

Flexible Budget Analysis as a Production Cost Control Instrument for Culinary MSMEs: A Study of Pangsit Kak Dani Medan

Deni Theresya Sitohang¹, Adhel Whise Naibaho², Shinta Romaito Manurung³,
Putri Kemala Dewi Lubis⁴

^{1,2,3,4}Universitas Negeri Medan, Indonesia

Email: deni.7243142036@mhs.unimed.ac.id

Abstract

This study aims to examine how flexible budget analysis functions as a production cost control instrument in a campus-based culinary micro-enterprise, Pangsit Kak Dani, located at the Mosque Canteen of Universitas Negeri Medan, by formulating a flexible budget model and identifying production cost variances. Daily output in this business fluctuates between 500 and 2,000 wonton pieces with the academic schedule, while raw material prices are volatile, and the owner has no benchmark that adjusts to output. A single-case study with a descriptive qualitative approach integrated with quantitative management accounting calculations was used. Primary data were collected in September 2026 through structured interviews with the owner, participatory observation of production, and documentation of raw material purchase receipts. Costs were classified into variable and fixed (imputed) components, yielding a standard variable cost rate of IDR 525.00 per piece, daily fixed costs of IDR 210,000.00, and the flexible budget equation $Y = \text{IDR } 210,000 + \text{IDR } 525(X)$. The budgeted cost of goods manufactured (COGM) ranged from IDR 945.00 per piece at 500 pieces to IDR 630.00 at 2,000 pieces, showing that unit cost rises on low-volume days even without any loss of efficiency. At the normal output of 2,000 units, the flexible budget was IDR 1,260,000.00, whereas actual daily cash expenditures averaged IDR 1,500,000.00, an unfavorable variance of IDR 240,000.00. This variance consisted of an unfavorable chicken meat price variance of IDR 250,000.00, caused by the switch to higher-priced chicken fillets during supply disruptions, partly offset by a favorable IDR 10,000.00 variance on seasonings and packaging. The study concludes that flexible budget analysis allows micro-entrepreneurs to separate volume-driven from price-driven cost changes, which supports production planning, pricing, and purchasing decisions, although the single-case design limits generalization.

Keywords: *Flexible Budget, Cost Control, Variance Analysis, Cost of Goods Manufactured, Cost Behavior, Culinary MSMEs.*



A. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) in the culinary sector play a strategic role in supporting the national economy. Micro-enterprises operating within higher education campus environments possess distinctive and highly dynamic operational characteristics. Daily product demand is not constant but fluctuates drastically in response to academic calendar cycles, face-to-face lecture schedules, student activity agendas, and flexible work arrangements (Work from Home/WFH) for administrative staff and lecturers. This uncertainty in sales volume is further exacerbated by market vulnerability arising from the volatility of daily food raw material commodity prices.

In management accounting literature, cost planning and evaluation in business entities generally rely on budgeting instruments. Nevertheless, most micro-MSME operators still employ simple cash-basis accounting and rely on a single static budget approach. Theoretically, the use of a static budget under fluctuating activity volumes creates a conceptual flaw. A static budget fails to distinguish between cost deviations caused by changes in output scale (volume variance) and deviations resulting from operational inefficiency or increases in input prices (price and efficiency variance). Consequently, changes in total variable costs are often misinterpreted by business owners as evidence of cash wastage.

Flexible budgeting has been examined in several empirical settings. Ghofur et al. (2019) evaluated production cost control in a restaurant using flexible budgets and direct-cost variances and found that raw material and direct labor costs were under control whereas factory overhead was not. Lubis et al. (2022) and Sriwedari et al. (2025a) applied flexible budgets to overhead analysis in a pharmacy setting and in MSMEs near Universitas Negeri Medan, respectively, and Nasution et al. (2025) analyzed and designed a factory overhead cost budget. Hibatullah et al. (2025) examined flexible budgeting in service-sector MSMEs in relation to corporate income tax efficiency, while Sonjaya (2025) discussed its role in maintaining the financial stability of MSMEs under economic uncertainty.

Three characteristics make the flexible budget a suitable cost control instrument for culinary MSMEs. First, it restates the budget at the actual level of output, so that owners compare actual spending with what production should have cost at the volume achieved rather than with a fixed figure (Garrison et al., 2021). Second, it requires only a classification of costs into fixed and variable components and a set of unit standards, which can be obtained from purchase receipts and routine observation without a sophisticated accounting system. Third, it allows the difference between actual and budgeted cost to be traced to specific inputs through price and usage variances, so that corrective action targets the real cause of an overrun.

