Analysis of Influence Factors Labor Supply Class Elderly at Medan City

Widya Kartika[1], Ahmad Albar[2], Irsad Lubis[3]
Master of Economics, Faculty of Economics and Business,
University of Northern Sumatra, Indonesia
Email: widyakartika72@yahoo.com[1], alb4rt4njung@gmail.com[2], Irsad@usu.ac.id[3]

Abstract
This research is to analyze the factors that influence the supply of elderly workers in the city of Medan. Latent variables are divided into two, namely endogenous and exogenous latent variables. This study aims to determine the effect of exogenous latent variables on endogenous latent variables. This study aims to determine the effect of the supply of elderly workers in the city of Medan, such as education, health, income, dependents and employment status. The type of data in this study is primary data obtained directly in the field, namely elderly workers (60 years and over) who are still working in the city of Medan, totaling 271 people. In this study the method used is PLS-SEM with SmartPLS software. Testing in PLS-SEM includes: 1) Testing the outer model (measurement model). 2) Testing the inner model (structural model). The results of the study show that all variable indicators are significant. In the subsequent analysis, this study used significant indicators and showed that all variables had an effect on the supply of the elderly in Medan City. The results of bootstrap estimation for hypothesis testing also conclude that the variables of education, health, income, dependents, employment status have a positive effect on the supply of labor for the elderly in Medan City.

Keywords	*Education, Health, Earnings, Dependent, Occupational Status, Offering the Elderly as Workers*

INTRODUCTION

National development in various fields has improved the quality of health and socio-economic conditions of society in general. Indonesia's life expectancy has also increased significantly. Based on the results of population projections for 2020, the Indonesian population has a life expectancy of 69.59 years for men and 73.46 years for women.

This is much better than the life expectancy of the previous 10 years based on the results of the 2010 Population Census, namely 67.89 years for men and 71.83 years for women. Likewise in North Sumatra where during the last decade life expectancy has increased from 65.59 years for men to 67.22 years and 69.61 years for women to 71.08 years. (BPS, Medan City 2020).

The research results of Djuhari et al (1999) revealed that the recent economic crisis that hit Indonesia has further contributed to the decline in the quality of life of the elderly. Income that did not increase in absolute terms, on the one hand, was accompanied by soaring prices of basic necessities, on the other hand, causing the purchasing power of the population, including the elderly, to fall sharply. Price increases did not only occur for rice, but also for other staple goods such as cooking oil, kerosene, soy sauce, spices, and so on. The increase in the price of these goods has directly affected the life of the population as a whole, including the elderly.

One other interesting thing is to look at the characteristics of the working elderly population from an educational perspective. The higher the education level of the elderly,

the fewer the elderly who work in their old age. Education is a lifelong process. Everyone, regardless of age, has the right to continue learning in order to develop insights, mindsets and abilities that can be used to improve their welfare. Law No. 13 of 1998 concerning Elderly Welfare. The Proportion of Seniors by Education Level in 2020 is presented in table 1.1.

Table 1.1
Proportion of Older Working Age in Medan City
By Education Level and Type of Region and Gender 2020

Source: BPS, Sakernas August 2020

This can be seen in Figure 1.1 which shows the elderly who work are dominated by the elderly with low education. As much as 65.39 percent of working elderly people with elementary education and below (graduated elementary school/did not finish elementary school/never attended school). Furthermore, the percentage of working seniors with high school education was 30.99 percent consisting of junior high school and high school graduates of the equivalent of 19.40 percent and 11.59 percent respectively and those who graduated from university as much as 3.63 percent. This can illustrate that the elderly with a high level of education used to have promising jobs so that when they entered old age they had sufficient wealth for their old age, in contrast to the elderly with low education (ILO, 2015).

When viewed by gender, working elderly men and women are also dominated by elderly people with elementary school education and below with the percentage of elderly women being higher than elderly men (74.78 percent compared to 58.31 percent). Meanwhile, there are more working male elderly who have high school and university education compared to female elderly. For the Middle School and Higher Education categories, 37.38 percent and 4.31 percent of working men respectively, while 22.49 percent and 2.72 percent of working elderly women.

All health issues in the Sustainable Development Goals (SDGs) are integrated in one goal, namely goal number 3, which is to ensure a healthy life and promote well-being for all people at all ages, including the elderly. In line with the SDGs, one of the health issues included in the 2015-2019 RPJMN is improving health services for the elderly population. The health condition of the population is one of the capitals for the success of development. With a healthy population, it is hoped that development can run more smoothly.

