

ANALYSIS OF THE EFFICIENCY OF CAPITAL, LABOR, AND TECHNOLOGY UTILIZATION IN THE BONE CRAFT INDUSTRY IN TAMPAKSIRING VILLAGE

Pande Putu Selvi Ari, Amrita Nugraheni Saraswati
Faculty of Economics and Business, Udayana University
email : pandeselviari@gmail.com
*Correspondenting Author: Pande Putu Selvi Ari

Abstract: The industrial sector plays a crucial and strategic role in regional economic development, offering substantial benefits for local economic advancement, including in the bone craft industry in Gianyar. This study aims to analyze the efficiency of capital, labor, and technology utilization in the bone craft industry in Tampaksiring Village. It employs a quantitative associative research design. The study was conducted in Tampaksiring Village, Tampaksiring District, Gianyar Regency. The population comprises all bone craft industries in the village, with a sample size of 57 business units determined using a saturated sampling technique. Data were collected through observation, structured interviews using questionnaires, and in-depth interviews. The data analysis techniques included multiple linear regression, F-test (simultaneous test), t-test (partial test), and production factor efficiency analysis. The results show that: (1) capital, labor, and technology simultaneously have a significant effect on the production of bone craft industries in Tampaksiring Village; (2) capital, labor, and technology each have a positive and significant effect on production; and (3) the efficiency values of capital, labor, and technology usage are < 1 , indicating an inefficient condition.

Keywords: production, capital, labor, technology, production factor efficiency.

INTRODUCTION

Development is an effort to improve community welfare through various activities carried out by a country to advance the economy and raise the standard of living. The primary goal of economic development in developing countries is not only to improve macroeconomic indicators but also to address issues such as income inequality, access to education, healthcare services, and economic opportunities, which can hinder inclusive development (Anami & Haqan, 2024). One of the most important sectors in economic development is the industrial sector.

According to Law No. 3 of 2014, industry refers to all economic activities that process raw materials and/or utilize other resources to produce goods with added value. The industrial sector is not only a driving force for economic growth but is also considered a leading sector capable of advancing other sectors in an economy (Bustamam & Octaviana, 2022). Proper management of the industrial sector can serve

as a cornerstone of the economy and a catalyst for transformation toward inclusive and sustainable development (Wirastiti et al., 2023).

The development of the industrial sector has significantly transformed the national economy. Based on the 2019 Economic Agency Performance Report (Yuvanda et al., 2022), the creative economy sub-sector has become a priority. Among the 17 sub-sectors, three contributed the most to GDP in 2021: culinary (41%), fashion (17%), and crafts (14.9%). The craft sub-sector remains a significant contributor to national GDP due to the abundance of natural resources (Andansari et al., 2023). This aligns with Hotho & Champion (2011) in Yuvanda et al. (2022), who affirm the recognized contribution of the creative industries, noting their significant growth. The sector's contribution to the national economy is also reflected in its higher growth rate compared to other sectors.

Industrial development has strong potential for advancement, particularly by leveraging local natural resources and community creativity in arts and crafts. These efforts significantly contribute to improving community welfare and quality of life (Fitriana et al., 2020). Human development levels influence the ability of the population to manage resources and drive economic growth (Yasa & Arka, 2015). Economic geography also contributes to regional development by identifying the factors influencing regional economic growth (Murwindarti, 2021). According to classical economic theory, production factors such as natural resources, labor, and capital are essential to advancing economic growth, which, in turn, can affect regional inequality (Adipuryanti & Sudibia, 2015).

Gianyar Regency, one of the nine regencies/cities in Bali Province, is renowned for its traditions, art, and culture. The artists of Gianyar are known for their creativity and responsiveness to social changes. Based on Becker's classification, they can be considered "integrated professionals" (Becker, 1992), capable of adapting to challenges and modern times by creating art with economic value. Craft products often incorporate elements of culture and tradition and are given a modern twist to suit contemporary tastes.

Originally used solely for ceremonial and spiritual purposes, bone crafts in Tampaksiring Village have evolved into artistic products favored by tourists. Many local artisans now blend traditional techniques with modern designs to meet global market demands (Adiyanti, 2024). Products such as jewelry, wall hangings, and bone souvenirs are now key commodities supporting the local economy. Prices vary depending on the intricacy and size of the items.

The production of high-quality crafts depends heavily on a well-organized production process. According to Turmudi (2017), production cannot be separated from various factors such as natural resources, labor, capital, management, technology, and raw materials. These production factors must be combined synergistically, as none can function independently. Factors influencing industrial development include capital, labor, raw materials, transportation, energy, and marketing strategies (Suroyah, 2016). These are also relevant in the bone craft industry in Tampaksiring, where product quality depends on the optimal use of capital, labor, and technology.

Working capital is crucial for business operations. Every enterprise needs capital to fund daily activities (Karmeli & Sumbawati, 2020). Winangun & Wenagama (2024) found that capital positively influences woodcraft production in Tabanan Regency, indicating that higher capital leads to greater output due to expenditures on materials, tools, and labor. However, Wulandari & Parameswara (2020) found the opposite in silver craft production in Denpasar, where capital had a negative effect on production.

In Tampaksiring's bone craft industry, limited capital is a major barrier (Hutomo et al., 2024). Many entrepreneurs rely on bank loans, and the inability to repay them often leads to bankruptcy. Inefficient capital management also affects productivity. Anggraini & Mulyantini (2024) argue that poor inventory management leads to inefficient use of capital, reducing profitability.

Labor is another key factor in increasing industrial output. Artini & Arka (2022) showed that labor positively affects silver craft production in Sukawati District, Gianyar. Similarly, Agustina & Kartika (2017) found that labor positively impacts wooden sculpture production in Tegallalang District. However, Dewi & Purbadharmaja (2019) reported a negative impact of labor on production efficiency and income in the salt farming industry in Klungkung.

In bone craft production, artisans require skills in carving and shaping bones into various products. A major challenge is the lack of labor regeneration, as these skills take time to develop and are not popular among younger generations. Many youth in Tampaksiring prefer stable jobs in tourism or other sectors, resulting in limited skilled labor and reduced efficiency.

