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Economic analysis of selected biscuit products – A case study of Sunder Biscuit Industry, Nagpur

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Abstract
This study examines the establishment cost, cost-returns and break-even performance of five selected biscuit products manufactured by Sunder Biscuit Industry, Nagpur, drawing on primary data for the year 2025-26. The total establishment cost of the unit was estimated at Rs. 1,020.00 lakh, with building and civil construction (31.86%) and machinery (31.37%) together accounting for nearly two-thirds of the investment, followed by land and site development (14.71%); licensing and registration required the lowest outlay (0.49%). Cost-returns analysis of the five selected products — Coconut, Digestive, Jaggy Marie, Salted and Fruit Bite Biscuits — showed total annual gross returns of Rs. 2,516.00 lakh against a total allocated cost of Rs. 2,045.73 lakh, yielding a net return of Rs. 470.27 lakh; Coconut Biscuit recorded the highest net return (Rs. 191.15 lakh, 38.09%) and, together with Jaggy Marie Biscuit, the highest benefit-cost ratio of 1.31, while Salted Biscuit recorded the lowest B:C ratio of 1.11, though every product remained profitable. Break-even analysis, undertaken as a further extension of the cost-returns findings, revealed that Coconut and Jaggy Marie Biscuits achieved the lowest break-even quantities (83.28 MT and 61.63 MT, respectively) with the highest margin of safety (83.34% each), whereas Salted Biscuit recorded the narrowest margin of safety (63.41%) and Digestive Biscuit the highest break-even quantity (132.93 MT), pointing to comparatively higher financial risk in these two product lines.

Keywords: Benefit-cost ratio, biscuit industry, break-even point, cost and returns, establishment cost, margin of safety

Introduction
India is the second-largest producer of biscuits in the world after the United States, and the biscuit industry occupies an important position within the country's food processing sector because biscuits are affordable, convenient and consumed across all age groups. Rapid urbanization, rising disposable incomes and the growing demand for ready-to-eat products have accelerated the growth of the biscuit market, while regional manufacturers increasingly compete alongside large organized players such as Britannia, Parle and ITC through modern production technology, quality assurance and efficient distribution.

Sunder Biscuit Industry, Nagpur, established in 1989, is one such regional manufacturer producing biscuits, cookies, cakes, rusks and namkeen under the Sunder brand. Like most small and medium food-processing enterprises, its long-term competitiveness depends on the scale of capital investment committed at the establishment stage and on the profitability generated by individual products once in production; both, in turn, determine the output level at which each product begins to cover its costs. Understanding the establishment cost of such a unit, the cost-returns structure of its major products, and the break-even and margin-of-safety position of those products together offers a comprehensive picture of the financial soundness of a regional biscuit enterprise.

The present paper draws on the following three objectives of the wider study:

1. To estimate the establishment cost of Sunder Biscuit Industry, Nagpur.
2. To analyse the cost and returns in selected biscuit products.
3. To work out the break-even point of the selected biscuit products.

Methodology
Area and Period of Study: The study was conducted at Sunder Biscuit Industry, Nagpur. Primary data were collected through direct interviews with production managers and employees using specially designed schedules, and pertain to the year 2025-26. Five biscuit products — Coconut Biscuit, Digestive Biscuit, Jaggy Marie Biscuit, Salted Biscuit and Fruit Bite Biscuit were selected for detailed cost-returns and break-even analysis.

Establishment cost: To achieve the first objective, information on land, building construction, machinery, material handling and electrical installation, furniture, quality-control and safety equipment, vehicles, licensing and other miscellaneous fixed assets was collected and analysed using simple tabular analysis.

Cost and returns: Fixed cost comprised depreciation on building, machinery, furniture, appliances and vehicles, and interest on fixed capital; variable cost comprised raw material, labour, electricity, fuel, packaging, transportation, repair and maintenance, and interest on working capital. These were combined as follows:
Total cost = Fixed cost + Variable cost
Gross return = Quantity of the product × Price per unit

Net returns = Gross return − Total cost
Benefit-Cost Ratio (B:C) = Gross return / Total cost

Break-even point: The break-even point of each selected biscuit product was worked out using the formula —
Break-even point = Fixed Cost / (Selling Price per unit − Variable Cost per unit)

Margin of safety, both in physical quantity and monetary value, was derived as the difference between actual annual sales and the break-even level, and expressed also as a percentage of actual sales.

