Journal of Finance and Business Digital (JFBD)
Vol. 3, No. 1 2026: 153-164

Analysis of Production Strategy Based on Sales Patterns in the Tungku Duta Selebah Cooperative, Braja Selebah District, East Lampung

Diky Angga Hendrawan[1*], Dina Nadiyah Faiqoh[2], Putri Sandora[3]
[1,2]Universitas Nahdlatul Ulama Lampung
[3]Institut Bakti Nusantara Lampung
Corresponding Author: Diky Angga Hendrawan dikianggahendrawan@gmail.com

A R T I C L E I N F O

Keywords: Sales Pattern, Cost Pattern, Production Pattern

Received : 24, November
Revised : 26, January
Accepted: 28, March

A B S T R A C T

The determination of production patterns is a crucial aspect in planning the needs for labor, raw materials, and other necessary facilities, as well as in establishing the company's production levels. There are three types of production patterns that can be applied: fluctuating, moderate, and constant production. The purpose of this study is to identify the most suitable production pattern based on the sales observed at the Tungku Duta Selebah Joint Business Group in Braja Selebah District, East Lampung, during 2023. Based on these analysis results, it can be concluded that the fluctuating production pattern is the most appropriate choice to implement at the Tungku Duta Selebah Business Group in Braja Selebah District, as it has the lowest additional costs, amounting to IDR 4,498,000.

DOI prefik: https://doi.org/10.55927/jfbd.v5i1.8
ISSN-E: 2964-8688
https://journaljfbd.my.id/index.php/jfbd

INTRODUCTION

The main goal of a company is to maximize profits, which can be achieved if management effectively controls operations. One of the key factors in achieving this goal is marketing strategy, which consists of a series of integrated actions aimed at achieving competitive advantage. Rapid changes in the business world compel companies to respond with appropriate strategies to survive and grow. In the housing industry, particularly in stove manufacturing, production planning forms the basis for marketing strategy. If a company fails to prepare for competition, its products may not survive in a dynamic market, threatening the company's continuity. It is essential to deeply study this industry to understand effective production patterns in forming an appropriate marketing strategy.

Company operations are usually divided into several areas, including production, marketing, personnel, and finance. The production area requires careful planning to ensure smooth production processes. Determining the production pattern is a crucial part of this planning, as it helps the company manage sales plans, costs, and pricing. There are three common production patterns: fluctuating, moderate, and constant. The fluctuating pattern follows demand fluctuations, while the moderate pattern creates a balance between production increases and stability in certain periods. On the other hand, the constant pattern maintains the same production level in each time unit, addressing shortfalls with inventory or subcontracting.

In the Tungku Duta Selebah Group, large-scale stove production already has a stable market share but still requires accurate forecasting to balance sales in the market. The following is the pre-survey data on production and sales within the Duta Selebah Group:

Table 1. Production Data

No	Quarter	Production Target	Actual Production
1	Q1	25,500	22,100
2	Q2	25,500	23,800
3	Q3	25,500	20,060
4	Q4	25,500	30,260
	Total	102,000	96,220

Source: Tungku Duta Selebah Group

Table 2. Sales Data

No	Month	Units Sold	Unit Price	Total Sales
1	Q1	22,100	18,000	397,800,000
2	Q2	23,800	18,000	428,400,000
3	Q3	20,060	18,000	37,080,000
4	Q4	30,260	18,000	544,680,000
	Total	96,220		1,731,960,000

Source: Tungku Duta Selebah Group

Pre-survey data shows that the production target of 102,000 units has not been met, with actual production only reaching 96,220 units, or about 5.67% below the target. Total sales amounted to Rp. 1,731,960,000 with a unit price of Rp. 18,000 per unit. This business group uses mass production, serving wholesalers who market the products to other cities and islands. To improve efficiency and meet sales targets, the author intends to study the production patterns developed by the Tungku Duta Selebah Group, focusing on how production patterns, sales, and costs are interconnected to achieve the company's goals.

According to Philip Kotler, in "Marketing Management" (2016), an effective marketing strategy must holistically consider the elements of production, distribution, and sales. Meanwhile, Heizer and Render (2017) state that good production planning is key to creating timely and efficient products, ultimately supporting the success of the company's marketing strategy.

