Scientific Research Publishing

Journal of Textile Science and Technology, 2019, 5, 48-60
http://www.scirp.org/journal/jtst
ISSN Online: 2379-1551
ISSN Print: 2379-1543

Costing Principles of a Denim Pant

A T M Mohibullah, Umme Magreba Takebira, Mustafijur Rahman, Md. Saiful Alam, A. S. M. Sayem Sarker, Shadman Quamar Mahir

Department of Apparel Manufacturing & Technology, BGMEA University of Fashion & Technology, Dhaka, Bangladesh
Email: mohib@buft.edu.bd

How to cite this paper: Mohibullah, ATM, Takebira, U.M., Rahman, M., Alam, M.S., Sarker, A.S.M.S. and Mahir, S.Q. (2019) Costing Principles of a Denim Pant. *Journal of Textile Science and Technology*, **5**, 48-60.
https://doi.org/10.4236/jtst.2019.52005

Received: December 6, 2018
Accepted: May 21, 2019
Published: May 24, 2019

Abstract

Denim pant is a significant prospect for the RMG sector of Bangladesh with an enormous future. The pricing is the most important factor obtainable in the global competitive market without having any suspicion. It is difficult to exist in the apparel market without providing lowest costing of garment. The study focuses on the entire factor that is directly related to the FOB cost of a basic denim pant where includes fabric cost, trims & accessories cost, storing, cost of making charge, washing cost, testing cost, commercial cost and profit is shown chronologically. All the calculations of the study were done on the basis of an industrial frame work and both primary and secondary data were collected from six different denim pant manufactures and exporters. The study provided convinced principle of fabric consumption, thread consumption, CM calculation, required poly; cartoons calculations and costing were done very carefully. The study also provides potential wash and testing, so that the total price ranges can be contained as well as demonstrating total FOB cost. The manufacturers, exporters, retailer and consumers of denim pant will get the apparent method of costing and its parameter.

Keywords

Denim, Jeanswear, Costing, Consumption, Measurement

1. Introduction

Nowadays, apparel business is one of the most important and promising businesses all over the world. Though apparel business is time-consuming business, most of the developing or trivial developed countries are doing this business. In apparel business, costing is the most important issue to sustain in this business arena.

The garment costing details the cost of every item attributable to the production of a particular garment. The sum of these costs plus the profit margin is the

selling price which the company will quote to customers [1]. A cost sheet is a complete record of each design and is used to cost garment and establish the wholesale price [2]. The original copy (designer worksheet) is for the manufacturer or production person, who completes the trimming cost and labor cost [2]. Principally, costing sheet contains the fabric cost, accessories cost, CM cost and other costs. All these costs are accountable for the final price of a product. To make full garments, lots of chain has to maintain. As the supply chain of the garments industry is quite divers, each component of the chain contributes towards the final cost of the garment. The simple supply chain in the industry starts to form the fiber manufacturing, in case of manufactured fiber and runs through the various process such as yarn manufacturing, weaving, dyeing and printing, stitching, cutting, sewing, packaging and many more. Each constituent involves the cost directly or indirectly, which is continued to cost of the garment. The cost interdependency in the current example is a production line change over cost that is incurred to retool a machine whenever the production process changes from one product to another. Denim commodity chain promises a much more nuanced and informative example of contemporary political economy and the interplay between production and consumption. This study was accomplished an overview the costing techniques currently present in the apparel industry. Costing includes all the activities like purchase of yarn, knitting, dyeing, fabrication cost, all materials cost, CM cost, print, embroidery, wash, carton costing, poly consumption, test cost, inspection cost, commercial cost, profit and also shipment cost. The manufacturers are using different techniques to make cost details. Although in this modern time, manufacturer used numerous modern software and techniques to make cost sheet. The garment costing is defined to set the wholesale price that retailer and consumer have to pay for the goods. The study was developed the background of costing and unworn system of production cost from manufacturing of fabric to wholesaler and to consumer.

