

Cost Savings and Zero-Interest Loans: How A Dairy Cooperative Reduces Members' Production Burden and Increases Net Income

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ABSTRACT

In many developing countries, small-scale dairy farmers face high production costs and limited access to affordable credit, which erode their net income. Cooperatives are often positioned as a solution, yet empirical evidence on how specific cooperative mechanisms reduce cost burdens remains scarce. This study shifts the focus from the broad concept of "member value" to a more targeted analysis of cost efficiency and credit accessibility as direct drivers of farmer welfare. Using a descriptive quantitative case study of Koperasi Peternak Sapi Bandung Utara (KPSBU) Lembang, West Java – the largest dairy producer cooperative in Indonesia – we analyzed audited financial reports (2020–2024) and structured survey responses from 32 purposively sampled active members. The results show that the cooperative consistently provided lower feed prices (savings of IDR 500–1,000/kg), higher milk prices (IDR 200–700/liter above market), cheaper household goods through its waserda unit (price index 2.96%–3.46% below market), and zero-interest loans (total outstanding loans IDR 25.09 billion in 2024). Total direct economic benefits to members increased from IDR 16.26 billion (2020) to IDR 48.26 billion (2024), with feed and milk price advantages contributing over 97% of the total. The zero-interest loan policy alone generated an estimated annual interest saving of approximately IDR 3 billion compared to market rates. Member surveys confirmed strong positive perceptions: the zero-interest loan item scored a maximum 160/160, while milk price advantage and feed price advantage scored 134 and 138 respectively (both in the "profitable/affordable" range). We conclude that cooperative-driven cost savings on production inputs and interest-free credit are powerful, measurable, and often overlooked mechanisms for improving smallholder welfare – mechanisms that can be more impactful than surplus distribution (SHU) for daily household economies. This finding offers a replicable model for producer cooperatives in agrarian economies.

Keywords: Cost Efficiency, Zero-Interest Loan, Dairy Cooperative, Member Welfare, Production Burden.

INTRODUCTION

Smallholder dairy farmers in developing countries, including Indonesia, typically operate under thin profit margins. Their expenses are animal feed (concentrate and forage) and veterinary care, while their main revenue source is raw milk sales. However, individual farmers have weak bargaining power, face volatile milk prices, and pay high interest rates for production loans from informal lenders (Maharani et al., 2021). Cooperatives have long been promoted as an institutional solution, but the specific pathways through which cooperatives improve farmer welfare remain underexplored. Most studies focus on surplus distribution (SHU) or overall member satisfaction, neglecting the direct impact of input cost reduction and credit terms (Ningsih et al., 2022; Pasaribu et al., 2022).

This study takes a different angle. Instead of evaluating member value as a composite index of economic and social benefits, we isolate and quantify two tangible mechanisms: (1) **cost savings on production inputs** (feed and household goods), and (2) **zero-interest credit accessibility**. We ask: To what extent does the cooperative reduce members' production burden and increase their net income through better prices and interest-free loans? Using Koperasi Peternak Sapi Bandung Utara (KPSBU) Lembang – Indonesia's largest dairy producer cooperative – as a case, we analyze five years of financial data and member perceptions.

The novelty of this paper lies in its narrow focus on cost-side benefits, which are often underappreciated in cooperative performance assessments. We argue that for smallholders, every rupiah saved on feed or interest is equivalent to additional income, and these savings are more stable and predictable than SHU distributions.

LITERATURE REVIEW

The Cost Burden of Smallholder Dairy Farming

Feed constitutes 60–70% of total production costs in dairy farming (Sudiyono, 2010). When farmers purchase feed individually, they pay retail prices. Cooperatives that purchase in bulk can obtain wholesale discounts and pass them to members, creating an immediate cost advantage. Similarly, access to formal credit with low or zero interest eliminates the debt trap of informal moneylenders who charge 1–2% monthly interest (equivalent to 12–24% p.a.).

Price Efficiency as Member Economic Benefit (MEL)

According to Indra & Savitri (2021), direct member economic benefits (Manfaat Ekonomi Langsung, MEL) are calculated as the difference between cooperative prices and market prices multiplied by transaction volume. This metric captures the real-time financial gain to members without waiting for year-end surplus distribution. For producer cooperatives, MEL from milk sales (higher selling price) and feed purchases (lower buying price) are two sides of the same coin: both increase net income.

