Finding Negativity of Business Interaction in Human Resources Management on Controlling the (Interacted) Business on Cutting Edges and Competitiveness

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ABSTRACT
An interaction between promotion and sales, in a given business, should unfold many of the insights for the business. There lies a problem on higher or lower relative measures in respect of effort of promotion or sales, in an interaction in business. The study has found the relative measure and obtained results which theoretically lead to generate a model, may be called as sales model. With many of its prosperous virtues, this model would be able to control negativity in the measures of either promotion or sales. Such study can easily maneuver to computer software to anticipate or estimate the interaction outcome. In the study, there would be found the correlative relationship by which interaction phenomenon can be visualized, over several fluctuations of sales and promotion. The study should make the interaction modeling to form out the similar modeling for any management discipline like human resources management especially, alongwith operation, strategy, financial management and many others. With lots of future scopes, the study can be treated as an examining explanation to several real-life problems to solve within a business.

1. Introduction

"A bad interaction does not reckon as bad as it seems always" - this may be the theme of this research paper.It is always an objective of attitude gaining programme in management of business that persuasion making must be at a higher level of targeting than just a selling only[1]. This is because it has several dimensional fulfillments as a prospect (consumer or customer) traverses through media communication[2]. Persuasion making also provides a stronger base to decision making medium of human brain that resides inside in an information processing[3]. In a right brand or promotion marketing, initiations are all in a set of prospective and forecasting manner that a negativity must not sway down prospectiveness of a positivity and conversely a positivity doesn't ensure non-existence of negative results that may be coming in future[4].

This study is about knowing and analyzing interaction between proposition, that is a product or service, and prospect which is human of consumer or customer nature. In the interaction, a set of information is allowed to pass through the members of the interaction and gets to become an introductional feature of the members, by behavior and such, as a result of the interaction itself[5], [6]. It is all about the objective to where an interaction must go and must not. There is hardly any marketing initiation taken or spread, without such a channelized thought processing means[7], [8]. Also, branding is never possible without such channelization[9].

In promotion and sales management, Figure 1 depicts the feature and participants of an interaction. Number of promotions that may be required if not attained a pursued level of selling or persuasion can be termed frequency of promotion or promotion frequency. In the figure, it is shown by arrow mark and thus a cyclic operation is formed in the interaction.

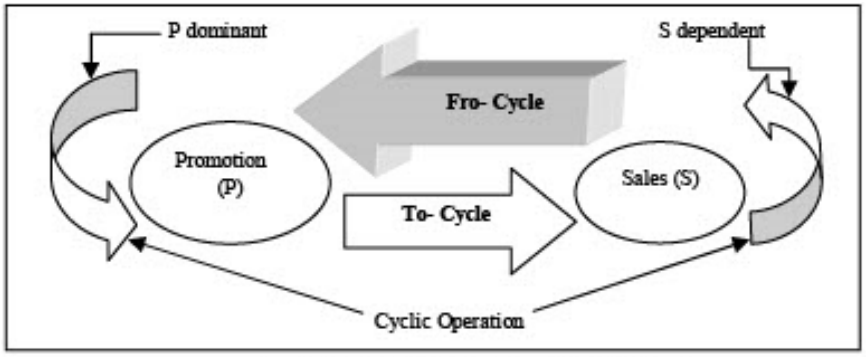


Figure 1: The Interaction Respective

There must be a basic principle of working to "where to end?" of the interaction management[10]. This is sometime best expressed by efficiency of the process system of the interaction[11]. Like many other variables as functional to an interaction, efficiency as a term plays and stays always within an interaction function. Those variables may be effectiveness, profitability, sustainability and etc[12], [13], [14].

This paper of research interests delineates how efficiency does have an influence on interaction (levels) or what effects an interaction may exhibit as a result, depending on degree of involvement of members of interaction in an interaction. Entire study is theoretical and strongly academic. With the research findings, the study has ended by constructing a modeling that would be sufficient to replicate changes of efficiency or changes of interaction levels or degrees, in interaction.

The modeling has to have several ways of application in brand management and promotion marketing, in order to have a status of interaction function that at what level an interaction could have created its effect as a proposition and on prospects. That's the future scope. The study has two main background points to be thought about, as its effect - *product life cycle* and *product variants*. These twos that have implications upon the study's finding could justify in scenario of consumer marketing and such, by the study.

The study has shown why and how variability in sales should occur and be kept at a marketer or consumer in lieu of maintaining an equivalency. This equivalency is both way - promotion respective and sales respective. Such equivalency does never have rigidity of negative sales as a bad one and positive one as good. It depends on functional definition so attached in. Also, the study gives a basis of creating several other means mathematically to calculate its objectives or findings.

