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The Effect of Per Capita Expenditure on the Working Status of the Elderly in Indonesia

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Abstract

The increasing number of elderly people indicates that Indonesia has begun to enter the second demographic bonus. This stage can be beneficial if the elderly remain productive and contribute to development. One of the things closely related to the elderly population and remains the development capital is their work activity. In Indonesia, the percentage of elderly who work also continues to increase yearly. However, most of them have low per capita expenditure, indicating that their low welfare motivates the elderly to work. This research aims to study the general description and characteristics of the elderly and working elderly in Indonesia, examine the effect of per capita expenditure on their working status, and analyze the differences in the effect considering other variables. The data is sourced from the March 2023 National Socio-Economic Survey (NSES), and the study utilizes binary logistic regression with interaction effects. The results showed that per capita expenditure has a significant effect on the working status of the elderly, but the effect is different in terms of place of residence, age, gender, head of household status, marital status, education level, health complaint status, and ownership of health insurance.

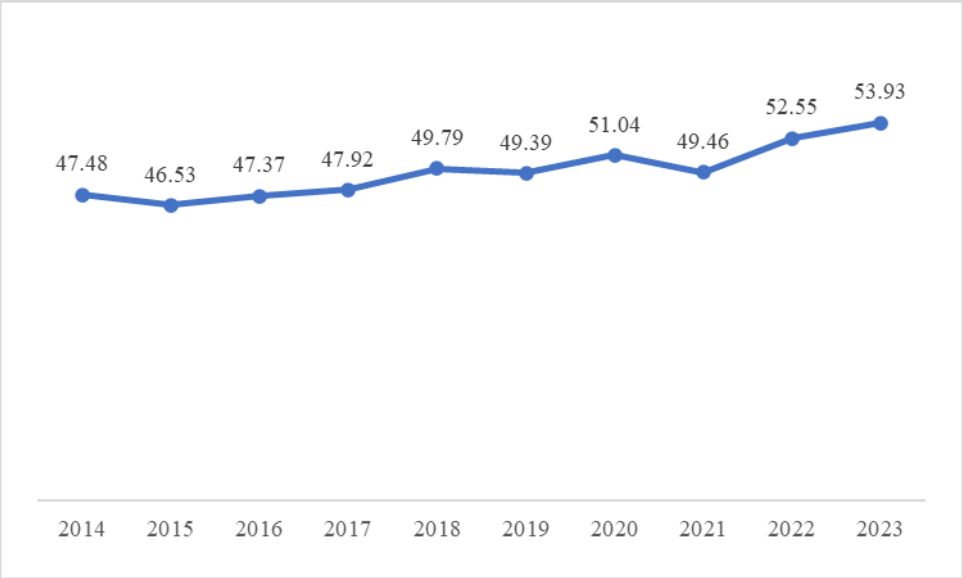
Keywords: ageing population; elderly; working status; per capita expenditure

Introduction

The demographic bonus in Indonesia is characterized by the number of people of productive age (15-64 years) being greater than the number of people of unproductive age. After the demographic bonus is over, there will be a phase called the ageing population. Indonesia has begun to enter the aging population phase, which is characterized by the increasing number and proportion of the elderly population. According to the World Health Organization (WHO), an elderly person is someone who has entered the age of 60 years. Similarly, according to Badan Pusat Statistik (BPS) - Statistics Indonesia and Law Number (No). 38 of 1998 concerning the Welfare of the Elderly, elderly people are defined as those who are 60 years old and above. In the period 2010-2023, the percentage of the elderly population increased by at least 4 percent to 11.75 percent. An area is said to be experiencing population aging when the percentage of the elderly population reaches 10 percent or more (Cicih & N. Agung, 2022). By 2023, 18 provinces in Indonesia have exceeded 10 percent. In essence, this aging population phenomenon can be a second demographic bonus if the elderly population can still be productive and can contribute to development (Heryanah, 2015).

The 3rd goal of the Sustainable Development Goals (SDGs) is to ensure a healthy life and improve the welfare of all

people at all ages. One of them is to improve the welfare of the elderly population. Ideally, the elderly population already has economic security when entering old age, so that their quality of life is maintained despite declining productivity (Styawan, 2017). However, based on the results of the 2023 National Socio-Economic Survey (NSES), it was found that 40% of the elderly were in households with the lowest 40 percent expenditure. One of the consequences of the low welfare of the elderly in Indonesia is that the elderly people are forced to enter the labor market to meet their needs. Based on BPS data, around three in ten (30.79 percent) households have elderly people, of which half of them (56.73 percent) are heads of households. The large number of elderly people who are heads of households indicates that many elderly people still have to be the backbone of the family, so they have to work. In a period of 10 years, the percentage of working elderly increased by 6.49 percent (BPS, 2023). The results of the National Labor Force Survey (NLFS) show that in 2023, 53.93 percent of the elderly are still working.



