



The Effect of Fuel Oil Subsidy on Transportation Costs: A Case Study of The One Price Fuel Oil Policy in the Small Islands and Outermost Regions

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ABSTRACT

This study examines the impact of Indonesia's 2017-2019 One Price Fuel policy, which aimed to equalize gasoline and diesel prices nationwide, on transportation costs in small island and outermost regions. Transportation costs are measured by fuel costs per kilometer to the government center. Using Village Potential (Podes) data from 2006, 2014, 2018, 2019, 2020, and 2021, the study analyzes 1,993 villages with 8,374 observations. Employing the Difference-in-Differences (DID) method, the results show that the policy significantly reduced transportation costs in outermost regions by IDR 10,140 per kilometer, while the reduction in small island areas was not statistically significant. These findings suggest that price-based policies can improve access to affordable fuel when supported by adequate supply, sufficient authorized distributors, and geographically targeted distribution strategies.

INTRODUCTION

Fuel plays a pivotal role in Indonesia's economy, particularly within the transportation sector. In addition to consumption and production activities that heavily depend on this commodity (Faizah et al., 2018), the largest share of Indonesia's total fuel consumption is attributed to transportation (Ministry of Energy and Mineral Resources, 2021). Transportation costs constitute a primary consideration for households when allocating their budgets to access mobility and economic opportunities (Lima, 2001). As fuel prices increase, the proportion of household expenditure devoted to transportation also rises (Puller & Greening, 1999; Combes et al., 2005).

In practice, disparities in retail fuel prices across Indonesia remain substantial. Geographic conditions and limited transportation infrastructure contribute to prices that are significantly higher than the official government rates. This situation increases household transportation costs and, over the long term, may give rise to energy poverty, which in turn can trigger

multidimensional challenges affecting economic growth, education, health, and overall social welfare (Frondel et al., 2015; Bouzarovsky, 2015).

This study aims to examine the impact of the One Price Fuel Policy on transportation costs in Indonesia, particularly in small island and remote regions. Indonesia's geographic characteristics contribute to limitations in fuel distribution infrastructure, which in turn lead to higher retail prices at the level of informal or non-official vendors. The first phase of this policy, implemented during 2017–2019, was designed to address distribution challenges and reduce price disparities in underdeveloped areas. Accordingly, this study focuses on small island and remote regions as representative cases of such disadvantaged areas.

Research on the impact of fuel prices on transportation costs yields mixed findings. Some studies suggest that reductions in fuel prices can improve household welfare by lowering transportation costs (Fuje, 2018; Haldenbilen, 2006), although the magnitude and channels of these effects vary (Combes et al., 2005; Buhyanda et al., 2020). In contrast, other studies find that increases in fuel prices resulting from subsidy reforms do not necessarily curb fuel consumption (Solaymani et al., 2014), as demand remains relatively elastic and viable substitutes are limited (Moshiri, 2020).

Additional research has examined the effects of government energy policies on fiscal deficits (Dartanto, 2013), the development of renewable energy policies (Faizah et al., 2018), and social welfare outcomes (Renner et al., 2018). Despite this breadth, prior studies largely emphasize macro-level perspectives and have yet to specifically address policy impacts in underdeveloped regions. Understanding how the One Price Fuel Policy is experienced at the household level is particularly important, especially in disadvantaged areas with limited transportation infrastructure. To the best of the author's knowledge, no study has specifically examined this issue in the Indonesian context.

The implementation of the One Price Fuel Policy provides an opportunity for this study to generate empirical evidence on its impact on transportation costs at the village level, particularly in small island and remote regions, which are generally characterized by higher poverty rates and limited accessibility. The impact is estimated using a difference-in-differences (DiD) approach by comparing transportation costs before and after the policy between treatment and control villages. Village-level data are drawn from the Village Potential Statistics (PODES) and BPH Migas datasets. Villages hosting a One Price Fuel filling station are classified as the treatment group, while other villages within the same subdistrict that do not have an official government fuel distribution agent are assigned to the control group.

