

## Post-Covid-19 Disposable Income Resistance Against Community Welfare In Regency Aceh Singkil

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### Abstract.

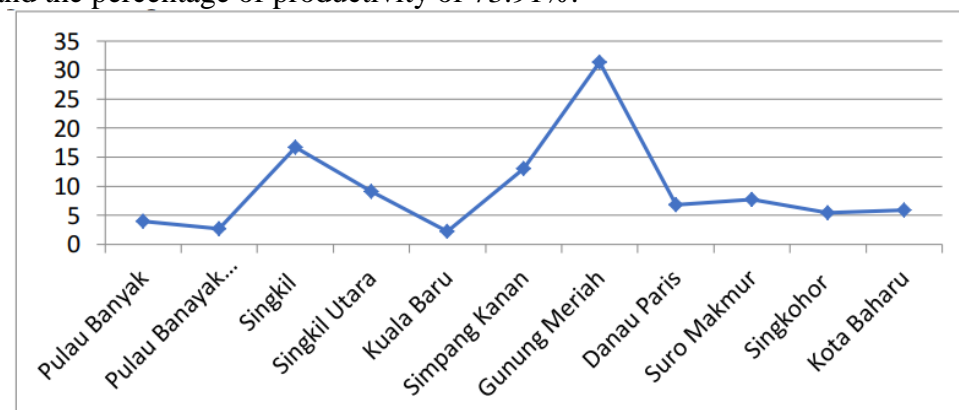
The purpose of the study was to examine how much resilience the community's disposable income was due to COVID-19, and the factors for increasing farmer productivity in Tanah Bara Village, Gunung Meriah District based on the SEM model. The main problems studied are the decline in the resilience of disposable income due to lack of capital in opening wider agricultural land, soil fertility which is increasingly polluted which causes unable to cultivate crops, narrow land cannot increase the area of land owned, seed quality is not good. which causes crop failure or poor yields, the number of plant pests that cause death and does not produce and the lack of human resources in agricultural and plantation management. The analytical model used in Confirmatory Factor Analysis (CFA) to see the causal effect of several independent variables, namely the quality of fertilizer, capital, soil fertility, seed quality, technology, pests, number of workers to increase farmer productivity in Tanah Bara Village, Gunung Meriah District. The results showed that there were 3 factors that influenced the income and welfare of the community, namely factor 1 which consisted of the quality of fertilizer, capital, soil fertility and labor. Factor 2 which consists of seed quality and technology and factor 3 which consists of pests.

**Keywords:** Quality of Fertilizer, Capital, Soil Fertility, Quality of Seeds, Technology, Pests and Number of Labors.

## I. INTRODUCTION

As an agricultural country, Indonesia's economic development is largely determined by agricultural development. In conditions of a monetary crisis that was followed by an economic crisis, as has occurred since the beginning of 1997, the agricultural sector grew positively so that it became the savior of the national economy. The added value of the agricultural sector from time to time in absolute terms is always increasing. Apart from that, the role of this sector in absorbing labor remains the most important. The agricultural system in Indonesia still requires improvement and revitalization efforts in order to accelerate or accelerate the increase in productivity and competitiveness of agricultural business actors.

Aceh Singkil Regency is one of them that has natural resources that have the potential to be developed, especially in the agricultural sector. The contribution of the agricultural sector ranks first to the economy of Aceh Singkil, which is 29.02%. The results from the agricultural sector in Aceh Singkil Regency are mostly supplied from the plantation sub-sector, which is 12.51%. The land area and the highest productivity of plantation commodities is oil palm, with the percentage of land area of 60.74% and the percentage of productivity of 73.91%.



Source: BPS Aceh Singkil 2021

**Fig 1.** Total Population of Aceh Singkil Regency 2021

From the picture above, Gunung Meriah Village which has a lot of potential in terms of agriculture, almost 50% of the people there work as farmers and depend on agriculture for their lives. The problems in this study are the lack of capital in opening wider agricultural land, soil fertility which is increasingly polluted which causes unable to cultivate crops, narrow land cannot increase the area of land owned, seed quality is not good which causes crop failure or poor yields, many plant pests that cause death and do not produce and the lack of human resources in the management of agriculture and plantations. The purpose of this research is to increase the productivity of farmers in Tanah Bara Village, Gunung Meriah District based on the SEM model. The main problems studied are the lack of capital in opening wider agricultural land, soil fertility which is increasingly polluted which causes unable to cultivate crops, narrow land cannot increase the area of land owned, seed quality is not good which causes crop failure or poor yields, many plant pests that cause death and do not produce and the lack of human resources in the management of agriculture and plantations.