Technology drives production efficiency. Kaharuddin et al. (2023) noted that modern technology enhances output and efficiency. Putra & Meydianawathi (2019) and Gunawan & Wenagama (2020) found that modern technology positively affects

production and artisan welfare in woodcarving industries. However, Habtiah et al. (2021) cautioned that technology could have negative socioeconomic impacts, such as job loss due to mechanization.

Bone craft businesses in Tampaksiring use both traditional and modern technologies. Many still rely on traditional methods, which require more time and precision, limiting production capacity and creating variability in product quality.

Efficiency refers to the ratio between cost and actual revenue generated (Halim, 2004). Juliantari & Suwena (2023) found that entrepreneurial characteristics—innovation, risk-taking, and management skills—significantly impact success in the bone craft industry in Tampaksiring. Sandi & Wenagama (2023) also stressed the importance of efficient use of capital, working hours, and raw materials in pottery production, which significantly improves output.

In general, industry entrepreneurs face numerous challenges, including limited capital, labor shortages, and difficulty adopting technology. Internal issues include low education levels, restricted access to capital, and limited raw materials. External challenges include intense competition among artisans. Bone craft artisans in Tampaksiring also face inefficiencies in the use of production factors—capital, labor, and technology. Based on these challenges, this study aims to analyze the efficiency of these production factors in the bone craft industry of Tampaksiring Village.

METHOD

This research employs a quantitative associative approach to examine the influence of capital (X_1), labor (X_2), and technology (X_3) on the production output (Y) of the bone craft industry in Tampaksiring Village, Gianyar Regency. The location was chosen due to its concentration of bone craft businesses. The dependent variable is monthly production output measured in rupiah (Sugiyono, 2017).

Data collection was conducted through observation, structured interviews, and in-depth interviews with 57 business owners, applying a census technique due to the small population size. Both quantitative and qualitative data were used. Primary data were obtained directly from respondents, while secondary data came from relevant institutions and literature. Research instruments included questionnaires, documentation tools, and data analysis software such as Microsoft Excel and SPSS (Bungin, 2015).

Data were analyzed using multiple linear regression based on the Cobb-Douglas production function. Tests included classical assumption tests (normality and heteroscedasticity), F-tests for simultaneous effects, and t-tests for partial effects.

Efficiency analysis was also conducted to determine whether capital, labor, and technology were utilized optimally in the production process. These results are expected to provide a comprehensive understanding of each factor's contribution to the performance of the bone craft industry (Ghozali, 2016; Sugiyono, 2017).

RESULTS AND DISCUSSION

Multiple Linear Regression Analysis Test Results

Table 1. Results of Multiple Linear Regression Analysis Test

No	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	12,500	0.997		12,534	0,000
2	Ln_Modal	0.176	0.061	0.190	2,866	0.006
3	Ln_Tenaga Kerja	0.492	0.051	0.684	9,722	0,000
4	Ln_Technology	0.028	0.010	0.199	2,838	0.006

Source: Data attached to the author's thesis.

Based on Table 1, the multiple linear regression equation can be written as follows.

$$\text{LnY} = 12,500 + 0,176\text{LnM} + 0,492\text{LnK} + 0,028\text{LnT}$$

Similarities in production characteristics in the production process in the cow bone craft industry in Tampaksiring Village.

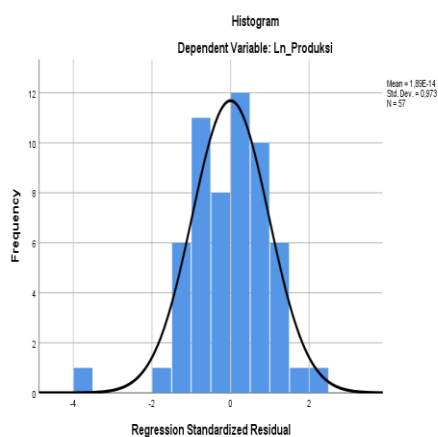
- 1) If $\beta_1 + \beta_2 + \beta_3 > 1$, then the beef bone craft industry in Tampaksiring Village is in a condition of increasing returns to scale.
- 2) If $\beta_1 + \beta_2 + \beta_3 = 1$, then the beef bone craft industry in Tampaksiring Village is in a constant return to scale condition.
- 3) If $\beta_1 + \beta_2 + \beta_3 < 1$, then the beef bone craft industry in Tampaksiring Village is in a condition of decreasing returns to scale.

The regression test results obtained <1 . Therefore, it can be concluded that the production properties equation in the production process of the beef bone craft industry in Tampaksiring Village is in a condition of decreasing returns to scale. This means that the proportion of additional production factors does not need to be increased, because the increase in input use will result in a smaller output. $0,176 + 0,492 + 0,028 = 0,696$

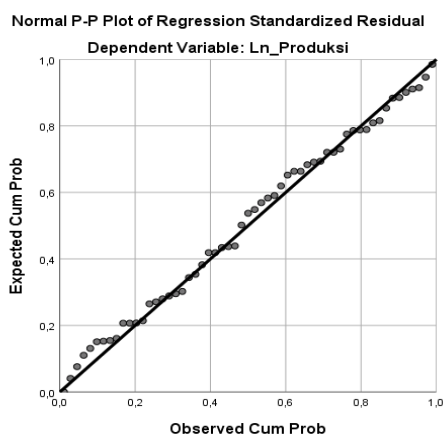
Classical Assumption Test Results

1) Normality Test

Figure 1. Histogram Graph



Picture 2. Normal Probability Plot



Source: Data attached to the author's thesis.

The histogram graph shown in Figure 1 indicates a normal distribution pattern because it shows a graph that follows the normal curve distribution indicated by an upward-facing bell-shaped curve. The normal probability plot graph shown in Figure 2 above shows a normal distribution pattern where the data in the form of a plot spreads around the diagonal line and follows the direction of the diagonal line. In addition to using the graph analysis, normality tests were also carried out using One-Sample Kolmogorov-Smirnov analysis in non-parametric tests. The results of the One-Sample Kolmogorov-Smirnov test can be seen in Table 2.

Table 2. Results of the One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test	
Unstandardized Residual	
Test Statistics	0.060
Asymp. Sig. (2-tailed)c	0.200c,d

Source: Data attached to the author's thesis.

