



Influence of Capital, Working Hours, Storage Technology and Business Location On the Income of Fish Traders in the Regional Market of West Denpasar District

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Abstract

This study aims to analyze the influence of capital, working hours, storage technology, and business location on the income of fish vendors in local markets within West Denpasar District. This research employs a quantitative approach, with a population of 157 fish vendors and a sample of 61 vendors. The sample was determined using proportionate stratified random sampling combined with accidental sampling techniques. Data were analyzed using multiple linear regression analysis. The results show that capital and working hours have a simultaneous and significant effect on income. Storage technology and business location were measured using dummy variables, indicating that vendors utilizing appropriate technology and strategic locations earn higher incomes than those who do not. Partially, capital, storage technology, and business location have a positive and significant effect on income. However, working hours show a positive but not significant effect on the income of fish vendors in local markets of West Denpasar District.

Keywords: Capital, Working Hours, Storage Technology, Business Location, Income.

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I. Introduction

Bali Province is one of the regions in Indonesia that has a wealth of marine and fishery resources that are very abundant. With an area of sea waters reaching $\pm 9,634.35 \text{ km}^2$ and a coastline of 470 km, Bali has the sustainable potential of catch fish which is estimated to reach 250,000 to 300,000 tons per year (Bali Provincial Marine and Fisheries Service, 2025). This potential makes the fisheries sector one of the leading sectors that not only supports local consumption needs, but also contributes to exports and national food security. The government also pays great attention to this sector, especially in supporting the achievement of the Sustainable Development Goals (SDGs), especially in terms of fulfilling community nutrition through increasing fish consumption. Fish as a source of animal protein rich in omega-3 fatty acids, vitamins, and minerals, is essential to support the growth and development of the younger generation. Therefore, increasing fish consumption is an important strategy in reducing stunting and malnutrition, as well as encouraging the achievement of sustainable development goals in the field of health and community welfare (Syahwildan et al., 2025).

Among the areas in Bali, the city of Denpasar occupies a strategic position in the dynamics of the fish trade. Based on data from the Central Statistics Agency (2025), capture fisheries production in Denpasar City shows a significant increasing trend, from 18,750 tons in 2019 to 35,086 tons in 2023. This figure makes Denpasar one of the areas with the highest fishery production in Bali, outperforming other districts such as Gianyar and Bangli whose production tends to be stagnant or declining. However, this high production figure has not been able to fully meet the fish consumption needs of the people of Denpasar which reaches around 8 tons per day. Local production is only able to supply around 4 tons per day, so 50 percent of the needs must be supplied from outside the region, including from Banyuwangi and East Java (Denpasar City Fisheries and Food Security Office, 2024). This imbalance between production and consumption shows that there are opportunities as well as major challenges in the management of the fish supply chain in this region.

One of the important actors in the supply chain is fish traders in traditional markets. They act as the main liaison between fishermen and end consumers. In West Denpasar District, there are five regional markets that are the center of fish trading activities, namely Gunung Agung Market, Badung Market, Kumbasari Market, Pula Kerti Market, and Sanglah Market. These five markets accommodate around 157 fish traders who are active in selling every day (Denpasar City Fisheries and Food Security Office, 2024). The existence of these markets not only serves as a place for economic transactions, but also as a social and cultural space that strengthens the cohesion of local communities. However, in the midst of this great potential, fish traders still face various obstacles in increasing their income. These challenges include

limited capital, long but not always productive working hours, limited access to fish storage technology, and business locations that are not always strategic.

Capital is one of the main production factors that greatly determine the sustainability and growth of the business. According to Amirullah (2005:7), capital can be interpreted as a sum of money used in carrying out business activities. Sufficient capital allows traders to buy fish stocks in better quantities and quality, as well as bear operational costs such as stall rental, electricity, and transportation. Research by Inderianti (2020) shows that an increase in business capital is directly proportional to an increase in revenue, as greater capital allows for an increase in business scale and operational efficiency. This is in line with the findings of Sudirman (2020) who stated that in production activities, an increase in output must be accompanied by an increase in inputs, one of which is capital.

In addition to capital, working hours are also an important factor that affects the trader's income. According to the Central Statistics Agency (2022), working hours are the length of time used to work from all jobs, excluding rest time. In the context of fish traders, working hours can vary greatly, from early morning to late at night, depending on the type of fish being sold and market conditions. Firdausa and Arianti (2013) prove that there is a positive relationship between working hours and income, where every increase in operational time opens up opportunities to increase sales turnover. However, the effectiveness of working hours also depends on certain times that are crowded with visitors, so time management is an important key in optimizing revenue.

