Appreciate the impact of relevant costing for decision making in Ready-Made Garments (RMG) industry of Bangladesh

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Abstract. *Relevant costing is a management accounting term that relates to focusing on only the costs relevant to a specific decision being made. It simplifies the decision-making process as it ignores cost data that is irrelevant, or will not have an impact on the specific decision being made. This study adopts an observation of quantitative methodology with primary and secondary data in view of the nature of the analysis. Relevant costing is often used in short-terFm decision making and a number of specific practical examples are illustrated in this study. This study has been designed to achieve the objective of assessing the level of perceptions of four areas such as (i)making & buying, (ii) dropping or retaining a segment, (iii) constrained resources and (iv) special orders in using relevant costing in Ready-made Garments Industry (RMG) of Bangladesh. To attain this objective total 100 sample respondent company from Ready-made Garments Industry (RMG) have been randomly selected. By using variance analysis, authors have found that all four factors have significant influence in using relevant costing. Last, the result of this study suggests that the strengthening the decision-making mechanism required a strong relevant costing benefits and its proper application.*

Keywords: Relevant costing, Decision Making (DM), Make or Buy, Special Order, Constrained Resources, Dropping or Retaining Segment and Ready-made Garments Industry (RMG) etc.

JEL Classification: L23.
REL Classification: 17G.

1. Introduction

The RMG industry has been Bangladesh's key export industry and a main source of foreign exchange for the last 25 years. As a result of an insulated market guaranteed by Multi-Fibre Agreement (MFA) of General Agreement Tariff and Trade (GATT) and supportive policies of the Government of Bangladesh (GoB), it attained a high profile in terms of foreign exchange earnings, exports, industrialization and contribution to the GDP within a short period. In less than a decade it increased its exports, foreign exchange earnings, and contribution to the GDP by 4.39%. RMG exports reached a steadfast figure of USD 17.91 billion in fiscal year 2010-2011; accounting more than 78% of national export earnings, which was about 4-5% of the global total of such exports. It further contributes 10% to the country's GDP (Mahmud R.B., 2012). The foreign exchange earnings and employment generation of the RMG sector have been increasing at double-digit rates from year to year (Quddus et al., 2000). Currently, there are more than 4,000 RMG firms in Bangladesh. More than 95 per cent of those firms are locally owned with the exception of a few foreign firms located in export processing zones (Gonzales, 2002).

Management oriented accounting should be able to oversee the successful mimplementation of decisions, from which are shown the true values which are compared with standard values (Tulvinschi, 2010). Relevant costs and revenues as those future costs and revenues that will be changed by a decision, whereas irrelevant costs and revenues are those that will be not affected by a decision (Drury, 2004). Any cost would be an asset if it has a favorable economic effect on expected future costs or future revenues. In other words, if a given cost represents a future economic benefit in the Iota of a reduction of total expected future costs teat addition to total expected future revenue in the ordinary course of business it is a relevant cost and should be considered as unexpired (Fess, 1963). If a cost increase, decrease, appear, disappear as different alternatives are concerned, it is a relevant cost (Lal, 2005). In case of relevant cost concepts, one is to compare relevant revenues with relevant cost and ignore historic sunk and past cost, from the decision making process so that decision can be protected from being mislead.

1.1. Literature review

Relevant costs are future cash flows arising as a direct consequence of the decision under consideration. In many short term situations, the fixed costs remain constant for each of the alternatives being considered and thus the marginal costing approach showing sales, marginal cost and contribution is particularly appropriate. In the long run (and sometimes in the short run) fixed costs do change and accordingly the differential costs must include any changes in the amount of fixed costs (Schweikart, 1986).

Making the decision is often a difficult task that is complicated by numerous alternatives and massive amounts of data, only some of which may be relevant (Victoravich, 2010). A relevant cost is a cost whose magnitude will be affected by a decision being made. Management should consider only future costs and revenues that will differ under each alternative (Arora, 2008). Relevant information is the predicted future costs and revenues that will differ among the alternatives relevant information (Horngren et al., 2006).

Every decision involves choosing from among two alternatives. In making a decision, the cost and benefits of one alternative must be compared to the costs and benefits of other alternatives. Costs that differ between alternatives are relevant costs. Distinguishing between relevant and irrelevant cost and benefits is critical for two reasons: First, irrelevant data can be ignored – saving decision makers tremendous amount of time and effort. Second, bad decisions can easily result from erroneously including irrelevant cost and benefits when analyzing alternatives (Garrison, Noreen, 2012).