Source: BPS, Publication of Statistics on the Elderly Population 2022 and 2023

Figure 1. Percentage of Working Elderly in Indonesia 2014-2023

When viewed from an economic perspective, elderly population that is still working is certainly a positive thing. However, elderly who work should have jobs that are suitable for their physical condition. Wirakartakusumah and Anwar (1994) state that three reasons influence the elderly to work. First, there are still many elderly people who remain physically and mentally strong. Second, the elderly people enter the labor market due to economic pressure. Third, reasons that are more based on self-actualization or emotional motives (Junaidi, et.al., 2017). According to Sayers (2005), most people will state that work is an activity carried out to make a living and fulfill the needs of life. The elderly population is the same, they certainly still have various needs that must be met, it is just that their physical condition has decreased compared to productive age. For the elderly, working is a good thing if done voluntarily as an option to stay active in old age, not because of economic pressure that forces the elderly to work to make ends meet. However, this is not always the case. Economic status is one of the factors that cause the elderly to enter the labor market.

Elderly people who are forced to enter the labor market can be an indication that their welfare is still quite low or their work activities are carried out to meet their needs (Jamalludin, 2020). This is in line with the 2023 National Socio-Economic Survey (NSES), that 41.32 percent of the elderly in Indonesia are in households with an expenditure distribution of 40%. In fact, welfare is one of the parameters used to measure the quality of life of the elderly (BPS, 2023). Elderly people who are prosperous will be able to enjoy their old age well (Mulyati, et. al., 2018). A person's socioeconomic status must be different and stratified, some are high, medium, and low and have implications for a person's retirement behavior in different ways (Nurwati & Listari, 2021). Economic status has an impact on health and work, and how these outcomes, in turn, affect the decision to retire (Norrestad, 2021). The existence of economic inequality based on gender, education, and work experience also has an impact on financial security of an elderly, affecting their retirement decisions National Academies of Sciences, Engineering, and Medicine, 2022). Affandi (2009) states that the main factor influencing the elderly to continue working is because the majority of elderly people are in low-economic family conditions which results in the elderly still playing a role in fulfilling their lives. The economic condition of elderly households can be measured using a monthly household per capita expenditure approach (BPS, 2023)

The lower the per capita expenditure of the population, the closer the population is to poverty. An increase in a person's per capita expenditure leads to a tendency for people to increase their consumption and enjoy more leisure time so that their working hours are also reduced. Low expenditure also reflects low income and poor financial condition. Therefore, elderly people with low expenditure levels tend to participate in the labor market to meet basic needs (Chattopadhyay, et.al., 2022). Research conducted by Reddy (2016) shows that elderly men, residing in rural areas, low per capita income, belong to certain social groups that have a greater tendency to work. Chattopadhyay, et.al. (2022) conducted a study that showed that elderly people with low education, married status, no chronic diseases, and lack of health insurance are more likely to work. Demographic characteristics, such as gender and age, are one of the main factors that lead to differences in people's behavior. Lee, et.al. (2020) suggest that studies on demographics often ignore some moderator factors such as gender, age, tenure, marital status, work experience, and education level. Moderation analysis helps understand when and under what conditions the relationship between the dependent variable and the independent variable is stronger, weaker, or even reversed. This study tries to identify the effect of per capita expenditure on the working status of the elderly by considering moderating variables such as place of residence, gender, age, household head status, marital status, education level, health complaints, and ownership of health insurance. This study has significant implications for policy makers in their consideration of strategies related to working status among the elderly.