2. Objectives of This Study

This study was developed to show the overall costing procedure of a denim pant. During costing this things are approaching gradually fabric cost, trims & accessories cost, washing cost, cost of making (CM), cost of poly and cartooning then final FOB price. Quantity of the order also affect the final costing, adding this consumption of fabric & sewing thread also a significant factor which is shown very carefully. Market demand & overall circumstance of manufacturer country are considering during costing.

3. Methodology

By sequential visits to six different denim pant manufacturing industries in Dhaka, Bangladesh, the necessary data related to the costing method were collected for this study. A detail overview of the existing information from ac-

counts, merchandising, commercials and finishing department were conducted to identify information and knowledge gaps. This secondary information review helped identify focus areas for data collection. A semi structure questionnaire was used to create a starting position study for interview. The study included a review of secondary information, factory level data collection. Accordingly, a total of six factories denim pant costing procedure had been considered for this study.

4. Methods of Constructing Garments Cost Sheet

Cost of manufacturing of a product is not always same as it was projected at the sample level. Various factors can influence the cost of manufacturing a product which is dynamic in nature. These dynamic factors can influence cost of manufacturing on a single day which can create a remarkable impact on daily production and cost of the product. Majority of the apparel industry feel that it is essential to have modification on garment cost analysis, especially for finished products [3]. By analyzing a single department like fabric purchasing department is not possible to fix the final cost of a product. For making a final cost sheet it is required to analyze all the costing which is related to make a full garment. When product is designed, the designer must have a clear idea about fabric and accessories costing conceivably needs to have an overall idea of production to assist in making cost sheet. There is no fixed process of making final cost sheet. This study provides the background of preparing final cost sheet and present procedure of making cost sheet. This research is designed to establish a procedure for making cost sheet from fabric purchasing to the retailer.

4.1. Stages of Costing

As garments vendor must consider the production lead time of fabrics to garments shipment. Such a fabric from overseas then the below chart (**Table 1**) is carefully considered.

Costing could be carried out at the various stages of production-preliminary or pre-costing this is carried out during product development before samples are made, first proto costing (available costing as per tech pack), second protocosting (depends on buyer), salesman or commercial sample stage costing, final costing which is done before the production and price fixing, re-costing is done where there is any change in machinery, production process, materials or garment components and actual costs are determined during production [4].

Table 1. Fabric from overseas then the below chart.

STYLE	SHELL FABRICS ART	FABRICS MILLER	SHELL FABRICS LT	TRANSIT	TRIM FABRICS CONSIDERING BD MILLER	ZIPPER CONSIDERING YKK, BD	PRODUCTO N LTD.	TOTAL (SHELL FAB + TRANSIT + PRODUCTION LT)
VN0A3AYY	CSW140023	XYZ FABRICS LTD, CHINA	50	30	50	6 - 7 WKS	45	125

4.2. Factors That Have Effects on Costing

Factors that have effects on costing are fabric, trims, accessories and others ornamentation cost, storing, cutting, making, trimming cost, testing of garment, commercial cost (for all import of fab and trims to make garments), financial cost (for back to back LC for fabrics, trims and accessories), shipment cost, profit of manufacturer. These particular factors affect a lot to make a garment. There are so many sub-factors in these eight factors. Fabric is the most important component to make a particular garment. Approximately 50% cost is required for fabric [5]. Some factors that affect the fabric price are fabric GSM (highly responsible for the costing of fabric), quantity of fabric (if the fabrics quantity is high then price will be low against for low fabric quantity price will be high), nature of fabric, length/width, shrinkage (length width and shrinkage of fabric has impact on fabric costing), country of origin, market demand has a lot of impact on fabric pricing and brand acceptance. Trim accessories and other ornamentation costs are the most important to prepare a final cost sheet. From the garments perspective where fabrics are kept before starting the making procedure is called store. So, store has impact on costing. Basically making means sewing garments. After cutting, fabrics are sent to sewing section for attaching different parts of a garment through sewing thread. It has impact on costing. Different kinds of test like colorfastness test, construction test, performance test, strength & stretch test, water resistance/rain test, accessories test, print durability, garment appearance after cleaning, pocket reinforcement, dimensional change after home laundering, subsidiary test may increase the costing of garments. Commercial cost means the extra cost that excluding CM cost. Sometimes transport costs also need to pay. After developing product manufacturer need to send products through courier and this cost also including in commercial cost. Financial cost indicates that cost which company incurs through operations, from factory cost to surcharge down the supply chain. Such the cost of raw material, semi-finished products, and completely finished goods along with administrative expense like rent, salaries, insurance, and utilities. Different shipping terms like FOB, CNF, and CIF are highly related to costing. Manufacturer profit is also responsible for costing.