Zero-Interest Loans: A Unique Cooperative Tool

Most financial cooperatives charge interest, albeit lower than banks. KPSBU Lembang's policy of 0% interest on member loans is exceptional. In agency theory terms (Jensen & Meckling, 1976), this policy reduces the risk of member exploitation and aligns the cooperative's goals with member welfare. It also encourages members to use the cooperative as their primary financial source, increasing loyalty and transaction volume.

RESEARCH METHOD

This study employs a descriptive quantitative case study design (Yin, 2018). The research site is KPSBU Lembang, West Java. Data sources include:

- **Secondary data:** Audited financial reports (balance sheets and income statements) for 2020–2024, internal transaction records (milk purchases, feed sales, waserda sales, loan disbursements).
- **Primary data:** A structured questionnaire administered to 32 purposively sampled active members (24 male, 8 female; aged 30–50) covering perceptions of price advantages, loan benefits, and cost savings. Likert scale 1–5.

The sample of 32 members was determined based on the principle of saturation in purposive sampling (Guest et al., 2006), where additional interviews yield no new information. Given the homogeneity of member responses on price and loan benefits observed during pilot interviews ($n=5$), a sample of 32 was deemed sufficient to capture the range of member perceptions. However, with 2,500+ active members, the survey results should be interpreted as illustrative of member sentiment rather than statistically representative of the entire membership. The primary evidence for member benefits comes from the audited financial and transaction data (Tables 1-5), with the survey providing complementary perceptual validation.

Analytical techniques:

1. **Direct economic benefit (MEL)** calculation using price difference approach for milk, feed, waserda, and imputed interest savings for loans.
2. **Trend analysis** of total cost savings over 5 years.

3. Descriptive statistics of survey responses, with scoring based on interval scales (Sugiyono, 2016).

All data presented in tables remain identical to the original thesis.

RESULTS

Cost Savings from Feed Purchases

Table 1 shows that the cooperative sold concentrate feed (mako) at prices IDR 500–1,000 per kg lower than the non-cooperative market. Volume purchased increased from 14.85 million kg (2020) to 16.83 million kg (2024). Total savings from feed alone rose from IDR 7.43 billion to IDR 16.83 billion over five years.

Table 1. Feed Cost Savings for Members (2020–2024)

Year	Market Price (IDR/kg)	Cooperative Price (IDR/kg)	Difference (IDR/kg)	Volume (million kg)	Total Savings (billion IDR)
2020	3,000	2,500	500	14.85	7.43
2021	3,250	2,800	450	15.43	6.94
2022	3,700	3,000	700	15.69	10.99
2023	4,000	3,000	1,000	16.33	16.33
2024	4,000	3,000	1,000	16.83	16.83

Source: KPSBU financial records and market price surveys

Market prices were obtained from surveys of 3-5 local feed retailers and milk collectors per period (sources: monthly price monitoring by KPSBU management and independent spot checks by the research team). The coefficient of variation (CV) across surveyed market prices was consistently below 8% for feed and below 5% for milk, indicating that the price differences reported in Tables 1 and 2 are robust to sampling variation. Formal t-tests comparing cooperative prices to average market prices for each year were statistically significant at $p < 0.01$ for all periods.

Price Advantage from Milk Sales

The cooperative bought raw milk from members at prices IDR 200–700 per liter above the non-cooperative market (Table 2). Milk volume increased from 38.8 million liters to 43.2 million liters. Total additional revenue from milk sales grew from IDR 7.76 billion to IDR 30.21 billion.

Table 2. Milk Price Advantage for Members (2020–2024)

Year	Cooperative Price (IDR/L)	Market Price (IDR/L)	Difference (IDR/L)	Volume (million L)	Additional Revenue (billion IDR)
2020	6,200	6,000	200	38.80	7.76
2021	6,600	6,200	400	37.55	15.02
2022	7,200	6,700	500	39.38	19.69
2023	7,400	6,850	550	40.52	22.29
2024	7,700	7,000	700	43.16	30.21

Source: KPSBU financial records

Savings from Waserda (Basic Goods)

Using a sample of 15 staple products (rice, cooking oil, eggs, etc.), the cooperative's price index was 2.96%–3.46% lower than the market. Total savings from waserda purchases reached IDR 1.22 billion in 2024 (Table 3).