LITERATURE REVIEW

A number of studies examining the relationship between fuel prices and transportation costs report mixed results. Using a difference-in-differences (DiD) approach, Fuje (2018, 2020) finds that reductions in fuel prices improve farmers' welfare in Ethiopia by lowering transportation costs and increasing profits from agricultural sales. Similarly, Haldenbilen (2006) shows that decreases in fuel prices lead to an exponential decline in marginal transportation and energy costs in Turkey. In the Indonesian context, Simatupang (2020) finds that the One Price Fuel Policy generates short-term effects in the form of reduced transportation costs in underdeveloped regions. While the impact is statistically significant for transportation costs to subdistrict offices, the effect is not significant for travel to regency or municipal offices. As a robustness check, Simatupang (2020) further demonstrates that the magnitude and significance of the policy's impact diminish as the distance between villages and One Price Fuel stations increases.

Other studies point to different conclusions regarding the impact of fuel prices on transportation costs. Combes et al. (2005), in their analysis of the determinants of transportation costs in France, find that technology and regulation exert substantial influence, while fuel prices

and infrastructure play a relatively minor role. In another study, Buhyanda et al. (2020) show that fuel prices have heterogeneous effects on welfare across income groups in India, with middle-income households—who allocate the largest share of expenditure to transportation—experiencing the greatest impact. Meanwhile, Dartanto (2013) examines the effects of fuel subsidies and fuel prices on poverty in Indonesia. Using national fiscal data from 1998–2003, the study finds that removing fuel subsidies and reallocating them to central government transfers can reduce poverty, although such a policy simultaneously leads to higher transportation costs.

Further research has examined how consumers respond to increases in fuel prices. In Malaysia, Solaymani et al. (2014) find that fuel price hikes resulting from subsidy removal do not necessarily lead to a reduction in fuel consumption, largely due to the absence of viable substitutes. Similarly, Moshiri (2020), using data from Iran over the period 2005–2016, shows that increases in gasoline prices are not accompanied by a corresponding decline in fuel consumption. In contrast, Wang et al. (2013), in the United States, find that rising fuel prices have the greatest impact on low-income households, leading to a reduction in both the number of trips and the distance traveled.

Other strands of the literature, closely related to the One Price Fuel Policy, examine how improved accessibility—particularly through the provision of transportation services—affects welfare. Chiou et al. (2015), using a geographic analysis in Taiwan, find that rural characteristics are among the key factors significantly influencing public transportation fares. Furthermore, Limao et al. (2001) demonstrate that isolation and inadequate transport infrastructure constrain a country's ability to compete globally, especially for landlocked countries in Africa. Meanwhile, Jimenez et al. (2011), in their study of Spain, show that regional accessibility characteristics influence fuel pricing. More remote areas tend to exhibit lower demand for fuel, which is associated with lower fuel prices.

METHODS

Conceptual Framework

Given the persistent challenges—particularly ongoing price disparities and fuel supply shortages—the government introduced the One Price Fuel Policy to ensure price certainty and availability. The conceptual framework of this study, illustrated in Figure 2.4, describes the relationship between the One Price Fuel Policy and transportation costs. Under this policy, regions that previously faced high fuel prices and limited supply are expected to gain improved accessibility through assured availability and government-regulated pricing. The resulting reduction in fuel prices is anticipated to lower transportation costs, both by decreasing the operating costs of private vehicles and reducing public transport fares. To estimate the policy's effect, this study incorporates two control variables: the extent of paved road infrastructure and the availability of public transportation at the village level.

Model

To estimate the impact of the One Price Fuel Policy, this study employs a difference-in-differences (DiD) approach. In general, this method is used to identify the treatment effect of a policy by comparing conditions before and after its implementation between treatment and control groups (Angrist et al., 2010). The pre- and post-policy periods are captured by the program-year variable (BBM year), while differences between the treatment and control groups are represented by the village status variable (BBM village). The DiD model specified in this study is as follows:

$$transport\ cost_{it} = \beta_0 + \beta_1 BBM\ village_{it} + \beta_2 BBM\ year_{it} + \beta_3 BBM\ village_{it} \times BBM\ year_{it} + \beta_4 control_{it} + \gamma_t + \delta_v + \mu_{it} \quad (1)$$

where *transport_cost* denotes the transportation cost from the village head office to the government administrative center, with *transport_cost1* referring to the cost of travel from the village head office to the subdistrict office, and *transport_cost2* referring to the cost of travel from the village head office to the regency office. *BBM_village* is a dummy variable for the treatment group, taking the value of 1 if the village hosts a fuel filling station. *BBM_year* is a time dummy variable, equal to 1 for the years 2017, 2018, and 2019. The interaction term *BBM_village* × *BBM_year* is the variable of interest, capturing the policy's treatment effect.