Based on Table 2, it shows that the Kolmogorov-Smirnov value is 0.060. This Kolmogorov-Smirnov value is greater than the Kolmogorov-Smirnov table value of 0.05, so H_0 is accepted, indicating that the data used in this study are normally

distributed, so it can be concluded that the model meets the assumption of normality.

2) Multicollinearity Test

Table 3. Results of Tolerance and Variance Inflation Factor Tests

No	Model	Collinearity Statistics	
		Tolerance	VIF
1	Ln_Modal	0.781	1,280
2	Ln_Tenaga Kerja	0.697	1,434
3	Ln_Technology	0.702	1,424

Source: Data attached to the author's thesis.

Based on Table 3, it is shown that there are no independent variables that have a tolerance value of less than 0.10 and there are also no independent variables that have a VIF value of more than 10. Therefore, the regression model is free from multicollinearity symptoms.

3) Heteroscedasticity Test

Table 4. Glejser Test Results

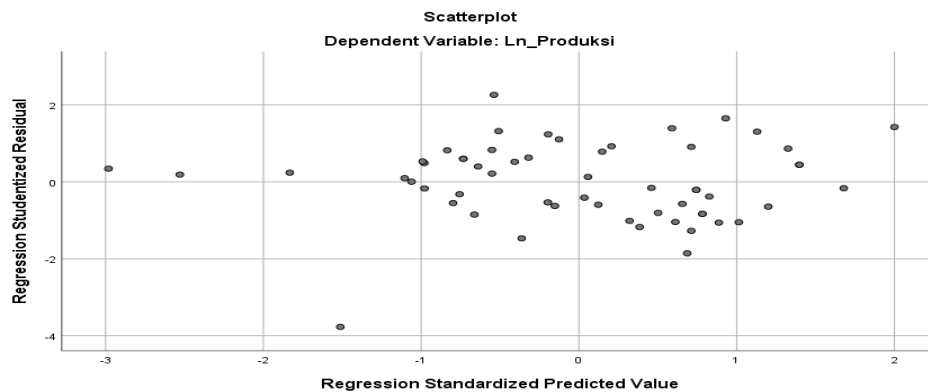
No	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	0.077	0.603		0.128	0.899
2	Ln_Modal	-0.005	0.037	-0.022	-0.145	0.885
3	Ln_Tenaga Kerja	0.027	0.031	0.144	0.885	0.380
4	Ln_Technology	-0.001	0.006	-0.026	-0.157	0.876

Source: Data attached to the author's thesis.

Based on Table 4, it is shown that each model has a significance value greater than 0.05 percent. This indicates that the independent variables used in this study do not significantly influence the dependent variable, namely absolute error. Therefore, this study is free from symptoms of heteroscedasticity.

The test using a scatterplot graph is shown in Figure 3. Based on Figure 3 below, it is shown that the points in the image are spread randomly both above and below the number 0 on the Y axis. Therefore, it can be concluded that there are no symptoms of heteroscedasticity in this regression model.

Figure 3 Scatterplot Graph



Source: Data attached to the author's thesis.

Results of Simultaneous Regression Coefficient Significance Test (F Test)

Table 5.F Test Results (Simultaneous)

No	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.926	3	0.309	78,921	0.000b
2	Residual	0.207	53	0.004		
Total		1,134	56			

Source: Data attached to the author's thesis.

Testing the Effect of Capital on Production in the Bone Craft Industry in Tampaksiring Village

Hypothesis Formulation

- H_0 : $\beta_1 \leq 0$, indicating that capital does not have a significant partial effect on production in the bone craft industry in Tampaksiring Village.
- H_1 : $\beta_1 > 0$, indicating that capital has a significant and positive partial effect on production in the bone craft industry in Tampaksiring Village.

Significance Level

The significance level (α) is set at 5% (0.05), with degrees of freedom (df) = ($n - k - 1$) = 53, resulting in a t-table value of 1.674.

Test Criteria

- If $t\text{-count} \leq t\text{-table}$, H_0 is accepted and H_1 is rejected.
- If $t\text{-count} > t\text{-table}$, H_0 is rejected and H_1 is accepted.

Conclusion

The t-count value is $2.866 > t\text{-table } 1.674$ with a significance level of $0.006 < 0.05$. Thus, H_0 is rejected and H_1 is accepted, indicating that capital has a significant and positive effect on production in the bone craft industry in Tampaksiring Village.

Testing the Effect of Labor on Production in the Bone Craft Industry in Tampaksiring Village

Hypothesis Formulation

- $H_0: \beta_2 \leq 0$, indicating that labor does not have a significant partial effect on production in the bone craft industry in Tampaksiring Village.
- $H_1: \beta_2 > 0$, indicating that labor has a significant and positive partial effect on production in the bone craft industry in Tampaksiring Village.

Significance Level

The significance level (α) is 5% (0.05), with $df = 53$, resulting in a t-table value of 1.674.

Test Criteria

- If $t\text{-count} \leq t\text{-table}$, H_0 is accepted and H_1 is rejected.
- If $t\text{-count} > t\text{-table}$, H_0 is rejected and H_1 is accepted.

Conclusion

The t-count value is $9.722 > t\text{-table } 1.674$ with a significance level of $0.000 < 0.05$. Thus, H_0 is rejected and H_1 is accepted, indicating that labor has a significant and positive effect on production in the bone craft industry in Tampaksiring Village.

Testing the Effect of Technology on Production in the Bone Craft Industry in Tampaksiring Village

Hypothesis Formulation

- $H_0: \beta_3 \leq 0$, indicating that technology does not have a significant partial effect on production in the bone craft industry in Tampaksiring Village.
- $H_1: \beta_3 > 0$, indicating that technology has a significant and positive partial effect on production in the bone craft industry in Tampaksiring Village.

Significance Level

The significance level (α) is 5% (0.05), with $df = 53$, resulting in a t-table value of 1.674.

Test Criteria

- If $t\text{-count} \leq t\text{-table}$, H_0 is accepted and H_1 is rejected.
- If $t\text{-count} > t\text{-table}$, H_0 is rejected and H_1 is accepted.

