

## Research Article

# Analysis of the Influence of Education, Capital, and Information Technology on the Income of Informal Sector E-Commerce Users in Denpasar City

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**Abstract:** As an archipelagic nation with the fourth largest population in the world, Indonesia faces challenges in employment opportunities due to the imbalance between population growth and job availability. Consequently, both central and regional governments are now focusing on the development of the informal sector, which contributes significantly to the economy and employment creation. In the era of the digital economy, this sector benefits from technological advancements. However, informal entrepreneurs continue to face obstacles such as limited access to technology, human resources, and capital. This study aims to examine the influence of education, capital, and information technology on the income of informal sector actors who utilize e-commerce in Denpasar City, both simultaneously and partially. The data used in this study consists of both primary and secondary sources, collected through interviews with 100 respondents selected using purposive sampling. The analytical methods employed include descriptive analysis and multiple linear regression analysis. The results show that the variables of education, capital, and information technology simultaneously have a significant influence on the income of the informal sector. Partially, each of these variables also exerts a positive and significant influence on income. Based on these findings, it is recommended to increase attention to education and training in digital technology utilization, as well as improve access to capital for informal entrepreneurs. These efforts can enhance sales performance, expand market reach, and consequently increase income.

**Keywords:** capital, e-commerce, education, informal sector income, information technology.

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## 1. INTRODUCTION

Indonesia is a developing country with great potential to become an advanced nation. To achieve this objective, the government continues to pursue various strategic measures, one of which is promoting economic development (Wirawan & Indrajaya, 2019). The success of national development is largely determined by the progress of its economic sector. Economic development becomes a key priority for any country, especially in efforts to increase national income and improve public welfare (Hidayat, 2022).

As the country with the fourth largest population in the world, Indonesia, as an expansive archipelago, consistently struggles with limited employment opportunities. The rise in unemployment can be attributed to the mismatch between population growth and the availability of jobs. Therefore, both central and regional governments are currently focusing on developing the formal sector, while also encouraging participation in the informal sector for those not absorbed into formal employment (Octavianty et al., 2020). Employment

opportunities in the formal sector are limited and often require specific skills or educational backgrounds, leaving those without such qualifications with fewer chances to earn a living. Unlike the formal sector, the informal sector—such as street vendors—offers an alternative for those unable to enter formal employment. Its advantages include easier entry without educational prerequisites, low capital requirements, and flexible working hours. However, these vendors still require skills in selecting strategic locations, merchandise, and timing to attract buyers (Allam et al., 2019).

Bali Province is one of Indonesia's most prominent provinces, recognized both nationally and internationally. Geographically, Bali consists of eight regencies and one city, each with unique potential, capable of producing various goods and services. The following section presents data on the average monthly net income of informal sector workers by regency/city and their highest educational attainment in Bali Province for the year 2023.

**Table 1. Average Monthly Net Income of Informal Workers According to Regency/City and Highest Education Completed in Bali Province in 2023.**

Regency/City	Not in school/Not finished elementary school (Rp)	SD (Rp)	Junior High School (Rp)	High School (Rp)	Bachelor (Rp)	Total
Jembrana	888166	1326310	1774024	1616637	1434656	7039793
Tabanan	1228171	1635706	2065246	2684201	2158799	9772123
Badung	1453308	2723117	2479925	4261176	3445410	14362936
Gianyar	1205941	1706373	1905010	2943408	2189584	9950316
Klungkung	1001565	1550374	2149267	2057692	1712324	8471222
Bangli	1094859	1759060	1951731	2588544	1868109	9262303
Karangasem	940327	1335514	1519478	1483789	1245606	6524714
Buleleng	1313544	1779953	2047411	2038045	1740109	8919062
<b>Denpasar City</b>	<b>2158192</b>	<b>2930568</b>	<b>3171466</b>	<b>3773498</b>	<b>3313934</b>	<b>15347658</b>
Total	1259015	1816262	2172711	2946196	2167146	10361330

Source: Central Statistics Agency (BPS) of Bali Province, 2024

Based on the data above, Denpasar City recorded the highest average monthly net income for informal sector workers by level of education completed in the Province of Bali in 2023. However, the highest income was still earned by those who had completed senior high school (SMA) rather than holding a bachelor's degree. This indicates that informal sector workers in Denpasar City contribute as a unique asset that strengthens the foundation of the regional economy and serves as a potential source of local government revenue. Denpasar City also serves as the center of the economy and governance, experiencing rapid growth, especially in the trade, tourism, and service sectors (Nyoman Desy Mas Hendrawati & Ketut Sudibia, 2021). As the hub of economic activity, Denpasar has developed more rapidly than other regencies in Bali. This is evident from the expansion of hotels, shopping centers, entertainment venues, and the growing attractiveness of tourism. Such development has opened up numerous employment opportunities, particularly in the informal sector.