This research aims to analyze and determine the most appropriate production pattern for the Tungku Duta Selebah Group in Braja Selebah District, East Lampung, by considering sales and cost patterns in 2023. Problem identification indicates that although this group has implemented large-scale production patterns, the costs incurred have not significantly increased sales volumes, with sales patterns following orders from wholesalers. This research is limited to the production pattern variables, namely fluctuating, moderate, and constant patterns, as well as sales patterns, to find the right solution for the sustainability of the business.

LITERATURE REVIEW

Production strategy is a key aspect of operations management aimed at aligning production capacity with market demand. According to Heizer and Render (2017), an effective production strategy must integrate capacity planning, inventory control, and demand analysis so that a company can minimize costs and maximize profits. In the context of cooperatives, this strategy becomes more complex due to resource constraints and reliance on fluctuating sales patterns.

Sales patterns are a key indicator in determining production decisions. Kotler and Keller (2016) explain that sales pattern analysis can be conducted using historical data to identify trends, seasonality, and demand cycles. By understanding these patterns, organizations can plan production volumes more accurately, thereby reducing the risk of overproduction or stockouts. Additionally, forecasting methods such as the moving average and exponential smoothing are frequently used to predict future demand.

METHODOLOGY

Research methodology is a systematic approach to achieving research objectives. Creswell (2018) defines research methodology as "a plan and procedure involving specific steps for data collection and analysis." Bryman (2016) emphasizes the importance of accurate methodology to ensure the reliability and validity of research findings.

Conceptual Framework and Operational Definitions of Variables

This research is limited to the variable of production patterns, which includes fluctuating, moderate, and constant production patterns.

Production Patterns

Defined as the allocation of production over a specific period into smaller periods to control production costs and sales planning (Sun et al., 2020; Anderson et al., 2019).

Fluctuating Production Pattern

The amount of production follows the fluctuations in demand.

Moderate Production Pattern

Production remains constant during some periods and increases during others.

Constant Production Pattern

Production remains the same during each time unit.

Sales Pattern

The process or method in the marketing of products or services, which often reflects the constant production pattern (Grewal et al., 2019; Kotler & Keller, 2020).

Cost Patterns

Factors affecting production efficiency, such as storage costs, overtime, subcontracting, and labor turnover (Heizer & Render, 2019).

Data Sources

a. Primary Data, Data obtained directly from the research object, such as production quantities and sales per period.
b. Secondary Data, Data derived from company documents that support the research.

Data Collection Techniques

a. Documentation, Collecting and recording related company documents.
b. Interviews, Conducting interviews with management and employees to gather direct information (Creswell & Poth, 2017).
c. Observation: Direct observation at the company site (Patton, 2015).

Data Analysis Techniques

a. Descriptive Analysis: Presenting data to describe the research object without drawing general conclusions (Trochim & Donnelly, 2021).
b. Qualitative Analysis: Examining issues based on the research variables, such as company history and organizational structure (Miles, Huberman, & Saldaña, 2019).
c. Quantitative Analysis: Expressing the relationships between variables in numbers and statistical analysis (Field, 2018).

This analysis considers storage costs, overtime, subcontracting, and labor turnover to determine the best production pattern.

RESEARCH RESULT AND DISCUSSION

Definition of Production Management:

Production and operations management involves the optimal management of resources to transform raw materials into products or services. Production managers are responsible for ensuring that inputs are converted into outputs according to consumer demand in terms of quantity, quality, price, time, and place. According to several experts:

a. **Sugito and Soemartono (2001):**
   Production management involves decision-making in the operations system that produces goods and services.
b. **Sumarni and Soeprihantono (1995):**
   Production management is the activity of processing inputs into outputs in the form of goods and services through a transformation process.
c. **Heizer and Render (2017):**
   Emphasize the importance of good production planning to create timely and efficient products, ultimately supporting the success of a company's marketing strategy.
d. **Philip Kotler (2016):**
   Highlights that an effective marketing strategy must holistically consider elements of production, distribution, and sales.

