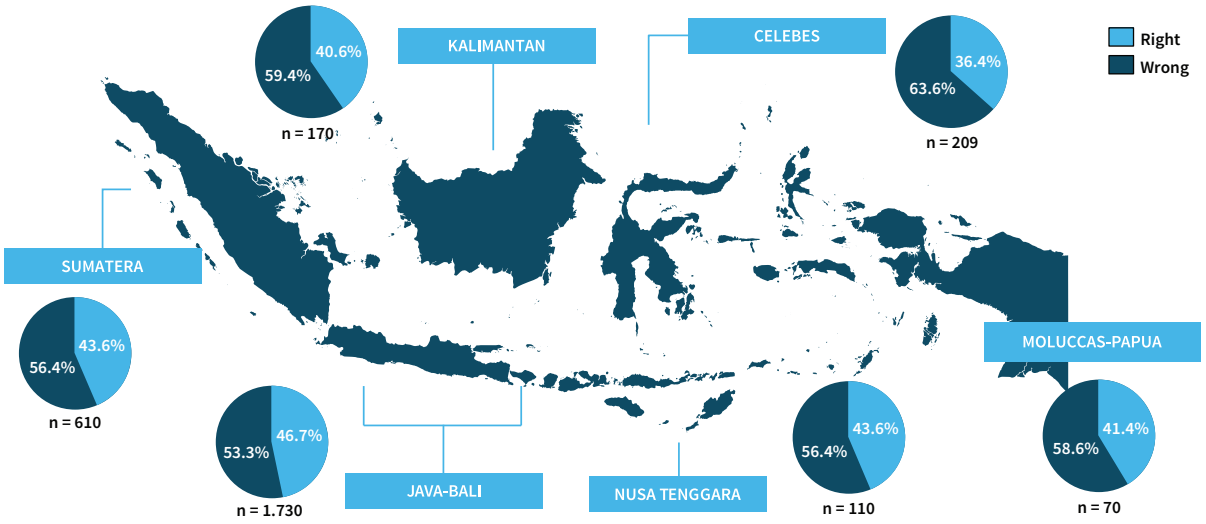

FIGURE 9. AWARENESS THAT PREMIUM IS A SUBSIDIZED FUEL, BY REGION

Source: Authors' calculation using LSI's data.

We further explored our analysis by regressing the awareness that Premium is a subsidized fuel to respondents' personal attributes using the logistic regression in Table 4. We set the dependent variable as a dummy variable which equals 1 if the respondents knew that the price of fuel purchased by the government was higher than the government's official price (above Rp6,500 per litre) and 0 if otherwise.

TABLE 4. MARGINAL EFFECT ESTIMATION RESULTS OF THE INDIVIDUAL'S KNOWLEDGE THAT PREMIUM IS A SUBSIDIZED FUEL

INDEPENDENT VARIABLES	KNOW THAT PREMIUM IS A SUBSIDIZED FUEL				
	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5
Education year	0.0188a)	0.0196a)	0.0243a)	0.0216a)	0.0216a)
Income	0.0056a)	0.0063a)	0.0061a)	0.0065a)	0.0063a)
Wealth status	0.0440	0.0169	0.0031	0.0014	0.0023
Sex (*1 if male; 0 if otherwise*)	0.0457a)	0.0461 a)	0.0454 a)	0.0456 a)	0.0449 a)
Age	0.0024 a)	0.0024 a)	0.0024 a)	0.0024 a)	0.0024 a)
Domicile area (*1 if urban; 0 if otherwise*)	0.0183c)	0.0066	0.0063	0.0062	0.0058
Own motorcycle (*1 if yes; 0 if otherwise*)	0.0546a)	0.0579a)	0.1232a)	0.0565a)	0.1190 a)
Own car (*1 if yes; 0 if otherwise*)	0.1223 a)	0.1264 a)	-0.0890 a)	0.1212 a)	-0.0775 a)
Own boat (*1 if yes; 0 if otherwise*)	-0.0449	-0.0025	-0.4165 a)	-0.0315	-0.4171 a)
Education year*Own motorcycle			-0.0091 a)		-0.0086 a)
Education year*Own car			0.0160 a)		0.0698 a)
Education year*Own boat			0.0708 a)		0.0021 a)
Education year*Lives in Sumatera				-0.0029	-0.0021
Education year*Lives in Kalimantan				-0.0173 a)	-0.0156 a)
Education year*Lives in Nusa Tenggara				-0.0326b)	-0.0308b)
Education year*Lives in Sulawesi				0.0103 a)	0.032
Education year*Lives in Maluku/Papua				-0.0106 a)	-0.0105 a)
Lives in Sumatera (*1 if yes; 0 if otherwise*)		-0.0344b)	-0.0343b)	-0.0081	-0.0158
Lives in Kalimantan (*1 if yes; 0 if otherwise*)		-0.1105a)	-0.1066a)	0.0228a)	0.0131
Lives in Nusa Tenggara (1 *if yes; 0 if otherwise*)		-0.1576c)	-0.1570b)	0.1532	0.1356
Lives in Sulawesi (*1 if yes; 0 if otherwise*)		-0.1303a)	-0.1451a)	-0.2185a)	-0.1751a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)		0.0117	0.0075	0.1049 a)	0.1001 a)

Note: dependent variable is a dummy; 1 if the respondents knew that price purchased by the Government was higher than Government's official price (above Rp6500 per litre); 0 if otherwise. Significance levels: a) $p \leq 0.01$; b) $p \leq 0.05$; c) $p \leq 0.1$.

Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

The results in Table 4 reveal that education, income, and age are positively correlated with the probability of respondent awareness that Premium is a subsidized fuel. Male respondents are more likely to know this than female respondents. Ownership of a motorcycle also increased the probability of being well-informed about this issue relatively more than those who do not own any motor vehicle, although the opposite happens if respondents own a car or boat. Those who live in the Sulawesi region were less likely to know the information relative to those who live in Java–Bali. Surprisingly, those who live in Maluku or Papua were more likely to know that Premium is a subsidized fuel relative to respondents in Java–Bali. Attaining higher education for respondents in Kalimantan, Sulawesi, and Maluku & Papua lessened the likelihood of knowing the information. A similar thing happens to respondents who own a motorcycle(s). However, it increases the likelihood of knowing the information for respondents who own a car(s) and boat(s).

The last analysis in this section is to measure the government's success in disseminating information of their budget allocation for the fuel subsidy. The questions used for this analysis are provided in Box 3. In the original point (a) question, respondents were asked to allocate 50 coins into 10 categories of the government's budget allocation. Those categories are government administration, national defense, healthcare, education, social security, infrastructure, agriculture, fuel subsidy, public transportation, and other. Empirically, the correct answer is 18 per cent. It implies that respondents should allocate 9 coins to the category for the government's allocation for the fuel subsidy. We then set a standard deviation of 10 per cent so that those who answer 7–11 coins are categorized as knowing the government's allocation for the subsidy. Otherwise, we categorize them as giving the wrong answer.

BOX 3. QUESTIONS ON RESPONDENTS' AWARENESS OF BUDGET ALLOCATION FOR SUBSIDY AND PERSONAL ATTRIBUTE QUESTIONS IN LSI'S SURVEY

a. According to you, what is the allocation of the budget distributed for the fuel subsidy?
b. What is your gender?
c. Do you live in an urban or rural area?
d. What level of education did you last study at?
e. Do you or any members of your household own a vehicle (i.e. motorcycle, car, truck, boat)? How many?
f. On average, how much do you earn a month?
g. Which province do you live in?
h. How do you perceive your wealth status at the moment?

From Figures 10, 11, and 12, we can see that most of the respondents do not know the government's allocation for fossil-fuel subsidies: in total, only 26.6 per cent of respondents could identify the correct share of expenditure.. In almost every category, less than 30 per cent of the respondents answered with the correct allocation. This is an indication that the GoI has failed to disseminate the information related to it.

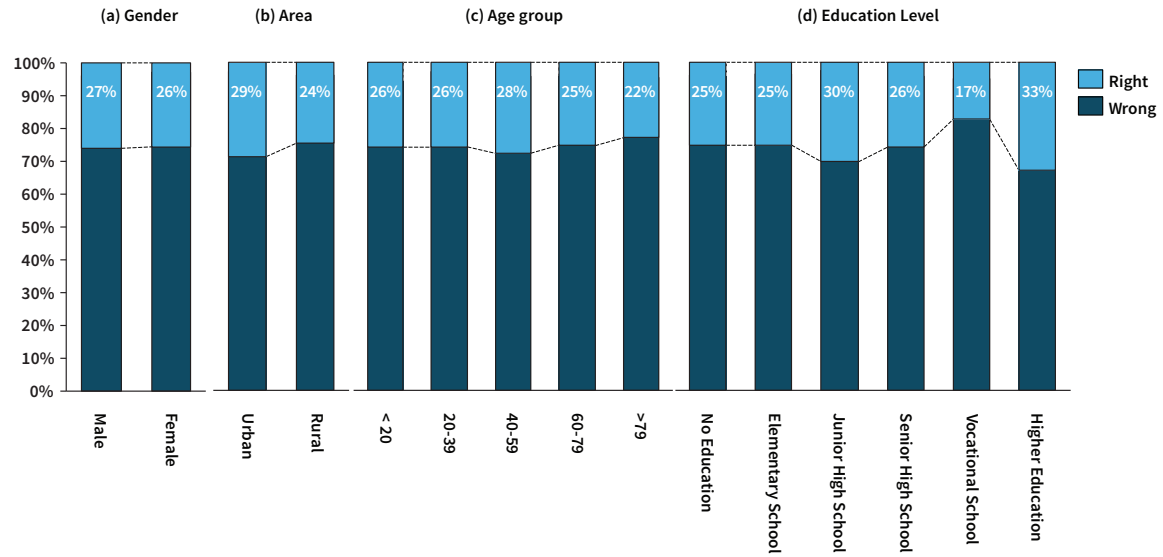

FIGURE 10. AWARENESS OF THE GOVERNMENT'S BUDGET ALLOCATION FOR FUEL SUBSIDY, BY GENDER, DOMICILE AREA, AGE GROUP, AND EDUCATION LEVEL
Source: Authors' calculation using LSI's data.