Conclusion

The t-count value is $2.838 > t\text{-table } 1.674$ with a significance level of $0.006 < 0.05$. Thus, H_0 is rejected and H_1 is accepted, indicating that technology has a significant and positive effect on production in the bone craft industry in Tampaksiring Village.

Dominant Independent Variable Analysis

The most dominant independent variable influencing the dependent variable can be identified through the standardized coefficients (beta values). In this study, the independent variables are capital, labor, and technology, while the dependent variable is production in the bone craft industry in Tampaksiring Village. Table 7 presents the standardized coefficients and the ranking of each independent variable.

Table 7. Standardized Coefficients Beta and Ranking of Independent Variables

No	Model	Standardized Coefficient Beta	Ranking
1	Ln_Capital	0.190	3
2	Ln_Labor	0.684	1
3	Ln_Technology	0.199	2

Source: Processed from the author's thesis data.

Based on Table 7, labor has the highest standardized coefficient beta of 0.684, indicating that labor is the most dominant factor influencing production in the bone craft industry in Tampaksiring Village. This implies that an increase in the number of workers used in the bone craft production process will significantly increase the output. Wulandari and Parameswara (2020) also found that labor still plays a major role in production, particularly in Bali's craft industries where many products are still handmade.

Analysis of Production Factor Efficiency in the Bone Craft Industry in Tampaksiring Village

The efficiency of production factor utilization was calculated by multiplying the production coefficient with the average output and price, then dividing it by the average usage of each input multiplied by its price. The results are as follows:

- $Efx_1 (\text{Capital}) = 0.176 \times (34,021,052 \times 168,421) / (32,895 \times 34,000) = 0.902$
- $Efx_2 (\text{Labor}) = 0.492 \times (34,021,052 \times 168,421) / (17.5 \times 2,000) = 0.080$
- $Efx_3 (\text{Technology}) = 0.028 \times (34,021,052 \times 168,421) / (1,905,263 \times 2,100,000) = 0.039$

These results indicate that business owners in the bone craft industry in Tampaksiring Village have not yet optimized their use of production factors to achieve efficiency. All three efficiency values are less than 1, which means the input usage exceeds the optimal level. Therefore, the usage of capital, labor, and technology should be reduced.

Generally, business owners tend to over-allocate capital, labor, and technology in hopes of increasing output. However, this approach often results in excess production costs due to the high price of inputs. As the efficiency values suggest, this excessive use of inputs does not yield proportional returns and can reduce overall profitability.

Discussion of Research Results

1) Testing the Influence of Capital, Labor, and Technology on Production in the Cow Bone Craft Industry in Tampaksiring Village

Based on the results of the study, it shows that capital, labor, and technology simultaneously have a significant effect on production in the cow bone craft industry in Tampaksiring Village. This result is supported by the coefficient of determination (R^2). The results of the coefficient of determination (R^2) test are 0.817. (Data attached to the author's thesis). This means that 81.7 percent of production variations in the cow bone craft industry in Tampaksiring Village can be influenced by capital, labor, and technology variables, while the remaining 18.3 percent is explained by other factors. (X_1) (X_2), (X_3)

Capital is one of the main factors influencing a company's production level. Capital is typically used to cover labor costs, worker rights, goods production, and other necessary expenses. The second factor is labor. According to Mulyadi (2003:59), labor is the working-age population (aged 15-65 years) or the total population of a country that can produce goods and services if there is a demand for labor and if they are willing to participate in the activity. In addition to capital and labor, technology is also a factor that can influence a company's production. Technology is a tool used to accelerate productivity in a business. Technology can make it easier for workers to produce goods (Utari & Dewi, 2014).

Several studies have shown that capital, labor, and technology significantly influence production. Research conducted by Mahayasa and Yuliarmi (2017), Langit and Ayuningsasi (2019), and Mahardika and Widanta (2020) found that capital, labor, and technology simultaneously significantly influence production.

2) Testing the Effect of Capital on Production in the Cow Bone Craft Industry in Tampaksiring Village

The research results show that capital partially has a positive and significant effect on production in the bovine bone craft industry in Tampaksiring Village. This result indicates that the greater the amount of capital used, the higher the production value of the bovine bone craft industry in Tampaksiring Village. This result is supported by the Cobb-Douglas production function, which states that capital can positively contribute to increasing production output. Capital is not only a supporter, but also a direct driver of increased production output. As long as it is used efficiently, increased capital always has a positive impact on production.

Research conducted by Agustina and Kartika (2017) explains that capital is one of the factors influencing production. This research finding aligns with research conducted by Jelatu (2023) and Krisna and Ayuningsasi (2024), which found that capital has a positive and significant effect on production. The results of previous research reinforce the notion that capital is essential for the production process and during operational activities. Capital allows entrepreneurs to purchase quality raw materials and produce more high-quality crafts.

The phenomenon that occurred in the field during the observation showed that the cow bone craft business actors in Tampaksiring Village still experience obstacles in terms of capital, to overcome this problem cow bone craft business actors in Tampaksiring Village have to take out capital loans. To overcome the problem of limited capital, business actors should utilize the assistance of the people's business credit (KUR) that has been developed by the government to optimize production and business scale so that later the production and income of cow bone craft business actors in Tampaksiring Village will also increase.

The results of this study were also strengthened by the results of an interview with Mr. Ketut Arca, one of the cow bone craft business actors in Tampaksiring Village on June 1, 2025, who stated that:

"Capital is crucial for the production process of cow bone crafts. With capital, I can purchase raw cow bone materials for production and produce more crafts. I believe capital contributes to increased income, and with capital, my business has remained afloat, and it still exists today."

3) Testing the Influence of Labor on Production in the Cow Bone Craft Industry in Tampaksiring Village

Based on the results of the study, it shows that labor has a partial positive and significant effect on production in the bovine bone craft industry in Tampaksiring Village. The regression test results obtained > 1 . So it can be concluded that the equation of production properties in the production process in the bovine bone craft industry in Tampaksiring Village is in a condition of increasing returns to scale. This means that the proportion of additional production factors will result in additional production that is a larger proportion. This result indicates that the more labor employed by bovine bone craft industry entrepreneurs in Tampaksiring Village, the more the craft production that can be produced. The results of this analysis are supported by classical production theory which states that labor is one of the main factors as a creator of value and production output. In addition, this result is also supported by the Cobb-Douglass production function which describes the relationship between labor input and production output. $0,182 + 0,987 + 0,699 = 1,868$

The results of this study align with research conducted by Mahardika and Widanta (2020) and Krisna and Ayuningsasi (2024), which stated that labor has a positive and significant impact on production. Wulandari and Parameswara (2020), in their research on silver crafts, stated that labor has a positive and significant impact on production. Labor still plays a significant role in the production process, especially in craft production in Bali, where many products are still handcrafted.