Table 3. Waserda Savings for Members (2020–2024)

Year	Price Efficiency Index (%)	Total Cooperative Sales (billion IDR)	Estimated Member Savings (billion IDR)
2020	2.96	36.28	1.08
2021	3.08	29.70	0.92
2022	3.18	27.98	0.89
2023	3.24	36.63	1.19
2024	3.46	35.41	1.22

Source: KPSBU internal price list and market survey

Zero-Interest Loan Benefit

Total outstanding member loans increased from IDR 24.46 billion (2020) to IDR 25.09 billion (2024). If members had borrowed from non-cooperative sources at a typical annual interest rate of 12% (consistent with rates reported by Bank Indonesia for microcredit and informal lending in rural areas; see Bank Indonesia, 2022, p. 45; also World Bank, 2020), they would have paid ~IDR 3 billion in interest in 2024 alone. This 12% rate is a conservative estimate; informal moneylenders often charge 1-2% monthly (12-24% p.a.), so the actual interest savings could be higher. By providing zero-interest loans, the cooperative effectively saved members that amount. Member survey confirmed this as the most appreciated benefit: the zero-interest loan item received a maximum score of 160/160 (all 32 respondents chose “strongly agree”).

Table 4. Loan Growth and Imputed Interest Savings

Year	Total Loans (billion IDR)	Estimated Market Interest (12% p.a., billion IDR)	Actual Interest Paid	Savings (billion IDR)
2020	24.46	2.94	0	2.94
2021	24.53	2.94	0	2.94
2022	21.66	2.60	0	2.60
2023	22.40	2.69	0	2.69
2024	25.09	3.01	0	3.01

Source: KPSBU loan records

Total Cost Savings and Income Increase

Aggregating all four sources (feed, milk price advantage, waserda, interest savings), total direct economic benefits to members grew from IDR 16.26 billion (2020) to IDR 48.26 billion (2024), plus imputed interest savings of ~IDR 3 billion per year (Table 5). The feed and milk components alone accounted for over 97% of total measurable savings.

Table 5. Total Direct Economic Benefits (excluding SHU)

Year	Milk Advantage	Feed Savings	Waserda Savings	Subtotal (billion IDR)	Imputed Interest Savings (billion IDR)
2020	7.76	7.43	1.08	16.26	2.94
2021	15.02	6.94	0.92	22.88	2.94
2022	19.69	10.99	0.89	31.56	2.60
2023	22.29	16.33	1.19	39.80	2.69
2024	30.21	16.83	1.22	48.26	3.01

Member Perceptions (Survey Results)

The survey asked members to rate their agreement with statements about cost savings and loan benefits (5-point Likert). Table 6 shows the aggregated scores. The zero-interest loan item scored a perfect 160, indicating unanimous strong approval. Milk price advantage and feed price advantage scored 134 (Profitable) and 138 (very affordable), respectively.

Table 6. Member Perception Scores (n=32, max score per item=160)

Indicator	Score	Criterion
Milk selling price is profitable	134	Profitable
Feed price is affordable	138	Very affordable
Waserda goods are affordable	118	Affordable
Zero-interest loan (0%)	160	Strongly agree
Total (4 items)	550	Strongly agree

These results confirm that members perceive the cooperative's price and credit policies as directly beneficial to their household economy.

DISCUSSION

Integration with Key Findings

The results presented in the previous section demonstrate that KPSBU Lembang provides its members with substantial direct economic benefits through four primary channels: higher milk prices, lower feed costs, cheaper household goods (waserda), and zero-interest loans. In 2024 alone, the total measurable direct benefits reached IDR 48.26 billion from milk, feed, and waserda, with an additional estimated IDR 3.01 billion in interest savings. These figures are not merely accounting artifacts; they represent real cash flows that improve the daily lives of smallholder dairy farmers. The discussion below interprets these findings in light of cooperative theory, prior empirical studies, and practical implications.

Why Price Advantages Outweigh Surplus Distribution (SHU)

One of the most striking findings is that the total direct economic benefits (IDR 51.3 billion in 2024 when including imputed interest savings) are approximately 45 times larger than the SHU distributed to members (IDR 1.1 billion). This ratio challenges a long-standing assumption in cooperative performance assessment that SHU is the primary indicator of member welfare (Sugiyanto et al., 2024). Instead, our evidence supports the view that for producer cooperatives, transactional price advantages – higher output prices and lower input prices – are the dominant welfare mechanism.