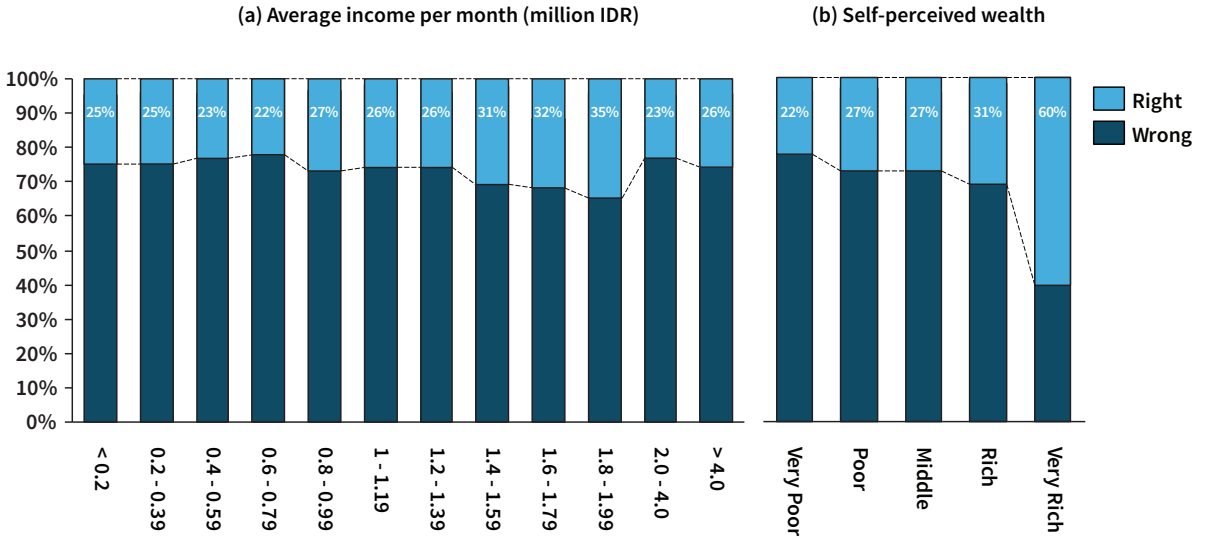

FIGURE 11. AWARENESS OF THE GOVERNMENT'S BUDGET ALLOCATION FOR FUEL SUBSIDY, BY AVERAGE INCOME PER MONTH AND SELF-PERCEIVED WEALTH

Source: Authors' calculation using LSI's data.

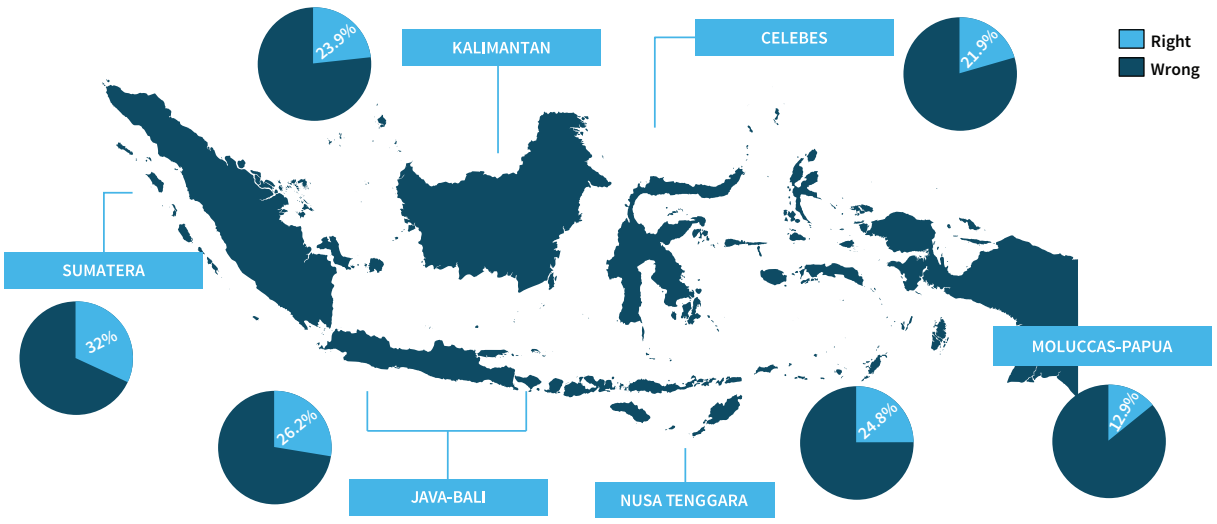

FIGURE 12. AWARENESS OF THE GOVERNMENT'S BUDGET ALLOCATION FOR FUEL SUBSIDY, BY REGION

Source: Authors' calculation using LSI's data.

3.3 Information and Opinion Changing

Immediately after being questioned about their preference on FFSR, respondents were asked several questions which contained important facts and information about the FFSR, e.g., whether they know that Premium is a subsidized fuel, how much the government allocates for the fuel subsidy, and which groups of society enjoy the most benefits from the fuel subsidy. After each question, respondents were given the correct answer to it. This built up to the point where the respondents were again asked about their preference for FFSR.

Figure 13 presents the respondents' opinion about FFSR before and after being provided with the information, by gender, domicile area, and age group. Respondents who agreed with the FFSR policy, in the male and female group, increased by 14 and 13 percentage points to 41 per cent and 29 per cent respectively, while the urban and rural groups increased to 36 per cent and 34 per cent. As seen in Figure 13(c), information about the FFSR had less effect on the oldest age group (over 79 years old) as they may be less likely to drive at that age. Those who agree in that group only increased by 9 percentage points; compare to the average 19 percentage points in the younger groups.

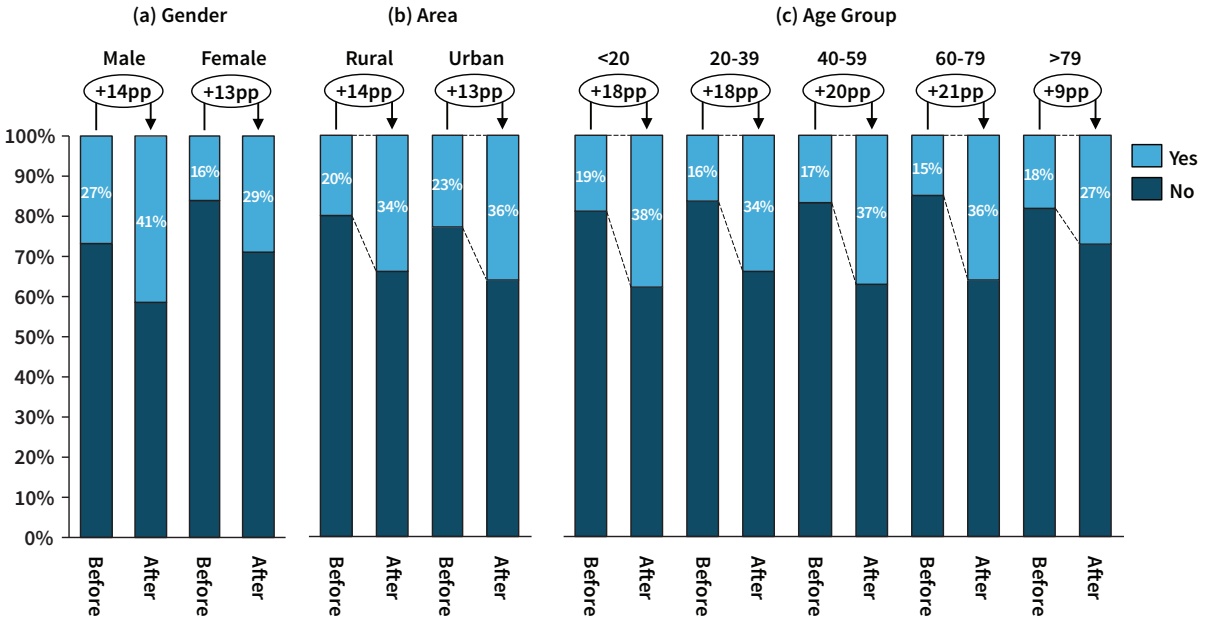

FIGURE 13. OPINION ON FUEL SUBSIDY REFORM BEFORE AND AFTER INFORMATION, BY GENDER, URBAN/ RURAL AREA, AND AGE GROUP

Source: Authors' calculation using LSI's data.

