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STANDARD COSTING AND VARIANCE ANALYSIS AS A TOOL FOR RESOURCE-EFFICIENT PRODUCTION IN A FOOD MSME: EVIDENCE FROM DOYAN JAGUNG MOZARELLA, PADANG

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Abstract
Food micro-enterprises rely on a handful of perishable and often costly ingredients, so small gaps between planned and actual ingredient use quickly become financial losses and avoidable food waste. This study examines how standard costing and variance analysis can show where such a business over- or under-plans its costs. It uses 2023 production cost data from Doyan Jagung Mozarella, a corn-based culinary business in Padang, Indonesia, taken from an open-access case study and fully recalculated. Price, quantity, wage-rate, efficiency and overhead variances were computed for direct materials, direct labor and manufacturing overhead. Actual cost was Rp150,294,612 against a standard of Rp162,366,758, a favorable variance of Rp12,072,146 (7.4%). Materials explain 43.3% of the gap, overhead 38.8% and labor 17.9%. Quantity, not price, drives the material variance (68.7%), and butter and mozzarella alone account for 63.5% of it. Overhead deviates from standard by 19.0%, including fixed items that should hardly move. Because all 16 cost lines finished below standard, the results point to cushioned standards as much as to genuine efficiency. When sales, social media and courier wages are treated as selling costs, production labor deviates by only 3.1%. The study concludes that small food businesses should rebuild standards from recipe cards and measured hours, separate production costs from selling costs, and track ingredient quantity per batch as a simple indicator of resource efficiency.
Keywords: standard costing; variance analysis; food MSME; ingredient efficiency; cost classification; sustainable production

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1. Introduction

Micro, small and medium enterprises (MSMEs) are a familiar part of Indonesian street food, cafés and home kitchens, and many of them operate with very thin margins. In such businesses, a few ingredients determine most of the product's character and a large share of its cost. When a cook uses a little more butter or cheese than the recipe calls for, or throws away a batch that did not turn out right, the loss appears twice: once in the owner's profit and once in the pile of wasted food. The second loss is easy to overlook, but it is not small. The United Nations Environment Programme estimated that the world wasted about 1.05 billion tonnes of food in 2022, roughly 19% of the food available to consumers, and that the food service sector alone accounted for around 290 million tonnes of it (UNEP, 2024).

Cost accounting offers a practical way to see these losses before they accumulate. Under standard costing, management decides in advance what a unit of output should cost in materials, labor and overhead, then compares the plan with what was actually spent. The difference, called a variance, tells the owner where reality moved away from the plan (Garrison et al., 2021). For a food business the idea is easy to translate: the standard is simply the recipe card, with quantities, prices and preparation time attached. Once variances are split into price

and quantity parts, the owner can also tell whether the problem began at the market stall, where ingredients are bought, or in the kitchen, where they are used.

How useful this information is depends on how the standards were set, and here the literature on Indonesian MSMEs leaves a gap. Most studies report whether variances are favorable or unfavorable and then move on. Fewer ask what a favorable result really means when standards come from past records instead of measurement, and few connect the numbers to the efficient use of ingredients. Some studies report overruns (Anggarwati, 2023; Natasha et al., 2025), including overruns tied to purchases above the standard price and neglected standard recipes (Dewi et al., 2024), whereas others report savings against standard (Hutasuhut & Azhari, 2025; Sari et al., 2024). The reasons behind this difference are rarely examined.

This paper revisits the 2023 cost data of Doyan Jagung Mozarella, a corn-based culinary business in Padang, published by Sari et al. (2024). The aim is to recalculate the variances carefully, check the original figures, and read the results from two angles: cost control and resource efficiency. Three questions guide the analysis. First, how large are the variances for materials, labor and overhead? Second, which parts of these variances come from price and which from quantity or time? Third, what do the results imply for the way small food businesses should set standards and monitor ingredient use? The study also adds an angle that the source did not take up, namely whether all of the reported labor cost really belongs to production.