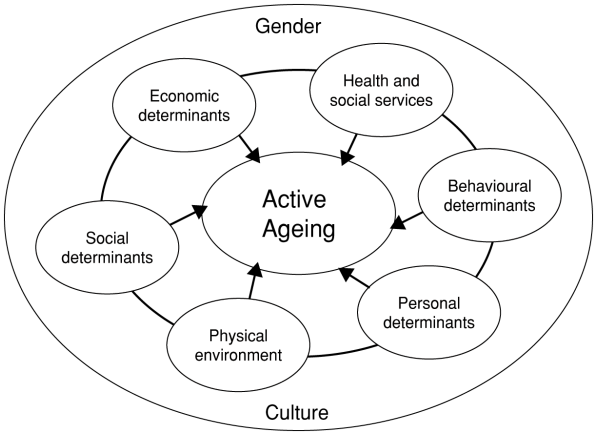
Based on the background that has been described, per capita expenditure is thought to be one of the things that causes the elderly to work involuntarily because of their low welfare. In addition, it is suspected that there are differences in the effect of per capita expenditure on the working status of the elderly by considering other variables, specifically the place of residence, age, gender, head of household status, marital status, education level, health complaint status, and health insurance ownership status. Therefore, this study aims:(1) to study the overview and characteristics of the elderly and working elderly in Indonesia in 2023; (2) to examine the effect of per capita expenditure on the working status of the elderly in Indonesia in 2023; (3) to analyze

the difference in the effect of per capita expenditure on the working status of the elderly moderated by other variables.

Literature Review

An elderly is someone who has reached the age of 60 years and above. Meanwhile, work is an economic activity carried out by a person to obtain or help obtain income or profit, for at least one hour in the past week. The concept of work includes someone who is working and someone who has a job but during the past week temporarily did not work for various reasons, such as illness, leave, waiting for harvest, strike and so on (BPS, 2023). Therefore, the elderly who are said to be working are the population aged 60 years and over who worked in the past week and the population aged 60 years and over who had a job but temporarily did not work during the past week.

Working elderly are part of active ageing. Therefore, the factors that influence elderly working can also be viewed as factors that influence active ageing. This is explained in the theory of determinants of active ageing by WHO. According to WHO (2002), the definition of active ageing is the process of optimizing opportunities in aspects of health, participation, and security in order to improve one's quality of life.



Source: WHO (2002)

Figure 2. Determinants of Active Ageing

Figure 2 shows the factors that influence active ageing, one of which is economic determinants. In this study, economic determinants will be seen from the per capita expenditure. BPS (2023) states that per capita expenditure is the cost of consumption for all household members for a month. costs incurred for the consumption of all household members during the month, either from purchases, gifts, or own production divided by the number of household members in the household. The higher the per capita expenditure indicates a high economic status as well (BPS, 2023).

Methods

In this study, the data used is secondary data derived from raw data from the March 2023 National Socio-Economic Survey (NSES) conducted by the BPS. The locus of this research is Indonesia. The unit of analysis in this study is the elderly population, which is defined as the population aged 60 years and over. The total sample in this study was 129,234 elderly people. The analysis methods used are descriptive analysis and inferential analysis. Descriptive analysis aims to study the

general description of the characteristics of the elderly and working elderly in Indonesia which will be presented in the form of tables and graphs. The inferential analysis used is binary logistic regression analysis with interaction effects. According to Jaccard (2001), interaction can be used to compare two or more states (categories). The interaction effect is said to exist when the effect of the independent variable on the dependent variable is different, depending on the value of the third variable, also called the moderating variable. There are three variables in this study: dependent variable, independent variable, and moderating variable. The working status of the elderly (working or not working) is the dependent variable in this study. The operational definitions of the variables used can be seen in Table 1.

Table 1. Variables Used in Research

Variable	Variable Notation	Category	Code	
(1)	(2)	(3)	(4)	
Dependent Variable				
Working Status	Y	Working	1	
		Not Working*	0	
Independent Variable				
Per Capita Expenditure	X_{11}	Low	1	0
	X_{12}	Medium	0	1
		High*	0	0
Moderating Variables				
Place of Residence	D_1	Rural	1	
		Urban*	0	
Age	D_{21}	Young Elderly	1	0
	D_{22}	Middle Elderly	0	1
		Older Elderly*	0	0
Gender	D_3	Male	1	
		Female*	0	
Household Head Status	D_4	Household Head	1	
		Not a Household Head*	0	
Marital Status	D_5	Married	1	
		Not Married*	0	
Education Level	D_6	< Junior High School	1	
		≥ Junior High School *	0	
Health Complaint Status	D_7	Doesn't Have	1	
		Have*	0	
Health Insurance Ownership	D_8	Doesn't have	1	
		Have*	0	

