

# The Determining Factors of Elderly People to Continue their Work Activities in Palembang



Hendry Wijaya, Luis Marnisah, Hamid Halin, Fakhry Zamzam, Susi Handayani, Endah Dewi Purnamasari

**Abstract:** *This research study focuses on the determination factors of elderly that still continue their work activities in the city of Palembang. The purpose of this study is to find out how the influence of Social Security, Education and Health on the decision of the elderly people to continue their work activities in Palembang. The method of data analysis in this study uses the binary logistic regression method in which all variables (independent and dependent) use 2 categories (binary). The results of the estimated data, it is known that the variable Social Security, Education and Health has a significant influence on the decision of the elderly people to continue their work activities in Palembang. Odds Ratio value of 0.046 means that the elderly population who have an elderly social security program have a probability of choosing not to work by 0.046 times when compared to the elderly population who does not have an elderly social security program. Odds Ratio value of 12.298 means that the elderly population completing tertiary education has a probability of choosing to continue working 12.298 times compared to the elderly population completing primary and secondary education. Odds Ratio value of 20.153 means that the elderly population who goes to the doctor/clinic for treatment at least once per 3 months has a chance of continuing to work 20,153 times compared to the elderly population who goes to the doctor/clinic for treatment more than once every 3 months. Nagelkerke's R-Square value is 0.524. This implies that 52.4% of the variation in the independent variable can explain the dependent variable, while the remaining 47.6% is explained by non-model factors or by other variables not examined.*

**Keywords:** *Elderly, Working, Determination Factors, Palembang*

## I. INTRODUCTION

In a study conducted by Affandi [1], there were a number of factors that influenced every elderly individual to continue to

do work after the elderly retirement, where these factors were education, residence, health, sex, marital status, elderly status in the family. The number of elderly people who are still working is caused by relatively large economic needs, physically and mentally the elderly are still able to carry out daily activities. The relatively large economic needs of the elderly are likely due to the absence/lack of adequate socioeconomic security for the elderly. Old age benefits such as pensions are still very limited to those who work in the formal sector, not the informal sector. Therefore, it is necessary to think about various efforts to reach elderly who do not have a pension or old-age security, based on the data their number is more than the elderly from the formal sector.

The results of a study conducted by Susilawati and Nilakusmawati (2014) indicate that when an elderly person has pensions will reduce the desire for older people to work by 0.031 times compared to the elderly who do not have pensions. This is because the elderly who have social security are more economically stable, thereby reducing the desire to work.

Another factor that also affects the decision of the elderly in deciding to keep working or not working is the pension. Research conducted by Nilakusumawati and Susilawati (2013), states that an elderly person interested in continuing to work has a very close relationship with the presence or absence of pensions for these elderly. A similar opinion is also in accordance with the results of research conducted by Utami and Rustariyuni (2016), which states that pensions of an elderly person have a significant effect on the decision to continue working.

According to Kartika and Sudibiah [2], socio-demographic variables including elderly marital status, elderly education and elderly health, as well as socioeconomic variables including elderly household income and the burden of elderly dependents together, have a significant effect on participation elderly population work, where the most dominant variable influences is the elderly health variable.

According to data from BPS (2017), Palembang City's population in 2017 amounted to 1,602,071 individuals, composed of 802,990 men and 799,081 females. With the proportion of the male elderly population at 6.46% of the total male population and the proportion of the female elderly population at 7.41% of Palembang City's total female population, it is known that in 2017 there were 111,053 elderly people in Palembang City, composed of 51,864 elderly males and 59,189 elderly females.

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## The Determining Factors of Elderly People to Continue their Work Activities in Palembang

The proportion of older males working for the amount of older males is 35.46%, while the proportion of older females working for the amount of older females is 16.92%. Based on this percentage, it is known that 28,404 individuals, composed of 18,391 elderly males and 10,013 elderly females, are working in the town of Palembang. A table of elderly individuals employed in each district of Palembang City is provided to explain the above information.

