Cost Analysis of an Inner Garment

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Abstract
cost of manufacturing a garment is dynamic as the cost is influenced by factors that are dynamic in nature. cost of the garment price is arrived at the time of sample development based on the prevailing cost of raw materials and other overheads. price of the garment is negotiated with buyers based on the price arrived at in the sample development. manufacturing cost is not always same as predicted. garment industry is looking for the economical cost solution which can provide best cost of finished goods and to identify that the industry gained profit out of the particular style or not. even though many products are available for cost analysis, garment industry is mainly looking for solution which can clearly identify profit made in the each style. Therefore in this study, it is suggested to have modifications on to the existing ERP application as add on module by creating an interface to existing information. This module enables the apparel industry to capture the information relating to production thus helps to compare the expenditure incurred in making each style with the order price to arrive at the actual profit made out of each style manufactured in the industry. This article specially discussed about cost analysis of an inner garment using some tools like ERP and some cost control methods.

Keywords: - knitted garments, costing, apparel industry, inner wear, factors...

1 INTRODUCTION
COST The term alone describes the value for the product, where cost is the split up process of making goods from raw material to the end of serving into the hands of consumer. The term cost has so many definitions but in textile it means “Price of the garment”. Costing in the garment making process is one of the most complicated procedures. There are many things that decides the pricing of the single piece of the garment. Purchasing of raw materials, cost of dying, knitting, bleaching, printing, transport labour cost, packing cost, overheads, banking charges, cost of accessories and trims used all are included in it. The merchandiser and the top management of the company are actively involved in deciding the cost of a garment.
1.1 OBJECTIVES
The main objective of this article is to show the base calculation of inner wear (vest and briefs) costing & cost control measures. Cost is the major process in any kind of manufacturing business, in textile it is the most important process where each and every time executing the order begins with costing process it cannot be fixed like any other industry. This process is mainly done by Merchandisers as he acts as organizer in receiving and executing orders. The main objective of this article is to clarify the importance of costing, calculation of costing & cost control which has been done without affecting the profit, salary, wages and other expenses.

2. LITERATURE REVIEW
Costing of garment is a very important task for a garment factory which runs for business purposes. Costing of the garments considering the raw materials expenditure, salary and wages of officers and workers, distributions and advertisement expenses etc. all direct and indirect expenses is done in this factory. It is determined by a troop of accountants with advice and consultancy of executive director. The following factors are considered for costing any dyed product.

1. Total dyes and chemical cost.
2. Total utility cost
3. Salary
4. Lunch
5. Entertainment cost
6. Government cash incentive
7. Yarn cost
8. Knitting cost
9. Cost of dyeing
10. Cost of finishing
11. Cost of cutting, sewing, accessories etc.
12. Cost of printing (If any)
13. Cost of cutting, sewing, cartooning etc.
14. Labor cost (direct & indirect)
15. Factory cost
16. Sales and caring cost.

The studies relating to textile exports in India and other countries highlighting the impact of globalization and liberalization on garment costing and what are the factors affecting and improving costing of garment. Here few articles which are already done research on garment related topics.

Kalirajan and Singh (2007) did comparative analysis of China’s and India’s recent export performances. Secondary data was taken. Average values of exports during 2000-03 and average size of economics for 2000-02 were taken. Data on trade restrictions and openness to trade were also taken for the period 2000-C2. Mukherjee (2001) observed that small and medium enterprises occupied a crucial position in the Indian economy not only because they contributed to GDP, income, exports and employment but they also implied self/group initiative, self-employment and small livelihoods, and a small business. It was important to create and ensure space and more opportunities for such a sector given three things- unemployment in...
India, structural changes due to disinvestment and privatization and uncertain environment faced by SMEs in today’s world. Pelzman (1984) examined effect on profitability of Textiles and Apparel for 29 textile and 33 apparel industries during the period 1969-79 by using multiple regression analysis.