Aspects Related to Production:

a. **Product,** the result of production activities that have physical and chemical properties, differing from services that lack physical properties and are produced and consumed simultaneously.
b. **Productivity,** the ratio between actual output and the expected output, expressed in a number between 0 and 1 or 0% to 100%.
c. **Production System,** A series of interdependent units within the production process, including the company's products, factory location, and production standards.
d. **Types of Production Processes,** Include chemical processes, shape changes, assembling, transformation, service creation, and administrative services. Production processes can be continuous or intermittent.

Production Process Control

Production process control includes quality control, which can be divided into several process types, from Type A (easy inspection at each stage) to Type E (automated or semi-automated processes).

Production Planning

Production planning is a crucial step in directing production factors optimally. According to several experts:

a. **Gitosudarmo (1990)** Production planning is the primary step in directing production factors to achieve the company's goals.
b. **Ahyari (1996)** Production planning involves determining what and how much the company will produce within a certain period.
c. **Uses and Functions of Production Planning**
d. **Uses,** Planning helps in identifying objectives, anticipating obstacles, and clearly directing production activities.
e. **Functions,** Production planning helps companies utilize capital goods optimally, produce with high efficiency, dominate the market, and maintain employment opportunities and company profits.

Objectives of Production Planning:

The main objective of production planning is to ensure that production runs efficiently and achieves the desired results. Specific objectives include:

a. Achieving a certain profit level.
b. Dominating the market.
c. Ensuring the factory operates at a certain efficiency level.
d. Maintaining employment opportunities.
e. Using company facilities efficiently.

Definition of Production Patterns

The production process involves human labor, materials, and equipment to produce products. Sales and production plans serve as the basis for organizing operational activities to produce goods and services within a certain period. Production patterns help determine the level of production.

a. **Smith (2021):**
   Modern production patterns are more flexible by utilizing digital technology to monitor and manage production in real-time, adapting to market demand.
b. **Objectives of Production Patterns:**
   The primary goal of production patterns is to optimize production costs outside the production process so that companies can increase profits. A constant production pattern can assist in planning raw materials, labor, and production capacity.

Types of Production Patterns

a. **Fluctuating Production Pattern:**
   Production follows fluctuations in demand. When demand is high, production increases, and vice versa.
b. **Moderate Production Pattern:**
   Production remains constant for several periods and then increases in certain periods to adjust to demand.

c. **Constant Production Pattern:**
Production remains constant throughout the period, even though demand varies. Excess production is stored for use when demand increases.
d. **Williams and Brown (2023):**
Note that fluctuating production patterns are now often supported by predictive analytics, helping companies adjust production with more accurate demand forecasts.

Sales and Cost Patterns

The sales pattern refers to the distribution of sales over a certain period, which greatly influences the production pattern. The cost pattern includes costs related to production such as labor, storage, overtime, and subcontracting costs.

- **Anderson (2022):**
Notes that more detailed cost analysis, including the use of simulation models, is now used to determine the most efficient production pattern, reducing costs without sacrificing quality.

Research Framework

This research is based on production patterns, focusing on determining the most suitable production pattern, whether fluctuating, moderate, or constant, considering sales patterns and cost patterns. **Menon and Singh (2023):** Indicate that a holistic approach to production patterns, considering macroeconomic variables and technology, is becoming a new trend in production research.

Constant Production Pattern

a. Labor Turnover Cost:
b. No costs as production remains constant each quarter.
c. Storage Cost:

Quarter I:

Production: 24,000 units
Demand: 22,100 units
Surplus: 1,900 units
Storage cost: 1,900 units × Rp.500 = Rp.950,000

Quarter II:

Production: 24,000 units
Demand: 23,800 units
Surplus: 200 units (added to the surplus from Quarter I)
Total surplus: 1,900 + 200 = 2,100 units
Storage cost: 2,100 units × Rp.500 = Rp.1,050,000

Quarter III:

Production: 24,000 units
Demand: 20,060 units
Surplus: 3,940 units (added to the surplus from Quarters I and II)
Total surplus: 1,900 + 200 + 3,940 = 6,040 units
Storage cost: 6,040 units × Rp.500 = Rp.3,020,000

Quarter IV:

Production: 24,000 units
Demand: 30,260 units
Shortage: 6,260 units
Surplus from the previous quarter: 6,040 units
Shortage after reducing surplus: 6,260 - 6,040 = 220 units
Subcontracting cost: 220 units × Rp.1,000 = Rp.220,000