**Table- I: The Elderly Labor Population in 2017 by District in Palembang City(BPS, 2018)**

District	Gender		Total Population	Elderly Population by Gender		Elderly Total Population
	M	F		M	F	
Iilir Barat II	33716	33175	66891	2165	2471	4637
Gandus	32067	30927	62994	2039	2327	4367
Seberang Ulu I	90039	89121	179160	5800	6619	12419
Kertapati	43398	42455	85853	2779	3172	5951
Seberang Ulu II	50478	50097	100575	3256	3716	6972
Plaju	41887	41121	83008	2687	3067	5754
Iilir Barat I	69076	68155	137231	4443	5070	9513
Bukit Kecil	22417	22150	44567	1443	1647	3089
Iilir Timur I	35205	37186	72391	2344	2675	5018
Kemuning	42573	43588	86161	2789	3183	5973
Iilir Timur II	83691	83800	167491	5422	6188	11610
Kalidoni	56382	56113	112495	3642	4156	7798
Sako	46295	46034	92329	2989	3411	6400
Sematang Borang	19168	18777	37945	1228	1402	2630
Sukarami	83355	83023	166378	5386	6147	11533
Alang-Alang Lebar	53243	53359	106602	3451	3938	7389

The researcher will evaluate the probability variables on the basis of the information and the outcomes of prior research that influence the decision of the elderly to continue their work activities which include Social Security, Education, and Health.

### II. STUDY LITERATURE

#### A. Labor Supply

Kaufman & Hotchkiss [3] says that everyone has a choice to use their time for 168 hours per week with distinct choices, whether to use it for job or for rest.. But, of course, each person requires a set biological moment to sleep, eat, and others.

According to Becker[4], if regarded from the economic theory point of perspective, individual labor market conduct can be clarified by means of the theory of time allocation. The fundamental model of this idea says that there are two significant decisions facing people who will engage in the labor market, namely choosing to work or not to work. Work is not a pleasant thing, and vice versa, work is not a decision favored as a product (ordinary products) by people. This is because non-work is deemed a standard item, so changes in leisure time consumed are greatly affected by the level of price/wage. If the price/wage is smaller, it will consume more

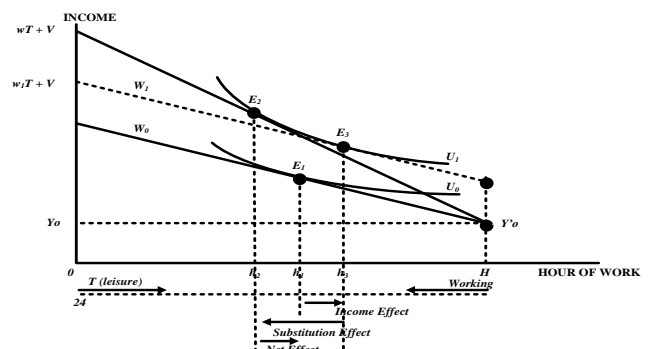
of the normal goods and vice versa.

Basically, each person has a set time in one day that is 24 hours a day that the person uses to perform two tasks, namely work (Labor Market Activity) and rest/leisure (Non-Labor Market Activity). Work is the time each person spends performing an activity that can generate wages/income, while recreation is the activity of every person who does not generate wages / income. Activities for leisure include work at home (raising kids, cooking), time spent on schooling, travel, relaxation, rest, etc.[5].

#### B. The Income Effect and The Substitution Effect

According to Nicholson[6], explaining that the choice of each individual to raise or reduce time free is heavily affected by wage levels and non-labor income. In addition, McConell, et al.[7] says that if the wage level has risen, the relative leisure cost will also rise. An rise in the rate of wages shows an rise in employee revenue. A individual has a tendency to boost his consumption and enjoy more free time with a greater financial status, which implies lowering his hours of job. Changes resulting from modifications in revenue during working hours are called the Income Effect. Higher working time values promote a individual to replace more with their free time in order to work more. An increase in an individual's required number of hours of job will affect the decrease in the quantity of time the person gets. The addition of working time is called the wage rate rise substitution effect.