When choosing among different alternatives, the manager should concentrate only on the costs and revenues that differ across the decision alternatives; these are relevant cost/revenues. Whether particular costs and revenues are relevant for decision making depends on decision context and the alternatives available (Atkinson et al., 2008). Relevant cost should be used for assessing the economic and financial consequences of any decision by management. Only relevant cost and benefits should be taken into consideration when evaluating the financial consequences of a decision (Woolf, 2011).

Therefore, the study shows that how relevant costing and benefit play a significant role in decision making for a Ready-made Garments Industry in Bangladesh.

1.2. Objectives of the study

The objectives of this study are as follows:
- To show the application of relevant costing terms in decision making.
- To measure the impact of relevant costing for decision making in Ready-made Garments Industry (RMG) of Bangladesh.

2. Methodology of the study

Data collection and sample: The study is mainly based on both the primary and secondary data. A structured survey questionnaire has been used for primary data collection. Sample size Total 100 respondents have been surveyed of different types of Garments company in Bangladesh on a random sampling basis. Interviewed to get the answers of the questionnaires to one employee from each

company such as- General Manager, Assistant Manager, Cost Management Accountant (CMA) or others industry employees & specialist. In the questionnaire the perception has been calculated by 5- point Likert type measurement scale where 5 = Strongly Agree and 1= Strongly Disagree. Secondary sources are from different local and international published articles, books, websites, and seminar papers etc.

Data analysis: Data have been analyzed by using Mean value and Two-way ANOVA test. Significance level is 5%.

Study period: Time period of the study was November 2013 to January, 2014.

3. Applicability of relevant cost concepts

3.1. Making or buying decision

For many years **PINAKI GARMENTS LTD.** Company has purchased the starters that it is installed in its standard line of sweing machine. Due to a reduction in output, the company has idle capacity that could be used to produce the starters. The chief engineer has recommended against this move, however, pointing out that the cost to produce the starters would be greater than the current $10.00 per unit purchase price. The company's unit product cost, based on a production level of 60,000 starters per year, is as follows:

Particular	Make	
Direct materials	$4.00	
Direct labor	2.75	
Variable manufacturing overhead	.50	
Fixed manufacturing overhead, traceable	3.00	$180,000
Fixed manufacturing overhead, common (allocated based on direct labor hours)	2.25	$135,000
Total production cost	$12.50	

An outside supplier has offered to supply the starter to **PINAKI** or only $10.00 per starter. One-third of the traceable fixed manufacturing costs represent supervisory salaries and other costs that can be eliminated of the starters are purchased. The other two-thirds of the traceable fixed manufacturing costs are a depreciation of special manufacturing equipment that has no resale value. The decision would have no effect on the common fixed costs of the company and the space being used to produce the parts would otherwise be idle.

Decision:

Particulars	Relevant Costs	
	Make	Buy
Direct materials	$4.00	
Direct labor	2.75	
Variable manufacturing overhead	.50	
Fixed manufacturing overhead, traceable	1.00	
Purchase price		$10.00
Total relevant cost	$8.25	$10.00
Units produced	60,000	60,000
Total Cost	$495,000	$600,000

The two-thirds of the traceable fixed manufacturing overhead costs that cannot be eliminated, and all of the common fixed manufacturing overhead costs, are irrelevant. The company would save $105,000 per year by continuing to make the parts itself. In other words, profits would decline by $105,000 per year if the parts were purchased from the outside supplier.

3.2. Dropping or retaining a segment

Another area in which Relevant Costing is used is whether to drop a division or product. Companies often prepare income statements for their divisions or products. **H.R. FASHION**, A fabrics company has two departments, X and Y. A recent monthly contribution format income state of the company follows.

Particulars	X	Y	Total
Sales	$3,000,000	$1,000,000	$4,000,000
Variable expenses	900,000	400,000	1,300,000
Contribution margin	2,100,000	600,000	2,700,000
Fixed expenses	1,400,000	800,000	2,200,000
Operating income (loss)	$700,000	($200,000)	$500,000

The study indicates that $340,000 of the fixed expenses being charged to Y are sunk costs or allocated costs that will continue even if Y is dropped. In addition the elimination of Y will result in a 10% decrease in the sales of X.

