

Analysis of the Impact of Machinery and Equipment Assistance on the Income of Furniture and Handicraft SMEs in Palu City

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Abstract

Small and Medium Enterprises or commonly referred to as SME are production activities for goods used in daily human life. Production activities in this industry can serve as a means of employment absorption in a relatively short time and open job opportunities in a broader field. This study aims to determine the impact of machinery and equipment assistance on the income of SME Furniture and Crafts in Palu City. The research method used is quantitative research with a descriptive approach. The data collection method used is data obtained directly from respondents and data obtained from the Trade and Industry Office of Palu City. The analysis technique uses the Paired Sample t-Test. The results of this study show that the provision of machinery and equipment assistance from the government has a positive effect on the income of SME Furniture and Crafts.

Keywords: Furniture and Crafts, Income, Machinery and Equipment Assistance, Palu City, Small and Medium Enterprises.

1. Introduction

Indonesia has a large population, which presents its own challenges for the Indonesian government in efforts to improve welfare, one of which is economic welfare. Indonesia has great potential for economic development due to its natural wealth and large population with various life backgrounds, which can become distinctive characteristics for each region in Indonesia. One effort that can be made by the community is to establish Small and Medium Enterprises.

Small and Medium Enterprises (SME) play a crucial role in driving economic growth in Indonesia. SME not only functions as job creation but also contributes significantly to the national economy (Santika et al., 2022). This business is generally a community initiative and is run individually. Although some people think that SME only benefits certain groups, in reality this sector also plays a role in absorbing labor and empowering the wider community. In addition, the utilization of local natural resources can be carried out concretely by SME as part of efforts to increase capacity and economic empowerment. Despite having an important role in supporting the economy, Small and Medium Enterprises are also faced with various challenges that need to be addressed (Wahyudi, 2022).

Small and Medium Enterprises (SME) are one of the important sectors in the Indonesian economy. SME becomes an important sector in Indonesia because it is able to provide employment, so SME becomes a primary or secondary source of income for many households



in Indonesia. Local governments strive to develop SME in their regions as one of the efforts to encourage regional economic growth (Edelia & Aslami, 2022; Zulianti & Aslam, 2022). Local governments manage the use of resources based on the local potential they have, including managing regional SME. The basis of SME activities in the region is small people. Therefore, SME is one of the important foundations in the national economy, so local governments need to pay more attention to SME development (Puspita & Muslinawati, 2019). There are three advantages of SMEs that are not typically found in corporations. First, the relatively small business capital makes many individuals more willing to take risks and start ventures in this sector. Second, because it requires limited capital and does not involve many people, the business can be managed with greater improvisation in selecting products and production methods. Lastly, this small capital and flexibility allow SMEs to operate as highly adaptable business organizations, giving them a unique advantage in responding to market changes.

In the economy, especially in creating jobs and increasing community income, it is often faced with various constraints such as limited human resources and machinery (Krutova et al., 2022). One of the main constraints faced by Small and Medium Enterprises (SME) in increasing production efficiency is the limitation of machinery and equipment. This condition causes the production process to become slow and inefficient. In addition, machinery limitations also impact on increasing operational costs because workers have to work longer with limited results. As a result, the quality and consistency of products produced becomes difficult to maintain, so that product competitiveness in the market becomes weak.

The use of machinery is very much needed to meet market demand and maintain product quality (Satito et al., 2022). Technology is a tool that can be used for production, so that sales improvement can be done optimally and Small and Medium Industry (SME) income increases. The presence of machine technology can make the production process faster and easier. The empowerment of Small and Medium Enterprises (SME) has become the focus of government attention to improve community welfare and increase the economy (Marhaeni et al., 2022). The Palu City Government has empowered SME, one of the government's efforts in empowering SME is by providing machinery and equipment assistance. The purpose of this assistance is to increase production efficiency, improve product quality, and support SME competitiveness in the continuously developing market needs. With the existence of machinery and equipment assistance, it is hoped that furniture and craft SME can produce more products with better quality.

If Small and Medium Enterprises are constrained by machinery, it will impact on the amount of production produced and take a long time. The amount of production is still limited and cannot meet demand, so production needs machinery and equipment to be more efficient (Lina, 2018). The machinery and equipment assistance provided by the government has great potential in increasing the turnover income of Small and Medium Enterprises (SME) furniture and crafts. Because with this assistance, business actors can increase production capacity and save operational time which ultimately increases the turnover income of furniture and crafts and the welfare of business actors as well as strengthens the competitiveness of local products amid increasingly fierce industrial competition, so this assistance has the potential to become the main driver in increasing income.