Results and Discussion

Establishment cost of Sunder Biscuit Industry, Nagpur:

The establishment cost of the selected biscuit manufacturing unit was estimated to assess the total capital investment required for setting it up, comprising expenditure on land and site development, building, machinery, material handling equipment, electrical installation, furniture, quality-control and pollution-control equipment, vehicles, licensing and miscellaneous fixed assets.

Table 1: Establishment Cost of Sunder Biscuit Industry

Sr. No.	Particulars	Amount (Rs. in lakh)	Percentage (%)
1	Land and Site Development	150.00	14.71
2	Building and Civil Construction	325.00	31.86
3	Machinery	320.00	31.37
4	Material Handling Equipment	25.00	2.45
5	Electrical Installation	40.00	3.92
6	Furniture and Fixture	50.00	4.90
7	Quality Control Equipment	20.00	1.96
8	Pollution Control and Safety Equipment	15.00	1.47
9	Vehicles and Transportation	50.00	4.90
10	Licensing and Registration	5.00	0.49
11	Miscellaneous Expenses	20.00	1.96
	Total Establishment Cost	1020.00	100.00

Table 1 showed that the total establishment cost of the biscuit industry was estimated at Rs. 1,020.00 lakh. The highest investment was in building and civil construction (Rs. 325.00 lakh, 31.86%), followed closely by machinery (Rs. 320.00 lakh, 31.37%) and land and site development (Rs. 150.00 lakh, 14.71%). Furniture and fixture and vehicles and transportation accounted for Rs. 50.00 lakh (4.90%) each, while electrical installation required Rs. 40.00 lakh (3.92%). Material handling equipment, quality-control equipment and miscellaneous expenses together accounted for a further Rs. 65.00 lakh, and licensing and registration required the lowest investment of Rs. 5.00 lakh (0.49%). The findings clearly indicate that establishing a biscuit manufacturing unit is a capital-intensive undertaking, dominated by infrastructure (building) and production (machinery) investment, together accounting for nearly two-thirds of the total outlay.

Cost and returns in selected biscuit products

The cost-returns analysis of the five selected biscuit products — Coconut, Digestive, Jaggy Marie, Salted and Fruit Bite Biscuits — was carried out to evaluate their comparative economic performance. Total production cost was estimated from fixed and variable cost components, gross returns from the quantity produced and selling price of each product, and net returns as the difference between gross returns and total cost.

Table 2: Annual Fixed Cost of the Biscuit Manufacturing Unit

Sr. No.	Particulars	Amount (Rs. in lakh)	Percentage (%)
1	Depreciation on Building @5%	16.25	9.49
2	Depreciation on Machinery @10%	32.00	18.70
3	Depreciation on Furniture @10%	1.50	0.88
4	Depreciation on Appliances & Fixtures @10%	15.00	8.76
5	Depreciation on Vehicles @10%	5.00	2.92
6	Interest on Fixed Capital @12%	101.40	59.25
	Total Annual Fixed Cost	171.15	100.00

Table 2 revealed that the total annual fixed cost of the unit was Rs. 171.15 lakh, of which interest on fixed capital @12% alone accounted for the largest share (Rs. 101.40 lakh, 59.25%), followed by depreciation on machinery @10% (Rs. 32.00 lakh, 18.70%) and depreciation on building @5% (Rs. 16.25 lakh, 9.49%). Depreciation on furniture @10% formed the smallest component (Rs. 1.50 lakh, 0.88%). Of this total, Rs. 128.36 lakh (75.00%) was allocated to biscuit production on a proportionate basis, the remaining share being attributable to snack production, and it is this allocated amount that underlies the product-wise cost, contribution and break-even estimates that follow.

