



The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

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ABSTRACT

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In the year 2050, the elderly population in the world is projected to reach 2 billion inhabitants, distributed across 195 countries. About 80 percent of the world's elderly are expected to reside in low and medium income countries (WHO, 2020). The elderly has been rapidly increasing approximately 21.1% of the total population. Furthermore, life expectancy has significantly risen, although the elderly remain highly vulnerable during the Covid-19 pandemic. The study aims to shed light on the complex relationship between health, income, and family dynamics on the work participation of the elderly. We will investigate the collective impacts of health status, income, and number of family members on the elderly workforce in the job market. We will also explore the influence of health on economic activity within the job market during the Covid-19 pandemic in Palu City. The primary data for this research were gathered from respondents through the distribution of questionnaires. By utilizing multiple linear regression and ANOVA, our analyses found some significant results regarding the influence of health, on economic income, and the number of family members on the activities of the elderly in the job market during the Covid-19 pandemic. The elderly health variable, together the income and number of family members, showed a positive and significant impacts on the work participation of the elderly during the pandemic in Palu City, Central Sulawesi.

KEYWORDS:

Covid-19 pandemic, economic activity, elderly, health

1. INTRODUCTION

The spread of the coronavirus has been rapid, crossing international borders and affecting various parts of the world, impacting Indonesia's economy in terms of trade, investment, and tourism. In Indonesia, Covid-19 was first reported on March 2, 2020, and continued until June 5, 2021. The country has recorded 1,850,206 positive cases, ranking it as the highest significant death tolls in Southeast Asia. Indonesia ranked third highest in Asia with 51,449 deaths. Jakarta was the region with the highest population exposed to Covid-19, followed by other provinces such as West Java, Central Java, East Java, West Sumatra, and Central Sulawesi (Yulianto, 2020).

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The world's population structure is undergoing a significant shift, with both developed and developing countries experiencing an aging process characterized by a growing proportion and number of elderly individuals. Indonesia is witnessing this demographic transition, driven by declining birth rates (fertility) and mortality rates, leading to an increase in life expectancy. This aging trend among the population is influenced by various factors, such as improvements in health, education, social conditions, and economic opportunities (Ekasari et al., 2018).

According to WHO (2015), the elderly population in the Southeast Asia region constituted approximately 8% of the total population, which is around 142 million inhabitants. It is projected that by the year 2050, the elderly population will increase threefold compared to 2014 figures. As of 2020, the elderly population is estimated to be around 28,800,000 (11.34%) (Wijayanti et al., 2022).

Research conducted by Riumallo-Herl et al. (2019) in South Africa highlights the significant impact of elderly health on socio-economic factors, education, work activity, household status, and economic life. Socio-economic

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

measurements are crucial for the well-being of the elderly, including household economic conditions, consumption, and income. A study in Greece, conducted by Dermatis et al. (2021), used social-economic analysis and Geographic Information System (GIS) factors to explore the influence of health problems and socio-economic indicators on the health status and quality of life of the elderly within a limited time. González-Pérez et al. (2023) evaluated the effects of clinical neurological diseases on herniation disease in the male population aged 80 years. Puraya et al. (2021) in a study in Thailand focused on the elderly population in Thailand and underlined the need for a robust health service system and support from the Thai community due to the increasing aging population, particularly those aged 60 years and above.

Toczek & Peter (2023) found a significant relationship between the health status of the elderly, including stress, and the job market. This pressure on the elderly population in Europe affects aspects such as elderly health and social security. According to Luo and Xie (2014), the elderly population in China aged over 65 years was approximately 119 million based on data from the National Bureau of Statistics of China in 2012. These studies explored the effects of elderly health problems and established a significant relationship between the stress experienced by the elderly and their work, economic activity, and recreational pursuits.