Singh (1998) analyzed the issues peculiar to a 'small scale of production' in India in an increasingly globalized scenario. She stated that small and micro producers were crucial in developing economies, and their role was even greater in the largely rural economies of South Asia. In India also, the sector was the second largest employer, after agriculture, country's GDP. India was an exception, in that, it gave the small scale sector large incentives, and protection, in the period 1948-1991, going to the extent of reserving certain production lines solely for the sector. She also examined some of the other issues plaguing the sector such as credit availability and maintaining quality standards.

2.1 Area and specification

Here we reviewing the concept of costing of inner garments, where its increase and decrease in the pricing level of the garment and raw material over a period of time. The costing of the garment begins with the sampling process where samples are costed as a high in producing because of its quantity. Quality and quantity of the garment is the most important thing to be considered because higher quantity with less quantity cost lesser than small quantity with high quality, where it takes similar time for making both the types.

3 COSTING

- Fabric cost
- CM cost
- Trims and accessories
- Fob price
- Factory overheads
- Profit

Costing includes all the activities related to purchase of raw materials, trimmings and accessories, fabrics, sewing and packing of garments, transport and conveyance, etc. There are always fluctuations in the price of raw materials and accessories; charges of weaves or knitting, processing, finishing, sewing and packing; charges of transportation and conveyance. Hence it is essential to have updates about the price updates in the market, quality systems, and transportation and freight charges. The volatile nature and rigorous competition in the global garment manufacturing industry drive all companies to minimize their cost by controlling inventory, accurate furcation, and low markdowns. It must be remembered that the quality depends on price, and price depends on quality. Each product will have different price according to its quality. While the manufacturers and retailers decide the retail price of the garment, factors such as the average customers buying level, quality and
quantity and payment terms, should be taken into consideration. It is quite useful and handy to understand the percentage share of cost for each constituent of the apparel supply chain, including material used. The allocation of the cost depends upon multiple variables. Due to competitive manufacturing in Asian countries, a large proportion of the world's garments are manufactured in China, India, Bangladesh, Pakistan, etc. The 'cost to the factory, where the garment is manufactured include types of fabrics used, dyeing cost, trims and accessories used (such as labels, hangers, threads, fusing, buttons, zippers, etc.), cutting cost, stitching cost, trimming cost, packing cost, company overhead, labour cost, administration cost etc. A reasonable markup is added on the finished garment to cover the expenses incurred by the manufacturer and to earn profit. Once the garment is manufactured, road/rail transportation cost is added to deliver the garments to a port of loading. At the port of loading the cost of freight forwarders and stevedoring is added. Mostly the garments are shipped through sea unless the less turnaround time that demands on air transport. The landed cost of the garment in the buyer's country includes the FOB (free on board) price, shipping cost, clearance cost, custom duties and marine time insurance. In case of sea fardel. The cleared garments from customs are road/rail transported to the buyer's warehouse, where the cost of inventory holding is added on the garment price. Margin is added to the final price (which cost paid until the warehouse), which largely covers any markdowns, expenses like salaries, sales promotion, rent, administration cost, insurance, taxes, etc., and finally the profit for the store. A detailed example of a costing sheet for a garment is given.

3.1 FABRIC COST

Fabric cost is the fabric consumption of the garment which allows finding the whole consumption.

Fabric consumption in kg
For vest RN *without sleeve *when the measurements are in cm

\{(body length + allowance) \times (chest width + allowance) \times 2 \times \text{GSM}) / (10000)\}.

*when the measurements are in inches

\{(body length + allowance) \times (chest width + Allowance) \times 2 \times \text{GSM}) / (1550)\}.

For boxer briefs

*When measurements are in cm

Garment weight=\{(T.L + E.W + H.A + S.A) \times (Maximum width wise Measurement + S.A) \times \text{GSM} \times 2 \}/ 10000

*when measurements are in inches

Garment weight=\{(T.L + E.W + H.A + S.A) \times (Maximum width wise Measurement + S.A) \times \text{GSM} \times 2 \}/ 1550

NOTE: if boxer has inner elastic add the elastic width E.W in the formulae

If boxer shorts has outer elastic subtract the elastic width E.W in the formulae
These are the formulas for calculating the garment weight where it changes differ from what kind of garment and the measurement changes to the type of the garment.