Another factor that is no less important is storage technology. Fish is a perishable commodity and has a short shelf life. Therefore, the use of technology such as refrigerators, freezers, or other cooling systems is very crucial in maintaining the freshness of fish. According to Suharyadi and Purwanto (2004:96), technology is a tool used to accelerate productivity in a business. Research by Ningsih (2024) shows that technology can increase efficiency and innovation in the fish trading business. Utari and Dewi (2019) also emphasized that the use of proper storage technology allows traders to sell fish for a longer period of time without worrying that the product will be damaged, thus potentially increasing revenue and reducing losses due to spoilage.

The location of the business is also an important determinant in determining the level of income of traders. According to Suwarman (2011:280), a strategic business location can increase consumers' desire to come and shop. Locations that are close to the entrance of the market or are in the main traffic lanes of visitors have a greater chance of attracting customers. Research by Pratiwi (2019) shows that business locations that are far from community activities or difficult to reach can have a negative impact on micro business income. Therefore, choosing the right business location is an important strategy in increasing the competitiveness and income of fish traders.

Wirdatama Sasmita's research (2025) aims to analyze integratively how these four factors—capital, working hours, storage technology, and business location—interact in influencing the income of fish traders in the West Denpasar District Regional Market. This study uses a quantitative approach with an associative design, where data is collected through observation, interviews, and questionnaires of 61 respondents who were randomly selected from five regional markets. Data analysis was performed using multiple linear regression, complemented by classical assumption test, F-test, and t-test to test the significance of the influence of independent variables simultaneously and partially.

The results of the study show that simultaneously, these four variables have a significant effect on the income of fish traders. Partially, the variables of capital, storage technology, and business location have a positive and significant influence on income, while the variable of working hours shows a positive but not significant influence. These findings suggest that the increase in fish traders' income does not depend solely on one factor, but is the result of a complex interaction between different aspects of the business. Therefore, the income increase strategy must be carried out holistically, including increasing access to capital, utilizing technology, structuring market locations, and effective working time management.

This research makes an important contribution to the development of development economics literature, particularly in the context of the informal sector and traditional trade. In addition, the results of this research can also be the basis for the formulation of more inclusive and evidence-based policies in supporting the development of micro-enterprises in the fisheries sector. Local governments, market managers, and financial institutions can use these findings to design programs that support capacity building for fish traders, such as business management training, the provision of storage facilities, and easier access to financing. Thus, it is hoped that the fish trade sector in West Denpasar District can develop sustainably and make a greater contribution to the welfare of the local community.

II. Research Methods

This study uses a quantitative approach with an associative design, which aims to determine the relationship between independent variables and bound variables simultaneously or partially. The quantitative approach was chosen because it was able to provide an objective and measurable picture of the influence of capital, working hours, storage technology, and business location on the income of fish traders in the West Denpasar District Regional Market. Associative design in this study allows researchers to test the causal relationship between variables, as explained by Sugiyono (2019:66), that associative design is used to determine the influence between two or more variables.

The location of the research was determined in five regional markets in West Denpasar District, namely Gunung Agung Market, Badung Market, Kumbasari Market, Sanglah Market, and Pula Kerti Market. The selection of this location is based on the consideration that the five markets are the largest fish trading centers in the Denpasar City area, and have representative characteristics in describing the business dynamics of fish traders. The object of the research is the income of fish traders which is influenced by four independent variables, namely capital, working hours, storage technology, and business location.

The population in this study is all fish traders registered in five markets in West Denpasar District, with a total of 157 people. The sample was determined using the Slovin formula with an error rate of 10 percent, so that a sample of 61 respondents was obtained. The sampling technique is carried out proportionally through the *proportionate stratified random sampling method*, which divides the population into strata based on the number of traders in each market. Furthermore, the selection of respondents was carried out by *accidental sampling technique*, which is to select traders who were met by chance and met the criteria as respondents during the implementation of the research (Sugiyono, 2022:130).

The type of data used in this study consists of quantitative data and qualitative data. Quantitative data is in the form of numbers obtained from the results of questionnaires, while qualitative data is in the form of descriptive information obtained through in-depth interviews with traders and market managers. The primary data source came from the results of observations, interviews, and questionnaires given to respondents, while secondary data was obtained from related agencies such as the Denpasar City Fisheries and Food Security Office, as well as other official documents.