Hidayati et al. (2018) found that the quality of life has a significant impact on the health status of the elderly in various aspects of their daily activities. This includes physical well-being, economic and financial fulfillment, satisfaction with their sex life, ability to concentrate on work, and overall comfort. However, the financial situation of the elderly is reported to be relatively low. Miranda et al. (2016) observed that several diseases commonly experienced by the elderly, such as hearing loss (deafness), hypertension, diabetes mellitus, musculoskeletal disorders, and depression, also affect their quality of life. The first problem identified is that, based on the results of a 2022 survey, the elderly population, both male and female, lacked sufficient knowledge about how to improve their quality of life for better health, particularly during the Covid-19 pandemic. The second problem is related to the elderly's situation during the Covid-19 pandemic. Despite the challenging circumstances, they continued to engage in the labor market to meet their economic needs and fulfill family responsibilities towards their children. Simultaneously, they also faced the dilemma of trying to self-isolate and quit work to minimize exposure to the virus.

Elderly workers in the labor market are closely related to the decision to work (Junaidi et al., 2017) and elderly workers who work have working hours more than 33 hours, and work at least 24 hours per week or 96 hours per month and an average of 34 hours per week or 136 hours per month (Khoiriah, 2019). Related to the economy in terms of income, the elderly who have high income tend to substitute

working time with leisure (Arini, 2019). This is in line with Parinding et al. (2021) arguing that increasing per capita income for the elderly encourages the participation of the elderly workforce in economic activities with a level of prosperity and is able to involve multidimensional factors, namely economic, social, demographics and health of the elderly (Todaro & Smith, 2011). Expected age the life of the elderly at birth reflects a better degree of public health in all aspects of health in an area (Badan Pusat Statistik, 2020). An increase in life expectancy reflects the life span of the elderly which has logical consequences in development, one of the social challenges of increasing the elderly needs policies or certainty related to an adequate level of income for the elderly so as not to burden the capacity of the younger generation (dependency ratio) which is small and needs to consider the length of service and increasing the ability of elderly workers. According to data from Melianna et al. (2021), the trend of life expectancy has increased from year to year, in 2018 the life expectancy in central Sulawesi was 68 and increased to 69 in 2019. Life expectancy during the Covid-19 period in 2019 increased significantly by 70 in 2020.

According to the predictions by the World Health Organization (2015) the country is experiencing a demographic transition, leading to an increasing number of elderly individuals. In 2016, an inter-census survey estimated that there were 22,630,882 Indonesians with aged 60 years and above in Indonesia. By 2022, this number is expected to rise to 31,320,066. During the Covid-19 pandemic, data indicate that the number of elderly individuals in various age groups was substantial. Elderly workers in the labor market are influenced by their decision to work, and those who continue to work tend to have higher working hours per week or month. Economic factors, such as income, play a role in influencing the participation of elderly workers in economic activities. Higher income for the elderly may lead to a substitution of work time with leisure. Policies related to income levels for the elderly are crucial to avoid burdening the younger generation (dependency ratio) and must consider the length of service and increasing the ability of elderly workers. Higher life expectancy has implications for development and presents social challenges that necessitate appropriate policies to address the needs of the elderly workers. Data from Basrowi et al. (2021) show a steady increase in elderly population the proportion of the elderly group was merely 5%, and it is expected to increase to 11% in 2035. However, it's essential to continue implementing policies and measures to support the growing elderly workers to ensure their well-being and quality of life. Kantachote & Wiroonsrin (2022) in their research in Thailand examined the factors that influence the decision of the elderly to remain in the labor market after retirement. Using cross tabulation, Random Forest, Logistic Regression and k-fold cross validation, they found that the key variables were gender (male), type of residence (commercial building), health

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

condition, total assets, health eligibility and marital status have a positive impact on the elderly's decision to work. On the other hand, variables such as age, marital status (widow), type of residence (townhouse), level of education, and the number of children had a negative effect on the elderly's decision to work.

The research also highlighted the prevalence of diabetes mellitus among the elderly workers, particularly in the age group of 65 to 74 years, as reported in Kemenkes RI (2018). The study also indicated that screening services for the elderly were conducted in Puskesmas (primary healthcare centers) as mentioned in the Information may consider health changes as a screening criterion to promote health screening, guiding other health promotion and prevention programs while promoting healthy aging (Du & Mu, 2022).