4.3. Overall Consumption & Costing of Denim Pant

This study was designed to show the existing costing methods used in garment industry. Most of time imported woven fabric is used for garment manufacturing in Bangladesh. Consequently, the study was considered approximate cost. This study was designed in two parts; first of all, consumption of a denim pant where PO sheet for denim pant (**Table 2**), Measurement specification sheet for denim pant (**Table 3**), Fabric consumption of a denim pant (**Table 4**), Sewing threads consumption of a denim pant (**Table 5**) and then costing where fabric costing (**Table 6**), Trims and accessories cost (**Table 7**) for that required consumption and costing. To find out the final cost sheet (**Table 8** and **Table 9**) and shipment charge as well as packing list (**Table 10**), the order quantity was taken 50,000 pieces.

Table 2. PO sheet for denim pant.

Product Name	Denim Pant				
Product Description	Stretch Skinny				
Order Size	Size S	Size M	Size L	Size XL	Size XXL
Order Quantity	9840	12,200	9600	9360	9000
Fabric Details	99% Cotton, 1% Spandex, fabric width 62 inches pocket fabric 100% cotton twill width 40 inches				
Print/Embroidery	N/A				

Table 3. Measurement specification sheet for denim pant.

Measurements	Waist sizes (In inches)				
Size	S	**M**	L	XL	XXL
Waist Size	28	**30**	32	34	36
Seat	37	**39**	41	43	45
Back Crotch (1/4)	14	**15**	16	161/2	17
Thigh (1/4)	12	**13**	14	15	16
Knee 14" below crotch	17 3/8	**18 1/8**	18 7/8	19 5/8	20 3/8
Bottom	16 7/8	**17 3/8**	17 7/8	18 3/8	18 7/8
Front Rise	10	**10 1/2**	11	11 1/2	12
Back Rise (including yoke)	13 1/4	**13 3/4**	14 1/4	14 3/4	15 1/4
Inseam	32	**32**	32	34	34
Front Pocket width	5	**5**	51/2	6	6
Front Pocket depth	3	**3**	31/2	31/2	31/2
Front Pocket bag width (on fold)	5	**5**	51/2	6	6
Front Pocket bag depth (on fold)	3	**14**	31/2	31/2	31/2
Back Pocket width	6	**6**	61/2	61/2	61/2
Back Pocket length	51/2	**51/2**	6	6	6
Waist belt height	2	**2**	21/2	21/2	21/2
Belt Loop Length	21/2	**21/2**	21/2	21/2	21/2
Belt Loop Width	1/2	**1/2**	1/2	1/2	1/2
Coin Pocket Length	31/2	**31/2**	31/2	31/2	31/2
Coin Pocket Width	3	**3**	3	3	3
Hem height	1	**1**	1	1	1
Allowance	1/2	**1/2**	1/2	1/2	1/2

4.4. Fabric Consumption (Table 4)

Table 4. Fabric consumption of a denim pant.

