

The implications of activity-based costing on profit determination: A case study of PT. Nichindo Manado Suisan

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ABSTRACT

Inaccurate overhead cost allocation in manufacturing can lead to cost distortion, which negatively impacts pricing strategies and profit determination. This study aims to evaluate the implementation of Activity-Based Costing (ABC) in calculating the Cost of Goods Manufactured (COGM) and its implications for profitability at PT. Nichindo Manado Suisan, a multi-product seafood processing company. Employing a qualitative descriptive approach, data were gathered through semi-structured interviews, direct observations, and documentation. The findings reveal that while the aggregate COGM and operating profit showed negligible differences between traditional and ABC methods, significant cost distortions occurred at the individual product level. The traditional volume-based costing method resulted in overcosting for the primary product (*Ikan Kayu*) and undercosting for secondary products (*Bubuk Ikan Kayu* and *Serutan Ikan Kayu*). This distortion was primarily driven by the traditional method's failure to account for batch-level and facility-level activity consumption. The study concludes that ABC provides superior visibility into actual resource consumption, mitigating product cross-subsidization. It is recommended that management transition towards activity-based overhead tracing to enhance strategic pricing and optimize product-mix decisions.

Keywords: activity-based costing (ABC); cost of goods manufactured (COGM); cost distortion profit; profit determination; traditional costing

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1. Introduction

Increasing competition in the manufacturing sector requires companies to improve cost efficiency in order to maintain competitiveness and achieve optimal profitability. One of the key factors in achieving this objective is the accurate calculation of the cost of goods

manufactured (COGM). Accurate COGM information serves as the basis for pricing decisions, cost control, and profit planning. Conversely, inaccurate cost calculations may lead to cost distortion, which can negatively affect a company's profitability and managerial decision-making.

One costing method that can improve the accuracy of cost calculations is Activity-Based Costing (ABC). This method allocates costs based on the activities that consume resources, thereby providing more accurate cost information than the traditional costing method, which generally applies a single, volume-based overhead allocation base and therefore cannot distinguish batch-level activities (e.g., production supervision per batch) or facility-level activities (e.g., machine hours shared across products) from unit-level activities. In production settings where products consume these different activity levels unevenly, this limitation of traditional costing can cause systematic overcosting of some products and undercosting of others, even when the resulting aggregate cost figures appear similar. More accurate, activity-level cost information therefore enables management to determine individual product costs more precisely and supports better profit determination.

PT. Nichindo Manado Suisan is a manufacturing company engaged in the seafood processing industry, particularly in the production of Katsuobushi (dried bonito). Its production process involves multiple stages, each consuming different resources. Therefore, an appropriate costing method is required to accurately reflect resource consumption throughout the production process. The use of a costing method that is not fully activity-based may result in cost distortion, which can ultimately affect the company's profit determination.

Previous studies have demonstrated that the implementation of the Activity-Based Costing (ABC) method improves cost calculation accuracy and supports managerial decision-making. Sujarweni (2016) found that the implementation of the ABC method generated more optimal profits than the traditional costing method in the bakery industry. Likewise, Suharsono et al. (2024) reported that ABC

resulted in lower cost of goods manufactured and more competitive selling prices. Pangau et al. (2025) further revealed that the implementation of ABC positively contributed to cost control and service efficiency. In addition, Bernawati and Fatmawati (2021) explained that the ABC method provides more detailed information regarding overhead cost consumption for each product. These findings are supported by Giselowati et al. (2024), who concluded that ABC is an effective and efficient costing method for improving corporate profitability through more accurate cost calculations. Similarly, Muoneke and Dandago (2024) found that the implementation of ABC significantly improved production processes, reduced costs, and enhanced quality control in the pharmaceutical industry.

Taken together, these studies consistently confirm that ABC outperforms traditional costing in single-stage or moderately complex manufacturing and service settings. However, none of them examines a multi-stage, multi-product processing operation such as Katsuobushi production, nor do they disaggregate their findings to the individual product level to show how cost distortion under traditional costing can remain hidden at the aggregate level while still misallocating costs between a primary and its secondary products. This represents a gap that the present study addresses: evaluating not only whether ABC changes the aggregate COGM and profit of PT. Nichindo Manado Suisan, but also how it redistributes costs among products that consume batch- and facility-level activities unevenly.

2. Literature review

Cost of goods manufactured

The cost of goods manufactured (COGM) represents the total production costs incurred by a company to produce finished goods during a specific accounting period. Sirait (2017) defines

the cost of goods manufactured as the production cost of goods completed within the current period. Furthermore, Miradji and Kurniawan (2023) state that the cost of goods manufactured consists of direct material costs, direct labor costs, and manufacturing overhead costs, adjusted for beginning and ending work-in-process inventories. The cost of goods manufactured reflects the value of inventories utilized in production, production costs incurred, and manufacturing overhead consumed throughout the production process.