Based on the previous discussion, the assistance provided by the government raises questions about the impact of machinery and equipment assistance on the income of furniture and craft SME in Palu City. Do furniture and craft SME experience increased income after receiving machinery and equipment assistance?

2. Literature Review

2.1. Impact

Impact can simply be interpreted as influence or consequence. In every decision made by a superior usually has its own impact, both positive and negative. Impact can also be a continuation process of internal supervision implementation. Impact can simply be interpreted as influence or consequence. According to Scott and Mitchell, impact is a social transaction where a person or group of people is moved by another person or group of people to carry out activities according to expectations (Kurnianto, 2019).

2.2. Small and Medium Enterprises (SME)

Small and Medium Enterprises (SME) are business sectors that have small and medium scale, with strategic roles in the Indonesian economy. SME has characteristics such as the number of workers, investment value, and production scale that are smaller compared to large industries. Small and Medium Enterprises (SME) have a role in economic development. This is due to the relatively higher labor intensity. SME development can contribute to economic diversification and accelerate structural changes as a pre-condition for stable and sustainable long-term economic growth. Besides that, in relation to capital investment in small and medium businesses, it is much higher than what occurs in large companies. Based on this, small and medium business development is a key element in every domestic job creation strategy. Small and medium businesses have become the focus of empowerment both from the aspects of business management, entrepreneurial spirit and funding to develop their business, because of various considerations, where small and medium businesses are the largest of community economic activities.

2.3. Income

According to the Indonesian Dictionary, the definition of income is the result of work (effort and so on). The definition of income according to the Indonesian Dictionary is a general definition of income. In its development, the definition of income has different interpretations depending on the background of the discipline used to compile the concept of income for certain parties. Turnover income is the total gross income obtained from the sale of products or services in a certain period, not yet reduced by costs.

Income is defined as an earning received due to activities, efforts, and work. It can also be obtained from selling production results to the market. Income greatly affects the survival of a person or company, the greater the income obtained, the greater the ability of a person or company to finance all expenses and activities to be carried out. The high and low income of a person depends on factors such as age, gender, ability, education and experience (Hakim, 2018).

2.4. Machinery and Equipment Assistance

Machinery and Equipment Assistance is the provision or supply of tools and machines by the government to SME. In an effort to encourage economic growth in the Palu City area, the Palu City Government through the Trade and Industry Office handed over assistance in the form of machinery and equipment to a number of Small and Medium Industry (SME) business actors to be more competitive.

In the framework of developing and improving national industrial capabilities, an industrial development strategy is needed through the provision of equipment and machinery assistance for current industrial development. Based on this, the Ministry of Industry issued a policy through Minister of Industry Regulation No.26/M-IND/PER/2/2010 concerning Guidelines for Providing Equipment and/or Machinery Assistance for small industries and

then established Minister of Industry Regulation No.122/MIND/PER/12/2012 concerning Guidelines for Providing Equipment and/or Machinery Assistance (Karim, 2017).

2.5. Previous Research

Previous research becomes one of the foundations for the author in compiling this research, because it can expand the understanding of the theory used. Although no exactly similar titles were found, there is a connection between this research and previous research. Therefore, the author refers to a number of previous studies as references to strengthen the study in this research. The following are previous studies related to this research.

First, Sari et al. (2022) conducted a quantitative method with descriptive statistical analysis tools using a two-sample mean difference test (Paired Sample T-Test). The results of this study show that there are significant differences in MSME income before and after receiving business facilities assistance. The similarity of previous research conducted by Sari, Susanti, and Shinta with this research is examining the impact of assistance on income and using a two-sample mean difference test (Paired Sample T-Test). The difference is that previous researchers focused on MSME and received business facilities assistance, while this research focuses on SME furniture and crafts, and received machinery and equipment assistance.

Second, Andiana (2022) done a descriptive using income analysis formulas and statistical analysis with Paired Sample T-Test. The results of this study show that there are significant income differences between before and after receiving credit assistance from PNM Mekaar. The similarity of previous research conducted by Andiana (2022) with this research is examining income comparison before and after receiving assistance and using Paired Sample T-Test statistical analysis. The difference is that previous researchers focused on credit assistance recipients, while this research focuses on machinery and equipment assistance recipients.

Third, Popang et al. (2023) conducted a comparative method with a quantitative approach using normality tests and Paired t-test comparison tests. The results of this study show that there are differences in MSME income at To'pao Art Market between before and after using QRIS. The similarity of previous research conducted by Pauline Surjadi Popang, Rati Pundissing, and Mince Batara with this research is the impact of technology on income and using Paired Sample T-Test. The difference is that previous research discussed QRIS usage while this research discusses machinery and equipment assistance.