2. Literature Review

2.1 Standard costing and variance analysis

A standard cost is a predetermined estimate of what a unit of product should cost under efficient but realistic operating conditions. It rests on three elements: direct materials, direct labor and manufacturing overhead. Each is expressed as a quantity or time standard multiplied by a price or rate standard (Garrison et al., 2021). After production, actual cost is compared with the standard allowed for the output achieved, and the difference is labeled favorable when actual cost is lower and unfavorable when it is higher (Garrison et al., 2021).

The comparison becomes useful once the total variance is broken down. For materials, the price variance shows the effect of paying a different price from the standard, while the quantity variance shows the effect of using more or less material than allowed. For labor, the parallel measures are the rate variance and the efficiency variance. Purchasing decisions are normally behind the first of each pair, and supervision and skill behind the second (Garrison et al., 2021). Overhead is more difficult, because many overhead items are fixed in the short run and are controlled by budgeting rather than by the volume of output.

Standards also have a behavioral side. If they are too tight, staff may stop trying to meet them. If they are too loose, they hide inefficiency and generate a steady flow of favorable variances that nobody questions. Textbooks therefore advise that standards be reviewed regularly and be based on careful analysis of recipes, time studies or reliable records (Garrison et al., 2021). Without this discipline, a favorable variance says more about the quality of the standard than about the quality of the operation.

2.2 Cost classification in a small food business

Accounting distinguishes between product costs and period costs. Product costs are the costs of acquiring or making the product: direct materials, direct labor and manufacturing overhead. Period costs, such as selling and administrative expenses, are recognized in the period in which they occur and are not attached to the product (Garrison et al., 2021). The

distinction matters for standard costing, because a production standard should contain only production resources. In a micro food business the line is often blurred. The same owner may cook, take orders and post on social media in a single day, and the books may record all wages together. When selling and distribution wages are placed under direct labor, the labor standard describes the business as a whole and not the kitchen.

2.3 Resource efficiency and food waste

Sustainability gives cost control a second meaning. Sustainable Development Goal 12 calls for responsible consumption and production, and its target 12.3 asks for a halving of per capita global food waste at the retail and consumer levels by 2030; progress toward this target is tracked by the UNEP Food Waste Index Report 2024 (UNEP, 2024). That report notes that food loss and waste are linked to a sizable share of global greenhouse gas emissions, and that data for the food service sector remain poor (UNEP, 2024). For a small food producer, the quantity variance of each ingredient is, in effect, a physical measure of how closely cooking follows the recipe. Large or erratic quantity variances may indicate over-portioning, spoilage or rework. Seen this way, an ordinary cost report doubles as a low-cost waste indicator that requires no special equipment.

2.4 Previous studies

Standard costing remains a relevant management accounting tool in contemporary industries (Teoh & Shanmugam, 2023), and a review of 170 articles concluded that implementing cost accounting systems enhances the performance of manufacturing firms and supports decision-making (Saleh et al., 2023). Applications to Indonesian businesses, however, report mixed findings. Hutasuhut and Azhari (2025) found that the actual costs of a cookie MSME in Pematangsiantar were below standard for materials, labor and overhead, whereas Natasha et al. (2025) found that a cake business in Medan exceeded its standard cost. Anggarwati (2023) found unfavorable variances for sugar and LPG at a small bakery. In a resort setting, Dewi et al. (2024) found unfavorable price and quantity variances and linked them to purchases above the standard price and to the failure to follow standard recipes. Mandodo and Daud (2022) studied standard costs as a production cost control tool at a coffee manufacturer in Makassar.

Two observations follow from this literature. Many studies stress price movements, which is understandable given volatile food prices, but pay less attention to quantity. And very few examine whether persistent favorable results are a sign of strong performance or of weak standards. The present study takes up both points, using the data of Sari et al. (2024) as an example in which favorable variances appear on every cost line.

