

# Analysis of income levels and factors influencing the sale of indigenous Papuan vegetables in Sentani Pharaa Market, Jayapura District

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## Abstract

**Purpose:** This study investigates the factors influencing the income of indigenous Papuan vendors at Pharaa Sentani market, Jayapura Regency, in line with Law No. 21 of 2001 on Special Autonomy, which seeks to improve Papuan welfare through economic empowerment.

**Methodology:** A quantitative approach was applied using multiple linear regression analysis. Primary data were collected from 49 vendor respondents through questionnaires. The independent variables analyzed include business capital, length of business, working hours, and education.

**Results:** The analysis shows that business capital, length of business, and education have a significant positive effect on income, contributing 8%, 12.5%, and 30.5%, respectively. Meanwhile, working hours did not significantly influence income, accounting for only 5.8%. Together, the four variables explain 46.8% of income variation, while 53.2% is affected by external factors such as market conditions, social networks, and product quality.

**Conclusion:** The findings highlight that education and business capital are the most decisive factors for income growth. Longer working hours and years in business alone are insufficient without adequate capital and knowledge.

**Limitations:** The study is limited to 49 respondents from one market, which may restrict generalization. Other factors such as cultural norms and supply chain constraints were not considered.

**Contribution:** This research adds to the literature on indigenous economic empowerment and provides recommendations for policymakers to enhance access to education, training, capital, and market infrastructure for Papuan vendors.

**Keywords:** *Business Capital, Education, Income, Indigenous Papuan Vendors, Length of Business, Working Hours*

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## 1. Introduction

Law No. 21 of 2001 on Special Autonomy for Papua is a special policy aimed at improving services, accelerating development, and empowering all people in Papua Province to be on par with other regions. The government continues to vigorously implement efforts in various sectors, including the economy, politics, and socio-cultural development. One of the key areas of development currently promoted by the government is the economic development sector, alongside healthcare, education, and infrastructure (Priyani, 2019; Saiba, 2019). Economic development focuses on government policies to ensure employment opportunities and sustainable economic growth for indigenous Papuans, enabling them to thrive in their own land by harnessing the economic potential of their surroundings. The primary

objectives of economic development include controlling inflation and improving the living standards of the Papuan people. However, a major issue in economic development is the unequal distribution of income, caused by factors such as the underdeveloped craft industry, traditional markets, and small-medium enterprises (SMEs) (Raya et al., 2021; Wijaya, Rahyuda, Yasa, & Sukaatmadja, 2019).

According to Stewart (2022) and Nordhagen et al. (2023) markets play a crucial role in meeting the needs and generating income for households (consumer households, producer households, and the government). They also create job opportunities, with many people relying on market-based economic activities for their livelihood and daily needs. Markets serve as public service venues that meet the community's needs and are the economic center of society. Additionally, market prices reflect the level of inflation and act as a criteria for determining government policies, thus functioning as a price stabilization mechanism. Traditional markets are the economic centers where lower-middle-class individuals find their needs and income (Herman, 2021; Usman, 2019).

Economic growth in Papua Province has shown continuous progress since the implementation of special autonomy. This progress is due to the efforts of each regency in Papua to develop its economic potential, with one significant economic driver being the establishment of markets across the region, predominantly filled by indigenous Papuan vendors, including many local women. Women are more likely to develop small trading businesses, though modest, driven by the economic demands of their households, thereby playing a significant role as income earners. This positive impact contributes to economic development, particularly in Jayapura Regency.

Sentani City District, located within Jayapura Regency, has over one modern market and one traditional market (known as the old Sentani market), where indigenous Papuan vendors trade agricultural, marine, and fishery products. Commonly sold agricultural products include vegetables, tubers, smoked fish, areca nuts, fruits, snakehead fish, lake fish, and sea fish. These commodities are primarily sold at the Pharaa Sentani market by indigenous Papuan women, referred to as "Mama-mama" vendors (Ramadhan & Padang, 2022). Vendors in traditional markets generally start their businesses with their own capital, without assistance from the government or financial institutions, such as banks or credit organizations. As a result, vendors are limited to operating their businesses using their own resources.

Most vendors in traditional markets do not have high levels of education. The majority have completed only secondary education or, in some cases, did not finish elementary school. They are compelled to become market vendors to earn a living (Begari, 2017). This situation shows that many people choose to become vendors in traditional markets, which do not require advanced education or specialized skills. However, becoming a market vendor requires cleverness, creativity, and experience to understand how to develop the business effectively. Some vendors rely solely on their courage to sell, even without prior knowledge of commerce. These vendors take risks, either profit or loss, with the principle that they have made the best effort for satisfactory results (Giraldo, Garcia-Tello, & Rayburn, 2020).

In addition to capital and education levels, trading experience plays a crucial role and affects business performance. This experience allows vendors to generate sufficient income to meet their family's needs and continue their trade. Vendors also generally have different working hours, with some starting from dawn until late afternoon, while others operate from morning to night. These variations in working hours differentiate the level of income and the vendors' well-being. Indigenous Papuan "Mama-mama" vendors in the Pharaa Sentani market play an essential role in supporting their families while fulfilling their household needs. Their business ventures are relatively simple and do not require special skills or significant capital (Herman, 2021; Kadir, Rahmanto, Idris, & Ali, 2020). Therefore, these vendors contribute to family income and household management. The potential for increasing family income can lead to better household welfare. Given the aforementioned factors, the author is interested in conducting research titled **"Analysis of Factors Influencing the Income of Indigenous Papuan Vegetable Vendors at the Pharaa Sentani Market"**.