In the current era of rapid globalization, the growth of the internet is boundless. The use of technology has had a significant impact on various major industries and on all aspects of the economy, as businesses continue to undergo substantial transformation (Erwati et al., 2024). The widespread outbreak of COVID-19 since February 2019 also introduced economic

uncertainty, prompting most countries to implement lockdowns. The closure of non-essential businesses had a considerable impact on the business world (Rahman et al., 2022). In this context, the adoption of the digital economy has emerged as a major trend in business, significantly transforming the way businesses operate globally. Amid the information technology revolution, the emergence of e-commerce platforms and increasingly intensive global connectivity have also influenced business sectors (Eliana et al., 2023). Companies are now compelled to utilize advertising platforms, online marketplaces, and social media to introduce and promote their businesses. According to the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia (2022), 19.5 million or 30.4 percent of business actors use e-commerce platforms to sell, market, and grow their businesses. This suggests that the use of e-commerce has become relatively widespread among entrepreneurs.

In the context of digital innovation, understanding the impact of the digital economy on business is crucial due to its significant influence on overall economic stability. Consumer trends have shifted rapidly alongside the development of the digital economy. Consumer behaviors, such as online shopping, brand engagement via social media, and support for local businesses through e-commerce platforms, have changed drastically (Rosário & Raimundo, 2021). This raises an important question: how do these changes affect the income of the informal sector, which heavily relies on consumer interactions? Despite its positive impacts, business actors often face various challenges in leveraging the potential of the digital economy. These include limited access to technology, insufficient human resources, and lack of capital. Therefore, it is vital to understand the extent to which these factors influence a business's ability to optimize the benefits of the digital economy (Eliana et al., 2023).

The first factor influencing informal sector income is education. Education is a fundamental asset for business development under various conditions. It plays a crucial role in shaping attitudes and behaviors, enhancing critical thinking, expanding perspectives, and enabling entrepreneurs to better absorb information that can lead to innovation and business advancement, ultimately increasing income. The level of education affects a person's income; the higher the education level, the more decent and higher the income. In this case, education refers to human capital, particularly the business owners or managers (Ragapatni & Widhiyani, 2023).

The second factor is capital, which is one of the key determinants of income. The amount of capital invested in a business directly affects the income generated. A business is more likely to operate smoothly with sufficient capital. A larger amount of capital facilitates greater inventory procurement, which in turn influences income. On the other hand, a lack of capital significantly limits a business's capacity to maintain adequate inventory (Ardini & Rachman, 2024).

The third factor is information technology. Technological advancement today has enabled businesses to operate more efficiently and effectively. Many entrepreneurs now use technology to market their products or services and to reach their target markets more efficiently. Moreover, the use of digital information technology has become increasingly important to remain competitive in the global market, as consumers increasingly depend on the internet for purchasing and information seeking. Entrepreneurs who fail to utilize digital technology risk missing opportunities to expand their market and increase their competitiveness (Ardini & Rachman, 2024).

Based on the background described above, the researcher is interested in conducting a study that examines informal sector income as the dependent variable, and education, capital, and information technology as the independent variables. Therefore, this research is entitled: "An Analysis of the Influence of Education, Capital, and Information Technology on the Income of Informal Sector E-commerce Users in Denpasar City."

## 2. RESEARCH METHOD

This research adopts a quantitative associative approach to analyze the influence of education, capital, and information technology on the income of informal sector e-commerce users in Denpasar City. Denpasar was selected as the research location because it recorded the highest average monthly net income for informal sector workers by education level in the Province of Bali in 2023. However, the highest income was still earned by high school graduates, not university degree holders. This implies that informal sector workers in Denpasar contribute significantly as economic assets that strengthen regional economic foundations and provide potential local revenue.