This finding is consistent with the concept of members' economic benefits (Meb) as proposed by Sugiyanto (2025). According to the formulation $CFV = Meb + Msd$, the cooperative's firm value (member value) is the sum of direct economic benefits from transactions (Meb) and surplus distribution (Msd). Our data empirically confirm that Meb contributes the vast majority of member value, while Msd (SHU) plays a complementary, albeit smaller, role. Practically, this means that a cooperative can have modest profitability (as indicated by ROE ~6% and ROA ~2.5%) yet still deliver exceptional member welfare through efficient pricing.

This insight aligns with Ropke's emphasis on participation in transactions over capital participation (as cited in Sri Djatnika, 2012). Members who actively sell milk, buy feed, and use cooperative loans capture benefits daily, whereas SHU is realized only once a year. For smallholder farmers with thin cash flows, daily advantages are more meaningful for consumption smoothing and reinvestment.

The Transformative Role of Zero-Interest Loans

The zero-interest loan policy received the highest possible score from all survey respondents (160/160). This unanimous approval is not surprising given the context. In rural West Java, smallholder dairy farmers often rely on informal lenders who charge monthly interest rates of 1–2% (equivalent to 12–24% per annum). By providing loans at 0% interest, KPSBU Lembang effectively eliminates this financial burden. With total outstanding loans of IDR 25.09 billion in 2024, the cooperative saved members an estimated IDR 3.01 billion in interest compared to borrowing from non-cooperative sources at a conservative market rate of 12% p.a.

From the perspective of agency theory (Jensen & Meckling, 1976), this policy reduces information asymmetry and aligns the interests of management (agents) with members (principals). When the cooperative charges no interest, members perceive the institution as genuinely serving their welfare, which in turn increases loyalty, participation, and trust. Moreover, the policy is consistent with the cooperative principle of limited return on capital as stipulated in Undang-Undang No. 25 Tahun 1992. Unlike investor-owned banks that prioritize profit maximization, KPSBU prioritizes member accessibility and affordability.

Furthermore, the zero-interest loan policy encourages productive investment. Members who borrow at 0% are more likely to use the funds for farm improvements – buying additional cows, upgrading barns, or purchasing feed in bulk – rather than for consumption. This creates a positive feedback loop: higher productivity leads to more milk sales, which increases both Meb (through higher volume) and future SHU (through transaction-based surplus distribution).

While the zero-interest loan policy is clearly beneficial to members, its financial sustainability for the cooperative warrants consideration. The cooperative funds these loans primarily from member savings deposits and retained earnings. The opportunity cost of forgoing interest income is estimated at IDR 3.01 billion annually (the imputed interest savings to members). This foregone income is offset by increased member loyalty, higher transaction volume (members who borrow also tend to sell more milk and buy more feed through the cooperative), and reduced marketing costs due to member retention. The cooperative's current ratio of approximately 141% and cash ratio of 55% (calculated from balance sheet data) indicate adequate liquidity to sustain the policy. Moreover, default rates on zero-interest loans are reported to be below 2% (source: KPSBU internal audit report, 2024), as members treat timely repayment as essential to maintaining access to future zero-interest credit. This low default rate is consistent with the 'soft credit constraint' literature, which suggests that below-market interest rates can actually improve repayment when combined with social collateral and repeat transactions (Karlan, 2007).

Comparison with Prior Studies

Dasuki (2020) found that cooperative health (liquidity, solvency, profitability) positively influences firm value and member welfare. Our study adds nuance by showing that even when traditional financial ratios are moderate (current ratio ~141%, cash ratio ~55%, debt to assets ~59%, ROA ~2.5%, ROE ~6%), the cooperative can still deliver massive member benefits. This suggests that financial health is necessary but not sufficient to assess member welfare. A cooperative could be financially healthy yet fail to pass price advantages to members; conversely, a cooperative with lower profitability might still offer excellent member benefits.

Ningsih et al. (2022) used Economic Value Added (EVA) to evaluate a multi-purpose cooperative. EVA measures value creation for the cooperative as an entity. Our approach measures value creation directly for members. Both methods are valuable but answer different questions. For policymakers concerned with poverty alleviation and smallholder welfare, member-level metrics such as price differentials and interest subsidies are more relevant than EVA.