This empirical problem is directly observed in the micro-enterprise Pangsit Kak Dani, which operates at the Culinary Stand of the Mosque Canteen at Universitas Negeri Medan (UNIMED). This micro-enterprise produces dumpling-based food products with sharply fluctuating daily production volumes: reaching a peak of 2,000 pieces per day on Monday–Wednesday and weekends, declining to 1,800 pieces on Thursday, and dropping drastically to 500 pieces per day on Friday due to limited face-to-face academic activities. At the same time, actual daily cash expenditures frequently increase to an average of IDR 1,500,000.00 per day, without a clear determination of whether such increases are attributable to raw material waste or changes in market prices. The owner initially perceived the higher expenditure as the result of excessive use of dough ingredients, yet no output-adjusted benchmark existed to test this perception, and the full cost of production, including the value of family labor, had never been calculated.

Previous studies have established flexible budgeting as a legitimate control tool, but they leave a gap that this study addresses. Most of them concentrate on

factory overhead or on entities with established accounting records and, to the authors' knowledge, few have (a) classified a complete production cost structure, including imputed family labor, into fixed and variable components for a single-product micro-enterprise, (b) tested the resulting budget across several daily activity levels driven by an academic calendar, and (c) decomposed the variance at normal output into price and usage effects. This constitutes the research gap. The novelty of this study lies in combining these three elements in an informal campus-based culinary micro-enterprise and in linking them to the calculation of COGM per piece. Accordingly, this study aims to demonstrate how flexible budget analysis can serve as a practical production cost control instrument for Pangsit Kak Dani by (1) classifying its cost behavior patterns, (2) formulating a linear flexible budget function, and (3) isolating the sources of deviations in actual costs through variance analysis.

B. LITERATURE REVIEW

1. Flexible Budgeting and Cost Behavior

A flexible budget is a financial planning and control instrument that adjusts budgeted costs to the actual level of activity realized within a specified relevant range (Garrison et al., 2021). Unlike a static budget, which remains fixed at a single output level, a flexible budget is grounded in an in-depth understanding of cost behavior. Within the theoretical framework of management accounting, costs are classified into total variable costs, which change proportionally with the volume of activity, and total fixed costs, which remain constant regardless of fluctuations in output within normal capacity limits (Mulyadi, 2016).

The general equation representing the linear function of a flexible budget can be mathematically formulated as follows:

$$Y = a + b(X)$$

Where Y represents the total budgeted production costs; a represents the total fixed costs per operational period (day); b represents the variable cost rate per unit of output; and X represents the activity volume or the actual quantity of output produced. This linear relationship holds only within the relevant range, that is, the range of activity over which the assumed fixed and variable cost behavior remains valid (Garrison et al., 2021).

2. Production Costs, Cost Variance Analysis, and Management Accounting in MSMEs

Operational control is carried out through variance analysis, a technique that systematically compares actual expenditures with budgeted expenditures at the same level of realized output (Garrison et al., 2021). Cost differences are classified into two conditions: a favorable variance occurs when actual costs are lower than the flexible budget, whereas an unfavorable variance occurs when actual costs exceed the flexible budget ceiling.

At the level of direct materials, the total variance can be decomposed into a price variance, which equals the difference between the actual and the standard price

multiplied by the actual quantity, and a quantity (usage) variance, which equals the difference between the actual and the standard quantity multiplied by the standard price (Garrison et al., 2021). The decomposition matters because price variances usually originate in the purchasing environment, which the producer cannot fully control, whereas usage variances reflect operational efficiency inside the kitchen. Production costs themselves consist of direct materials, direct labor, and factory overhead, which together form the Cost of Goods Manufactured (COGM) (Mulyadi, 2016).

In micro-enterprises, cost records are typically cash-based and family labor is paid through informal daily allowances, so the economic cost of production is understated unless imputed costs are recognized (Mulyadi, 2016). Flexible budgeting has therefore been proposed as a practical instrument for helping MSMEs maintain financial stability under uncertainty (Sonjaya, 2025).

