Value Added Tax and its Implication on Profitability

Dr. Sunil Kumar*
Prof. R.K.Sharma **
Ms. Madhu Arora***

Abstract

The introduction of Value Added Tax (VAT) has brought a Himalayan change in the Sales Tax Law. Though the primary objective of the Value Added Tax is to arrest the cascading effect of tax, it has a major impact on the price of the product and therefore the general public is also exaggerated by the new tax. The Value Added Tax will definitely help in achieving the uniformity in tax rate and classification of goods, at the same time it has a major impact on the profitability of entrepreneur and price of the goods. The present paper aims to analyze the impact of Value Added Tax on cost- price- profit of entrepreneur and revenue of the Government and also suggest ways and means to improve the profitability of the entrepreneurs.

Keywords: VAT, Sales Tax, Multiple Taxation, Cascading Effect, Profitability.

1. Introduction

The existing sales tax structure faces the problem of multiple taxation of commodities where sales tax paid on purchases is also added to cost, resulting in a cascading tax effect. VAT is recommended in order to avoid this cascading effects and vertical integration of the multistage sales tax. Over 130 countries world wide have introduced VAT over the past three decades. It is levied at state level in India as a substitute to the existing sales tax system.

The important feature of the Value Added Tax is the deduction of the tax already paid. The trader can collect the Value Added Tax while selling the goods, but when he remits the tax collected to the Government, he can deduct the Value Added Tax already paid when he purchased the goods. The Value Added Tax is the difference the difference between the taxes collected while sellin¬g the goods and the tax paid when the goods are purchased.

Impact of Value Added Tax
The introduction of Value Added Tax has brought a major shift in the Government revenue, profitability of manufacturer, trader or distributor and price of the product. The following, example will explain how the above elements affected on the introduction of Value Added Tax.

*Faculty, SOMS, IGNOU, MaidanGarhi, New Delhi, India
**Professor, Tecnia Institute of Advance Studies, New Delhi, India
***Faculty, KasturiRam College of Higher Education, New Delhi, India

Example 1

Let us presume that the value of the product is Rs 50,000/- and the Value Added Tax is levied at 12% We presume that the said product is sold from one trader to another five times before reaching, the customer. We further presume that each trader add value at 10 percent of the price paid. The sales tax rate is also presumed at 12.5%. The following analysis is made to confirm how much Government could get as well as the five traders could get and price of the product.

From the above analysis it is found that the price will reduce and the tax revenue of the Government and the profit of the traders will also reduced correspondingly. However, in the new method the tax evasion will be reduced to a maximum extent. Therefore, the revenue of the Government will not be much reduced, when all the tax payers' falls on the tax net.

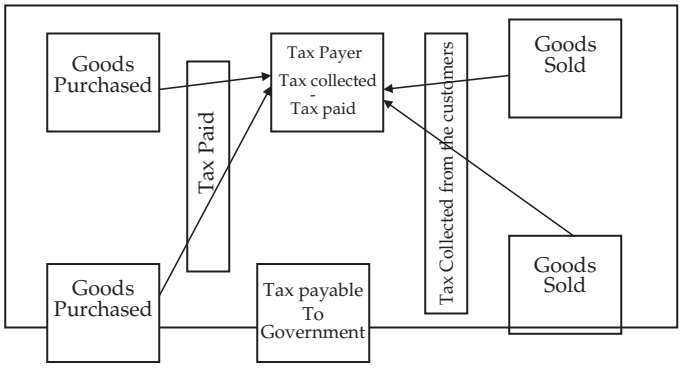
Profitability of the manufacturer

From the above it is found that the introduction of Value Added Tax has brought a major impact on profitability of the trader. There is a major chance of losing revenue due to file implementation of the Value Added Tax. However by adjusting the price of the product it may be possible to prevent the contribution loss. By reducing the price, the demand of the product may raise. On the other hand, by reduction of the price of the product, the demand will be reduced. The optimum price level will enable the trader to get the maximum contribution. Therefore there is urgent need for the trader to revise the price of their product to bet the maximum and contribution and profitability.