In 2021, there were 338 districts/cities or 65.8% of total that reported data on the achievement of elderly healthcare services. The highest achievement was found in Central Java Province at 81.95%, followed by Bangka Belitung Province at 78.23%, and Lampung Province at 71.83%, in an effort to improve healthcare services for the elderly (Kemenkes RI, 2018).

2. THE METHODS

The research study utilized a quantitative approach, which is a scientific method involving the measurement of data on a numerical scale and analysis through statistical methods. The sampling technique employed was proportional random sampling, which involves selecting samples with consideration for specific elements. The determination of the sample size was based on Slovin's formula (Sugiyono, 2021)

$$n = \frac{N}{1 + Nd^2}$$

where:

n = Number of samples

N = Number of Population

d = Predetermined Precision Level (15 percent)

Through the Slovin's formula above, the number of samples (n) taken based on the number of working elderly (N) in Palu City with a total of 386 elderly residents is determined as follows:

$$n = \frac{386}{1 + 386 (15\%)^2}$$

n = 39.8 or rounded up to 40 respondents. Thus, out of 386 elderly workers in Palu City, 40 respondents were taken with a precision level of 15 percent.

Data Collection Method

The data were collected through three techniques. First, observation: This method involved data collection through direct observation of the subject being studied. Second, questionnaire: Data were collected by distributing a list of questions to respondents. The answers from the

respondents were then tabulated and analyzed using the SPSS V17 software.

Data Analysis

In this research, three analytical methods were employed: classical assumption test, multiple linear regression test, and the following hypothesis test. In this research, three classic assumption test models were used, namely the normality, multicollinearity, and heteroscedasticity test (Ghozali, 2019).

Multiple linear regression model analysis is employed to investigate the relationship between multiple independent variables, such as health status, income, and the number of family members, and their combined effect on a dependent variable, which in this case is the labor participation of the elderly in Palu City, Central Sulawesi. We test the following equation in this research as follows:

$$Pkl = \beta_0 + \beta_1 Ktn + \beta_2 Pdptn + \beta_3 Jak + e$$

where:

Pkl : Elderly workforce

β_0 : Constant

$\beta_1 Ktn$: Regression coefficient for the health of the elderly

$\beta_2 Pdptn$: Regression coefficient for the income of the elderly

$\beta_3 Jak$: Regression coefficient for the number of family members

e : Error term.

Hypothesis Testing

A statistical calculation is considered statistically significant when its test value falls within the critical area, leading to the rejection of the null hypothesis (H0). Conversely, if the test value falls within the area where H0 is accepted, it is considered insignificant. According to (Kuncoro, 2009), Regression analysis involves three types of determination criteria: the F statistic test, the t statistic test, and the coefficient of determination test.

3. Result and Discussion

Respondents' Characteristics by Age

The majority of respondents fall within the age group of 60 to 64 years, constituting 27 respondents or 67.5 percent of the total. Respondents aged 65 to 69 years accounted for 9 respondents or 22.5 percent, while those aged 70 years and above comprised 4 respondents or 10 percent. This indicates that the sample for this research primarily consists of individuals aged 60 to 64 years who are actively engaged in economic activities within the labor market.

Respondents' Characteristics by Sex

The respondents in this research were predominantly male, accounting for 29 respondents or 72.5 percent of the total. The remaining 11 respondents, equivalent to 27.5

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

percent, were female. This suggests that the sample in this research was skewed towards a higher representation of males compared to females. This could be attributed to the societal perception of men as breadwinners for their families.

Socio-Economic Characteristics of the Elderly Population Based on Occupation

The majority of respondents in this research are employed as farmers, accounting for 52.5 percent or 21 respondents. Traders constitute 32.5 percent or 13 respondents, while workers represent 15 percent or 6 respondents. These findings clearly indicate that the sample predominantly consists of individuals employed in the farming sector.