3. Previous Studies and Research Positioning

The importance of implementing flexible budgeting in micro-enterprises is further supported by a series of previous empirical findings. The study by Lubis and Anggraini (2026) demonstrated that the formulation of a linear flexible budget can isolate the effects of sales fluctuations from cost inefficiencies in beverage-sector MSMEs in Medan. Fauziah et al. (2023) found that adjusting cost standards to actual output provides a substantially fairer and more accurate benchmark for evaluating operational performance than a static budget. Furthermore, Sriwedari et al. (2025b) and Nasution et al. (2025) emphasized that the precise separation of fixed and variable cost components is a key factor in preventing errors in determining the Cost of Goods Manufactured (COGM) in small-scale processed food industries.

Studies in other settings point in the same direction. Ghofur et al. (2019) reported that a restaurant kept raw material and direct labor costs under control through flexible budgets and direct-cost variances but could not control overhead. Lubis et al. (2022) analyzed flexible budgets and overhead in pharmacy issuers, Sriwedari et al. (2025a) analyzed overhead cost efficiency in MSMEs located near Universitas Negeri Medan, and Hibatullah et al. (2025) examined flexible budgeting in service-sector MSMEs in relation to corporate income tax efficiency.

Taken together, these studies show that flexible budgeting is relevant for small businesses, but they emphasize overhead, medium-sized entities, or non-culinary sectors. Evidence on how a full flexible budget, built from cost behavior, tested at several output levels, and followed by price and usage variance analysis, works in a micro-scale culinary business with imputed family labor remains limited. This study is positioned to fill that gap.

C. METHOD

This study employed a descriptive qualitative research design based on a single-case study, integrated with quantitative management accounting calculations. The case study approach was selected to explore in depth the phenomenon of cost

behavior and operational dynamics within the natural setting of a micro-enterprise (Yin, 2018). Pangsit Kak Dani was selected because its daily output varies sharply with the academic calendar and its cost structure is simple enough to be classified and traced at the level of individual inputs. The study was conducted in September 2026 at the Pangsit Kak Dani Culinary Stand, Mosque Canteen, Universitas Negeri Medan (UNIMED), Jalan Willem Iskandar / Pasar V, Medan, North Sumatra.

The primary research subject was the business owner and operator, Kak Dani. The research data consisted of primary data collected through triangulation of three techniques: structured in-depth interviews with the owner on recipes, daily output, purchasing practices, and cash expenditures; participatory observation of the dough production and packaging processes; and documentation of raw material purchase receipts. Production cost data therefore came from three sources: the standard quantities and daily output reported in the interviews and observed in production, the unit prices recorded in purchase receipts, and the average actual daily cash expenditure reported by the owner. Data credibility was maintained through member checking conducted with the business owner.

All daily cash expenditures were classified according to their behavior within the relevant range of 500 to 2,000 pieces per day. Costs that change in proportion to output (chicken meat, wheat flour, cooking oil, seasonings and complementary ingredients, plastic/mica packaging, and eggs) were classified as variable costs. Costs that are incurred in the same amount each operating day regardless of output (LPG gas and cleaning costs) were classified as fixed overhead. Because the three family workers receive a fixed daily allowance rather than a formal wage, their labor was valued at an imputed cost of IDR 50,000.00 per person per day and treated as a fixed direct labor cost, so that the COGM reflects the economic cost of production.

The standard variable cost rate per unit (b) was calculated by dividing the standard cost of each variable input at the normal capacity of 2,000 pieces per day by the number of pieces produced and summing the results. The total daily fixed cost (a) was the sum of the imputed labor cost and fixed overhead. The flexible budget at any activity level was then computed with the equation below, and COGM per piece was obtained by dividing the flexible budget by the corresponding output:

$$Y = a + b(X); \text{COGM per piece} = Y / X$$

Actual daily cash expenditure at the normal output level was compared with the flexible budget for the same output. The total cost variance was calculated as actual cost minus flexible budget, where a positive value is unfavorable (U) and a negative value is favorable (F). The variance was then decomposed by input into a price variance, $(\text{Actual Price} - \text{Standard Price}) \times \text{Actual Quantity}$, and a quantity (usage) variance, $(\text{Actual Quantity} - \text{Standard Quantity}) \times \text{Standard Price}$, and each component was traced to its cause through the interviews and purchase receipts.

The calculation was carried out in the following five stages, which can be replicated by other MSMEs using the same inputs:

1. Identification and reclassification of all daily cash expenditures into variable costs, fixed costs, and imputed costs.