Table 3: Annual Cost of Production of Selected Biscuit Products

Sr. No.	Biscuit Product	Fixed Cost (Rs. in lakh)	Variable Cost (Rs. in lakh)	Total Cost (Rs. in lakh)
1	Coconut Biscuit	38.20	570.65	608.85
2	Digestive Biscuit	34.38	513.58	547.96
3	Jaggy Marie Biscuit	28.27	422.28	450.55
4	Salted Biscuit	15.28	228.26	243.54
5	Fruit Bite Biscuit	12.22	182.61	194.83
	Total	128.36	1917.37	2045.73

Table 3 showed that Coconut Biscuit incurred the highest total cost of production (Rs. 608.85 lakh), followed by Digestive Biscuit (Rs. 547.96 lakh), Jaggy Marie Biscuit (Rs. 450.55 lakh) and Salted Biscuit (Rs. 243.54 lakh), while Fruit Bite Biscuit recorded the lowest total cost (Rs. 194.83 lakh).

Across all five products, variable cost —dominated by raw material expenditure — accounted for the overwhelming share of total cost (93.73% at the aggregate level), confirming that profitability in biscuit manufacturing is governed principally by input-cost management rather than by fixed overheads.

Table 4: Annual Gross Returns of Selected Biscuit Products

Sr. No.	Biscuit Product	Quantity (MT/Year)	Selling Price (Rs/MT)	Gross Returns (Rs. in lakh)	Percentage (%)
1	Coconut Biscuit	500	160000	800.00	31.80
2	Digestive Biscuit	450	140000	630.00	25.04
3	Jaggy Marie Biscuit	370	160000	592.00	23.53
4	Salted Biscuit	200	135000	270.00	10.73
5	Fruit Bite Biscuit	160	140000	224.00	8.90
	Total Gross Returns	-	-	2516.00	100.00

Table 4 indicated that the industry earned total annual gross returns of Rs. 2516.00 lakh from the five selected products. Coconut Biscuit was the leading contributor (Rs. 800.00 lakh, 31.80%), followed by Digestive Biscuit (Rs. 630.00 lakh, 25.04%) and Jaggy Marie Biscuit (Rs. 592.00 lakh, 23.53%), while Salted Biscuit and Fruit Bite Biscuit contributed comparatively smaller shares of 10.73% and 8.90%, respectively — findings that closely mirror each product's share in total sales volume and selling price.

Table 5: Annual Net Returns of Selected Biscuit Products

Sr. No.	Biscuit Product	Gross Returns (Rs. in lakh)	Total Allocated Cost (Rs. in lakh)	Net Returns (Rs. in lakh)	Percentage (%)
1	Coconut Biscuit	800.00	608.85	191.15	38.09
2	Digestive Biscuit	630.00	547.96	82.04	16.36
3	Jaggy Marie Biscuit	592.00	450.55	141.45	28.20
4	Salted Biscuit	270.00	243.54	26.46	5.28
5	Fruit Bite Biscuit	224.00	194.83	29.17	5.82
	Total Net Returns	2516.00	2045.73	470.27	100.00

Table 5 showed that the five biscuit products together generated a total net return of Rs. 470.27 lakh against gross returns of Rs. 2516.00 lakh and an allocated cost of Rs. 2045.73 lakh. Coconut Biscuit recorded the highest net return (Rs. 191.15 lakh, 38.09%), followed by Jaggy Marie Biscuit (Rs. 141.45 lakh, 28.20%) and Digestive Biscuit (Rs. 82.04 lakh, 16.36%), whereas Salted Biscuit and Fruit Bite Biscuit recorded comparatively modest net returns of Rs. 26.46 lakh (5.28%) and Rs. 29.17 lakh (5.82%), respectively.

Table 6: Benefit-Cost Ratio of Selected Biscuit Products

Sr. No.	Biscuit Product	Gross Return (Rs. in lakh)	Total Allocated Cost (Rs. in lakh)	B:C Ratio
1	Coconut Biscuit	800.00	608.85	1.31
2	Digestive Biscuit	630.00	547.96	1.15
3	Jaggy Marie Biscuit	592.00	450.55	1.31
4	Salted Biscuit	270.00	243.54	1.11
5	Fruit Bite Biscuit	224.00	194.83	1.15

Table 6 showed that Coconut Biscuit and Jaggy Marie Biscuit recorded the highest B:C ratio of 1.31, indicating a return of Rs. 1.31 for every rupee invested in their production, followed by Digestive Biscuit and Fruit Bite Biscuit with a ratio of 1.15, while Salted Biscuit recorded the lowest B:C ratio of 1.11. Since the B:C ratio of every selected product exceeded unity, all five biscuit varieties were economically viable and profitable during the study period, though with a clear gradient in performance from Coconut and Jaggy Marie at the top to Salted Biscuit at the bottom.

