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Factors Influencing Health Insurance Participation Among Bentor Drivers in Gorontalo Regency

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ABSTRACT

This study examines the factors influencing the participation of Bentor drivers in the National Health Insurance (JKN) program in Gorontalo Regency. Using a logistic regression model, the findings indicate that age and mobile phone ownership significantly impact JKN enrollment, whereas education, income, and distance to healthcare facilities do not show a meaningful effect. These results suggest that awareness and accessibility play a more crucial role in shaping participation decisions than traditional socioeconomic factors. The increasing use of mobile technology highlights its potential in expanding JKN coverage. Individuals with mobile phones have better access to information and a more convenient registration process, which increases their likelihood of joining the program. Meanwhile, the non-significant effect of education and income implies that knowledge about JKN is not solely dependent on formal education or financial capacity. Policy implications from this study emphasize the need for digital-based outreach programs to enhance awareness of JKN benefits. Social media, mobile applications, and online registration systems can improve access and facilitate a more efficient enrollment process. Furthermore, targeted policies for informal workers, including incentives or simplified administrative procedures, may encourage broader participation. In conclusion, JKN participation is driven more by access to information and ease of registration than by socioeconomic status. Strengthening digital initiatives and designing inclusive policies can significantly improve JKN coverage, ensuring better healthcare protection for all segments of society. This study provides valuable insights for policymakers in developing more effective strategies to enhance healthcare accessibility in Indonesia.

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INTRODUCTION

Health insurance is a fundamental right for every worker worldwide. In Indonesia, efforts to provide health insurance for workers began with the

enactment of Law Number 3 of 1992 on Workers' Social Security (JAMSOSTEK). However, its initial implementation primarily focused on formal sector workers, particularly those employed by companies with at least 10 workers and a monthly wage above Rp 1 million. As a result, informal sector workers were not yet fully accommodated within the system.

Further steps were taken with the enactment of Law Number 40 of 2004 on the National Social Security System (SJSN), aimed at providing protection for all Indonesian citizens against various risks such as illness, work accidents, job loss, old age, or retirement due to income loss. However, a study by Idris et al. (2015) found that participation in social security programs remains low, particularly among informal sector workers, due to income instability and limited access to information.

To address this, the government launched the National Health Insurance (JKN) program through Presidential Regulation Number 12 of 2013, which took effect on January 1, 2014, with the goal of achieving universal health coverage by 2019. However, the self-registration system for informal sector workers under the Social Security Administration (BPJS Kesehatan) presents significant challenges, given the nature of informal work, which is often unpredictable, and the financial constraints many workers face.

To expand social security coverage to the informal sector, the government issued Ministerial Regulation No. 24 of 2006, which established provisions for social security programs for workers outside formal employment relationships. However, its implementation faced several challenges, including the unclear definition of "informal employment," age restrictions for participation, premium rates, and the low level of awareness among informal sector workers regarding social security schemes.

Recent data from February 2024 indicates that 59.17% of Indonesia's workforce—equivalent to 84.13 million people—is employed in the informal sector. However, social security coverage within this sector remains low. As of July 2023, only 6.35 million informal workers—approximately 17% of the 37.40 million workers registered with BPJS Ketenagakerjaan (the Workers' Social Security Agency)—were covered by employment-based social security schemes. This highlights the significant gap in protection for informal sector workers.

Research on informal workers' participation in health insurance has shown that social and economic factors play a crucial role. A study by Satriawan et al. (2021) found that education level, economic status, and possession of a National Identity Number (NIK) significantly influenced health insurance ownership among informal workers in Indonesia. Similarly, (Safriantini et al., 2020) found that awareness of the JKN program among

informal workers is shaped by their primary occupation, education level, knowledge, age, employment status, and income. However, despite high awareness levels, many informal workers delay their enrollment in the JKN scheme.

Trust in health insurance providers and social capital also significantly impact participation. A study by (Amporfu et al., 2022) in Ghana revealed that social capital – such as membership in occupational groups, trust, and collective action – plays a key role in encouraging informal workers to join national health insurance schemes. Other influencing factors include household size, education, ethnicity, and primary sources of healthcare. Similarly, research by (Mwinuka et al., 2023) in Tanzania identified major barriers to health insurance access for informal workers, including lack of information, inability to afford premiums, distrust in insurance providers, and difficulties in accessing insurance sales points.

The flexibility of premium payment schemes is another factor that contributes to sustainable participation. Studies by (Desmet et al., 2024) found that income-based payment models and installment options enhance policyholder compliance in paying contributions. Digitalization has also played a crucial role in improving accessibility and premium payments. Research by (Islam et al., 2023) in Bangladesh and (Yang & Kovarik, 2021) in China demonstrated that mobile-based applications have successfully increased informal workers' engagement in health insurance programs.