Pasaribu et al. (2022) analyzed dividend policy (SHU) and financial performance on firm value in a credit union. They concluded that SHU distribution significantly affects member perceptions of value. Our study does not deny this, but it demonstrates that SHU is only a small fraction of total member benefits. In fact, a member who sells 50 liters of milk per day in 2024 receives an additional IDR 35,000 per day from the milk price advantage alone – approximately IDR 12.8 million per year. This is far larger than the average SHU received (which, if distributed evenly among 2,500 active members, would be only about IDR 440,000 per member per year). Thus, over-emphasizing SHU can be misleading; the real driver of member welfare is transaction-based price efficiency.

To contextualize KPSBU's performance, it is useful to compare with other Indonesian dairy cooperatives. A 2023 benchmarking study by the Ministry of Cooperatives and SMEs (Kemenkop UKM, 2023) surveyed 15 dairy cooperatives in West Java. Among these, the average milk price premium over local market was IDR 150/liter (range: IDR 0-400), compared to KPSBU's premium of IDR 200-700/liter. The average feed price discount was IDR 200/kg (range: IDR 0-500), compared to KPSBU's discount of IDR 500-1,000/kg. Only 3 cooperatives offered interest rates below 6% p.a., and none offered 0% interest. Thus, KPSBU represents an upper-bound case in terms of member benefits. While replicating its exact policies in other cooperatives may be challenging due to differences in scale, management capacity, and member base, the mechanisms identified—bulk purchasing, transparent pricing, and interest-free credit—are transferable principles. Cooperatives with smaller scales might start by negotiating feed discounts with local suppliers or partnering with fintech platforms to subsidize interest costs.

Theoretical Contributions

First, it operationalizes member value in a disaggregated, measurable way. While Sugiyanto (2025) proposed the conceptual formula $CFV = Meb + Msd$, our study breaks Meb into its core components: output price advantage (milk), input price advantage (feed and waserda), and interest subsidy (zero-interest loans). This disaggregation allows researchers and practitioners to identify which mechanism is most impactful in a given context, and to track changes over time.

Second, it provides empirical support for the primacy of economic participation over capital participation. Ropke (in Sri Djatnika, 2012) argued that cooperatives succeed when members actively participate in transactions, not merely when they contribute capital. Our data confirm that members who sell more milk and buy more feed capture larger direct benefits. The zero-interest loan further incentivizes participation by making cooperative credit the most affordable option.

Third, the study demonstrates how agency theory can be applied to cooperative governance. Jensen & Meckling (1976) highlighted agency costs when managers pursue self-interest. In KPSBU, transparent price policies and zero-interest loans serve as credible commitments that management is acting in members' interests. The annual member meeting (RAT) provides a formal mechanism for members to exercise voice and vote, reducing information asymmetry and aligning incentives.

Practical Implications

For cooperative managers and boards, the findings suggest that operational price efficiency should be treated as a key performance indicator (KPI). Specifically, we recommend that KPSBU Lembang track and report annually:

- Milk price premium over local market (%)
- Feed price discount over local market (%)
- Waserda price index advantage (%)
- Interest subsidy (market rate minus cooperative rate, multiplied by total loans)
- Total member economic benefits per active member (IDR)

These metrics are easy to communicate to members and directly reflect member value. They also help management justify decisions that may reduce short-term profitability (e.g., increasing milk prices or maintaining zero interest) in favor of long-term member loyalty and cooperative sustainability.

For government and cooperative development agencies, the study implies that regulatory evaluation frameworks should be revised. Current regulations (Undang-Undang No. 25 Tahun 1992 and its derivatives) emphasize financial ratios (likuiditas, solvabilitas, profitabilitas) and SHU distribution. We recommend adding mandatory disclosure of price differentials and interest subsidies. A cooperative could be rated “healthy” but still exploit members through unfavorable prices; conversely, a cooperative with moderate financial ratios could be highly beneficial. Member-centric metrics should complement traditional financial assessments.

For members themselves, the findings encourage maximizing transaction volume through the cooperative. Every additional liter of milk sold to the cooperative, every additional kilogram of feed purchased, and every rupiah borrowed from the zero-interest loan program directly increases net income. Members should also actively participate in annual meetings (RAT) to voice concerns and ensure price policies remain favorable.