## 2. Literature review

## 2.1. Markets and Market Classification

A market is a place where people with the desire to fulfill their needs, the money to spend, and the willingness to buy meet (Swastha, 2001). According to Purnomo, Otten, and Faust (2018); (Rosita, Irmanelly, & Ermelini, 2020) the concept and meaning of a market are quite broad, encompassing both economic and socio-cultural dimensions. Economically, a market is a place where supply and demand meet, with sellers offering goods and buyers willing to purchase them at mutually agreed prices. From a socio-cultural perspective, markets are places for social interaction across various strata. Interestingly, the venue for trade, whether managed by the government or private sector, is determined by the market administrators, with the role of the vendors being equally important (Anifowose et al., 2025).

## 2.2. Income Theory

According to Wulandari (2021) income refers to the total cash or non-cash income received by an individual or household over a specific period. It does not include money received from another person, such as in the form of goods, subsidized rice, etc. Income received consists of the sale of goods and services produced by a business. A vendor's income can be seen through their total revenue, which is the producer's income from each sale made. This can be calculated by multiplying the number of items sold by the unit price of the goods. According to Septiantoro and Utomo (2015) the following formula is used:

TR = total revenue

P = price

Q = quantity

Thus, a vendor's income is obtained from the number of items sold at an agreed-upon price between the seller and the buyer. From the above explanation, it can be concluded that market vendors' income is generated from the number of goods sold, multiplied by the unit price of each item according to its type. Profit is the difference between total revenue and total costs. Mathematically, it can be written as follows:

$$\pi = TR - TC$$

$\pi$  = Keuntungan

TR = Total pendapatan

TC = Total biaya

A merchant is an individual who trades, exchanging goods not produced by themselves to make a profit (Sairdama, Matakena, Roy, & Kogoya, 2023). In traditional markets, merchants are divided into two categories: kiosk traders and non-kiosk traders. According to Najib, Rifa'i, Putri, and Rachman (2024) a merchant is someone who engages in selling, crafts, or small-scale trades. Merchants are categorized as follows: 1. Wholesale Merchants – Merchants involved in the distribution chain between farmers and retailers. 2. Retail Merchants – Merchants who sell products directly to consumers. Merchants in traditional markets are further divided into two groups: 1. Kiosk Merchants – Merchants who own and operate kiosks in the market. 2. Non-Kiosk Merchants – Merchants who operate outside of kiosks, such as indoor or outdoor stands.

### 2.3. Relationship Between Variables

### 2.3.1. The Relationship Between Capital and Vegetable Vendor Income

Capital is an essential input (production factor) in determining income levels. However, it does not mean that capital is the only factor that can increase sales. In this regard, capital is one of the factors influencing income levels for vendors (Braun, 2024). Capital is one of the economic production factors.

Success cannot be achieved without business capital. Capital influences the increase in the number of goods or products sold, thereby boosting income. The income of an individual or group is highly dependent on the ownership of production factors. The greater the capital or production factor owned, the higher the likelihood of increased income.

### 2.3.2. *The Relationship Between Length of Business and Vegetable Vendor Income*

The length of time someone has been in business affects their professional skills. The longer they have been trading, the more knowledge they gain about consumer tastes or behaviors. Business expertise improves, and relationships with customers become stronger. The longer a vendor is in business, the higher their income will be. In other words, the longer an entrepreneur has been in business, the more their knowledge grows, which influences their income levels (Gebru, Leung, Rammelt, Zoomers, & van Westen, 2019; Hutabarat & Suasih, 2023).

### 2.3.3. *The Relationship Between Working Hours and Vendor Income*

Working hours refer to the time spent running a business, measured by the number of hours an individual spends at their workplace each day. The length of the workweek varies for each person due to several factors, including financial reasons. The more working hours sacrificed, the greater the productivity and the higher the labor income (Wahyono, 2017). The number of hours worked affects income. The longer a vendor works, the higher their income. Full-time work increases opportunities for vendors to develop their businesses. Conversely, when vendors work part-time, their opportunity to generate higher income decreases (Saputra & Irawan, 2024).

## 2.4. Conceptual Framework

Currently, the number of indigenous Papuan vendors is rapidly increasing. Quantitatively, their numbers are growing day by day, despite the rise of modern trade. In the Pharaa Sentani market, there are over 120 indigenous Papuan vendors. Assuming that the population continues to grow and the economic challenges faced by both migrant and indigenous Papuans remain, many people opt for informal sector businesses due to the relatively low capital required. This study aims to examine factors influencing vendors' income, which ultimately impacts their basic needs (Bless & Dampa, 2021; Herman, 2021).

Income is the primary goal of indigenous Papuan vendors, and this income can be influenced by various factors, including age, which reflects productivity and influences income levels. The second factor is education, which can affect decision-making in business and innovation in their operations. The third factor is working hours, which is influenced by the volume of products offered. The fourth factor is the length of time in business, as the productivity of vendors is directly related to the duration of their operations. Lastly, capital plays a key role, where an increase in capital will improve the capacity and scale of production, leading to higher income (Auliyah & Santoso, 2022). The research framework focuses on the factors affecting the income of indigenous Papuan vendors at the Pharaa Sentani market.