Although its main focus on system efficiency, but it all relates to a particularity in having sales or promotion effects with respect to efficiency. This particularity is cardinal concept at the core in the study. It offers the study's interest to a new status by laying on limelight of various interesting boundary conditions as applicable to an interaction between sales and promotion.

At the end, the study would appear itself as a basis of finding out the interaction analysis as a fundamental insight and a source of many folds to unfold.

Following are the objectives of the study entirely -

- To determine zero-sales level for a given promotion magnitudes.
- To find out possibility of negative sales in promotion.
- To describe analogy between positive and negative sales.
- To bring out a fundamental sales modeling of promotion.

2. Literature Reviews

There is a basic assumption kept in the background of the study and that is that an interaction should get processed by a system function. Like any system, this system is also to have an input and an output. Output side is more to be focused on as that signifies the ultimate fate of the "interaction" system which can be related to Figure 1 as well.

The study has found behavior of consumer is not the all but also the marketing strategy which could save a marketing from various great dangers. It has got a dynamics in sales outcome which could be attained in a right

driving of promotion or promotional activities and vice-versa. Higher promotion may not be proving enough as a safeguard to a proposition and lower sales may prove the safeguard in a right way. So, there is the determination in the study obtained by mathematical modeling concept that a best trajectory must be there that can drive and maneuver at the suitability to reach at a good combination outcome of promotion or sales.

However, following reviews are hereby discussed to bring in the subjective pertinence -

Berger, Sorensen and Rasmussen Study (2010)[4]:

This study has compared positive and negative reviews of consumers and based on which arrived at a marketing or strategic conclusion. Digital marketing can get its position here to make the online reviews to greater heights with various digital applications. Also incorporation of artificial intelligence could take place on processing the buzzing voices to make the entire purchase activity a new range of marketing closeness.

The study is relevant to the research to the specialty of marketing business as it's going to be future marketing scenario apart from brick-and-mortar selling. Online reviews though can make anticipation erroneous to some extent but the study finds its problem of causing several degrees (+ve and -ve) of selling and promotion as well, which is target point of the research.

Coibion, Gorodnichenko and Hong Study (2015)[15]:

This paper is crudely applicable to the research points of interest. It discussed about cyclicality of price and sales over changes due to economic downturn and etc. that often causes to think on household consumption or expenditures. Such cyclicality is a point of concern about their formation and existence. Mostly it was marked, in the study, due to economic inflation, unemployability etc. but the study proclaimed that that was merely due to macroeconomic concerns and optimal policy.

The study showed that shopping effort of consumers changes due to above reasons leading to accustom to store-switching proclivity. This proclivity is also a concern to retailers who like consumers takes strategies to retain (them) at with lower price margins. This margin is called in the study as effective pricing over regular pricing. Across retailers, it was found a tremendous change over experiencing variants of consumers segments due to such cyclicality, as retailers often have the tendency to be with the market economy and cutting-edge competitiveness.

Consumers typically think their household budget on price changes, resulting to store switching and etc. though re-allocation of expenditures. This re-allocation behavior is well known to retailers also. However the study applied new Keynesian model and obtained that there would be a monetary policy shocks, though of smaller quantity, into price flexibility on time-varying shopping effort. The study suggested some conclusive reason behind such cyclicality –

- online sales (like Amazon) over brick-and-mortar selling like Walmart.
- non-quantification correctly, of the reallocation of expenditures over price changes.

So, consumer behavior about regression quality between shopping effort and store-switching should be perspicaciously known in all possible respects, in the data collection survey and etc. In this way, missing variations if any in expenditures that often and mostly cause to form cyclicality, once get caught up tightly without any mismeasurement could solve such problem and correct estimation would be possible then.

Shin, Hanssens and Gajula Study (2008)[16]:

It is a typical study that goes with the objectivity of the research. It has sighted the instance where revenues go increasing even on negative promotions. This also reasons to digital marketing on its broader spectrum of application media and pursuit of consumer marketing. The study mentions future of it.

The study would be relevant to the position when negative sales occur but with no option to make it a turnaround, to positivity. This may be a new leadership style in marketing and strategic objective of business.

3. Methodology

In marketing promotion, there is a both way interaction always taken place between prospect and proposition (product/service). As discussed earlier, it is always remained as a process system function where information about proposition is processed through prospect, in order to build and define a certain level of attitude in prospect

himself/herself. As a property of a system, there must be always a level of efficiency in which the process goes by. Conversely, efficiency is a functional input or output to a system always. It is always commonly heard of the fact that a system process fails to proceed on, beyond a level of performance, by "efficiency".