Field observations indicate that labor constraints remain: only a small number of people are willing to work as cattle bone craftsmen, due to low wages (below the minimum wage in Gianyar Regency). Therefore, the government needs to provide outreach and training to empower human resources and businesses to develop better production and marketing strategies.

The results of this study were also strengthened by the results of an interview with Mrs. Artini, one of the cow bone craft business actors in Tampaksiring Village on June 1, 2025, who stated that:

"The number of workers influences the number of crafts produced. The more crafts produced with various motifs and variations, the greater the potential for earning a higher income. In my opinion, if we want to increase the production of cow bone crafts, the way to do it is by increasing the number of workers."

4) Testing the Influence of Technology on Production in the Cow Bone Craft Industry in Tampaksiring Village

The research results show that technology partially has a positive and significant effect on production in the bovine bone craft industry in Tampaksiring Village. This result indicates that a person's skills will influence the production of the resulting crafts. According to Utari & Dewi (2014), Das and Sudiana (2019), Noviono and Dyah (2019) in their research stated that the use of increasingly advanced technology will create higher added value that can be obtained. In other words, the use of increasingly modern technology will be able to increase production results. The use of technology in the production process can simplify the workforce and streamline time and energy in producing a product.

The phenomenon in the field shows that technology and globalization have changed many aspects of human life, the existence of the cow bone craft industry in Tampaksiring Village is becoming increasingly important as a cultural heritage that must be preserved. Technological developments and increasingly tight competition have raised the awareness of craftsmen to make changes both in tools, and the development of motifs in the crafts produced so that they are in demand by various groups of society. The results of this study are also strengthened by the results of an interview with Mr. Ketut Darmika, one of the cow bone craft entrepreneurs in Tampaksiring Village on June 2, 2025, who stated that:

"I think technology will influence the quantity of crafts produced. The skill of utilizing existing machines in the craft production process really makes the production process easier for me. If craft production is supported by the use of machines, the production volume will be quite high."

5) Efficiency of Production Factor Use in the Cow Bone Craft Industry in Tampaksiring Village

The research results indicate that the use of production factors in the beef bone craft industry in Tampaksiring Village is inefficient. This is due to the inability of entrepreneurs to allocate production factors (inputs) efficiently. The use of production factors should be used proportionally to achieve efficient value. If entrepreneurs want to achieve efficient and optimum conditions, then the value of each input (capital, labor, and technology) must be reduced to achieve efficient value. The use of production factors should be provided proportionally, so that the increase in production factors (inputs) will later provide additional production results (output).

CONCLUSION

1. Capital, labor, and technology simultaneously have a significant effect on the production of the bone craft industry in Tampaksiring Village. This finding is supported by a coefficient of determination (R^2) value of 0.817, indicating that

- 81.7% of the variation in production within the bone craft industry in Tampaksiring Village can be explained by the variables of capital (X_1), labor (X_2), and technology (X_3), while the remaining 18.3% is explained by other factors.
2. Capital, labor, and technology each have a positive and significant partial effect on the production of the bone craft industry in Tampaksiring Village.
 3. The use of capital, labor, and technology as production factors in the bone craft industry in Tampaksiring Village yields efficiency values of less than 1 for all three inputs, indicating that they are operating under inefficient conditions.

LIST OF REFERENCES

- Acemoglu, D., & Restrepo, P. (2018). The Race Between Automation and Labor Compensation. *Journal of Economic Perspectives*, 32(3), 3–30.
- Adipuryanti, N. L. P. Y., & Sudibia, I. K. (2015). Analisis Pengaruh Jumlah Penduduk yang Bekerja dan Investasi Terhadap Ketimpangan Distribusi Pendapatan Melalui Pertumbuhan Ekonomi Kabupaten/Kota di Provinsi Bali. In *Piramida Jurnal Kependudukan dan Pengembangan Sumber Daya Manusia* (Vol. 11, Issue 1, pp. 20–28).
- Adiyanti, P. A. (2024). Inovasi Desain Busana Wanita Urban Fusion Style Dengan Kain Tenun Endek Sebagai Upaya Revitalisasi Pengrajin Tenun di Bali. *SEGARA WIDYA Jurnal Penelitian Seni*, 12(2), 94–109.
- Agustina, I. M., & Kartika, I. N. (2017). Pengaruh Tenaga Kerja, Modal dan Bahan Baku terhadap Produksi Industri Kerajinan Patung Kayu di Kecamatan Tegallalang. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 6(7), 1302–1331.
- Anami, R., & Haqan, A. (2024). Relevansi Sistem Ekonomi Islam dalam Menanggulangi Ketimpangan Sosial dan Ekonomi di Negara Berkembang pada politik . *JPIK*, 7(1), 107–126.
- Andansari, D., Kamarudin, K. H. Bin, Shyafary, D., & Pristanti, H. (2023). Innovation of craft and batik products in the industrial revolution 4.0 era in Indonesia. *AIP Conference Proceedings*, 2706(January). <https://doi.org/10.1063/5.0120511>
- Anggraini, L., & Mulyantini, S. (2024). Faktor-Faktor yang Berpengaruh Terhadap Modal Kerja di Perusahaan Konstruksi. *Jurnalku*, 4(4).
- Ariessi, N. E., & Utama, M. S. (2017). Pengaruh modal, tenaga kerja, dan modal sosial terhadap produktivitas petani di Kecamatan Sukawati Kabupaten Gianyar. *Piramida*, 132(2), 97–107.
- Ariputra, I. G. N. B., & Sudiana, I. K. (2019). Effect of capital, manpower and raw materials on production and income of ukir kayu crafts industry. *International Research Journal of Management, IT and Social Sciences*, 6(5), 261–266. <https://doi.org/10.21744/irjmis.v6n5.743>
- Artini, N. L. G. Y., & Arka, S. (2022). Pengaruh Modal Dan Tenaga Kerja Terhadap Produksi Sukawati. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 11(7), 2839–2867.
- Autor, D. H. (2015). Why Are There Still So Many Jobs? The History and Future of Workplace Automation. *Journal of Economic Perspectives*, 29(3), 3–30.