The research instrument used is a structured questionnaire that has been tested for validity and reliability. Data analysis was carried out using multiple linear regression to determine the simultaneous and partial influence of free variables on bound variables. Before the regression analysis is carried out, a classical assumption test is first carried out which includes the normality test, the multicollinearity test, and the heteroscedasticity test to ensure that the regression model used meets the criteria of the *Best Linear Unbiased Estimator* (BLUE) as explained by Suyana Utama (2016:99). The F test is used to test the simultaneous influence, while the t-test is used to test the partial influence of each independent variable on the income of fish traders.

III. Results and Discussion

3.1 Research Results

West Denpasar District is one of the four sub-districts in Denpasar City that have a strategic role in economic activities, especially the trade sector. This area is known as a densely populated area with an area of 24.06 hectares, including agricultural land, settlements, and public facilities. West Denpasar consists of 3 sub-districts and 8 villages, and has 81 traditional banjars and 112 hamlets or neighborhoods spread throughout its territory. Based on data from the Central Statistics Agency (2023), the large trade and retail sectors are the largest absorbers of labor, which is 14,327 people, showing the dominance of market- and service-based economic activities. In addition, the fisheries sector also continues to exist with the number of workers reaching 3,047 people, indicating that marine and fisheries activities are still an important part of the local economy. This sub-district has five active regional markets, namely Gunung Agung Market, Badung Market, Kumbasari Market, Sanglah Market, and Pula Kerti Market, which are the center for the distribution of fresh fish for the people of Denpasar and its surroundings. The high demand for fish consumption in this region, which reached 45.9 tons in 2023, makes West Denpasar a potential area for the sustainable development of fish trading businesses (Denpasar City Fisheries and Food Security Office, 2024).

Respondent Characteristics

The characteristics of the respondents in this study provide an important overview of the social and demographic profile of fish traders in the West Denpasar District Regional Market. A total of 61 respondents

who were the research sample were selected proportionally from five regional markets, namely Gunung Agung Market, Badung Market, Kumbasari Market, Sanglah Market, and Pula Kerti Market. The characteristics analyzed include gender, age, and last level of education, which aims to understand the background of business actors and the potentials and challenges they face in carrying out fish trading activities.

Based on research data, the majority of respondents were women, namely 35 people or 58 percent, while men amounted to 26 people or 42 percent. The dominance of women in the fish trading sector shows that this activity is not only an economic space for men, but also part of the household economic strategy carried out by housewives to increase family income. This is in line with the findings of Martini (2012) who stated that women have an active role in the informal sector, especially in the food trade.

In terms of age, most respondents are in the productive age range, which is between 50 and 55 years old, with the highest percentage of 34 percent. This age group shows that the experience and social network owned by traders are important capital in maintaining and developing the business. According to the Central Statistics Agency (2022), this age group is also the most active in the informal sector because it has high economic responsibility and adaptability to market dynamics.

The education level of the respondents also showed interesting variations. As many as 41 percent of respondents were high school graduates, 34 percent were elementary school graduates, and the remaining 25 percent were junior high school graduates. This data shows that the majority of fish traders have completed formal to intermediate education, which provides them with basic skills in business management, communication with customers, and an understanding of simple technologies such as the use of refrigerants. Munthe et al. (2023) stated that education has an important role in improving the quality of human resources and encouraging business productivity.

Overall, the characteristics of the respondents showed that the fish trade in West Denpasar District was dominated by women of productive age with a background in secondary education, who actively contributed to the local economic sector through traditional market activities.

Description of research data

The description of the data of this study aims to provide an initial overview of the characteristics and distribution of the variables studied, namely the income of fish traders as a bound variable, as well as capital, working hours, storage technology, and business location as independent variables. Descriptive analysis was carried out on 61 respondents who were active fish traders in five markets in West Denpasar District. The data used are primary data obtained through questionnaires and interviews, as well as secondary data from related agencies.

The variable income of fish traders is measured in rupiah per month as gross income, which is the result of sales before deducting operational costs. Based on the tabulation results, the minimum income obtained by the respondents is IDR 5,400,000 and the maximum reaches IDR 76,650,000 per month, with an average of IDR 19,207,377 and a standard deviation of IDR 18,363,922. The average value that is greater than the standard deviation shows that the income data is quite dispersed and able to represent the general condition of the respondents. Most traders have an income between IDR 11,000,000 to IDR 20,999,999, which indicates that the majority are in the middle-income category.

The variable working capital shows a minimum value of IDR 2,900,000 and a maximum of IDR 54,850,000 per month, with an average of IDR 12,555,959 and a standard deviation of IDR 13,387,526. A higher than average standard deviation value indicates that there is considerable variation between traders in terms of capital ownership. This reflects the difference in the scale of the business, where some traders operate with small capital, while others have a larger capital capacity, allowing them to sell in high volumes and a wider variety of fish types.