Note: *) Reference Category

The logistic regression model without interaction

$$\hat{g}(x) = \beta_0 + \beta_1 X_{11} + \beta_2 X_{12} \quad (1)$$

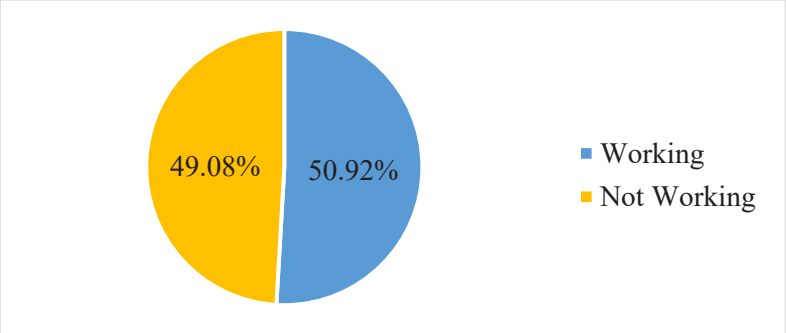
The logistic regression model with interaction

$$\begin{aligned}\hat{g}(x) = \beta_0 &+ \beta_1 X_{11} + \beta_2 X_{12} + \beta_3 X_{11} D_1 + \beta_4 X_{12} D_1 \\ &+ \beta_5 X_{11} D_{21} + \beta_6 X_{11} D_{22} + \beta_7 X_{12} D_{21} \\ &+ \beta_8 X_{12} D_{22} + \beta_9 X_{11} D_3 + \beta_{10} X_{12} D_3 \\ &+ \beta_{11} X_{11} D_4 + \beta_{12} X_{12} D_4 + \beta_{13} X_{11} D_5 \\ &+ \beta_{14} X_{12} D_5 + \beta_{15} X_{11} D_6 + \beta_{16} X_{12} D_6 \\ &+ \beta_{17} X_{11} D_7 + \beta_{18} X_{12} D_7 + \beta_{19} X_{11} D_8 \\ &+ \beta_{20} X_{12} D_8 \end{aligned} \quad (2)$$

The significance level (α) in this study is 5 percent. The analysis stage after obtaining the formed model is the model fit test, which is carried out by the Hosmer-Lemeshow test, classification table, and ROC curve. This test aims to prove that the logistic regression model formed is appropriate in explaining the working status of the elderly in Indonesia. Then testing is carried out simultaneously with the Likelihood Ratio test to determine the effect of the explanatory variables in the model together, and partial testing with the Wald test to determine the effect of each explanatory variable and interaction on the working status of the elderly in Indonesia. Furthermore, model interpretation through Odds Ratio (OR).

Results and Discussion

BPS has released that the elderly population in Indonesia in 2023 will be 11.75 percent of the total population. The percentage of elderly in Indonesia by working status can be seen in Figure 2. In general, the percentage of elderly in Indonesia who work and do not work is almost the same. The percentage of elderly people in Indonesia who are still working is 50.92 percent, while the elderly who are not working is 49.08 percent.



Source: NSES March 2023 (processed)

Figure 3. Percentage of Elderly in Indonesia in 2023

The high percentage of elderly working in Indonesia indicates that the elderly people are still able to contribute to the economy, but on the other hand indicates that the welfare level of the elderly is still quite low so that the elderly are forced to work to fulfill their household life.

Table 2. Characteristics of the Elderly and Working Elderly in Indonesia by Per capita Expenditure

Independent Variable	Category	Percentage of Elderly	Working Status	
			Working	Not Working
(1)	(2)	(3)	(4)	(5)
Per Capita Expenditure	Low	44.31	50.90	49.10
	Medium	37.21	52.40	47.60
	High	18.49	42.90	52.10

Source: NSES March 2023 (Processed)

Table 2 shows the characteristics of the elderly and working elderly in Indonesia according to per capita expenditure. The elderly people in Indonesia are dominated by the elderly with low per capita expenditure at 44.31 percent. Meanwhile, in terms of the characteristics of working elderly, working elderly are dominated by low and medium per capita expenditure. Affandi (2009) states that the main factor influencing the elderly to continue working is because the majority of elderly people are in low-economic family conditions which results in the elderly still playing a role in fulfilling their lives. greater than those with non-head-of-household status.

Inferential analysis was carried out with binary logistic regression with interaction effects so that it would produce a logistic regression equation containing parameter estimates as follows.