Sl.	Pant Fabric Consumption	Calculation		yards
1	front and back leg part (considering back part for consumption)	$\frac{\text{Full Length} \times \frac{1}{4}\text{Width}(\text{Crotch or Thigh}) \times \text{Garments Parts}}{36 \times \text{Cutable Fabric Width}}$ *full length = back length (in seam + body rise) + hem height + allowance = (32 + 13 3/4) + 1 + 1/2 + 1/2 = 47 3/4 **width (crotch or thigh width back) = back crotch width + allowance = 15 + 1/2 + 1/2 = 16 ***cut able fabric width 61 for fabric width 62 inches	$\frac{47\frac{3}{4} \times 16 \times 4}{36 \times 61}$	1.39

Continued

2	Front pocket facing	$\frac{\text{facing}(\text{full Length} \times \text{full Width} \times \text{Parts})}{36 \times \text{Cutable Fabric Width}}$ Front pocket facing full length= pocket depth + facing extension (minimum 1 inch) + allowance Full width = pocket width + facing extension (minimum 1 inch) + allowance	$\frac{5 \times 7 \times 2}{36 \times 61}$	0.032
3	Coin Pocket	$\frac{\text{coin pocket}(\text{full Length} \times \text{full Width} \times \text{Parts})}{36 \times \text{Cutable Fabric Width}}$	$\frac{4.5 \times 4 \times 1}{36 \times 61}$	0.008
4	back pocket	$\frac{\text{back pocket}(\text{full Length} \times \text{full Width} \times \text{Parts})}{36 \times \text{Cutable Fabric Width}}$ back pocket full Length = length + hem height + allowance	$\frac{7.5 \times 7 \times 2}{36 \times 61}$	0.048
5	Waist belt	$\frac{\text{waist belt}(\text{full length} \times \text{full hight} \times \text{parts})}{36 \times \text{Cutable Fabric width}}$ Length = waist + extension (minimum 2 inches) + allowances	$\frac{33 \times 5 \times 1}{36 \times 61}$	0.075
6	Belt Loop	$\frac{\text{belt loop}(\text{full length} \times \text{full hight} \times \text{parts})}{36 \times \text{Cutable Fabric width}}$ *for 1 loop length = length + allowance (Total loop 7)	$\frac{24.5 \times 2 \times 1}{36 \times 61}$	0.022
7	Pocket bag (front)	$\frac{\text{pocket bag}(\text{full Length} \times \text{full Width} \times \text{Parts})}{36 \times \text{Cutable Fabric Width}}$	$\frac{15 \times 11 \times 2}{36 \times 40}$	0.229

So, total required fabric 1.575 yards per piece and pocketing fabric 0.229 yard.

4.5. Sewing Threads Consumption of a Denim Pant (Table 5)

Table 5. Sewing threads consumption of a denim pant.

Sl.	Process	M/C or Stich	Seam length	Unit	Total (inch)
1	yoke join with back part	4TO/L(514)	16	18.5	296
2	top stitch on back part	MTCS(401)	32	5.5	176
3	back raise joint	4TO/L(514)	13.75	18.5	254.37
4	top stitch on back raise	MTCS(401)	27.5	5.5	151.25
5	pocket hem	2NLS(301)	12	2.5	30
6	pocket attach to back	SNLS(301)	68	2.5	170
7	front raise (right & left) individually	3TO/L(504)	21	14	294
8	coin pocket hem sewn	MTCS(401)	6	5.5	33
9	coin pocket attach with right facing	DNLS(301)/SNLS(301)	20	2.5	50
10	individually both facing overlock	3TO/L(504)	12	14	168
11	facing attach to pocket bag	SNLS(301)	12	2.5	30
12	pocket bag attach to front	SNLS(301)	12	2.5	30
13	pocket edge top stitch	2NLS(301)	24	2.5	60
14	pocket opening mouth closed	3TO/L(504)	12	14	168
15	pocket bag turn & edge top stitch	SNLS(301)	12	2.5	30
16	single ply edge overlock	3TO/L(504)	6	14	84
17	double ply edge overlock	3TO/L(504)	12	2.5	30
18	single ply attach to front left side	SNLS(301)	6	14	84