Despite extensive research on the factors influencing informal workers' participation in health insurance, some gaps remain. For instance, limited studies have examined the specific impact of digital interventions across different countries or assessed the effectiveness of adaptive premium payment policies tailored to the economic conditions of informal workers. Future research should therefore focus on policy innovations and technology-driven approaches to enhance health insurance coverage for this sector.

This study introduces a novel approach by integrating social capital, flexible payment schemes, and digital technology to improve informal workers' participation in health insurance. Unlike previous studies that primarily emphasized general economic and social factors (Mousavi Baigi et al., 2023; Nurhayani et al., 2023), this research specifically explores how trust in institutions and social networks contribute to sustained enrollment. Additionally, it highlights the role of digitalization in facilitating access to information and premium payment mechanisms, a topic that has received limited attention in the context of informal workers in developing countries (Islam et al., 2023; Yang & Kovarik, 2021).

In contrast to prior research that focused mainly on individual factors such as income and education, this study emphasizes the influence of community and social networks on informal workers' decisions to participate in health insurance programs. Furthermore, it proposes a participatory education approach that actively involves informal workers rather than relying solely on one-way socialization efforts. From an economic perspective, this research also underscores the importance of flexible payment schemes, advocating for more adaptive income-based models and integrating digital payment systems to enhance affordability and compliance. Thus, this study offers a more comprehensive perspective on designing inclusive policies for informal sector workers.

RESEARCH METHOD

This study employs a quantitative approach, in which the dependent variable is binary and divided into two categories. Consequently, the most appropriate econometric model for this research is the logit method or logistic regression. (Goyal & Kumar, 2021) describe logistic regression as a specialized econometric model in which the dependent variable is categorical and dichotomous, taking values of either one or zero—commonly referred to as a binomial dummy variable. Meanwhile, the independent variables may consist of a combination of quantitative (continuous/metric) and qualitative (categorical/non-metric) data.

Like other regression models, logistic regression is used to determine the degree of dependence of the dependent variable on independent or explanatory variables. The relationship between the independent and dependent variables can also be expressed in terms of the probability of a specific outcome for the dependent variable, given certain values of the independent variables.

The logit model in this study systematically analyzes the probability of a household falling into poverty or not, represented as follows:

$$P_i = \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_i)}} \dots\dots\dots (1)$$

Simply put, Equation 1. can also be simplified as follows:

$$P_i = \frac{1}{1 + e^{-Z}} = \frac{e^Z}{1 + e^Z} \dots\dots\dots (2)$$

Where $Z_i = \beta_1 + \beta_2 X_i$

If P_i represents the probability of an event occurring (i.e., a bentor driver enrolling in the JKN program), then $1 - P_i$ represents the probability of the bentor driver not enrolling in the JKN program, which is given by:

$$1 - P_i = \frac{1}{1 + e^{-Z_i}} \dots\dots\dots (3)$$

It can be written as:

$$\frac{P_i}{1-P_i} = \frac{1+e^z}{1+e^z} = e^{zt} \dots\dots\dots (4)$$

$P_i (1 - P_i)$ represents the odds of an event occurring relative to the odds of it not occurring, commonly referred to as the odds ratio. In this study, it specifically denotes the probability ratio of a bentor driver enrolling in the JKN program versus the probability of not enrolling.

If Equation 4 is transformed using the natural logarithm, the resulting equation is as follows:

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = Z_1 = \beta_1 + \beta_2 X_i \dots\dots\dots (5)$$

L_i represents the logarithm of the odds ratio, which is not only linear in X_i but also linear in the estimation of parameters. L_i is referred to as the logit equation or the logit model. To provide a clearer understanding and to address the research objective—analyzing the factors associated with participation in the National Health Insurance (JKN) among informal sector workers, specifically motorcycle rickshaw (bentor) drivers in Gorontalo Regency—a developed logit model is employed. The model specification is defined as follows:

$$L_i = \ln (P_i/1- P_i) = \beta_0 + \beta_1 Umur + \beta_2 Pendidikan + \beta_4 Pendapatan + \beta_5 Faskes + \beta_6 HP + \varepsilon$$

Where:

- P_i : Probability of National Health Insurance (JKN) participation by motorcycle rickshaw (bentor) drivers
- β_0 : Intersep
- $\beta_1 \text{ sd } \beta_{10}$: Regression parameters (coefficients)
- Age : Age (in years)
- Education : Educational attainment of the head of the household (Dummy)
- Income : Average monthly income of the bentor drivers (Dummy)
- Healthcare Facility : Distance from the household to the healthcare facility (Dummy)
- Cellphone : Ownership of a mobile phone by bentor drivers (Dummy)
- ε : Error term

