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ECONOMICS AND MARKETING OF SHRIMP FARMING IN SOUTH GUJARAT: COMPARATIVE PROFITABILITY, FINANCIAL FEASIBILITY AND MARKETING EFFICIENCY

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ABSTRACT

Shrimp farming in India is export driven, cost intensive and dominated by small holdings, yet farm-level evidence on how organization and market structure shape income is thin for South Gujarat. This study compares the economics of organized and unorganized shrimp farming units and traces the marketing channels through which unorganized farmers sell their produce. Primary data were collected from 120 unorganized farmers selected through a purposive multistage design from six talukas of Surat, Navsari and Valsad districts, together with 30 commission agents, 30 retailers and four processors. Data on organized units were drawn from the records of a collaborating aquaculture company. Costs and returns were evaluated through the cost-of-cultivation approach and discounted cash-flow measures (net present value at 10 per cent, benefit–cost ratio and internal rate of return), supplemented by unit-cost, break-even and sensitivity analysis. Marketing performance was assessed through marketing cost, margin, price spread, producer's share in the consumer's rupee and modified marketing efficiency. Organized units realized a net return of ` 6.50 lakh against ` 3.39 lakh for unorganized units, with a benefit–cost ratio of 1.23 against 1.15 and a net present value of ` 19.55 lakh against ` 7.58 lakh. Feed absorbed 84.1 per cent of variable cost in organized units and 57.8 per cent in unorganized units and a 10 per cent rise in feed price removed about 30 per cent of net return in both. In the marketing analysis, the short channel for 30-count shrimp returned 82.93 per cent of the consumer's price to the farmer, compared with 45.79 per cent in the processor-linked channel for 20-count shrimp; the corresponding efficiency indices were 4.86 and 0.84. Because the two channels serve different grades, the processor-linked chain should be made leaner rather than replaced. Feed-use efficiency, farmer-level aggregation and access to institutional credit emerge as the main levers for improving shrimp farm incomes in the region.

Key words : Shrimp aquaculture, Cost and returns, Benefit–cost ratio, Net present value, Marketing channels, Producer's share, Marketing efficiency, South Gujarat.

Introduction

Farmed shrimp has become one of the most traded animal proteins in the world and a single cultured species now carries most of the trade. That species accounts for roughly 80 per cent of global shrimp output because it grows fast, tolerates a range of culture conditions and costs less to produce than the alternatives. Production is also geographically narrow: Ecuador, China, India, Vietnam and Indonesia together supply close to three-quarters of the world total. Concentration of this kind has not translated into comfortable margins. International prices have trended downward, and Ecuador alone is reported to have lost about USD 1.5 billion in profit in 2023 as export prices fell while production costs climbed (Mandal and Singh, 2025).

Forecasts for the sector nonetheless remain upbeat. The global shrimp market is expected to expand from about USD 79.2 billion in 2025 to nearly USD 121.4 billion by 2033, with much of the growth attributed to recirculating aquaculture systems, biofloc and other intensive

technologies that allow higher stocking densities, better feed use and tighter biosecurity (Grand View Research, 2024). The implication for producers is not simply that more shrimp will be sold. Growth of this type favours farms that can hold costs in check and reach buyers cheaply and it exposes those that cannot, so the economics of individual farms deserves closer attention than aggregate production figures allow.

Feed is where cost pressure is most acute. Rising demand for shrimp feed has tightened supplies of fishmeal and fish oil and this has pushed research towards insect meals, single-cell proteins, microbial biomass and algal ingredients as partial substitutes. At the same time, exporters are moving from raw shrimp to peeled, cooked and ready-to-eat products, a shift that raises the value captured per kilogram but also raises the importance of processing and cold-chain capacity in the supply chain (FAO, 2024). Feed cost at the farm and value addition beyond it are therefore two sides of the same profitability question.