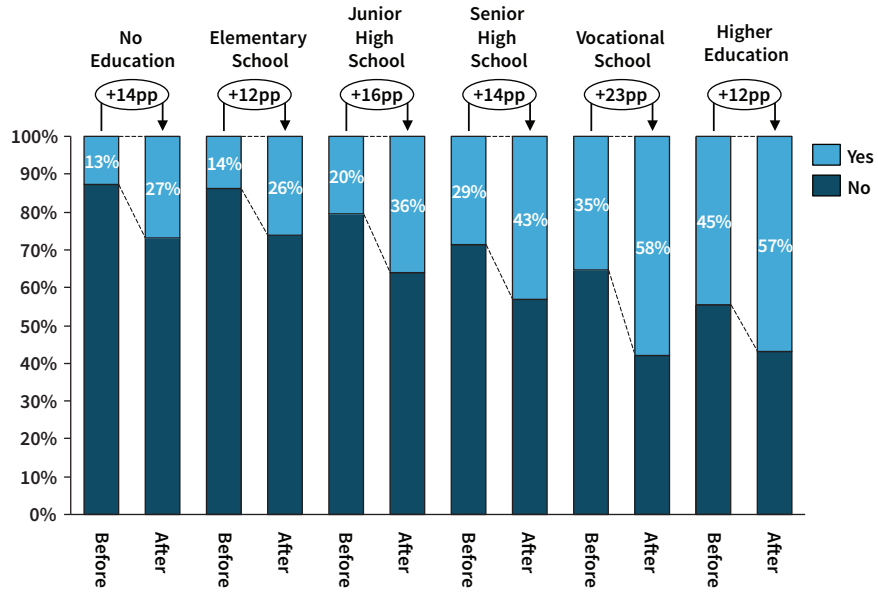

FIGURE 14. OPINION ON FUEL SUBSIDY REFORM BEFORE AND AFTER INFORMATION, BY EDUCATION LEVEL

Source: Authors' calculation using LSI's data.

According to Figure 14, information had the biggest effect in changing the opinion of those who graduated from vocational schools, with 23 percentage points of increase to 58 per cent in education level category. The percentage of respondent to change their opinion from rejecting FFSR to agreeing with it gets higher for those who hold higher education level. It also had the biggest effect on those with a higher average monthly income as shown in Figure 15. Interestingly, the information decreased the proportion of those who agreed with FFSR in the very rich group by 17 percentage points to 33 per cent (see Figure 16). The same proportion in the rich group only increased by seven percentage points, half of the average increases in the less wealthy group.

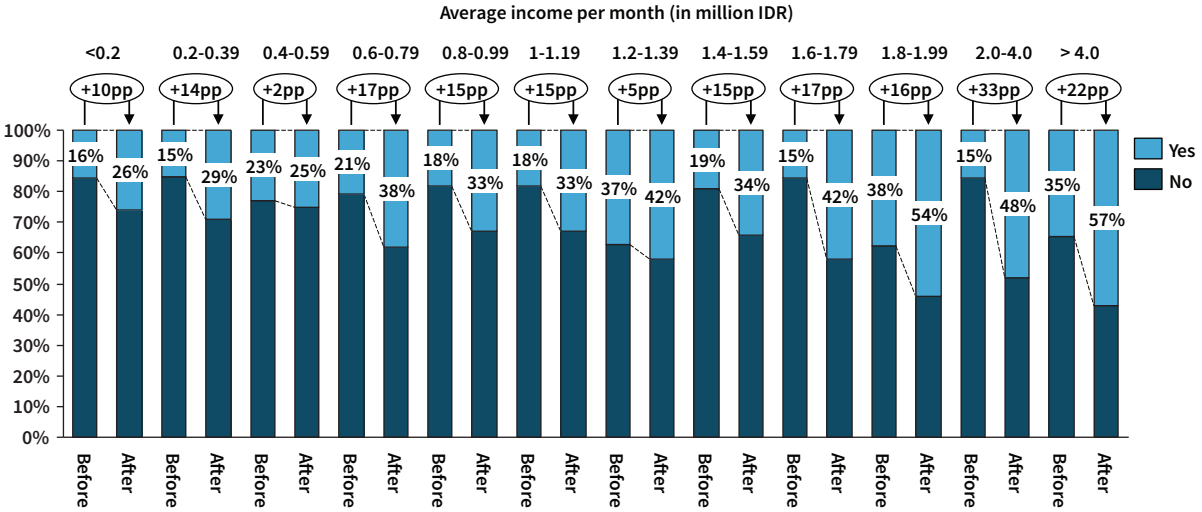

FIGURE 15. OPINION OF FUEL SUBSIDY REFORM BEFORE AND AFTER INFORMATION, BY AVERAGE MONTHLY INCOME

Source: Authors' calculation using LSI's data.

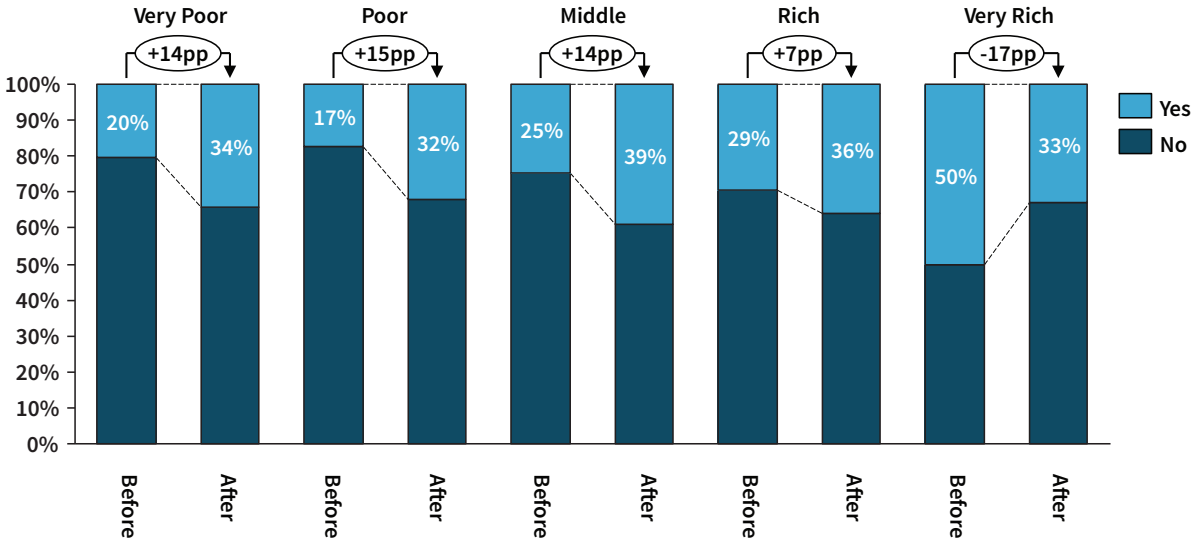

FIGURE 16. OPINION OF FUEL SUBSIDY REFORM BEFORE AND AFTER INFORMATION, BY AVERAGE MONTHLY INCOME

Source: Authors' calculation using LSI's data.

In Figure 17, we can see that the Nusa Tenggara group displayed the largest proportional increase of those who agreed with FFSR, up 21 percentage points from 33 per cent. The proportion of those who agreed with FFSR in Sulawesi (Celebes) increased by only 9 percentage points to 26 per cent.

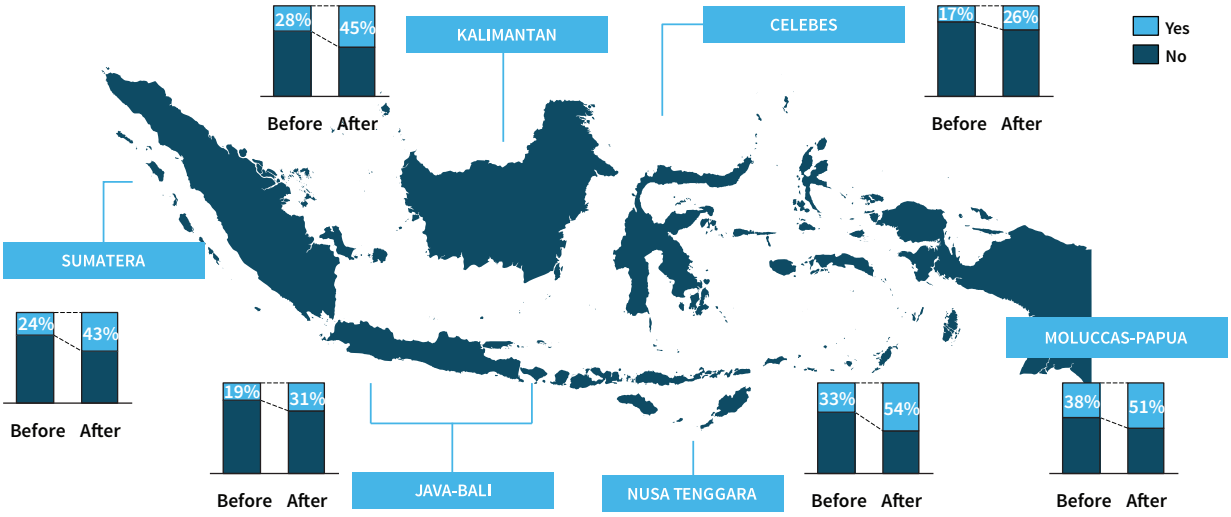

FIGURE 17. OPINION OF FUEL SUBSIDY REFORM BEFORE AND AFTER INFORMATION, BY REGION

Source: Authors' calculation using LSI's data.