Product Life Cycle - Effect

In attaining or continuing with an efficiency level, a product must exhibit its potential to sustain in purchasing/selling effort by strategy[17], [18], [19]. Fluctuations in efficiency by levels as an output of interaction system must indicate life cycle status of a product concerned, in terms of sales levels or promotion (demanding) levels. So, it's an effect of sales promotion activity and it leads to production forecasting[20]. To estimate a system of marketing and consequent business with a good standard there must be some methods to be followed into[21]. However, to next of it what is required then is to be varying the product or brand by quality and all[22].

Product / Brand Variants – Business Solution

This should provide solution to the problem faced in terms of life cycle. Once a lifecycle status is known (by efficiency etc.), delving out strategy to make the problem quipped with precautions and cures should be to bring in a change in mix culture of product by lines, category or quality etc[22]. This is what we should call here as variant.

Why sales-promotion (Why not promotion-sales)?

Direction of marketing is vital and it signifies how a business is going on with respect to importance of respectiveness. If a business is sales respective then promotion is dominated by sales outcome, henceforth promotion is designed accordingly. On other side, sales could be also designed by a level of promotion. This synergy in between promotion and sales is important in sales marketing and business. This kind of synergy may be termed by *business respectiveness*, or simply, *respectiveness*. So, knowing the functional attachment (dependent/independent) and inter-valuation between promotion and sales is essential to plot out a modeling on either influence.

Background

In enhancing marketing (revenue) effort, there have been, since long, some activities or functions, becoming a part of marketing as well as business and promotion, are one of a kind to the study. In India, it (revenue-laid efforts) has taken the marketing place to consumer persuasion which is of latest in marketing history, like many other countries[23], as consumers are considered always everywhere as society (social demography) entity of the business, by virtue of business or management principle. Effectiveness achievement has to have the comparable influence with efficiency always and it may be to gain competitive, cutting-edges of the market. Effective measure is also required to offer the interaction function a better visionary channel to go through. All must be in a well, balanced nature of influences with all involved components[24]. Sometimes, researchers and marketers may find a feel over presence and necessity of promotion in sales management and marketing and it's obvious to business regards. Various studies suggest that there's always a connection (significant) to dominate and define a degree of sales level and persuasion making, on both short and long time span[1], [2], [25], [26]. An interaction outline is sketched and shown by Figure 1.

Online vis-a-vis retailing

With technology by its continuous un-ending revolution, it has quite increased new dimensions of marketing and business. New pathways are getting into vision day after days and marketing has got up to upper level of service and beyond that might explore out new definitions in very shorter period of time, way ahead. This booming up stage of technology has opened multiple online outlets of business indeed, with or without technology collaboration also. So, this now-a-days time of marketing is of the marketing business itself and by the grace of technology's own upliftment. This two individual set has manifested and researched a lot and created out online retailing besides having brick-and-mortar selling extravaganza like Walmart etc. Online mode of marketing outlet gives a customer lot of learning scope and easy facility to think upon and purchase[27], [28], [29]. Although, it can't be said at all that online versions of retailing would be the last stage of the marketing history as there's still a complexity to serve rural rudiments or on all periphery of a country or territory by the product business[30].

Modeling construction approach

An interaction is said to happen and start on when promotion has got a persuasive remark in consumer's mind. Many a times, promotions are found to be as not effective or not efficient or both. So, its approach making must be in a good hand of expertise and prudence[31]. There may be controversy but a failure always gives a new dimension to work on. A fruit may take long time to become a fruit of maturity[32] but it provides a healthier sense when culmination is proper with strategic senses of applicability[31], [32]. There should be always although the degree of susceptibility as caused and experienced to during natural disaster, pandemic etc[33] which could unfold a new chapter in business-cum-sales management on the subjective purview, later on.

As explained earlier, businesses may follow by sales respectiveness if a sale is more highlighted by or on focus, by promotion and etc. Sometimes, baseline sales concept is useful in constructing a modeling on sales management[34]. With the help of any analytical version, modeling may also be possible[35]. However, there are some usual formats or forms, a kind of conventional, available in the theory of sales and promotion management, which may vary by degree (of usefulness) by inculcating points of concern in the modeling as well[35], [36]. Any impact-based modeling may also be constructed for obtaining a status giving basis for a given certain condition[37].

Modeling by methodology of study

Figure 1 shows a basic fundamental of interaction where cyclic operation starts happen on selling (S) as desired level of "persuasion" selling's not yet arrived of upto a certain level. There should be two kinds of cycle are: To- cycle and Fro- cycle (detailed in Table 1).