India's own shrimp story turned on a change in the farmed species. Output of the traditionally cultured tiger shrimp peaked in 2006 and then declined as disease took hold. Specific pathogen free stock of a new species was introduced experimentally in 2008 through quarantined broodstock imports and farmers switched in large numbers because it permitted higher stocking densities, suffered less disease and grew faster. It now supplies more than 90 per cent of India's farmed shrimp, and cultivation has spread from Andhra Pradesh to Odisha, West Bengal and Gujarat (Salunke *et al*., 2020).

The export record shows how heavily the sector leans on foreign buyers. India shipped seafood worth ` 72,325.82 crore (USD 8.28 billion) in 2025–26, of which frozen shrimp contributed ` 47,973.13 crore, or more than two-thirds of earnings (MPEDA, 2026). A sector this dependent on export demand transmits every price movement, quality rule and trade barrier directly to the farm gate, and the number and type of intermediaries between pond and port decide how much of that price a farmer keeps.

Trade policy has recently added to that exposure. Cumulative United States duties, combining a reciprocal tariff, anti-dumping duty and countervailing duty, brought the effective burden on Indian frozen shrimp to about 58 per cent in August 2025, in a year when the United States took nearly half of India's shrimp export value (Anonymous, 2026i). Farmers who sell through long chains have little ability to absorb a shock of that size, and those who sell through shorter local chains are affected differently. Any assessment of farm incomes has to consider marketing structure alongside production costs.

Disease and scale add to the risk. *Enterocytozoon hepatopenaei* and white spot syndrome virus remain the two most damaging endemic pathogens in Indian shrimp culture, and the first alone has been linked with a production loss of 0.08 million tonnes and revenue loss of USD 567.62 million (ICAR-CIBA, 2023). More than 91 per cent of Indian shrimp farmers operate holdings smaller than two hectares (CAA, 2023). Small operators with little bargaining power and limited access to technical support absorb these losses hardest, which raises the question of whether organized production, with its centralized procurement and biosecurity discipline, actually produces better economic outcomes than individual farming.

Gujarat is well placed to answer that question. The state has the longest coastline in India and about 69,583 hectares of brackish water suitable for shrimp culture, concentrated in Valsad, Navsari, Surat and Bharuch. Shrimp production is currently around 45,000 tonnes from roughly 6,500 hectares, at close to 7 tonnes per hectare (Sharma *et al*., 2018). Even so, most available accounts of shrimp culture in the state describe resources and production volumes. Detailed cost structures, discounted returns and comparisons between organized and unorganized units are rare.

Marketing has been studied even less. Weak supply-chain linkages, limited processing capacity and low adoption of preservation technology have been identified as reasons why stakeholders in Gujarat's fisheries earn less than the export potential would suggest (Solanki *et al.*, 2017). What remains unclear for South Gujarat is how much of the consumer's price reaches the shrimp farmer, how that share changes with shrimp size and channel length and whether long channels that add processing are inefficient or simply expensive for good reasons.

This paper addresses those gaps with two objectives. The first is to compare the cost structure, returns and financial feasibility of organized and unorganized shrimp farming units in South Gujarat. The second is to identify the marketing channels used by unorganized shrimp farmers and to measure their costs, margins, price spread, producer's share and efficiency. Two working hypotheses guide the analysis: that organized units earn higher net returns and stronger discounted indicators than unorganized units, and that shorter channels leave the farmer a larger share of the consumer's rupee. The

marketing framework follows the approach used for fish marketing by Sindhu *et al*. (2022).

Materials and Methods

Study area

The study was conducted in Surat, Navsari and Valsad districts, which together form the emerging brackish water aquaculture belt of South Gujarat. The region has estuaries, tidal creeks, saline water and direct access to the Arabian Sea, and it has attracted hatcheries, feed suppliers, processing units and export-oriented buyers in recent years (Sharma *et al*., 2018). Bharuch district, although it also has coastal aquaculture potential, was left out because the collaborating company does not operate there and a like-for-like comparison of organized and unorganized units would not have been possible.