Continued

19	single ply edge top stitch	SNLS(301)	6	14	84
20	zipper attach to double ply	SNLS(301)	6	2.5	15
21	double ply attach to front right side	SNLS(301)	6	2.5	15
22	double ply turn and edge top stitch	SNLS(301)	6	2.5	15
23	zipper open side attach to single ply	SNLS(301)	6	2.5	15
24	single ply top stitch	SNLS(301)	16	2.5	40
25	front raise closed to inseam	SNLS(301)	10.5	2.5	26.25
26	front raise top stitch	SNLS(301)	10.5	2.5	26.25
27	side seam closed	4TO/L(514)	91.5	18.5	1692.75
28	edge top stitch on back	SNLS(301)	16	2.5	40
29	bottom hemming	SNLS(301)	56	2.5	140
30	inseam closed	4TO/L(514)	64	18.5	1184
31	waist belt attach	MTLS(401)	30	5.5	165
32	waist belt top stitch	MTLS(401)	32	5.5	176
33	waist belt loop making	2N Flat lock(406)	17.5	18	315
34	button hole	Button hole m/c	3	10	30
		Total 6117.87			

For sewing denim pant sewing thread required 170.96 meters/piece.

4.6. Trims and Accessories Consumption for a Denim Pant

Basically to make denim pant some trims and accessories are required according to the style or requirements of consumer demand. Designers estimate required fabric with trim and accessories and related all materials according to design [6]. For completing a denim pant normally, the required common trims & accessories are: main label, zipper, care label, rivets, price ticket/UPC ticket, hanger/sizer, size sticker, interlining, match book, adjustable elastic button (if required), trim-fabrics sewing thread 100% spun polyester-ASTRA, pocketing fabric snap/shank button, poly carton. These are the commonly used trims & accessories for denim pant. In the study was used main label, care label, price ticket, zipper, rivets, adjustable elastic, cotton fused interlining, sewing thread 100% spun polyester, snap/shank button, extra label, poly, and cartoon.

4.7. Wash Required for Denim Pant

For a denim pant, some important washes are required to enhance the appearance and to make it more attractive. There are two (dry and wet) processes for denim washing. *Dry process* -hand stand, grinding, whisker, crinkle, laser whisker, 3-D crinkle, destroy, PP rubbing, PP spray, resin spray, tagging, heat pressing, pocket marking, center crease, seam marking, crease mark all over, tint, blowout, patch attaching, chevron/knee star. These are the commonly used dry washes for a denim pant. In the study only use hand stand, whisker, PP spray, tint. *Wet process:* rinse wash, cold pigment wash, cellulose wash, ice-or snow was, enzyme wash, tinting, enzyme stone with bleach, net bleach, caustic

wash, resin wash, acid wash, milk wash, random bleach wash, and tie wash [7]. These are the commonly used wet processes for a denim pant. In the study was used only enzyme stone with bleach.

4.8. Test Required for Denim Pant

Physical test and lab test, two types of testing are required for denim pant. *Physical test*-fabric count, seem slippage, yarn count, fabric weight, colorfastness to crocking, crease retention, colorfastness to rubbing, stretch & recovery, colorfastness to water, abrasion resistance, colorfastness to sea water, soil release, colorfastness to phenolic yellowing, cpsia, colorfastness to non-chlorine bleach, spiraled/twisting, seem twist (spirality test), tear strength, smoothness retention, tensile strength, pilling resistance, button attachment strength. In the study was used only seem twist, pilling resistance, soil release, crease retention. *Lab test*-formaldehyde, absorbency test, PH, moisture test, AZO. Formaldehyde, PH and AZO test were used in this study.