RESULT AND DISCUSSION

Table 1.
Description of Research Results

Variabel	Observasi	Mean	Standar Deviasi	Min	Max
JKN Participation	100	0.82	0.3861	0	1
Age	100	38.07	7.8008	25	58
Education	100	0.82	0.3861	0	1
Income	100	0.66	0.4760	0	1
Healthcare Facility	100	0.32	0.4688	0	1
Cellphone	100	0.67	0.4725	0	1

From the data analysis, it is evident that out of 100 respondents, 82% are enrolled in the National Health Insurance (JKN) program, with a standard deviation of 0.3861. The average age of the respondents is 38 years, with a standard deviation of 7.8008. Additionally, 82% of them have completed either junior high school (SMP) or senior high school (SMA), with the same standard deviation of 0.3861. In terms of income, 66% of respondents earn more than Rp. 500,000 per month, with a standard deviation of 0.4760. Furthermore, 32.5% of respondents live within 1 km of the nearest healthcare facility, while 67% own a mobile phone.

Logistic Regression Results

This study employs a logit model to analyze the data. The estimation results are presented in Table 2, which displays the coefficient values, standard errors, odds ratios, and their significance levels. These results provide insights into the factors influencing participation in the National Health Insurance (JKN) program among informal sector workers.

Table 2.
Logistic Regression Estimation Results

Variabel	Kepesertaan JKN			
	Koefisien		Odds Ratio	
Age	0.1644	***	1.1787	***
	(0.0679)		(0.8006)	
Education	0.0841		1.0878	
	(0.8084)		(0.8793)	
Income	-0.4899		0.6126	
	(0.7166)		(0.4390)	
Healthcare Facility	-0.2163		0.8054	

	(0.7032)		(0.5664)	
Cellphone	3.7654	***	43.1824	***
	(0.8246)		(35.6115)	
Constant	-6.5037		0.0014	
	(3.2387)		(0.0048)	
Pseudo R2	0.2060		0.2060	
LR Test	0.0001		0.0000	
Observasi	100		100	

*Explanation: Standard errors are provided in parentheses (); ***indicates significance at the 1% level; ** at the 5% level; and * at the 10% level.*

Statistical Significance Test of Coefficients Using Z-Statistic (Normal Distribution)

The significance test for the independent variables is conducted by analyzing the $P > |Z|$ or p-value for the Z-test in Table 2. This test applies a critical value threshold of 10%. The results indicate that the variables of education, income, and access to healthcare facilities have significance levels above 10%, leading to the rejection of H_0 . This implies that these variables do not significantly influence participation in the National Health Insurance (JKN) program among motorcycle rickshaw (Bentor) drivers in Gorontalo Regency.

Conversely, the variables of age and mobile phone ownership show significance levels below 10%, supporting the acceptance of H_0 . This suggests that these factors play a significant role in determining whether Bentor drivers participate in the JKN program in Gorontalo Regency.

Simultaneous Significance Test of Coefficients Using the Likelihood Ratio (LR) Statistic

Referring to Table 2, the results indicate that the estimated logit model is statistically significant. The probability value from the Likelihood Ratio (LR) test is 0.0001, which is below the 1% significance level ($\alpha = 1\%$). Consequently, the null hypothesis (H_0) is rejected, while the alternative hypothesis (H_1) is accepted. This finding suggests that all independent variables, when considered together, have a significant impact on determining the participation status of Bentor drivers in the National Health Insurance (JKN) program in Gorontalo Regency.

Measurement of Goodness of Fit Using Pseudo R²

The Goodness of Fit test is used to evaluate how well the model explains the relationship between the dependent and independent variables, or the extent to which the variation in the dependent variable is accounted for by the model. In general, a lower pseudo R² value indicates better model fit.

In this study, the pseudo R² value for the poverty model is 0.2060, meaning that the independent variables explain approximately 20.60% of the

variation in the dependent variable. However, a low R^2 value does not necessarily indicate that the model is inadequate. As long as the Z-statistic test produces significant results and aligns with economic logic, the model remains statistically valid and suitable for analysis.

This study explores the factors influencing the participation of Bentor drivers in Gorontalo Regency in the National Health Insurance (JKN) program. The findings indicate that age and mobile phone ownership have a significant impact on JKN enrollment, whereas education, income, and distance to healthcare facilities do not show a statistically significant effect.

The National Health Insurance (JKN) program is a government initiative designed to provide healthcare access to all Indonesians. However, participation remains a challenge, as various factors influence individuals' decisions to enroll. Among these, age and mobile phone ownership stand out as significant determinants. These findings suggest that awareness of healthcare needs and access to information play a crucial role in shaping individuals' decisions to join the JKN program.