Model Without Interaction

$$\hat{g}(x) = -0.005 + 0.222X_{11}^{*} + 0.317X_{12}^{*} \quad (3)$$

Model With Interaction

$$\begin{aligned}\hat{g}(x) = {} & -0.005 - 3.430X_{11}^{*} - 3.566X_{12}^{*} + 0.458X_{11}D_{1}^{*} \\ & + 0.639X_{12}D_{1}^{*} + 1.753X_{11}D_{21} \\ & + 0.959X_{11}D_{22} + 1.636X_{12}D_{21} \\ & + 0.852X_{12}D_{22} + 0.547X_{11}D_{3}^{*} \\ & + 0.554X_{12}D_{3}^{*} + 1.332X_{11}D_{4}^{*} + 1.387X_{12}D_{4}^{*} \\ & + 0.807X_{11}D_{5}^{*} + 0.775X_{12}D_{5}^{*} + 0.339X_{11}D_{6}^{*} \\ & + 0.549X_{12}D_{6}^{*} + 0.363X_{11}D_{7}^{*} + 0.260X_{12}D_{7}^{*} \\ & + 0.119X_{11}D_{8}^{*} + 0.254X_{12}D_{8}^{*}\end{aligned} \quad (4)$$

Note: * = Significant (p-value < 0,05)

Based on the model obtained, the model fit test will then be carried out. The model fit test is useful to see whether the model formed is suitable for explaining the working status of the elderly. In this study, the model fit test used the Hosmer-Lemeshow test. classification table and area under the ROC curve.

Table 3. Hosmer and Lemeshow Test Results

Chi-Square	df	p-value
(1)	(2)	(3)
320.048	8	0.000

Source: NSES March 2023 (Processed)

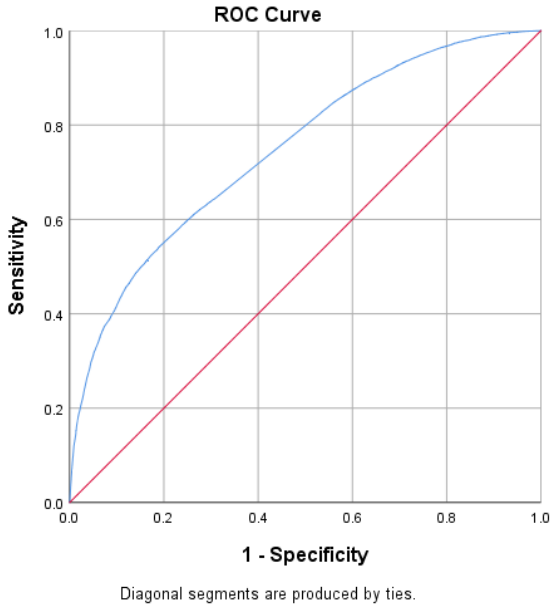
From Table 3, it can be seen that the chi-square value of the Hosmer-Lemeshow test is 320.048 with a p-value of less than alpha 0.05, resulting in a decision to reject H_0. This shows that with a significance level of 5 percent, there is not enough evidence to state that the model formed is appropriate (fit). The results of the Hosmer-Lemeshow test are considered less stable because there are problems with the power of the test. This test will tend to reject H_0 when a large number of samples are used (Yu, et.al., 2017). Therefore, another test is needed to measure the goodness of the model formed by forming a classification table and ROC curve.

Table 4. Binary Logistic Regression Classification Results Table

		Working Status		Percentage of Total Classification Accuracy
		Not Working	Working	
(1)		(2)	(3)	(4)
Working Status	Not Working	40256	17611	69.6
	Working	25554	45813	64.2
				66.6

Source: NSES March 2023 (Processed)

When viewed from Table 4, the total percentage of classification accuracy is 66.6 percent so overall, the model can classify all observations correctly by 66.6 percent and the rest are classified incorrectly. Based on Table 3, the sensitivity and specificity values can also be seen. The sensitivity value of the model is 69.6 percent, which indicates that 69.6 percent of the elderly are correctly predicted to return to the working elderly group. While the specificity of 64.2 percent means that 64.2 percent of non-working elderly are correctly predicted to return to the non-working elderly group.



Source: NSES March 2023 (Processed)

Figure 4. ROC Curve

Apart from being seen from the classification table, the suitability of the model can also be seen by means of the area under the ROC curve. When viewed from Table 5, it indicates that the model is suitable because the resulting curve is close to number one. This is also supported by the area under the ROC curve, which is 0.748, which is in accordance with the theory of (Hosmer et al., 2013) which states that the model classification is acceptable if the area under the ROC curve is ≥0.7.

