

ANALYSIS OF DIFFERENCES IN PRODUCTION OF KNITTING CENTER MSMES AS AN IMPACT OF THE INCREASE IN FUEL PRICES

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Abstract

The resilience of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia is currently being tested in the face of an economic downturn due to rising fuel prices. This situation has also resulted in a decline in MSME knitting production in Bandung City. The purpose of this study is to analyze the differences in production before and after the fuel price increase that hit the world. The method used is a test of differences between two interrelated samples. The population in this study were MSMEs in the knitting sector, with a sample period of 12 weeks from March to September 2025. The results of this study indicate that of the 12-week period, only one week experienced an increase in production despite the conflict between Iran and the United States. The test of differences conducted found changes in production between before and after the fuel price increase as a result of the conflict between Iran and the United States.

Keyword: Production, Knitting Center, MSMEs, fuel price increase

Introduction

The conflict between Iran and the United States continues to escalate. The tensions stem from a dispute over oil sales. The conflict occurred in the Strait of Hormuz, a major global oil distribution route. Oil is used in company operations, including the production process. Operations Management is an activity of converting inputs into outputs by organizing and coordinating all resources owned effectively and efficiently, and then converting them into goods or services. The scope of operations management is related to the operation of operating systems, selection and preparation of operating systems which include ten decisions, namely the design of goods and services, quality management, process and capacity design, location strategy, spatial strategy, human resources and job design, supply chain management, inventory management, scheduling, maintenance. Operational management is an activity to organize and coordinate the use of resources in the form of human resources, equipment resources and financial resources, and materials effectively and efficiently to create and increase the utility of a good or service. Operational management as decision making with all other operational functions can be seen as a transformation system that changes inputs into outputs. There are four reasons why we study Operations Management, namely through Operations Management we learn how people organize themselves for a productive company, through Operations Management we can find out how goods and services are produced, through Operations Management we can understand what operations managers do, Operations Management is the part that costs the most in an organization (Suhardi, 2026).

Production is the activity of creating, producing, or adding value to goods and services. This process transforms raw materials and tools into ready-to-use products to meet human needs. Production is an activity carried out to transform inputs into outputs, or can be understood as an activity to add value to a good or service by involving production factors as inputs. This activity is a link in the chain of economic activity, making it crucial for the survival of society and should be carried out properly by all parties. The relationship between the amount of input and output within a certain period is called the production factor. This theory explains short-term production (Ningtyas et al., 2025).

The process of creating high-quality products is inseparable from the existence of a good and precise production process. The production process is not only limited to the process of converting inputs into outputs, but also the process of finding a way to produce products that meet customer requirements and existing product specifications within existing cost limits and other material limits (Purnomo et al., 2023). The production process is a way, method, and technique to create or increase the usefulness of a product by optimizing existing production resources (labor, machines, raw materials, funds). The production process is an activity that involves human power, materials, and equipment to produce useful products (Sutrisno et al., 2024).

The production process is a series of activities that transform inputs such as raw materials, labor, machinery, and energy into outputs in the form of products with added value. This process involves various interrelated

stages, from material preparation and processing to assembly, until the product is ready for marketing. The effectiveness and efficiency of the production process depend heavily on planning, workflow management, and coordination between the resources used. A poorly managed production process has the potential to lead to waste and reduce the operational performance of manufacturing companies (Putri et al., 2025).

MSMEs are a form of productive business owned by individuals or business entities that meet various criteria for running a business, whether as a micro, small, or medium enterprise. This is regulated by law, specifically Law of the Republic of Indonesia No. 20 of 2008 concerning Micro, Small, and Medium Enterprises (MSMEs), which distinguishes MSMEs separately, including micro, small, and medium enterprises. MSMEs have become the driving force of the Indonesian economy. When discussing business and economics, especially the business world in Indonesia, people are faced with a term that plays a significant role in the current economic situation: MSMEs. This can be seen, among other things, in the business aspect or management of MSMEs themselves, which still have a close relationship or relevance to the economic conditions of society at various levels, but in the form of non-corporate economic enterprises (Suhardi et al., 2021)..