Respondents' Characteristics by Health Condition

Respondents' responses on items related to Health Condition, indicate that among elderly workers in the labor market with working hours more than 33 hours and a good health background, the proportion is the highest, with 18 respondents. In comparison, elderly workers with working

hours < 33 hours and a good health background amount to 8 respondents. On the other hand, elderly individuals with an unhealthy background and a total working hours of ≥ 33 hours account for 4 respondents, while the work participation of unhealthy elderly with a total working hours of < 33 hours includes 6 respondents. These findings clearly demonstrate that the work participation rate of elderly individuals with a good health background is higher compared to that of unhealthy elderly individuals.

Elderlies' Characteristics by Income

Based on the data presented in Table 5, the cross-tabulation analysis reveals that elderly individuals who work with a total of working hours at least 33 hours and earn an income level of US\$169 have the highest proportion, consisting of 4 respondents. On the other hand, elderly individuals who work less than 33 hours and earn an income of US\$169 amounting to 2 respondents. There are 14 respondents among the elderly who earn an income level of US\$182 and work less than 33 hours.

Table 1. Cross-tabulation between Elderly Income Category and Elderly Labor Force Participation Category in Palu City

No.	Category of Elderlies' Participation	Income Category		Total
		< 2.500.000 (US 169)	≥ 2.700.000 (US 182)	
1.	< 33	14	2	16
2.	≥ 33 hours	4	20	24
Total		18	22	40

Source: Primary Data, processed in 2025

Respondents' Characteristics by Total Number of Family

Based on the data presented in Table 6, the cross-tabulation analysis indicates that among the elderly individuals who have fewer than 2 family members, 2 respondents are engaged in work with both less than 33 hours and at least 33 hours of working hours. On the other hand, among the elderly individuals who have 2 or more family

members, 16 respondents are involved in work with less than 33 hours of working hours, and 16 respondents work with at least 33 hours of working hours. These findings suggest that the work participation of the elderly who have 2 or more family members tends to have a higher percentage of working hours, as a greater number of them work for at least 33 hours compared to those with fewer family members.

Table 2. Cross-tabulation between Total Family Members Category and Elderly Labor Force Participation Category in Palu City

No.	Category of Elderly Workforce	Total Number of Family		Total
		< 2 persons	≥ 2 persons	
1.	< 33 hours	2	14	16
2.	≥ 33 hours	8	16	24
Total		10	30	40

Source: Primary Data, processed in 2025

3. RESULT AND DISCUSSION

The data processing in this research involves several steps, including the classical assumption test, multiple linear regression analysis, and hypothesis testing as follows.

Results of the Classical Assumption Test

Normality Test

The normality test serves to assess the distribution of the data, specifically whether it follows a normal

distribution or not. For this research, the regression model employed the Kolmogorov-Smirnov normality test method. In this test, a crucial criterion for decision-making is the significance value (p-value). A significance value greater than 0.05 indicates that the data conforms to a normal distribution, whereas a significance value less than 0.05 indicates non-normality. The outcomes of the Normality test,

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

seen in Table 7, show the significant value is $0.304 > 0.05$. Therefore, the data were regarded normally distributed.

Table 3. The Results of Normality Test

<i>One-Sample Kolmogorov-Smirnov Test</i>	
	<i>Unstandardized Residual</i>
<i>Kolmogorov-Smirnov Z</i>	0.970
<i>Asymp. Sig. (2-tailed)</i>	0.304

Source: Primary Data, processed in 2025

Multicollinearity Test

The multicollinearity test is essential in a regression model as it assesses whether there is any intercorrelation or collinearity among the independent variables. Indicators of intercorrelation are revealed through the correlation coefficient of the VIF (Variance Inflation Factor) and tolerance values. The decision-making process involves examining the tolerance value, where a value greater than 0.10 suggests no multicollinearity in the tested data. The VIF value is considered, and if it is below 10.00, it indicates an absence of multicollinearity in the data under examination.