The elevated impact of wage level modifications on changes in leisure and working time relies on the magnitude of the dominance of the impacts of earnings or replacement impacts that are applicable to each person. A rise in the wage rate will lead to a rise in working hours, which will lead to a decrease in free time if the impact of replacement is more dominant than the impact of revenue. On the other hand, if the impact on revenue is more dominant than the impact on replacement, the person will attempt to decrease his working time and enjoy more free time. Thus, if the impact of revenue is higher than the impact of replacement, a backward-bending situation of labor supply curve will occur[8].



**Fig. 1 The Income Effect and The Substitution Effect [8]**

From the above figure, it can be clarified that if leisure is presumed to be a standard item, wage increases not only boost individual revenue but also alter relative prices.

The leisure cost becomes more costly, resulting in a decrease in leisure consumption and replacing it with working hours, resulting in a rise in working hours from h1 to h2. The sheer replacement impact will increase h2-h3 working hours. Unlike the impact on revenue, people can purchase more leisure time, thus reducing the impact on revenue by h1-h3 working hours. Together, the net impact of the revenue impact and the replacement impact add to the job hours offered by h1-h2[7].

Thus it can be stated that if the impact of replacement is more dominant than the impact of revenue, the rise in wage level will result in an rise in working hours, whereas if the impact of revenue is more dominant than the impact of replacement, the rise in wage level will result in a decrease in working time.

### C. The Concept of Elderly

According to Law No. 13 of 1998 on elderly welfare, the definition of old-age explains as "elderly people are someone who reaches the age of 60 and above. It is also indicated in Law No. 13 of 1998 that there are two groups of elderly people (seniors):

1. Potential Elderly is someone who has reached the age of 60 years or above but still has physical, mental, and social capabilities that are used to meet the requirements of his lives.
2. No Potential Elderly is someone who has reached 60 or above but who has restricted physical, intellectual and mental as well as social skills that can interfere with his social interactions and fulfill the requirements of his life so that his life depends on the assistance of others.

There are two opinions on the elderly, according to Santrock[9], namely a Western view and Indonesian opinions. Western opinion says that those who are categorized as seniors are individuals 65 years of age or older, where this age distinguishes an individual from being an adult or an elderly individual. The Indonesian perspective, on the other side, says that the elderly are individuals over the age of 60. Someone at the age of 60 has started to show the characteristics of aging, meanwhile, according to Tanaya and Yasa (2015), an elderly person is someone who has reached the age of 60 years and older. The definition of the above-mentioned population appears to be in line with the Central Statistics Agency (BPS) notion that states that the elderly are inhabitants 60 years of age or older.

### D. The Concept of Elderly Labor

Some studies consider 'elderly' workers to mean someone 40 years old [10]. Savickas [11] states that elderly workers are those aged over 50 years or above. Taylor (2006) concluded that there was a sharp decline in labor force participation rates after this age (50 years or above). Many researchers define older labors as labors aged 50 years or above [12] [13]). This research utilizes chronological age for all these purposes and defines older labors as those over 50 years of age.

### E. Bridge Employment

Bridge Employment as paid job operations performed by people after full employment finishes and receives pension revenue where work is performed by people in the transition stage between completion of full employment and the start of

permanent retirement[14][15 ].

The precise bridge employment definition tends to differ across the research. Wang et al.[16] describes bridge employment as work (either stable or temporary) after completion of the complete term of work and before permanent retirement starts, bridge employment as wage work, either as a worker or as an entrepreneur, or for at least one hour a week after retirement from the primary job. The main difference is that bridge employment generally works with new employers or in new jobs or industries [17].

Career placement in the field of Bridge Employment can be performed either with the same organisation as a career job, but is most often the case with career bridge employees or other organizations where people are working in the same job[18 ]. When an elderly employee chooses to participate in Bridge Employment in a distinct sector, salaries and status are generally reduced instead of Bridge Employment Flexibility[14][18][19][20 ]. Furthermore, a survey by Jones and Mc. Intosh[21 ] demonstrates that elderly employees who are more organizational-oriented prefer to be engaged in the same sector in Bridge Employment, while those who are more job-oriented prefer to be engaged in Bridge Employment in various areas.