Fish traders' working hours vary between 4 to 12 hours per day, with an average of 8.31 hours and a standard deviation of 2.70 hours. Most traders work between 9 and 12 hours per day, indicating that fish trading activities require long operational times, especially since the process of picking up goods, setting up stalls, and serving consumers is done independently.

The use of storage technology was measured using dummy variables, with a score of 1 for merchants who use technology such as freezers or refrigerators, and a score of 0 for those who do not use it. As many as 59 percent of respondents use storage technology, indicating that the majority of traders have realized the importance of maintaining the quality of fish so that it remains fresh and marketable. This technology has been proven to help traders in extending the shelf life of fish and reducing losses due to spoilage.

The business location variables were also measured in a dummy manner, with a score of 1 for strategic locations (near market entrances) and a score of 0 for non-strategic locations. As many as 52.46 percent of respondents occupy strategic locations, which gives them advantages in terms of visibility and accessibility to consumers. A good business location is proven to contribute to increased sales volume and revenue.

Overall, the data description shows that fish traders' income is influenced by variations in capital, working hours, technology utilization, and business location. This data is an important basis for further analysis in testing the relationships between variables using multiple linear regression.

Results of Research Data Analysis

Data analysis in this study was carried out to test the influence of free variables—capital, working hours, storage technology, and business location—on the bound variable, namely the income of fish traders in the West Denpasar District Regional Market. The analysis method used is multiple linear regression, which is preceded by a classical assumption test to ensure the validity of the model. The normality test showed that the residual was normally distributed, the multicollinearity test showed no correlation between the free variables (with a VIF value of < 10), and the heteroscedasticity test showed that the model was free of heteroscedasticity symptoms. Thus, the regression model meets the BLUE (*Best Linear Unbiased Estimator*) criteria as suggested by Suyana Utama (2016).

Table 1. Multiple Linear Regression Analysis test results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Modal (X_1)	1.354123	0.006022	224.8499	0.0000
Working Hours (X_2)	40424.67	27661.73	1.461393	0.1495
Technology (X_3)	936104.1	166740.4	5.614142	0.0000
Business Location (X_4)	479230.1	146169.8	3.278585	0.0018
C	1065215.	292587.8	3.640668	0.0006
R-squared	0.999143			
F-statistic	16330.97			
Prob(F-statistic)	0.000000			

Source: Research Data, 2025

Based on Table 1 data, the regression equations in this study are as follows:

$$\hat{Y} = 1065215. + 1.354123X_1 + 40424.67X_2 + 936104.1X_3 + 479230.1X_4$$

$$SE = (292587.8) \quad (0.006022) \quad (27661.73) \quad (166740.4) \quad (146169.8)$$

$$t\text{-Stat} = (3.6406) \quad (224.8499) \quad (1.4613) \quad (5.614142) \quad (3.278585)$$

$$\text{Sig} = (0.0006) \quad (0.0000) \quad (0.1495) \quad (0.0000) \quad (0.0006)$$

$$R^2 = (0.99)$$

Table 2. Results of the Simultaneous Regression Coefficient Significance Test (F Test)

No	Information	Sum of Squares
1	F Statistic	16330.97
2	Probabilitas F Statistic	0,0000

Source: Research Data, 2025

The results of the multiple linear regression test in Table 1 show that simultaneously, the four independent variables have a significant effect on the income of fish traders. This is evidenced by the F-calculated value in table 2 of 16,330.97 which is much larger than the F-table, as well as a significance value of $0.000 < 0.05$. This means that the regression model used is feasible and capable of explaining income variations collectively. A determination coefficient (R^2) of 0.99 indicates that 99 percent of the income variation can be explained by all four independent variables, while the remaining 1 percent is explained by factors other than the model.

Partially, the results of the t-test show that the variables of capital, storage technology, and business location have a positive and significant influence on revenue. The capital variable has a regression coefficient of 1.35 with a significance value of 0.000, which means that every increase in capital of IDR 1,000,000 will increase revenue by IDR 1,350,000. This shows that capital is the dominant factor in determining business capacity and sales volume. Storage technology also had a significant effect, with a

coefficient of 936,104 and a significance value of 0.000. Traders who use technology such as freezers or refrigerators have higher income than those who do not, because they are able to maintain the quality of fish and reduce losses due to spoilage. The business location also showed a significant influence, with a coefficient of 479,230 and a significance value of 0.0018. Merchants occupying strategic locations, such as near market entrances, tend to have greater access to consumers and higher sales volumes.