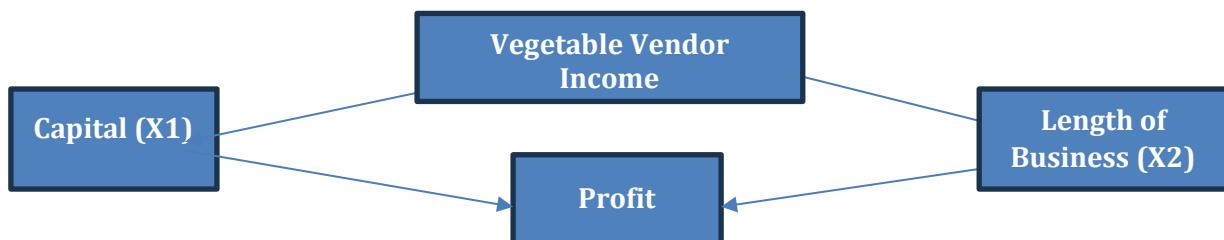


Figure 1. Conceptual Framework  
Source: Author's Thought Process, 2025

## 2.5. Hypotheses

- 1) It is hypothesized that the variables of business capital and working hours have a positive and significant effect on the income of indigenous Papuan vendors at the Pharaa Sentani market.

|                   |   |
|-------------------|---|
| Ho: $\beta_1 = 0$ | Business capital does not affect the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.    |
| Ha: $\beta_1 > 0$ | Business capital positively affects the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency. |

2) It is hypothesized that the variable of business duration has a positive and significant effect on the income of indigenous Papuan vendors at the Pharaa Sentani market.

|                   |  |
|-------------------|--|
| Ho: $\beta_2 = 0$ | Business duration does not affect the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.    |
| Ha: $\beta_2 > 0$ | Business duration positively affects the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency. |

### 3. Research methodology

#### 3.1. Research Location and Timeframe

In this study, the author selected Jayapura Regency in Papua Province as the research location. The research was conducted over a period of more than 3 months, from January to March 2025.

#### 3.2. Types and Sources of Data

The data used in this study consists of both primary and secondary data (Dedi, Toyib, & Wanimbo, 2016):

##### 1) Types of Data

Primary data were obtained through the distribution of questionnaires and direct observations in the field. Primary data sources are those collected directly from the research subjects without any intermediaries, by gathering information directly from the respondents. Secondary data were obtained through documentation and literature review with the help of printed media, the internet, and field notes. Secondary data sources are indirect data sources that provide additional information and reinforce the research findings.

##### 2) Data Sources

The data sources in this study include interviews using questionnaires, with the interviews conducted with indigenous Papuan women (mama-mama) who sell at the Pharaa Sentani market.

#### 3.3. Population and Sample

According to Sugiyono (2017) the population is the generalization area consisting of objects/subjects that have certain qualities and characteristics, determined by the researcher to be studied and from which conclusions are drawn. The population refers to the entire set of characteristics or units that are the object of the research measurement. In this study, the population consists of 120 vendors. A sample is a subset of the population that has certain characteristics or conditions. The sampling technique used in this study is simple random sampling, allowing the researcher to randomly select samples, ensuring that each element of the population has an equal chance of being chosen (Noor, Tajik, & Golzar, 2022). Once selected randomly, the sample was distributed to indigenous Papuan vendors selling vegetables.

#### 3.4. Analysis Methods

This study employs two methods: descriptive analysis and quantitative analysis. The descriptive analysis method aims to provide a description or overview of the social and economic conditions regarding the variables and population to answer the first objective. All data collected is compiled, processed, and presented in table format. The data is also interpreted, allowing a clearer understanding of the issues at hand. These problems are analyzed using relevant theories. The quantitative analysis technique used in this study includes profit analysis, where profit is calculated as: Profit = TR – TC, where TR is total revenue, calculated by multiplying the unit price by the quantity of sales. TC is total cost, which consists of fixed and variable costs, including costs like purchasing vegetables and transportation (Akhmadi, 2021; Ilmi, Ukasyah, Putri, & Adiyanto, 2023). The variable costs are calculated as follows: Profit is derived from the difference between total income and total costs for a single production cycle. To analyze and determine the factors influencing vegetable vendor income in Jambi City (Case Study of Aur Duri Market), regression analysis is used. The linear regression method

predicts how much the dependent variable changes in response to independent variables (Sugiyono, 2017). The multiple linear regression formula is as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + e$$

Where:

Y = Income

a = Constant

$b_1-b_3$  = Coefficients of the Variables

$X_1$  = Business Capital

$X_2$  = Length of Business

e = Error term

### 1) F-Test

The F-test is a statistical test used to determine whether the independent variables (predictors) significantly affect the dependent variable (outcome) simultaneously. In this study, the hypothesis to be tested is:  $H_0$ : Independent variables do not simultaneously affect the dependent variable.  $H_a$ : Independent variables simultaneously affect the dependent variable. The F-test is performed by comparing the F-calculated value with the F-table value. If the F-calculated value is greater than the F-table value,  $H_0$  is rejected and  $H_a$  is accepted, meaning the independent variables simultaneously affect the dependent variable. Conversely, if the F-calculated value is smaller than the F-table value,  $H_0$  is accepted and  $H_a$  is rejected. The decision rules for this test are as follows:

**$H_0$  is rejected, and  $H_a$  is accepted if F-calculated > F-table at  $\alpha = 0.05$**

**$H_0$  is accepted, and  $H_a$  is rejected if F-calculated < F-table at  $\alpha = 0.05$**

### 2) T-Test

The t-test is used to examine the strength of the effect of one independent variable on the dependent variable. In this study, the t-test will show whether the independent variables (such as business capital) have a partial effect on the dependent variable (income). The hypothesis tested for this research is:  $H_0$ : The independent variable does not significantly affect the dependent variable.  $H_a$ : The independent variable significantly affects the dependent variable. This test is performed by comparing the t-calculated value with the t-table value. The decision rule for this test is as follows:

**$H_0$  is rejected, and  $H_a$  is accepted if t-calculated > t-table at  $\alpha = 0.05$**

**$H_0$  is accepted, and  $H_a$  is rejected if t-calculated < t-table at  $\alpha = 0.05$**

### 3) Coefficient of Determination ( $R^2$ )

The coefficient of determination indicates the proportion of variance in the dependent variable that can be explained by the independent variables. In other words,  $R^2$  shows the extent to which the variation in the dependent variable (Y) can be explained by the linear effects of the independent variables (X).