The vector control includes control variables, namely road surface conditions (*road_surface*) and the availability of public transportation (*public_transport*). Furthermore, γ represents village fixed effects, δ denotes year effects, and μ is the random error term for village *i* in year *t*.

One of the key requirements for applying the difference-in-differences (DiD) method is the satisfaction of the parallel trends assumption (Angrist & Pischke, 2009). This assumption implies that, prior to the implementation of a policy, the treatment and control groups exhibit similar trends over time. When this condition holds, it enables researchers to control for confounding factors that may influence the dependent variable and to isolate the effect of the policy intervention (Lucas & Mbiti, 2012). By comparing pre- and post-implementation conditions of the Pamsimas program and comparing the treatment and control groups, this study aims to identify the causal effects of the policy (Naufal & Yudhistira, 2025). To test this assumption, the present study conducts a common pre-treatment test following Gultom (2019) and Muralidharan and Prakash (2017), using the following formula:

$$transport_cost_{it} = \beta_0 + \beta_1 timerescale + \beta_2 timerescale \times BBM_village_{it} + \gamma_i + \delta_t + \mu_{it} \quad (2)$$

where the sample is restricted to the pre-policy period, i.e., before the implementation of the One Price Fuel Policy. The variable *timerescale* is a time dummy at the village level, taking the value of 0 for the policy implementation years (2017, 2018, and 2019), and -1, -2, -3, and so on for the preceding years. The coefficient β_2 captures differences in pre-treatment trends between the treatment and control groups. An insignificant p-value for β_2 indicates no systematic difference in trends between the two groups prior to policy implementation, thereby supporting the parallel trends assumption.

To provide additional insight into the application of the model across alternative data structures, this study conducts robustness checks. Using the specifications in Equations (1) and (2), the regressions are re-estimated with different definitions of the treatment and control groups compared to the baseline model. In these robustness tests, the comparison groups are constructed based on proximity to villages with One Price Fuel stations. Specifically, three distance thresholds are employed: 2 km, 5 km, and 10 km.

Data and Variable

This study primarily relies on two data sources: data on One Price Fuel distribution agents for the period 2017–2019 from the Badan Pengatur Hilir Minyak dan Gas Bumi and the list of official fuel distributors from the Kementerian Energi dan Sumber Daya Mineral, as well as Village Potential Statistics (Podes) data for the years 2006, 2014, 2018, 2019, 2020, and 2021 compiled by the Badan Pusat Statistik.

Table 1. Data and Variable Description

Variabel	Definition	Data Source	Unit
<i>transport cost 1</i>	Transportation costs to the subdistrict office	Potensi Desa Badan Pusat Statistik	Ribu Rupiah per kilometer

Variabel	Definition	Data Source	Unit
<i>transport cost 2</i>	Transportation costs to the regency or municipal government office	Potensi Desa Badan Pusat Statistik	Ribu Rupiah per kilometer
<i>BBM village</i>	Dummy <i>treatment</i> policy	BPH Migas, Kementerian ESDM	1= village with One Price Policy Fuel Station, 0= other village
<i>BBM year</i>	Dummy year of policy	BPH Migas	1= 2017, 2018, 2019, 0= other
<i>road surface</i>	Road surface condition	Potensi Desa Badan Pusat Statistik	Dummy, 1=asphalt/concrete, 0= other
<i>public transport</i>	Public transport availability	Potensi Desa Badan Pusat Statistik	Dummy, 1= available, 0= not available

From these datasets, 170 villages are classified as the treatment group, defined as villages that host One Price Fuel filling stations. The control group consists of other villages within the same subdistrict as the treatment villages that do not have official government fuel distribution agents. In total, the dataset comprises 8,374 observations. The panel data used in this study are unbalanced, reflecting differences in village observations due to administrative changes such as village splits and/or mergers.