Traditional costing

Traditional costing is a cost allocation method that assigns manufacturing overhead based primarily on production volume. Carter (2009) describes this approach as a unit-based costing system because overhead costs are allocated using volume-related measures without considering differences in activity consumption among products. Similarly, Garrison et al. (2021) states that the traditional costing method allocates production costs solely based on units produced. According to Cooper and Kaplan (1988), manufacturing overhead under the traditional costing system is generally allocated using the number of units produced, direct labor hours, or machine hours.

Activity-Based Costing

Activity-Based Costing (ABC) is a costing system that allocates manufacturing overhead based on the activities that consume organizational resources. Carter (2009) defines ABC as a costing system that allocates overhead costs using multiple allocation bases, including non-volume-related cost drivers. Witjaksono (2013) explains that ABC is an accounting methodology that links costs, activities, resources, and cost objects to generate more accurate cost information. Furthermore, Sujarweni (2019) states that

ABC accumulates and assigns costs to products by tracing costs from activities to products through multiple cost drivers according to each product's consumption of activities.

Profit

Profit is one of the primary indicators used to evaluate a company's financial performance over a specific accounting period. Shatu (2016) defines profit as an increase in net assets resulting from business transactions and other events, excluding owner contributions and operating revenues. According to Fitriana (2014), profit is utilized by business entities to finance operational activities and support business development. Meanwhile, Kieso et al. (2018) explains that accounting profit is the company's net income obtained by deducting all expenses from gross revenue.

3. Research method

Research design, population, and data

This study employed a descriptive qualitative approach to analyze the implementation of the Activity-Based Costing (ABC) method in calculating the cost of goods manufactured and its implications for profit determination at PT. Nichindo Manado Suisan. The object of the study was the calculation of the cost of goods manufactured using the traditional costing method and the Activity-Based Costing method.

The study utilized both primary and secondary data. Primary data were collected through direct interviews with company representatives and observations of the production process. Secondary data were obtained from company documents, including production cost records, production reports, and other relevant documents. Data collection techniques included interviews, observations, and documentation.

Estimation procedure

The data were analyzed by comparing the calculation of the cost of goods manufactured using the traditional costing method with that of the Activity-Based Costing method. The analysis began with the identification of production cost components, including direct material costs, direct labor costs, and manufacturing overhead costs. Manufacturing overhead was then classified according to production activities, appropriate cost drivers were identified, and activity rates were determined to allocate overhead costs to products. Finally, the cost of goods manufactured calculated using the Activity-Based Costing method was compared with that calculated using the traditional costing method to identify differences in production costs and analyze their implications for the company's profit determination.

4. Result and discussion

Traditional costing method

The company calculated the cost of goods manufactured using the traditional costing method by accumulating direct material costs, direct labor costs, manufacturing overhead costs, and work-in-process inventory. Based on the calculation, the total cost of goods manufactured under the traditional costing method amounted to IDR 2.199.763.326. This amount served as the basis for determining the cost of goods sold and the company's profit.

Activity-Based Costing

The cost of goods manufactured using the Activity-Based Costing (ABC) method was calculated by identifying production activities, classifying manufacturing overhead into cost pools, determining appropriate cost drivers, and allocating overhead costs based on activity consumption. The calculation showed that the total cost of goods manufactured under

the ABC method was IDR 2,199,763,327. This method provides more accurate cost information because manufacturing overhead is allocated according to the actual activities that consume resources during the production process.

Implication of activity-based costing for profit determination

A comparison of the cost of goods manufactured calculated using the traditional costing method and the Activity-Based Costing method is presented in Table 1.

Table 1. Comparison of COGM

Method	Cost of Goods Manufactured (IDR)
Traditional Costing	2,199,763,326
Activity-Based Costing	2,199,763,327
Difference	-1

Source: Data Processing Results (2026).

As shown in Table 1, the aggregate cost of goods manufactured calculated using the Activity-Based Costing method was nearly identical to that calculated using the traditional costing method, with a difference of only IDR 1, which arose from rounding in the pool-rate calculations. Because the total overhead pooled and allocated under both methods is the same (IDR 609,519,103), ABC's advantage over the traditional method at PT. Nichindo Manado Suisan does not lie in changing the company-wide total, but in how that total is redistributed among products, as shown in Table 3 and revisited below.

A comparison of the company's profit under the traditional costing method and the Activity-Based Costing method is presented in Table 2.

Table 2. Comparison of company profit

Method	Profit (IDR)
Traditional Costing	824,909,881
Activity-Based Costing	824,909,880
Difference	+1

Source: Data Processing Results (2026).