## 3.5. Operational Definitions

Operational definitions refer to the specific meanings of the variables being observed (Sinha, 2020). The operational definitions used in this study are as follows:

1. Income refers to the net income received by the vendor in one month, expressed in Indonesian Rupiah (Rp).
2. Net Income refers to the income received by the vendor after deducting costs such as capital for purchasing vegetables, transportation, food, and other expenses over one month, calculated in Indonesian Rupiah (Rp).
3. Capital refers to the fixed costs incurred daily by each vendor, expressed in Indonesian Rupiah (Rp).

Length of Business refers to the duration the vendor has been in business, expressed in years.

## 4. Results and discussions

### 4.1. Result

#### 4.1.1. Respondent Characteristics

The characteristics of the respondents in this study were based on vendors in the Pharaa Sentani market, Jayapura Regency, totaling 49 individuals. Based on this data, the respondents' characteristics are analyzed by age, gender, and income. The socio-economic characteristics of the indigenous Papuan vendors are as follows:

Table 1. Age Distribution of Indigenous Papuan Vendors

| No           | Age (years)                | Number (people) | Percentage (%) |
|--------------|----------------------------|-----------------|----------------|
| 1            | 36-45                      | 33              | 67.3           |
| 2            | 46-55                      | 10              | 20.4           |
| 3            | 56-65                      | 4               | 8.2            |
| 4            | Above 66                   | 2               | 4.1            |
| <b>Total</b> |                            | <b>49</b>       | <b>100</b>     |
| No           | Gender                     | Number          | Percentage     |
| 1            | Male                       | 2               | 4.08%          |
| 2            | Female                     | 47              | 95.92%         |
| <b>Total</b> |                            | <b>49</b>       | <b>100%</b>    |
| No           | Business Capital           | Number          | Percentage     |
| 1            | Less than Rp 500,000       | 29              | 59.18%         |
| 2            | Rp 500,000 - Rp 1,000,000  | 18              | 36.73%         |
| 3            | Rp 1,000,000- Rp 5,000,000 | 2               | 4.08%          |
| <b>Total</b> |                            | <b>49</b>       | <b>100%</b>    |

Source: Field Data, 2025

#### 4.1.2. Income Levels of Vegetable Vendors in Papua

Vendors' income is calculated monthly by accumulating daily income with the assumption of 24 working days per month. Below is the descriptive statistics of monthly income for indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.

Table 2. Calculation of Vegetable Vendor Income Level (N=49)

| Respondent | Gross Income (TR) | Costs (TC) | Net Income (Rp) |
|------------|-------------------|------------|-----------------|
| 1          | 525.000           | 130.000    | 395.000         |
| 2          | 450.000           | 140.000    | 310.000         |
| 3          | 300.000           | 110.000    | 190.000         |
| 4          | 360.000           | 100.000    | 260.000         |
| 5          | 600.000           | 115.000    | 485.000         |
| 6          | 450.000           | 130.000    | 320.000         |
| 7          | 620.000           | 140.000    | 480.000         |
| 8          | 540.000           | 110.000    | 430.000         |
| 9          | 430.000           | 100.000    | 330.000         |
| 10         | 520.000           | 115.000    | 405.000         |
| 11         | 510.000           | 110.000    | 400.000         |
| 12         | 420.000           | 100.000    | 320.000         |
| 13         | 440.000           | 115.000    | 325.000         |
| 14         | 350.000           | 130.000    | 220.000         |
| 15         | 300.000           | 140.000    | 160.000         |
| 16         | 460.000           | 110.000    | 350.000         |
| 17         | 720.000           | 100.000    | 620.000         |
| 18         | 450.000           | 110.000    | 340.000         |
| 19         | 340.000           | 100.000    | 240.000         |
| 20         | 640.000           | 115.000    | 525.000         |
| 21         | 540.000           | 130.000    | 410.000         |