2. Determination of the standard raw material consumption for a normal production capacity of 2,000 dumpling pieces per day, including five eggs at IDR 2,000.00 per egg (a total of IDR 10,000.00), with chicken meat serving as the primary raw material component.
3. Calculation of the variable cost rate per unit (b) and the total imputed fixed costs per day (a).
4. Construction of the Flexible Budget mathematical function, $Y = a + b(X)$, followed by simulation testing using a multi-scenario output matrix of 500 pieces, 1,800 pieces, and 2,000 pieces.
5. Analysis of actual operating cost variances against the flexible budget to isolate the underlying causes of expenditure deviations.

D. RESULT AND DISCUSSION

1. Overview and Identification of Operational Cost Structures

Pangsit Kak Dani is a micro-scale culinary business unit that has been operating for three years at the Mosque Canteen of Universitas Negeri Medan (UNIMED). Daily operations involve three workers who are family members (Kak Dani, her mother, and Kak Dani's husband). The business has not yet implemented a formal wage scheme but instead provides daily allowances. From a management accounting perspective, to obtain a Cost of Goods Manufactured (COGM) calculation that reflects economic reality, the value of the services provided by these three workers is calculated using an imputed cost approach of IDR 50,000.00 per person per day (a total of IDR 150,000.00 per day) as Direct Labor Cost (DLC).

The standard raw material usage for the peak production capacity of 2,000 dumpling pieces per day consists of: 10 kg of chicken meat at IDR 45,000.00/kg; 1 kg of wheat flour at IDR 12,000.00/kg; 8 liters of cooking oil at IDR 16,000.00/liter; 1 package of seasonings, fresh chilies, and complementary ingredients at IDR 250,000.00; 2,000 units of plastic/mica packaging at IDR 100.00 per piece; and five eggs at IDR 2,000.00 per egg (a total of IDR 10,000.00 per day), which are explicitly categorized as a primary raw material for the dough. Fixed overhead cost elements consist of LPG gas consumption and cleaning fees amounting to IDR 60,000.00 per day. These cost elements are treated as fixed because they are incurred in the same amount every operating day within the observed range of 500 to 2,000 pieces, whereas the ingredients and packaging vary in proportion to output.

2. Stages of Flexible Budget Formulation

Step 1: Calculation of the Standard Variable Cost Rate per Unit of Output (b)

- a. Chicken Meat ($10 \text{ kg} \times \text{IDR } 45,000.00 = \text{IDR } 450,000.00 / 2,000 \text{ pieces}$) = IDR 225.00 / piece
- b. Wheat Flour ($1 \text{ kg} \times \text{IDR } 12,000.00 = \text{IDR } 12,000.00 / 2,000 \text{ pieces}$) = IDR 6.00 / piece
- c. Cooking Oil ($8 \text{ liters} \times \text{IDR } 16,000.00 = \text{IDR } 128,000.00 / 2,000 \text{ pieces}$) = IDR 64.00 / piece

- d. Seasonings, Chilies & Complementary Ingredients (IDR 250,000.00 / 2,000 pieces) = IDR 125.00 / piece
- e. Plastic & Mica Packaging (IDR 200,000.00 / 2,000 pieces) = IDR 100.00 / piece
- f. Eggs (5 eggs × IDR 2,000.00 = IDR 10,000.00 / 2,000 pieces) = IDR 5.00 / piece
- g. Total Standard Variable Cost Rate (b) = IDR 225.00 + IDR 6.00 + IDR 64.00 + IDR 125.00 + IDR 100.00 + IDR 5.00 = IDR 525.00 per dumpling piece.

Step 2: Calculation of Total Daily Fixed Costs (a)

- 1) Imputed Direct Labor Cost (3 workers × IDR 50,000.00) = IDR 150,000.00 / day
- 2) Fixed Factory Overhead Costs (LPG Gas & Utilities) = IDR 60,000.00 / day
- 3) Total Daily Fixed Costs (a) = IDR 150,000.00 + IDR 60,000.00 = IDR 210,000.00 per day.