After calculating the garment weight the fabric cost has been calculated by adding up

- Yarn cost
- Knitting cost
- Dyeing cost
- Washing cost
- Compacting cost
- Additional values

The above mentioned values are added and multiplied by the garment weight to get the final garment fabric price

3.2 CM COST

CM is cost of making where it includes the value of

- Cutting
- Stitching
- Checking
- Ironing
- Packing

It is the major producing part of the garment making the whole fabric into the single finished garment. Each process has the value for the labour and the usage of material are considered in the calculation of each process.

The most efficiently organised factories uses below given calculation. If the cost of making done “in house” is based on the total cost per hour multiplied by the number of hours it takes to make the style and divided by the number of units produced if the making is done by a contractor, the contractor adds profit on to this amount.

Labour cost per minute = \( \frac{\text{monthly salary of an operator}}{\text{Total minutes available in the month}} \) at 100% efficiency.

CM cost = \( \frac{\text{SAM of the garment} \times \text{minute cost of the labour}}{\text{line efficiency}} \).

BASE CALCULATION OF PRODUCTION COST (or) CM:

Production cost of garment (CMT) = Sewing cost + cutting cost + trimming cost

This is the mostly used method of calculating the production cost

3.3 TRIMS AND ACCESSORIES COST

Trims include all materials other than fabric used in the garment. For example most garments have trims such as threads, buttons, zippers, labels, elastic and miscellaneous items. Quality and quantity of trim and labour required to apply it on garment are directly related to cost of garment.

Accessories are the material which is used to make the garment attractive for sale and packing, other than fabric and trims are called accessories these are the extra factors used for the appearance of the garment.

3.4 FREE ON BOARD

Free on board means that the seller delivers the goods after passing the ships rails at the named port of shipment. The right in the goods passes on to the importer the moment the goods are placed on the vessel and the buyer has to bear all costs and risk of loss of or damage to the goods from that moment.

The buyer should arrange the space in the vessel and has to pay the freight at the
destination. The seller has to obtain the export license and pay export taxes. There are some more INCO terms available for the exports and import. INCO terms means International Commercial terms which are evolved to fullfill certain rights and obligations imposed by a trade contract on buyer and seller. INCO terms will deligate the responsibility of seller till where and the responsibility of the buyer from where. The adoption of INCO terms is optional, the merchants wishing to use these rules should specify that their contracts will be governed by ‘INCO TERMS 2000’. The selection of the INCO terms is in accordance with the convenience of the parties concerned and as agreed by them. There are 13 types of INCO terms available, they are:

1. Ex- works - EXW  
2. Free carrier- FCA  
3. Free alongside ship- FAS  
4. Free on board- FOB  
5. Cost and Freight- CFR  
6. Cost, Insurance and freight-CIF  
7. Carriage Paid To- CPT  
8. Carriage Insurance Paid to -CIF  
9. Delivered at Frontier- DAF  
10. Delivered Ex ship- DES  
11. Delivered Ex Quay- DEQ  
12. Delivered Duty Unpaid- DDU  
13. Delivered Duty Paid- DDP  

3.5 FACTORY OVERHEADS  
Factory overheads are the cost those are not directly related to production. No matter how many garments factory produce or sale revenue of the factory generates, fixed cost must be met each month. These are fixed expenses or indirect cost required to operate a business. Costs which are included in factory over heads are

- Building rent  
- Salary of staffs  
- Electricity bills  
- Transport expenses  
- Stationary expenses  
- Telephone bill  
- Administration cost etc.

Around 1 to 5% is included in factory overheads in the cost of the garment. These are mostly used for running the business even though the production is ongoing or not.