The object of this study is the income of informal traders (dependent variable), with education, capital, and information technology as independent variables. A sample of 100 respondents who are already using e-commerce was selected through purposive sampling based on specific criteria. Data were collected through observations and structured interviews. The types of data used include both quantitative and qualitative data from primary and secondary sources.

Data analysis was performed using multiple linear regression analysis, employing F-tests for simultaneous effects and t-tests for partial effects. The analysis was complemented with classical assumption tests (normality, multicollinearity, and heteroscedasticity) to ensure model validity. The regression equation involved natural logarithms of income and capital, as well as dummy variables for education. The coefficient of determination ( $R^2$ ) was used to measure the extent to which the independent variables influence the dependent variable. This study is expected to provide a comprehensive understanding of the factors affecting the income of e-commerce-based informal sector actors in Denpasar City.

## 3. RESULTS AND DISCUSSION

### Research Data Analysis Results

#### Descriptive Statistical Analysis

Table 2. Descriptive Statistical Analysis Results Table

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
JUNIOR SCHOOL	HIGH 100	0	1	.17	.378
SENIOR SCHOOL	HIGH 100	0	1	.30	.461
Bachelor	100	0	1	.48	.502

LnModal	100	12.61	20.03	16.3072	1.58323
IT	100	2	6	3.53	1.259
Income	100	13.12	18.32	15.9617	1.30083
Valid N (listwise)	100				

Source: Primary Data, 2025 (Appendix 3)

Based on table 2, the income variable as the dependent variable is known that the average income value is 15.9617 with a standard deviation of 1.30083. The education variable as an independent variable D, at the junior high school level obtained an average result of 0.17 with a standard deviation of 0.378, at the high school level the average result was 0.30 with a standard deviation of around 0.461, and at the undergraduate level the average result was 0.48 with a standard deviation of around 0.502. For the capital variable which is variable X1, it has an average value of 16.3072 with standard deviation 1.58323. Then the variable X2, namely information technology, has an average 3.53 with standard deviation 1.259.

### Multiple Linear Regression Analysis

**Table 3. Multiple Linear Regression Test Results**

Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	9,095	.847		.000
	JUNIOR HIGH SCHOOL	.875	.344	.254	.012
	SENIOR HIGH SCHOOL	.916	.331	.324	.007
	Bachelor	1,260	.346	.486	.000
	LnModal	.247	.058	.300	.000
	IT	.515	.072	.498	.000

a. Dependent Variable: LnIncome

ANOVA <sup>a</sup>					
Model		Sum of Squares	Df	Mean Square	Sig.
1	Regression	124,851	5	24,970	.000b
	Residual	42,671	94	.454	
	Total	167,523	99		

a. Dependent Variable: LnIncome

b. Predictors: (Constant), IT, High School, Middle School, Capital, Bachelor

Source: Processed Primary Data, 2025 (Appendix 3)

Based on the table above, the calculation of multiple linear regression using the SPSS program produced the following results:

$$\text{LnY} = \alpha + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 \text{LnX}_1 + \beta_5 X_2 + \mu_i$$

$$\text{LnY} = 9,095 + 0,875 (D_1) + 0,916 (D_2) + 1,260 (D_3) + 0,247 (\text{LnX}_1) + 0,515 (X_2)$$

$$\text{SE} = (0,344) \quad (0,331) \quad (0,346) \quad (0,058) \quad (0,072)$$

$$t_{hitung} = 2,547 \quad 2,767 \quad 3,647 \quad 4,227 \quad 7,155$$

Sig	=	0,012	0,007	0,000	0,000	0,000
F	=	55,007				
Sig F	=	0,000				

From the results of the regression equation model above, the following conclusions can be drawn are as follows :

- 1) The regression coefficient value of Junior High School Education (D1) of 0.875 has a positive relationship with income, meaning that MSME actors with Junior High School education have a higher income of 87.5 percent compared to those who are elementary school graduates.
- 2) The regression coefficient value of High School Education (D2) of 0.916 has a positive relationship with income, meaning that MSME actors with junior high school education have a higher income of 91.6 percent compared to those who are elementary school graduates.
- 3) The regression coefficient value of Bachelor's Degree (D3) of 1.260 has a positive relationship with income, meaning that MSME actors with junior high school education have a higher income of 126.0 percent compared to those who are elementary school graduates.
- 4) The regression coefficient value of Capital (X1) of 0.247 has a positive relationship with income, meaning that every 1 percent increase in capital will increase income by 24.7 percent.
- 5) The regression coefficient value of Information Technology (X2) of 0.515 has a positive relationship with income, meaning that MSMEs who use e-commerce applications get higher incomes compared to MSMEs who use fewer e-commerce applications.