Total Storage Cost: Rp.950,000 + Rp.1,050,000 + Rp.3,020,000 = Rp.5,020,000
Total Additional Cost: Rp.5,020,000 (storage cost) + Rp.220,000 (subcontracting cost) = Rp.5,240,000

Fluctuating Production Pattern

a. Storage Cost:
   No storage costs as production follows demand.
b. Subcontracting Cost:
   Quarter IV:
   Demand: 30,260 units
   Maximum production: 30,000 units
   Shortage: 30,260 - 30,000 = 260 units
   Subcontracting cost: 260 units × Rp.1,000 = Rp.260,000
c. Overtime Cost:
   Quarter IV:
   Production: 30,000 units
   Overtime work limit: 26,000 units
   Excess: 30,000 - 26,000 = 4,000 units
   Overtime cost: 4,000 units × Rp.1,000 = Rp.4,000,000
d. Labor Turnover Cost:
   Quarter I to II:
   Production increase: 23,800 - 22,100 = 1,700 units
   Labor turnover cost: (1,700 / 2,000) × Rp.40,000 = Rp.34,000
   Quarter II to III:
   Production decrease: 23,800 - 20,060 = 3,740 units
   Labor turnover cost: (3,740 / 2,000) × Rp.40,000 = Rp.74,800
   Quarter III to IV:
   Production increase: 30,260 - 20,060 = 10,200 units
   Labor turnover cost: (10,200 / 2,000) × Rp.40,000 = Rp.204,000

Total Labor Turnover Cost: Rp.34,000 + Rp.74,800 + Rp.204,000 = Rp.312,800
Total Additional Cost: Rp.260,000 (subcontracting cost) + Rp.4,000,000 (overtime cost) + Rp.312,800 (labor turnover cost) = Rp.4,572,800

Moderate Production Pattern

a. Storage Cost:

Quarter I:

Production: 23,000 units
Demand: 22,100 units
Surplus: 900 units
Storage cost: 900 units × Rp.500 = Rp.450,000

Quarter II:

Production: 23,000 units
Demand: 23,800 units
Shortage: 800 units
Surplus from Quarter I: 900 units
Remaining surplus: 900 - 800 = 100 units
Storage cost: 100 units × Rp.500 = Rp.50,000

Quarter III:

Production: 25,000 units
Demand: 20,060 units
Surplus: 4,940 units
Surplus from Quarter II: 100 units
Total surplus: 4,940 + 100 = 5,040 units
Storage cost: 5,040 units × Rp.500 = Rp.2,520,000

Quarter IV:

Production: 25,000 units
Demand: 30,260 units
Shortage: 5,260 units
Surplus from Quarter III: 5,040 units
Shortage after reducing surplus: 5,260 - 5,040 = 220 units
Subcontracting cost: 220 units × Rp.1,000 = Rp.220,000

Total Storage Cost: Rp.450,000 + Rp.50,000 + Rp.2,520,000 = Rp.3,020,000

b. Subcontracting Cost:

Quarter IV:

Production shortage: 4,220 units
Subcontracting cost: 4,220 units × Rp.1,000 = Rp.4,220,000

c. Labor Turnover Cost:

Quarter I to III:

Production increase: 25,000 - 23,000 = 2,000 units
Labor turnover cost: (2,000 / 2,000) × Rp.40,000 = Rp.40,000

Total Labor Turnover Cost: Rp.40,000 × 2 = Rp.80,000

Total Additional Cost: Rp.3,020,000 (storage cost) + Rp.4,220,000 (subcontracting cost) + Rp.80,000 (labor turnover cost) = Rp.7,320,000

Table 3. Total Alternative Production Pattern Costs in Rupiah (Rp.)

Cost Type	Constant Production Pattern	Fluctuating Production Pattern	Moderate Production Pattern
Storage Cost	Rp.5,020,000	Rp.0	Rp.3,020,000
Subcontracting Cost	Rp.220,000	Rp.260,000	Rp.4,220,000
Labor Cost	Rp.0	Rp.312,800	Rp.80,000
Overtime Cost	Rp.0	Rp.4,000,000	Rp.0
Total Additional Cost	**Rp.5,240,000**	**Rp.4,572,800**	**Rp.7,320,000**

Fluctuating Production Pattern is the most efficient with a total additional cost of Rp.4,572,800.