Sampling design

A purposive multistage design was adopted. In the first stage, the three districts were selected for their growing importance in brackish water shrimp culture. In the second stage, six aquaculture-active talukas were chosen: Valsad and Umbergaon in Valsad district, Jalalpore and Navsari in Navsari district, Olpad and Choryasi in Surat district. In the third stage, 20 unorganized shrimp farmers were selected from each taluka, giving a sample of 120 farmers. Marketing intermediaries were sampled from the same talukas and four major processors operating in the South Gujarat coastal belt were included (Sindhu *et al*., 2022). Table 1 gives the composition of the sample.

Table 1 : Composition of sample respondents.

District	Taluka	Shrimp	Retailers farmers	Commission agents	Processors
Navsari	Jalalpore	20	5	5	–
Navsari	Navsari	20	5	5	1
Surat	Olpad	20	5	5	1
Surat	Choryasi	20	5	5	1
Valsad	Valsad	20	5	5	1
Valsad	Umbergaon	20	5	5	–
Total		**120**	**30**	**30**	**4**

Source: Field survey. Organized units are not part of the farmer sample; their data were obtained from the collaborating company.

Sources and nature of data

Primary data were collected through a structured, pre-tested schedule covering seed, feed and other inputs, labour, energy, pond preparation and maintenance, capital investment, production, prices realized and the costs of marketing. Because few shrimp farmers maintain written accounts, cost and return data rest on recall, and some respondents were reluctant to disclose costs, returns and market dealings. Data for organized units were obtained directly from the company's farm records. Secondary information came from the company database, government publications and institutional reports (Singh *et al*., 2025).

Cost and return analysis

The cost-of-cultivation approach was used. Total variable cost (TVC) comprised recurring expenses within a crop cycle: seed, feed, family and hired labour, electricity, fuel, pond preparation and maintenance, fertilizers and chemicals, medicines and health care, transport and miscellaneous items. Total fixed cost (TFC) comprised capital-type items such as pond construction and equipment, together with administrative, insurance and biosecurity charges for organized units. Total cost is TVC plus TFC. Gross return is production multiplied by the price realized, and net return is gross return less total cost. Family labour was imputed at the prevailing wage (Singh *et al*., 2025).

Financial appraisal

Cash flows were projected for five years from base-year (2025–26) values and held constant, on the assumption that one crop is taken per year. Net present value (NPV), benefit–cost ratio (BCR) and internal rate of return (IRR) were computed at a 10 per cent discount rate. With initial investment I_0, annual net cash flow CF_t and discount rate r, the indicators are defined as follows (Singh *et al*., 2025).

$$NPV = \Sigma\, CF_t/(1 + r)^t - I_0 \quad (t = 1,\ldots,5) \qquad (1)$$

$$BCR = \Sigma\, B_t/(1 + r)^t \div \Sigma\, C_t / (1 + r)^t \qquad (2)$$

$$\Sigma\, CF_t/(1 + IRR)^t - I_0 = 0 \qquad (3)$$

Since annual benefits and costs are constant, discounting leaves the BCR equal to the ratio of gross return to total cost in a single cycle. The IRR was found by iteration. Simple payback was computed as I_0 divided by annual net cash flow, and discounted payback by interpolating the year in which cumulative present value turns positive (Singh *et al*., 2025).

Unit-cost, break-even and sensitivity analysis

To make the two systems comparable on a common footing, cost per kilogram (total cost ÷ production), net return per kilogram and feed cost per kilogram were derived. The break-even price is total cost divided by production, and the margin of safety is the proportional gap between the realized price and the break-even price.

Sensitivity was tested by raising feed cost by 10 and 20 per cent, lowering the farm-gate price by 10 and 20 per cent, and combining a 10 per cent feed increase with a 10 per cent price fall, holding all other items constant. These tests were run on the base-year cost structure (Singh *et al.*, 2025).