- Aziz, N. (2003). Pengantar Mikro Ekonomi. Bayumedia.
- Badan Pusat Statistik. (2023). Direktori Perusahaan Industri Besar dan Sedang Provinsi Bali 2022/2023. BPS Provinsi Bali.
- (2023). Statistik Industri Besar dan Sedang Kabupaten Gianyar 2022. BPS Kabupaten Gianyar.
- Becker, W. A. (1992). Quantitative Genetics. Fifth Edition (Fifth Edit). Washington State University Press.
- Brynjolfsson, E., & A. McAfee. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. W. W. Norton & Company.
- Bungin, B. (2015). Metodologi Penelitian Kualitatif. Rajawali Pers.
- Capra, F. (2004). Titik Balik Peradaban. Bentang.
- Case, K. E., Fair, R. C., & Oster, S. M. (2012). Principles of Economics (10th ed). Pearson Education.
- David, A., Pienknagura, S., & Roldos, J. (2020). Labor Market Dynamics, Informality and Regulations in Latin America. IMF Working Papers, 20(20). <https://doi.org/10.5089/9781513523750.001>
- Das, I Made Mahawisnu, dan Sudiana, I Ketut. (2019). Analisis Faktor-Faktor Yang Mempengaruhi Produksi Dan Pendapatan Industri Pakaian Jadi Di Kota Denpasar. E-Jurnal Ekonomi Pembangunan Universitas Udayana, 8 (4), hal: 780-809.
- Dewi, A. A. A. K. U., & Purbadharmaja, I. B. P. (2019). Analisis Pengaruh Faktor Produksi Terhadap Efisiensi Produksi dan Pendapatan Petani Garam Lokal di Kecamatan Dawan Kabupaten Klungkung. E-Jurnal Ekonomi Pembangunan Universitas Udayana, 9(6), 1345-1372.
- Divianto. (2014). Pengaruh Upah, Modal, Produktivitas, dan Teknologi terhadap Penyerapan Tenaga Kerja pada Usaha Kecil Menengah di Kota Palembang (Studi Kasus Usaha Percetakan). Jurnal Ekonomi Akuntansi, 4(1).
- Doll, J. P., & Orazem, F. (1978). Production Economics: Theory with Applications.
- Febriani, A. (2016). Pengaruh Pertumbuhan Perusahaan dan Ukuran Perusahaan terhadap Nilai Perusahaan pada Sub Sektor Otomotif dan Komponen yang Terdaftar di BEI. Jurnal Ekonomi Universitas Komputer Indonesia.
- Fitriana, A. N., Noor, I., & Hayat, A. (2020). Pengembangan Industri Kreatif di Kota Batu (Studi tentang Industri Kreatif Sektor Kerajinan di Kota Batu). Jurnal Administrasi Publik (JAP), 2(2), 281-286.
- Gujarati, D. N. (2003). Ekonometrika Dasar. Erlangga.
- Gunawan, I. G. K., & Wenagama, I. W. (2020). Pengaruh Modal, Lama Usaha, dan Teknologi Terhadap Produksi dan Kesejahteraan Pengerajin Ukiran Kayu di Kecamatan Mengwi, Kabupaten Badung. E-Jurnal Ekonomi Pembangunan Universitas Udayana, 10(12), 4799-4828.
- Habtiah, M., Fahriansah, & Hisan, K. (2021). Dampak Penggunaan Teknologi Pertanian Terhadap Perubahan Sosial Ekonomi Masyarakat Buruh Tani Padi di Gampong Paya Seungat Aceh Timur. JIM (Jurnal Ilmiah Mahasiswa), 3(April), 58-70.
- Halim, A. (2004). Akuntansi Keuangan Daerah. Salemba Empat.
- Handayani, I. S., Sutanty, M., & Ismawati. (2023). Analisis Efisiensi Penggunaan Faktor-Faktor Produksi Pada Usaha Tani Padi Di Kabupaten Sumbawa. Jurnal Ekonomi & Bisnis, 11(1), 40-51. <https://doi.org/10.58406/jeb.v11i1.1152>