3. Methods

3.1 Research design

The study uses a descriptive quantitative case study design. Its purpose is not to test a hypothesis statistically but to describe and explain the gap between standard and actual cost in one well-documented business. A single case allows each cost element to be read in detail, although it limits how far the findings can be generalized.

3.2 Case and data

The case is Doyan Jagung Mozarella, a culinary MSME in Padang, West Sumatra, that sells corn-based dishes with cheese and dairy toppings. Its main ingredients are corn, mozzarella, milk, cheese, margarine and butter. The business employs staff for sales, production and social media, and uses a courier for deliveries. The data cover the year 2023 and were published by

Sari et al. (2024), who collected them through interviews with the owner, observation and company documents. They consist of standard and actual quantities and prices for six ingredients, standard and actual hours and wage rates for four task groups, and standard and actual amounts for six overhead items, with a normal capacity of 5,040 hours.

The data are therefore secondary, and no new field data were gathered. The contribution of this paper lies in the recalculation, the verification of the figures, the cost reclassification, and the reinterpretation of the results from a resource-efficiency perspective. The source does not report the number of portions or units produced, so variances are analyzed in total and cannot be expressed per unit.

3.3 Analytical procedure

Variances were computed with the standard two-way model and are labeled favorable (F) when actual cost is below standard. For direct materials:

$$\text{Price variance} = (\text{Standard price} - \text{Actual price}) \times \text{Actual quantity}$$

$$\text{Quantity variance} = (\text{Standard quantity} - \text{Actual quantity}) \times \text{Standard price}$$

For direct labor:

$$\text{Rate variance} = (\text{Standard rate} - \text{Actual rate}) \times \text{Actual hours}$$

$$\text{Efficiency variance} = (\text{Standard hours} - \text{Actual hours}) \times \text{Standard rate}$$

Hours for the sales group are reported per worker, and two workers are employed, so the cost of this group is twice the product of hours and rate. Overhead was analyzed element by element, comparing the standard and the actual amount of each variable and fixed item. A split into controllable and volume variances was not attempted because the standard hours allowed for actual output are not reported.

3.4 Data verification

Every figure in the source tables was recalculated before use. Most totals agree, but several inconsistencies in the published tables were identified and reconciled. The price of milk is Rp24,375 per kilogram in the tables but appears as Rp24,357 in the text; the table value is used. The source reports a labor rate variance of Rp230,880 and a total labor variance of Rp2,098,838, yet its own table gives a total difference of Rp2,161,046; recalculation gives a rate variance of Rp293,088 and an efficiency variance of Rp1,867,958, which add up to the table total. The source also states that the social media and courier groups have no rate variance, although their standard and actual rates differ (Rp20,050 against Rp20,000, and Rp11,560 against Rp11,539 per hour). The source explains that these two groups are paid a monthly wage, so their hourly rates are derived values, and their rate variances should be read with caution; they are nevertheless kept in the calculation because they are small (Rp62,208 in total). The overhead amount of Rp1,660,000 mentioned in the text equals one-twelfth of the annual actual overhead of Rp19,920,000 and is treated as a monthly average. Finally, the caption of the labor table in the source refers to raw materials, which appears to be a labeling inconsistency. The reconciled values are used throughout.

3.5 Cost reclassification

To test how sensitive the results are to cost classification, labor was also analyzed in two groups. Production staff were treated as direct labor, while sales staff, social media and courier wages were treated as selling and distribution costs. This follows the product versus period cost distinction explained in Section 2.2. Overhead was kept as reported, although it includes an internet item that may partly support selling activity.

4. Result and Discussion

4.1 Result

4.1.1 Overall cost performance

Table 1 summarizes the three cost components. Total standard cost was Rp162,366,758 and total actual cost was Rp150,294,612, leaving a favorable variance of Rp12,072,146, or 7.4% of standard. Materials contribute 43.3% of the variance, overhead 38.8% and labor 17.9%. In relative terms the picture is different: overhead deviates most from its standard (19.0%), followed by materials (10.4%), while labor deviates least (2.5%).