## **II. THEORETICAL BASIS**

### **Farmer Productivity**

Low productivity is a reflection of an organization or company that wastes its resources [1]. The low productivity of many organizations/companies will reduce the overall industrial and economic growth of a nation [2]. Furthermore, productive people are people who can make a real and meaningful contribution to the surrounding environment, are imaginative and innovative in approaching life's problems and have (creative) intelligence in achieving their life goals [3]. At the same time such a person is always responsible and responsive in his relationship with others (leadership) [4].

### **Fertilizer Quality**

Fertilizer is a material that contains one or more nutrients or nutrients for plants to support plant growth and development [5]. Nutrients needed by plants are: (abundance in nature), (macro-nutrients), and (micro-nutrients) [6]. Fertilizer can be given through the soil, leaves, or injected into the stems of plants. The type of fertilizer is in solid or liquid form. Errors in calculating fertilizer will change the treatment that has been determined, reduce the level of accuracy and subsequently affect the results and conclusions of the study [7].

### **Capital**

In the Neoclassical flow there are three factors that influence economic growth, namely capital, labor, and technological developments [8]. This theory believes that an increase in the number of workers can increase per capita income [9]. External funding by the company through debt will incur a cost of capital equal to the interest expense charged by creditors [10]. Meanwhile, if the manager uses internal funds or own funds, there will be a high opportunity cost of funds or capital, which in turn can result in low company profitability [11].

### **Soil fertility**

Soil fertility is the ability of a soil to produce the desired plant products, in the environment in which the soil is located [12]. These plant products can be in the form of: fruit, seeds, leaves, flowers, tubers, sap, exudates, roots, shoots, stems, biomass, shade or appearance [13]. Soil has different fertility depending on the soil-forming factors that predominate in the location. these, namely: parent material, climate, relief, organisms, or time [14]. The higher the availability of nutrients, the more fertile the soil and vice versa the nutrient content in the soil is always changing, depending on the season, tillage and type of plants [15].

### **Seed Quality**

The success of seed production is determined by two main factors, namely optimal management of soil and plants and the use of high-quality seeds [16]. Seed quality is influenced by several factors including genetic, environmental and seed status (physical condition and seed physiology) [17]. Genetics is an innate factor related to the genetic composition of seeds [18]. Each variety has a different genetic identity. Factors of physical and physiological conditions of seeds are

related to seed performance such as maturity level, level of mechanical damage, health level, size and density, chemical composition, structure, moisture content and seed dormancy [19].

### **Technology**

Technology is defined as the applied science of engineering which is realized in the form of human creations based on the principles of science [20]. Technology is a combination of computer technology with communication technology that facilitates the acquisition, processing, diversion, delivery and sharing of information [21]. Two theories of technology, namely Instrumental Theory, is the thought that technology is a tool that is always ready to serve the interests of its users [22]. Substantive theory believes that technology is dynamic and capable of changing social life [23].

### **Pest**

Pests are one type of plant-disturbing organism whose presence is highly undesirable because of the large losses caused by the living activities of these organisms on crops [24]. When viewed in a broad sense, pests are all forms of disturbance to humans, plants, and livestock [25]. However, from a narrow sense, pests are all animals that damage plants that can cause harm. So, if there is an animal on the plant but it does not cause harm, then the animal is not considered a pest [26]. Pests that damage plants can be clearly seen from their marks (hooks or bites) [27].

### **Labor**

Labor is the activity of doing work with the aim of earning a living or helping to earn a living for at least one hour continuously during the past week [18]. The effective allocation of human resources is the starter of economic growth. After the economy grows, the accumulation of new (physical) capital is needed to keep the economy growing [12]. In other words, an effective allocation of human resources is a necessary condition for economic growth [15].

## **III. RESEARCH METHODS**

Factor analysis is a model, in which there are no independent and dependent variables. Factor analysis does not classify variables into categories of independent and dependent variables but looks for interdependence relationships between variables in order to identify the dimensions or factors that compose them. The main use of factor analysis is to reduce data or in other words to summarize a number of variables that will be small in number. The reduction is done by looking at the interdependence of several variables that can be used as one which is called a factor. So that the dominant or important variables or factors are found for further analysis. The equation or formula for factor analysis is as follows:

$$X_i = A_{i1} F_1 + A_{i2} F_2 + A_{i3} F_3 + A_{i4} F_4 + \dots + V_i U_i$$

Where:

$F_i$  = I standardized variable

$A_{il}$  = Regression coefficient of the variable to I on the common factor I

$V_i$  = Standardized regression coefficient of variable I on unique factor to I  $F$  = Common factor

$U_i$  = Unique variable for the th variable I  $M$  = Number of common factors

Clearly the common factors can be formulated as follows:

$$F_i = W_{i1} X_1 + W_{i2} X_2 + W_{i3} X_3 + \dots + W_{ik} X_k$$

Where:

$F_i$  = Factor I estimate

$W_i$  = Factor weight or factor coefficient score  $X$   $K$  = Number of variables

## **IV. RESULTS AND DISCUSSION**

### **Research Result**

#### **Stage**

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.589
Bartlett's Test of Sphericity	Approx. Chi-Square	354.900
	df	21
	Sig.	.000

The method used in this factor analysis is the Principal Component method. From the output above, the Kaiser Mayer Olkin (KMO) value is 0.589. This value indicates the data is valid for further analysis by factor analysis. The Bartlett test value of 354,900 with a significance value of 0.000 is very far below 5%, then the correlation matrix formed is an identity matrix, or in other words the factor model used is very good.