The results of Multicollinearity Test using SPSS V17 with the VIF and Tolerance value correlation coefficient are presented in Table 8. The tolerance values for the health variable, income, and the number of family members are 0.863, 0.510, and 0.469, respectively. These tolerance values are all greater than 0.10, which suggests the absence of multicollinearity. The variance inflation factor (VIF) values for the elderly health variable, elderly income, and the number of family members are 1.428, 3.331, and 3.709, respectively. As all these VIF values are less than 10.00, no multicollinearity in the data pertaining to these variables was found.

Table 4. The Results of Multicollinearity Test

<i>Coefficients^a</i>			
Model		<i>Collinearity Statistics</i>	
		Tolerance	VIF
1	<i>(Constant)</i>		
	Elderlies' Health Status	0.863	1.428
	Income	0.510	3.331
	Total Number of Family	0.469	3.709

a. *Dependent Variable: Elderly's Participation*

Source: Primary Data, processed in 2025

Heteroscedasticity Test

Absolute value (Abs) is obtained from the results of unstandardized regression of the independent variable on the dependent variable. The basis for making decisions on the heteroscedasticity test referred to Glejser method as follows. If the significance value (Sig) between the independent variable and the absolute residual is higher than 0.05, there is no heteroskedasticity issue. If the significance value (Sig) is lower than 0.05, there is a heteroskedasticity issue.

Based on Table 9, it is observed that the significance value for the elderly health status variable is 0.852, which is

greater than the significance level of 0.05. This indicates that there is no heteroscedasticity present in the health variable. Similarly, for the income variable, the significance value is 0.506, which is also greater than 0.05, suggesting the absence of heteroscedasticity in the income variable. In addition, the significance value for the variable representing the number of family members is 0.075, which is greater than 0.05, indicating that no heteroscedasticity was found in the variable related to the number of dependents.

Table 5. The Results of Heteroscedasticity Test

<i>Coefficients^a</i>		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	3.257	1.635		3.123	0.082
	Elderlies' Health Condition	0.305	0.545	-0.054	0.320	0.852
	Elderlies' Income	4.710	0.657	0.031	0.935	0.506
	Total Number of Elderlies' Family	0.858	0.450	0.460	1.909	0.075

a. *Dependent Variable: Abs_RES*

Source: Primary Data, processed in 2025

Results of Multiple Linear Regression

The results of the Multiple Linear Regression test are shown in Table 6 The estimation results indicate that the equations formed can be interpreted based on the significance values. The constant's significance value is less than the 5 percent level (alpha = 0.005), signifying its significant effect on the participation of the elderly in the workforce. Similarly, the health variable's significance value is 0.047, less than the

5 percent level of significance, demonstrating its significant effect on the work participation of the elderly. The income variable's significance value is 0.003, less than the 5 percent level, indicating its significant effect on the elderly workforce in the job market. Moreover, the variable representing the number of family members has a significance value of 0.002, less than the 5 percent level, indicating its significant effect on the elderly workforce in Palu City

Table 6. The Results of Multiple Linear Regression Test on Elderlies in the Labor Market

<i>Coefficients^a</i>		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	39.019	2.314		6.711	0.005
	Elderlies' Health Status (X1)	3.105	2.024	0.144	2.056	0.047
	Income (X2)	12.987	1.447	0.825	7.685	0.003
	Total Number of Elderlies' Family Member (X3)	3.769	0.826	0.318	3.674	0.002

a. *Dependent Variable: Elderly Workforce*

Source: Primary Data, Processed in 2025

The significance of the constant variable and the independent variables (health, economic income, and number of family members) has a significant influence on the elderly workforce in the job market at the 5 percent alpha level. Moving on to analyze the regression coefficient values, the constant value of 39.009 indicates that if health (X1), income (X2), and the number of family dependents (X3) all have a value of 0.075, then the elderly workforce increases by 39.009 hours per week. Regarding the health regression coefficient value (X1) of 2.105, it signifies that the effect of health on the elderly workforce in the job market is positive. This means that if there are no health problems for the elderly (such as impairments in seeing, hearing, walking, etc.) in the past