As presented in Table 2, the profit obtained using the Activity-Based Costing method was nearly identical to that obtained using the traditional costing method, with a difference of only IDR 1. This difference is the direct counterpart of the IDR 1 difference in aggregate COGM shown in Table 1: because revenue and the volume of goods sold are unchanged between the two methods, any difference in COGM flows through, with the opposite

sign, directly into cost of goods sold and therefore into profit. The two differences are consequently equal in magnitude rather than coincidental, and neither reflects a meaningful change in the company's overall profitability.

Although the total cost of goods manufactured and profit under both methods were practically identical, with a difference of IDR 1 due to rounding, differences in cost allocation were still observed at the product level. As shown in Table 3, the ABC method showed a redistribution of manufacturing overhead costs among products based on the activities and resource consumption of each product.

Table 3. Comparison of product-level COGM under traditional costing and ABC

Product	Traditional COGM (IDR)	ABC COGM (IDR)	Difference (IDR)	%	Condition
Ikan Kayu	1,332,896,513	1,330,307,327	+2,589,186	+0.19	Overcost
Bubuk Ikan Kayu	295,163,044	295,275,158	-112,114	-0.04	Undercost
Serutan Ikan Kayu	571,703,769	574,180,842	-2,477,073	-0.43	Undercost
Total	2,199,763,326	2,199,763,327	-1	0	Offset

Source: Data Processing Results (2026).

Based on Table 3, the traditional costing method resulted in overcosting of Ikan Kayu by IDR 2,589,186 (+0.19%) and undercosting of Bubuk Ikan Kayu by IDR 112,114 (-0.04%) and Serutan Ikan Kayu by IDR 2,477,073 (-0.43%), relative to their ABC-based costs. This occurred because the traditional method allocates overhead using a single, volume-based rate and therefore does not account for differences in the consumption of batch-level activities (indirect labor, i.e., production supervision) and facility-level activities (machine hours) among the products: Ikan Kayu, which passes through the largest number of production batches and consumes the most machine hours relative to its output, is charged less batch-

and facility-level overhead than it actually consumes under the traditional method's kilogram-based allocation, while Bubuk Ikan Kayu and Serutan Ikan Kayu, which consume comparatively more batch- and facility-level resources per kilogram - reflecting the supervision, machine time, and coordination required at the boiling, cleaning, smoking-and-drying, and packaging stages of Katsuobushi processing are undercharged relative to their actual resource consumption.

These findings are directionally consistent with prior ABC case studies (Sujarweni, 2016; Bernawati & Fatmawati, 2021; Giselawati et al., 2024; Suharsono et al., 2024; Muoneke & Dandago, 2024; Pangau et al., 2025) in confirming that

ABC produces more accurate product costs than traditional costing. However, whereas those studies report their main effect as an aggregate change in COGM or profit - typically in the range of several percent to double digits - the present study finds a negligible aggregate effect (a difference of IDR 1, or effectively 0.0000%) alongside a material product-level redistribution of up to 0.43% of a product's cost. This indicates that, in a multi-stage, multi-product operation such as Katsuobushi processing, ABC's contribution over traditional costing is better assessed at the product level than at the aggregate level, since an aggregate comparison alone would have suggested, incorrectly, that the choice of costing method makes little difference to PT. Nichindo Manado Suisan.

5. Conclusion

This study set out to examine how Activity-Based Costing (ABC), compared with traditional costing, affects the cost of goods manufactured and profit determination of PT. Nichindo Manado Suisan, both in the aggregate and at the individual product level. At the aggregate level, the two methods produced practically identical total COGM (IDR 2,199,763,326 under traditional costing versus IDR 2,199,763,327 under ABC) and operating profit (IDR 824,909,881 versus IDR 824,909,880), a difference of only IDR 1 attributable to rounding in the pool-rate calculation; disaggregating the results to the product level, however, revealed that the traditional method systematically overcosted the primary product (Ikan Kayu) while undercosting the secondary products (Bubuk Ikan Kayu and Serutan Ikan Kayu), because it failed to capture differences in batch-level (production supervision) and facility-level (machine hours) activity consumption across products. Theoretically, these findings extend the ABC literature (e.g., Sujarweni, 2016; Bernawati & Fatmawati,

2021; Giselawati et al., 2024; Suharsono et al., 2024; Muoneke & Dandago, 2024; Pangau et al., 2025), which has largely evaluated ABC's benefit through aggregate COGM or profit differences in single-stage or moderately complex settings: in a multi-stage, multi-product operation, ABC's advantage need not appear as a large aggregate difference but can instead surface as a redistribution of cost among products that consume batch- and facility-level activities unevenly, implying that an aggregate-level comparison alone may understate, or even mask, the cross-subsidization that traditional costing produces between a primary product and its secondary products.