Break-even point of selected biscuit products:

Building further on the cost-returns findings above, the break-even point (BEP) — the level of output at which total revenue equals total cost, resulting in neither profit nor loss — was worked out for each of the five selected biscuit products, together with the margin of safety by which actual sales exceeded this critical level. The break-even point is a key indicator of the operational risk and financial resilience associated with each product line.

Table 7: Break-Even Point of Selected Biscuit Products

Sr. No.	Particulars	Coconut Biscuit	Digestive Biscuit	Jaggy Marie Biscuit	Salted Biscuit	Fruit Bite Biscuit
1	Actual Annual Sales Quantity (MT/Year)	500	450	370	200	160
2	Selling Price per MT (₹)	160000	140000	160000	135000	140000
3	Variable Cost per MT (₹)	114129.17	114129.13	114129.14	114128.60	114129.08
4	Contribution per MT (₹)	45870.83	25870.87	45870.86	20871.40	25870.92
5	Break-Even Point — Quantity (MT/Year)	83.28	132.93	61.63	73.19	47.24
6	Break-Even Point — Value (₹/Year)	13324426	18610386	9861365	9880779	6613878
7	Margin of Safety — Quantity (MT/Year)	416.72	317.07	308.37	126.81	112.76
8	Margin of Safety — Value (₹/Year)	66675574	44389614	49318635	17119221	15746122
9	Margin of Safety (%)	83.34	70.46	83.34	63.41	70.48

Table 7 revealed that Coconut Biscuit, with the highest annual sales of 500 MT and a per-MT contribution of ₹45870.83, recorded a break-even point of only 83.28 MT and consequently the highest margin of safety of 83.34%, indicating strong profitability and low operational risk. Jaggy Marie Biscuit recorded an almost identical contribution per MT (₹45870.86) and the lowest break-even quantity of all five products (61.63 MT), likewise yielding an 83.34% margin of safety despite comparatively modest sales of 370 MT. Digestive and Fruit Bite Biscuits recorded moderate positions, with break-even points of 132.93 MT and 47.24 MT and margins of safety of 70.46% and 70.48%, respectively.

Salted Biscuit, in contrast, recorded the lowest per-MT contribution (₹20871.40) among all products and, despite a relatively low break-even quantity of 73.19 MT, the narrowest margin of safety of 63.41% on account of its modest sales volume of 200 MT — indicating that this product line carries comparatively higher financial risk and offers the least cushion against a fall in sales or a rise in costs. Digestive Biscuit, though achieving a healthy margin of safety, required the highest break-even quantity (132.93 MT) of all five products, reflecting its lower per-unit contribution relative to its production scale. Overall, Coconut and Jaggy Marie Biscuits emerged as the financially strongest products with low break-even points and high margins of safety, whereas Salted Biscuit warrants closer cost and pricing attention to strengthen its margin of safety.

Conclusion

The establishment of Sunder Biscuit Industry, Nagpur, required a substantial capital investment of Rs. 1020.00 lakh, dominated by building and civil construction and machinery, underscoring the capital-intensive nature of setting up a regional biscuit manufacturing unit. The cost-returns analysis showed that all five selected biscuit products were economically profitable during 2025-26, generating a combined net return of Rs. 470.27 lakh on a total allocated cost of Rs. 2045.73 lakh, with Coconut and Jaggy Marie Biscuits recording the strongest performance (B:C ratio of 1.31) and Salted Biscuit the weakest (B:C ratio of 1.11), though still above the break-even threshold of profitability. The break-even analysis reinforced this pattern: Coconut and Jaggy Marie Biscuits combined low break-even quantities with high margins of safety (83.34% each), confirming their status as the industry's most resilient products, while Salted Biscuit's narrow margin of safety (63.41%) and Digestive Biscuit's comparatively high break-even quantity (132.93 MT) identify these two product lines as priority areas for cost control and pricing review. Taken together, the establishment cost, cost-returns and break-even findings indicate that Sunder Biscuit Industry is a financially sound and profitable enterprise, with product-level break-even analysis offering an additional, actionable tool for guiding future production planning and pricing decisions.

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