### F. The Concept of Social Security

In the ILO Convention (International Labor Organization) which is one of the United Nations Agencies, the broad definition of social security is defined, that is, in principle, a system of protection provided by the public for its citizens, through various efforts in dealing with economic risks or social activities that can result in the cessation of or greatly reduced income. It is primarily a social welfare sector that pays attention to social protection or the security of well-known social circumstances, including poverty, ancient age, disability, unemployment, family and kids, and others. Social security is a form of social protection to ensure that all people can fulfill their basic needs for a decent life.

According to Kenneth Thomson (1980) in Kertonegoro (1982) Social Security can be interpreted as protection provided by the community for its members for certain risks or events with the aim, as far as possible, to avoid the occurrence of those events which may result loss or decline of a large part of income, and to provide medical services and or financial guarantees against the economic consequences of the occurrence of the event, as well as guarantees for family and child benefits.

### G. Previous Studies

Hotopp [22] in his research found that the variables of gross domestic product, income, occupation, industry or manufacturing, ethnic background, and marital status influence the absorption of elderly labor in the UK. Affandi [1] said the determinants of working age are education, residence, health, sex, marital status, elderly status in the family. Burtless [23] says that education, income, and population growth affect the employment of elderly workers in America.

Income can come from various fields of work, such as studies that have been done by other researchers [24] [25] that discuss the livestock sector and the communication sector.

Based on the results of research conducted by Kartika and Sudibia [2], it was found that socio-demographic variables including the status of elderly marriage, elderly education, and elderly health as well as socioeconomic variables including elderly household income and the burden of elderly dependents have an influence simultaneous participation of the elderly population. The status of elderly marriage, elderly education, elderly health, and elderly household income has a partial negative effect on the work participation of the elderly population.

The burden of elderly dependents concurrently has a beneficial impact on the elderly population's job involvement. The most prevalent influencing variable is the health variable for the elderly.

Another variable that can affect the elderly in carrying out work activities is also raised by some experts is the social security of the elderly. Research conducted by Stewart (1995) implies that Social Security has had a large impact on the participation rates of men aged 62-69 years. For men aged 62-64, Social Security affects the retirement rate by a delay of 1-3 years. For groups aged 65-69 years, the gap is slightly longer, 2-3 years. An increase in Social Security benefit accounts for 37 percent of the decline in male participation rates from 65 to 69 years between 1954 and 1990. For ages 62-64, Social Security accounted for 40 percent of the decline between 1963 and 1990. These results imply that increasing age normal retirement will slow down the level of participation by reducing benefits. But rising the first eligible age to 62 will have a greater effect because liquidity constraints will force many individuals to postpone retirement if they cannot withdraw Social Security benefits.

According to the results of research conducted by Gruber and Wise (1999), states that the provisions of the social security program are able to contribute to the decline of elderly workers in the workforce, which substantially reduces the potential productive capacity of the workforce. With the existence of a social security program for older workers will have a tendency to encourage older workers to choose to retire from work activities when compared to doing work activities again. The same thing was also revealed in a study conducted by Samwick (1998), the results of his study estimated the combined effect of social security and retirement benefits on the possibility of the retirement of the cross-section population at retirement age. The level of welfare/retirement wealth arising from the combined effect of social security and pension benefits is proven to be a significant determinant of the probability of retirement.

According to the results of research conducted by Coile and Gruber (2000), state that government policies relating to social security programs in the elderly are considered as one of the determining factors for an elderly person to choose retirement. The social security program owned by the elderly also has a significant influence on the discharge of an elderly worker from the workforce. Furthermore, according to Affandi [1], the number of elderly people who are still working is caused by relatively large economic needs, and physically and mentally the elderly are still able to carry out

daily activities. The relatively large economic needs of the elderly are likely due to the absence/lack of adequate socioeconomic security for the elderly.

### H. Research Framework

The main theory which is the basis of this research is the Labor Offer Theory. Some of the variables used in this study are social security, education, and health. To clarify the research concept, the research concept is elaborated through a research framework.