By using multinomial logistic regression on five models, we obtain Y1 by setting the value to be between -1 and 1. If Y1 = -1, it means that the respondents changed their opinion from agreeing to disagreeing with the government's plan for FFSR; Y1 = 0 for status quo; Y1 = 1 for changing their opinion from disagreement to agreement with FFSR. Since the sample for Y1 = -1 is too small (30 respondents), it might induce statistical problems—we only see those who changed their opinion from disagree to agree.

TABLE 5. MARGINAL EFFECT ESTIMATION RESULTS OF THE RESPONDENTS CHANGING THEIR OPINION FROM DISAGREE WITH TO AGREE WITH FFSR

INDEPENDENT VARIABLES	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5
Education year	-0.00235a)	-0.00205a)	0.01100a)	0.00053	0.013426a)
Income	0.00227a)	0.00174a)	0.00224a)	0.00168a)	0.002252a)
Wealth status	0.01085a)	0.01136 a)	0.01026a)	0.01012a)	0.008334a)
Sex (*1 if male; 0 if otherwise*)	0.03750a)	0.03739 a)	0.03656a)	0.03666a)	0.03587a)
Age	0.00011	0.00014	0.00025	0.00028c)	0.000414a)
Domicile area (*1 if urban; 0 if otherwise*)	0.01102a)	0.01652a)	0.01399a)	0.01553a)	0.01291a)
Own motorcycle (*1 if yes; 0 if otherwise*)	-0.05225a)	-0.0658a)	0.04096 a)	-0.0648a)	0.040408
Own car (*1 if yes; 0 if otherwise*)	0.00512	-0.00487	0.13823a)	-0.00629	0.154062a)
Own boat (*1 if yes; 0 if otherwise*)	0.26978a)	0.22655	0.0927a)	0.23263a)	0.042251
Education year*Own motorcycle			-0.01528a)		-0.01499a)
Education year*Own car			-0.01557a)		-0.01643a)
Education year*Own boat			0.00453a)		0.00964a)
Education year*Lives in Sumatera				-0.00171	-0.00107
Education year*Lives in Kalimantan				-0.00862a)	-0.00800a)
Education year*Lives in Nusa Tenggara				-0.03363a)	-0.03324a)
Education year*Lives in Sulawesi				-0.01141a)	-0.01412a)
Education year*Lives in Maluku/Papua				-0.01711a)	-0.02198a)
Lives in Sumatera (*1 if yes; 0 if otherwise*)		0.06270a)	0.06089 a)	0.07962a)	0.07078a)
Lives in Kalimantan (*1 if yes; 0 if otherwise*)		0.10567a)	0.10926a)	0.21551a)	0.21295a)
Lives in Nusa Tenggara (1 *if yes; 0 if otherwise*)		0.06261	0.06103	0.58779a)	0.58093a)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)		-0.04476a)	-0.05238a)	0.06413b)	0.07925a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)		-0.09876 a)	-0.10626a)	-0.01564a)	0.00585

Note: dependent variable is a dummy; 1 if the respondents change their opinion from disagree with FFSR to agree with FFSR; 0 if status quo; -1 if the respondents change their opinion from agree to disagree with FFSR. Significance levels: a) $p \leq 0.01$; b) $p \leq 0.05$; c) $p \leq 0.1$.

Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

The results in Table 5 show that personal attributes play a role in changing opinions of FFSR. Since we dropped the observation of the respondents who changed their opinion from agreeing with FFSR to disagreeing with it on this multinomial logistic regression, we found that the better-educated, male, older, richer, wealthier and urban respondents tended to change their opinion from disagreement to agreement with the FFSR policy. The car-owning respondents also had the same perspective on FFSR.[9]

[9] We only take the results from regression 5, assuming that other regressions are addressed to testing all control variables.

Other results are that the better-educated respondents who own cars and motorcycles tended to stand by their opinion of FFSR, while the owners of boats changed their opinion from disagreement to agreement. The respondents' area of domicile also affected the possibility of them changing their opinion from disagreement to agreement with FFSR. According to regression 5 in Table 5, respondents in Sulawesi, Sumatera, Nusa Tenggara and Kalimantan tended to change their opinion from disagreement to agreement, after having received the information regarding the fuel subsidy.

3.4 Fossil-fuel Subsidy Reform Scheme

The LSI's survey put several questions to the respondents about whether the fuel subsidy should be eliminated gradually or all at once. It was first explained to the respondents that the gasoline price without a subsidy is Rp10,500, and they were told to imagine a scenario in which the next government[10] would increase the price. The respondents had to choose between two options for the FFSR scheme, either an all-at-once or a gradual fuel price increase. They were also informed of the pros and cons of each option. An all-at-once increase would provide the government with the immediate fiscal space to increase the budget allocation for public services such as health care, education, and road maintenance. Yet poor people would experience a big shock to their purchasing power due to the increases in other prices. Gradual subsidy elimination would lessen the impact of the FFSR on the poor. However, the benefits from it in public service improvements would not be experienced immediately.

In addition to the personal attributes questions, we also investigated questions about their opinion of the FFSR reallocation program, their degree of trust in the GoI to reallocate the fuel subsidy appropriately, and whether they are the beneficiary of the BLSM and/or BPJS[11] programs (see Box 4).

BOX 4. QUESTIONS ON RESPONDENTS' FFSR SCHEME PREFERENCE, PERSONAL ATTRIBUTES, AND OTHERS IN THE LSI'S SURVEY

a. In your opinion, do you think the fuel price should be raised all at once or gradually?
b. What is your gender?
c. Do you live in an urban or rural area?
d. What level of education did you last study at?
e. Do you or any members of your household own a vehicle (i.e. motorcycle, car, truck, boat)? How many?
f. On average, how much do you earn a month?
g. Which province do you live in?
h. How do you perceive your wealth status at the moment?
i. Do you think that the new government should also provide certain reallocation programs to compensate for the impact of the FFS price increase?
j. How confident are you that the money saved by the government from the FFSR will be reallocated appropriately?
k. Did your household receive BLSM back in June 2013?
l. Does your household qualify for the Jamkesmas/Jamkesda/BPJS programs?

[10] The current president Joko Widodo, who was president-elect at that time, had announced his intention to implement fossil-fuel subsidy reforms.

[11] *Bantuan Langsung Sementara Masyarakat* (BLSM) is an earmarked program for the poor people in Susilo Bambang Yudhoyono's government. The direct cash program was designed to mitigate the impact of subsidized fuel price increase back in June 2013. Jaminan Kesehatan Masyarakat (Jamkesmas), *Jaminan Kesehatan Daerah* (Jamkesda), and B*adan Penyelanggara Jaminan Sosial* (BPJS) *Kesehatan* are the government's health care programs. Now Jamkesnas and Jamkesda are integrated under the BPJS Kesehatan program.

In Figures 18, 19 and 20, we can see that most respondents preferred a gradual increase in the subsidized fuel price. However, half of the respondents in rural areas preferred an all-at-once price increase. The Nusa Tenggara region had 30 per cent of its respondents preferring an all-at-once increase, while Maluku & Papua region only had 7 per cent.

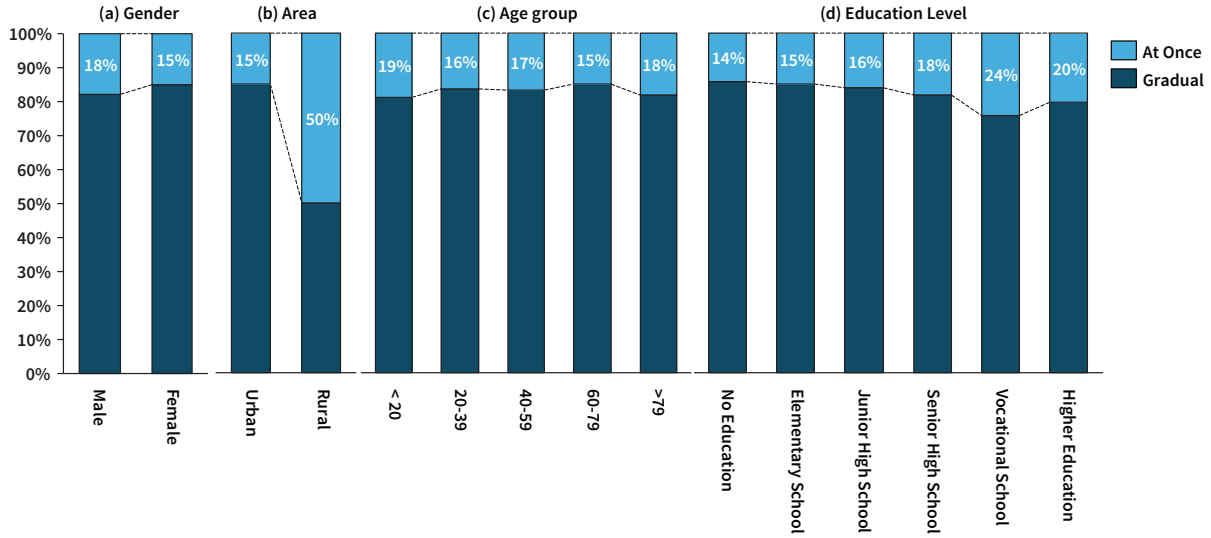

FIGURE 18. FFSR SCHEME PREFERENCE, BY GENDER, DOMICILE AREA, AGE GROUP, AND EDUCATION LEVEL

Source: Authors' calculation using LSI's data.