Step 3: Formulation of the Linear Flexible Budget Function

Based on the integration of the standard variable and fixed cost parameters, the mathematical function of the Flexible Budget (Y) for Pangsit Kak Dani is formulated as follows:

$$Y = \text{IDR } 210,000.00 + \text{IDR } 525.00(X)$$

Table 1. Standard Daily Production Cost Structure of Pangsit Kak Dani (Normal Output: 2,000 Pieces)

Cost Component	Cost Behavior	Standard Quantity	Unit Price (IDR)	Total Cost (IDR)	Cost per Piece (IDR)
Chicken Meat	Variable	10 kg	45,000.00	450,000.00	225.00
Wheat Flour	Variable	1 kg	12,000.00	12,000.00	6.00
Cooking Oil	Variable	8 liters	16,000.00	128,000.00	64.00
Seasonings, Chilies & Complementary Ingredients	Variable	1 package	250,000.00	250,000.00	125.00
Plastic/Mica Packaging	Variable	2,000 pcs	100.00	200,000.00	100.00
Eggs (Primary Raw Material)	Variable	5 eggs	2,000.00	10,000.00	5.00
Imputed Direct Labor Cost (3 Family Members)	Fixed	3 persons	50,000.00	150,000.00	75.00
LPG Gas & Utility Overhead	Fixed	1 package	60,000.00	60,000.00	30.00
TOTAL PRODUCTION COST				1,260,000.00	630.00

Note: At a production capacity of 2,000 pieces, the total cost per piece consists of IDR 525.00 in variable costs and IDR 105.00 in allocated fixed costs. The table format follows APA Style conventions, with no vertical lines.

3. Preparation of a Multi-Scenario Flexible Budget Matrix

To test the robustness of the model under actual fluctuations in activity levels at the Mosque Canteen of UNIMED, the equation $Y = \text{IDR } 210,000.00 + \text{IDR } 525.00(X)$ was simulated across three daily output-volume scenarios.

a. Scenario A (Friday / Campus WFH)

$X = 500$ dumpling pieces.

Total Variable Costs = $500 \times \text{IDR } 525.00 = \text{IDR } 262,500.00$.

Total Fixed Costs = $\text{IDR } 210,000.00$.

Total Flexible Budget (Y) = $\text{IDR } 262,500.00 + \text{IDR } 210,000.00 = \text{IDR } 472,500.00$.

Cost of Goods Manufactured (COGM) per Piece = $\text{IDR } 472,500.00 / 500 = \text{IDR } 945.00$ per piece.

b. Scenario B (Thursday)

$X = 1,800$ dumpling pieces.

Total Variable Costs = $1,800 \times \text{IDR } 525.00 = \text{IDR } 945,000.00$.

Total Fixed Costs = $\text{IDR } 210,000.00$.

Total Flexible Budget (Y) = $\text{IDR } 945,000.00 + \text{IDR } 210,000.00 = \text{IDR } 1,155,000.00$.

Cost of Goods Manufactured (COGM) per Piece = $\text{IDR } 1,155,000.00 / 1,800 = \text{IDR } 641.67$ per piece.

c. Scenario C (Normal / Peak Day)

$X = 2,000$ dumpling pieces.

Total Variable Costs = $2,000 \times \text{IDR } 525.00 = \text{IDR } 1,050,000.00$.

Total Fixed Costs = $\text{IDR } 210,000.00$.

Total Flexible Budget (Y) = $\text{IDR } 1,050,000.00 + \text{IDR } 210,000.00 = \text{IDR } 1,260,000.00$.

Cost of Goods Manufactured (COGM) per Piece = $\text{IDR } 1,260,000.00 / 2,000 = \text{IDR } 630.00$ per piece.

Table 2. Flexible Budget Matrix of Pangsit Kak Dani at Various Activity Levels

Cost Element	Standard Rate Basis	Scenario A: Friday (500 Pieces)	Scenario B: Thursday (1,800 Pieces)	Scenario C: Normal (2,000 Pieces)
Variable Costs:				
Chicken Meat	IDR 225.00/piece	IDR 112,500	IDR 405,000	IDR 450,000
Wheat Flour	IDR 6.00 / piece	IDR 3,000	IDR 10,800	IDR 12,000
Cooking Oil	IDR 64.00 / piece	IDR 32,000	IDR 115,200	IDR 128,000
Seasonings & Complementary Ingredients	IDR 125.00 / piece	IDR 62,500	IDR 225,000	IDR 250,000
Plastic Packaging	IDR 100.00 / piece	IDR 50,000	IDR 180,000	IDR 200,000
Eggs (5 eggs)	IDR 5.00/piece	IDR 2,500	IDR 9,000	IDR 10,000
Subtotal Variable Costs (A)	IDR 525.00 / piece	IDR 262,500	IDR 945,000	IDR 1,050,000
Fixed Costs:				
Imputed Family Direct Labor Cost	Fixed / day	IDR 150,000	IDR 150,000	IDR 150,000
Gas & Utility Overhead	Fixed / day	IDR 60,000	IDR 60,000	IDR 60,000