To address the research question more specifically, sub-sampling is conducted for small island and remote regions. According to Government Regulation No. 62 of 2010, a small island is defined as an island with an area of less than 2,000 km², including its ecosystem. In this study, an additional criterion is applied: the island must not be the main island where the regency or municipal capital is located.

Remote regions are defined as border areas of the Unitary State of the Republic of Indonesia (NKRI) that are adjacent to other countries, whether on land or at sea. Based on the identification of locations using the addresses and coordinates of fuel stations, the dataset includes 667 villages with a total of 2,809 observations for the small island sub-sample, and 291 villages with a total of 1,036 observations for the remote region sub-sample.

Accordingly, this study employs three sub-samples in estimating the policy impact: small islands, remote regions, and the full sample.

Table 2. Descriptive Statistics (dataset and variables)

	Village with One Price Policy Fuel Station (n = 776)				Village without One Price Policy Fuel Station (n = 7.598)			
	min	max	mean	stdev	min	max	mean	stdev
Transportation cost to (Rp.000/km):								
– subdistrict office	0	437,5	6,9	25,3	0	2.500	6,9	34,5
– regency or municipal government office	0	609,8	5,1	25,0	0	2.758,6	5,3	43,5
Distance to (km):								
– subdistrict office	0	200	8,5	15,2	1	250	13,7	19,5
– regency or municipal government office	1	544	79,1	85,8	1	1.037	75,8	86,5

	Village with One Price Policy Fuel Station (n = 776)				Village without One Price Policy Fuel Station (n = 7.598)			
	min	max	mean	stdev	min	max	mean	stdev
	2006	2014	2019	2021	2006	2014	2019	2021
Transportation cost to (Rp.000/km):								
– subdistrict office (mean)	3,66	14,54	4,95	5,37	2,53	6,64	8,27	7,98
– regency or municipal government office (mean)	2,46	9	3,73	4,4	1,99	4,8	4,73	10,1
Village with:								
– asphalt/concrete (%)	57,89	55,7	72,73	71,76	36,36	54,19	63,73	67,24
– public transportation (%)	89,47	65,82	83,77	77,65	78,97	76,92	77,15	78,82
Small island village (%)	38,6	34,81	35,71	22,94	34,22	34,96	31,9	21,47
Outermost area village (%)	14,04	17,72	15,58	8,24	6,6	16,07	12,73	6,41

Table 2 presents the descriptive statistics of the dataset and variables used in this study. Across both groups of villages, the average transportation cost to the regency/municipal office is lower than the cost of traveling to the subdistrict office. The table also illustrates trends in transportation costs as well as the condition of transport infrastructure at the village level.

Prior to the implementation of the One Price Fuel Policy, transportation costs in treatment villages were higher than those in control villages, with a larger average annual increase. Following the policy implementation, the average transportation cost in treatment villages became lower than in control villages. Moreover, transportation costs in treatment villages exhibit a declining trend, while those in control villages continue to rise on average.

Table 3. Descriptive Statistics (sub-sample)

	Small island				Outermost area			
	Village with Fuel Station		Village without Fuel Station		Village with Fuel Station		Village without Fuel Station	
Transportation cost to (Rp.000/km):								
– subdistrict office	4,97		4,88		4,59		5,33	
– regency or municipal government office	4,15		5,17		2,16		3,42	
Distance to (km):								
– subdistrict office	9,47		9,90		5,68		8,32	
– regency or municipal government office	66,93		59,57		84,19		75,97	
Village with:								
– asphalt/concrete (%)	71,48		68,84		73,33		63,86	
– public transportation (%)	75,09		74,80		65,83		59,17	
	min	max	mean	stdev	min	max	mean	stdev
Distance to One Price Policy fuel station with (km)	0	210,88	11,41	19,34	0	174	11,49	17,22

Meanwhile, Table 3 presents the descriptive statistics for the study's sub-samples, namely small island and remote regions. It shows that transportation costs to the regency office are lower than those to the subdistrict office. On average, however, the distance to the subdistrict office is greater in small island areas. For instance, the average distance in villages without fuel stations in small islands is 9.9 km, whereas in remote regions it is 5.68 km for villages with fuel stations.