Table 5. ROC Curve Area

Area	Asymptotic 95% Confidence Interval	
	Lower Bound	Upper Bound
(1)	(2)	(3)
0.748	0.745	0.750

Source: NSES March 2023 (Processed)

Furthermore, a simultaneous test was carried out with the likelihood ratio test to see whether the independent variables jointly influenced the working status of the elderly.

Table 6. Omnibust Test Results

Chi-Square	df	p-value
(1)	(2)	(3)
27,908.200	20	0.000

Source: NSES March 2023 (Processed)

Based on the simultaneous test results, the G statistical value is 27,908.200. This value is greater when compared to the critical value in the chi-square table of 31.41. In addition, the resulting p-value is smaller than the significance level of 0.05 so that the resulting decision is to reject H_0. Therefore, it can be concluded that there is at least one independent variable that affects the working status of the elderly.

Table 7. Model Without Interaction

Variable	$\widehat{\beta}$	p-value	$Exp(\widehat{\beta})$
(1)	(2)	(3)	(4)
Per Capita Expenditure			
Low	0.222	0.000	1.248
Medium	0.317	0.000	1.373
Constant	-0.005	0.668	0.995

Source: NSES March 2023 (Processed)

Based on Table 7, before interaction, the per capita expenditure variable has a significant effect on the working status of the elderly. This is indicated by the resulting p-value <0.05 so that the decision taken is to reject H_0. Thus, it can be concluded that at the five percent significance level, there is sufficient evidence to state that the per capita expenditure variable has a significant effect on the working status of the elderly.

Table 8. Model with Interaction

Variable	$\widehat{\beta}$	p-value	$Exp(\widehat{\beta}_j)$
(1)	(2)	(3)	(4)
Per capita expenditure			
Low	-3.430	0.000	0.032
Medium	-3.566	0.000	0.028
Per capita Expenditure * Place of Residence			
Per capita expenditure (low) * place of residence (rural)	0.458	0.000	1.582
Per capita expenditure (medium) * place of residence (rural)	0.639	0.000	1.895
Per capita expenditure * Age			
Per capita expenditure (low) * Age (young elderly)	1.753	0.000	5.770
Per capita expenditure (low) * Age (middle elderly)	0.959	0.000	2.610
Per capita expenditure (medium) * Age (young elderly)	1.636	0.000	5.135
Per capita expenditure (medium) * Age (middle elderly)	0.852	0.000	2.345
Per capita expenditure * Gender			
Per capita expenditure (low) * Gender	0.547	0.000	1.728
Per capita expenditure (medium) * Gender	0.554	0.000	1.739

Per capita expenditure * Marital status			
Per capita expenditure (low) * Marital status (Married)	0.807	0.000	3.790
Per capita expenditure (medium) * Marital Status (Married)	0.775	0.000	4.005
Per capita expenditure * Relationship to household head			
Per capita expenditure (low) * Relationship to household head (household head)	1.332	0.000	2.241
Per capita expenditure (medium) * Relationship to household head (RH)	1.387	0.000	2.171
Per capita expenditure * Level of education			
Per capita expenditure (low) * Education level (< Junior High School)	0.339	0.000	1.403
Per capita expenditure (medium) * Education level (<Junir Hight School)	0.549	0.000	1.731
Per capita expenditure * Health complaint status			
Per capita expenditure (low) * Health complaint status (don't have)	0.363	0.000	1.438
Per capita expenditure (medium) * health complaint status (don't have)	0.260	0.000	1.296
Per capita expenditure * Health insurance ownership			
Per capita expenditure (low) * Health insurance ownership (don't have)	0.119	0.000	1.127
per capita expenditure (medium) * health insurance ownership (don't have)	0.254	0.000	1.289
Constant	-0.005	0.000	0.995

Source: NSES March 2023 (Processed)

Meanwhile, the partial test in Table 8 shows that after interaction, the p-value < 0.05 is obtained for all independent variables and their interactions, which means that the independent variables have a significant effect on the working status of the elderly. The significant interaction indicates that there are differences in the effect of per capita expenditure on the working status of the elderly at each category level.