4.9. Poly and Cartoon Consumption for Denim Pant

For this particular order, 1 piece of polybag is needed per garment. Total area of a carton: Formula (L + W) × (W + H) × 2/100 × 100 Sq.mt. Normally one cartoon contains twelve pieces of garments. So, total cartoon is required for 50,000 pieces are

$$50{,}000 \div 12 + 2\% \text{ wastage} = 4250 \text{ pieces' cartoons} \quad (1)$$

5. Costing of Denim Pant

5.1. Fabric Costing

For this particular denim pant 1.575 yards per piece of shell fabric is required from consumption. To purchase or import fabric manufacturer not only has to pay $2.63/yard but also freight, financial cost 3% per yards. So for purchasing fabric these payments have to be ensured (**Table 6**).

5.2. Trims and Accessories Cost

Trims and accessories are the most valuable component for a garment. So total trims and accessories cost for a denim pant is shown below (**Table 7**).

5.3. Washing Cost for a Denim Pant

Washing cost for this particular pant: hand sand $0.25, PP spray $0.20, tint $0.15, whisker $0.25, enzyme stone with bleach $0.55. So, total washing cost $1.40.

Table 6. Fabric costing.

Description	Consumption	Cost $/yard	Price in $
Fabric	1.575 yards	$2.63 (CFR Bangladesh at 120 days sight LC)	$4.14
Pocketing fabric	0.229 yard	$1.15 (BD local miller price)	$0.263

Table 7. Trims and accessories cost.

Description	Cost in $
care label	0.04
main label	0.03
extra label (traceability label)	0.02
price ticket	0.02
poly	0.05
cartoon	0.10
thread 100% spun polyester	0.20
zipper	0.12
snap/shank (1 pcs)	0.07
rivets 4 pcs	0.08
adjustable elastic-3/4"	0.08
adjustable elastic button-22l	0.02
T/C pocketing	0.12
cotton fused interlining	0.05
Total cost	**1.00**

5.4. Cost of Making Charge (CM)

The name of the factory which was used in this study for denim manufacturing was ignored for the point of economical view. The factory per month direct & indirect cost $250,000, total line 10, number of machine per line 60, total number of machine 600, number of working days per month 26, per hour per line output 150 pcs, daily working hour 8 hours. So, our CM cost is as following,

$$\text{Average cost per machine of per day} = \frac{\text{Total Direct \& Indirect Cost}}{\text{Total no. of Machine} \times \text{No.working day per month}} = \frac{250,000}{600 \times 26} = 16.03 \quad (2)$$

$$\text{Line cost per day} = \text{per day}(8 \text{ hours}) \text{machine cost} \times \text{No of machine per line} = 16.03 \times 60 = 961.8 \quad (3)$$

$$\text{Actual output per line per day} = \text{Working hour per day} \times \text{Output per hour} = 8 \times 150 = 1200 \quad (4)$$

$$\text{CM cost per piece} = \frac{\text{Line cost per day}}{\text{Actual Output per line per day}} = \frac{961.8}{1200} = \$0.80 \quad (5)$$

$$\text{Total CM cost} = \text{Total CM cost } \$0.80 + (\text{add profit 20\% of CM cost is}) \$0.16 = \$0.96 \quad (6)$$

5.5. FOB Costing

FOB costing is one of the most important and significant costing for a manufacturer. So, total FOB costs for a basic denim pant including its all costs are calculated. FOB cost for a single denim pant is $8.083. FOB cost for 50,000 pieces are ($8.083 × 50,000) $404,150 (Tables 8-10).

Table 8. FOB costing.

Description	Cost in $
Shell Fabric Cost	4.14
Pocketing Fabric	0.263
Trims and Accessories Cost	1.00
Washing Cost	1.40
CM Cost	0.96
Test Cost (approximate)	0.08
Total Cost	**7.843**
Commercial Cost and Financial Charge 3%	0.24
FOB Cost	**$8.083**

Table 9. FOB costing sheet.