Table 1.2
Percentage of Elderly Sickness Rate in Medan City
by Gender and Age Group in 2020

Description	Gender		
	Man	**Woman**	**Man + Woman**
60-69	20,26	23,82	22,11
70-79	26,97	28,04	27,59
80+	29,70	27,44	28,34
Total	**22,31**	**25,18**	**23,86**

Source: BPS, Susenas, March 2020

In Table 1.2, one of the indicators to determine the health status of the population is the morbidity rate. Based on the results of the 2020 Susenas, the 2020 morbidity rate of 23.86 percent indicates that one in four elderly people is sick.

Affandi (2009) stated that the working elderly are generally supported by health conditions, the better the health conditions of the elderly, the working hours of the elderly will increase. Elderly workers who have an educated background have great job opportunities and many working hours due to the supply of elderly workers based on the expertise or skills needed. Jobs accompanied by expertise or skills will encourage the progress of every elderly business (Widyasworo, 2014).

Table 1.3
Average Monthly Wage for Seniors Working in Medan City by Region Type and
Gender in 2020

The average wage of the elderly in a month	By Gender	By Area Type
Rp. 1.391.384,-	Man Rp. 1,679,971,-	Urban Rp. 1,571,674,-
	Woman Rp. 929.111,-	countryside Rp. 1.140.683,-

Source: BPS, Sakernas 2020

The large number of elderly people who are still working on the one hand indicates that the elderly are indeed still active in the labor market and trying to meet economic needs. On average, the elderly in Medan City who work with this job status earn wages/salaries/income of around 1.391 million rupiahs in a month. In accordance with the level of productivity as illustrated by the hours worked, the male elderly receives a higher wage than the female elderly wage, which is 1.68 million compared to 929 thousand rupiah. Although many elderly people still work, the wages they receive are generally less.

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Table 1.4
Table of Elderly Dependents in Medan City (%)

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Dependent Expenses	Elderly offers		
	<42 hours	**≥42 hours**	**Total**
<3 people	**43.4**	**56.6**	**100.0**
≥ 3 people	**51.7**	**48.3**	**14.39**
Total	**46.3**	**53.7**	**100.0**

Source: BPS, Susenas 2020

Based on the data presented in table 1.4 below, it can be seen that the elderly who work more than 42 hours have the highest proportion, namely 53.7%. While the elderly who have working hours < 42 hours have a lower proportion of 46.3%. Dependent Expenses and Older Labor Offers in Medan City (%).

Based on the background and research by Rahmanodin Syahputra (2016) as well as research by Rahmanodin Dimas Yori and Nashri Bachtiar (2017), the authors are interested in examining more deeply how the Factors Affecting the Supply of Older Persons. Specifically, the author takes the research title: Analysis Of Factors Affecting The Supply Of Labor Class Of Elderly In Medan City.

In this study, it was focused on analyzing the conditions of employment in the city of Medan, especially in the elderly workforce. This study uses the Partial Least Square (PLS) based Structural Equation Model (SEM). PLS is a component- or variant-based structural equation model (SEM). Structural Equation Model (SEM) is a field of statistical study that can test a series of relationships that are relatively difficult to measure simultaneously. According to Santoso (2014) SEM is a multivariate analysis technique which is a combination of factor analysis and regression (correlation) analysis, which aims to examine the relationship between variables in a model, both between indicators and constructs, or relationships between constructs.

METHOD
Types and Sources of Research Data

The type of data in this study is primary data obtained directly in the field, namely elderly workers (60 years and over) who are still working in the city of Medan.

Research Sample

The sampling technique used in this study was to use the Isaac and Michael formula (Sugiyono, 2013). The sample was taken based on the total population in the city of Medan, namely 67,829 people. To determine a sample size to be used in this study, as shown in Table 3.1. the following:

Table of Determining the Number of Samples of
Isaac and Michael for Error Rates of 1%, 5% and 10%

N	S		
	1%	5%	10%
10	10	10	10
15	15	14	14
20	19	19	19
25	24	23	23
30	29	28	27
…	…	…	…
50000	663	348	270
55000	663	348	270
60000	**663**	**348**	**270**
…	…	…	…
1000000	663	348	271
∞	663	349	272

Sumber: Tabel *Isaac* dan *Michael*

Meanwhile, for more detail, the sampling carried out in this study is to use the calculation formula Isaac and Michael (Sugiyono, 2013) as follows:

$$s = \frac{\lambda^2 .N.P.Q}{d^2(N-1)+ \lambda^2 .P.Q}$$

λ 2 with dk = 1, refractive error level 1%, 5%, 10%.
P = Q = 0.5. d = 0.05. s = number of samples

Information:
s   : Number of samples
λ 2   : Chi squared whose value depends on the degree of freedom and error rate. For degrees
             of freedom 1 and 10% error Chi Quadrad value = 2.706 (Chi Quadrad Table)
N   : total population
P   : Correct probability (0.5)
Q   : Probability of being wrong (0.5)
d   : The difference between the sample mean and the population mean
             Refractive difference 0.01; 0.05; and 0.1