Based on the results of partial parameter testing in Table 7, it is known that before interaction, the per capita expenditure variable has a significant effect on the working status of the elderly. The tendency of elderly with low per capita expenditure to work is exp (0.222) = 1.248 times greater than elderly with high per capita expenditure, assuming all other variables are constant. Meanwhile, the tendency of the elderly with medium per capita expenditure to work is exp (0.317) = 1.373 times greater than the elderly with high per capita expenditure, assuming all other variables are constant. This shows that the tendency of the elderly with low and medium per capita expenditure to work is greater than the elderly with high per capita expenditure. In line with Reddy (2016), research that older people with low socioeconomic status are likely to continue to participate in the labor market to earn a living. Low expenditure illustrates low income and poor financial condition of individuals. Affandi (2009) states that the main factor influencing the elderly to continue working is because the majority of elderly people are in low-economic family

conditions so that the elderly still play a role in fulfilling their lives. Therefore, it can be assumed that the elderly who work tend to be forced to fulfill their needs.

In general, elderly with low and medium per capita expenditure are more likely to work than elderly with high per capita expenditure. However, after considering various characteristics of the elderly, such as place of residence, age, gender, housing status, marital status, education level, health complaints, and ownership of health insurance, the effect of per capita expenditure on the working status of the elderly differs depending on these characteristics.

Judging from the place of residence, the interaction of per capita expenditure variables and the place of residence has a significant effect on the working status of the elderly, which indicates that residence moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on where the elderly live. Elderly people with low and medium per capita expenditure are more likely to work in rural areas than in urban areas. Thus, rural residence areas lead to an increase in the tendency of the elderly with low and medium per capita expenditure to work. It is suspected that the reason why the elderly work in rural areas is because they are forced to. Rural areas have limited opportunities and work styles, especially for the elderly with low skills. Elderly people who still work in rural areas usually work in the agricultural sector (Affandi, 2009). The agricultural sector is considered to require large physical labor and relatively low wages (Hernowo, et.al., 2023). As a result, elderly people in rural areas tend to work at low and medium levels of per capita expenditure presumably because they are forced to supplement their income and maintain their lives.

Judging from the age of the elderly, the interaction of per capita expenditure variables and age has a significant effect on the working status of the elderly, which indicates that age moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the age of the elderly. Elderly people with low per capita expenditure are more likely to work in the young elderly category than the old elderly. Then, the elderly people with medium per capita expenditure are also more likely to work in the middle elderly category than the elderly. Thus, the young and middle age of the elderly lead to an increase in the tendency of the elderly with low and middle per capita expenditure to work. Young and middle elderly are thought to have a more capable physical condition so that at low and medium per capita expenditure they are more likely to work. It is also in line with Reddy (2016) which shows that an elderly person's opportunity to work will decrease with age. Wang & Shultz (2010) state that older workers face a decline in both physical energy and cognitive abilities so that their involvement in the labor market is increasingly limited. Therefore, the elderly with low and medium per capita expenditure are more likely to work in the young and middle elderly presumably because their physical condition is still capable so they will try to maximize it as their income in old age.

In terms of gender, the interaction of per capita expenditure variables and gender has a significant effect on the working status of the elderly, which indicates that gender moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the gender of the elderly. Elderly with low and medium per capita expenditure are more likely to work in male elderly than female elderly. Thus, the male gender causes an increase in the tendency of the elderly with low and medium per capita expenditure to work.

Sumarsono (2015) in his research found that the elderly population who are male will tend to continue working. This is related to the sense of responsibility of elderly men in meeting the needs of their families (Reddy, 2016). As a result, the elderly with low and medium per capita expenditure are more likely to work when the elderly people are male allegedly as a sense of responsibility of the elderly male in meeting the needs of their families.

Judging from marital status, the interaction of per capita expenditure variables and marital status has a significant effect on the working status of the elderly, which indicates that marital status moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the marital status of the elderly. Elderly with low and medium per capita expenditure are more likely to work in married elderly than not married. Thus, the elderly with married status causes an increase in the tendency of the elderly with low and medium per capita expenditure to work. Chen, et.al. (2019) found that heads of households who got married have a greater tendency to be poor. The existence of marriage makes a person who was initially self-sufficient must provide for his or her spouse and other head of household (Ortega-Diaz, 2020). As a result, elderly with low and medium per capita expenditure are more likely to work when married, presumably for economic reasons to support the family.

In terms of head of household status, the interaction of per capita expenditure variables and head of household status has a significant effect on the working status of the elderly, which indicates that head of household status moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the elderly's head of household status. Elderly people with low and medium per capita expenditure are more likely to work in elderly people with head of household status than elderly people with non-head of household status. Thus, the elderly with head of household status causes an increase in the tendency of the elderly with low and medium per capita expenditure to work. Sumarsono (2015) states that the number of elderly people who work is related to their status as head of the household. This is related to the responsibility of the elderly as the support of the family to meet the needs of their family.

