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The Work Participation of the Elderly during the COVID-19 Pandemic in Palu City

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Abstract

This study examines the work participation of the elderly population (≥ 60 years) during the COVID-19 pandemic in Palu City. The sample was 80 respondents. The data analysis used probit regression. The results showed that only 36.26 percent of all respondents are still working. The COVID-19 pandemic changes variables affecting work participation of the elderly. The results of the analysis show that only two variables have a significant influence, namely age and health status of the elderly. As the elderly get older, the probability of the elderly participating in the labor market decreases. The elderly with a health condition have a greater probability of entering the labor market than the elderly with poor health conditions. Meanwhile, four variables did not have a significant influence during the COVID-19 pandemic, such as education, gender, status in the household and other sources of income (pension funds and remittance). Work participation is greatly affected by the presence of the COVID-19 pandemic.

Keywords
elderly population; COVID-19 pandemic; work participation

I. Introduction

Population aging, as an important development trend in the 21st century, has broad implications for all aspects of social, economic, health, and even political life. In 2021, there were two people turning 60 every second, and one in nine people aged 60 or older worldwide. In 2050, it is projected that there will be one elderly in five people. In 2012, it was only Japan that had an elderly population of more than 30 percent. Then, in 2050, it is estimated that there will be 64 countries with an elderly population of more than 30 percent (Hartono, 2012).

As life expectancy increases, the proportion of the elderly population also increases. According to Statistics Indonesia (BPS), the elderly population in Indonesia was 14,439,967 people (about 7.18 percent of the total population) in 2000 and increased to 23,992,553 people (9.77 percent) in 2010 and then increased to 28,270,293 people (10.46 percent) in 2020 (Badan Pusat Statistik, 2021). Indeed, the trend of population aging also occurs in Central Sulawesi Province. In 2000, the elderly population in this area reached 126,208 people (5.8 percent of the total population), then increased to 174,900 people (6.6 percent) in 2010 and 240,517 people (8.05 percent) in 2020 (Badan Pusat Statistik Sulawesi Tengah, 2021). Especially in Palu City, the number of elderly people in 2000 was 8,968 people or around 3.39 percent of the total population. This number increased to 16,958 people (5.02 percent) in 2010 and to 26,389 people (7.07 percent) in 2020 (Badan Pusat Statistik Kota Palu, 2021).

Suweno (2014),states that from an estimated 19 million elderly in 2014, 2.8 million elderly are less fortunate or under the poverty line and 2.2 million people are in the category of vulnerable to poverty. Moreover, the National Socioeconomic Survey in 2020 revealed the economic status of elderly households based on per capita expenditure in which it is estimated that 40 percent of the elderly have the lowest household economic status, even 36.57 percent live in uninhabitable houses or in other words, 4 out of 10 elderly living at uninhabitable houses (Badan Pusat Statistik, 2020). In terms of health, almost half of the elderly in Indonesia experience health complaints, both physical and psychological (48.14 percent). Meanwhile, the percentage of the elderly who are sick is 24.35 percent of the total elderly (Badan Pusat Statistik, 2020).

The elderly face various problems and some have to work to survive by fulfilling their needs and also their dependent families. According to (Wirakartakusumah & Evi, 1994), one of the reasons the elderly have to work is the economic pressure. Sukamdani et al. (2000) found that more than half (65 percent) of 140 elderly work because they have to earn a living. Based on the National Socioeconomic Survey in 2020, there are 51.04 working elderly or one of two elderly are still actively working (Badan Pusat Statistik, 2020).

During the COVID-19 pandemic, the elderly population becomes a vulnerable and prone group exposed to COVID-19 (Kedaulatan Rakyat, 2020). Hakim (2020) states that the vulnerability of the elderly in terms of health can be seen from the statistical data of the elderly who died from COVID-19 in various countries. The elderly who died from COVID-19 reached 62.6 percent in Malaysia, 85 percent in Brazil, 95 percent in Italy, 95.5 percent in Spain, 80 percent in China, and 80 percent in the United States.

According to Probosuseno, a geriatrics expert from UGM, the factor causing the elderly vulnerable to COVID-19 is that the elderly experience decreased functional capacity in almost all body systems including immunity. Besides, many elderly suffer from congenital diseases such as autoimmune diseases, diabetes, high blood pressure, cancer and heart disease. In many countries, the casualties due to COVID-19 are dominated by the elderly population which indicates that the Indonesian elderly are also vulnerable (Handayani et al., 2020).