RESULTS AND DISCUSSION
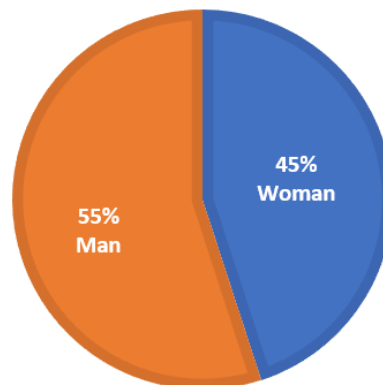**Data Description**
Respondent Data

Respondent data in this study included gender, pensioners' salary and married/unmarried status of respondents. The following are the results of the respondent's data in this study:

Gender

Table 4.1. Gender

No	Gender	Amount	Percentage
1	Woman	123	45.39
2	Man	148	54.61
Amount		**271**	**100**

Figure 4.1. Gender

The result of the percentage of respondents above is that the male sex is more likely to work in the elderly compared to the female sex. Men generally feel they have an obligation to provide for their family so that even in their old age they still choose to work even though from this research data the lowest age of the respondent is 60 years old and they decide to work because they have to pay for a sick wife, the reason is to pay for children who are still at home. college and so on. Meanwhile for female respondents who chose to work to survive and make ends meet. Even though there are husbands who work, in order to cover their lack of living expenses they work. Or some were left by their husbands who died and survived by working.

Respondents Answer
Education (X1)
Last Education

Table 4.6. Last education

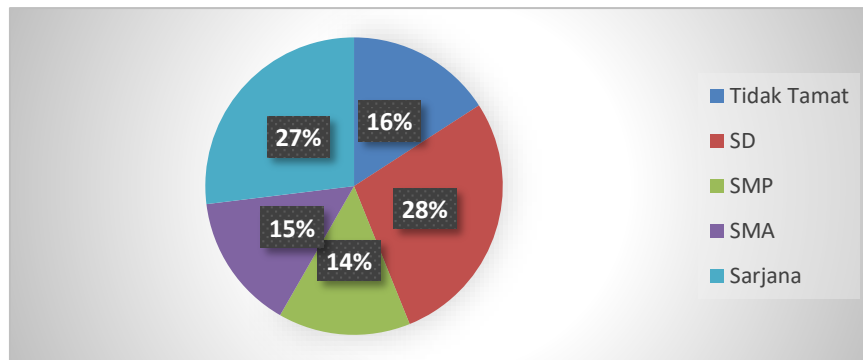| No	Answer	Amount	Percentage
1	Not End	43	15.87
2	SD	76	28.04
3	JUNIOR HIGH SCHOOL	39	14.39
4	SENIOR HIGH SCHOOL	40	14.76
5	Bachelor	73	26.94
Amount		271	100.00

Figure 4.6. Last education

The result of the question "last education was?" 15.87% did not graduate, 28.04% elementary school graduates, 14.39% junior high school graduates, 14.76% high school graduates, 26.94% undergraduate graduates. A person's cognitive function plays an important role in memory and will largely affect daily activities. Mubarok (2006) states that education is the basis of one's intellectual knowledge, the higher the education, the greater the ability to absorb and receive information. So that broad knowledge and insight is one of the factors behind the actions taken and will further influence a person's behavior. The goals of education are (1) changing knowledge or understanding, opinions and concepts (2) changing attitudes and perceptions (3) instilling new behavior or habits (Notoatmojo, 2007). In fact, many elderly people over the age of 50 actually have low education, sometimes they don't go to school.