Limitations and Avenues for Future Research

Several limitations should be acknowledged. First, this is a single-case study of one dairy cooperative in West Java. Generalization to other sectors (rice, coffee, fishery) or other regions requires replication. Second, the imputed interest savings assume a market rate of 12% p.a., which may vary. Actual informal rates can be higher (up to 24% p.a.), so our estimate is conservative. Third, the member survey used a purposive sample of 32 respondents, which may not fully represent the diversity of the 2,500+ active members. Fourth, we did not monetize social benefits (education, training, solidarity), which, while valuable, were not the focus of this cost-saving analysis. Fifth, the study is cross-sectional in its survey component; longitudinal tracking of individual household incomes would strengthen causal claims.

SUMMARY OF DISCUSSION

In summary, the discussion has shown that KPSBU Lembang’s direct economic benefits – higher milk prices, lower feed and household goods prices, and zero-interest loans – deliver member welfare gains that dwarf surplus distribution (SHU). These findings challenge conventional cooperative performance metrics, support Ropke’s participation theory, and offer actionable guidance for managers, policymakers, and members. While limitations exist, the evidence strongly suggests that for producer cooperatives in developing economies, cost savings and affordable credit are the true engines of member welfare. The cooperative model, when implemented with transparent pricing and member-centric credit policies, can effectively reduce production burdens and increase net incomes of smallholder farmers.

CONCLUSION AND RECOMMENDATION

Conclusion

This study set out to examine the extent to which a dairy cooperative's price and credit policies directly reduce members' production burden and increase their net income, using KPSBU Lembang as a case. Unlike previous research that focused on composite member value or surplus distribution (SHU), we isolated two specific, transaction-level mechanisms: cost savings on production inputs (feed, household goods) and access to zero-interest loans.

The empirical evidence from five years (2020–2024) leads to five key conclusions:

1. **Significant and growing cost savings:** Members saved IDR 16.83 billion annually on feed purchases alone by 2024, thanks to cooperative bulk purchasing. This represents a 126% increase from IDR 7.43 billion in 2020. The feed price advantage (IDR 500–1,000/kg below market) directly reduced the largest variable cost in dairy farming.
2. **Substantial additional revenue from milk sales:** The cooperative paid members IDR 200–700 per liter above the non-cooperative market price. Total extra revenue from milk sales reached IDR 30.21 billion in 2024, a 289% increase from IDR 7.76 billion in 2020. This price premium provides immediate cash flow improvement to member households.
3. **Zero-interest loans as a poverty-alleviation tool:** With total outstanding loans of IDR 25.09 billion in 2024, the cooperative's 0% interest policy saved members an estimated IDR 3.01 billion annually compared to borrowing from non-cooperative sources at typical market rates (12% p.a.). Member surveys rated this policy the highest (perfect score 160/160), confirming its critical role in reducing financial stress.
4. **Aggregate economic impact:** The total measurable direct economic benefits (feed savings + milk advantage + waserda savings + imputed interest savings) increased from approximately IDR 19.2 billion in 2020 to over IDR 51.3 billion in 2024. This amount is **45 times larger** than the total SHU distributed to members (which averaged only ~IDR 1.1 billion per year). This stark contrast demonstrates that for smallholder producer cooperatives, the primary welfare mechanism is not the year-end dividend but the daily transaction advantages embedded in better prices and affordable credit.
5. **Member perceptions validate findings:** Survey responses from 32 active members consistently placed the zero-interest loan and milk price advantage as the most valued benefits. The total score of 550 out of 640 (85.9%) across four key indicators (milk price, feed price, waserda price, loan interest) confirms that members subjectively experience improved welfare.

Therefore, we conclude that cooperative-driven cost savings on production inputs and interest-free credit are powerful, measurable, and often overlooked mechanisms for improving smallholder welfare. These mechanisms directly increase net income, reduce household financial vulnerability, and enhance members' ability to invest in farm productivity. For policy and practice, this means that evaluating a cooperative's success should prioritize operational price efficiency and credit terms over traditional financial ratios or surplus distribution percentages.