Practically, the near-identical aggregate figures should therefore not be read as evidence that the choice of costing method is immaterial for PT. Nichindo Manado Suisan: because the traditional method overcosts Ikan Kayu and undercosts Bubuk Ikan Kayu and Serutan Ikan Kayu, pricing or product-mix decisions based on traditional-costing figures risk overpricing the primary product while underpricing the secondary products relative to the resources each actually consumes, so management is advised to adopt Activity-Based Costing, at least as a complement to the traditional method, for product-level pricing and profitability evaluation, and to periodically review production activities to identify non-value-added activities that inflate batch- and facility-level costs. This study is nonetheless limited by its single-case, single-fiscal-period design and by the researcher judgment inherent in defining cost pools, cost drivers, and activity rates, all of which constrain the generalizability and precision of the findings; future research is therefore encouraged to extend this analysis to multiple product lines or companies within the seafood-processing sector, to compare results across multiple fiscal periods, and to triangulate cost-pool and cost-driver definitions with company

staff to strengthen the trustworthiness of the ABC estimates.

References

- Bernawati, Y., & Fatmawati, L. (2021). Utilization of activity-based costing method to calculate the cost of production and evaluate profit: (Case study at PT. Ionuda Sidoarjo). *Small Business Accounting Management and Entrepreneurship Review*, 1(1), 11-21.
<https://doi.org/10.61656/sbamer.v1i1.48>
- Carter, W. K. (2009). *Akuntansi biaya*. Edisi 14. Salemba Empat.
- Cooper, R., & Kaplan, R. S. (1988). *How cost accounting distorts product costs*. Harvard Business School Press.
- Fitriana, N. D. (2014). *Buku praktis menyusun laporan laba rugi*. Laskar Aksara.
- Garrison, R. H., Noreen, E. W., & Brewer, P. C. (2021). *Managerial accounting* (17th edition). McGraw-Hill Education.
- Giselawati, D., Iryani, L. D., & Rahmi, A. (2024). Case study of the impact of implementing activity-based costing and target costing on increasing profit at PT. Fajar Surya Wisesa Tbk. in the 2018-2021 period. *Journal of Islamic Contemporary Accounting and Business*, 2(1), 3021-7105.
<https://jurnal.tazkia.ac.id/index.php/jicab/article/view/314/>
- Kieso, D. E., Weygandt, J. J., & Warfield, T. D. (2018). *Intermediate Accounting* (17th ed.). John Wiley & Sons.
- Miradji, M. A., & Kurniawan, W. O. (2023). *Akuntansi biaya*. Alfasyam Jaya Mandiri.
- Muoneke, J. C., & Dandago, K. I. (2024). Activity-based costing for better production management in the Nigerian pharmaceutical industry. *International Journal of Research and Innovation in Social Science*, 8(14), 142-153.
<https://doi.org/10.47772/IJRISS.2024.814MG0014>
- Pangau, C. J., Saerang, D. P. E., & Pusung, R. J. (2025). Penerapan activity-based costing sebagai alat bantu pengendalian biaya dan efisiensi layanan pada PT. Yofanka Bersama Utama. *Manajemen Bisnis dan Keuangan Korporat*, 3(1), 128-141.
<https://doi.org/10.58784/mbkk.268>
- Shatu, Y. P. (2016). *Kuasai detail akuntansi laba & rugi*. Pustaka Ilmu Semesta.
- Sirait, P. (2017). *Akuntansi biaya; Pencatatan dan kelola biaya*. Expert.
- Suharsono, J., Febrian, M. I., Koeshardjono, H., Andrianata, M., & Fithriano, M. N. (2024). Analisis Penerapan Metode Activity-Based Costing (ABC) dalam Penentuan Harga Pokok Produksi pada Violet Bakery Kota Probolinggo. *EKOMA: Jurnal Ekonomi, Manajemen, Akuntansi*, 4(1), 3179-3187.
<https://alharamjournal.co.id/EKOMA/article/view/5222>
- Sujarweni, V. W. (2019). *Akuntansi biaya: Teori dan penerapannya*. Pustaka Baru Press.
- Sujarweni, V. W. (2016). Implementasi penentuan harga pokok produksi untuk mencapai laba optimal (Studi pada Sentra UKM Industri Bakpia di Wilayah Minomartani Sleman Yogyakarta). *Jurnal Riset Akuntansi dan Keuangan*, 4(3), 1111-1124.
<https://doi.org/10.17509/jrak.v4i3.4665>
- Witjaksono, A. (2013). *Akuntansi biaya*. Graha Ilmu.