Let x be price and y be the demand. Let k be variable material cost per unit. Let us assume that Selling and Distribution Cost depends upon the sales made and I be its percentage Incentive of Rs. p will be paid per rupee of the square of selling price to the selling agents of (the product Royalty of Rs. q has to be paid on the square of the demand to the trademark owner and F be the Fixed Cost.

Let n be the percentage of VAT already paid (input tax Credit) and m be the percentage of VAT collected from the customers.

The Value Added Tax administration mechanism is explained in the following diagram.



Impact of Sales Tax and Value Added Tax

Sales Tax Method			Value Added Tax Method		
When the product is transferred first time			When the product is transferred first time		
	%age	Value (Rs.)		%age	Value (Rs.)
Price of the Product		50000.00	Price of the Product		50000.00
Value Added	10%	5000.00	Value Added	10%	5000.00
Total		55000.00	Total		55000.00
Sales Tax	12.5%	6875.00	VAT	12.5%	6875.00
Selling Price		61875.00	Selling Price		61875.00
When the product is transferred Second time			When the product is transferred second time		
	%age	Value(Rs.)		%age	Value (Rs.)
Price of the Product		61875.00	Price of the Product		55000.00
Value Added	10%	6187.50	Value Added	10%	5500.00
Total		68062.50	Total		60500.00
Sales Tax	12.5%	8507.81	VAT	12.5%	687.50
Selling Price		76570.31	Selling Price		61187.50

When the product is transferred Third time			When the product is transferred third time		
	%age	Value (Rs.)		%age	Value (Rs.)
Price of the Product		76570.31	Price of the Product		60500.00
Value Added	10%	7657.03	Value Added	10%	6050.00
Total		84227.34	Total		66550.00
Sales Tax	12.5%	10528.42	VAT	12.5%	756.25
Selling Price		94755.76	Selling Price		67306.25

When the product is transferred fourth time			When the product is transferred fourth time		
	%age	Value (Rs.)		%age	Value (Rs.)
Price of the product		94755.76	Price of the Product		66550.00
Value Added	10%	9475.58	Value Added	10%	6655.00
Total		104231.34	Total		73205.00
Sales Tax	12.5%	13028.92	VAT	12.5%	831.88
Selling Price		117260.26	Selling Price		74036.88

When the product is transferred fifth time			When the product is transferred fifth time		
	%age	Value (Rs.)		%age	Value (Rs.)
Price of the Product		117260.26	Price of theProduct		73205.00
Value Added	10%	11726.03	Value Added	10%	7320.00
Total		128986.28	Total		80525.50
Sales Tax	12.5%	16123.29	VAT	12.5%	915.06
Selling Price		145109.57	Selling Price		81440.56

Impact on Government

	Sales Tax	VA T	Impact
When product is transferred first time	6875.00	6875.00	0.00
When product is transferred Second time	8507.81	687.50	-7820.31
When product is transferred third time	10528.42	756.25	-9772.17
When product is transferred fourth time	13028.92	831.88	-12197.04
When product is transferred fifth time	16123.29	915.06	-15208.22
Total	55063.43	10065.69	-44997.75

Impact on Price

	Price (ST)	Price VAT	Price change
When product is transferred first time	61875.00	61875.00	0.00
When product is transferred Second time	76570.31	61187.50	-15382.81
When product is transferred third time	94755.76	67306.25	-27449.51
When product is transferred fourth time	117260.26	74036.88	-43223.38
When product is transferred fifth time	145109.57	81440.56	-43223.38
			-63669.00

Impact on Traders

	Profit (ST)	**Profit (VAT)**	**Impact on Profit**
When product is transferred first time	5000.00	5000.00	0.00
When product is transferred Second time	6187.50	5500.00	-687.50
When product is transferred third time	7657.03	6050.00	-1607.03
When product is transferred fourth time	9475.58	6655.00	-2820.58
When product is transferred fifth time	11726.03	7320.50	-4405.53
	40046.13	30525.50	-9520.63

@ In Value Added Tax method, the tax paid was not be taken while fixing the price of the product.