3. Methods

3.1. Research Type

The type of research used is descriptive quantitative research method. The definition of descriptive research method is a research procedure or problem-solving that is investigated by describing the subject or object used in the form of people, institutions, communities and others (Muhasor et al., 2024). Quantitative research is a scientific method that uses quantitative data in the form of numbers, tables, and data analysis that is quantitative statistical in nature to test hypotheses that have been established. Descriptive quantitative research is used to determine the analysis of the impact of machinery and equipment assistance on the income of SME Furniture and crafts in Palu City.

3.2. Analysis Method

The analysis method used in this research applies a quantitative approach as an analysis method with descriptive statistical analysis tools to describe the characteristics of the data obtained to compare differences in income levels obtained by SME actors before and after receiving assistance in the form of machinery and equipment.

This study uses a two-mean difference test to compare two variables, namely the income of SME actors before and after receiving assistance in the form of machinery and equipment. This research is conducted using quantitative data. In general, the t-test is divided into two types: independent sample t-test is used to determine whether there are significant differences between the averages of two sample groups that are not related to each other (independent). Meanwhile, paired sample t-test is used to test the difference in averages of two groups of data that are paired. Paired sample t-test is used to test the difference in averages of two groups of data that are paired, in this case SME income before and after receiving assistance.

4. Results and Discussion

4.1. Research Results

4.1.1. Respondent Characteristics

Information in this study was obtained by conducting interviews determined based on the problems to be known. Interviews were conducted with Small and Medium Industry (SME) actors who received Machinery and Equipment Assistance from the Trade and Industry Office of Palu City.

1) Respondent Age

Age is an indicator in assessing a person's physical condition that affects their level of productivity. The better a person's physical condition, the higher the productivity potential they have tends to be. In economic studies, productive age is grouped into three classifications, namely: age 0-14 years is categorized as not yet productive age, age 15-64 years as productive age, and age 65 years and above as no longer productive age. From the age category, SME owners are highest in the 35-49 interval of 3 people (60%). While in the 20-34 and 50-64 intervals have the same number of 1 person (20%). Based on the classification, the age of SME owners is still categorized as productive age.

2) SME Names and Year of Assistance Receipt

Table 1. SME Names and Year of Assistance Receipt

No.	SME Name	Receviment Year
1.	Adry Art	2022
2.	Bintang Galeri	2023
3.	Banua Art	2024
4.	Cenderamata Rotan Palu	2023
5.	Giska Craft	2024

From Table 1, it can be seen that there are 5 Small and Medium Industry (SME) actors engaged in Furniture and Crafts and have received Machinery and Equipment Assistance from the government. The assistance started from 2022-2024, with the aim of increasing production and increasing the income of each SME recipient of assistance.

4.1.2. Turnover Income Before and After Receiving Assistance

Table 2. Turnover Income Before Receiving Assistance

No	SME Name	Product Type	Sold (units)	Price (Rp)	Turnover (Rp)
1	Adry Art	Shelf	1	150.000	150.000
		Flower Vase	1	50.000	50.000
		Souvenir	10	10.000	100.000
		Total			300.000
2	Bintang Gallery Palu	Dining Table	1	1.300.000	1.300.000
		Terrace Table	2	400.000	800.000
		Chair	12	100.000	1.200.000
		Wood Mirror	5	340.000	1.700.000
		Total			5.000.000
3	Banua Art	Chair	5	150.000	750.000
		Table	2	400.000	800.000
		Shelf	3	150.000	450.000
		Total			2.000.000
4	Cenderamata Rotan Palu	Decoration Mirror	10	490.000	4.900.000
		Decorative Lamp	20	150.000	3.000.000
		Souvenir	70	30.000	2.100.000
		Total			10.000.000
5	Giska Craft	Cup	20	20.000	400.000
		Teapot	10	100.000	1.000.000
		Bowl	15	40.000	600.000
		Total			2.000.000

Based on data obtained from research results, it shows that this turnover reflects business conditions before the existence of machinery and equipment assistance. This turnover value becomes an initial benchmark that is often used as a reference in predicting the number of orders that come in one month.

