



"ANALYZING PROCESS COSTING IN JEANS MANUFACTURING: A COMPREHENSIVE STUDY"

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Abstract

In India, the introduction of jeans as casual, everyday attire was initially met with unfamiliarity among people. The process of establishing jeans as a staple wardrobe item took considerable time and effort, involving extensive advertising across different media channels. The subsequent arrival of foreign brands in India significantly contributed to elevating the status of jeans as a popular fashion choice. The traditional Indian jeans market, which predominantly offered unbranded clothing, has now witnessed a surge in demand for superior quality fabrics. The cost of establishing a garment manufacturing unit in India varies depending on the scale of production and machinery utilized. These expenses can range from hundreds of thousands to several million rupees. The manufacturing process often involves dyeing multiple ends of yarn to create a warp, subsequently rebeaming the dyed warp into individual yarns evenly distributed onto section beams, which are then slashed and woven.

Efficient cost-saving strategies in the garment manufacturing sector encompass a range of approaches, including meticulous planning, streamlined operations, automation of machinery, utilization of management software, bulk procurement, waste minimization, staff training initiatives, and the provision of fair working conditions. This study seeks to explore process costing and its application in determining and reducing costs within the jeans manufacturing industry.

Key words: *Efficient cost saving, Indian jean market, streamlined operations, scale of production etc.,*

Introduction

India's economic reforms have empowered the middle class, granting them increased purchasing power. This rise in disposable income, attributed to globalization, has significantly altered the lifestyle and fashion choices of the country's youth due to the pervasive Western influence and the influx of multinational corporations (MNCs). Previously, high-quality jeans were scarce in India for domestic consumers. When local production of jeans commenced, a majority of these products were imported from Western competitors. In 1995, Arvind Mills pioneered the introduction of the first branded Indian jeans. Subsequently, other MNCs like Lee and Levis entered the Indian market. However, several high-end labels such as Calvin Klein and GAS faced challenges establishing themselves in this market and are presently in a transitional phase in India.

The Indian jeans market, historically dominated by unbranded clothing and valued at around Rs. 6000 crores, is undergoing constant transformations due to the entry of foreign brands like Wrangler, Levis, and Lee. Forecasts predict substantial growth in both volume and value for the Indian and Chinese jeans markets from 2010 to 2015. Pepe Jeans, originating in a small weekend roadside kiosk in London's Portobello Road Market in 1973, was established by the Shah Brothers - Nitin Shah, Arun Shah, and Milan Shah. The brand name "Pepe" was chosen for its simplicity and ease of writing. By 1975, they expanded to four locations and later established a jeans boutique on London's Kings Road. Further growth included the construction of a 25,000-square-foot office and warehouse in Avon more Trading

Estates, along with a second store on Canady Street in London. Pepe gained significant popularity in Europe throughout the 1980s.

Presently, Pepe jeans are retailed in more than 80 countries across Europe, Asia, Africa, America, and Latin America. When Pepe debuted in India, jeans as everyday comfortable attire was an unfamiliar concept, necessitating time to build brand recognition and consumer awareness through media campaigns. The influx of foreign brands in India also contributed to heightened awareness of jeans as a fashion staple.

Process costing is a commonly used financial approach in manufacturing, where items are consistently mass-produced through one or more processes.

Process costing finds application across various industries, except for billing systems relying on job, batch, or job costing techniques.

Advantages of Process Costing

1. Continuous determination of process costs within short timeframes, often computed daily or weekly using predetermined general expenses.
2. Simplicity and low transaction costs associated with this method.
3. Facilitation of control by assessing the effectiveness of each process.

Disadvantages of Costing Systems:

1. The cost obtained at the end of an accounting period represents historical value, limiting its utility for effective management.
2. Calculation of ordinary operating expenses necessitates considering works in progress, often leading to increased inaccuracies due to estimation.
3. Assigning different prices to similar products results in varied pricing, making product prices estimates rather than reliable indicators.

Core Principles of Process Costing

1. Recording material, labor, and overhead expenses for each task or activity throughout the period.
2. Adequately documenting the successes and failures of each project or activity during the period.
3. Determining a product's unit cost concerning surplus and profit loss by dividing all incurred expenses over a specific period by the total units produced during that period.

Production Cost Components

(i) Materials: Information crucial for production follows through the accounting process, starting from the initial stage and moving to subsequent processes upon completion.