Then Profit $Z = xy - ky - lxy + mxy - kny - qy2 - px2 - F$

The optimum value of the function can be found by partially differentiating the above function with reference to price as well as demand. (I.e. with reference to x and y)

$\partial z / \partial x = y - ly + my - 2px$

$\partial z / \partial y = x - k - lx + mx - kn - 2qy$

$\partial z / \partial x^2 = -2p$

$\partial^2 z / \partial x2 = -2q$

$((\partial^2 z / \partial x \partial y))^2 = (1+m-1)^2$

$(\partial^2 z / \partial x^2)(\partial^2 z / \partial y^2) - ((\partial^2 z / \partial x \partial y))^2$

$= 4pq - (1+m-1)^2$

The maxima or minima will occur when

$(\partial^2 z / \partial x^2)(\partial^2 z / \partial y^2) - ((\partial^2 z / \partial x \partial y))^2 > 0$

I.e. $4pq - (1+m-1)^2 > 0$ or $4pq > (1-1+m)^2$

Since P and q are positive the above inequality is possible.

Since p is positive?^{2}z/?x^2 is negative and hence the function attains maximum at

$$x = \frac{(k(l+n)(l+m-1))}{((l+m-1)^2 - 4pq)} \quad y = \frac{(2pk)(1+n)}{((l+m-1)^2 - 4pa)}$$

and when

$2p > (1-1+m)^2$

Example 2

The price and demand of a product is given below:

Price Per Unit (Rs.)	Demand (In Lakhs)
25	75
35	65
45	55
55	40
60	35
65	30
79	20

A sum of Rs 18 per unit was spent for purchasing the materials. The Value Added Tax paid at 30%. The Selling and Distribution Cost is twenty one percent of the sales. The output product attracts 4% of Value Added Tax. The Fixed Production Cost is Rs. 15 lakhs and Administration Cost is Rs 12 lakhs. Confirm any price change has to be made for achieving the maximum benefit. Let us assume the Sales Tax rate is at 4%. Royalty of Rs. one paisa has to be paid for one Rupee on the square demand of the product. Incentive of Rs. one paisa also to be paid for one Rupee on the square price of the product. Confirm whether price of the product has to be modified on the introduction of VAT.

Determination of price level before implementation of Value Added Tax

The price to be fixed before the implementation of Value Added Tax is as follows, in order to get the maximum profit. The evaluation of the contribution at the various price levels is determined as follows. From the above table the maximum contribution of Rs 981 lakhs and profit of Rs. 954 lakhs occurs at do, price level of Rs 60/- In the above example whatever the sales tax collected from the customers, the manufacture has to pay to the Government. Therefore there is no benefit from the Sales Tax collected for the manufacturer.

Determination of price level after implementation of Value Added Tax

The price to be fixed after implementation of Value Added Tax is as follows, in order to get the maximum profit. The evaluation of the contribution at the various price levels is determined as follows. In the above example, Value Added Tax paid to the Government could be reduced by the amount he has already paid at the time of purchase of raw materials. From the above table the maximum contribution of Rs 1240 lakhs and profit of Rs 1213 lakhs occurs at the price level of Rs. 55/-. It is also found that the manufacturer has to necessarily reduce the price from Rs. 60/- to Rs. 55/- in order to get optimum benefit.