Buyer: XYZ Item: Long Pan		**Size range: S-XXL**		
		Style: UUU		
		Quantity: 50,000		
		Merchant: x		
SHEEL	DESCRIPTION OF FABRICS	Fabric cut Width	PRICE	COST
Fabric	99% cotton, 1% elastic fabric	62	$2.63	$4.14
Pocket	100% cotton twill	40	$1.15	$0.263
	TRIMS/ACCESSORIES			
	Description		**Unit**	**Cost**
	Main Label		1	$0.03
	Care Label		1	$0.04
	Ext label (traceability label)		1	$0.02
	Price Ticket		1	$0.02
	Packing		1	$0.15
	Thread 100% spun pollster			$0.20
	Zipper		1	$0.12
	Snap/Shank		1	$0.07
	Rivets		4	$0.08
	Adjustable elastic-3/4			$0.08
	Adjustable elastic button-22L		1	$0.02
	Button (27L & D_CS-BLM)		1	$0.10
	Cotton fused interning			$0.05
	Test Cost			$0.08
	Wash (Whisker + Hand send +PP +Tint+ Enzyme stone with bleach)			$1.40
	CM			$0.96
	Total Cost			$**7.843**
	Commercial Cost and Financial Charge 3%			0.24
	FOB Cost			**$8.083**

Table 10. Packing List.

CTN NO	No of CTN	SIZE					PCS per CTN	Total PCS
		S	M	L	XL	XXL		
1 - 205	205	12					12	2460
206 - 385	180		12				12	2160
386 - 585	200			12			12	2400
586 - 780	195				12		12	2340
781 - 965	185					12	12	2220
966 - 1170	205	12					12	2460
1171 - 1350	180		12				12	2160
1351 - 1550	200			12			12	2400
1551 - 1745	195				12		12	2340
1746 - 1930	185					12	12	2220
1931 - 2135	205	12					12	2460
2136 - 2315	180		12				12	2160
2316 - 2515	200			12			12	2400
2516 - 2710	195				12		12	2340
2711 - 2895	185					12	12	2220
2896 - 3100	205	12					12	2460
3101 -3280	180		12				12	2160
3281 - 3480	200			12			12	2400
3481 - 3675	195				12		12	2340
3676- 3870	195					12	12	2340
3871 - 4050	180		12				12	2160
4051 - 4250	200		7				7	1400
TT	4250							50,000

6. Result and Discussion

The study provides an apparent idea about FOB price of a basic denim pant. It contributes a complete knowledge of total FOB pricing including its all costs chronologically. For the desired final costing all the data were collected conducting different types of consumption. Total cost in this study includes fabric to shipment and these were fabric cost, pocketing cost, trims, accessories cost, storing, cutting, making, trimming cost, testing of garment cost, Washing cost, commercial cost, financial cost, shipment cost, profit of manufacturer etc. With all of its calculation an approximate standard cost of a basic pant can be identified. So, having that specific cost will lead to understand the ranges of a denim pant cost as its all possible variations are delivered as well. Firstly, for having the fabric cost consumption was done following a standard "M" size measurement chart. The study acquires good results with this simple method.

Fabric consumption is 1.575 yards per piece for shell fabric where the cost is total of $4.14 as per yard price is $2.63. For pocketing fabric, it needs 0.229 yard yards' fabric per piece. Price of pocketing fabric per yard is $1.15 where price per piece is $0.26 only. Trims and accessories cost is $1, washing cost $1.40, CM cost $0.96, Testing cost $0.08 and other cost is $0.24. Thread is a part of trim and so thread cost was included within the trim cost. For consuming the thread cost thread consumption was done and the result is 170.96 meter per piece. CM cost was also found by CM calculation using formula.

So, total FOB cost for one-piece pant is found $8.083. As the order was of 50,000 pieces total FOB cost per order was $404,150. The results demonstrate two parts first, FOB cost and second, the cost of a RMG unit and supply chain cost. In cost of a RMG unit major percentages is of material cost 62% and for supply chain retain shop and other cost which contains 50%.