Marketing analysis

Marketing channels were identified from field surveys and market observation. For each channel, the following measures were computed using the framework of Sindhu *et al*. (2022). Marketing cost (MC) is the sum of costs incurred by the producer and by each intermediary. The marketing margin of an intermediary (MM) is its selling price less its purchase price. Price spread (PS) is the difference between the consumer's price (Pc) and the farmer's price (Pf). Producer's share (Ps) is the farmer's price as a percentage of the consumer's price, and modified marketing efficiency (MME) relates the farmer's price to the combined cost and margin.

$$PS = Pc - Pf \quad (4)$$

$$Ps\ (\%) = (Pf / Pc) \times 100 \quad (5)$$

$$MME = Pf / (MC + MM) \quad (6)$$

Higher values of MME indicate that the farmer receives more for each rupee absorbed by marketing charges. Shrimp was graded by count, meaning the number of animals per kilogram. A 20-count lot averages about 50 g per animal and a 30-count lot about 33 g per animal (Sindhu *et al.*, 2022).

Results and Discussion

Cost structure

Table 2 sets out the itemized costs for the two systems. Variable cost dominated in both. It made up 76.5 per cent of total cost in unorganized units and 82.2 per cent in organized units, which reflects the more intensive input use in the latter. Feed was the largest single item and the gap between systems is stark: ` 19.80 lakh for organized units, or 84.1 per cent of variable cost, against ` 9.91 lakh, or 57.8 per cent, for unorganized units. Seed, electricity for aeration and medicines followed in both systems.

Fixed cost in absolute terms was almost identical across the two systems, at ` 5.27 lakh and ` 5.10 lakh, but its composition differed. Organized units carried administrative, insurance and certification and biosecurity charges totalling ` 47,000 that unorganized farms did not record. These items are small in money terms, yet they represent the compliance and monitoring layer that export buyers increasingly demand and they help explain why organized units achieve prices that unorganized farmers do not.

Production, returns and unit economics

Organized units produced 9,500 kg per crop against 8,061 kg for unorganized units and sold at ` 370 per kg against ` 320 per kg. Total cost was 28 per cent higher in organized units, but gross return was 36 per cent higher, and net return of ` 6.50 lakh was nearly double the ` 3.39 lakh earned by unorganized farms (Table 3). Two things lie behind that gap. Organized units harvested more, and they also sold each kilogram for ` 50 more. Of the two, the price premium is arguably the more important, since a ` 50 premium on 9,500 kg alone is worth ` 4.75 lakh.

Unit economics adds a qualification. Organized units actually produced more expensively, at ` 301.55 per kg against ` 277.94 per kg, and they spent ` 208 on feed for each kilogram harvested compared with ` 123 for unorganized farms. What they gained was revenue, ` 68 of net return per kilogram against ` 42. This pattern is consistent with a high-input, high-price strategy in which heavier feeding, closer health monitoring and scheduled harvests are paid for by a quality premium. Whether the extra feed produced proportionately more shrimp cannot be established without feed conversion ratios, which the survey did not record .

The margin of safety tells a similar story. Unorganized units could tolerate a fall of about 13 per cent in price or output before net return disappeared, while organized units could tolerate about 18 per cent. Neither cushion is large for an enterprise exposed to volatile export prices and disease and the smaller cushion on unorganized farms is the more worrying given their limited access to credit and technical support.

Financial feasibility

Both systems cleared every appraisal test (Tables 4 and 5). At a 10 per cent discount rate the five-year NPV was ` 7.58 lakh for unorganized units and ` 19.55 lakh for organized units. The BCR was 1.15 against 1.23 and the IRR was 58 per cent against 125 per cent. Simple payback was about 1.5 years for unorganized units and 0.8 years for organized units; discounted payback was 1.78 and 0.86 years, respectively.