Anti-image Matrices								
		X1	X2	X3	X4	X5	X6	X7
Anti-image Covariance	X1	.681	-.054	-.071	.066	.014	.176	-.089
	X2	-.054	.270	-.030	-.040	.010	-.118	-.213
	X3	-.071	-.030	.966	-.018	-.095	.095	.034
	X4	.066	-.040	-.018	.941	.162	.120	.041
	X5	.014	.010	-.095	.162	.957	-.043	-.004
	X6	.176	-.118	.095	.120	-.043	.877	.069
	X7	-.089	-.213	.034	.041	-.004	.069	.264
Anti-image Correlation	X1	.811 <sup>a</sup>	-.126	-.088	.083	.017	.227	-.209
	X2	-.126	.567 <sup>a</sup>	-.058	-.079	.021	-.241	-.797
	X3	-.088	-.058	.480 <sup>a</sup>	-.019	-.099	.103	.067
	X4	.083	-.079	-.019	.457 <sup>a</sup>	.171	.133	.081
	X5	.017	.021	-.099	.171	.503 <sup>a</sup>	-.047	-.008
	X6	.227	-.241	.103	.133	-.047	.314 <sup>a</sup>	.143
	X7	-.209	-.797	.067	.081	-.008	.143	.580 <sup>a</sup>

a. Measures of Sampling Adequacy(MSA)

Based on the table above, the anti-image value of each of these variables only 6 variables have a value of more than 0.50. This means that of the 7 variables that will be analyzed by factors, only 6 variables can be factored.

## Stage 2

From the table above, it is known that the MSA value is  $> 0.05$  for the seven variables. This shows that the second requirement for factor analysis has been met .

Communalities		
	Initial	Extraction
X1	1.000	.618
X2	1.000	.854
X3	1.000	.546
X4	1.000	.519
X5	1.000	.612
X6	1.000	.638
X7	1.000	.868

Extraction Method: Principal Component Analysis.

Based on the table above, it is known that the Extraction value for the seven variables is  $> 0.05$ . This shows that all variables can be used to explain factors.

## Stage 3

**Tabel 4.** Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.252	32.176	32.176	2.252	32.176	32.176	2.242	32.027	32.027
2	1.252	17.888	50.065	1.252	17.888	50.065	1.223	17.470	49.496
3	1.151	16.437	66.502	1.151	16.437	66.502	1.190	17.005	66.502
4	.887	12.678	79.180						
5	.793	11.330	90.510						
6	.517	7.388	97.898						
7	.147	2.102	100.000						

Extraction Method: Principal Component Analysis.

Based on the results of the total variance explained, it is known that there are only 3 component variables that are factors that affect people's income and welfare. Eigenvalues show the relative importance of each factor in calculating the variance of the 7 variables analyzed. From the table above, it can be seen that there are only three factors formed. Thus this criterion is obtained the number of factors used is 3 factors.

Furthermore, the determination is based on the percentage value of the total variance which can be explained by the number of factors that will be formed. From the table above, it can be interpreted related to the total variance of the cumulative sample. If the variables are summarized into several factors, then the total value of variance that can be explained is as follows.

1. If the 7 variables are extracted into 1 factor, the total variance that can be explained is  $2.252/7 \times 100\% = 32.176\%$ .
2. If the 7 variables are extracted into 2 factors, the total variance that can be explained is  $1.251/7 \times 100\% = 17.888\%$ .
3. If the 7 variables are extracted into 3 factors, the total variance that can be explained is  $1.151/7 \times 100\% = 16.437\%$ .
4. So that the cumulative total for the 3 factors is  $32.176\% + 17.888\% + 16.437\% = 66.502\%$ .
5. By extracting the initial variables into 3 factors, a large cumulative total variance of 66.502% has been generated, meaning that the 3 factors formed can represent 7 variables of income and community welfare which explain approximately 7.84% of income and public welfare. Thus the extraction of the 3 factors obtained has been stopped and has met the second criterion.