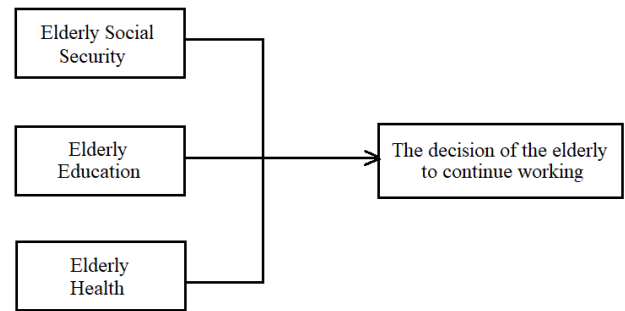


Fig. 2 Reseach Framework

In general, the elderly population who have an elderly social security program for the elderly have a tendency to reduce the possibility of continuing work activities. This is due in part to the necessities of life being able to be assisted by the elderly social security program. But if you see from the side of the highest level of education completed by the elderly, there is a tendency for the higher level of education to be completed by the elderly, the higher the chance for the elderly to continue their work activities. From the health side, it is clear that the elderly who have a good level of health will encourage the elderly to continue working activities.

### III. METHODOLOGY

This research was conducted in the city of Palembang and the study focused on the elderly population (aged 60 years or above) in 2017, 111,053 people. Meanwhile, to obtain the number of samples that will be used in determining the number of respondents in this study the Slovin formula is used so that the estimated results obtained for the total sample of respondents amounted to 399 respondents. The sort of information used in this research is primary data acquired from participants in the form of cross-sectional data including social security, education, health information. This research utilizes survey methods to collect information.

The tool used in this research was a structured survey related to the determination of factors thought to influence the elderly to continue working, namely social security, education, health. A binary logistic regression model with older individual units in the family is used to evaluate the determinants of variables affecting the participation of the elderly in their choice to continue working activities. The use of binary logistic regression models is due to the dependent variable and the independent variable used in the two categories.

The binary logistic regression model is used as follows:

$$g(x) = \beta_0 + \beta_1JS + \beta_2PDK + \beta_3KSN + \varepsilon$$

Description :

$g(x)$  = The probability of binary logic equations for the elderly category to continue working activities and/or the elderly category not continuing work activities (1 = Continue to Work, 0 = Not Continuing Work Activities).

$\beta_0$  = Intercept for binary logic equations

$JS$  = Dummy variable for elderly Social Security score (1 = Having a Social Security Program, 0 = Not Having a Social Security Program).

$PDK$  = Dummy variable for elderly education score (1 = Completion of College, 0 = Completion of Primary and Secondary School).

$KSN$  = Dummy variable for elderly health score (1 = ≤ 1 time treatment per 3 months, 0 => 1 time treatment per 3 months).

$\beta_1, \beta_2, \beta_3$  = Binary Logistic Regression Coefficient.

$\varepsilon$  = Error Term.

#### IV. RESULT AND DISCUSSION

##### A. Logistic Regression Analysis with Significant Variables

The findings of the assessment acquired are as follows by using the binary logistic regression assessment technique with 2 categories on all factors used:

Table- II: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a) X1(1)	-3.081	.406	57.634	1	.000	.046
X2(1)	2.509	.347	52.171	1	.000	12.298
X3(1)	3.003	.487	37.956	1	.000	20.153
Constant	-.041	.233	.030	1	.862	.960

a Variable(s) entered on step 1: X1, X2, X3.

The binary logistic regression likelihood model can be formulated as follows with several independent variables x:

$$g(x_i) = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k}}$$

$$g(x_i) = \frac{\pi(x_i)}{1 - \pi(x_i)} = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k}$$

$$g(x_i) = \ln \frac{\pi(x_i)}{1 - \pi(x_i)} = \beta_0 + \beta_1 JS + \beta_2 PDK + \beta_3 KSN + \varepsilon$$

$$g(x_i) = \frac{e^{(-0.041 - 3.081JS + 2.509PDK + 3.003KSN)}}{1 + e^{(-0.041 - 3.081JS + 2.509PDK + 3.003KSN)}}$$

$$g(x_i) = \frac{\pi(x_i)}{1 - \pi(x_i)} = e^{(-0.041 - 3.081JS + 2.509PDK + 3.003KSN)}$$

$$g(x_i) = \ln \frac{\pi(x_i)}{1 - \pi(x_i)} = -0.041 - 3.081JS + 2.509PDK + 3.003KSN$$

##### B. Testing the coefficient parameter

The model acquired must be screened for importance on the  $\beta$  coefficient on the response variable, namely the Likelihood Ratio Test (G-Test) and the Wald Test.