Decision:

Particulars	Total
Department Y contribution margin lost	($600,000)
Department X contribution margin lost	(210,000)
Total contribution margin lost	(810,000)
Avoidable fixed costs	460,000
Decrease in operating income	($350,000)

Contribution margin lost if Y is dropped. Therefore, based on the data given, the Y segment should not be discontinued unless a more profitable use can be found.

3.3. Special orders

Special Orders are a classic area in which Relevant Costing is used. The customer is in an area that your business does not normally serve. The potential customer offers to buy your product or service at a price below the cost to provide the product or service (the special order).

A-Z KNITWEARS LTD. produces a single product. The cost of producing and selling a single unit of this product at the company's normal activity level of 8,000 units per year is:

Particulars	Total
Direct materials	$2.50
Direct labor	3.00
Variable manufacturing overhead	.50
Fixed manufacturing overhead	4.25
Variable selling and administrative expense	1.50
Fixed selling and administrative expense	2.00

The normal selling price is $15.00 per unit. The company's capacity is 10,000 units per month. An order has been received from an overseas source for 2,000 units at the special price of $12.00 per unit. This order would not affect regular sales. If the order is accepted, how much will monthly profits increase or decrease? (The order will not change the company's total fixed costs.)

Decision:

Particulars	Amount	Total
Selling price		$12.00
Direct materials	$2.50	
Direct labor	3.00	
Variable manufacturing overhead	.50	
Variable selling and administrative expense	1.50	
Total variable expenses		7.50
Contribution margin	4.50	
Units sold		2,000
Total contribution margin		$9,000

The relevant cost is $1.50 (the variable selling and administrative costs). All other variable costs are sunk, since the units have already been produced. The fixed costs would not be relevant, since they will not be affected by the sale of leftover units.

3.4. Constrained Resources

Relevant Costing is also very useful when deciding whether you should outsource a product. In these problems, you can either make an item that you use in your business or you can purchase it from an outside supplier. **Peoples Fashion LTD.** produces three products, X, Y, and Z. Data concerning the three products is as follows:

Particulars	X	Y	Z
Selling price	$80.00	$56.00	$70.00
Variable expenses:			
Direct materials	24.00	15.00	9.00
Direct labor	14.00	13.00	15.00
Other variable expenses	10.00	14.00	25.00
Contribution margin	$32.00	$14.00	$21.00

Demand for the company's products is very stronger, with far more order each month than the company can produce with the available raw materials. The same material is used in each product. The material cost $3 per pound, with a maximum of 5,000 pounds available each month. In which order should the company produce X, Y and Z?

Decision:

Particulars	X	Y	Z
Direct materials cost	$24.00	$15.00	$9.00
Cost per pound	$3.00	$3.00	$3.00
Direct material pounds per unit	8.00	5.00	3.00
Contribution margin	$32.00	$14.00	$21.00
Contribution margin per pound	$4.00	$2.80	$7.00

The company should accept orders first for Z, second for X and third for Y.

4. Analysis and discussion

To measure whether perception levels of four factors are same or not in Ready-made Garments Industry, the authors have applied two-way ANOVA analysis using two hypotheses.

Hypothesis-1:

H0=There are no significant relationship between the relevant costing and decision making of Ready-made Garments Industry in Bangladesh.

HA = There exist a significant relationship between them.

Hypothesis 2:

H0 = The four levels of relevant costing factor are not equal for decision making in Ready-made Garments Industry in Bangladesh.

HA= All the four level are equal.

Table 1. *Mean value*

Relevant Costing Factor	Total Respondent's points for Decision making					
	Strongly Agree	Agree	Undecided	Disagree	Disagree Strongly	Total
Making & buying	350	100	12	2	0	=464
Dropping or retaining a segment	105	48	120	24	15	= 312
Constrained resources	225	124	12	10	25	= 396
Special orders	40	116	99	36	12	=303
Total	720	388	243	72	52	**=1475**

Correction Factor = $\frac{T^2}{N} = \frac{(1475)^2}{20} = 108781.25$

Sum of Square between decision making:

$= \frac{(52)^2}{4} + \frac{(72)^2}{4} + \frac{(243)^2}{4} + \frac{(388)^2}{4} + \frac{(720)^2}{4} - C.F$ = (676+1296+14762.25+37636+ 129600) – 108781.25 = 75189

V= (c-1) = (5-1) =4

Sum of Square between Relevant Costing:

$= \frac{(464)^2}{5} + \frac{(312)^2}{5} + \frac{(396)^2}{5} + \frac{(303)^2}{5} - C.F.$ = (43059.2+ 19468.8+31363.2+18361.8) – 108781.25 = 3471.75

V= (r-1) = (4-1) =3

Total Sum= $(0)^2 + (15)^2 + (25)^2 + (12)^2 + (2)^2 + (24)^2 + (10)^2 + (36)^2 + (12)^2 + (120)^2 + (12)^2 + (99)^2 + (100)^2 + (48)^2 + (124)^2 + (116)^2 + (350)^2 + (105)^2 + (225)^2 + (40)^2$ - C.F = (254,345-108,781.25) = 145,563.75

Residual value = (145,563.75- 75,189- 3,471.75) = 66,903

V= (c-1) (r-1) = 4*3 = 12

Table 2. *ANOVA Analysis*

Source of Variation	S.S.	d.f.	Mean Square	F	Level of Sig. 5%
Between decision making	75,189	4	18,797.25	3.38	3.26
Between Relevant costing	3,471.75	3	1,157.25	0.22	3.49
Residual	66,903	12	5,575.25		
Total	145563.75	19			

The above table shows that the relationship between the relevant costing and decision making of Ready-made Garments Industry in Bangladesh vary due to the calculated value 3.38 and the table value for F (4,12) is 3.26. On the other hand, the using relevant costing in respect of four factors in decision making are not the same. The calculated value between relevant costing is 0.22 but the table value for F (3,12) at the 5% level of significance= 3.49.

Conclusions

Relevant costing provide a very useful way of assessing whether company that show a loss at the net marginal level are nevertheless viable in the short term. Consumers are more and more demanding, looking for everything at a very attractive price. The company has to master revenues and costs very carefully to make a profit (Kaplan, 1990). The relevant costing will vary with each company according to circumstances. In our analysis for hypothesis 1, we reject the null hypothesis and accept the alternative which shows that there is a significant relationship between the relevant costing and decision making of RMG in Bangladesh. But in test 2 we reject alternative and accept null hypothesis because of the result means the decision regarding the four levels of relevant costing varies. Everything in this study consists of application of one simple but powerful idea. This simple idea was applied in a variety of situations including decisions that involve adding or dropping a product line, making or buying a component, accepting or rejecting a special order, using a constrained resource in RMG in Bangladesh. Indeed, any decision involving costs hinges on the proper identification and analysis of the costs that are relevant. Consequently, relevant costing is an important concept in Managerial accounting which clearly depicts in this study about successful decision making in RMG in Bangladesh.

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APPENDIX

A. Survey items used in this study

TRADE NAME	
PERSON INTERVIEWED	
POST	
FIRM'S LEGAL STATUS	
WEB PAGE	
E-MAIL	
AUTHOSISED CAPITAL	
COMPANY REGISTRATION NUMBER	

Question:
1. Does Relevant costing play an important role in planning the firm's strategies?
2. What types of Relevant costing activity is undertaken by your organization to make effective decision?
3. Would you mention some weakness in using Relevant costing technique in your organization?
4. Does profits would decline by per year if the parts were purchased from the outside supplier for making and buying decision?

1	2	3	4	5

5. If a product line is generating a loss, then it be discontinued for Dropping or retaining a segment decision?

1	2	3	4	5

6. Does the amount of constrained resource consume help the company to maximize its profits?

1	2	3	4	5

7. Should the special order is accepted if the company's regular sale's and the order could be fulfilled using existing capacity?

1	2	3	4	5

8. Please briefly put forward your personal comment(s) on using Relevant costing in Ready-made Garments Industry (RMG) of Bangladesh.

B. TOTAL RESPONDANT =100.

Relevant Costing Factor	Number of Respondent's answer for Decision making				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Making & buying	70	25	4	1	0
Dropping or retaining a segment	21	12	40	12	15
Constrained resources	45	31	4	5	25
Special orders	8	29	33	18	12

C. LIKERT TYPE MEASUREMENT SCALE:

Strongly Agree =   5 points
Strongly=   4 points
Undecided =   3 points
Disagree =   2 points
Disagree Strongly = 1 points

Relevant Costing Factor	Total Respondent's points for Decision making				
	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree(1)
Making & buying	350	100	12	2	0
Dropping or retaining a segment	105	48	120	24	15
Constrained resources	225	124	12	10	25
Special orders	40	116	99	36	12