|                |                   |                  |                   |
|----------------|-------------------|------------------|-------------------|
| 22             | 430.000           | 140.000          | 290.000           |
| 23             | 520.000           | 110.000          | 410.000           |
| 24             | 510.000           | 100.000          | 410.000           |
| 25             | 420.000           | 110.000          | 310.000           |
| 26             | 440.000           | 100.000          | 340.000           |
| 27             | 350.000           | 115.000          | 235.000           |
| 28             | 300.000           | 130.000          | 170.000           |
| 29             | 460.000           | 140.000          | 320.000           |
| 30             | 640.000           | 110.000          | 530.000           |
| 31             | 540.000           | 100.000          | 440.000           |
| 32             | 430.000           | 110.000          | 320.000           |
| 33             | 520.000           | 100.000          | 420.000           |
| 34             | 510.000           | 110.000          | 400.000           |
| 35             | 420.000           | 100.000          | 320.000           |
| 36             | 440.000           | 115.000          | 325.000           |
| 37             | 350.000           | 130.000          | 220.000           |
| 38             | 640.000           | 140.000          | 500.000           |
| 39             | 540.000           | 110.000          | 430.000           |
| 40             | 430.000           | 100.000          | 330.000           |
| 41             | 520.000           | 110.000          | 410.000           |
| 42             | 510.000           | 100.000          | 410.000           |
| 43             | 420.000           | 115.000          | 305.000           |
| 44             | 440.000           | 130.000          | 310.000           |
| 45             | 350.000           | 140.000          | 210.000           |
| 46             | 640.000           | 110.000          | 530.000           |
| 47             | 540.000           | 100.000          | 440.000           |
| 48             | 430.000           | 110.000          | 320.000           |
| 49             | 520.000           | 100.000          | 420.000           |
| <b>Total</b>   | <b>23.225.000</b> | <b>5.635.000</b> | <b>17.590.000</b> |
| <b>Average</b> | <b>464.500</b>    | <b>112.700</b>   | <b>351.800</b>    |

Source: Field Data, 2025

Table 2 shows that from the 49 respondents, the average daily gross income of vegetable vendors is Rp 464,000, with an average cost of Rp 112,200. Therefore, their daily net income reaches Rp 351,000. These calculations show that vegetable vendors are earning a profit from their sales activities at the Pharaa market.

#### 4.1.3. Factors Affecting the Income of Indigenous Papuan Vendors at the Pharaa Sentani Market

Linear regression analysis is used to test the factors that influence the income of indigenous Papuan vendors. Since business capital and length of business are ordinal data (ranked results), they were first converted into interval data using the Method of Successive Intervals (MSI) before being processed with linear regression analysis. Additionally, the vendors' income data were transformed using natural logarithm (Ln) to minimize violations of regression assumptions.

#### 4.1.4. Classical Assumption Test

Before conducting hypothesis testing using multiple linear regression analysis, several assumptions must be met to ensure that the regression results are not biased. These assumptions include normality test, multicollinearity test, and heteroskedasticity test. All these tests were performed using SPSS IBM Statistics 26 software.

#### 1) Normality Assumption Test

The normality assumption is crucial in testing the significance of the regression coefficients. If the regression model is not normally distributed, the conclusions drawn from the test may be questionable, as the t-test statistic in regression analysis is derived from a normal distribution. In this study, the Kolmogorov-Smirnov one-sample test was used to test the normality of the regression model.

Table 3. Normality Assumption Test

| One-Sample Kolmogorov-Smirnov Test |                |                   |
|------------------------------------|----------------|-------------------|
| Unstandardized Residual            |                |                   |
| N                                  |                | 49                |
| Normal Parameters <sup>a,b</sup>   | Mean           | .0000000          |
|                                    | Std. Deviation | .45985050         |
| Most Extreme Differences           | Absolute       | .120              |
|                                    | Positive       | .120              |
|                                    | Negative       | -.088             |
| Test Statistic                     |                | .120              |
| Asymp. Sig. (2-tailed)             |                | .075 <sup>c</sup> |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: SPSS Data Processing, 2025

In Table 3, the probability value (Asymp. sig. 2-tailed) from the Kolmogorov-Smirnov test is 0.075. Since the probability value from the Kolmogorov-Smirnov test is greater than the 5% error level (0.05), it can be concluded that the regression model is normally distributed. A visual representation of the normal probability plot can be seen in Figure 2 below.

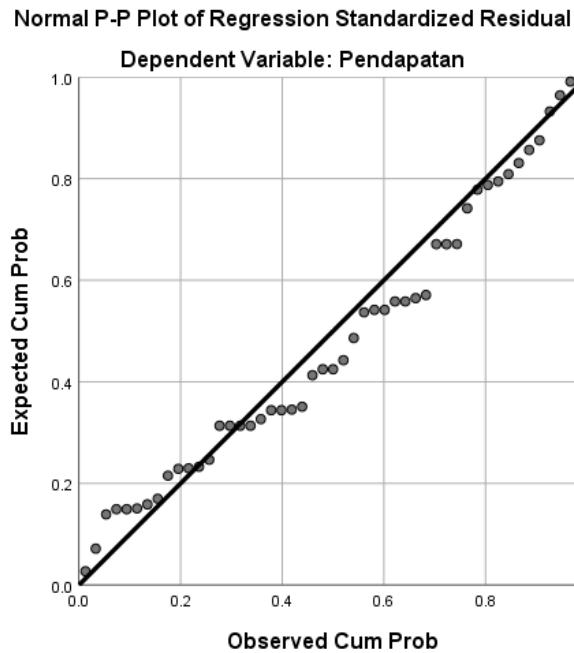


Figure 2. Normal Probability Plot

The graph above reinforces the conclusion that the regression model is normally distributed, as the data distribution remains around the diagonal line.

## 2) Multicollinearity Assumption Test

Multicollinearity indicates a strong correlation among two or more independent variables in a regression model. The presence of multicollinearity makes the regression coefficients unreliable and increases the standard error. In this study, the Variance Inflation Factor (VIF) was used as an indicator to detect multicollinearity among the independent variables.

Table 4. Multicollinearity Assumption Test

| Model | Coefficients <sup>a</sup> |  | Collinearity Statistics |       |
|-------|---------------------------|--|-------------------------|-------|
|       |                           |  | Tolerance               | VIF   |
| 1     | Capital                   |  | .962                    | 1.040 |
|       | Length of Business        |  | .940                    | 1.064 |

a. Dependent Variable: Income

Source: SPSS Data Processing, 2025

The VIF values in Table 4 indicate no significant correlation between the independent variables, as all VIF values are below 10 and tolerance values are greater than 0.1. Therefore, it can be concluded that there are no multicollinearity issues among the independent variables.