(ii) Labor: Direct labor expenses usually constitute a small portion of production costs in industries employing cost systems. With increased automation, direct labor costs decrease while indirect costs rise.

(iii) Overheads: Overheads often form a substantial part of the total cost. Ensuring fair allocation of overheads among processes is essential.

Review of Literature

1. Mohibullah (2021) found that Mohibullah jeans gained popularity due to their comfort, durability, and low washing requirements. Raw denim's toughness is enhanced through various washing methods, adding wear resistance, comfort, and style. However, these processes, though mostly non-toxic, significantly impact the finished product's cost.

2. Tiago Pascoal Filomena (2011) discussed the challenges of activity cost in cost management systems (CMS), particularly in contexts involving large-scale customization. The study explored using activity-based costing (ABC) instead of traditional methods and recommended CMS based on functionality over product-focused budgeting.
3. UmmeMagreba (2020) highlighted the trend of backless denim jackets' increasing style appeal. To meet customer demand, various denim shirt designs with different washing techniques are being introduced. However, pricing analysis for new garments to align with customer expectations and quality remains challenging due to varying production costs.
4. Soon-YauFoong (2005) studied the adoption of advanced manufacturing technology (AMT) in response to heightened competition due to education and market liberalization. Manufacturers adopted AMT strategies, leading to significant changes in cost structures to respond faster to market changes.
5. Theresa Thompson (2016) mapped the journey of jeans from production to global retailers, emphasizing variations in manufacturing processes and their impact on the final product. Different finishing methods were explored across various manufacturers, influencing growth rates among large distributors, midsize suppliers, and small businesses.
6. A.Günasekaran (1999) highlighted the role of performance measurement in modern manufacturing organizations, emphasizing the significance of activity-based costing (ABC) in calculating labor costs, optimizing product mix, and reducing manufacturing expenses.
7. Günasekaran (1998) emphasized the importance of Activity-Based Costing (ABC) in today's competitive manufacturing/service sectors, underlining its role in quality control and improved production systems.
8. Tiago Pascoal (2009) discussed target costing's strategic value in product development, recommending vigilant monitoring of product functionality for reasonable pricing during development stages.
9. Farzana Hussain (2006) reviewed polymer nanocomposites, focusing on their structure/property relationships, manufacturing processes, commercial applications, and health/safety concerns, aiming to advance research methodologies in this domain.
10. Ramesh ChanderKuhad (2011) explored the potential applications of microbial celluloses in various industries like pulp and paper, textiles, biofuel production, and agriculture, highlighting research interest in this area.
11. Utku Köker (2005) compared Activity-Based Costing (ABC) to traditional costing methods in manufacturing, emphasizing ABC's advantages in providing accurate cost information by tracking costs based on activities rather than traditional overhead allocation.
12. H. Strathmann (2004) discussed the evolution of electro dialysis in water purification but noted its decline in the drinking water industry due to overall cost factors compared to newer technologies like reverse osmosis.
13. Arica Rindfleisc (1997) summarized recent contributions and criticisms in the field of Total Cost Analysis (TCA), offering guidelines for future research in business and related disciplines.
14. Yong Huang (2015) explored the superiority of Additive Manufacturing (AM) over traditional manufacturing processes, focusing on its layered material incorporation from 3D models.
15. Pomfret (2014) examined the globalization's effect on production processes, emphasizing the fragmentation of activities across global value chains (GVCs), evaluating participation patterns among countries.
16. JiHyun Bae (2005) discussed the US textile and apparel industry's response to global competition, emphasizing rapid response strategies, information technology, and flexible designs catering to specific customer needs.

17. Kleberon (2005) analyzed the formation of a Local Productive Arrangement (APL) in the jeans manufacturing industry in a specific city, using qualitative methods to study industry representatives, public authorities, and supporting bodies.
18. Niğmet Uzal (2023) highlighted the exponential growth in clothing sales and the textile industry's focus on long-term solutions despite environmental concerns and economic relationships.
19. Trang Huynh (2021) discussed innovative washing techniques in Vietnam, particularly the use of CO2 laser technology in producing specific types of jeans, addressing limitations in traditional methods.
20. Takao Someya (2004) focused on the importance of sensitive skin for future household robots, noting advancements in skin-like technology for these robots compared to other sensory capabilities.

Problem Statement

The manufacturing of jeans involves various stages, from initial production to packaging, with each step contributing to the unit cost of the final product. These costs dictate profit margins and ultimately influence the selling price. Hence, a thorough assessment of the expenses associated with garment production is crucial. This research was conducted in Bellary city to delve into this aspect without any bias.