Table 3. Turnover Income After Receiving Assistance

No	SME Name	Product Type	Sold (units)	Price (Rp)	Turnover (Rp)
1	Adry Art	Shelf	2	150.000	300.000
		Flower Vase	3	50.000	150.000
		Souvenir	15	10.000	150.000
		Total			600.000
2	Bintang Gallery Palu	Dining Table	1	1.300.000	1.300.000
		Terrace Table	3	400.000	1.200.000
		Chair	16	100.000	1.600.000
		Wood Mirror	10	340.000	3.400.000
		Total			7.500.000
3	Banua Art	Chair	12	150.000	1.800.000
		Table	6	400.000	2.400.000
		Shelf	12	150.000	1.800.000
		Total			6.000.000
4	Cenderamata Rotan Palu	Decoration Mirror	14	490.000	6.860.000
		Decorative Lamp	28	150.000	4.200.000
		Souvenir	98	30.000	2.940.000
		Total			14.000.000
5	Giska Craft	Cup	45	20.000	900.000
		Teapot	18	100.000	1.800.000
		Bowl	20	40.000	800.000
		Total			3.500.000

Based on data obtained from research results, it shows that after receiving machinery and equipment assistance, furniture and craft SME experienced an increase in turnover. Thus, the assistance provided experienced a positive increase in business growth.

4.1.3. Income Obtained

Table 4. Income Obtained

No.	SME Name	Turnover (Rp)	
		Before	After
1.	Adry Art	300.000	600.000
2.	Bintang Galeri	5.000.000	7.500.000
3.	Banua Art	2.000.000	6.000.000
4.	Cenderamata Rotan Palu	10.000.000	14.000.080
5.	Giska Craft	2.000.000	3.500.000

Table 4 shows that all Small and Medium Industry (SME) actors who received Machinery and Equipment Assistance from the government experienced an increase in income. The machinery and equipment assistance provided includes Automatic planer, Drill press, Spray gun, Glass display cabinet, Welding machine, Metal cutting machine, Compressor, Grinder, Saw machine, Wood lathe head, Planer machine, Drill, Sanding machine, and automatic planner.

4.1.4. Normality Test

The normality test is conducted to test whether there are disturbances or residual variables in the model that are normally distributed. If the normality test is greater than Sig (0.05), then the data is normally distributed, conversely if less than 0.05, then the data is not normally distributed. This study uses the Shapiro Wilk normality test. The normality test results are in the following table:

Table 5. Normality Test Results

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Before	.287	5	.200 [*]	.878	5	.299
After	.207	5	.200 [*]	.963	5	.832

From the normality test in table 5 above, it is known that before receiving assistance Sig. 0.299 and after receiving assistance Sig. 0.832 where these values are more than 0.05, so it can be concluded that the residual values in this study are normally distributed. Thus, it meets the normality assumption required in further statistical analysis.

4.1.5. Paired t-test

After conducting the normality test and the data studied is normally distributed, the data can be continued with the paired sample t-test to see the difference before and after receiving assistance. The stages in the Paired Sample t-Test are first paired sample statistics, second paired sample correlation test, and lastly sample difference.

Table 6. Paired Sample Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before	3860000.00	5	3827270.57	1711607.43
	After	6320000.00	5	5028618.10	2248866.38

The Paired Sample Statistics test displays descriptive results of the studied sample by looking at the income of SME Furniture and Crafts in Palu City before and after receiving assistance. From this test, it is known that the income of SME Furniture and Crafts before receiving assistance was Rp.3,860,000 and income after receiving assistance was Rp.6,320,000. These results descriptively show that there is a difference in income of SME Furniture and Crafts in Palu City before and after assistance.

Table 7. Paired Sample Correlations

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Before & After	5	.970	.003	.006

The Paired Sample Correlations test is to see the relationship between income data of SME Furniture and Crafts in Palu City before and after receiving assistance. From these results, it is known that the correlation coefficient is 0.970 with a significance of 0.006. Because the significance value is 0.006 and this value is < 0.05 , it can be concluded that there is a relationship between the income of SME Furniture and Crafts in Palu City before and after receiving assistance.

Table 8. Paired Samples Test

Table 3: Paired Samples Test										
		Paired Differences								
		Mean	Std. Deviat ion	Std. Error Mean	95% Confidence Interval of the Difference		T	Df	Significance	
					Lower	Upper			One- Side d p	Two- Side d p
Pair 1	Before & After	-2460000.0	1607171.4	718748.9	-4455566.9	-464433.1	-3.423	4	.013	.027

Based on the results of the Paired t-test in Table 8, it is known that the Sig. Two-Sided p value is $0.027 < 0.05$, so H_0 is rejected (there is no difference in income of SME Furniture and Crafts in Palu City between before and after receiving assistance) and H_a is accepted (there is a difference in income of SME Furniture and Crafts in Palu City between before and after receiving assistance). It is also concluded that there is a difference in average income before receiving assistance of Rp.3,860,000 and income after receiving assistance of Rp.6,320,000, meaning that the existence of Machinery and Equipment Assistance for SME has an influence that can increase the income of SME Furniture and Crafts in Palu City. From the results of the t-test (Paired sample t-test), it can be known that the existence of Machinery and Equipment assistance provides influence on the income of SME Furniture and Crafts in Palu City, where this change causes an increase in SME income in Palu City.