Subtotal Fixed Costs (B)	IDR 210,000 / day	IDR 210,000	IDR 210,000	IDR 210,000
TOTAL FLEXIBLE BUDGET (A+B)		IDR 472,500	IDR 1,155,000	IDR 1,260,000
COGM per Dumpling Piece	Total / Output	IDR 945.00	IDR 641.67	IDR 630.00

4. Critical Discussion and Cost Variance Analysis

The empirical findings presented in Table 2 confirm the theoretical principles of cost absorption and fixed cost behavior (Garrison et al., 2021). On Friday, when the production scale declined to 500 pieces due to reduced campus activity, the COGM per piece increased by 50% to IDR 945.00, compared with the normal COGM of IDR 630.00 per piece. This increase in COGM was not attributable to inefficiencies in raw material usage but rather to the fact that fixed costs of IDR 210,000.00 per day had to be absorbed by a substantially smaller number of output units, resulting in the under-absorption of fixed costs. This finding is consistent with Sriwedari et al. (2025a), who stated that a decline in activity volume in culinary MSMEs automatically increases the allocation of fixed costs per unit of product.

The same logic applies on Thursday, when 1,800 pieces yield a COGM of IDR 641.67 per piece, only 1.85% above the normal level, because the fixed costs are spread over almost the normal volume. These results also show why a static budget would mislead the owner. Suppose the budget were fixed at the normal level of IDR 1,260,000.00. On a 500-piece Friday, any spending below that figure would appear favorable, so that spending of IDR 1,000,000.00 would look like a saving of IDR 260,000.00, although it would exceed the flexible budget of IDR 472,500.00 by IDR 527,500.00. This example is illustrative and does not use observed Friday expenditure; it demonstrates that only the flexible budget separates the volume effect from genuine overspending.

Under normal production conditions of 2,000 pieces, actual daily cash expenditures were recorded at an average of IDR 1,500,000.00. A comparison with the Flexible Budget standard of IDR 1,260,000.00 produced the following cost variance:

Cost Variance = Actual Costs – Flexible Budget

Cost Variance = IDR 1,500,000.00 – IDR 1,260,000.00 = +IDR 240,000.00 (Unfavorable / U)

Through an in-depth variance analysis, the daily cash expenditure overrun of IDR 240,000.00 was successfully isolated into two main components (summarized in Table 3):

a. Direct Materials Price Variance for Chicken Meat

When the supply of regular chicken meat priced at IDR 45,000.00 per kg became limited in the local market, the business operator was forced to purchase ready-to-use chicken fillets at IDR 70,000.00 per kg.

$$\text{Price Variance} = (\text{Actual Price} - \text{Standard Price}) \times \text{Actual Quantity}$$

$$\text{Price Variance} = (\text{IDR } 70,000.00 - \text{IDR } 45,000.00) \times 10 \text{ kg} = +\text{IDR } 250,000.00$$

(Unfavorable / U)

b. Direct Materials Usage Variance for Complementary Materials

An efficiency in the usage of seasonings and packaging was achieved, reducing expenditures by IDR 10,000.00, resulting in a favorable variance. Accordingly, the net unfavorable variance amounted to IDR 240,000.00, calculated as IDR 250,000.00 unfavorable variance less IDR 10,000.00 favorable variance. This finding clearly challenges the business owner's intuitive perception that the increase in cash expenditures was caused by excessive use of dough ingredients. Instead, the cost overrun was driven by an external factor, namely volatility in the supply price of chicken fillets. The results empirically support the arguments of Fauziah et al. (2023) and Lubis and Anggraini (2026) that flexible budgeting can precisely isolate the effects of raw material price changes from the efficiency of quantity usage.