In Figure 1, information is clearly demonstrated the percentage of total Shell fabric cost, pocketing fabric cost, trims and accessories cost, washing cost, CM cost and other. Within the total FOB price majority of the price is needed for fabric. Fabric cost is holding approximately 47% of total cost. With the shell fabric Pocketing fabric cost, Trims and accessories cost, washing cost, CM cost, testing cost and other cost is holding chronologically 0.86%, 14.39%, 20.14%, 13.81%, 1.15 and 2.88%. So, the study make available that major focusing area during costing is assumed to fabric, wash and CM.

7. Conclusion

Denim pant costing is one of the most important factors for its competitive market. Without a competitive price, it's very difficult to exist in global market. By this full report, total FOB price for a basic denim pant is demonstrated chronologically including its all relevant costing factors. So from the study, it can be stated that approximately $8.083 is needed to provide very basic item. Cost can be fluctuated with its test, washing and item variations. So during costing shell fabric, pocketing fabric, trims and accessories, washing, CM and other cost are the major factors during costing. These are the basic areas where the cost is calculated. Cost can be changed sharply with different industries but in a small

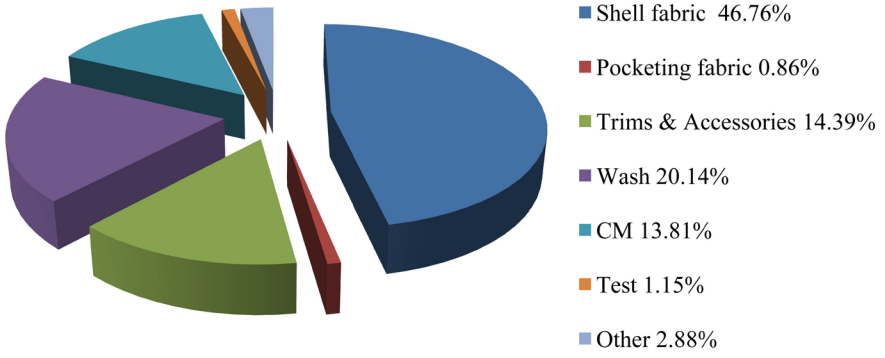

Figure 1. Percentage of different cost from total FOB cost.

range. Major costing price covers for fabric and washing. So manufacturer can change the price by increasing or decreasing in these areas only. If the price is reduced, it has to be in fabrication and washing, because these two cover the most part. So following the total process of costing can help reader to have the idea how denim costing is done and which are factors that directly influence. This will also indicate how and where the changing of price can be possible and within which range.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Chandela, N. (2018) Garment Technology. https://www.slideshare.net/nisthachandela/garment-technology

[2] Armstrong, H.J. (2000) Pattern Making for Fashion Design. Dorling Kindersley, India, 10-11.

[3] Gandh, P., Poonkuzhali, D. and Kishore Kumar, M. (2015) Effective Cost Analysis Model for Apparel Industry. *International Journal of Applied Engineering Research*, **10**, 20263-20276.

[4] Choudhary, A.S. (2015) Cost Analysis in Garment Industry. *International Journal of Recent Advances in Multidisciplinary Research*, **2**, 0702-0704.

[5] Sarkar, P. (2015) Product and Process Costing in Garment Manufacturing. https://www.onlineclothingstudy.com/2015/10/product-and-process-costing-in-garment.html

[6] Camargo, M., Rabenasolo, B., Jolly-Desodt, A.-M. and Castelin, J.-M. (2003) Application of the Parametric Cost Estimation in the Textile Supply Chain. *Journal of Textile and Apparel, Technology and Management*, **3**, 1-11.

[7] Akhi, A. (2019) Latest Dry Washing Techniques in Denim Garments (Part-1). https://textilelearner.blogspot.com/2016/03/latest-dry-washing-techniques-in-denim1.html