4.2. Discussion

Based on the data in Table 4, it shows that all SME actors receiving machinery and equipment assistance experienced significant differences in production results between the period before and after receiving assistance with increased production when receiving assistance which ultimately will have a positive impact on income increase.

The Paired t-test is to test the difference between two related samples. The basis for decision-making in the paired sample t-test is if the Sig. value < 0.05 then H_0 is rejected (there is no difference in income of SME Furniture and Crafts in Palu City between before and after

receiving assistance) and H_a is accepted (there is a difference in income of SME Furniture and Crafts in Palu City between before and after receiving assistance). Conversely, if $\text{Sig.} > 0.05$ then H_0 is accepted and H_a is rejected, there is no difference in SME income between before and after receiving assistance.

The results of the Paired t-test show that there is a difference in SME income before and after receiving assistance. The average income before receiving assistance was Rp.3,860,000 and after receiving assistance was Rp.6,320,000. So there is an increase descriptively. This means that the existence of Machinery and Equipment Assistance for SME has an influence that can increase the income of SME Furniture and Crafts in Palu City. The significance value obtained is below 0.05 which indicates that Machinery and Equipment Assistance has a positive effect on increasing the income of SME actors.

Based on the data in Table 4, it shows that SME income before receiving Machinery and Equipment Assistance was Rp300,000 for 1 person, Rp2,000,000 for 2 people, Rp5,000,000 for 1 person, and Rp10,000,000 for 1 person. Based on the data before receiving Machinery and Equipment Assistance, the highest income was Rp10,000,000 and the lowest income was Rp300,000.

After receiving Machinery and Equipment Assistance, SME income was Rp600,000 for 1 person, Rp3,500,000 for 1 person, Rp6,000,000 for 1 person, Rp7,500,000 for 1 person, and Rp14,000,000 for 1 person. Based on the data, SME income after receiving Machinery and Equipment Assistance, the highest income was Rp14,000,000 and the lowest income was Rp600,000.

Similar conclusions were drawn by Rasidi & Sulistiana (2025) which show that the assistance programs that have been distributed provide significant contributions in improving product quality and SME actor income. Regarding machinery and equipment assistance that can increase production efficiency in terms of increasing income, this is in agreement with the findings by Mulianti et al. (2022) which show that the role of technology has a positive and significant effect on increasing the income of assistance recipients. Because technological advances help improve the efficiency of production process time and the goods produced will increase.

Such findings are also observed in the study by Dangin dan Marhaeni (2019). The results of this study show that using modern technology will provide a more significant impact compared to using traditional technology. With modern technology, it will produce greater output in a shorter time. This directly impacts the increase in overall production capacity. Unlike traditional technology that relies on simple tools, modern technology enables more consistent quality. Moreover, study by Sarwoko et al. (2021) show that to increase production capacity is by using technology in the form of machines to answer the capacity challenges that craftsmen have been facing. Technology has great potential to accelerate the production process, reduce manual labor burden, and maintain product quality.

5. Conclusion

The research results show that Crafts after receiving Machinery and Equipment Assistance from the government. SME Furniture and Crafts experienced increased production. This assistance drives work efficiency and production capacity, so it is able to meet greater demand from consumers. The difference that can be felt by SME Furniture and Crafts after receiving Machinery and Equipment Assistance, especially with increased production. Of course, the main difference they feel is the increase in business income, which directly impacts the improvement of welfare and business sustainability. The increase in production and

income experienced by SME Furniture and Crafts actors after receiving assistance can be a great encouragement for them to continue developing their business. If this condition occurs evenly in various regions, then SME will be able to contribute significantly to strengthening the economy.

Based on the research results, discussion, and conclusions, the recommendations that can be given for SME owners, it is recommended to further explore technological developments related to expanding sales markets that enable marketing to other regions, including through online platforms. Finally, for the government, it is recommended to increase the number of SME that receive machinery and equipment assistance because this not only increases productivity but also has the potential to encourage increased government income through local economic growth.

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