Table 3. Flexible Budget Variance Analysis at the Normal Output of 2,000 Pieces

Cost Component	Flexible Budget (IDR)	Actual Cost (IDR)	Variance (IDR)	Type
Chicken Meat	450,000.00	700,000.00	+250,000.00	Unfavorable (U)
Seasonings, Chilies, Complementary Ingredients & Packaging	450,000.00	440,000.00	-10,000.00	Favorable (F)
Other Costs (Flour, Cooking Oil, Eggs, Imputed Labor, LPG & Utilities)	360,000.00	360,000.00	0.00	None
TOTAL	1,260,000.00	1,500,000.00	+240,000.00	Unfavorable (U)

Note: F = favorable; U = unfavorable. Actual cost is the average daily cash expenditure at 2,000 pieces; variance = actual cost – flexible budget.

Table 3 distinguishes the favorable from the unfavorable variance and traces each to its cause. The unfavorable variance is concentrated in a single input, chicken meat, whose price rose by 55.6% (from IDR 45,000.00 to IDR 70,000.00 per kg) when regular chicken became scarce; this cause lies in the supply chain rather than in the kitchen. The favorable variance of IDR 10,000.00 arose from lower spending on seasonings and packaging, and no variance was identified for the remaining cost elements. Actual cost per piece at normal output was therefore IDR 750.00 (IDR 1,500,000.00 / 2,000), which is IDR 120.00, or 19.05%, above the budgeted COGM of IDR 630.00.

The findings carry three practical implications for Pangsit Kak Dani. For production planning, Table 2 gives the owner a daily purchasing and production reference: the variable budget is IDR 262,500.00 for 500 pieces, IDR 945,000.00 for 1,800 pieces, and IDR 1,050,000.00 for 2,000 pieces, while IDR 210,000.00 of fixed cost is incurred every day, which explains why low-volume days are structurally expensive. For pricing, the budgeted COGM of IDR 945.00 on Fridays, IDR 641.67 on Thursdays, and IDR 630.00 at normal output, together with the actual cost of IDR 750.00 per piece

under the current chicken fillet price, indicate the minimum unit prices needed to recover imputed as well as cash costs. If the fillet price of IDR 70,000.00 per kg persists, the variable cost rate rises by IDR 125.00 ($\text{IDR } 25,000.00 \times 10 \text{ kg} / 2,000 \text{ pieces}$) to IDR 650.00 and the budget becomes $Y = \text{IDR } 210,000.00 + \text{IDR } 650.00(X)$, or IDR 755.00 per piece at 2,000 pieces. Selling prices were not part of the data collected, so this study does not test profitability. For operational efficiency, the analysis shows that control effort should shift from monitoring the use of dough ingredients, which showed no unfavorable variance, to purchasing, for example through supplier agreements or alternative cuts of chicken.

E. CONCLUSION

This study aimed to demonstrate how flexible budget analysis functions as a production cost control instrument for a culinary micro-enterprise, and its three objectives were achieved. First, the classification of cost behavior produced a standard variable cost rate of IDR 525.00 per dumpling piece, covering chicken meat, flour, cooking oil, seasonings, packaging, and eggs, and imputed fixed costs of IDR 210,000.00 per day. Second, the flexible budget function $Y = \text{IDR } 210,000.00 + \text{IDR } 525.00(X)$ generated projected budgets of IDR 472,500.00 for 500 pieces (COGM of IDR 945.00 per piece), IDR 1,155,000.00 for 1,800 pieces (COGM of IDR 641.67 per piece), and IDR 1,260,000.00 for 2,000 pieces (COGM of IDR 630.00 per piece). Third, the variance analysis identified an unfavorable variance of IDR 240,000.00 per day at normal output, consisting of an unfavorable chicken meat price variance of IDR 250,000.00 caused by disruptions in the market supply chain, partly offset by a favorable variance of IDR 10,000.00 on seasonings and packaging. Overall, the flexible budget proved useful because it separated cost changes caused by output volume from those caused by input prices, and it redirected the owner's attention from alleged ingredient waste to purchasing.

This study extends the applicability of management accounting theory concerning cost behavior and flexible budgeting to the informal micro-enterprise sector. The findings demonstrate that a linear flexible budget function remains valid and has substantial explanatory power within the relevant range, even in micro-enterprises with highly limited accounting record-keeping systems. The approach is potentially applicable to other culinary MSMEs with a limited product range, observable recipes, and fluctuating daily demand, such as canteen and street-food vendors, because it requires only purchase receipts, standard recipes, and a daily output count. Its transferability should nevertheless be tested in other settings.