Meanwhile, the working hours variable showed a positive but insignificant effect on income, with a significance value of 0.1495 (> 0.05). This shows that the length of time you trade is not always directly proportional to the increase in income. The effectiveness of working time, especially during peak hours, is more decisive than just the duration of daily work. These findings indicate that an efficient time management strategy is more important than extending operating hours.

Overall, the results of the data analysis show that the increase in the income of fish traders in West Denpasar District is greatly influenced by a combination of capital factors, storage technology, and business location. Working hours act as a supporting factor whose effectiveness depends on the operational time strategy implemented by each trader.

3.2 Discussion

The Effect of Capital, Working Hours, Storage Technology, and Business Location Simultaneously on the Income of Fish Traders in the Regional Market of West Denpasar District (Test F)

Based on the processing results obtained, it can be concluded that the regression model consisting of capital variables, working hours, storage technology and business location simultaneously has a significant effect on the income of fish traders in the West Denpasar District Regional Market. This result is in line with the theory of income according to Suroto (2000:26), income is obtained through production and distribution processes that utilize resources productively. In line with Adam Smith's theory, income reflects the results of labor, capital, and land used in economic activities. This theory emphasizes that the greater and more efficient the use of these production factors, the higher the income obtained by business actors. This shows that the four independent variables together have a contribution in explaining the variation in the income of fish traders in the West Denpasar District Regional Market. Thus, regression models are feasible to analyze the relationship between these variables.

Capital is one of the factors that affect the income of fish traders in the West Denpasar District Regional Market. More capital will be able to boost sales because there are many variations of goods that can be sold to consumers so that income can increase Rasmusi & Maghfira (2018). These results are in line with research by Ramadhan & Ariusni (2024) which shows that simultaneously business capital variables have a significant effect on the income of fish traders at the Gaung Market in Padang City, in addition to Saragih & Wenagama (2022) reinforcing this finding. In his research which stated that business capital simultaneously affects the income of traders at the Kedonganan Fish Market, Kuta District, Badung Regency.

Working hours are the time used by a person to carry out their business activities. According to Herlambang (2002:40), the trading business will have higher income if the workers work longer. This result is in line with research by Setiawan & Berdi (2025), simultaneously, working hours increase the income of fish traders in Ranggi Village, Wae Ri'i District. The results of this test are also in line with the research of Putra & Sudibia (2021), in his research working hours have a simultaneous and significant effect on the income of fish traders in Kedonganan Village, besides that storage technology is also one of the factors that affect the income of fish traders in the Regional Market West Denpasar District.

The application of good storage technology allows fish traders to maintain the quality of fish so that the selling price remains high and reduce the risk of losses due to spoilage Khairi & Santoso (2017). This result is in line with the research of Prayasa, et al. (2019) the use of technology is proven to maintain the quality of fish for mobile fish traders, this result is also in line with the research of Juwita (2023) the use of technology can maintain fish quality and increase the income of fishermen in Malang Rapat Village, in line with the research of Sobariah et al. (2020) cold chain technology in handling fishermen's catches in Kendari District, Nambo, and Bintan Bay have an impact on increasing revenue and profits.

In addition, location also affects the success of a business. with the right location selection will make it easier for traders to buy and sell so as to get maximum results Nugroho & Utami (2020). This result is in line with the research of Rasidi & Firdaus (2025) that business locations simultaneously have a significant influence on the income of traders in the Monday Market, Besuk District, in agreement with the results of this study strengthened by Dewi & Budhi (2022) showing that strategic locations and simultaneously have a significant effect on the income of fish traders in the Kedonganan Market. Thus, simultaneously, the four factors interact with each other and form a business system that supports each other to generate optimal income for fish traders in West Denpasar District.

Discussion of the Influence of Capital, Working Hours, Storage Technology, and Location Partially on the Income of Fish Traders in the Regional Market of West Denpasar District (Uji t)

1) The Influence of Business Capital (X_1) on the Income of Fish Traders in the Regional Market of West Denpasar District

The results of partial regression analysis (t-test) showed that the capital variable (X_1) had a positive and significant influence on the income of fish traders in the West Denpasar District Regional Market. In this study, the capital analyzed is monthly working capital, which is a fund that is routinely allocated to finance all daily operational activities, as well as other unexpected costs that support the smooth running of the business. This result is in line with the theory of income explained by Suroto (2000:26) which emphasizes that income is the total income obtained from productive activities, including the results of capital utilization. Adam Smith also stated that healthy income should not lead to a decrease in capital, meaning that well-managed capital should generate income sustainably. According to Amirullah (2005:7), capital in trading activities will continue to revolve through buying and selling activities, and the proceeds of sales will be reused to buy new merchandise, creating a continuous cycle.