In contrast, the distance to the regency office is shorter in small island regions compared to remote areas. Transportation infrastructure in both regions remains suboptimal. On average, the proportion of roads with asphalt or concrete surfaces is only 69.37% in both small island and remote regions, while the availability of public transportation stands at 68.72%

RESULTS

Common Pre-Treatment Test

The regression results of the common pre-treatment test, using the pre-policy sample and Equation (2), are as follows:

Table 4. Pre-treatment Test

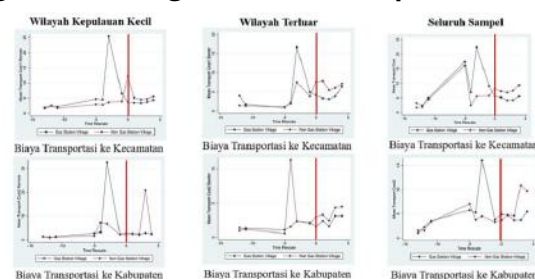
Dependent variable: transportation cost	Small island		Outermost Area		All Areas	
	To sub district office	To regency or municipal government office	To sub district office	To regency or municipal government office	To sub district office	To regency or municipal government office
	(1)	(2)	(3)	(4)	(5)	(6)
Timerescale x BBM village	0,150 (0,149)	-0,0116 (0,0435)	0,0743 (0,105)	-0,00400 (0,0700)	0,206 (0,128)	0,0666 (0,108)
Timerescale	0,252*** (0,0409)	0,0872*** (0,0191)	0,347*** (0,0665)	0,119*** (0,0300)	0,102** (0,0403)	0,0343 (0,0422)
Observations	955	955	344	344	2.588	2.588
Villages	643	643	277	277	1.861	1.861

Note: significance level 10% (*), 5% (**), 1% (***)

Standard errors in parentheses

From Table 4, it can be observed that the interaction term between timerescale and BBM village is not statistically significant. This insignificant coefficient indicates that there is no systematic difference in trends between the treatment and control groups prior to the implementation of the policy. In other words, the parallel trends assumption is satisfied. This condition is also illustrated in Figure 1.

Figure 1. Average trend of Transportation Cost



The Impact of the One Price Fuel Policy on Transportation Costs

Table 5 presents the main regression results based on Equation (1), where the outcome variable is transportation costs following the implementation of the policy. The interaction coefficients in columns (1), (3), and (5) indicate that the One Price Fuel Policy significantly reduces transportation costs to subdistrict offices (transport_cost1) in villages that host fuel stations, compared to control villages—namely, other villages within the same subdistrict that do not have official government fuel distribution agents.

Table 5. The Impact of the One Price Fuel Policy on Transportation Costs

Dependent variable: transportation cost	Small island		Outermost Area		All Areas	
	To sub district office	To regency or municipal government office	To sub district office	To regency or municipal government office	To sub district office	To regency or municipal government office
	(1)	(2)	(3)		(1)	(2)
BBM village x BBM year	-11,98* (7,231)	-10,74 (10,38)	-10,14*** (2,695)	2,771 (7,324)	-9,621*** (2,844)	-5,280 (3,641)
Road surface	-1,042 (3,977)	2,336 (5,712)	3,017** (1,423)	4,486 (3,866)	0,267 (1,383)	0,609 (1,770)
Public transport	1,920 (4,067)	-0,795 (5,841)	-7,818*** (1,321)	0,716 (3,589)	-0,637 (1,396)	-1,631 (1,787)
Observations	2.809	2.809	1.036	1.036	8.374	8.374
Villages	677	677	291	291	1.993	1.993
R ²	0,00151	0,00365	0,0224	0,000630	0,00121	0,00234

Note: significance level 10% (*), 5% (**), 1% (***)

Standard errors in parentheses

Across the three sample groups, the largest reduction in transportation costs is observed in small island regions, amounting to IDR 11,980 per kilometer, although this effect is statistically significant only at the 10% level. In contrast, statistically stronger effects are found in remote regions and in the full sample. The interaction coefficient in column (3) indicates that, in remote regions, the One Price Fuel Policy reduces transportation costs to subdistrict offices by IDR 10,140 per kilometer at the 1% significance level. Similarly, column (5) shows that, when using the full sample, transportation costs to subdistrict offices decrease by IDR 9,621 per kilometer, also significant at the 1% level.