### 3) Heteroskedasticity Assumption Test

Heteroskedasticity refers to the unequal variance of residuals across observations in a regression model. A good regression model should be free from heteroskedasticity. In this study, heteroskedasticity was tested using Spearman's rank correlation method (Gujarati & Porter, 2009; 380), correlating the independent variables with the absolute residuals. If the correlation coefficient is significant at the 5% error level, heteroskedasticity is indicated. The following table shows the significance values of the correlation coefficients for the independent variables against the absolute residuals.

Table 5. Heteroskedasticity Assumption Test

| Correlations   |                    |                         | Absolut Residual |
|----------------|--------------------|-------------------------|------------------|
| Spearman's rho | Capital            | Correlation Coefficient | -.271            |
|                |                    | Sig. (2-tailed)         | .060             |
|                |                    | N                       | 49               |
|                | Length of Business | Correlation Coefficient | .113             |
|                |                    | Sig. (2-tailed)         | .441             |
|                |                    | N                       | 49               |

Source: SPSS Data Processing, 2025

In Table 5, the significance values for the correlation coefficients between the independent variables and absolute residuals are all greater than 0.05. Therefore, it can be concluded that there are no heteroskedasticity issues in the regression model. Since all three regression assumptions have been tested and met, it can be concluded that the regression model satisfies the BLUE (Best Linear Unbiased Estimator) conditions.

#### 4.1.5. Results of Regression Equation Estimation

To determine the functional relationship between business capital and the length of business on the income of indigenous Papuan vendors, multiple linear regression analysis was used. Based on the data processed using SPSS 26 for Windows, the regression results are as follows:

Table 6. Multiple Linear Regression Analysis Results

| Model | Coefficients <sup>a</sup>   |                           |      | t      | Sig. |
|-------|-----------------------------|---------------------------|------|--------|------|
|       | Unstandardized Coefficients | Standardized Coefficients |      |        |      |
|       | B                           | Std. Error                | Beta |        |      |
| 1     | (Constant)                  | 13.547                    | .372 | 36.384 | .000 |
|       | Capital                     | .178                      | .084 | 2.116  | .040 |
|       | Length of Business          | .209                      | .079 | 2.632  | .012 |

a. Dependent Variable: Pendapatan

Source: SPSS Data Processing, 2025

From the unstandardized coefficients (B) in Table 6, the following regression equation can be formed:

**Y = 13,547 + 0,178 X<sub>1</sub> + 0,209 X<sub>2</sub> + e** The coefficients in this equation can be interpreted as follows:

- 1) The constant of 13.547 indicates the average income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency, when business capital (X<sub>1</sub>), length of business (X<sub>2</sub>), working hours (X<sub>3</sub>), and education (X<sub>4</sub>) are all zero.
- 2) The regression coefficient for capital (X<sub>1</sub>) is positive at 0.178, indicating the income increase for indigenous Papuan vendors when business capital increases by one unit. This means that the higher the business capital, the higher the income of the vendors at the Pharaa Sentani market, Jayapura Regency.
- 3) The length of business (X<sub>2</sub>) has a positive regression coefficient of 0.209, showing the increase in income for indigenous Papuan vendors when the duration of the business increases by one unit. This means that the longer a vendor has been in business, the higher their income at the Pharaa Sentani market, Jayapura Regency.

#### 4.1.6. Estimation of the Determination Equation

The coefficient of determination is calculated to determine the extent to which business capital and the length of business, simultaneously, affect the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency. The coefficient of determination is obtained through data processing using SPSS 26 for Windows software, as presented in the table below:

Table 7. Simultaneous Coefficient of Determination

| Model Summary <sup>b</sup> |                   |          |                   |                            |
|----------------------------|-------------------|----------|-------------------|----------------------------|
| Model                      | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1                          | .684 <sup>a</sup> | .468     | .419              | .48030                     |

a. Predictors: (Constant), , Lama\_Usaha, Modal,

b. Dependent Variable: Pendapatan

Source: SPSS Data Processing, 2025

In Table 7, the R-square value is 0.468, known as the coefficient of determination (KD). This means that 46.8% of the change in the income of indigenous Papuan vendors at the Pharaa Sentani market is simultaneously influenced by business capital. In other words, business capital and the length of business simultaneously contribute 46.8% to the income of the vendors. The remaining 53.2% is influenced by other factors beyond business capital and business duration. Next, partial coefficients of determination are calculated to determine the extent of the influence of each independent variable (business capital and length of business) on the dependent variable (income of indigenous Papuan vendors). The coefficient of determination is obtained by multiplying the standardized coefficient with the zero-order correlation, as presented in the following table.