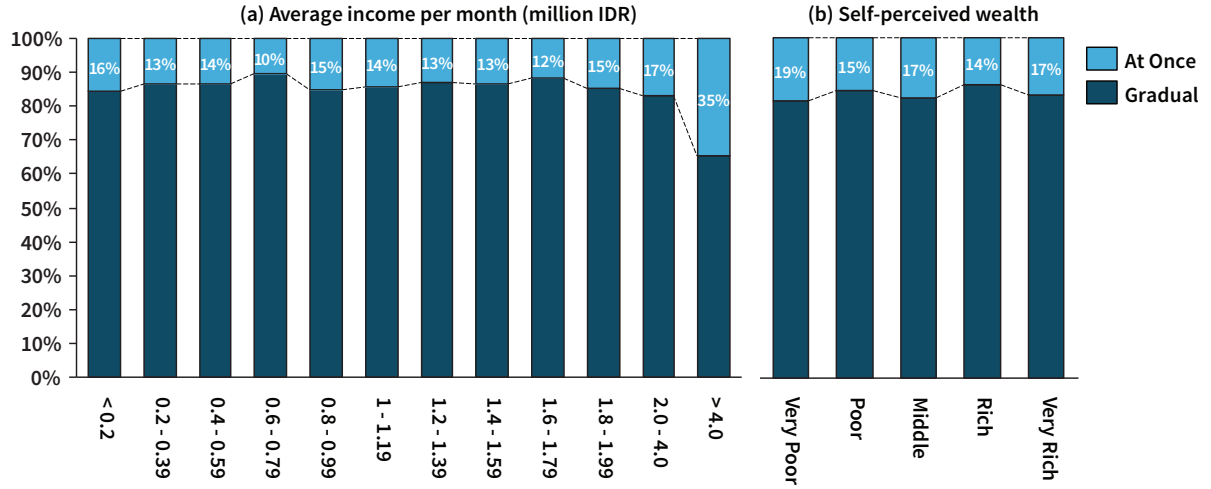

FIGURE 19. FFSR SCHEME PREFERENCE, BY AVERAGE MONTHLY INCOME AND SELF-PERCEIVED WEALTH

Source: Authors' calculation using LSI's data.

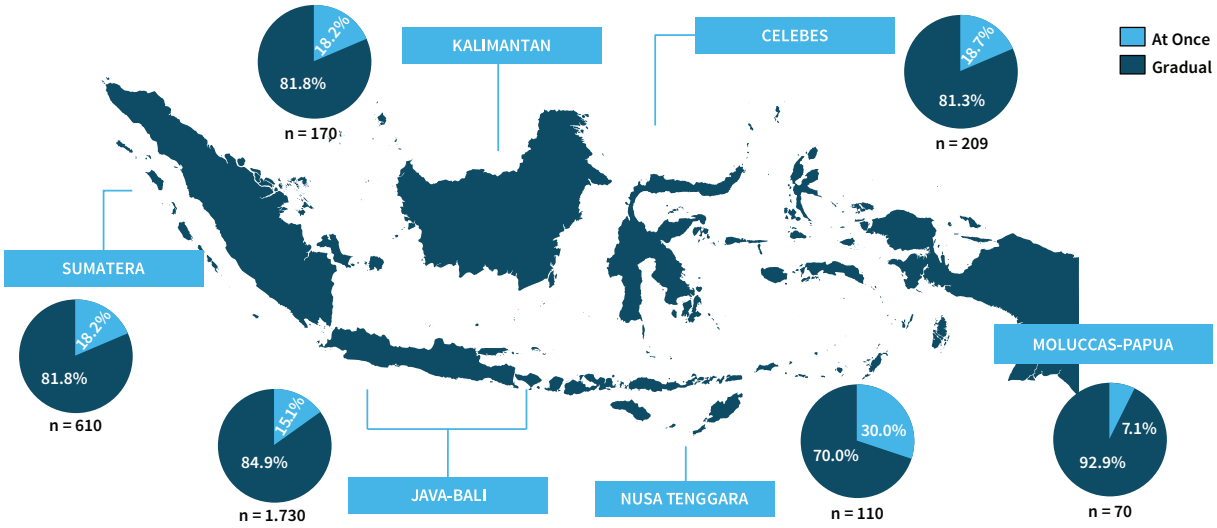

FIGURE 20. FFSR SCHEME PREFERENCE, BY REGION

Source: Authors' calculation using LSI's data.

As in previous analyses, we investigated further by using the logistic regression method to estimate the probability of the respondents choosing a gradual or all-at-once fuel price rise. There are nine models using the logistic regression with the following results:

TABLE 6. MARGINAL EFFECT ESTIMATION RESULTS OF THE RESPONDENTS' OPINION IN FFSR SCHEME

INDEPENDENT VARIABLES	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5
Education year	0.006 a)	0.006 a)	0.006 a)	0.006 a)	0.005 a)
Income	-0.001	0.000	0.000	0.001	0.000
Sex (*1 if male; 0 if otherwise*)	0.044 a)	0.047 a)	0.045 a)	0.048 a)	0.032 a)
Age	0.001 a)	0.001 a)	0.001 a)	0.001 a)	0.001 a)
Domicile area (*1 if urban; 0 if otherwise*)	0.032 a)	0.037 a)	0.035 a)	0.040 a)	0.038 a)
Own motorcycle (*1 if yes; 0 if otherwise*)		-0.029 a)		-0.028 a)	-0.009
Own car (*1 if yes; 0 if otherwise*)		-0.027 a)		-0.026 a)	-0.005
Own boat (*1 if yes; 0 if otherwise*)		0.198 a)		0.219 a)	0.201 a)
Agree FFSR after have received fuel subsidy information (1 if yes; 0 if otherwise)					0.058 a)
Agree the compensation and reallocation program after FFSR (1 if yes; 0 if otherwise)					-0.030 a)
Wealth status					-0.023 a)
Trust level in compensation and reallocation program after FFSR					-0.013 a)
Lives in Sumatera (*1 if yes; 0 if otherwise*)			0.009c)	0.008c)	-0.008
Lives in Kalimantan (*1 if yes; 0 if otherwise*)			-0.010 a)	-0.015 a)	-0.017 a)
Lives in Nusa Tenggara (1 *if yes; 0 if otherwise*)			0.183b)	0.182b)	0.152b)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)			-0.011 a)	-0.019 a)	-0.014 a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)			-0.010 a)	-0.016 a)	-0.027 a)

Note: dependent variable is a dummy; 1 if the respondents agree with fuel price increase all at once; 0 if otherwise. Significance levels: a) p ≤ 0.01; b) p ≤ 0.05; c) p ≤ 0.1.
Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

Tables 6 and 7 are the results for the estimation of the respondents' opinions on whether the FFSR scheme should be gradual or all at once. Regressions 1 to 8 are addressed to testing all the control variables, while regression 9 summarizes the marginal effect of all the independent variables to the probability of being in agreement with an all-at-once fuel price increase. It was found that personal attributes have an effect on it, except for the respondents' income. Respondents who had a higher level of education tended to agree with an all-at-once fuel price increase, if FFSR was going to be implemented. This result is similar to the male, older and urban respondents who tended to be more likely to agree with an all-at-once fuel price increase. We should note that the percentage increases are small for those variables. The car owners do the opposite, as this variable has a negative effect, while the boat owners agree with the total removal of fuel subsidies. Also, the wealthier the respondents, the higher their probability of rejecting the FFSR scheme to increase the price of fuel price all at once.

TABLE 7. MARGINAL EFFECT ESTIMATION RESULTS OF THE RESPONDENTS' OPINION IN FFSR SCHEME (TABLE 6 CONTINUED)

INDEPENDENT VARIABLES	REG. 1	REG. 2	REG. 3	REG. 4
Education year	0.005 a)	0.007 a)	0.005 a)	0.006 a)
Income	0.000	-0.001	0.000	-0.001
Sex (1 if male; 0 if otherwise)	0.032 a)	0.032 a)	0.032 a)	0.032 a)
Age	0.001 a)	0.001 a)	0.001 a)	0.001 a)
Domicile area (1 if urban; 0 if otherwise)	0.039 a)	0.039 a)	0.039 a)	0.039 a)
Own motorcycle (1 if yes; 0 if otherwise)	-0.007	0.017	-0.008	0.016
Own car (1 if yes; 0 if otherwise)	-0.002	-0.095 a)	-0.003	-0.098 a)
Own boat (1 if yes; 0 if otherwise)	0.202 a)	0.583 a)	0.204 a)	0.557 a)
Agree with FFSR after having received fuel subsidy information (1 if yes; 0 if otherwise)	0.060 a)	0.059 a)	0.060 a)	0.060 a)
Agree with the compensation and reallocation program after FFSR (1 if yes; 0 if otherwise)	-0.028 a)	-0.026 a)	-0.029 a)	-0.027 a)
Wealth status	-0.023 a)	-0.022 a)	-0.024 a)	-0.022 a)
Trust level in compensation and reallocation program after FFSR	-0.014 a)	-0.014 a)	-0.014 a)	-0.015 a)
Beneficiary of BLSM (1 if yes; 0 if otherwise)	0.007	0.005	0.008	0.007
Beneficiary of BPJS (1 if yes; 0 if otherwise)	-0.006	-0.007	-0.006	-0.007
Education year*Own motorcycle		-0.003b)		-0.003b)
Education year*Own car		0.009 a)		0.009 a)
Education year*Own boat		-0.021 a)		-0.020 a)
Education year*Lives in Sumatera			0.003 a)	0.004 a)
Education year*Lives in Kalimantan			-0.006	-0.004 a)
Education year*Lives in Nusa Tenggara			0.010 a)	0.010c)
Education year*Lives in Sulawesi			-0.003 a)	-0.001c)
Education year*Lives in Maluku/Papua			0.009 a)	0.009 a)
Lives in Sumatera (1 if yes; 0 if otherwise)	-0.009c)	-0.011b)	-0.039 a)	-0.044 a)
Lives in Kalimantan (*1 if yes; 0 if otherwise*)			-0.010 a)	-0.015 a)
Lives in Nusa Tenggara (1 *if yes; 0 if otherwise*)			0.183b)	0.182b)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)			-0.011 a)	-0.019 a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)			-0.010 a)	-0.016 a)

Note: dependent variable is a dummy; 1 if the respondents agree with fuel price increase all at once; 0 if otherwise. Significance levels: a) $p \leq 0.01$; b) $p \leq 0.05$; c) $p \leq 0.1$.

Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

The interesting results are found from the effects of information regarding fuel subsidies, that after the respondents had received the information, they tended to agree with a total removal scheme for the FFSR. Nevertheless, the respondents who did agree with compensation and reallocation programs after the FFSR were more likely to agree with the total removal of the fuel subsidies. Another interesting result is that the respondents who put their trust in the GoI to manage the compensation and reallocation programs after the FFSR policy has been enacted were more likely to reject the total removal of the fuel subsidies. These results seem to be confusing and inconsistent with previous opinions of the respondents. However, it may show us that the respondents are not well-informed and have difficulties in understanding the fuel subsidies program in Indonesia.

3.5 Compensation and Reallocation of the Subsidy Savings

In the LSI's dataset, several variables were collected in relation to the households' perceptions on compensation and reallocation if the subsidy were to be reduced. We used several additional questions as shown in Box 5.

BOX 5. QUESTIONS ON RESPONDENTS' OPINION ABOUT THE REALLOCATION PROGRAM, PERSONAL ATTRIBUTES, AND OTHERS IN THE LSI'S SURVEY

a. Do you think that the new government should also provide certain reallocation programs to compensate the impact of FFS price increase?
b. What is your gender?
c. Do you live in an urban or rural area?
d. What level of education did you last study at?
e. Do you or any members of your household own a vehicle (i.e. motorcycle, car, truck, boat)? How many?
f. On average, how much do you earn a month?
g. Which province do you live in?
h. How do you perceive your wealth status at the moment?
i. How confident are you that the money saved by the government from the FFSR will be reallocated appropriately?
j. Did your household receive the BLSM back in June 2013?
k. Does your household qualify for the Jamkesmas/Jamkesda/BPJS programs?

Almost every group had more than 50 per cent of respondents who think that the government should provide certain reallocation program(s) as compensation for the FFSR policy (see Figures 21, 22 and 23). However, in Figure 22, there is a pattern that the wealthier groups have fewer respondents who approve of the reallocation programs than the less wealthy groups.

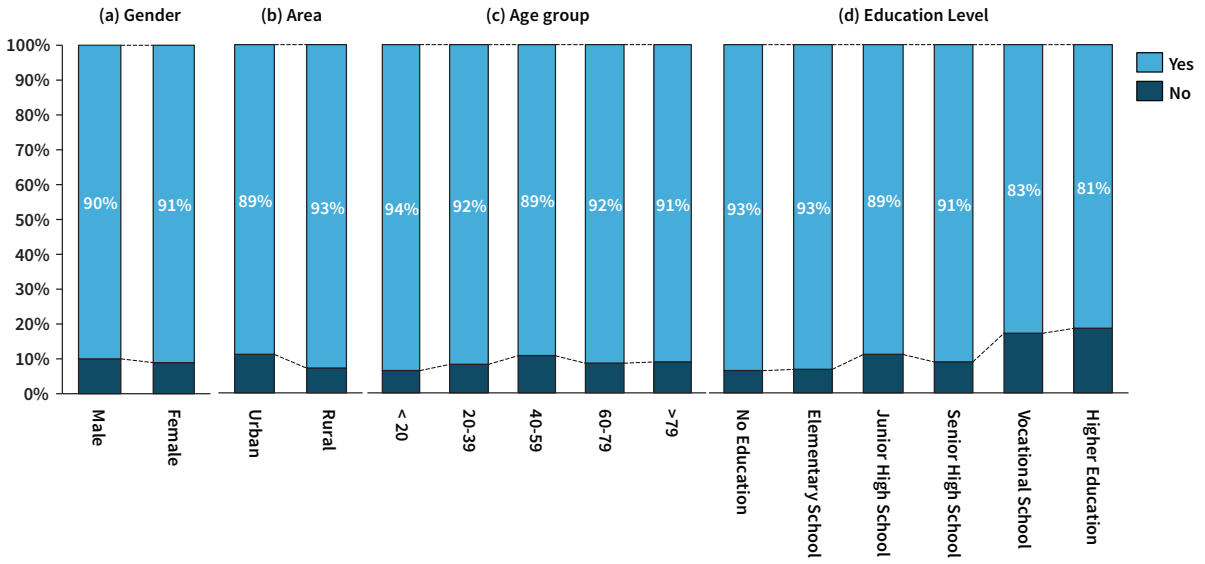

FIGURE 21. OPINION ON REALLOCATION PROGRAM, BY GENDER, DOMICILE AREA, AGE GROUP, AND EDUCATION LEVEL

Source: Authors' calculation using LSI's data.

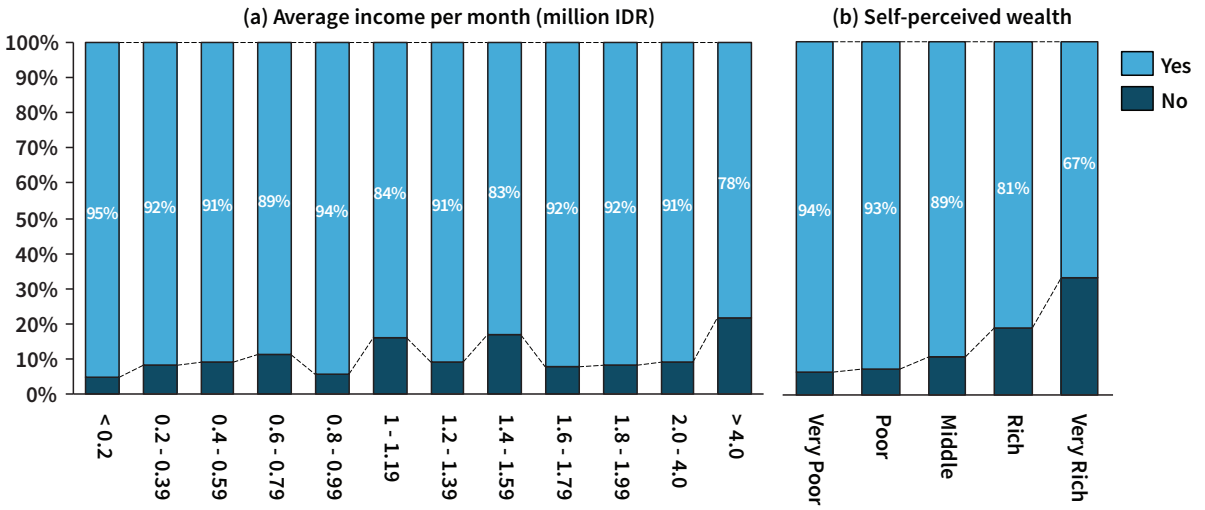

FIGURE 22. OPINION ON REALLOCATION PROGRAM, BY AVERAGE MONTHLY INCOME AND SELF-PERCEIVED WEALTH

Source: Authors' calculation using LSI's data.

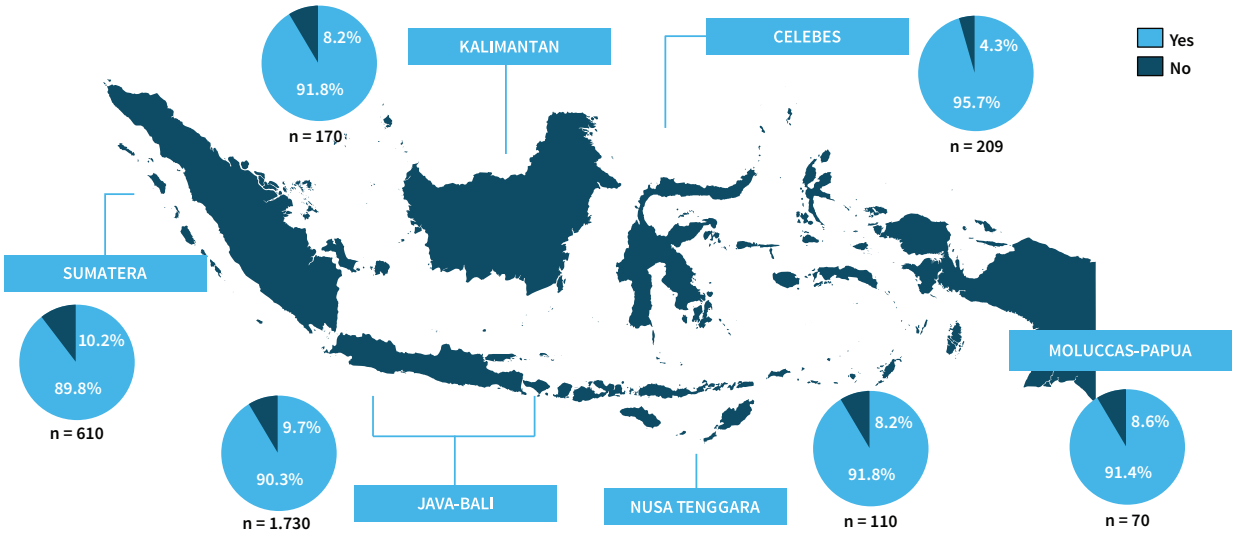

FIGURE 23. OPINION ON COMPENSATION AND ALLOCATION, BY REGION

Source: Authors' calculation using LSI's data.