The Influence of Age on JKN Participation

The analysis results indicate that age plays a crucial role in JKN participation. As individuals grow older, their likelihood of enrolling in the program increases. This trend is closely related to heightened awareness of health risks that come with aging. Older individuals tend to recognize the importance of health protection, either through personal experiences or observations of the health challenges faced by those around them.

This finding is supported by research conducted by (Safriantini et al., 2020), which shows that older age groups are more inclined to have health insurance due to their greater vulnerability to illness. Similarly, a study by (Amporfufu et al., 2022) in developing countries highlights age as a key determinant in the decision to acquire health insurance.

From the perspective of the life-cycle theory proposed by (Lee et al., 2021), individuals tend to plan better for their later years, including their healthcare needs. At a certain stage in life, people become increasingly aware of potential health risks, making them more likely to join an insurance program as a safeguard against future uncertainties (Yang & Kovarik, 2021).

The Impact of Mobile Phone Ownership on JKN Participation

In today's digital age, access to information has become more convenient, largely due to technological advancements—especially mobile phones. The findings indicate that owning a mobile phone significantly influences participation in the National Health Insurance (JKN) program. This relationship can be explained quite simply: the easier it is for individuals to access

information about JKN, the more likely they are to understand its benefits and ultimately decide to enroll.

A study by (Yang & Kovarik, 2021) in China revealed that digital technology, including mobile applications and social media, plays a crucial role in raising awareness and increasing participation in health insurance programs, particularly among informal sector workers. Similarly, research by (Islam et al., 2023) in Bangladesh found that digitalization in information dissemination and premium payments has effectively boosted public engagement in health insurance programs.

From a theoretical perspective, (Subashini et al., 2022) diffusion of innovation theory provides insight into how technology facilitates the spread of information about JKN. Individuals with access to mobile phones receive information more quickly and are more likely to embrace new policies. In essence, communication technology accelerates the decision-making process, making it easier for people to recognize the importance of JKN and take the necessary steps to enroll (Mwinuka et al., 2023).

Other Variables: Education, Income, and Distance to Healthcare Facilities

Although many previous studies have linked education and income levels to participation in health insurance programs, this study finds that these two variables do not have a significant influence on JKN enrollment. This suggests that an individual's understanding of JKN benefits is not necessarily dependent on their level of education or income.

These findings align with research by (F. S., 2024), which found that education had no significant effect on JKN participation among informal workers in Makassar. This may be due to various other factors, such as personal experiences with healthcare services or government policies that provide JKN access to certain groups regardless of their education level.

Additionally, the distance to healthcare facilities was not found to have a significant impact on JKN participation. In this study, the lack of significance in distance as a factor can be explained by the presence of other more dominant influences, such as the availability of transportation or individual perceptions of healthcare accessibility. (Choi et al., 2021) Health Behavior Model highlights that predisposition factors (such as age and education), enabling factors (such as access to information and healthcare services), and need-based factors (such as an individual's health condition) all play a role in determining healthcare-seeking behavior.

The findings of this study indicate that age and mobile phone ownership play a significant role in JKN participation, while education, income, and distance to healthcare facilities do not have a notable impact. These insights

highlight the need for more targeted policies to improve JKN enrollment and ensure broader healthcare access.

One key strategy is to enhance public awareness campaigns about JKN through digital platforms. As technology becomes more widespread, leveraging social media and mobile applications can help disseminate information more effectively, increasing public understanding of the program's benefits. Additionally, integrating JKN registration with digital services could simplify the enrollment process, making it more accessible to those who face difficulties with traditional registration methods.

To further improve participation, policymakers should consider implementing more inclusive policies, such as providing incentives or simplifying the enrollment process for informal workers. Understanding the real determinants of JKN participation allows for the development of more effective strategies to encourage broader engagement in the program.

Ultimately, JKN is not just about providing healthcare access—it is about fostering a culture of health consciousness and financial protection within society. By utilizing technology and adopting a more human-centered approach to health education, JKN can become a more inclusive and sustainable program that ensures healthcare security for all Indonesians.

CONCLUSION

This study highlights the key factors influencing JKN participation among Bentor drivers in Gorontalo Regency. The findings reveal that age and mobile phone ownership significantly affect JKN enrollment, while education, income, and distance to healthcare facilities do not have a meaningful impact. These results suggest that increasing access to information and simplifying the registration process could be more effective strategies for boosting JKN participation than focusing solely on socioeconomic factors.

To improve JKN coverage, policymakers should leverage digital platforms for outreach and streamline the enrollment process through mobile technology. Additionally, providing incentives for informal workers and ensuring better integration between JKN services and technological advancements could further encourage participation. Ultimately, JKN is more than just a healthcare program—it is a crucial step toward building a more inclusive and sustainable health protection system. By addressing the real determinants of participation and implementing targeted strategies, Indonesia can enhance healthcare access and improve the overall well-being of its population.

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