1. Likelihood Ratio Test (G-Test).

The predictor variables were simultaneously tested for importance to determine whether or not the estimated parameters acquired had a important impact on the model.

The hypothesis testing for parameter estimation simultaneously can be seen as follows:

- $H_0$  Accepted and  $H_1$  Rejected: If  $G_2$  or ( $\chi^2$  Omnibus Test) <(Social security, education, and health variables are not significant to the model).
- $H_1$  Accepted and  $H_0$  Rejected: If  $G_2$  or ( $\chi^2$  Omnibus Test) >  $\chi^2$  ( $\alpha$ , df) (At least one of the social security, education and health variables is significant for the model).

Table- III: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	168.247	3	.000
	Block	168.247	3	.000
	Model	168.247	3	.000

Based on Table 3, it can be seen that the value of  $G_2 = 168,247 > \chi^2$  ( $\alpha$ , df) = 0.351846 or P-value = 0,000 <  $\alpha = 0.05$ , so that a decision on  $H_1$  is accepted and  $H_0$  is rejected. That is, there is at least one of the significant social security, education and health variables to the estimation model.

##### 2. Wald Test

The Wald test is obtained by squaring the parameter estimate ratio with the standard error estimate. The Wald test is used to test the significance of each parameter. Partial/individual test results will indicate whether a dependent variable is suitable for inclusion in the model or not [26] [27]. According to Nachrowi and Usman [28], the individual parameter significance test is performed using the Wald Test with the following hypothesis formulation:

- $H_0 : \beta_i = 0$  (Logical coefficients are not significant for the model)
- $H_1 : \beta_i \neq 0$  (Logical coefficients are significant towards the model)

The statistical test used is:

$$W_{Calculate}^2 = \left[ \frac{\hat{\beta}_i}{SE(\hat{\beta}_i)} \right]^2$$

The value  $W_{Calculate}^2$  follows the Chi-square distribution with  $df = 1$ . If  $W_{Calculate}^2 \geq \chi^2_{(1,\alpha)}$  or p-value  $\leq \alpha$ , then  $H_0$  rejected, and  $H_1$  is accepted, and  $H_0$  accepted if  $W_{Calculate}^2 \leq \chi^2_{(1,\alpha)}$  or p-value  $> \alpha$ .

Table- IV: Partial Significance Test Results/Wald Test

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a) X1(1)	-3.081	.406	57.634	1	.000	.046
X2(1)	2.509	.347	52.171	1	.000	12.298
X3(1)	3.003	.487	37.956	1	.000	20.153
Constant	-.041	.233	.030	1	.862	.960

a Variable(s) entered on step 1: X1, X2, X3.

The variables in the equation can be viewed as a partly important impact of each independent variable on the dependent variable with a hypothesis based on the estimation of SPSS V.23 for Windows output. All estimated findings are sig, based on the requirements of  $\alpha = 0.05$ . It was found ( $0,000 < 0,05$ ) that the factors of social safety, education and health considerably affect the choice of the elderly to continue to work at a meaningful rate of 5%.

3. 3.

Goodness Of Fit Test (GoF)/Hosmer And Lemeshow Test Using the Hosmer and Lemeshow Goodness of Fit Test, the feasibility of the regression model was evaluated.

This model is intended to test the null hypothesis that empirical data matches or matches the model (there is no difference between the model and the data so it can be said that the model fits[29]).