Determination of contribution at the various price levels

Price (in Rupees)	Demand (in lakhs)	Sales	Purchase Cost	Sales and Distribution cost	Royalty	Incentive	Total Cost	Sales Tax Collected	Sales Tax paid	Contribution	Fixed Prod. Cost	Admn. Cost	Profit
25	75	1875	1350	394	6	56	1806	75	75	69	15	12	42
35	65	2275	1170	478	12	42	1702	91	91	573	15	12	546
45	55	2475	990	520	20	30	1560	99	99	915	15	12	888
55	40	2200	720	462	30	16	1228	88	88	972	15	12	945
60	35	2100	630	441	36	12	1119	84	84	981	15	12	954
65	30	1950	540	410	42	9	1001	78	78	949	15	12	922
79	20	1580	360	332	62	4	758	63	63	822	15	12	795
90	15	1350	270	284	81	2	637	54	54	713	15	12	686

Price (Rs.)	Demand (in lakhs)	Sales	Purchase Cost	Sales and Distribution cost	Royalty	Incentive	Total Cost	VAT-Collected	VAT-Paid	Net Benefit	Total Sales and VAT Benefit	Net Contribution	Fixed Production	Administration Cost	Profit
25	75	1875	1350	394	6	56	1806	234	14	221	2096	290	15	12	263
35	65	2275	1170	478	12	42	1702	284	12	273	2548	845	15	12	818
45	55	2475	990	520	20	30	1560	309	10	299	2774	1214	15	12	1187
55	40	2200	720	462	30	16	228	275	7	268	2468	1240	15	12	1213
60	35	2100	630	441	36	12	1119	263	6	256	2356	1237	15	12	1210
65	30	1950	540	410	42	9	1001	244	5	238	2188	1188	15	12	1161
79	20	1580	360	332	62	4	758	198	4	194	1774	1016	15	12	989
90	15	1350	270	284	81	2	637	169	3	166	1516	879	15	12	852

Marginal Costing and Value Added Tax

The nature of cost is the major criteria for ascertainment of cost in marginal costing. The major objective of the marginal costing technique is to analysis the behavior of cost and their impact on the profitability of the undertaking. The marginal costing technique is useful in ascertainment of cost and its effect on profitability of the various products or processes or cost centres by differentiating between the fixed costs and variable costs. In this paper a preliminary analysis is made in order to confirm whether the Value Added Tax has any impact while taking decisions by using mammal costing techniques. Various decision like buy or sell continue or shut down has to be taken based on the profitability are to be taken by wing this techniques. The shift in the Break Even Point will ultimately affect the decision of the entrepreneurs. Therefore, a preliminary analysis has been made in order to confirm whether any shift in the Break Even Point on the introduction of the Value Added Tax has been occurred. The Break Even Point in the marginal costing depends upon the Contribution, Fixed Costs and Sales. As the payment of Value Added Tax has an impact on the contribution and the Break Even Point also affected. Due to the introduction of Value Added Tax, it is found that there is a shift in the Break Even Sales.

Let us assume that S be the Sales, V be the Variable Costs and F be the Fixed Costs
Contribution = S - V
Profit Volume Ratio = (S- V)/S
Break Even Sales = (F X S) / (S-A)

In the Sales Tax Regime, the trader will not get an benefit from the tax collected. The trader has a bounden duty of paying the tax collected from his customer to the Government. Therefore in the Sales Tax Administration, the Break Even Sales will not be affected by the Sales Tax collected and subsequently paid to the Government.

On the other hand, in the Value Added Tax administration, the trader need not pay all the taxes he collected from his customers.

He can deduct the Value Added Tax he had already paid while he purchased the raw materials. Therefore there is ultimate advantage to the trader compared the Sales Tax regime. Due to this impact, the contribution will be more in the Value Added Tax administration. Therefore the Break even Sales will be less in the Value Added Tax Administration compared to the Sale tax regime. The following example illustrates the above facts.

Example 3

Let Sales be Rs 10,000 Variable Material Cost be Rs 6,000 Let Sales Tax Rate 12.5% and Value Added Tax Rate be 12.5% and the Fixed Cost Rs. 1,80,000. From the above example we see that the trader is able to achieve the Break Even Sales earlier in the Value Added Tax administration compared to the Break Even Sales achieved in the sales tax regime.