- Hidayat, T., & Setyawan, D. (2019). Pembangunan Industri dan Kontribusinya terhadap Perekonomian. *Media Industri*.
- Huazhang. (2014). Agricultural Input and Output in Juangsu Province with Case Analysis. *Journal of Agricultural Science & Technology*, 15(11).
- Hutomo, A. A., Mulyati, A., & Pratiwi, N. M. I. (2024). Pengaruh Modal Usaha, Tenaga Kerja Dan Jam Kerja Terhadap Kinerja Usaha UMK Toko Kelontong Di Kecamatan Tambaksari Kota Surabaya. *Management Studies and ...*, 5(2), 6630–6642.
- Ivanni, M., Kusnadi, N., & Suprehatin. (2019). Varietas Dan Wilayah Produksi Di Indonesia. *Jurnal Agribisnis Indonesia*, 7(1), 27–36.
- Jagaditha, G. K., & Yasa, I. G. W. M. (2019). Pengaruh Jumlah Penduduk, Pengeluaran Pemerintah, Pertumbuhan Ekonomi Terhadap Penyerapan Tenaga Kerja Di Kabupaten/Kota Provinsi Bali. *Jurnal Ekonomi Pembangunan Universitas Udayana*, 3(2), 58–66.
<http://www.tjyybjb.ac.cn/CN/article/downloadArticleFile.do?attachType=PDF&id=9987>
- Jelatu, Herman. (2023). "Faktor – Faktor yang Mempengaruhi Produksi Cengkeh (Studi Kasus di Mano Kecamatan Poco Ranaka Kabupaten Manggarai Timur). *Madani: Jurnal Ilmiah Multidisiplin*, 1 (2), hal: 1-7.
- Juliantari, N. K., & Suwena, K. R. (2023). Pengaruh Karakteristik Wirausaha Terhadap Keberhasilan Usaha Industri Kerajinan Tulang di Desa Tampaksiring Kabupaten Gianyar. *Ekuitas: Jurnal Pendidikan Ekonomi*, 11(1), 72–77.
<https://doi.org/10.23887/ekuitas.v11i1.64004>
- Kaharuddin, A., Yati, H., & Mappigau, E. (2023). Pengaruh Tenaga Kerja, Modal Dan Teknologi Terhadap Pendapatan Masyarakat Nelayan Di Desa Salubiro Kecamatan Karossa Kabupaten Mamuju Tengah. *Journal of Management & Business*, 6(2), 279–286.
- Kantor Kepala Desa Tampaksiring, Kabupaten Gianyar 2023.
- Karmeli, E., & Sumbawati, N. K. (2020). Pengaruh Modal Usaha Terhadap Omset Usaha Mikro Kecil Menengah di Kecamatan Sumbawa. *Prosiding Seminar Nasional IPPeMas*, 662–665.
- Krisna Mahendra, I Gusti Putu Agung., dan Ayuningsasi, A. A. K. (2024). Pengaruh Teknologi, Modal, dan Tenaga Kerja Terhadap Produksi dan Pendapatan UMKM Kerajinan Ukiran Kayu di Kabupaten Gianyar. *Public Service And Governance Journal*, 5 (1), hal: 157-167.
- Langit, A. A. I. D. S., & Ayuningsasi, A. A. K. (2019). Pengaruh Luas Lahan, Tenaga Kerja, dan Modal Terhadap Produksi Usaha Tani Jeruk. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 8(8), 1757–1788.
- Lestari, Y. P., & Sukirman. (2020). Pengaruh Self Efficacy sebagai Mediasi dari Pengaruh Pendidikan Kewirausahaan dan Lingkungan Keluarga terhadap Minat Berwirausaha. *Economic Education Analysis Journal*, 9(2), 615–633.
<https://doi.org/10.15294/eeaj.v9i1.39469>
- Mahayasa, Ida Bagus Adi dan Ni Nyoman Yuliarmi. (2017). Pengaruh Modal, Teknologi, Dan Tenaga Kerja Terhadap Produksi Dan Pendapatan Usaha Kerajinan Ukiran Kayu Di Kecamatan Tembuku Kabupaten Bangli. *Jurnal Ekonomi Pembangunan Universitas Udayana*, 6 (8), hal:135-137.

- Mahardika, M., & Widanta, A. (2020). Analisis Skala Ekonomi dan Efisiensi Penggunaan Faktor-Faktor Produksi Pada Produksi Tembakau Virginia di Kabupaten Buleleng. *E-Jurnal EP Unud*, 10 (6), hal: 2398 - 2426.
- Mankiw, N. G. (2014). *Principles of Economics* (7th ed). Cengage Learning.
- . (2018). *Pengantar Ekonomi Makro*. Salemba Empat.
- Melinda Wirastiti, Syahrizal Zebua, Aditya Arga Widhyasa, & Muhammad Yasin. (2023). Kebijakan Pembangunan Industri Dan Lingkungan Terhadap Pembangunan Daerah Surabaya. *MENAWAN: Jurnal Riset Dan Publikasi Ilmu Ekonomi*, 2(1), 119–126. <https://doi.org/10.61132/menawan.v2i1.143>
- Michalski, J. H. (2016). The Epistemological Diversity of Canadian Sociology. *Canadian Journal of Sociology*, 41(4), 525–556.
- Miles, M. B., & Huberman, A. M. (1994). *An Expanded Sourcebook: Qualitative Data Analysis*. Sage Publications.
- Mulyadi. (2003). *Ekonomi Sumber Daya Manusia dalam Perspektif Pembangunan* (Edisi 1). Grafindo.
- Mulyono, S., Djumahir, D., & Ratnawati, K. (2018). The Effect of Working Capital Management on the Profitability of Turkish SMEs. *British Journal of Economics, Finance and Management Science*, 5(2), 36–44.
- Murwindarti, A. (2021). Factors Influencing the Growth of Craft Business in Bogor City. *Tunas Geografi*, 10(1), 21. <https://doi.org/10.24114/tgeo.v10i1.26686>
- Nawarti Bustamam, & Bella Octaviana. (2022). Analisis Sektor Industri Terhadap Penyerapan Tenaga Kerja Di Kota Pekanbaru. *Jurnal Ekonomi KIAT*, 33(1), 62–72. [https://doi.org/10.25299/kiat.2022.vol33\(1\).9924](https://doi.org/10.25299/kiat.2022.vol33(1).9924)
- Ningsih, S. R. (2024). Pengaruh Teknologi Terhadap Produktivitas Tenaga Kerja di Indonesia. *Journal Of Business, Economics, And Finance*, 2(1), 1–9.
- Noviono, Hadi dan Dyah Pelitawati. (2019). Pengaruh Modal Kerja, Pendidikan dan Teknologi Terhadap Pendapatan Usaha Mikro Kecil Dan Menengah (UMKM) Di Sentra Industri Tas Dan Koper Tanggulangin. *Jurnal Universitas WR. Supratman Surabaya*, 5 (2), hal: 1-8.
- Perdana, G. H. A., & Jember, I. M. (2017). Pengaruh Modal, Tingkat Upah, Penyerapan Tenaga Kerja Terhadap Produksi Kerajinan Patung Batu Padas Kecamatan Sukawati. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 6(7), 1212–1242.
- Porter, M. E. (1990). *The competitive advantage of nations*. Free Press.
- Prananda, I. P. G. A. E., Wulandari, I. G. A. A., & Giri, N. P. R. (2023). Peranan Modal dan Tenaga Kerja Terhadap Produksi Industri Kerajinan Patung Kayu di Kabupaten Badung. *Warmadewa Economic Development Journal (WEDJ)*, 6(1), 9–17. <https://doi.org/10.22225/wedj.6.1.2023.9-17>
- Prasetyo, A., & Adi, W. (2020). *Perkembangan Sektor Industri di Indonesia*. Pustaka Ilmu.
- Prawirosentono, S. (2007). *Pengantar Bisnis Modern (Studi Kasus Indonesia dan Analisis Kuantitatif)*. Bumi Aksara.
- Presiden Republik Indonesia. (2014). *Undang-Undang Republik Indonesia Nomor 3 Tahun 2014 tentang Perindustrian*.