### Classical Assumption Test

#### 1) Normality Test

Table 4. Normality Test

#### One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test					Unstandardiz ed Residual
N					100
Normal Parameters <sup>a,b</sup>		Mean		.0000000	
		Std. Deviation		.65652389	
Most Extreme Differences	Extreme	Absolute		.075	
		Positive		.075	
		Negative		-.072	
Test Statistics					.075
Asymp. Sig. (2-tailed) <sup>c</sup>					.181
Monte Carlo Sig. (2-tailed) <sup>d</sup>	Sig. (2-tailed)	99% Confidence Interval	Sig.		.176
			Lower Bound	.166	
			Upper Bound	.186	
a. Test distribution is Normal.					
b. Calculated from data.					
c. Lilliefors Significance Correction.					
d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 299883525.					

Source: Pimer Data, 2025 (Appendix 3)

Based on the Kolmogorov-Smirnov table above, the data can be stated to be normally distributed if the Asymp. Sig. value  $> 0.1$  and the data is stated to be not normally distributed if the Asymp. Sig. value  $< 0.1$ . It is known that the variables Education, Capital, and Information Technology have an Asymp. Sig. value of 0.181, which is  $> 0.1$ , then the data above is stated to be normally distributed.

## 2) Multicollinearity Test

**Table 5. Multicollinearity Test**

Variables	Collinearity Statistics	
	Tolerance	VIF
<b>JUNIOR HIGH SCHOOL</b>	<b>0.272</b>	<b>3,672</b>
<b>High School</b>	<b>0.197</b>	<b>5,069</b>
<b>Bachelor</b>	<b>0.152</b>	<b>6,566</b>
<b>Ln Capital</b>	<b>0.538</b>	<b>1,859</b>
<b>IT</b>	<b>0.558</b>	<b>1,791</b>

Source: Primary Data, 2025 (Attachment 3)

To detect the presence or absence of multicollinearity in the regression model can be seen from the tolerance value and factor variance (VIF). If the tolerance value  $> 0.10$  or VIF  $< 10$ , then it is said that there is no multicollinearity (Utama, 2007:92). Based on table 4.13 the results of the multicollinearity test show that the data does not have multicollinearity, the tolerance value  $> 0.10$  or the VIF value  $< 10$  so that there is no correlation between independent variables.

## 3) Heteroscedasticity Test

**Table 6. Heteroscedasticity Test Results Table**

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.224	.530		2.311	.023
	<b>JUNIOR HIGH SCHOOL</b>	.342	.215	.295	1,593	.115
	<b>SENIOR HIGH SCHOOL</b>	.087	.207	.092	.421	.675
	<b>Bachelor</b>	.018	.216	.021	.085	.932
	<b>LnModal</b>	-.060	.036	-.217	-1.647	.103
	<b>IT</b>	.042	.045	.121	.937	.351

a. Dependent Variable: Abs\_RES

Source: Processed Data, 2025 (Appendix 3)

Based on the results of data processing in Table 6, it can be seen that there is no influence of independent variables (Junior High School, Senior High School/Vocational High School, Bachelor's Degree, Capital, and Information Technology) on the absolute residual, either simultaneously or partially. Because the value of the significance of each independent variable exceeds the alpha value ( $\alpha = 0.1 \leq \text{significant } t$ ), this means that the independent

variables studied do not have a significant influence on the absolute residual value at  $\alpha = 10\%$ . Thus, the model created does not contain symptoms of heteroscedasticity, so it is feasible to predict.