month, assuming income variable (X2) and the number of family dependents (X3) remain constant at 0.075, then the work participation of the elderly, or the number of hours they work, will increase by 3.079 hours. Furthermore, the value of the income regression coefficient (X2) is 12.987, which means that the effect of income on the work participation of the elderly is positive. This indicates that if income increases by 1 percent, assuming the health variable (X1) shows no health problems for the elderly, and the number of family dependents (X3) does not exceed 2 people, then the work productivity of the elderly in the job market will increase by 12.987 hours.

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

The regression coefficient value of the number of family members (X3) is 2.669, indicating that the effect of the number of family members on the work participation of the elderly is positive. In other words, if the number of family members increases by 1 person, assuming health (X1) and income (X2) are constant or considered zero, the work participation of the elderly will increase by 2.669 hours.

The Results of Hypothesis Testing

F test

The F test was employed to assess the collective impacts of the independent variables (health, income, and

number of family members) on the dependent variable, which is the work participation of the elderly population. The calculation resulted in F_{Table} of 2.63.

The results of F test are presented in Table 7 The calculated F is found to be 109.845, while the critical F_{Table} value is 2.63. As the calculated F (109.845) is greater than the F_{Table} (2.63), and the significance value (0.002) is smaller than the significance level of 0.05, it can be concluded that there is a significant influence of the combined variables (health, income, and number of family members) on the work participation of the elderly population.

Table 7. The Results of F test

<i>ANOVA^b</i>						
Model		<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	<i>Regression</i>	1974.38	3	744.513	109.845	0.005 ^a
	<i>Residual</i>	413.137	37	5.820		
	<i>Total</i>	2387.517	40			

a. *Predictors: (Constant), Total Number of Elderlies' Family Member, Income, Kesehatan Elderlies* b. *Dependent Variable: Participation of Elderly Workforce*

Source: Primary Data, Processed in 2025

t Test

The t test was performed to determine the influence of each independent variable (health, income, and number of family members) on the dependent variable (elderly workforce). The basis for making a decision to compare each variable is explained as follows. The decision was taken based on the comparison between t_{score} and t_{test} Table 8

1) $t_{score} < t_{Table} \text{ OR } -t_{score} > -t_{Table}$

Indicating that the independent variable does not affect the dependent variable.

2) $t_{score} > t_{Table} \text{ OR } -t_{score} < -t_{Table}$

Indicating that the independent variable affects the dependent variable.

The results of t test are shown in Table 8 The results shown in the Table can be interpreted as follows. The Influence of Health on Elderlies' Participation at Work exhibits a t-score of 2.056, which exceeds the critical t-score of 2.028. The significance level is determined to be 0.047, which is less than the accepted threshold of 0.05. As a result, we reject the null hypothesis (H0) and accept the alternative hypothesis (Ha). Thus, it can be concluded that the health independent variable has a positive and statistically significant effect on the dependent variable of the elderly workforce.

Table 8. The Results of t Test

<i>Coefficients^a</i>						
Model		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>T</i>	<i>Sig.</i>
1	<i>(Constant)</i>	39009	2.414		6.711	0.000
	<i>Health</i>	2.105	1.024	0.124	2.056	0.047
	<i>Income</i>	11.887	1.547	0.725	7.685	0.000
	<i>Total Number of Elderlies' Family Member</i>	2.669	0.727	0.318	3.674	0.001

a. *Dependent Variable: Participation of the elderlies at work*

Source: Primary Data, processed in 2025

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

The income variable shows a t-score of 7.685, which exceeds the critical t-value of 2.028, and a significance level of 0.001. Consequently, we reject the null hypothesis (H0) and accept the alternative hypothesis (Ha), suggesting a positive and significant effect of the independent variable "income" on the dependent variable of the elderly workforce. This finding indicates that income has a significant influence on the number of family members among elderly workers.