Research Objectives

1. Calculate the cost of each stage in jeans manufacturing.
2. Understand how manufacturing costs are allocated in the jeans manufacturing process.
3. Determine the overall cost of jeans production using comprehensive product information.

Scope of the Study

This research aims to gather comprehensive information about garment manufacturers across the entire city of Bellary.

Research Methodology:

1. Data Collection Methods: Structured questionnaires were used to gather raw data.
2. Research Tools Used : Percentage method was utilized for data analysis.

Limitations of the Study

1. The study was confined to the city of Bellary.
2. The coverage is only jeans factories in the city.
3. None of the manufacturing companies were willing to provide information, posing a constraint on data collection.

Data Analysis & Interpretation

1. Age of the respondents

Particulars	No of respondents	%
25-30 years	07	23%
30-45 years	18	60%

45-60 years	03	10%
Above 60 years	02	7%
Total	30	100%

Interpretation

In the analysis above table and chart showing that 60% of the respondents are 30-45 years old, 23% of the respondents are 25-30 years old just 07% respondents are above 60 years.

2. Gender of the respondents

Particulars	No of respondents	Percentage
Male	27	90%
Female	03	10%
Total	30	100%

Interpretation: In the analysis above table and chart showing that 90% of the respondents are male candidates and 10% of the respondents are female candidates.

3. Nature of business

Particulars	No of respondents	Percentage
Sole trading	18	60%
Partnership	07	23%
Others	05	17%
Total	30	100%

Interpretation: in the analysis above table and chart showing that 60% of the respondents nature of business is sole trading firm, 23% of the respondents working as partnership firm and 17% of the respondents other form of registered business.

4. Scale of business

Particulars	No of respondents	Percentage
Large scale	06	20%
Medium scale	13	43%
Small scale	11	37%
Total	30	100%

Interpretation: in the analysis above table and chart showing that 43% of the respondents having a medium scale enterprisers, 37% of the respondents are small scale enterprisers and just 20% of the respondents are large scale enterprisers.

5. No of process involved in jeans manufacturing

Particulars	No of respondents	Percentage
10	07	23%
06	14	47%
07	09	30%
Total	30	100%

Interpretation: In the analysis above table and chart showing that 47% of the respondents are said 6 process involved in manufacturing a jeans,30% of the respondents are said 7 process involved in manufacturing a jeans and just 23% of the respondents are said 10 process involved.

6. Cost per cutting

Particulars	No of respondents	Percentage
10-50	22	73%
50-100	03	17%
100 above	05	10%
Total	30	100%

Interpretation: In the analysis above table and chart showing that 73% of the respondents are said 10-50 Rs per cutting cost per unit,17% of the respondents are said 50-100 and just 10% of the respondents are said above 100.

7. Cost per stitching per unit

Particulars	No of respondents	Percentage
5-10	03	10%
20-30	09	30%
30 above	18	60%
Total	30	100%

Interpretation: in the analysis above table and chart showing that 60% of the respondents are said above 30 Rs per unit,30% of the respondents are said 20-30 per unit for stitching.

8. washing Cost

Particulars	No of respondents	Percentage
50-100	17	52%
100-150	09	27%
200 above	07	21%
Total	30	100%

Interpretation: In the analysis above table and chart showing that 52% of the respondents are said 50-100 Rs per unit, 27% of the respondents are said 100-150 and 21% of the respondents are said above 200.

9. Packing

Particulars	No of respondents	Percentage
5-20	21	70%
20-30	06	20%
30 above	03	10%
Total	30	100%

Interpretation: In the analysis above table and chart showing that majority of the respondents are said 5- 20 Rs per unit for packing, 20% of the respondents are said 20-30Rs per unit and few respondents are said above 30 Rs per unit.

10. Cost per unit selling

Particulars	No of respondents	Percentage
50-100	24	80%
100-200	05	17%
300 above	01	03%
Total	30	100%

Interpretation: in the analysis above table and chart showing that majority 50-100 per selling expenses per unit, 17% of the respondents are said 100-200 per unit and few respondents are said above 300 per unit.

11. Profit

Particulars	No of respondents	Percentage
20%	13	43%
25%	09	27%
Above 25%	08	30%
Total	30	100%

Interpretation: According to the analysis in the table and graph above, 43% of respondents indicated a 20% profit per unit, 27% indicated a 25% profit per unit, and just a small number indicated a 25% profit per unit.