We used the logistic regression in order to estimate the probability of the respondents agreeing with compensation and reallocation programs if the fuel subsidies were removed. The estimation results of logistic regression are shown in Table 8 below.

TABLE 8. MARGINAL EFFECT ESTIMATION RESULTS OF THE RESPONDENTS' OPINION ON COMPENSATION AND REALLOCATION PROGRAM AFTER FFSR

INDEPENDENT VARIABLES	REG. 1	REG. 2	REG. 3	REG. 4	REG. 5	REG. 6
Education year	-0.008 a)	-0.009 a)	-0.008 a)	-0.008 a)	-0.011 a)	-0.011 a)
Income	0.000	0.000	0.001 b)	0.001 b)	0.002 b)	0.002 b)
Sex (*1 if male; 0 if otherwise*)	-0.002	-0.002	0.008 b)	0.008 a)	0.007 b)	0.007 b)
Age	-0.001 a)	-0.001 a)	-0.002 a)	-0.002 a)	-0.002 a)	-0.002 a)
Domicile area (*1 if urban; 0 if otherwise*)	-0.019 a)	-0.014 b)	-0.011 b)	-0.012 a)	-0.011 b)	-0.012 a)
Beneficiary of BLSM (*1 if yes; 0 if otherwise*)				-0.003	-0.003	-0.003
Beneficiary of BPJS (*1 if yes; 0 if otherwise*)				0.008 c)	0.008 c)	0.006
Education year*Own motorcycle					0.003	0.004 b)
Education year*Own car					0.008 a)	0.009 a)
Education year*Own boat					0.024 a)	0.030 a)
Education year*Lives in Sumatera						-0.004
Education year*Lives in Kalimantan						-0.006 a)
Education year*Lives in Sulawesi						-0.020 a)
Education year*Lives in Maluku/Papua						0.024 a)
Lives in Sumatera (*1 if yes; 0 if otherwise*)		0.003	0.014	0.015 c)	0.016 b)	0.051 c)
Lives in Kalimantan (*1 if yes; 0 if otherwise*)		0.005 b)	0.003	0.005 c)	0.011 a)	0.050 a)
Lives in Sulawesi (*1 if yes; 0 if otherwise*)		0.043 a)	0.040 a)	0.041 a)	0.034 a)	0.100 a)
Lives in Maluku/Papua (*1 if yes; 0 if otherwise*)		0.057 a)	0.064 a)	0.063 a)	0.065 a)	-0.144 a)

Note: dependent variable is a dummy; 1 if the respondents agree with the compensation and reallocation programs after FFSR; 0 if otherwise. Significance levels: a) $p \leq 0.01$; b) $p \leq 0.05$; c) $p \leq 0.1$.

Source: Authors' calculation using the LSI's data. All reported coefficients are the marginal effect.

The number of the respondents who did not believe that the money saved by the FFSR policy would be used for compensation and reallocation was low. Only 7 per cent of the respondents did not believe it would happen, and 11.73 per cent of the respondents were very doubtful that it would be used properly for compensation and reallocation programs after FFSR occurred. However, 39.53 per cent of the respondents were quite doubtful that the money saved would be used for compensation and reallocation programs. Corruption was the most common concern for those who were considerably doubtful that the GoI would enact such programs (48.51 per cent), followed by mis-targeting of the GoI's programs (29.66 per cent) and the GoI's incapability to implement such programs (17.34 per cent).

The results in Table 8 above show that, once again, personal attributes play a role in affecting the respondents' perceptions of compensation and reallocation programs after FFSR occurs. The probability of agreeing with compensation and reallocation programs rises if the respondents are male, as it does with the higher income group. However, the more educated, older and urban respondents were more likely to reject the compensation and reallocation programs. This suggests that there is distrust toward government's ability to reallocate the subsidy properly among those groups. This result is similar with those who own a motor vehicle, including a motorcycle, car or boat. The interesting results came as the probability of agreement with the compensation and reallocation programs decreased when the respondents have received information regarding fuel subsidies, while the level of trust in the GoI had an opposite result. The probability of rejecting the compensation and reallocation programs increases if the respondents are wealthier. This might be induced by the fact they are not the beneficiaries of the program.

Education plays an important role in this estimation, as the better-educated respondents who own a vehicle would tend to agree with the compensation and reallocation programs. However, the better-educated respondents in Sumatera, Kalimantan and Sulawesi would reject the compensation and reallocation programs. This result is the opposite of the behaviour of those more well-educated respondents in Maluku/Papua. However, domicile-area variables (in dummy) show that the respondents who live in Sumatera, Kalimantan and Sulawesi agree with the compensation and reallocation programs. Again, this result is the opposite of the Maluku/Papua respondents' behaviour.

4.0 Discussion and Recommendations

In summary, analysis from the survey showed that most Indonesians are against a price-increase policy on fossil fuels. This presents resistance toward the government's plan for fossil-fuel subsidy removal. However, identifying which groups have a higher acceptance of subsidy removal policies and what factors contribute to it, helps explain the public's resistance to subsidy removal. The survey was analyzed with logistic and multinomial logistic regression approaches. The results showed that an individual's opinion about FFSR was correlated with the individual's gender, income, education, vehicle ownership, and the region she/he lived in. This indicates that the public's opinions regarding subsidy removal are not permanent opinions—they may change. From a spatial perspective, the results of this study showed that where people live plays a significant role in determining their opinion regarding subsidy removal. People who live in Java and/or urban areas tend to have a lower acceptance of policies to remove subsidies. Yet, further analysis is required to confirm this result as well, for example by either performing panel data analysis or using an instrumental variable.

Education and vehicle ownership played a significant role in determining an individual's opinion. The results from this study showed that higher education levels correlated with a higher acceptance of subsidy removal. Owning a motorcycle and/or car correlated with lower acceptance. This might help explain why removing the subsidies from fossil fuels has not become easier over time. Subsidizing fossil fuels leads to lower fossil-fuel prices but at the same time generates an opportunity cost regarding educational development programs. Thus, higher numbers of vehicles and lower educational development lead to lower acceptance of subsidy removal. Low acceptance generates greater resistance toward government plans to remove the subsidy. High resistance enhances pressure on the government to keep increasing the budget for fossil-fuel subsidies since fossil-fuel demand is increasing.

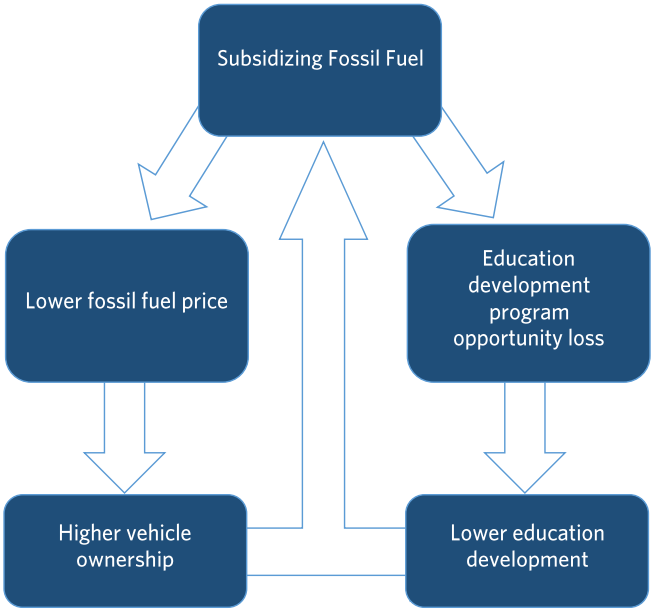

FIGURE 24. SUBSIDIZING FOSSIL FUELS INTENSIFIES PUBLIC RESISTANT AGAINST SUBSIDY REMOVAL

Source: Authors' diagram.

The survey shows that the majority of the public did not know that the government actually subsidized fossil fuels and most of them wrongly underestimated the budget allocation for the subsidy. Results from this study also showed that respondents might change their opinion regarding fossil-fuel subsidy removal when information about the actual government budget allocation for the subsidy and the actual price of fuel was presented to them. This leads the authors to make the following recommendations:

1. The survey used in this study was conducted before November 18, 2014, or before the latest fossil-fuel price increase. If an identical survey could be conducted in the near future, this could potentially give significant insights into public opinion regarding the fuel subsidy. Comparing public opinion before and after the latest price increase offers a huge potential opportunity to explore the public's thinking and rationalization regarding the fuel subsidy policy.
2. Public ignorance regarding fossil fuels should not be neglected. Public ignorance might lead to more resistance and to rejecting any fossil-fuel subsidy removal policy.
3. The government should explore additional approaches or alternative means to disseminate information related to its fossil-fuel subsidy policy if it wants to lessen the public's resistance toward subsidy removal. Analyses regarding the contributing factors to public opinion might be developed as a useful input in developing improved dissemination strategies.
4. Subsidized fossil fuels are mostly consumed by the group of people who own vehicles and live in the Java region, and it is reasonable that Indonesians are rational in terms of rejecting a policy that would potentially harm their wealth. Further studies might explore the correlation between the level of acceptance for subsidy removal and the level of consumption of fossil fuels.
5. The results of this study show that being exposed to information about actual fossil-fuel prices and actual budget allocations for the subsidy played a considerable role in changing public opinion on the subsidy policy. Further research can usefully explore more about such information and identify which type of information played a bigger role in changing the public's opinion across different demographics.
6. In this study, the actual fossil-fuel price and actual budget allocation for the subsidy were presented to the respondents using an identical type of exposure. Different types of exposure across different groups might be explored in a further study. Identifying which type of exposure is more effective in changing public opinion regarding FFSR would be useful to understand public thinking regarding the subsidy and constructing better dissemination strategies.