#### Test of Determination Coefficient (R square)

Table 7. Coefficient of Determination

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863a	.745	.732	.67376

a. Predictors: (Constant), IT, High School, Middle School, Capital, Bachelor

#### b. Dependent Variable: LnIncome

Source: SPSS Data Processing Results, 2025 (Appendix 3)

Based on the analysis in Table 7, it shows that the magnitude of the derivativization coefficient (Adjusted R square) = 0.732, meaning that the variables of education, capital, and information technology together influence the income variable (Y) by 73.2 percent, while the remaining 26.8 percent is influenced by other factors not included in the study.

#### Simultaneous Regression Coefficient Test (F Test)

Table 8. Results of Simultaneous Regression Test (F Test)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	124,851	5	24,970	55,007	.000b
	Residual	42,671	94	.454		
	Total	167,523	99			

a. Dependent Variable: LnIncome

b. Predictors: (Constant), IT, High School, Middle School, Capital, Bachelor

Source: SPSS Data Processing Results, 2025 (Appendix 3)

Simultaneous testing of education, capital, and information technology on the income of MSMEs using e-commerce in Denpasar City (F Test) was conducted to determine whether the independent variables, namely education, capital, and information technology, have a simultaneous effect on the dependent variable, namely the income of the informal sector of e-commerce users in Denpasar City.

#### 1) Hypothesis Formulation

H<sub>0</sub>:  $\beta_1 = \beta_2 = \beta_3 = 0$ , meaning that education, capital, and information technology do not have a simultaneous effect on the income of the informal sector of e-commerce users in Denpasar City.

H<sub>i</sub>: at least one of  $\beta_i \neq 0$  ( $i = 1, 2, 3$ ), meaning that education, capital, and information technology simultaneously have a significant effect on the income of the informal sector of e-commerce users in Denpasar City.

#### 2) Determining the Real Level

With a real level,  $\alpha = 0.1$  or a confidence level of 10%. The value of  $df = (k-1);(nk) = (5; 95)$ , then  $F_{table} = 1.91$

#### 3) Determining Testing Criteria

H<sub>0</sub> is accepted if  $F_{count} \leq F_{table}$  or significance value  $> \alpha = 0.1$

H<sub>0</sub> is rejected if  $F_{count} > F_{table}$  or significance value  $\leq \alpha = 0.1$

#### 4) Calculating Statistics



The results of data processing using SPSS obtained an F count value of 55.007.

### 5) Conclusion

Because F count (55.007) > F table (1.91),  $H_0$  is rejected, meaning that education, capital and information technology simultaneously have a significant effect on the income of the informal sector of e-commerce users in Denpasar City.

### Partial Regression Coefficient Test (t-Test)

**Table 9. Partial Regression Test Results (t-Test)**

Model		Coefficients <sup>a</sup>			
		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t
1	(Constant)	9,095	.847		10,738
	JUNIOR HIGH SCHOOL	.875	.344	.254	2,547
	SENIOR HIGH SCHOOL	.916	.331	.324	2,767
	Bachelor	1,260	.346	.486	3,647
	LnModal	.247	.058	.300	4.227
	IT	.515	.072	.498	7.155

#### a. Dependent Variable: LnIncome

Source: SPSS Data Processing Results, 2025 (Appendix 3)

#### 1) Partial test of the Education variable (D) on the Informal Sector Income of E-Commerce users in Denpasar City.

Dummy Education Level (D):

Elementary School/Did Not Finish Elementary School = control

Graduated from junior high school = D1

Graduated from high school/vocational school = D2

Bachelor's Degree (S1) = D3

##### a) Hypothesis Formulation

$D_1 = 1$ , graduated from junior high school

$D_1 = 0$ , others

$H_1$ : Entrepreneurs who have graduated from junior high school earn higher incomes than those who have graduated from elementary school.

$D_2 = 1$ , graduated from high school

$D_2 = 0$ , others

$H_2$ : Entrepreneurs who have graduated from high school/vocational school earn higher incomes than those who have graduated from elementary school.

$D_3 = 1$ , graduated with a Bachelor's degree (S1)

$D_3 = 0$ , others

$H_3$ : Entrepreneurs who have a bachelor's degree earn higher incomes than those who have graduated from elementary school.