Table 1. Summary of standard cost, actual cost and variance, 2023

Cost component	Standard (Rp)	Actual (Rp)	Variance (Rp)	% of standard	Share of total variance
Direct materials	50,333,040	45,101,940	5,231,100 F	10.4%	43.3%
Direct labor (as reported)	87,433,718	85,272,672	2,161,046 F	2.5%	17.9%
Manufacturing overhead	24,600,000	19,920,000	4,680,000 F	19.0%	38.8%
Total	**162,366,758**	**150,294,612**	**12,072,146 F**	**7.4%**	**100.0%**

Note: F = favorable. Source: Sari et al. (2024), recalculated.

4.1.2 Direct materials

Table 2 presents the ingredient data. Actual quantities were below standard for all six ingredients, and actual prices were below standard as well. The material variance is Rp5,231,100, equal to 10.4% of standard material cost.

Table 2. Standard and actual direct material cost, 2023

Ingredient	Std. qty (kg)	Std. price (Rp/kg)	Std. cost (Rp)	Actual qty (kg)	Actual price (Rp/kg)	Actual cost (Rp)	Variance (Rp)
Corn	635	7,500	4,762,500	600	7,250	4,350,000	412,500 F
Mozzarella	69	126,000	8,694,000	60	123,000	7,380,000	1,314,000 F
Milk	296	25,000	7,400,000	288	24,375	7,020,000	380,000 F
Cheese	198	45,000	8,910,000	192	43,750	8,400,000	510,000 F
Margarine (Blue Band)	190	36,666	6,966,540	180	35,333	6,359,940	606,600 F
Butter	40	340,000	13,600,000	36	322,000	11,592,000	2,008,000 F
Total			**50,333,040**			**45,101,940**	**5,231,100 F**

Note: F = favorable. Source: Sari et al. (2024), recalculated.

Table 3 separates the variance into its price and quantity parts. Quantity accounts for Rp3,593,160 (68.7%) and price for Rp1,637,940 (31.3%). Two ingredients dominate. Butter contributes Rp2,008,000 and mozzarella Rp1,314,000, together 63.5% of the material variance, even though these two ingredients make up 42.1% of actual material cost. In relation to its own standard, quantity use was lowest for milk (2.7% below standard) and highest for mozzarella (13.0%), with butter close behind (10.0%).

Table 3. Price and quantity variances for direct materials, 2023

Ingredient	Price variance (Rp)	Quantity variance (Rp)	Total (Rp)	Share of material variance
Corn	150,000	262,500	412,500	7.9%
Mozzarella	180,000	1,134,000	1,314,000	25.1%
Milk	180,000	200,000	380,000	7.3%
Cheese	240,000	270,000	510,000	9.7%
Margarine (Blue Band)	239,940	366,660	606,600	11.6%
Butter	648,000	1,360,000	2,008,000	38.4%
Total	**1,637,940**	**3,593,160**	**5,231,100**	**100.0%**
Share of material variance	**31.3%**	**68.7%**	**100.0%**	

Note: all variances are favorable. Source: Sari et al. (2024), recalculated.

4.1.3 Direct labor

Reported labor cost was Rp85,272,672 against a standard of Rp87,433,718, a favorable variance of Rp2,161,046 (2.5% of standard). As Table 4 shows, the efficiency variance of Rp1,867,958 is far larger than the rate variance of Rp293,088, so 86.4% of the labor variance comes from hours and only 13.6% from wage rates. Actual hours were below standard in every group. Social media shows both the largest relative gap (4.9% fewer hours) and the largest amount (Rp777,850), followed by the sales group (Rp603,350), which has two workers. In three of the four groups the gap between standard and actual hours is exactly 37 hours.