During the COVID-19 pandemic, the elderly population faces more challenges including health problems, socio-economic problems, and other problems. The physical distancing policy makes it difficult for the elderly to access basic services such as health services, access to income and others. Besides, social restrictions increase the isolation of the elderly which causes feelings of loneliness and depression (Tim Nasional Percepatan Penanggulangan Kemiskinan, 2020). During the pandemic, the activities of posyandu for the elderly cannot be utilized as a means for performing physical activities and interaction among the elderly (Kedaulatan Rakyat, 2020).

The elderly population faces challenges such as limitations in entering the world of work, disturbance of daily activities and emotional due to self-isolation and susceptibility to COVID-19 transmission (Morrow-Howell et al., 2020). The COVID-19 pandemic also affects the social relationships of the elderly with other people around them and also reduced social support for them (Republika, 2020). Positive emotions can lead to positive word of mouth, while negative emotions can lead to complaints. The result shows that customer loyalty can be formed from the commitment of the management of business organizations to provide the best for consumers, especially related to product quality, competitive prices, and satisfying services (Fortunata, 2020). Satisfaction becomes an expectation after a purchase and becomes the basis for fulfillment before reaching customer participation. (Fadhillah, A. et al. 2021).

The COVID-19 pandemic has almost paralyzed the community's economy. The implementation of various government policies such as work from home, regional restrictions, the closure of various public places led to the termination of employment (PHK), and business closures in an unspecified time (Pusat Pelayanan Sosial, 2020). A study by Azimah et al. (2020) conducted in Klaten and Wonogiri markets found that there is a spike in the price of goods, a decline in market economic activity, and a 50 percent decrease in the income of market traders due to the COVID-19 pandemic. Moreover, Badan Pusat Statistik Jambi (2020) reveals that 26.62 percent of 804 working respondents are temporarily laid off and 2.49 percent are terminated. A total of 38.95 percent of working elderly and 53.27 of elderly who are laid off state that their income has decreased.

The elderly population faces double pressure during the COVID-19 pandemic. They are most vulnerable to the COVID-19 transmission and are economically affected because of the difficulty of earning income (Jayani, 2020). They are prevented from entering the job market even though they have to survive. Considering the explanation above, this study tries to examine and investigate more deeply the work participation of the elderly during the COVID-19 pandemic in Palu City.

II. Review of Literature

2.1 Concept of Elderly

In limiting the discussion of the elderly population, three aspects need to be considered such as biological aspects, economic aspects, and social aspects (Pandji, 2012). Biologically, the elderly population experiences a continuous aging process marked by a decrease in physical condition and an increase in vulnerability to disease that can cause death. This is due to changes in the structure and function of cells, tissues, and organ systems. Economically, the elderly are no longer seen as a resource but more as a burden. Even, from the social aspect, some think that the elderly no longer provide many benefits, but they give a burden on the family and society.

According to the Law of the Republic of Indonesia Number 13 of 1998 concerning the Welfare of the Elderly (Presiden Republik Indonesia, 1998) especially Chapter I, Article 1, points 2, 3 and 4 that:

1) Elderly are persons who have reached the age of 60 (sixty years) and above,
2) Potential elderly are persons who are still able to do work and/or activities to produce goods and/or services,
3) Non-potential elderly are persons who are powerless to earn a living so that their lives depend on the help of others.

2.2 Work Participation of Elderly

One of the factors influencing a person to enter the job market is age. Many studies reveal that when a person enters old age, naturally his/her time for economic activities will also decrease. Simanjuntak (1998) states that when a person reaches a certain age, he/she reduces his/her supply to the labor market. It is because the older a person, the lower the ability to move and work, so they tend to decide not to work or retire. Furthermore, (Kalwij & Vermeulen, 2005); (Giles et al., 2011); (Febriani, 2013); (Parinding et al., 2018) show that the older the age, the greater the probability of the elderly population not working.

Other variables affecting the elderly entering the labor market are gender, status in the household, education, and health status of the elderly. The labor participation of the male population is always higher than the female population, both for the productive age group and the elderly population group. Simanjuntak (1998) reveals that men have an

obligation as the backbone and breadwinner of the family. Besides, the pattern of women's work participation is influenced by decisions in the household after marriage which encourages women to take care of the household. So the dominance of male workers in this case the elderly group is still higher than females (Affandi, 2009). It is in line with (Kalwij & Vermeulen, 2005) and (Febriani, 2013)

In terms of status in the household, the elderly with the status of the head of the household tends to work. Meanwhile, the elderly with the status of members of the household have a tendency not to work (Affandi, 2009). The position of the head of the household is important in determining the continuity of the household. Besides being responsible for fulfilling the economic needs of all family members. The head of the household also has a role as a decision-maker. The responsibility of the head of the household, both from an economic and psychological perspective, is still mostly carried out by the elderly who should have enjoyed their old age without heavy burdens. It is because the elderly with the status as the head of the household has a big responsibility and role to meet the needs of the family. It also indicates that family dependents encourage the elderly as the head of the household to keep working in old age (Andini et al., 2013). Thus, the elderly function as the head of the household encourages them to work in old age.