##### b) Real Level

The level of significance ( $\alpha$ ) = 10 percent, or a confidence level of 90% and df = (nk) then ttable = 100-5=95, then ttable = 1.661

c) **The testing criteria are as follows:**

$H_0$  is accepted if the significance value of t count  $> 0.1$  or t count  $\leq 1.661$

$H_0$  is rejected if the significance value of t count  $\leq 0.1$  or t count  $> 1.661$

d) **Calculation**

Based on the results of data processing with SPSS, the analysis results show a calculated t value of 2.547 for junior high school education, a calculated t value of 2.767 for high school/vocational school education, and a calculated t value of 3.647 for undergraduate education.

e) **Conclusion**

The significance value for education level on income  $< \alpha$  (0.1) and the t-value of all three is greater than t-table (1.661). This value can prove that  $H_1$ ,  $H_2$ , and  $H_3$  are accepted and  $H_0$  is rejected. This means that there is a positive and significant influence of education on the income of the informal sector of e-commerce users in Denpasar City. The higher the education of business actors, the higher the income that will be obtained and vice versa.

2) **Partial test of the Capital variable (X1) on the Informal Sector Income of E-Commerce users in Denpasar City.**

a) **Hypothesis Formulation**

$H_0: \beta_2 = 0$ , meaning that capital has no effect on the income of the informal sector of e-commerce users in Denpasar City.

$H_1: \beta_2 > 0$ , meaning that capital has a positive and significant effect on the income of the informal sector of e-commerce users in Denpasar City.

b) **Real level**

The real level ( $\alpha$ ) = 10 percent, with degrees of freedom  $df$  ( $nk$ ) =  $100 - 5 = 95$ , then  $t_{table} = 1.661$

c) **Testing criteria**

$H_0$  is accepted if the significance value of t count  $> 0.1$  or t count  $\leq 1.661$

$H_0$  is rejected if the significance value of t count  $\leq 0.1$  or t count  $> 1.661$

d) **Calculation**

Based on the results processed with the SPSS program, the analysis results show a calculated t value for the capital variable of 4.227.

e) **Conclusion**

The significance value for the influence of capital on informal sector income is 0.000 ( $0.000 < 0.1$ ) and the tcount value is  $4.227 > t_{table} 1.661$ . This value can prove that  $H_1$  is accepted and  $H_0$  is rejected, which means that "There is a positive and significant influence of the capital variable on the income of the informal sector of e-commerce users in Denpasar City".

3) **Partial test of the Information Technology variable (X2) on the Informal Sector Income of E-Commerce users in Denpasar City.**

a) **Hypothesis Formulation**

$H_0: \beta_3 = 0$ , meaning that information technology has no effect on the income of the informal sector of e-commerce users in Denpasar City.

$H_1: \beta_3 > 0$ , meaning that information technology has a positive and significant effect on the income of the informal sector of e-commerce users in Denpasar City.

**b) Real level**

The real level ( $\alpha$ ) = 10 percent, with degrees of freedom  $df(nk) = 100 - 5 = 95$ , then  $t_{table} = 1.661$

**c) Testing criteria**

$H_0$  is accepted if the significance value of  $t$  count  $> 0.1$  or  $t$  count  $\leq 1.661$

$H_0$  is rejected if the significance value of  $t$  count  $\leq 0.1$  or  $t$  count  $> 1.661$

**d) Calculation**

Based on the results processed with the SPSS program, the analysis results show that the  $t$ -value for the information technology variable is 7.155.

**e) Conclusion**

The significance value for the influence of information technology on informal sector income is 0.000 ( $0.000 < 0.1$ ) and the  $t$ -value is  $7.155 > t_{table} 1.661$ . This value can prove that  $H_1$  is accepted and  $H_0$  is rejected, which means that "There is a positive and significant influence of information technology variables on the income of the informal sector of e-commerce users in Denpasar City".

**Discussion of Research Results****The Influence of Education on Informal Sector Income of Users E-commerce in Denpasar City**

The results of the multiple linear regression analysis test show that there is a significance value at the junior high school level of 0.012, senior high school / vocational high school of 0.007, and bachelor's degree 0.000  $< 0.1$ . These values can prove that  $H_{1,2,3}$  are accepted and  $H_0$  is rejected, which means that there is a positive and significant influence of education on the income of the Informal Sector of e-commerce users in Denpasar City. The regression coefficient value of junior high school education (D1) of 0.875 has a positive relationship with income, meaning that business actors with junior high school education have a higher income of 87.5 percent than those who are elementary school graduates. The regression coefficient value of senior high school education (D2) of 0.916 has a positive relationship with income, meaning that business actors with junior high school education have a higher income of 91.6 percent than those who are elementary school graduates. The regression coefficient value of bachelor's education (D3) of 1.260 has a positive relationship with income, meaning that business actors with junior high school education have a higher income of 126.0 percent than those who are elementary school graduates. In conclusion, the higher the level of education of the entrepreneur, the higher the income they will earn, and vice versa.