In line with the research of Lestari & Widodo (2021) which found that capital variables have a positive and partially significant effect on the income of traders at the Manukan Kulon Traditional Market in Surabaya, in this study it is explained that the larger the capital that traders have, the greater the opportunity to increase the number and variety of merchandise sold, so that consumers have more choices and tend to shop at these traders.

These results are also consistent and reinforce previous studies that have found a positive and significant relationship between capital and income. In line with the research of Ernida, et al. (2021), Oktaviana, et al. (2021), and Lindawati, et al. (2023) show that capital has a positive and partially significant influence on the income of fish traders in the Old Market of Mamuju Regency, all conclude the same thing, namely the ownership of production factors, especially capital, is the main determinant of the level of income that can be achieved. The more capital a trader can access and manage, the higher the probability of earning a larger income.

The following are the results of an interview with a respondent of a fish trader at Gunung Agung Market, West Denpasar District, who stated that:

"Capital is the most important for traders, decks. If I have even bigger capital, the first thing I can take is fish that are of good quality, because my customers include restaurants, hotels and restaurants, and they are happy if the quality of the fish is fresh. And the fish that I stock is also diverse, most of which I stock according to the needs of consumers who need it, the more complete the type of fish I trade, the more orders I order, especially if there is a large order, so it's easy if I have enough capital. The point is that if my capital is small, the risk I take is greater, if my capital is large, the risk I take is actually smaller."

This statement shows that working capital plays a very important role in the sustainability and competitiveness of the fish trading business. He said that the availability of sufficient capital allows it to provide products with good quality and more variety, which directly increases customer satisfaction and loyalty. In addition, with adequate capital, he can maintain the availability of stock in larger volumes so that he is able to serve non-permanent demand, including from large-scale customers such as restaurants. According to him, without a smooth capital turnover, business development will be difficult to achieve due to the limited ability to meet the needs of daily stock spending.

2) The Effect of Working Hours (X_2) on the Income of Fish Traders in the Regional Market of West Denpasar District

Based on the results of the partial t-test analysis for the working hours variable (X_2) shows that the working hours variable has a positive but insignificant coefficient value based on the analysis in Table 4.11 Mankiw (2018:7) emphasizes that every economic choice involves trade-offs, including the allocation of time between work and leisure. Traders will choose strategic working hours to maximize results (revenue) while still considering the need for free time to optimize their total utility. This is in line with research conducted by Karmin & Naukoko (2020) which stated that working hours have a positive but insignificant effect on the income of traders in Bersehati Market, Manado. In addition, research from Agustino, et al. (2018) in their research on the socio-economic study of fish traders in Kuala Tungkal, West Tanjung Jabung Regency. In the study, it was found that the working hours variable had a positive relationship with income, but it was not partially significant. This shows that working hours are not the dominant factor in influencing fish traders' income, and that the effectiveness of working hours is more important than just the length of time to trade.

The results of this study are different from the findings expressed by Herlambang (2002:40) and Irvan (2020), which stated that there is a positive and significant relationship between working hours and income.

However, in this study, the results of the persial test showed that working hours did not have a significant effect on the income of fish traders. This difference in results can be explained if you look at the business characteristics of fish traders in the market, which have their own work patterns. One of them is related to work effectiveness, not just the length of work. In this context, the income of fish traders is more determined by *peak hours*, especially in the morning when many buyers come to look for fish that are still very fresh.

Almost all fish traders try to maximize their buying and selling activities at dawn, as it is a time with high sales opportunities. According to Su'ud (2007:132) with the management of the activities to be done, a person can save time and work. Increasing working hours after busy hours, such as trading until noon or evening when the market starts to be quiet, does not increase much income, but still requires energy and time. This condition is in line with the concept of *diminishing returns* in the economy, which is when the addition of working hours no longer provides comparable results or income. So that even though the working hours are longer, if it is done outside of effective hours, the additional income obtained becomes small and less economically valuable.

Furthermore, in this multiple regression model, the influence of working hours also needs to be seen in relation to other more dominant variables. The strength of the variables of Business Capital (X_1), Storage Technology (X_3), and Business Location (X_4) that have proven to be very significant is likely to mask the effect of working hours. For example, a trader with large capital, a strategic location, and good technology can generate a much higher income in 6 hours of effective work than a trader with limited resources who works for 10 hours. Thus, working hours function more as a basic operation to run a business, rather than as the main differentiating factor that creates an income gap between traders.