Table 4. Direct labor variances by task group, 2023

Task group	Std. hours	Std. rate (Rp/h)	Actual hours	Actual rate (Rp/h)	Rate variance (Rp)	Efficiency variance (Rp)	Total variance (Rp)
Sales (2 workers)	2,845	7,015	2,808	7,000	84,240	519,110	603,350
Production	1,597	11,094	1,560	11,000	146,640	410,478	557,118
Social media	757	20,050	720	20,000	36,000	741,850	777,850
Courier	1,265	11,560	1,248	11,539	26,208	196,520	222,728
Total					**293,088**	**1,867,958**	**2,161,046**

Note: all variances are favorable. Hours for the sales group are per worker; amounts include both workers. Source: Sari et al. (2024), recalculated.

4.1.4 Manufacturing overhead

Overhead shows the widest gap relative to standard. Actual overhead of Rp19,920,000 was Rp4,680,000 below the standard of Rp24,600,000, a deviation of 19.0%. Table 5 shows that variable overhead was 13.3% below standard and fixed overhead 27.1% below. Employee welfare stands out: its actual cost was Rp3,600,000 against a standard of Rp5,400,000, a saving

of one third (Rp1,800,000). Repairs and maintenance (30.0%) and indirect labor (16.0%) also deviated considerably.

Table 5. Standard and actual manufacturing overhead, 2023

Cost element	Standard (Rp)	Actual (Rp)	Variance (Rp)	% of standard
Variable overhead				
Electricity	3,600,000	3,240,000	360,000 F	10.0%
Internet	4,800,000	4,200,000	600,000 F	12.5%
Indirect labor	6,000,000	5,040,000	960,000 F	16.0%
Subtotal variable	**14,400,000**	**12,480,000**	**1,920,000 F**	**13.3%**
Fixed overhead				
Depreciation of fixed assets	3,600,000	3,000,000	600,000 F	16.7%
Repairs and maintenance	1,200,000	840,000	360,000 F	30.0%
Employee welfare	5,400,000	3,600,000	1,800,000 F	33.3%
Subtotal fixed	**10,200,000**	**7,440,000**	**2,760,000 F**	**27.1%**
Total overhead	**24,600,000**	**19,920,000**	**4,680,000 F**	**19.0%**

Note: F = favorable. Normal capacity is 5,040 hours. Source: Sari et al. (2024), recalculated.

4.1.5 Reclassified view

Table 6 repeats the analysis after separating production labor from selling and distribution labor. Production-related costs (materials, production labor and overhead) show a favorable variance of Rp10,468,218, or 11.3% of their standard. Within this group, production labor deviates by only 3.1%, far less than materials (10.4%) and overhead (19.0%). The three selling and distribution groups together deviate by 2.3%.

Table 6. Variance by cost group after reclassifying labor, 2023

Cost group	Standard (Rp)	Actual (Rp)	Variance (Rp)	% of standard
Production-related costs	**92,650,158**	**82,181,940**	**10,468,218 F**	**11.3%**
Direct materials	50,333,040	45,101,940	5,231,100 F	10.4%
Production labor	17,717,118	17,160,000	557,118 F	3.1%
Manufacturing overhead	24,600,000	19,920,000	4,680,000 F	19.0%
Selling and distribution labor	**69,716,600**	**68,112,672**	**1,603,928 F**	**2.3%**
Sales staff	39,915,350	39,312,000	603,350 F	1.5%
Social media	15,177,850	14,400,000	777,850 F	5.1%
Courier	14,623,400	14,400,672	222,728 F	1.5%
Total	**162,366,758**	**150,294,612**	**12,072,146 F**	**7.4%**

Note: F = favorable. Overhead is shown as reported and includes an internet item. Source: Sari et al. (2024), recalculated and regrouped.

4.2 Discussion

4.2.1 Favorable everywhere: efficiency or cushioned standards?

The most striking feature of the results is their uniformity. All 16 cost lines, six ingredients, four labor groups and six overhead items, finished below standard, and so did every price, quantity, rate and hours component beneath them. In a working food kitchen, prices move in both directions, batches occasionally fail and some days are slow. A perfect run of favorable results is therefore unusual, and the most plausible reading is that the standards were set with a cushion. This fits the source's own description that standards were based on historical data. A business that sets next year's standard from last year's spending, plus a margin for price rises and waste, will tend to beat that standard whenever the margin is not fully used.