The general definition of Micro, Small, and Medium Enterprises (MSMEs) is a productive economic enterprise, primarily in trade, run or managed by an individual or a business entity and meeting the criteria for a micro, small, or medium enterprise. Several experts have provided more detailed definitions of MSMEs, including :

- a. MSMEs are businesses operated by various levels of society and play a vital role in the Indonesian economy, both in terms of the jobs they create and the number of businesses.
- b. MSMEs are a development of four primary economic activities that have become the driving force of development in Indonesia: manufacturing, agribusiness, maritime business, creative industries, and human resources. Furthermore, MSMEs can also be defined as a form of development in key areas to accelerate economic recovery and accommodate priority programs and the development of various industrial sectors and economic potential established by the government. These MSMEs serve as a catalyst for various community empowerment efforts.

- c. MSMEs are economic activities involving individuals with a maximum net worth of IDR 200,000,000 (two hundred million rupiah), excluding land and buildings for business premises, or businesses with annual sales turnover of no more than IDR 1,000,000,000 (one billion rupiah) and owned by Indonesian citizens.

One of the keys to success for MSMEs is being able to plan and build competitive advantages continuously, so that MSMEs have a very crucial role and function for the economic conditions in Indonesia, including :

- a. Opening Employment Opportunities

MSMEs will open new job opportunities for the surrounding community because they have more lenient employment requirements and can be met by various levels of society, with little or no education or specialized or advanced qualifications. Furthermore, MSMEs can provide an opportunity for people to earn income without having to abandon their essential daily activities. For example, housewives can join micro or small businesses and become craftspeople or workers in the culinary field.

- b. Encouraging Economic Equality in Society

MSMEs are one way for a country to achieve equitable economic conditions. Through these MSMEs, the economic conditions in small towns and rural areas can be boosted and improved. People can also access a variety of products and services directly in their immediate area, without having to travel to big cities to meet various needs. This ensures that the rural economy remains relatively stable compared to urban areas.

- c. Increasing Foreign Exchange and State Revenue

Foreign exchange is one aspect that can indicate a country's actual economic condition. A high economic value indicates a country's strong economic condition and can be considered a developed nation. The massive and extensive presence, management, and development of MSMEs will indirectly increase foreign exchange and state revenue. For example, advanced MSMEs are able to produce quality goods that attract the attention of international consumers. If MSMEs frequently export goods to various countries (overseas), the country will receive additional income. Moreover, international buying and selling activities can easily be conducted online.

- d. Stimulating Economic Conditions in Critical Situations

MSMEs have proven capable of reviving the economy during critical situations due to various factors. In 1997, the monetary crisis that occurred in Indonesia was successfully overcome thanks to the rapid growth of the MSME sector. Despite the monetary crisis, Indonesia was still able to consistently meet basic needs. A similar situation occurred during the COVID-19 pandemic that hit Indonesia, and indeed the entire world. Amidst recommendations or policies to refrain from activities outside the home (work from home), MSMEs were able to adapt by offering goods or services using information technology (online) and still able to meet community needs. This ensured that economic conditions would remain stable and gradually recover and improve as before.

- e. Understanding and Meeting Community Needs

MSMEs are run by small communities themselves, and these businesses generally have a better understanding of the needs of various segments of society. The products they produce often accurately meet the needs of the community on the ground. Furthermore, MSMEs also obtain raw materials from the surrounding community or local producers. This can provide additional benefits to the surrounding community, who will also become consumers and increase the economic cycle more rapidly, massively, and continuously.

Methods

The techniques used to analyze the obtained data were descriptive analysis and verification analysis. These techniques were used to obtain an overview of production before and after the conflict between Iran and the United States. The sampling technique used was purpose-built sampling, with samples taken during the production period of March–September 2025.

The variables studied were knitting production during the period before and after the fluctuations in fuel prices during the conflict between Iran and the United States. The analysis stages carried out were to find production data before and after the conflict between Iran and the United States which would be compared using a related two-sample difference test to determine whether or not there was a difference in production levels between before and after the conflict. Data collection techniques used questionnaires, observation, and literature studies.