#### 4.1.7. Simultaneous Test

The simultaneous hypothesis to be tested is the effect of business capital and the length of business on the income of indigenous Papuan vendors. To test whether business capital and the length of business simultaneously affect the income of indigenous Papuan vendors, the following statistical hypotheses are used:

Ho: All  $\beta_i = 0$       Business capital and the length of business do not simultaneously affect the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura

Ha: Some  $\beta_i \neq 0$       Business capital and the length of business simultaneously affect the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency

To test this hypothesis, a simultaneous test is conducted using the F-test, which is obtained from the ANOVA table as presented below:

Table 8. ANOVA Table for Simultaneous Effect on the Income of Indigenous Papuan Vendors

| ANOVA <sup>a</sup> |           |                |    |             |       |
|--------------------|-----------|----------------|----|-------------|-------|
| Model              |           | Sum of Squares | df | Mean Square | F     |
| 1                  | Regresion | 8.911          | 4  | 2.228       | 9.657 |
|                    | Residual  | 10.150         | 44 | .231        |       |
|                    | Total     | 19.061         | 48 |             |       |

a. Dependent Variable: Pendapatan

b. Predictors: (Constant), Lama\_Usaha, Modal,

Source: SPSS Data Processing, 2025

In Table 8, the  $F_{\text{calculated}}$  value is 9.657 with a significance level approaching zero. The  $F_{\text{table}}$  value at the 5% significance level ( $\alpha = 0.05$ ) with 4 and 44 degrees of freedom is 2.584. Since  $F_{\text{calculated}} (9.657)$  is greater than  $F_{\text{table}} (2.584)$ ,  $H_0$  is rejected and  $H_a$  is accepted at the 5% significance level. This means that business capital and the length of business simultaneously have a significant effect on the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.

#### 4.1.8. Analysis of the Effect of Business Capital on the Income of Indigenous Papuan Vendors

The first partial hypothesis to be tested is the effect of business capital on the income of indigenous Papuan vendors. Before testing the hypothesis, the strength of the relationship between business capital and the income of indigenous Papuan vendors is analyzed using correlation analysis. Based on the data processing, the correlation coefficient between business capital and the income of indigenous Papuan vendors at the Pharaa Sentani market is as follows:

Table 9. Correlation Between Business Capital and Income of Indigenous Papuan Vendors

|         |                     | Correlations |       |
|---------|---------------------|--------------|-------|
|         |                     | Income       | Modal |
| Income  | Pearson Correlation | 1            | .336* |
|         | Sig. (2-tailed)     |              | .018  |
|         | N                   | 49           | 49    |
| Capital | Pearson Correlation | .336*        | 1     |
|         | Sig. (2-tailed)     | .018         |       |
|         | N                   | 49           | 49    |

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Data Processing, 2025

In Table 9, the correlation value between business capital and the income of indigenous Papuan vendors is 0.336. This shows that business capital has a weak relationship with the income of indigenous Papuan vendors at the Pharaa Sentani market. The positive correlation coefficient indicates that as business capital increases, the income of indigenous Papuan vendors also increases. A summary of the test results on the effect of business capital on the income of indigenous Papuan vendors is shown in the table below:

Table 10. Summary of the Test on the Effect of Business Capital on the Income of Indigenous Papuan Vendors

| Influence | $T_{\text{calculated}}$ | Sig.  | $t_{\text{table}} (\text{df}=44)$ | $H_0$    |
|-----------|-------------------------|-------|-----------------------------------|----------|
| 8,0%      | 2,116                   | 0,040 | 2,015                             | Rejected |

Source: SPSS Data Processing, 2025

In Table 10, the  $t_{\text{calculated}}$  value for the effect of business capital on the income of indigenous Papuan vendors is 2.116, with a significance value of 0.040. Since the  $t_{\text{calculated}}$  value is greater than the  $t_{\text{table}}$  value and the significance value is less than 0.05,  $H_0$  is rejected at the 5% significance level, meaning  $H_a$  is accepted. It can be concluded that business capital positively affects the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.

#### 4.1.9. Analysis of the Effect of Length of Business on the Income of Indigenous Papuan Vendors

The second partial hypothesis to be tested is the effect of the length of business on the income of indigenous Papuan vendors. Before testing the hypothesis, the strength of the relationship between the length of business and the income of indigenous Papuan vendors is analyzed using correlation analysis. Based on the data processing, the correlation coefficient between the length of business and the income of indigenous Papuan vendors at the Pharaa Sentani market is as follows:

Table 11. Correlation Between Length of Business and Income of Indigenous Papuan Vendors

|                    |                     | Correlations |                    |
|--------------------|---------------------|--------------|--------------------|
|                    |                     | Income       | Length of Business |
| Income             | Pearson Correlation | 1            | .418**             |
|                    | Sig. (2-tailed)     |              | .003               |
|                    | N                   | 49           | 49                 |
| Length of Business | Pearson Correlation | .418**       | 1                  |
|                    | Sig. (2-tailed)     | .003         |                    |
|                    | N                   | 49           | 49                 |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Data Processing, 2025

In Table 11, the correlation coefficient between the length of business and the income of indigenous Papuan vendors is 0.418. This shows that the length of business has a moderate/strong relationship with the income of indigenous Papuan vendors at the Pharaa Sentani market. The positive correlation coefficient indicates that the longer the business, the higher the income of the vendors. A summary of the test results on the effect of the length of business on the income of indigenous Papuan vendors is shown in the table below:

Table 12. Summary of the Test on the Effect of the Length of Business on the Income of Indigenous Papuan Vendors

| Influence (%) | t <sub>calculated</sub> | Sig.  | t <sub>table</sub> (df = 44) | H <sub>0</sub> |
|---------------|-------------------------|-------|------------------------------|----------------|
| 12.5%         | 2.632                   | 0.012 | 2.015                        | Rejected       |

Source: SPSS Data Processing, 2025

In Table 12, the t-calculated value for the effect of the length of business on the income of indigenous Papuan vendors is 2.632, with a significance value of 0.012. Since the t-calculated value is greater than the t<sub>table</sub> value and the significance value is less than 0.05, H<sub>0</sub> is rejected at the 5% significance level, meaning H<sub>a</sub> is accepted. It can be concluded that the length of business positively affects the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency.