Meanwhile, regression results using an alternative dependent variable—transportation costs to regency/municipal offices (transport_cost2)—are also reported in Table 4.2. The estimates in columns (2) and (6) display consistently negative coefficients, indicating that transportation costs to regency/municipal offices also decline in both the small island sub-sample and the full sample

DISCUSSION

The control variable for road conditions, measured by the presence of asphalt or concrete surfaces, yields heterogeneous results across different sample categories. On the one hand, better road conditions can reduce vehicle fuel consumption; on the other hand, they may encourage greater travel intensity among households. This finding is consistent with Chou et al. (2015), which suggests that the availability of roads remains a more important consideration in transportation activities than road quality itself.

Meanwhile, the control variable capturing the availability of public transportation is found to reduce transportation costs. In general, lower fuel prices can decrease transportation costs by

reducing public transport fares. Given that public transport fares are typically lower than the costs associated with private vehicle use, households have the option to travel at a lower cost. This finding supports the notion that the availability of public transportation in a region can reduce transportation costs through more competitive pricing mechanisms (Dreier et al., 2019).

The variation in policy impacts observed in small island regions may be attributed to several factors. First, the available modes of transportation to administrative centers are often limited to sea and/or air transport. Another contributing factor is the lack of evenly distributed competition among public transport providers in these areas. As a result, although the fuel cost component may decline, transportation service fares do not necessarily adjust downward accordingly.

In addition, given the relatively good road conditions in certain small island areas, as shown in Table 3.3, there is likely a spillover effect to neighboring villages that do not have fuel stations. Residents may be willing to travel to nearby villages with One Price Fuel stations in order to purchase fuel at lower prices.

Meanwhile, the differing impact of the One Price Fuel Policy on transportation costs to regency or municipal offices may be influenced by several factors. First, infrastructure conditions in these areas are generally better, allowing transportation to operate more efficiently. In addition, the availability of public transport networks in urban areas enables households to switch to modes of transport that offer relatively lower costs.

In urban settings, where supporting transportation infrastructure is assumed to be well-developed and professionally managed, transportation services tend to benefit from economies of scale. At this stage, with relatively lower fixed costs per unit, the fares charged to users can also be lower.

Robustness Check

Robustness checks are conducted using Equation (1), but with alternative definitions of the treatment group. In this specification, the treatment group includes not only villages with One Price Fuel stations but also neighboring villages within specified distance thresholds—namely 2 km, 5 km, and 10 km from the original treatment villages. In these robustness checks, the dependent variable is transportation costs to subdistrict offices, given that this variable shows statistically significant effects in the baseline regression.

Table 6. Parallel Trend for Robustness Check

Dependent variable: transportation cost	Kepulauan Kecil			Wilayah Terluar		
	Distance 2 km	Distance 5 km	Distance 10 km	Distance 2 km	Distance 5 km	Distance 10 km
	(1)	(2)	(3)	(4)	(5)	(6)
Timerescale x BBM village	-0,0493	-0,0630	-0,148*	0,0856	0,125	0,0606
	(0,106)	(0,0801)	(0,0758)	(0,118)	(0,0945)	(0,0976)
Timerescale	0,279***	0,292***	0,346***	0,337***	0,293***	0,320***
	(0,0428)	(0,0500)	(0,0621)	(0,0620)	(0,0636)	(0,0832)
Observations	955	955	955	344	344	344
Villages	643	643	643	277	277	277

Note: significance level 10% (*), 5% (**), 1% (***)

Standard errors in parentheses

Before estimating Equation (1), the parallel trends assumption is re-tested using the newly defined treatment and control groups. Based on the pre-policy data and Equation (2), Table 6 shows that the interaction coefficient between BBM village and timescale is not statistically significant. This result indicates that the parallel trends assumption holds for both the treatment and control groups across all distance categories prior to the implementation of the policy.