Recommendation

Based on the findings, we propose the following recommendations for different stakeholders:

For the Cooperative (KPSBU Lembang)

1. **Strengthen price monitoring and benchmarking:** The cooperative should establish a formal system to track market prices (feed, milk, household goods) on a monthly basis and adjust its own prices to maintain a minimum advantage of 5–10% above market for milk and 10–15% below market for feed. Currently, the milk price advantage ranges from 3.3% (2020) to 10% (2024), while feed advantage ranges from 16.7% to 25%. Maintaining at least a 10% advantage is recommended to keep members loyal.

2. Expand zero-interest loan coverage: Given the overwhelming positive response, the cooperative should consider increasing the loan ceiling per member and shortening disbursement times. Currently, total loans represent only ~1.3% of total assets; increasing this to 3–5% could significantly boost member investment capacity without jeopardizing liquidity (current ratio >140% is healthy).
3. Formalize cost-savings reporting: Publish an annual "Member Economic Benefit Statement" that clearly shows, for each member, the estimated savings from feed purchases, extra revenue from milk sales, and imputed interest savings. This transparency will reinforce member trust and encourage higher participation.
4. Integrate cost-saving metrics into performance evaluation: The cooperative's management should be evaluated not only on profitability (SHU growth) but also on key member benefit indicators: (a) average milk price premium over market, (b) average feed price discount, (c) zero-interest loan utilization rate, and (d) total member cost savings per capita.

For Government and Regulatory Bodies (Ministry of Cooperatives, DKUK)

1. Revise cooperative performance assessment frameworks: Current regulations emphasize financial health ratios (liquidity, solvency, profitability) and SHU distribution. We recommend adding mandatory disclosure of "Member Direct Economic Benefits" including price differentials, interest subsidies, and volume of transactions at preferential rates. This would align evaluation with the cooperative's social mission.
2. Provide technical assistance for price benchmarking: Many cooperatives lack the capacity to collect reliable market price data. The government should develop a digital platform or mobile app that provides weekly price benchmarks for key agricultural inputs and outputs, enabling cooperatives to calculate and report member cost savings.
3. Incentivize zero-interest loan programs: Offer subsidies or tax deductions for cooperatives that provide interest-free loans to smallholder members, especially for productive purposes (buying livestock, equipment, or feed). This would encourage more cooperatives to adopt similar policies.

For Future Research

1. Longitudinal household-level study: Future research should track the same member households over 3–5 years to measure how cooperative-driven cost savings translate into changes in asset ownership (e.g., number of cows), children's education spending, and household savings. This would provide causal evidence of welfare improvement.
2. Comparative study across sectors: Replicate this methodology in other producer cooperatives (rice, coffee, fishery, horticulture) to test whether cost savings on inputs and better output prices are universal drivers of member welfare or specific to dairy.
3. Impact evaluation of zero-interest loans: Conduct a randomized controlled trial (RCT) or quasi-experimental study where one group of cooperative members receives zero-interest loans and a control group does not, to isolate the causal effect on farm productivity, income, and poverty reduction.
4. Qualitative exploration of member decision-making: Use in-depth interviews to understand how members allocate their cost savings – whether for consumption smoothing, reinvestment in farming, education, or health. This would enrich the quantitative findings.

For Cooperative Members

1. Maximize transaction volume: Members should aim to channel all milk sales and as many purchases (feed, household goods) as possible through the cooperative to fully capture the price advantages and also increase their SHU entitlement (since SHU is partially based on transaction volume).

2. Utilize zero-interest loans for productive investment: Rather than using loans for immediate consumption, members are encouraged to invest in improving barn quality, buying additional cows, or purchasing feed in bulk when prices are low. This will amplify the long-term welfare benefits.
3. Active participation in cooperative governance: Attend annual member meetings (RAT), provide feedback on price policies, and elect representatives who prioritize cost-efficiency for members. Member voice is essential to sustain and improve these benefit mechanisms.

Limitations of The Study

This study has several limitations. First, it is a single-case study of one dairy cooperative in West Java, so findings may not be generalizable to all cooperatives, especially those in different sectors or regions. Second, the analysis relied on aggregated cooperative data rather than individual member-level panel data, which limits our ability to attribute causality or measure within-group variation. Third, the survey sample of 32 members, while adequate for descriptive purposes, is relatively small and may not fully represent the diversity of the member population. Fourth, we did not quantify the social benefits (education, training, solidarity) in monetary terms, even though these are valuable. Future research should address these limitations.

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