12. No of units manufacturing

Particulars	No of respondents	Percentage
20000-30000	08	27%
20000-15000	16	53%
15000-8000	06	20%
Total	30	100%

Interpretation: in the analysis above table and chart showing that large scale enterprisers manufacture 20000-30000 units per month, medium scale enterprisers manufactures 20000-15000 units per month and small scale enterprisers manufactures 15000-8000 units per month.

13. Salary per hour

Particulars	No of respondents	Percentage
60	17	57%
80	10	33%
80 above	03	10%
Total	30	100%

Interpretation: According to the research above, the table and figure, 57% of respondents reported earning \$60 per hour, 33% reported earning \$80 per hour, and 10% reported earning more than \$80 per hour.

14. Electricity

Particulars	No of respondents	Percentage
3000	10	33%
2500	17	57%
1000	03	10%
Total	30	100%

Interpretation: According to the study above, the table and chart, 57% of respondents reported making \$2500 per month, 33% reported making \$3000 per month, and only 10% reported making \$1,000 per month.

15. Type of business

Particulars	No of respondents	Percentage
Own	05	17%
Rent	16	53%
Lease	07	23%
Others	02	07%
Total	30	100%

Interpretation: According to the research above, the table and chart, 53% of respondents run their businesses out of rented spaces, 23% operate out of spaces they lease, and 17% operate out of spaces they own.

16. Rent per month

Particulars	No of respondents	Percentage
10000-15000	13	43%
20000-30000	11	37%
30000-50000	06	20%
Total	30	100%

Interpretation: According to the research above, the table and chart, 43% of respondents pay between \$10,000 and \$15,000 per month in rent, 37% pay between \$20,000 and \$30,000 per month, and 20% pay more than \$50,000 per month.

Findings of the study

1. The study shows that over 40% of respondents have medium-scale enterprises, 35% are small-scale, and about 25% are large-scale entrepreneurs.
2. About 45% mentioned 6 processes involved in jeans manufacturing, 30% indicated 7 processes, and only 23% mentioned 10 processes.
3. Over 70% reported a cutting cost between 10-50 Rs per unit, while 17% mentioned 50-100 Rs, and only 10% stated costs above 100 Rs.
4. More than 60% mentioned stitching costs above 30 Rs per unit, 30% cited costs between 20-30 Rs per unit.
5. Over 50% reported washing costs between 50-100 Rs per unit, 27% mentioned 100-150 Rs, and 21% stated costs above 200 Rs.
6. The majority reported packing costs between 5-20 Rs per unit, 20% stated costs between 20-30 Rs, and a few mentioned costs above 30 Rs per unit.
7. Most mentioned selling expenses between 50-100 Rs per unit, while 17% reported expenses between 100-200 Rs, and only a few stated costs above 300 Rs per unit.
8. Over 40% reported a profit margin of 20% per unit, 27% mentioned 25%, and a few reported a 25% profit margin.
9. Large-scale enterprises manufacture 20,000-30,000 units per month, medium-scale produce 20,000-15,000 units, and small-scale enterprises manufacture 15,000-8,000 units per month.
10. More than 50% earn 60 Rs per hour, 33% earn 80 Rs per hour, and 10% earn above 80 Rs per hour.
11. Over 50% mentioned earning 2500 Rs per month, 33% reported 3000 Rs, and only 10% reported earning 1000 Rs per month.
12. Over 50% of respondents live in rented housing, 23% in leased housing, and 17% in owned housing.
13. About 43% pay between \$10,000 and \$15,000 in rent, 37% pay between \$20,000 and \$30,000, and 20% pay more than \$50,000 per month.
14. Over 40% spend \$5,000 monthly on machine maintenance, 30% spend \$15,000, and 27% spend \$8,000 per month.

Conclusion

The manufacturing process starts with buyers requesting initial cost estimates and styles from manufacturers. The initial cost estimation includes fabric, trim, and CMPT (Cut, Make, Pack, Trim) consumption. However, during production, costs fluctuate significantly due to variations in fabric, trims, and CM costs, causing differences between planned and actual costs. There are no predetermined formulas or methods to anticipate these cost fluctuations, resulting in varying profit margins from the initial plans for a particular product. Additionally, the cost quoted to buyers may differ based on factors such as quality, quantity, lead time, and profit margins, which can also vary among different buyers.

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