Outer Model Evaluation (Measurement Model): Validity and Reliability Testing

Convergent validity is part of the measurement model which in SEM-PLS is usually referred to as the outer model, while in covariance-based SEM it is called confirmatory factor analysis (CFA) (Mahfud and Ratmono, 2013:64). There are two criteria for assessing whether the outer model (measurement model) meets the convergent validity requirements for reflective constructs, namely (1) the loading must be above 0.7 and (2) the p- value is significant (<0.05) (Hair et al. in Mahfud and Ratmono, 2013:65). However, in some cases, loading requirements above 0.7 are often not met, especially for newly developed questionnaires. Therefore, loading between 0.40-0.70 must still be considered to be maintained (Mahfud and Ratmono, 2013:66).
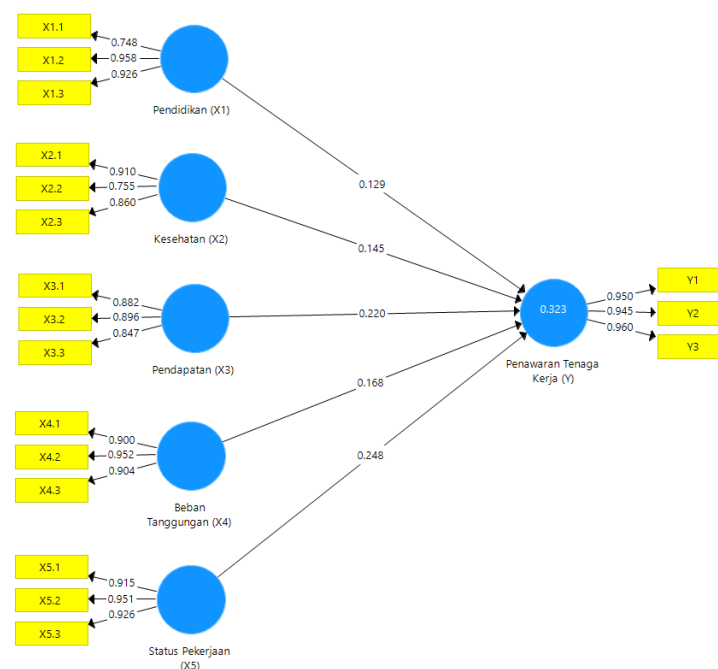
Indicators with loadings below 0.40 should be removed from the model. However, for indicators with loadings between 0.40 and 0.70, we should analyze the impact of the decision to remove these indicators on average variance *extracted* (AVE) and *composite reliability*. We can remove indicators with *a loading* between 0.40 and 0.70 if these indicators can increase *average variance extracted* (AVE) and *composite reliability* above their threshold *(Mahfud* and Ratmono, 2013:67). The AVE limit value is 0.50 and *the composite reliability* is 0.7. Another consideration in removing indicators is their impact on construct *content validity.* Indicators with small *loadings* are sometimes maintained because they contribute

to the validity of the construct content (Mahfud and Ratmono, 2013:67). Table 4.2 presents *loading* values for each indicator.

Table 4.21 Validity Test
based on *Outer Loading*

	Dependent Expenses (X4)	Health (X2)	Labor Supply (Y)	Revenue (X3)	Education (X1)	Employment Status (X5)
X1.1					0.748	
X1.2					0.958	
X1.3					0.926	
X2.1		0910				
X2.2		0.755				
X2.3		0.860				
X3.1				0.882		
X3.2				0896		
X3.3				0.847		
X4.1	0.900					
X4.2	0.952					
X4.3	0.904					
X5.1						0.915
X5.2						0.951
X5.3						0.926
Y1			0.950			
Y2			0.945			
Y3			0.960			

Figure 4.21 Validity Testing based on Outer Loading

Education has a positive effect on the supply of elderly workers.

Education (X1) has a positive and significant effect on Labor Supply (Y), with a coefficient value (Original Sample column) = 0.129, and P-Values = 0.047<0.05 (Hypothesis Accepted). The results of this study are the same as the research conducted by Affandi (2009) who found that the elderly population when viewed based on education completed, the higher the education level of the elderly, the lower the percentage of working elderly people. Elderly people who reach a higher education level generally have good jobs, so that in their old age they no longer need to work because they are able to support themselves or with their families without having to work because of old age benefits in the form of a pension fund. Unlike the case with the elderly who have low education, the elderly are forced to work only to meet their needs at that time, without thinking about old age security, thus when entering old age the elderly do not have savings that can guarantee their old age (Leonesio et al, 2012) .

Health Has a Positive Effect on The Supply of Elderly Workers

Health (X2) has a positive and significant effect on Labor Supply (Y), with a coefficient value (Original Sample column) = 0.145, and P-Values = 0.028 < 0.05 (Hypothesis Accepted). According to the results of research conducted by Affandi (2009), working elderly people are generally supported by their health conditions, which allow these elderly people to work.

Income has a positive effect on the supply of elderly workers.

Income (X3) has a positive and significant effect on Labor Supply (Y), with a coefficient value (Original Sample column) = 0.220, and P-Values = 0.001 < 0.05 (Hypothesis Accepted).

According to Nicholson (2015) working hours are part of economic theory, especially in the theory of labor supply, namely about individual willingness to work in hopes of earning a living or not to work with the consequence of sacrificing the income that he should get. Willingness of workforce to work long or short working hours is an individual decision.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that:
1. Education (X1) has a positive and significant effect on Labor Supply (Y).
2. Health (X2) has a positive and significant effect on Labor Supply (Y).
3. Income (X3) has a positive and significant effect on Labor Supply (Y).
4. Dependent Burden (X4) has a positive and significant effect on Labor Supply (Y).
5. Employment Status (X5) has a positive and significant effect on Labor Supply (Y).

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