This does not mean that the business is inefficient, or that it is efficient. The data cannot decide between the two. What they show is that the standards are not yet a sharp benchmark. If the owner prices dishes from these standards, the price will include about 8.0% more cost than the business really incurred, which may weaken competitiveness against nearby stalls. The textbook warning that persistent favorable variances should be examined, not celebrated, applies fully here (Garrison et al., 2021).

4.2.2 Quantity, not price, drives the material variance

The ingredient results differ from the pattern in at least one comparable case. Recalculating the cookie-business data published by Hutasuhut and Azhari (2025) shows that price explains about 85% of its favorable material variance (Rp1,211,500 of Rp1,432,000). In the present case, 68.7% of the material variance comes from quantity and only 31.3% from price. In other words, cooks used less of the main ingredients than the recipe standard allowed. This is a result that the kitchen itself controls, not the market.

Two explanations are possible, and they have very different implications. One is that portion control and recipe discipline were good, so that less butter, mozzarella and cheese were used and less was thrown away. The other is that the quantity standards were generous, perhaps because they included an allowance for spoilage and trimming that did not materialize. The concentration of the gap in butter and mozzarella is informative. These are the costliest items per kilogram, and they are the ingredients where over-portioning hurts most. A gap of 13.0% for mozzarella and 10.0% for butter is large for ingredients that cooks measure by hand. It would be worth checking whether the product was consistent in taste and appearance, because using less of a defining ingredient can also lower quality, and the data say nothing about quality. The contrast with Dewi et al. (2024), who found unfavorable quantity variances in a resort kitchen where standard recipes were not followed, suggests that recipe discipline is the variable that matters most.

4.2.3 Overhead: budgets, not volumes

The overhead result is the most unexpected. A deviation of 19.0% is about twice the 9.3% that can be computed for overhead from the cookie-business data of Hutasuhut and Azhari (2025), where actual overhead was Rp340,000 below a standard of Rp3,650,000. In the present case, fixed items contribute most of the deviation. In theory a fixed cost should hardly respond to changes in output, so a fixed item landing one third below its standard points to a weak budget and not to a change in activity. Employee welfare, depreciation and maintenance were all budgeted well above what was spent. For a micro business, overhead standards are usually just rounded estimates made at the start of the year. The result shows that these estimates need to be revisited as soon as actual figures are known, otherwise they inflate the apparent savings and overstate the cost of every portion sold.

4.2.4 Labor: what belongs in the kitchen?

The reclassification in Table 6 changes the reading of labor considerably. Of the Rp85 million reported as labor, only the production group, about 20% of the total, works in the kitchen. Sales staff, a social media worker and a courier perform selling and distribution tasks, which accounting treats as period costs. Once they are set aside, production labor deviates from its standard by only 3.1%, a small gap that is consistent with a reasonably tight labor standard. By contrast, the apparent saving in the reported labor line is driven by hours in non-production groups. The distinction is not a technicality. A standard cost per portion that contains courier and social media wages would overstate the cost of making the food and could lead the owner to the wrong pricing and cost-cutting decisions.

The hours data also invite caution. In three of four groups the standard exceeds actual hours by exactly 37 hours, and the standard rates exceed actual rates by amounts as small as Rp15 to Rp94 per hour. Such regularity is unlikely to arise from independent time measurement. It is more consistent with standards that were built by adding a small allowance to last year's actuals. This supports the view in Section 4.2.1 that the standards lean on history and not on measurement.