Simanjuntak (1998) explains that the basic assumption of the human capital theory is that a person can increase her/his income through education. Education is seen as an investment to get an increase in income in the future. Increasing incomes push people out of the job market (Simanjuntak, 1998). This confirms the findings of Giles et al. (2011) that with increasing time to take education, the elderly leave the job market as the increase in education reflects the accumulation of household assets and relatively high lifetime income (retirement benefits). With higher education, entering old makes the elderly tend not to work anymore.

Quality and physical condition highly determine work productivity. According to Simanjuntak (1998), the decreasing physical conditions will affect the work productivity of the elderly. Thus, they tend to leave the labor market. This result is in accordance with Affandi (2009) that good health conditions allow the elderly to enter the labor market. It is in line with Pratiwi et al. (2018) and Yanti & Sudibia (2019) that the elderly population with poor health will make a decision to reduce their participation in the labor market.

2.3 Impact of COVID-19 on Socioeconomic Conditions

COVID-19 has caused great social and economic impacts on society. Syaifudin (2020) states that COVID-19 allows for social disorganization and social dysfunction. Social disorganization is a manifestation of discrimination and prejudice occurred in society. This discrimination and prejudice are caused by the public's fear of the impact of the spread of COVID-19. It happens due to the people’s attitude in taking distance during communicating. Meanwhile, social dysfunction occurs when a person cannot carry out social functions according to social status due to fear of COVID-19. Social disorganization and social dysfunction are the real manifestations of social ills.

Besides, COVID-19 has almost paralyzed the community's economy. The implementation of various government policies including work from home, large-scale social restrictions, and the closure of various public places led to the termination of employment (PHK) and business closures in an unspecified time (Pusat penyuluhan Sosial, 2020). A study (Azimah et al., 2020) conducted in Klaten and Wonogiri markets found a spike in the price of goods, a decline in market economic activity, and a 50 percent decrease in the income of market traders due to the COVID-19 pandemic. Another study (Badan Pusat Statistik Jambi, 2020) revealed that 26.62 percent out of 804 working

respondents are temporarily laid off and 2.49 percent are terminated. The decreasing income is experienced by active workers (38.95 percent) and workers who are laid off (53.27 percent).

The elderly population faces more challenges. According to (Republika, 2020), COVID-19 affects the social relationships of the elderly with others and reduces social support for them. Besides, they also experience limitations in entering the workforce because of their vulnerability to COVID-19 transmission (Morrow-Howell et al., 2020). This fact makes the elderly vulnerable to economic shocks (Tim Nasional Percepatan Penanggulangan Kemiskinan, 2020).

III. Research Method

This study used a quantitative approach with a cross-sectional design. It was conducted in Palu City considering that the community in this city is still in a transitional category in which most of the population works in the industrial, service, and agricultural sectors. The population of this study is the elderly (aged ≥60 years) in Palu city who still have a good memory and can answer questions well. According to (Sugiyono, 2010) feasible sample size is between 30 to 500. Based on these considerations, this study involved 80 respondents as samples.

This study used regression analysis with a probit approach. The probit model is a non-linear model using binary numbers (dummy variables) as the response variable and assumes the error factor is normally distributed (Agresti, 2009). To determine the probability of working for the elderly population as the dependent variable, it was expressed by the dummy variable = 1 and not working is expressed by the dummy variable = 0. The probit model built in this study can be seen below.

$$\mathbf{Pr\ (Ls) = \beta 0 + \beta_1 Usia + \beta_2 Pend + \beta_3 D_{Gen} + \beta_4 D_{SDRT} + \beta_5 D_{SPL} + \beta_6 D_{SKes} + e}$$

Notes:

β_0	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$	= Regression coefficient
Pr	= Work participation of elderly
Usia	= Age of elderly
Pend	= Education
D_{Gend}	= Gender
D_{SDRT}	= Marital status
D_{SPL}	= Other sources of income
D_{SKes}	= Health status