- Putra, I. B. G. Y. J., & Sudibia, I. K. (2023). Dampak Persediaan Dana, Pekerja, Teknologi Dan Luas Area Tanam Terhadap Produksi Dan Pendapatan Buruh Tani Kopi Di Kintamani. *Jurnal Ilmiah (Manajemen, Ekonomi, Akutansi)*, 7(3), 2023.
- Putra, I. M. I., & Meydianawathi, L. G. (2019). Pengaruh Tenaga Kerja, Bahan Baku dan Teknologi Terhadap Produksi Industri Furnitur Rotan di Kota Denpasar. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 10(9), 3740–3768.
- Ragita, K. P., & Saskara, I. A. N. (2022). Efisiensi Penggunaan Modal, Tenaga Kerja, Dan Luas Lahan Terhadap Produksi Salak Di Kecamatan Bebandem Kabupaten Karangasem. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 11(4), 1511. <https://doi.org/10.24843/eeep.2022.v11.i04.p12>
- Rahmawati, S., Roshayanti, F., Nugroho, A. S., & Hayat, M. S. (2021). Potensi implementasi Education for Sustainable Development (ESD) dalam pembelajaran IPA di MTs Nahdlatul Ulama Mranggen Kabupaten Demak. *Jurnal Kualita Pendidikan*, 2(1), 15–27. <https://doi.org/10.51651/jkp.v2i1.27>
- Revalthy, S., & Santhi, V. (2016). Impact of capital structure on profitability of manufacturing company India. *International Journal of Advanced Engineering Technology*, 7(1), 24–28.
- Salim, N., & Rahmadhani, S. (2024). Pengaruh Modal Usaha, Lama Usaha Dan Lokasi Usaha Terhadap Pendapatan Usaha Mikro Kecil Menengah. *Among Makarti*, 17(1), 111. <https://doi.org/10.52353/ama.v17i1.634>
- Samuelson, P. A., & Nordhaus, W. D. (2010). *Economics* (19th ed). McGraw-Hill Education.
- Sandi, M. W., & Wenagama, I. W. (2023). Efisiensi Penggunaan Modal, Jam Kerja dan Bahan Baku Terhadap Produksi Pengrajin Gerabah Kecamatan Masbagik. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 12(2), 151–165.
- Sasmita, J. T., & Fathorrozi. (2003). *Teori Ekonomi Mikro: Dilengkapi Beberapa Bentuk Fungsi Produksi*. Salemba Empat.
- Schumpeter, J. A. (1934). *The Theory of Economic Development*. Harvard University Press.
- Soekartawi. (2003). *Teori ekonomi produksi, dengan pokok bahasan analisis fungsi Cobb-Douglas*. Raja Garfndo Persada.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. CV. Alfabeta.
- Sukirno, S. (2016). *Makroekonomi: Teori Pengantar* (Edisi 3). Rajawali Pers.
- Sumarsono, S. (2003). *Ekonomi Manajemen Sumber Daya Manusia dan Ketenagakerjaan*. Graha Ilmu.
- Suprihanto, J., Harsiwi, T. A. M., & Hadi, P. (2003). *Perilaku Organisasional*. STIE YKPN.
- Suroyah, I. A. (2016). Analisis Faktor-Faktor yang Mempengaruhi Nilai Produksi Industri Kecil Tenun Ikat di Kabupaten Jepara (Studi Kasus di Desa Troso , Kecamatan Pecangaan , Kabupaten Jepara). *Jurnal Pendidikan Dan Ekonomi*, 5, 1–5.
- Syahdan, F. (2017). Hubungan Antara Keterampilan Kerja Dengan Produktivitas Kerja. *Psikoborneo*, 5(1), 81–88.
- Todaro, M. P., & Smith, S. C. (2011). *Pembangunan Ekonomi* (Edisi 11,). Erlangga.
- Turmudi, M. (2017). Produksi dalam Perspektif Ekonomi Islam. *Islamadina: Jurnal Pemikiran Islam*, XVIII(1), 37–56.
- Utama, M. S. (2008). *Buku Ajar Aplikasi Analisis Kualitatif*. Sastra Utama.

- Utari, Tri dan Dewi, Ni Putu Martini. (2014). "Pengaruh Modal, Tingkat Pendidikan dan Teknologi terhadap Pendapatan Usaha Mikro Kecil dan Menengah (UMKM) di Kawasan Imam Bonjol Denpasar Barat." *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 3 (12), hal: 576-585
- Winangun, I. G. A. R. P., & Wenagama, I. W. (2024). Pengaruh Modal, Bahan Baku, dan Tenaga Kerja Terhadap Produksi Kerajinan Kayu di Kabupaten Tabanan. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 13(3), 615–625.
- Wulandari, I. G. A. A., & Parameswara, A. A. G. A. (2020). Peranan Pelanggan Dalam Produksi Industri Kerajinan Perak Di Kota Denpasar. *Warmadewa Economic Development Journal (WEDJ)*, 3(1), 1–9. <https://doi.org/10.22225/wedj.3.1.1589.1-9>
- Yasa, I. K. O. A., & Arka, S. (2015). Pengaruh Pertumbuhan Ekonomi dan Disparitas Pendapatan Antardaerah Terhadap Kesejahteraan Masyarakat Provinsi Bali. *Jurnal Ekonomi Kuantitatif Terapan*, 8(1), 63–71.
- Yuvanda, S., Rachmad R., M., & Hidayat, M. S. (2022). Strategy in developing priority craft industry by using SAWSWOT Model in Jambi Province. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 10(5), 287–296. <https://doi.org/10.22437/ppd.v10i5.16654>
- Zulkarnain, Z., Zakaria, W. A., Haryono, D., & Murniati, K. (2021). Economic efficiency and risk of cassava farming in Lampung province. *International Journal of Financial, Accounting, and Management*, 3(2), 129–148. <https://doi.org/10.35912/ijfam.v3i2.433>