The following is the result of an interview with Mr. I Wayan Gawatra, a fish trader in Badung Market, West Denpasar District who gave his views on working hours:

"You sell it from midnight, Dik. Because at that time the market is crowded, here people sell from 1 o'clock, sometimes from 8 to 9 o'clock in the morning the goods are gone, sometimes if I don't run out of fish I keep it in the freezer, I still go home at 10 o'clock. If you force yourself to open until noon, it's useless, you only buy one or two, make a little profit, especially since it's already noon and you don't focus because you're tired, so it's not worth it as tired. Not to mention the risk of fish becoming less fresh. So it's better to focus on maximizing sales during those peak hours than to be open for a long time but it's quiet."

The statement shows that in traders' perceptions, time effectiveness is far more important than the total duration of working hours. He emphasized that there is a peak time in the morning where all sales activities are centralized. In addition, his experience of trying to extend working hours confirms that the additional income obtained is very thin and not proportional to the cost of labor and the risk of degrading product quality. According to him, a more profitable strategy is to work intensively during peak hours, not just extend operational hours. This view is in line with the results of research that show that other factors such as the amount of capital and business location have a much more dominant influence in determining income than just total daily working hours.

3) The Influence of Technology (X_3) on the Income of Fish Traders in the Regional Market of West Denpasar District

Based on the results of the regression analysis, the storage technology variable has a positive and significant regression coefficient on the income of fish traders in the Regional Market of West Denpasar District. The results of this study are in line with Adam Smith's theory, which states that income reflects the results of work from the use of production factors, including technology. The more efficient the technology used, the higher the revenue generated in this study is in line with the nature of the product being traded. Storage technology, as defined by Sahubawa (2019:25), includes cooling and freezing techniques that aim to extend the shelf life of fish and maintain the quality of fishery products.

According to Irawan (2019), good storage not only slows down the spoilage process, but also actively maintains texture and taste, which is the main value desired by customers. More than that, Hartono (2021:119) emphasized that the efficient application of technology can reduce product losses due to damage, which directly impacts increased profitability.

The results of this study are also consistent with various previous studies, where research by Simbolon, et al. (2023) specifically found that the use of technology such as cold boxes can save operational costs by up to 59.5 percent compared to ordinary ice. This shows that storage technology not only maintains the quality of fish, but also has a significant economic impact on traders. In line with the research of Widiyanto, et al. (2014) which states that the use of refrigerated fish crates is able to keep the fish temperature low ($\pm 3^\circ\text{C}$) during retail sales for 3 to 3.8 hours, as well as maintain the freshness quality of the fish. Marfuah & Hartiyah (2019) also strengthens this argument by explaining that good use of technology will increase production capacity and ultimately increase business income.

The following are the results of an interview with the respondent, a fish trader in Badung Market who uses storage technology that confirms this finding:

"Wow, that's a big difference. This technology is very important, brother, to accommodate the fish. In the past, if the fish didn't run out today, the next day my mother's fish was a bit bad, so the quality dropped, if that's the case, I was forced to sell it cheaply, sometimes I even lost, because many of my mother's fish were wasted. So in the past, when there was no freezer, my mother took enough fish, but I didn't have a lot of fish. Because fish also have seasons, so when the mother's fish season starts to stock first, most mothers keep the ice block package that lasts only two days. If now, I can immediately freeze the leftover fish in the freezer, tomorrow it will be sold again and it will still be fresh for up to 15 days. So now my mother never throws fish, because my mother's fish is fresh. Now mothers also dare to stock expensive fish such as salmon, gindara, tuna because mothers are not afraid of damaged fish. If you have this freezer, you can stock a lot of fish, now you have a lot of restaurant customers, they like it because your fish is fresh."

The statement explains why storage technology has such a significant influence on revenue. He said that the main function of using technology is to reduce losses, where unsold fish can be stored properly without experiencing a decrease in quality, thus minimizing losses. This ability to maintain quality consistently is the main selling point that attracts customer segments such as restaurants. According to him, storage technology not only serves to preserve, but is also active as a tool to increase the scale, variety, and quality of products, which ultimately drives revenue. While the benefits are quite impactful, the high initial investment costs for devices such as *freezers* and monthly electricity costs are still major obstacles for small-scale merchants to be able to adopt similar technologies.