#### Stage 4

Tabel 5: Component Matrix <sup>a</sup>			
	Component		
	1	2	3
X1	.745	-.171	.187
X2	.903	.087	-.174
X3	.107	-.192	.705
X4	-.118	-.661	-.262
X5	-.013	.546	.560
X6	-.058	.665	-.438
X7	.924	.040	-.116

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

After it is known that the three factors are the most optimal number, it can be seen in the Component Matrix table showing the distribution of the seven variables on the three formed factors. While the figures in the table are factor loadings, which show the magnitude of the correlation between a variable with factor 1, factor 2, and factor 3. The process of determining which variable will enter which factor is carried out by comparing the magnitude of the correlation on each line. Then the determination is based on the scree plot. The scree plot is a plot of the eigenvalues against the number of extracted factors. The point at which the scree begins to occur indicates the exact number of factors. This point occurs when the scree starts to look flat. In the picture below it is known that the scree plot starts to flatten on the extraction of the initial variables into 3 factors:

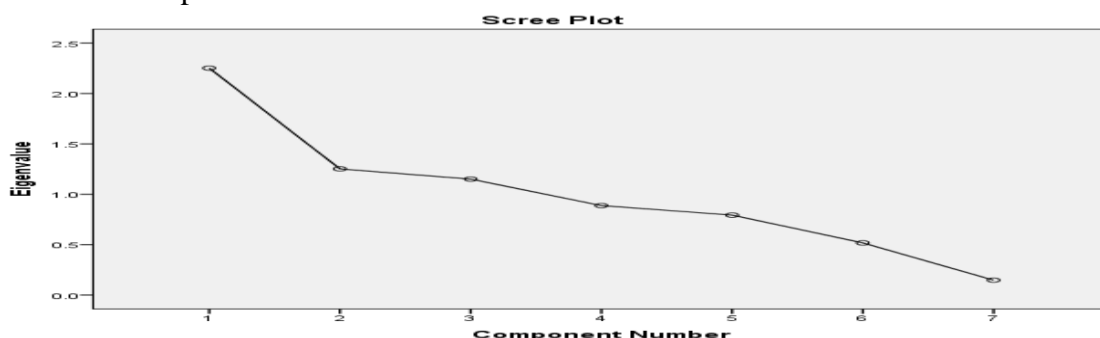


Fig 2.Component Number Test Scree Plot

If the Total Variance table explains the basic number of factors obtained by calculating numbers, then the scree plot shows this with a graph. It can be seen that from one to two factors (the line from the Component Number axis = 1 to 2), the direction of the graph decreases quite sharply. Then from number 2 to 3, the line is still decreasing. This shows that three factors are the best for summarizing the seven variables. The rotation process in the results of this study aims to obtain factors with a factor loading that is clear enough for interpretation. The rotational component matrix (rotated component matrix) is a correlation matrix that shows the distribution of variables that is clearer and more significant than the component matrix. More details can be seen in the following table:

<b>Tabel 6: Rotated Component Matrix<sup>a</sup></b>			
	Component		
	1	2	3
X1	.723	.005	.310
X2	.916	.023	-.118
X3	.038	.244	.697
X4	-.092	-.699	.149
X5	-.066	.765	.150
X6	-.014	.299	-.740
X7	.931	.018	-.043
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 4 iterations.			

1. Fertilizer quality (X1), the biggest loading factor is at factor 1 of 0.723. This means that the quality of fertilizer is at factor 1.
2. Capital (X2), the biggest loading factor in factor 1 is 0.916. This means that the capital is at factor 1.
3. Soil fertility (X3), the biggest loading factor in factor 1 is 0.038. This means that soil fertility is at factor 1.
4. Seed quality (X4), the biggest loading factor in factor 2 is 0.699. This means that the quality of the seeds is at factor 2.
5. Technology (X5), the biggest loading factor in factor 2 is 0.765. This means that the technology is at factor 2.
6. Pests (X6), the biggest loading factor at factor 3 is 0.299. This means that the pest is at factor 3.
7. Labor (X7), the biggest loading factor in factor 1 is 0.931. This means that the workforce is at factor 1.

Thus the seven variables in this study were reduced to 3 factors consisting of:

1. Factor 1 which consists of the quality of fertilizer, capital, soil fertility and labor.
2. Factor 2 which consists of seed quality and technology.
3. Factor 3 which consists of pests.

## V. CONCLUSION

There are 3 factors that affect the income and welfare of the community, namely factor 1 which consists of the quality of fertilizer, capital, soil fertility and labor. Factor 2 which consists of seed quality and technology and factor 3 which consists of pests. Suggestions that can be given especially to Tanah Bara Village, Gunung Meriah District, namely in improving the welfare of the community, especially household income, by increasing the quality of fertilizer, capital and soil fertility. Furthermore, factors 2 and 3 are supporting factors.

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