The IRR figures deserve careful reading. They are high because the initial outlay, confined to pond and equipment, is small relative to annual net cash flow, while working capital is charged inside annual costs. They are therefore useful for ranking the systems and for confirming viability, but they should not be read as returns

Table 2 : Itemized cost structure of unorganized and organized shrimp farming units (` per crop).

Cost item	Unorganized (`)	% of TC	Organized (`)	% of TC
Seed	2,48,699	11.1	1,65,799	5.8
Feed	9,91,438	44.3	19,80,000	69.1
Imputed family labour	5,336	0.2	0	0.0
Hired labour (wages)	59,588	2.7	52,000	1.8
Electricity	1,96,655	8.8	1,65,000	5.8
Fuel	19,479	0.9	15,500	0.5
Pond preparation	21,987	1.0	18,500	0.6
Pond maintenance	8,471	0.4	6,500	0.2
Fertilizers and chemicals	27,167	1.2	19,017	0.7
Medicines and health care	1,10,785	4.9	77,549	2.7
Transport	11,420	0.5	9,500	0.3
Miscellaneous	12,857	0.6	10,000	0.3
Total variable cost (reported)	**17,13,883**	**76.5**	**23,54,366**	**82.2**
Total fixed cost (reported)	**5,26,630**	**23.5**	**5,10,318**	**17.8**
Total cost	**22,40,513**	**100.0**	**28,64,683**	**100.0**

Source: Field survey and company records. TC = total cost.

Table 3 : Production, returns and unit economics.

Indicator	Unorganized	Organized
Production (kg per crop)	8,061	9,500
Price realized (`/kg)	320	370
Gross return (`)	25,79,496	35,15,000
Total cost (`)	22,40,513	28,64,683
Net return (`)	**3,38,983**	**6,50,317**
Cost per kg (`)	277.95	301.55
Net return per kg (`)	42.05	68.45
Feed cost per kg produced (`)	122.99	208.42
Break-even price (`/kg)	277.95	301.55
Break-even output at realized price (kg)	7,002	7,742
Margin of safety (%)	13.1	18.5
Net return as % of gross return	13.1	18.5

Source: Computed from field survey and company data.

a new entrant could expect. The cash flows are also conservative in one respect, since annual costs include capital-type items that are not cash outflows every year. Even so, the ordering is consistent across all indicators: organized units dominate and unorganized units remain profitable (Singh *et al*., 2025).

Sensitivity to feed cost and price

Table 6 shows how net return responds to shocks. A 10 per cent increase in feed price reduced net return by 29.2 per cent in unorganized units and 30.4 per cent in organized units, even though feed's share of variable cost differs so widely between them. The reason is that organized units carry a much heavier feed bill in rupee terms, so the same percentage shock removes almost twice the money. Price shocks were more damaging for the unorganized group: a 10 per cent price fall cut net return by 76 per cent for them but by 54 per cent for organized units, and a 20 per cent fall pushed both systems into a small loss, with the unorganized loss more than three times as large.

Two practical points follow. First, feed efficiency matters as much as disease control for farm income, and advisory programmes that concentrate mainly on disease prevention understate this. Second, the price scenarios show why unorganized farmers are vulnerable in a way the base-case figures conceal. A positive BCR of 1.15 sounds comfortable until one notices that it takes only a modest fall in the farm-gate price, of the kind seen when export demand weakens, to eliminate profit .

Marketing channels

Two channels were identified among unorganized farmers. Channel I carried 20-count shrimp from the producer through a commission agent and a processor to the retailer and finally the consumer. Channel II carried 30-count shrimp from the producer through a commission agent to a retailer, with no processing step. The distinction follows size. Large shrimp go to processors for grading, packing and cold storage because they suit export and organized retail, whereas smaller shrimp are sold fresh through local markets. Any comparison of the channels is consequently a comparison of two grades as well as two routes, and the results below should be read with that in mind (Sindhu *et al*., 2022).

Table 4 : Five-year discounted cash flow at 10 per cent (`).