The dependent variable symbolized by Pr (Ls) is the involvement of the elderly in categorical economic activities: 1 = if working and 0 = if not working. The independent variables covered age, education, gender, status in the family, other sources of income. Two independent variables on a ratio scale were age and education. The age of the elderly was calculated based on the age at the interview time (years) and education refers to the length of completing the education (years). The other independent variable was a dummy variable in which gender: 0 = female and 1 = male; status in household: 0 = household member and 1 = head of household; other sources of income in the form of pension funds and remittances: 0 = have no remittances and 1 = have remittances; and the health status of the elderly is categorized as healthy if not experience impaired vision, hearing, walking/climbing stairs, moving fingers/hands, talking and or communicating with others and not having chronic diseases: 0 = unhealthy and 1 = healthy.

IV. Results and Discussion

4.1 Characteristics of Respondents

The characteristics of the elderly are presented in table-1. The study involved 80 respondents consisting of 36 females (45.00 percent) and 44 males (55.00 percent). Based on age group, the elderly are categorized into the age group of 60-64 years, 65-69 years, 70-74 years, and older than 75 years with 41.25 percent, 38.75 percent, 13.75 percent, and 6.25 percent respectively.

Table 1. Description of Respondents based on Work Participation of Elderly (60+)

	Not working		Working		Total	
	People	**Percent**	**People**	**Percent**	**People**	**Percent**
Age						
60 – 64	14	27.45	19	65.52	33	41.25
65 – 69	21	41.08	10	34.48	31	38.75
70 – 74	11	21.57	0	0.00	11	13.75
75 +	5	9.80	0	0.00	5	6.25
Gender						
Male	22	43.14	14	48.28	36	45.00
Female	29	56.86	15	51.72	44	55.00
Living status						
Living alone	3	5.88	3	10.34	6	7.50
Living with spouse	21	41.18	20	68.97	41	51.25
Living with child/child in law	25	49.02	4	13.79	29	36.25
Living with other family members	2	3.92	2	6.90	4	5.00
Status in the household						
Member of household	33	64.71	9	31.03	42	52.50
Head of household	18	35.29	20	68.97	38	47.50
Health status						
Unhealthy	39	76.47	10	34.48	49	61.25
Healthy	12	23.53	19	65.52	31	38.75
Other sources of income (Pension funds and remittances)						
Have other incomes	34	66.67	27	93.10	61	76.25
Not have other incomes	17	33.33	2	6.90	19	23.75
Education						
Not attending school + Completing elementary school	12	23.53	9	31.03	21	26.25
Completing junior high school + senior high school	27	52.94	18	62.07	45	56.25
University	12	23.53	2	6.90	14	17.50
Total	51	100.00	29	100.00	80	100.00

Source: Primary data (processed)

Then, based on the age group, the older the elderly, the lower the percentage of working with the age group of 60-64 years (65.52 percent) and 65-69 years (34.48 percent). Meanwhile, in the age group of 70-74 years and older than 75 years, no one works. It is due to declining physical conditions and government policies during the

COVID-19 pandemic such as work from home, large-scale social restrictions, and the closure of various businesses (Pusat Pelayanan Sosial, 2020).

Based on the status of living, the percentage of elderly living with spouses is higher in entering the labor market than others. It also occurs on the elderly who becomes the head of household and have a healthy condition with 68.97 percent and 65.52 percent of each. The interesting thing is that those who have other sources of income such as pension funds and remittances are no longer in the labor market.

According to the ILO, the pandemic has brought disruption to the global labor market. It is estimated that 5.4 percent of global working hours equivalent to 155 million full-time jobs have been lost from January to 2020 (ILO, 2020). Many people experience a decrease in working hours and lose their jobs, especially workers of the informal sector.

Studies on the elderly population in Palu City also experienced the same. Based on data collected from the end of April to May 2021, some elderly have left the labor market as presented in Table-2. Before the COVID-19 pandemic, 34 people (42.50 percent) were involved in the job market, but during the pandemic, it was only 36.25 percent. Those who leave their jobs are those aged 70 years or older and work in the informal sector.

Table 2. Employment Status of the Elderly before and After the COVID-19 Pandemic by Age Group

Age group (years)	Before pandemic		After pandemic	
	Not working	Working	Not working	Working
60 – 64	14	19	14	19
65 – 69	18	13	21	10
70 – 74	9	2	11	-
≥ 75	5	-	5	-
Total	46	34	51	29

Source: Primary data (processed)

4.2 Results of Multiple Logistic Regression

The results of the goodness of fit model test show that the probability value of the likelihood ratio is 0.014 (<0.05) indicating that the probit regression model is feasible to use. Therefore, the process can proceed to the partial significance test. The probit regression model produces the estimates which are presented in table 3. The estimation results show that two variables have a significant effect on the participation of the elderly in the labor market and four variables are not significant.