Results and Discussions

Descriptive Analysis

The collected data contains information on production volumes before and after the conflict between Iran and the United States.

Table 1. Production Value Before and After the Conflict Between Iran and the United States

Week	Production Before	Production After	Difference
1	2412	2760	3.00%
2	1260	1260	0.00%
3	2580	1560	-8.80%
4	3000	1740	-10.87%
5	3936	1440	-21.53%
6	1788	1200	-5.07%
7	3780	2040	-15.01%
8	3984	2568	-12.22%
9	1692	1692	0.00%
10	3540	2880	-5.69%
11	2196	1800	-3.42%
12	3600	1236	-20.39%

Source: Data Processing, 2025

Table 1 illustrates that the conflict between Iran and the United States has led to a decline in production levels in most MSMEs in the knitting sector. In week 5, MSMEs experienced a 21.53% decrease in production. The conflict between Iran and the United States has disrupted the stability of global oil prices, affecting production processes in various companies, including MSMEs, as they still rely on fuel for their operations.

Two-Sample Difference Test for Correlation

Table 2. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Production Before	2814	12	956.564	276.136
Production After	1848	12	593.904	171.445

Source: Data Processing, 2025

Based on Table 2, the production value before the conflict obtained an average value of 2814 while for the production value after the conflict obtained a value of 1848. The number of respondents used as a research sample was 12 weeks. For the standard deviation value for production before the conflict was 956,564 and production after the conflict was 593,904. The standard error mean value for production before the conflict was 276,136 and for production after the conflict was 171,445. The production value before the conflict was 2814 > after the conflict 1848, which means descriptively there was a difference in the average level of production between before the conflict and after the conflict.

Table 3. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Production Before and Production After	12	0.368	0.239

Source: Data Processing, 2025

Table 3 shows the results of the correlation test, or relationship, between the two sets of data, or the relationship between the pre-conflict and post-conflict production variables. Based on the output above, the correlation coefficient is 0.368 with a significance value of 0.239. Since the significance value of 0.239 is greater than the probability of 0.05, it can be concluded that there is no relationship between the pre-conflict and post-conflict production variables.

Table 4. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Production Before – Production After	966.000	921.489	266.011	380.514	1551.486	3.631	11	0.004

Source: Data Processing, 2025

Research Hypothesis Formulation

H₀ = There is no difference in average production before and after the conflict, meaning there is no effect of the conflict between Iran and the United States on the decline in MSME production.

H_a = There is a difference in average production before and after the conflict, meaning there is an effect of the conflict between Iran and the United States on the decline in MSME production.

Decision-making guidelines in the paired sample t-test based on significance values are as follows:

1. If the Sig. (2-tailed) value is <0.05, then H₀ is rejected and H_a is accepted.
2. Conversely, if the Sig. (2-tailed) value is >0.05, then H₀ is accepted and H_a is rejected.

Based on Table 4, it is known that the t-count value is positive, namely 3.631. This positive t-count value is caused by the average value of production before the conflict being higher than the production value after the conflict. From the output above, it is known that the df value is 11 and the sig value is equal to 0.004. Sig. Value (2-tailed) 0.004 < 0.05, so H₀ is rejected and H_a is accepted, so it can be concluded that there is an average difference between production before the conflict and after the conflict, which means there is an influence of the conflict between Iran and the United States in reducing MSME production.

Discussion

Descriptively, it appears that the conflict between Iran and the United States caused a decline in production. However, not all periods saw a decline in MSMEs; there were periods when MSMEs experienced an increase, despite the conflict between Iran and the United States impacting the fluctuating global oil prices. A test of differences between two related samples revealed a change in production during the conflict between Iran and the United States. This indicates that MSME production levels fluctuated between before and after the conflict. In other words, MSMEs do need guidance to further increase production, especially during this period of unstable global oil prices resulting from the conflict between Iran and the United States.

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