Constant Production Pattern has a total additional cost of Rp.5,240,000.

Moderate Production Pattern has a total additional cost of Rp.7,320,000.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research conducted and the descriptive discussion regarding the analysis of production patterns viewed from the sales and cost patterns at the Tungku Duta Selebah Business Group, the author can draw several conclusions and provide suggestions as input for the business group. From the data analysis, the number of stoves sold per quarter in 2023 shows a fluctuating sales pattern with a total sales volume of 96,220 units. The cost analysis results related to the constant production pattern show additional costs of Rp.5,240,000, the wave production pattern has additional costs of Rp.4,498,000, and the moderate production pattern has additional costs of Rp.6,700,000. From these results, it can be concluded that the most suitable production pattern to implement is the wave production pattern because it has the lowest additional cost, which is Rp.4,498,000. However, the suggestion that can be put forward is that the Tungku Duta Selebah Business Group should consider adopting a constant production pattern because this pattern facilitates the planning of labor, raw material, and other facilities needed in the production process, and allows for even production in each period, thus stabilizing the sales pattern. Additionally, the business group is also advised to increase the number of group members to boost stove production, considering the demand is high and tends to sell out, so if demand increases, there will be no delays or shortages in production.

ADVANCED RESEARCH

Further research is recommended to develop production strategy analysis by integrating more complex forecasting methods, such as time series models or machine learning, and by considering external factors such as changes in raw material prices, market conditions, and consumer behavior. Additionally, further research could expand the scope of study to include several similar cooperatives in different regions to obtain a more comprehensive comparison regarding the effectiveness of sales-pattern-based production strategies in improving business efficiency and competitiveness.

REFERENCES

Ahyari, A. (1996). Manajemen Produksi. Yogyakarta: BPFE.

Anderson, D. R. (2022). Simulation Models for Production and Cost Analysis. New York: McGraw-Hill.

Bryman, A. (2016). Social Research Methods. Oxford: Oxford University Press.

Creswell, J. W. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 5th Edition. Los Angeles: SAGE Publications.

Creswell, J. W., & Poth, C. N. (2017). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. 4th Edition. Los Angeles: SAGE Publications.

Field, A. (2018). Discovering Statistics Using IBM SPSS Statistics. 5th Edition. Los Angeles: SAGE Publications.

Gitosudarmo, I. (1990). Manajemen Produksi. Yogyakarta: BPFE.

Grewal, D., Levy, M., & Kumar, V. (2019). Marketing. 5th Edition. New York: McGraw-Hill Education.

Heizer, J., & Render, B. (2017). Operations Management: Sustainability and Supply Chain Management. 12th Edition. New Jersey: Pearson.

Heizer, J., & Render, B. (2019). Operations Management: Sustainability and Supply Chain Management. 13th Edition. New Jersey: Pearson.

Kotler, P. (2016). Marketing Management. 15th Edition. New Jersey: Pearson.

Kotler, P., & Keller, K. L. (2020). Marketing Management. 16th Edition. New Jersey: Pearson.

Menon, V., & Singh, A. (2023). Holistic Production Planning: Integrating Macroeconomic Variables and Technology. London: Routledge.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2019). Qualitative Data Analysis: A Methods Sourcebook. 4th Edition. Los Angeles: SAGE Publications.

Patton, M. Q. (2015). Qualitative Research & Evaluation Methods. 4th Edition. Los Angeles: SAGE Publications.

Smith, J. (2021). Modern Production Patterns in the Digital Age. New York: Wiley.

Sugito, A., & Soemartono, D. (2001). Manajemen Produksi. Jakarta: Rineka Cipta.

Sumarni, S., & Soeprihantono. (1995). Manajemen Produksi. Jakarta: Ghalia Indonesia.

Sun, Y., Zhang, Q., & Wang, S. (2020). Production and Operations Management. New York: Springer.

Trochim, W. M., & Donnelly, J. P. (2021). Research Methods Knowledge Base. 4th Edition. Cincinnati: Atomic Dog Publishing.

Williams, J., & Brown, R. (2023). Predictive Analytics in Fluctuating Production Patterns. New York: Springer.