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Appendix

A. Variable Description

VARIABLE	OBS	MEAN	STD.DEV	VARIANCE	SKEWNESS	KURTOSIS
Age	2894	41.881	13.308	177.092	0.402	2.841

	DEPENDENT VARIABLE	FREQ.	PERCENT
1	Agree subsidy reduction		
	Yes	618	21.32
	No	2,281	78.68
2	Know the official retail price (Premium)		
	Yes	1,041	35.91
	No	1,858	64.09
3	Change opinion after information		
	Agree to not agree	30	1.04
	Status quo	2,426	83.94
	Not agree to agree	434	15.02
4	Should GoI provide reallocation and/or compensation programs		
	Yes	2,630	90.72
	No	267	9.21
	NA	2	0.07
5	Increase fuel price all at once or gradual		
	Raised all at once	479	16.52
	Raised gradual	2,417	83.37
	NA	3	0.1
6	Price of Premium purchased by GoI		
	Lower than official price	978	33.74
	The same with official price	556	19.18
	Higher than official price	1,296	44.71
		69	2.38

	INDEPENDENT VARIABLE	FREQ.	PERCENT
1	What is your last education?		
	Never went to school	98	3.39
	Didn't finish elementary school/equal	317	10.95
	Finished elementary/equal	810	27.99
	Didn't finish middle school/equal	66	2.28
	Finished middle school/equal	536	18.52
	Didn't finish high school/equal	47	1.62
	Finished high school/equal	754	26.05
	Didn't finish college/still in universi	27	0.93
	Finished diploma degree	62	2
	Bachelor's degree/higher	177	6.12
2	Average earning in a month		
	Under 200 thou	83	6.72
	200-399 thou	159	12.87
	400-599 thou	184	14.9
	600-799 thou	106	8.58
	800-999 thou	144	12
	1 mil-1.199 mil	126	10.2
	1.2-1.399 mil	54	4.37
	1.4-1.599 mil	90	7.29
	1.6-1.799 mil	26	2
	1.8-1.999 mil	48	3.89
	2 mil- 4 mil	192	15.55
	Over 4 mil	23	1.86
3	Gender		
	Male	1,449	49.98
	Female	1,450	50.02
4	Respondent's wealth perception		
	Top rung (richest)	6	0.21
	Second rung (rich)	58	2
	Third rung (middle class)	1,346	46.43
	Fourth rung (poor)	1,121	38.67
	Lowest rung (poorest)	300	10.35
	DK/NA	68	2.35

5	Respondent's confident, GoI will properly use the saved money		
	Very confident	1,186	40.91
	Quite doubtful	1,146	39.53
	Very doubtful	340	11.73
	Do not believe	209	7.21
	DK/NA	18	0.62
6	Agree subsidy reduction after new information		
	Yes	1,022	35
	No	1,868	64.44
	DK/NA	9	0.31
7	Received unconditional cash transfer (BLSM)		
	Yes	702	24.22
	No	2,192	75.61
	NA	5	0.17
8	Own health insurance (Jamkesmas/Jamkesda/BPJS)		
	Yes	1,374	47.4
	No	1,515	52.26
	NA	10	0.34
9	Vehicle ownership		
	Have motorcycle	2,041	70.4
	Have car	12	0.41
	Have truck	2	0.07
	Have boat	7	0.24
	Have car & motorcycle	277	9.56
	Have car, motorcycle & truck	13	0.45
	Have motorcycle & truck	5	0.17
	Have motorcycle & boat	17	0.59
	Other	2	0.07
	Don't have	523	18.04
10	Lives in rural or urban region		
	Rural	1,459	50.33
	Urban	1,440	49.67
11	Region		
	Sumatera	610	21.04
	Java or Bali	1,730	59.68
	Nusa Tenggara	110	3.79
	Kalimantan	170	5.86
	Sulawesi	209	7.21
	Maluku or Papua	70	2.41

B. Correlation between variables (star indicates 5% level of significant)

	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.4020*	1					
	0						
Wealth_P	0.3431*	0.3267*	1				
	0	0					
Sex	0.0593*	0.0338	-0.0401*	1			
	0.0014	0.235	0.033				
Gas Cons	0.2159*	0.2461*	0.1359*	0.0341	1		
	0	0	0	0.0994			
D Motor	0.0299	-0.0883*	0.0945*	0.0436*	-0.2974*	1	
	0.108	0.0019	0	0.0189	0		
D Car	0.3024*	0.3429*	0.2724*	0.0057	0.3624*	-0.5327*	1
	0	0	0	0.7587	0	0	

C. Correlation between variables by regions

SUMATERA	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.3953*	1					
	0						
Wealth_P	0.3613*	0.3917*	1				
	0	0					
Sex	0.0461	0.0568	-0.0565	1			
	0.2555	0.3654	0.1687				
Gas Cons	0.2242*	0.4239*	0.2054*	0.0372	1		
	0	0	0	0.381			
D Motor	-0.0862*	-0.1700*	-0.0453	0.0274	-0.3523*	1	
	0.0333	0.0064	0.2707	0.5	0		
D Car	0.2960*	0.3880*	0.3025*	-0.0104	0.4060*	-0.6520*	1
	0	0	0	0.7973	0	0	

JAVA	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.4305*	1					
	0						
Wealth_P	0.3812*	0.2993*	1				
	0	0					
Sex	0.0579*	0.0128	-0.0608*	1			
	0.0161	0.7164	0.0127				
Gas Cons	0.2152*	0.2295*	0.1142*	0.0416	1		
	0	0	0	0.1206			
D Motor	0.0357	-0.0882*	0.0797*	0.0523*	-0.2992*	1	
	0.1374	0.0124	0.0011	0.0298	0		
D Car	0.3063*	0.3304*	0.2680*	0	0.3563*	-0.5631*	1
	0	0	0	1	0	0	

NUSA	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.3408	1					
	0.1115						
Wealth_P	0.2655*	0.2774	1				
	0.0053	0.2					
Sex	0.0769	0.3344	-0.0827	1			
	0.4244	0.1189	0.3927				
Gas Cons	0.3449*	0.1	0.173	-0.1356	1		
	0.0142	0.7124	0.2295	0.3478			
D Motor	0.2404*	0.0129	0.3862*	0.0733	-0.3443*	1	
	0.0114	0.9535	0	0.4465	0.0144		
D Car	0.3160*	-0.0444	0.2065*	0	0.6474*	-0.1709	1
	0.0008	0.8407	0.0312	1	0	0.0742	

BORNEO	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.5104*	1					
	0						
Wealth_P	0.2512*	0.2233	1				
	0.001	0.0761					
Sex	0.1501	0.0151	0.1222	1			
	0.0514	0.9049	0.1135				
Gas Cons	0.2450*	0.4568*	0.1311	0.1439	1		
	0.0019	0.0002	0.0996	0.0695			
D Motor	0.1063	-0.1792	0.1265	-0.0152	-0.2037*	1	
	0.169	0.1533	0.1013	0.8437	0.0098		
D Car	0.2254*	0.3287*	0.2227*	0.0788	0.3829*	-0.5007*	1
	0.0032	0.0075	0.0036	0.307	0	0	

CELEBES	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.3153*	1					
	0.0133						
Wealth_P	0.2400*	0.4666*	1				
	0.0005	0.0002					
Sex	0.0369	0.0996	0.0587	1			
	0.5954	0.4449	0.3987				
Gas Cons	0.2246*	-0.0478	0.0744	0.0098	1		
	0.0062	0.7391	0.3702	0.9058			
D Motor	-0.0572	-0.2054	0.1233	0.0153	-0.2325*	1	
	0.4109	0.1123	0.0753	0.8259	0.0046		
D Car	0.4056*	0.5235*	0.3124*	0.0732	0.3292*	-0.4516*	1
	0	0	0	0.2924	0	0	

PAPUA	YEAR EDUC	INCOME	WEALTH_P	SEX	GAS CONS	D MOTOR	D CAR
Year Educ	1						
Income	0.3055	1					
	0.1291						
Wealth_P	0.0722	0.2647	1				
	0.5587	0.1822					
Sex	0.0282	0.0664	0	1			
	0.8197	0.7422	1				
Gas Cons	-0.0572	-0.145	0.1211	-0.2539	1		
	0.7639	0.6209	0.5237	0.1757			
D Motor	0.3003*	0.3911*	0.0699	0.1431	-0.0546	1	
	0.0128	0.0437	0.5651	0.2373	0.7743		
D Car	-0.0385	-0.0933	0.1119	-0.0705	-0.1559	-0.1998	1
	0.7551	0.6435	0.3564	0.5618	0.4107	0.0972	

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