4 PROFITS  
Profit is the most important factor in which the entire factor are depending on running the business. Profit margins are calculated depends on the product value and work take place to the garment. When the higher quantity of production will gives less cost of production, where the lesser quantity of garment gives higher cost of production. Whether it consumes same time for the production process. Usually the profit margin is placed from 10% to 30 on a garment, where it completely depends on the volume and quality of the product.
4.1 CALCULATION

Here we are calculating the Inner wear vest RN costing by taking out samples

1. INNER WEAR VEST RN
QUANTITY: 1000 PCS
SIZE: 95CM
GSM: 145
SHRINKAGE ALLOWANCE: 10-15%
YARN COUNT: 40s 100% combed cotton

GARMENT WEIGHT
={(bodylength+allowances)*(chestwidth+allowances)*2* GSM }/10000
={(77+2.5+1)*(47+2)*145*2}/10000
=114.39 Grams

BINDING WEIGHT
={(total binding length + allowances)*(bindingwidth+allowances)*GSM} /10000
={(231+1)*(2+1)*145}/10000
=10.092 Grams

TOTAL GARMENT WEIGHT
= Body fabric weight + Binding fabric weight = 0.114 + 0.010092
= 0.124 KG

FABRIC COST /KG

<table>
<thead>
<tr>
<th>Particulars</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarn cost /kg</td>
<td>Rs: 230</td>
</tr>
<tr>
<td>Knitting cost/Kg</td>
<td>Rs: 9</td>
</tr>
<tr>
<td>Washing/Kg</td>
<td>Rs: 20</td>
</tr>
<tr>
<td>Bleaching/kg</td>
<td>Rs: 45</td>
</tr>
<tr>
<td>Compact/kg</td>
<td>Rs: 6</td>
</tr>
<tr>
<td>Process loss(8-10%)</td>
<td>10%</td>
</tr>
<tr>
<td>FABRIC COST /Kg</td>
<td>RS: 341</td>
</tr>
</tbody>
</table>

Fabric cost per garment  
= fabric cost /KG * piece weight of garment  
= 341 * 0.124 KG  
= Rs: 42.284

GARMENT COST :-

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabric cost</td>
<td>Rs 42.284</td>
</tr>
<tr>
<td>shoulder</td>
<td>Rs 0.60</td>
</tr>
<tr>
<td>Neck piping</td>
<td>Rs 0.60</td>
</tr>
<tr>
<td>Sleeve Piping</td>
<td>Rs 0.80</td>
</tr>
<tr>
<td>side</td>
<td>Rs 0.80</td>
</tr>
<tr>
<td>Bottom hem</td>
<td>Rs 1.00</td>
</tr>
<tr>
<td>Fusing</td>
<td>Rs 0.80</td>
</tr>
<tr>
<td>Fusing sticker rate</td>
<td>Rs 1.00</td>
</tr>
<tr>
<td>Checking</td>
<td>Rs 1.00</td>
</tr>
<tr>
<td>Ironing &amp; Packing</td>
<td>Rs 2.00</td>
</tr>
<tr>
<td>Poly bag + print</td>
<td>Rs 1.25</td>
</tr>
<tr>
<td>Cartoon box with print</td>
<td>Rs 2.00</td>
</tr>
<tr>
<td>FOB (2%)</td>
<td>2%</td>
</tr>
<tr>
<td>Other trims &amp; accessories</td>
<td>Rs 1.25</td>
</tr>
<tr>
<td>Factory Overheads (5%)</td>
<td>5%</td>
</tr>
<tr>
<td>Profit</td>
<td>15%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Rs 68.120</td>
</tr>
</tbody>
</table>

Note: Above given values are the assumption and references to the available data, some values are rounded off to understand the calculation easier.
5 CONCLUSIONS

Over the years costing has become very easier through systematic procedures, where as it reduces the profit margin due to the competitive circumstance in the business. Even though it’s competitive still makes lots of entrepreneurs as more efficient way of doing business. Merchandiser is responsible for doing the costing; hence knowledge of costing is must for merchandiser. Apart from costing knowledge merchandiser must be aware of fluctuation of cost of different components of garment, time to time. The costing is very dynamic process; at international level negotiation is done only on cost of production or most popularly known FOB of the garment. Hence, merchandiser should be very careful while negotiating the cost of garment with the buyer. Sourcing is common practice globally in garment business, production merchandiser is playing buyers role for fabric/ trim manufacture on the other hand he/she plays suppliers role for garment buyer. Production merchandiser must take care of both roles, when it comes to cost as well.

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