Similarly, the variable "number of family members" exhibits a t-score of 3.674, which is greater than the critical t-value of 2.028, and a significance level of 0.001, which is below 0.05. Thus, the null hypothesis (H0) is rejected in favor of the alternative hypothesis (Ha), indicating a positive and significant effect of the independent variable "number of dependents" on the dependent variable of the elderly workforce.

Table 9. The Results of Coefficient of Determination Test

<i>Model Summary^b</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.829 ^a	0.902	0.792	3.433

a. Predictors: (Constant), Total Number of Elderlies' Family Member, Income, Kesehatan

b. Dependent Variable: elderly workforce

Source: Primary Data, Processed in 2025

The study's findings delve into the impact of both individual and combined independent variables, namely health, income, and the number of family dependents, on the dependent variable, which is the workforce participation of the elderly population in the city explained as follows.

The Influence of Health on the Labor Force Participation of the Elderly Population

The hypothesis under investigation stated that health has a positive and significant effect on the elderly workforce, as indicated by the number of hours worked in the past week. The regression coefficient value for the health variable, as shown in Table 8 is 2.105. This means that, on average, healthy elderly workers work significantly more hours (greater than 33 hours) compared to unhealthy elderly individuals who may have health conditions such as diabetes, heart disease, hypertension, cholesterol, and kidney disease. These health conditions are commonly found in the age group of 60-65 years.

Healthy elderly individuals are more inclined to participate actively in the economy compared to their counterparts with health issues. Likewise, Nababan (2013) also found that elderly individuals with good health tend to choose to work in order to fulfill their needs and other responsibilities, while those with compromised health are less likely to participate in the workforce.

The Influence of Income on the Labor Force Participation of the Elderly Population

The second hypothesis of this research posits that income has a partial positive effect on the work participation of the elderly population. The results of the t-test indicate a significant finding, with a t-value of 7.685, exceeding the critical t-table value of 2.028 (as shown in Table 8). The significance value of 0.000 is lesser than the predetermined threshold of 0.05, leading to the acceptance of H₁ (alternative hypothesis) and rejection of H₀ (null hypothesis). In other

words, the study's results demonstrate that income has a positive and significant influence on the work participation of the elderly.

The regression coefficient value for the income variable is 11.887. This means that if the income of the elderly increases by 1 percent, there is a corresponding increase in their work participation. Similar conclusions were drawn in previous research conducted by (Todaro & Smith, 2011).

The Influence of the Total Number of Elderly Family Members on the Elderly in the Labor Market

The third hypothesis of this research posits that the number of family members has a partial positive effect on the elderly in the labor market. The results of the t-test, as shown in Table 8, indicate that the t-value of 3.674 exceeds the critical t-table of 2.028, and the significance value of 0.001 is less than the predetermined threshold of 0.05. As a result, H₁ (alternative hypothesis) is accepted, and H₀ (null hypothesis) is rejected. This means that the study's findings support the hypothesis that the number of family members has a positive and significant impact on the work participation of the elderly.

The regression coefficient value for the number of family members is 2.669. This indicates that if the number of elderly family members increases by 1 person, assuming all other independent variables remain constant, the elderly in the labor market increase their working hours by 2.669.

4. CONCLUSION

The results of this research are interpreted into conclusions as follows: First, both the health status of the elderly and the total number of elderly family members have a significant simultaneous influence on the labor force participation of the elderly population during the Covid-19 pandemic. health has a positive and significant effect on the labor force participation of the elderly population during the

Sitti R. et al, The Determinants of Economic Activity Elderly Population Work Force in The Post Covid-19 Pandemic: in Indonesia

Covid-19 pandemic. income has a positive and significant effect on the labor force participation of the elderly population during the Covid-19 pandemic. Fourth, the total number of elderly family members has a positive and significant effect on the labor force participation of the elderly population during the Covid-19 pandemic.

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