The level of education of an entrepreneur can influence the knowledge, experience, ideas and skills he has in building a business that is able to maintain business continuity. (Meitriana et al., 2024). Education is a major asset that supports the progress of a business in various situations. As one of the factors that can change attitudes and behavior, education is able to improve and develop mindsets, insights, and help entrepreneurs more easily absorb information that drives innovation and progress for their businesses, which ultimately contributes to increased income. The level of education also plays an important role in expanding opportunities to get a job (Scientific and Research, 2022). In line with the results of the research conducted (Ipomea et al., 2024) entitled "The Influence of Capital, Education Level and Technology on the Income of Micro, Small and Medium Enterprises (MSMEs) in Morotai Island Regency" states that there is a positive and significant influence between the

level of education on the income of MSMEs in the trade sector in West Denpasar. This means that the higher a person's level of education, the more appropriate and increasing their income will be.

### **The Influence of Capital on the Income of Informal Sector E-commerce Users in Denpasar City**

The results of the multiple linear regression analysis test show that there is a significance value in capital of  $0.000 < 0.1$ . This value can prove that H1 is accepted and H0 is rejected, which means that "There is a positive and significant influence of capital on the income of the informal sector of e-commerce users in Denpasar City.

Capital plays a very important role as the main foundation in running a business, because the amount of capital will affect the scale and potential income that can be achieved. Capital not only functions to finance initial needs such as purchasing raw materials, equipment, and operational costs, but also allows business actors to innovate and expand. Without adequate capital, it is difficult for a business to develop optimally. Therefore, capital is an essential factor that must be prepared carefully before starting a business so that the business can run smoothly and sustainably.(Ma'rifah and Aisyah, 2023). In line with the research results from(Ompusunggu et al., 2024)which states that the initial capital variable has a significant effect on the level of income of MSMEs in Jekan Raya District. In addition, the results of the study from(Puspika and Purnomo, 2024)also shows that capital affects the income of MSMEs in Jakarta. Capital as a very important element for business actors in establishing a business, business continuity, and to increase income.

### **The Influence of Information Technology on the Informal Sector Income of E-commerce Users in Denpasar City**

The results of the multiple linear regression analysis test show that there is a significance value in information technology of  $0.000 < 0.1$ . This value can prove that H1 is accepted and H0 is rejected, which means that "There is a positive and significant influence of information technology on the income of the informal sector of e-commerce users in Denpasar City.

Technology is a tool used to increase productivity in a business. With technology, workers can be more efficient in producing goods, which in turn will increase their productivity and affect income levels. The development of technology in the business sector is influenced by various factors, such as the ability of human resources to develop technology, the availability of capital for technology procurement, the role of research institutions in supporting innovation, and existing monetary and fiscal policies.(Anggraeni et al., 2022). More sophisticated technology allows the production process to be more efficient, reduces operational costs, and opens access to a wider market. This means that the more advanced and modern the technology adopted by business actors, the greater the potential for increased productivity that can be achieved, so that income or earnings will also increase.(Scientific and Research, 2022). The results of research conducted by(Implementation et al., 2021)shows that information technology variables have a significant effect on income in the informal sector. Susanti's (2024) research also highlights the quality of restaurant ordering services through online marketing, which makes it easier for customers to access information and order according to their needs.

## CONCLUSION

Here is the academic translation of your research discussion into proper English, following scientific writing conventions:

### Discussion of Research Findings

#### **The Influence of Education on the Income of Informal Sector E-commerce Users in Denpasar City**

The results of the multiple linear regression analysis show significant values at the junior high school level (SMP) of 0.012, senior high school/vocational school (SMA/K) of 0.007, and undergraduate level (Bachelor's degree) of 0.000, all of which are  $< 0.1$ . These values indicate that H1, H2, and H3 are accepted while H0 is rejected, implying that education has a positive and significant influence on the income of informal sector e-commerce users in Denpasar City.