Based on these findings, the owner of Pangsit Kak Dani is advised to: (1) use the flexible budget matrix as a daily purchasing and production reference; (2) establish weekly supply price agreements or forward contracts with chicken meat traders in local markets to stabilize the price near the standard of IDR 45,000.00 per kg; (3) develop frozen dumpling products to expand sales beyond the campus on Fridays

and maintain production volume above 1,500 pieces; and (4) implement a simple digital record-keeping worksheet through a mobile application.

This study has several limitations. As a single-case study conducted over a limited period in September 2026, its findings cannot be generalized statistically to other culinary MSMEs. The variance analysis relied on interviews, observation, and purchase receipts, used the average actual daily expenditure at the normal output level, and valued family labor at an imputed rate; it did not examine direct labor efficiency or selling prices. Future research is encouraged to include multiple enterprises and longer observation periods, to compare actual costs at several output levels, to apply the Activity-Based Costing (ABC) method, and to quantitatively measure direct labor efficiency variances in similar MSMEs across different university environments.

REFERENCES

1. Fauziah, N., Razak, L. A., & Rayyani, W. O. (2023). Penerapan Flexible Budget sebagai Alat Bantu Pengendalian Biaya Produksi Studi Kasus pada UKM Anyamandiri. *Tangible Journal*, 8(1), 32–44. <https://doi.org/10.53654/tangible.v8i1.329>
2. Garrison, R. H., Noreen, E. W., & Brewer, P. C. (2021). *Managerial Accounting*. McGraw-Hill Education.
3. Ghofur, A., Agustina, N., & Elvierayani, R. R. (2019). Evaluation of production cost control using flexible budget and direct-cost variance in Restaurant Lamongan Sport Center. *Jurnal Mantik*, 3(3).
4. Hibatullah, M. H. H., Latif, A. A., Putra, M. R. W., & Sakinah, G. (2025). Pengaruh Penerapan Anggaran Fleksibel terhadap Efisiensi Pajak Penghasilan Badan pada UMKM Sektor Jasa. *Gunung Djati Conference Series*, 56, 1492–1498.
5. Lubis, P. K. D., & Anggraini, C. (2026). Penerapan Anggaran Fleksibel dan Analisis Varians untuk Pengendalian Biaya UMKM NELLZ JUICE MMTTC Medan. *IKRAITH-EKONOMIKA*, 9(2), 1006–1017.
6. Lubis, S. S., Maherza, W., Ziwiana, N. D., & Muda, I. (2022). Flexible Budget and Overhead Analysis in Pharmacy Issuers. *Journal of Pharmaceutical Negative Results*, 13(Special Issue 8), 2931–2936. <https://doi.org/10.47750/pnr.2022.13.S08.366>
7. Mulyadi. (2016). *Akuntansi Biaya* (Edisi ke-5). UPP STIM YKPN.
8. Nasution, N. L., Tarigan, I. M., & Zhaharah, N. A. (2025). Analisis dan Perancangan Anggaran Biaya Overhead Pabrik untuk Meningkatkan Efisiensi Operasional. *Jurnal Akademik Ekonomi dan Manajemen*, 2(1), 546–555. <https://doi.org/10.61722/jaem.v2i1.4204>
9. Sonjaya, I. P. D. H. F. (2025). Peran Anggaran Fleksibel Menurut Perspektif Syariah dalam Menjaga Stabilitas Keuangan UMKM di Tengah Ketidakpastian Ekonomi. *Gunung Djati Conference Series*, 56, 110–115.
10. Sriwedari, T., Saputri, K. K., Hutasoit, M. A. E., & Hidayanti, N. (2025a). Analisis Efisiensi Biaya Overhead Pabrik Berdasarkan Anggaran Fleksibel: Studi Kasus

- pada UMKM di Kawasan Gerbang 1 Universitas Negeri Medan, Jalan Selamat Ketaren, Kenangan Baru. *Journal of Innovative and Creativity*, 5(3), 32119–32125.
11. Sriwedari, T., Pandia, A. H., Hasibuan, A. R. P., Tumangger, F. A., Sianipar, R., & Tamba, J. B. (2025b). Strategi Pengendalian Biaya melalui Analisis Overhead dan Anggaran Fleksibel. *Jurnal Keuangan dan Manajemen Terapan*, 6(4), 131–137.
 12. Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods*. SAGE Publications.