#### 4.2. Discussion of Research Results

The discussion of the research results is used to answer the research question regarding how business capital and the length of business affect the income of indigenous Papuan vendors at the Pharaa Sentani market in Jayapura Regency, both partially and simultaneously.

##### 4.2.1. The Effect of Business Capital on the Income of Indigenous Papuan Vendors

The majority of indigenous Papuan vendors at the Pharaa Sentani market in Jayapura Regency still rely on minimal business capital. With such limited capital, it is evident that the vendors' ability to increase sales is constrained. Based on the regression analysis, it was found that business capital has a significant positive effect on the income of indigenous Papuan vendors at the Pharaa Sentani market. It was found that business capital contributes 8.0% to the income of indigenous Papuan vendors at the Pharaa Sentani market. The larger the business capital, the higher the income of indigenous Papuan vendors at the Pharaa Sentani market. This result is consistent with previous research by Dewi and Suci (2023) which found that business capital has a positive and significant impact on the income of vendors at the Kalibukbuk market, Buleleng. Similarly, the research by Kussoy, Walewangko, and Londa (2021) on

the factors affecting vendor income in the Serasi market, Kotamobagu, found that business capital is a dominant factor influencing vendor income.

#### *4.2.2. The Effect of the Length of Business on the Income of Indigenous Papuan Vendors*

Most indigenous Papuan vendors at the Pharaa Sentani market in Jayapura Regency have been engaged in their trading business for over two years. With this substantial business experience, the vendors are well-versed in their business operations. The regression analysis revealed that the length of business has a significant positive effect on the income of indigenous Papuan vendors at the Pharaa Sentani market. It was found that the length of business contributes 12.5% to the income of indigenous Papuan vendors at the Pharaa Sentani market. The longer the business, the higher the income of indigenous Papuan vendors at the Pharaa Sentani market. This finding is consistent with research by Nugroho, A. (2018), which shows that the length of business significantly influences the income of small vendors, contributing 15%. Similarly, research by Dhamayanti et al. (2020) found that business experience has a positive effect on income, contributing 14%. Dharmawan and Marna (2025) also found that the length of business significantly influences the income of vendors, with a contribution of 13%. Soemardianto (2023) indicated that the length of business contributes 11% to the increase in vendor income.

#### *4.2.3. The Simultaneous Effect of Business Capital and Length of Business on the Income of Indigenous Papuan Vendors*

The regression analysis revealed that business capital and the length of business simultaneously affect the income of indigenous Papuan vendors at the Pharaa Sentani market in Jayapura Regency. The synergy between business capital and the length of business accounts for 46.8% of the income of indigenous Papuan vendors at the Pharaa Sentani market. The remaining 53.2% is influenced by other factors beyond business capital, length of business, working hours, and education. These factors include: Market Conditions: Fluctuations in supply and demand in the market can affect sales. Seasonal changes, consumer trends, and local economic conditions may have a significant impact on income. Access to Capital: In addition to available business capital, access to financing sources, such as loans from banks or microfinance institutions, can influence the vendors' ability to expand their businesses. Social Networks and Relationships: Relationships with customers, suppliers, and other vendors can affect sales levels. Strong networks can provide advantages in accessing information and support. Product Quality: The quality of the goods sold, including price and variety, can influence consumer attraction and lead to higher sales. Infrastructure and Location: The market's location and the condition of its infrastructure, such as accessibility and supporting facilities, affect the number of visitors and shopping comfort. Marketing Strategies: How vendors promote their products, whether through social media, discounts, or other promotions, can influence product visibility and appeal. Managerial Skills: The vendors' ability to manage their business, including finance, stock, and customer service, contributes to their business success. Macroeconomic Conditions: Factors such as inflation, government policies, and general economic conditions can affect consumers' purchasing power and, ultimately, vendors' income. Availability of Resources: Access to raw materials and natural resources necessary for the business can also affect vendors' ability to meet consumer needs. Policy Changes: Government policies regarding trade, taxation, and business regulations can affect the business environment and vendors' competitiveness.

### **5. Conclusion**

#### *5.1. Conclusion*

Based on the research findings on the factors affecting the income of indigenous Papuan vendors who are unable to provide a diverse range of commodities for sale at the Pharaa Sentani market in Jayapura Regency, the following conclusions can be drawn:

1. The income analysis shows that the average net profit per day is Rp 351,800. Therefore, vegetable vendors are profitable in their daily sales activities.
2. Business capital has a significant positive effect on the income of indigenous Papuan vendors at the Pharaa Sentani market, Jayapura Regency. Similarly, the length of business also has a significant positive effect on the income of indigenous Papuan vendors at the Pharaa Sentani market.

## 5.2. Suggestions

Based on the conclusions of the research, several suggestions can be made:

1. Education Improvement: The government and related institutions should implement training and education programs to improve the skills of vendors, enabling them to better manage their businesses and provide a wider variety of commodities.
2. Access to Capital: Efforts should be made to improve vendors' access to financing, such as microloans or capital assistance programs, so they can expand their businesses and increase their product stock.
3. Product Diversification: Vendors are encouraged to expand the range of commodities offered to attract more customers and increase income.
4. Infrastructure Improvement: The government should focus on developing market infrastructure, such as facilities and accessibility, to support trade activities and attract more visitors.
5. Mentorship Programs: Mentorship programs should be provided to help vendors with marketing strategies and business management, thereby improving their competitiveness in the market.

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