Judging from the level of education, the interaction of per capita expenditure variables and education level has a significant effect on the working status of the elderly, which indicates that the level of education moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the level of education of the elderly. Elderly with low and medium per capita expenditure are more likely to work for elderly with <JHS education than elderly with ≥JHS education. Thus, elderly with an education <JHS cause an increase in the tendency of elderly with low and medium per capita expenditure to work. Reddy (2016) in his research found that a person's education is one of the important factors in the labor market because it is related to the type of work and the amount of income earned. As a result, the elderly with low and medium per capita expenditure are more likely to work when their education is <JHS presumably because there is no savings and security for their old age so they have to keep working to meet their economic needs.

Judging from health complaints, the interaction of per capita expenditure variables and health complaints has a significant effect on the working status of the elderly, which indicates that health complaints moderate the relationship between per capita expenditure and the

working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the health complaints of the elderly. The elderly with low and medium per capita expenditure are more likely to work in the elderly who do not have health complaints than those who have health complaints. Thus, elderly people with health complaints cause an increase in the tendency of elderly people with low and medium per capita expenditure to work. Mutchler, et.al. (1997) state that health conditions play a role in the work decisions of the elderly, those who remain healthy in old age tend to decide to continue working rather than enjoying their retirement. Elderly people with poor health conditions have a greater chance of quitting their jobs (Coile & Levine, 2007). Here the statement is in line with Sumarsono (2015) who revealed that health has the most important role in the work participation of the elderly so that more elderly people with good health conditions decide to enter the labor market. As a result, elderly with low and medium per capita expenditure are more likely to work when they have no health complaints.

In terms of health insurance ownership, the interaction of per capita expenditure and health insurance ownership variables has a significant effect on the working status of the elderly, which indicates that health insurance ownership moderates the relationship between per capita expenditure and the working status of the elderly. This means that the effect of per capita expenditure on the working status of the elderly varies depending on the ownership of health insurance. Elderly with low and medium per capita expenditure are more likely to work in elderly who do not have health insurance than elderly who have health insurance. Thus, elderly who do not have health insurance cause an increase in the tendency of older people with low and medium per capita expenditure to work. Hadley & Waidmann (2006) stated that the population aged 65 years and above who have health insurance have decreased their health costs. As a result, the elderly with low and medium per capita expenditure are more likely to work when they do not have health insurance, presumably to earn additional income for their health costs.

Conclusion

Many elderly people in Indonesia are still working, which is 50.92 percent. In general, the elderly people in Indonesia are dominated by low per capita expenditure of 44.31 percent. Meanwhile, the characteristics of working elderly in Indonesia are having low per capita expenditure of 50.90 percent and medium of 52.40 percent. Per capita expenditure affects the working status of the elderly. In general, the elderly with low and medium per capita expenditure are more likely to work than the elderly with high per capita expenditure. However, the effect of per capita expenditure on the working status of the elderly differs depending on various characteristics of the elderly, such as place of residence, age, gender, head of household status, marital status, education level, health complaint status, and ownership of health insurance. The difference in the effect of per capita expenditure on the working status of the elderly is that the elderly with low and medium per capita expenditure are more likely to work in rural areas than urban areas, an increase in the tendency to work in the young and middle elderly categories, an increase in the tendency to work in male elderly, an increase in the tendency to work in the elderly with head of household status, an increase in the tendency to work in the elderly with married status, an increase in the tendency to work in the elderly with <JHS education, an increase in the tendency to work in the elderly who do not have health complaints, and an increase in the tendency to work in the elderly who do not have health insurance.

Given the importance of the problem of working elderly, the government should be able to look at the different characteristics of the elderly to see the effect of per capita expenditure on the working status of the elderly. The government can especially look more at the elderly with low and medium per capita expenditure from the characteristics of the elderly so that the elderly people are not forced to work, especially the elderly in rural areas by expanding access to jobs that are suitable for the physical condition of the elderly. In addition, the government needs to increase access to health insurance, especially for the elderly with low and medium per capita expenditure so that the elderly people are not forced to work to meet their health costs. For future researchers, especially socio-population research, it is important to make more interactions in the study because the effect of per capita expenditure on the working status of the elderly is influenced by various characteristics of the elderly themselves. The general condition will be different when considering various characteristics. In addition, researchers can try to use primary data to get more in-depth characteristics related to the elderly.

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