The regression coefficient for junior high school education (D1) is 0.875, indicating a positive relationship with income. This means that entrepreneurs with junior high school education earn 87.5% more than those with only primary school education. The coefficient for senior high school education (D2) is 0.916, suggesting that individuals with this education level earn 91.6% more than primary school graduates. The regression coefficient for a bachelor's degree (D3) is 1.260, meaning that entrepreneurs with a bachelor's degree earn 126.0% more than those with only a primary school education. In conclusion, the higher the educational level of an entrepreneur, the higher their income, and vice versa.

An entrepreneur's level of education can affect their knowledge, experience, ideas, and skills in building a business capable of sustaining itself (Meitriana et al., 2024). Education is a key asset in supporting business progress in various situations. As a factor that can shape attitudes and behavior, education enhances thinking patterns, broadens perspectives, and helps entrepreneurs more easily absorb information that fosters innovation and business development—ultimately contributing to increased income. Furthermore, education plays a crucial role in expanding employment opportunities (Sidik & Ilmiah, 2022). These findings align with research by Ipomea et al. (2024), entitled "The Influence of Capital, Education Level, and Technology on the Income of Micro, Small, and Medium Enterprises (MSMEs) in Pulau Morotai Regency," which also found a positive and significant relationship between education and the income of MSMEs in the trade sector of West Denpasar. This implies that higher education levels are associated with more decent and increasing income.

#### **The Influence of Capital on the Income of Informal Sector E-commerce Users in Denpasar City**

The results of the multiple linear regression analysis show a significance value for capital of  $0.000 < 0.1$ . This indicates that H1 is accepted and H0 is rejected, meaning that there is a positive and significant influence of capital on the income of informal sector e-commerce users in Denpasar City.

Capital plays a vital role as the main foundation in running a business since the amount of capital determines the scale and potential income of the business. It not only covers initial costs such as raw materials, equipment, and operational expenses but also enables entrepreneurs to innovate and expand. Without sufficient capital, it is difficult for a business to grow optimally. Thus, capital is an essential factor that must be adequately prepared before starting a business to ensure smooth and sustainable operations (Ma'rifah & Aisyah, 2023).

These findings are consistent with research by Ompusunggu et al. (2024), which found that initial capital has a significant effect on the income levels of MSMEs in Jekan Raya District. Similarly, Puspika and Purnomo (2024) concluded that capital affects the income of MSMEs in Jakarta. Capital is a critical component for entrepreneurs in establishing a business, ensuring sustainability, and increasing income.

### **The Influence of Information Technology on the Income of Informal Sector E-commerce Users in Denpasar City**

The results of the multiple linear regression analysis show a significance value for information technology of  $0.000 < 0.1$ . This proves that H1 is accepted and H0 is rejected, meaning that there is a positive and significant influence of information technology on the income of informal sector e-commerce users in Denpasar City.

Technology serves as a tool to increase productivity in a business. With the adoption of technology, labor becomes more efficient in producing goods, which in turn improves productivity and affects income levels. The development of technology in the business sector is influenced by various factors such as human resource capacity, the availability of capital to acquire technology, the role of research institutions in supporting innovation, and existing monetary and fiscal policies (Anggraeni et al., 2022). Advanced technology enables more efficient production processes, reduces operational costs, and opens access to broader markets. Therefore, the more modern and sophisticated the technology adopted by entrepreneurs, the greater the potential for productivity and income increases (Sidik & Ilmiah, 2022). A study by Implementation et al. (2021) also found that information technology has a significant effect on income in the informal sector. Similarly, Susanti (2024) emphasized the importance of online restaurant ordering services, which allow customers to access information and place orders according to their needs.

## **4. CONCLUSION**

Based on the discussion, the following conclusions can be drawn:

- a) Education, capital, and information technology variables simultaneously have a significant effect on the income of informal sector e-commerce users in Denpasar City.
- b) Capital and information technology variables partially have a positive and significant effect on the income of informal sector e-commerce users in Denpasar City.
- c) Informal sector entrepreneurs with higher levels of education earn significantly more income than those with lower levels of education.

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