The robustness check results presented in Table 7 indicate consistent patterns across the two regional sample categories. For small island regions, the regression results across all three treatment definitions are not statistically significant. In column (1), where the treatment group includes villages within a 2 km radius of the fuel station, the coefficient remains negative, suggesting that the reduction in transportation costs is still experienced by villages located within this proximity.

However, the regression results in columns (2) and (3) yield positive coefficients. This implies that the presence of One Price Fuel stations does not reduce transportation costs for villages located more than 5 kilometers away. The geographic characteristics of small island regions likely play a key role in explaining these distance-based differences in policy impact.

Table 7. Robustness Check Result

Dependent variable: transportation cost	Kepulauan Kecil			Wilayah Terluar		
	Distance	Distance	Distance	Distance	Distance	Distance
	2 km	5 km	10 km	2 km	5 km	10 km
	(1)	(2)	(3)	(4)	(5)	(6)
BBM Village x BBM Year	-7,272	4,537	2,994	-5,173**	-3,106	-4,123*
	(5,495)	(6,397)	(4,313)	(2,285)	(2,784)	(2,333)
Road Surface	-1,150	-1,380	-1,384	2,931**	3,060	2,951
	(3,978)	(1,613)	(1,618)	(1,431)	(2,159)	(2,122)
Public Transport	1,687	1,772	1,740	-7,801***	-8,041***	-8,135***
	(4,066)	(2,749)	(2,711)	(1,329)	(2,812)	(2,788)
Observations	2.809	2.809	2.809	1.036	1.036	1.036
Villages	677	677	677	291	291	291
R ²	0,00159	0,00254	0,00186	0,0208	0,0192	0,0223

Note: significance level 10% (*), 5% (**), 1% (***)

Standard errors in parentheses

In remote regions, the regression result in column (4) shows a negative and statistically significant coefficient at the 5% level. However, although the coefficients in columns (5) and (6) remain negative, their statistical significance diminishes and eventually disappears. This pattern suggests that the estimates from Equation (1) are most robust when the treatment group includes villages within a 2 km radius of the fuel station.

While the policy continues to exhibit a cost-reducing effect, its statistical significance weakens for villages located more than 5 kilometers away. Variations in regional topography and transportation infrastructure are likely contributing factors behind the declining significance at greater distances.

CONCLUSION

The regression results indicate that the One Price Fuel Policy significantly reduces transportation costs to subdistrict offices, particularly in remote regions, while no significant effect is found for small island areas. The weaker impact in small island regions can be attributed to relatively higher transportation costs compared to other areas. Access to administrative centers is often limited to sea and/or air transport, both of which are more expensive than land-based alternatives.

In addition, the lack of competition in transportation services means that reductions in fuel prices and operating costs are not automatically passed on as lower public transport fares. There is also evidence of potential spillover effects, where residents from non-treated villages travel to nearby villages with fuel stations to purchase cheaper fuel, thereby reducing observable differences in transportation costs between treatment and control groups. These factors help explain why the policy's impact differs between small island and remote regions.

Meanwhile, the variation in policy effects on transportation costs to regency or municipal offices may be influenced by relatively better infrastructure conditions, which enable more efficient transportation. Furthermore, transportation services in these areas may already benefit from economies of scale, allowing for lower average costs and more efficient pricing structures.

SUGGESTION

Given the finding that the One Price Fuel Policy effectively reduces transportation costs, the government—particularly the Ministry of Energy and Mineral Resources—can continue to implement this policy as part of a price-based strategy to improve energy accessibility and mitigate the risk of energy poverty in Indonesia. Going forward, the policy may be sustained with comprehensive evaluation and refinement.

Moreover, since transportation costs are found to be lower in villages with One Price Fuel stations compared to those without, the government—through BPH Migas—may accelerate the provision of officially priced fuel stations. This could be achieved by integrating the program with initiatives such as Pertamina or Pertashop to expand the number and coverage of authorized fuel distribution points.

The study also finds that the policy's impact differs between small island and remote regions. Therefore, in determining future locations for One Price Fuel stations, the Ministry of Energy and Mineral Resources should consider not only a region's development status but also its geographic characteristics, in order to ensure the effectiveness and significance of the policy's impact.

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