- $H_1$  = If the statistical significance of Hosmer and Lemeshow Fit Test Goodness (Chi-Square) is equal to or less than 0.05, then the null hypothesis is rejected, meaning that there is a significant difference between the model and its observational value, so that the fit model is not good because the model can not predict the value of its findings.
- $H_0$  = If the statistical value of Hosmer and Lemeshow Fit Test Goodness (Chi-Square) exceeds 0.05, then the null hypothesis can be recognized and implies that the model can predict the importance of its findings as it matches the observational data.

Table- V: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.919	5	.712

The probability value sig can be seen from the outcomes of testing the suitability of the above model. of 0.712 while the Chi-Square value ( $\chi^2_{\text{calculate}}$ ) = 2,919. Chi-Square value ( $\chi^2_{(0,05,5)}$ ) = 1,145476 Based on the provisions of  $\alpha = 0.05$ , the Chi-Square statistical value ( $\chi^2_{\text{calculate}}$ ) < Chi-Square ( $\chi^2_{(0,05,5)}$ ) and the value of sig. ( $0,712 > 0,05$ ), The conclusion is that the null hypothesis is acceptable and that the model can predict the importance of its observations as it matches the observation information.

4. Odds Ratio Interpretation

Odds ratio is the tendency value between one category with another category on a qualitative explanatory variable. Trend ratio values can be seen in Table IV.

From the estimation results using SPSS 23.00, the odds ratio values are obtained:

- Odds Ratio value of 0.046 means that the elderly population who have an elderly social security program has a greater probability of choosing not to work by 0.046 times when compared to the elderly population who does not have an old social security program.
- Odds Ratio value of 12.298 means that the elderly population completing tertiary education has a probability of choosing to continue working 12.298

times compared to the elderly population completing primary and secondary education.

- Odds Ratio value of 20.153 means that the elderly population who goes to the doctor/clinic for treatment at least once per 3 months has a probability of choosing to continue working by 20.153 times when compared to the elderly population who goes to the doctor/clinic for treatment more than once every 3 months.
5. Coefficient of Determination ( Nagelkerke R Square )

Cox and Snell's R Square is a metric that attempts to replicate the size of multiple regression based on a method such as estimation with a maximum value of less than 1 so it's hard to interpret. Nagelkerke R Square is used to obtain a determination coefficient that can be interpreted as a value in multiple regression [29].

Nagelkerke R Square is a modification of the coefficients of Cox and Snell R Square to guarantee values differ between 0 and 1. This is achieved by separating the peak values of Cox and Snell R Square[29]. A tiny value implies that independent variables are very restricted in their capacity to explain the dependent variable. A value close to one implies that almost all the data required to predict the dependent variables is provided by the independent variables.

Table- VI: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	260.541(a)	.347	.524

From the above estimated outcomes, R-Square Nagelkerke is known to be 0.524. This implies that 52.4% of the variation in the autonomous factors (social security, education, and health) can explain the dependent variable (the elderly's decision to continue to work), while the remaining 47.6 percent is described by non-model factors or other non-examined variables.

V. CONCLUSION

Research on the determining variables for elderly people to continue their work in Palembang City concludes:

1. The factors that substantially influence the choice variable for the elderly to continue working in Palembang are social security, education, and health based on binary logistic regression assessment.
2. Based on the Nagelkerke R-square value, the 52.4 percent model can explain the proportion of the variance of the independent variables in this study on social security, education and health based on the dependent variable of the decision of the elderly to continue working in the city of Palembang.
3. Based on the odds ratio, the likelihood of continuing to work in Palembang for an elderly are:



- Odds Ratio value of 0.046 means that the elderly population who have an elderly social security program has a greater probability of choosing not to work by 0.046 times when compared to the elderly population who does not have an old social security program.
- Odds Ratio value of 12.298 means that the elderly population completing tertiary education has a probability of choosing to continue working 12.298 times compared to the elderly population completing primary and secondary education.
- Odds Ratio value of 20.153 means that the elderly population who goes to the doctor/clinic for treatment at least once per 3 months has a probability of choosing to continue working by 20.153 times when compared to the elderly population who goes to the doctor/clinic for treatment more than once every 3 months.

4. From the estimation and analysis of data, it is known that the health variable is the biggest variable influencing the decision of the elderly to continue working in Palembang.

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