Two variables playing a significant role in determining the supply of elderly workers are age and the health status of the elderly. The older the age of the elderly, the lower the opportunity to enter the job market. This trend is indicated by the logistic regression coefficient of -0.106 and a significant value of 0.008 (< 0.01). The older the elderly, the higher the opportunity for the elderly not to work. Getting older encourages the elderly to leave the job market as getting older means that getting the worse physical condition. This finding is in line with (Bellante & Jackson, 1990); (Simanjuntak, 1998); (Febriani, 2013); (Junaedi et al., 2017); (Parinding et al., 2018) and (Yanti & Sudibia, 2019).. Besides, the exit of the elderly from the job market is also driven by the COVID-19 pandemic. The elderly (60 years and over) are a vulnerable group to the COVID-19 transmission (Persagi, 2020) so that they need to be vigilant to be active outside the home. In line with (Siagian, 2020) that the elderly are in a high-risk group for Corona Virus infection due to their weakened immune system as they are getting older.

The health variable has a coefficient value of 0.404 and a significant value of 0.045 (<0.05). The health variable is significant and has a positive slope which can be interpreted that working elderly with relatively good health conditions tend to enter the labor market. On the other hand, working elderly with relatively poor health conditions tend to leave the labor market. It is because the older the elderly, the more complex health problems will arise. The results of studies by Pratiwi et al. (2018) and Yanti & Sudibia (2019) show that poor health conditions make the elderly reduce their working time. During a pandemic, health status highly affects work participation. According to (Siagian, 2020) chronic disease sufferers are also a group at high risk of the COVID-19 infection. Therefore, the elderly who have congenital diseases need to be vigilant to work outside.

Four variables do not have a significant effect during the pandemic, namely education, gender, status in the household, and other sources of income (pension funds and remittance). The education variable has a probit regression coefficient value of -0.053 and a significant value of 0.053 (> 0.05). The education variable is not significant. It means that the education of the elderly cannot explain the effect on the probability of working elderly to work. A negative slope means that the increasing period of education has a negative impact on the work participation of the elderly (Giles et al., 2011) and Pratiwi et al. (2018).

The gender variable has a probit regression coefficient value of -0.053 and a significant value of 0.782 (> 0.05). It indicates that gender does not have a significant effect. The finding is in contrast to previous studies by (Affandi, 2009); (Kalwij & Vermeulen, 2005) and (Febriani, 2013). The status of the elderly in the household has a negative slope which means that the head of the household has a higher probability of entering the labor market compared to household members. The results of the analysis obtained probit regression coefficients of 0.327 and significant values of 0.098 (> 0.05). Other sources of income (pension funds and remittances) have a coefficient of -0.361 and a significant value of 0.174 (> 0.05). The negative slope means that the elderly who do not have pension funds and remittances have a higher tendency to enter the labor market than those who have pension funds and remittances, although it is not significant.

The exit of the elderly from the job market is highly influenced by the COVID-19 pandemic (Republika, 2020) and (Azimah et al., 2020). This situation makes the four variables of education, gender, status in the household and other sources of income (pension funds and remittances) no longer have a significant influence.

Table 3. Results of Probit Regression Model

Variable	Coefficient	Std. Error	Z	P > |z|
Age	-.106	.040	-2.652	.008**
Education	-.052	.027	-1.934	.053
Gender	-.053	.191	-.277	.782
Status in the household	.327	.198	1.652	.098
Other sources of income (pension funds and remittances)	-.361	.265	-1.360	.174
Health status	.404	.200	2.024	.043*
Intercept	4.667	2.661	1.754	.008**

Source: Primary data (processed using SPSS)
Notes: *) significant at level of 5%
*) significant at level of 1%

V. Conclusion

Based on the discussion of the results of this study, it can be concluded that:

1. The number of elderly entering the labor market in Palu City has decreased from 42.50 percent before the pandemic to 36.25 percent after the pandemic. They are the elderly group aged older than 70 years and work in the informal sector.
2. The estimation results show that two variables have a significant influence on the participation of the elderly in the labor market and four variables are not significant. During the pandemic, the variables that remain influential are the age and health status of the elderly.

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