VAT and Sales Mix

It is necessary for me entrepreneur to make a detailed analysis of the Value Added Tax while taking various decisions, The following example illustrates the above.

Example 4

Let us assume that a company is producing two products X & Y. The Fixed Cost is Rs. 1600/- Let the VAT Rate be 12.5%. The Contribution statement of the above two products are given below.

	X (RS.)	Y (Rs.)
Selling Price	40	30
Variable Cost	32	26
Contribution	8	4

The company wants to earn the profit of Rs. 300/-

The Sales Mix before the implementation of Value Added Tax is evaluated as follows :

Required Profit	300
Fixed Cost	1600
Contribution	1900

Let x be the no. of units of product X produced, then (300-x) will be number of units Y to be produced. Then 8x + (300 –x) 4 =1900. which resutled in x = 175 and y =125 to get the required profit. In the value added tax administration the contribution of X and Y are derived as follows :

	X (RS.)	Y (Rs.)
Selling Price	40	30
Variable Cost	32	26
VAT Benefit	1	0.50
Contribution	9	4.50

The required equation becomes 9x + (300-x) 4.5 = 1900 which resulted in x = 122 units and y = 178 units. From the above example it is found due to Value Added Tax, the sales mix has to be changed in order to get the desired profit.

	Salex Tax Administration	Value Added Tax Administration
Sales	10000	10000
Variable Material Cost	6000	6000
Tax Collected	1250	1250
Tax Paid	1250	(1250-750) = 500
Net Benefit From Tax	Nil	750
Contribution	4000	4750
PV Ratio	4000/10000 =0.4	4750/10000= 0.475
Break Even Sales	180000/0.4 = 4,50,000	180000/0.475= 3,78,947

Purchasing and Selling Strategies

In the Value Added Tax Administration, the input credit could be taken in respect of the goods purchased within States. The Central Sales Tax is still in operation and applicable in respect of the good purchased outside state. The entrepreneur has to take appropriate decisions to maximize his profit. The following example illustrates the above strategies.

Example 5

A manufacturer wants to purchase raw material for manufacture his products. The said material is available in side as well outside state, Let us assume Central Sales Tax rate is 3% and Value Added Tax rate is 12.5% and after manufacturing the said product he could sell the product for Rs. 20000/. Kindly confirm which is beneficial i.e. purchase within state or outside the state to the manufacturer. Assume the quality of the materials purchased within and outside state are same and no transportation cost is incurred.

	Purchase Outside State		Purchase Within State	
Sales		20000		20000
Material Cost	10000		10000	
Central Sales Tax Collected	300		2500	
Central Sales Tax Paid (-)	300		1250	
Net Cost		10000		10000
Net Tax Benefit		-----		11250
Profit		10000		11250

From the above it is concluded that an additional profit of Rs 1250/- could be obtained if the material is purchased within the state. Similarly the entrepreneur has to take various selling decision to maximize his profit. In selling his products he has these options. He can sell within state, or he can sell outside state. If he sells within the state, the Value Added Tax attracted. On the other hand if he sells outside state, Central Sales Tax at the rate of 3% attracts. Instead of these two options, lie can decide to export his products. There is possibility of getting refund if input credit exceeds the output credit. Therefore, before selling, he has to take appropriate decisions to sell his products within the state or outside the state or export them outside the country.

2. Conclusion

In any big organization, innumerable decisions are to be taken every day. The decisions taken are considered its good if it resulted in profit maximization or wealth accumulation. From the above discussion it is seen that Value Added Tax has a major impact on the profitability of the business. As each event in any business has to be analyzed independently after considering the various factors including tax impact, all the ways and means for the improvement of profitability or wealth accumulation could not be generalized. The examples given are only illustrative in order to create awareness of the impact of Value Added Tax or, the profitability of the business are not generalized one.

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