4) The Influence of Location (X_4) on the Income of Fish Traders in the Regional Market of West Denpasar District

Based on the results of the regression analysis, the variables of business location have a positive and significant influence on the income of fish traders in the West Denpasar District Regional Market. This result is in line with the opinion of Suroto (2000:26) in the theory of income where income is the result of productive activities and retribution for production factors, including location. A strategic business location that is easily accessible to consumers will have a direct impact on increasing merchants' income. In addition to considering the internal aspects of traders, business actors also need to consider external factors such as accessibility, visibility, the surrounding environment, and the level of competition in that era Hardia, et al. (2024). As stated by Suwarman (2011:280), location is a fundamental factor that greatly influences a customer's desire to come and shop. Merchants who are near the entrance or along the main lane will automatically be the first to be seen by customers. This, as expressed by Tyas (2019), where consumers like a close location because it is considered more efficient, they do not need to spend a lot of time and effort to go further into the market.

These findings are also supported by a series of previous studies, which confirm that location is an important variable for traders' earnings in traditional markets. Research conducted by Irvan (2020) business locations have a positive and significant influence on the income of traders in the Pakraman Padangsambian Village Market. A strategic location makes it easier for consumers to access merchants, thereby increasing transaction and revenue opportunities. In line with Salsabila's research, et al. (2023) have the same conclusion, namely that there is a positive and significant influence of business location on traders' income. In particular, research by Ayuningsasi (2012) provides strong evidence by showing that a change in selling position to a less strategic location can lead to a decrease in income.

The following are the results of the interview with the respondents, a fish trader who sells at Kumbasari Market managed to occupy a strategic location that confirms the findings:

"In this market, people who come are sometimes lazy to go down, Dik. The road is far from the parking lot, not to mention having to go down. But fortunately, my mother's place in front of the stairs immediately looked the same as everyone who passed. If you quickly get new customers here, the first person to go down directly to see your mother's merchandise, because it is the fastest access, it is different if you are behind, people are walking far to the corner, I used to sell on the corner, most of the people who buy are only subscriptions from my mother who have been for a long time, who already know where my mother sells. But when my mother moved to the front, it was quite crowded, fortunately my mother also increased, because many new buyers came in and stopped by to see my mother's goods."

The statement illustrates marketing theories regarding the importance of visibility and ease of access for customers. He explained that the strategic location serves as a connecting road that is first seen by market visitors, so it is very effective in attracting new customers. His experience moving from a less strategic location to a better location provides strong evidence of how location directly impacts an increase in customer numbers and revenue. According to him, location is not just a place to sell, but an active factor

that determines the volume of daily customer traffic. However, the high competition for strategic locations and rental costs that tend to be more expensive are often the main barriers for new or small capital traders to be able to occupy the best positions in the market.

IV. Conclusions and Suggestions

Conclusion

Based on the results of data analysis and discussion that have been described in the previous chapter, several conclusions can be drawn to answer the formulation of the research problem, which are as follows:

- 1) Variables of capital, working hours, storage technology and business location have a simultaneous effect on the income of fish traders in the West Denpasar District Regional Market
- 2) Variables of capital, storage technology, and business location partially have a positive and significant effect on the income of fish traders in the Regional Market of West Denpasar District,
- 3) The variable working hours partially had a positive but not significant effect on the number of fish traders in the West Denpasar District Regional Market.

Suggestion

Based on the results of the analysis and conclusions above, several suggestions can be proposed as follows

- 1) For the government and the authorities, it is hoped that it can provide support for fish traders, namely by providing counseling and expanding education about the importance of using storage technology such as *freezers* and *chillers* so that traders do not use ice or other preservatives that can damage the quality of freshness and protein in fish, the government needs to organize market infrastructure thoroughly, improve drainage, lighting, sanitation and road access to facilitate access to buying and selling for fish traders, the Government also needs to introduce a digital marketing platform that can help traders reach a wider range of consumers so that they can increase traders' income.
- 2) For fish traders in the West Denpasar District Regional Market, in order to increase income, traders are advised to manage capital efficiently by recording expenses and setting aside profits to develop their businesses. Traders also need to adjust working hours to the busy time of buyers, utilize storage technology such as *freezers* to maintain the quality of fish, and maintain cleanliness and arrangement of stalls to be attractive. In addition, traders also need to utilize social media for promotion, as well as learn about the potential market locations used to sell.
- 3) For the next researcher, it is recommended to conduct research in a wider area by comparing several sub-districts or markets in Denpasar City and other districts, in order to provide a more comprehensive picture of the factors that affect the income of fish traders. In addition, the researcher can also add other variables such as the trader's education level, trading experience, digital marketing promotion strategies, so that the analysis becomes broader and reflects the real conditions in the field from various aspects

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