Year	Unorg. net cash flow	Unorg. PV	Unorg. cumulative PV	Org. net cash flow	Org. PV	Org. cumulative PV
0	–5,26,630	–5,26,630	–5,26,630	–5,10,318	–5,10,318	–5,10,318
1	3,38,983	3,08,170	–2,18,460	6,50,317	5,91,203	80,885
2	3,38,983	2,80,136	61,675	6,50,317	5,37,422	6,18,307
3	3,38,983	2,54,678	3,16,353	6,50,317	4,88,583	11,06,890
4	3,38,983	2,31,526	5,47,879	6,50,317	4,44,166	15,51,056
5	3,38,983	2,10,475	7,58,354	6,50,317	4,03,782	19,54,838

Source: Computed. PV = present value; discount factors 0.9091, 0.8264, 0.7513, 0.6830 and 0.6209 for years 1–5. Year 0 is initial investment in pond and equipment.

Table 5 : Financial feasibility indicators.

Indicator	Unorganized	Organized
Initial investment (`)	5,26,630	5,10,318
Annual net cash flow (`)	3,38,983	6,50,317
Benefit–cost ratio	1.15	1.23
Net present value at 10% (`)	7,58,383	19,54,895
Internal rate of return (%)	58	125
Simple payback (years)	1.55	0.78
Discounted payback (years)	1.78	0.86

Source: Computed from field survey and company data.

Table 6 : Sensitivity of net return and benefit–cost ratio.

Scenario	Unorg. net return (`)	Change (%)	BCR	Org. net return (`)	Change (%)	BCR
Base case	3,38,983	0.0	1.15	6,50,317	0.0	1.23
Feed cost +10%	2,39,840	-29.2	1.10	4,52,317	-30.4	1.15
Feed cost +20%	1,40,696	-58.5	1.06	2,54,317	-60.9	1.08
Farm-gate price –10%	81,034	-76.1	1.04	2,98,817	-54.1	1.10
Farm-gate price –20%	–1,76,916	-152.2	0.92	–52,683	-108.1	0.98
Feed +10% and price –10%	–18,110	-105.3	0.99	1,00,817	-84.5	1.03

Source: Computed. All other cost items held constant.

In Channel I the farmer's price was ` 572.67 per kg and the consumer paid ` 1,250.70 per kg, so the price spread was ` 678.03. Of that, ` 171.50 was cost and ` 506.53 was margin. The cost side was dominated by processing: the processor alone spent ` 137 per kg, about 80 per cent of the channel's marketing cost, mostly on labour, packaging, logistics and cold storage. The margin side was dominated by two actors, the processor at ` 300 and the retailer at ` 200, while the commission agent took only ` 6.53 and behaved essentially as a facilitator. Processors and retailers together accounted for about 51 per cent of the consumer's price.

Channel II was far shorter. The farmer's price was ` 367.58 per kg and the consumer paid ` 443.22, a spread of ` 75.64. Marketing cost was ` 33.71, of which more than two-thirds arose at the producer and the rest at the retailer as icing and spoilage. Total margin was ` 41.93, almost entirely the retailer's ` 38.40. Spoilage was the largest single cost item in both channels at the farm level, which points to handling and icing at harvest as a direct, low-cost target for improvement.

Price spread, producer's share and marketing efficiency

The producer's share was 45.79 per cent in Channel I and 82.93 per cent in Channel II and the efficiency index followed the same direction, at 0.84 against 4.86. Read in isolation these numbers say that the short chain is clearly superior. In Channel I, marketing charges and margins together exceeded the farmer's price, giving an MME below one, whereas in Channel II the farmer received almost five rupees for every rupee taken by cost and margin.