4.2.5 Implications for resource-efficient production

Seen through a sustainability lens, the quantity variances are the most useful part of the analysis. They indicate how much of each ingredient the kitchen used compared with what the recipe says it should use, and they can be tracked with a kitchen scale and a notebook. If the business records quantity per batch, a rising unfavorable quantity variance for butter or mozzarella would give an early warning of over-portioning or waste long before the monthly accounts show a loss. This links directly to the food waste agenda. UNEP (2024) points out that data on food waste in the food service sector remain thin, and routine variance reports from small kitchens could contribute modestly to filling that gap. The environmental argument is not only about waste. Costly dairy ingredients are resource-intensive to produce, so using them in line with the recipe is both economical and responsible.

Three practical steps follow from the analysis. First, rebuild the quantity standards from written recipe cards, with yields tested over several batches. Second, separate production costs from selling and distribution costs, so that the production standard describes the kitchen only. Third, review overhead budgets every quarter and let fixed-cost standards follow actual contracts and depreciation schedules. None of these steps requires specialized software.

4.2.6 Comparison with earlier studies

Table 7 places the present findings next to the studies reviewed earlier. Overruns are reported where purchases exceeded standard prices and standard recipes were not followed (Dewi et al., 2024) and in the bakery and cake cases (Anggarwati, 2023; Natasha et al., 2025), whereas favorable results appear in the cookie business and in the source study of the present case (Hutasuhut & Azhari, 2025; Sari et al., 2024). Most of these studies do not describe how their standards were built, so the comparison cannot show whether the direction of the variance reflects the business environment or the way standards are set. The argument of Section 4.2.1, that cushioned standards explain the uniform favorable results, therefore remains a hypothesis that a larger set of cases, with documented standard-setting procedures, would be needed to test.

Table 7. Comparison of the present findings with selected studies

Study	Business type	Main finding
Hutasuhut & Azhari (2025)	Cookie MSME, Pematangsiantar	Actual cost below standard for materials, labor and overhead
Sari et al. (2024)	Corn-based food MSME, Padang (source data)	Favorable variances for materials, labor and overhead
Natasha et al. (2025)	Cake MSME, Medan	Actual cost above standard (unfavorable variance)
Anggarwati (2023)	Small bakery	Unfavorable variances for sugar and LPG
Dewi et al. (2024)	Resort food and beverage	Unfavorable price and quantity variances; purchases above standard price; standard recipes not followed
This study	**Corn-based food MSME, Padang**	**Favorable on all 16 cost lines; quantity dominates the material variance**

Source: compiled by the authors from the cited studies.

4.2.7 Limitations

Several limitations apply. The analysis covers a single business and a single year, so no trend can be inferred. The data are secondary and were compiled by other researchers; although they were checked and corrected, the original records were not available. Output volume is not reported, which prevents a flexible budget analysis and a cost-per-portion calculation. The reclassification relies on job titles and may not capture the true share of time each worker spends on production. Product quality was not measured. Future work could address these gaps with monthly data, portion counts, quality checks and a comparison across several food businesses.

5. Conclusion

This study recalculated the 2023 standard and actual production costs of Doyan Jagung Mozarella, a food MSME in Padang, and found a favorable variance of Rp12,072,146, or 7.4% of standard cost. Materials explain 43.3% of the gap, overhead 38.8% and labor 17.9%. Unlike the cookie MSME in Pematangsiantar, where price accounts for about 85% of the material variance when recalculated from published data, quantity rather than price drives the material variance here, and butter and mozzarella account for most of it. Overhead deviates from standard by 19.0%, including fixed items that should hardly change.

The favorable variance should be examined and not simply welcomed. Because all 16 cost lines came in below standard, and because the standards were drawn from historical data, the results are better read as evidence of cushioned standards than of proven efficiency. Reclassifying selling and distribution wages shows that the true production labor variance is only 3.1%, which suggests that cost classification can change the conclusion drawn from the same numbers.

For small food businesses, the practical recommendation is to build quantity standards from tested recipe cards, keep production and selling costs apart, review overhead budgets regularly, and record ingredient quantity per batch. These habits keep cost control and resource efficiency in the same routine at almost no extra cost, and they support the broader aim of reducing food waste. The findings are limited to one business and one year. Studies with primary, multi-period data and quality measures would strengthen them.

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