The fuller picture is more balanced. Farmers in Channel I still received ` 205 more per kilogram than those in Channel II, because they were selling a bigger, more valuable animal. The processor stage, which lowers the index, also supplies grading, cold storage, packaging and testing, which are the services that open export and organized retail markets and keep product within residue limits. A wide margin does not amount to inefficiency if it pays for functions that the buyer values. The processor's ` 300 margin, however, is large relative to its ` 137 of cost and is probably where bargaining power is

Table 7 : Marketing cost and margin by stage and channel (`/ kg).

Component	Channel I (20 count)	Channel II (30 count)
Producer-level costs		
Transport	8.00	5.49
Icing	7.21	4.94
Labour	7.84	5.57
Spoilage	11.45	7.35
Commission agent		
Commission	6.53	3.53
Processor		
Labour	50.00	–
Ice and cold storage	18.00	–
Electricity and utilities	15.00	–
Packaging materials	22.00	–
Transport and logistics	20.00	–
Quality testing and certification	5.00	–
Chemicals and sanitation	4.00	–
Waste disposal and ETP	3.00	–
Processor margin	300.00	–
Retailer		
Icing	–	2.47
Spoilage	–	7.89
Retailer margin	200.00	38.40

Source: Field survey. ETP = effluent treatment plant.

concentrated, so it is the natural point at which farmer-side organization could shift the split.

This suggests that the sensible policy target is a leaner long channel rather than a shorter one. Farmer groups that grade and aggregate at the pond side, shared ice and cold-storage facilities and contract arrangements with processors could reduce the number of hand-offs and the spoilage borne by farmers without dropping the quality assurance that export buyers require. That argument carries extra weight given that India sells most of its farmed shrimp abroad, where traceability and residue compliance are becoming stricter each year .

Conclusion and Policy Implications

Shrimp farming in South Gujarat is financially viable under both organizational forms, but the margin separating them is large. Organized units earned about twice the net return of unorganized units and stronger NPV, BCR and IRR. Their advantage came from a combination of higher output and a ` 50 per kg price premium, and it came despite a higher cost per kilogram. Unorganized units are profitable, but sit on a thin safety margin, so a price fall of roughly 13 per cent would erase their net return.

Table 8 : Price spread, producer's share and marketing efficiency.

Measure	Channel I (20 count)	Channel II (30 count)
Farmer's price (`/kg)	572.67	367.58
Consumer's price (`/kg)	1,250.70	443.22
Price spread (`/kg)	678.03	75.64
Total marketing cost (`/kg)	171.50	33.71
Total marketing margin (`/kg)	506.53	41.93
Marketing cost as % of consumer's price	13.7	7.6
Marketing margin as % of consumer's price	40.5	9.5
Producer's share in consumer's rupee (%)	**45.79**	**82.93**
Modified marketing efficiency (MME)	**0.84**	**4.86**

Source: Computed from field survey data.

Feed is the dominant cost in both systems and the largest single source of financial risk. A 10 per cent rise in feed price removes about 30 per cent of net return in either group. Extension and industry effort should therefore place feed management, feeding protocols and, over time, cheaper alternative protein sources alongside disease control as priorities. Access to institutional credit and structured training, which the wider study found to influence adoption of recommended practices should be part of that effort so that unorganized farmers can close part of the gap with organized units.

On marketing, the short channel for 30-count shrimp returned 82.93 per cent of the consumer's price to the farmer, against 45.79 per cent in the processor-linked channel for 20-count shrimp. The longer chain nonetheless delivers services that the shorter one cannot, and the processor's margin is where reform would bring the most benefit. Farmer-owned grading and aggregation shared cold-chain infrastructure and contract linkages with processors are more promising than attempts to shorten the chain.

Several limitations qualify these findings. Cost data for unorganized farms rest on farmer recall and the sample is confined to talukas where the collaborating company operates, so extrapolation to the wider coast should be cautious. The two marketing channels handle different grades, which limits direct comparison. Cash flows were held constant over five years and the analysis covers a single base year. Future work could follow farms over

several crop cycles, record feed conversion ratios to test whether higher feed spending translates into higher yield and compare channels within a single grade.

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