Table 1: To- Cycle Versus Fro- Cycle

Sl.	Interaction Cycles	Description
1	To- Cycle	It is promotion dominant. It starts to happen or begins whenever promotion as a value is required to be given as an initial or of cyclic or else nature in interaction.
2	Fro- Cycle	It is sales level dependent. It does happen on not achieving a certain level of sales (S), resulting to cause another P through To- cycle.

Figure 2 gives a schematic layout of repetitive and continuous P (promotion) and S (sale or sales), where P0 is start or beginning of promotional interaction.

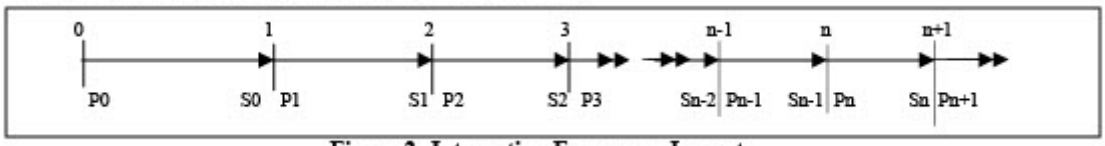


Figure 2: Interaction Frequency Layout

By this way of enunciation, we can get several points like 0, 1, 2, 3, etc. which are termed as nodal points or nodes; at each node, there should be a set of P and S, except start and end node, where P0 is denoted for node 0 as start node and Sn for n-th node as the end node (Figure 2).

It is assumed that each link that has two nodes must attempt to achieve a certain level of S at its succeeding node. Say, for link 0-1, a sales level, S0, that must be attained at node 1 for link 0-1, should call for another promotion, P1, if S0 is not at the certain desired level (Note: there should be links such as 0-1, 1-2, 2-3 and so on). In this way, there should be continuity in cyclic repetition of P and S, again and again (as shown by Figure 2) till certain magnitude in S gets attained or is achieved. It is quite nonetheless that such a cyclic operation (of P and S) must hold Fourier series function application mathematically into its functional feature of sales levels attainment.

Table 2: Nodal Variables Of Efficiency

Node	Link	Sales^	Promotion^^	Input	Output
0	0-1	-	P0	P0+P1	P0
1	1-2	S0	P1	P1+P2	P1
2	2-3	S1	P2	P2+P3	P2
3	3-4	S2	P3	P3+P4	P3
. . .	. . .	. . .	. . .	. . .	. . .
n-1	(n-1) to n	Sn-2	Pn-1	Pn-1+ Pn	Pn-1
n	n to (n+1)	Sn-1	Pn	Pn+Pn+1	Pn
n+1	(n+1) to (n+2)	Sn	Pn+1	Pn+1+Pn+2	Pn+1

^S0, S1, S2, S3 …be sales levels usually corresponding to promotions P0, P1, P2, P3 etc. respectively.^^P0, P1, P2, P3… be required promotions to be given.

Cyclic Promotion (Sale) Determination

It is evident by Figure 2 that there must be a level of efficiency that's getting attained by each node or nodal performance. Cyclic operation of interaction as a process system must have the efficiency level where P's and S's are to be acting as input and output respectively. Table 2 that gives input and output variables as correspondent to Figure 2 could express the efficiency in its usual format. Usually, efficiency is best expressed by following simple form as,

E = Efficiency in percent = (Output divided by Input)100 (Eq.1)

For a promotion marketing, Eq.(1) is hereby written as,

E = 100(P/S) (Eq.2)

where, P = Promotion level; S = Sales or Selling level.

[Note: P is output here at every nodal effort for a given level of S in cyclic operation, where S is always to be an objective in promotion marketing]

Eq.2 now becomes as,

$$\frac{E}{100} = \left(\frac{P}{S}\right) \quad \text{(Eq.3)}$$

It is also assumed that cyclic operation continues till infinity beyond a level at n-th promotion as shown by Figure 2. Falling down of value of E to lower than unity or numerical magnitude 1.0 does indicate requirement of P is done and completed with desired sales level. So, there should be a positive indication of sales level (to be equal to more than P) on E lesser than 1, as expressed by Eq.3.

Always the assumption of repetitive nature has to be kept constant that the cyclic operation shall never be ending. In such assumption, inputs should always be corresponding to To- cycle and outputs shall be with respect to Fro- cycle. So, two succeeding and subsequent cycles are to be taken in estimation of efficiency. Thus, we have got the following derivatives of efficiency, using Eq.3, based at node level,

For node 0,

$$\frac{E0}{100} = \left(\frac{P0}{P0 + P1}\right)$$

Likewise, for node 1,

$$\frac{E1}{100} = \left(\frac{P1}{P1 + P2}\right)$$

Again, for node 2,

$$\frac{E2}{100} = \left(\frac{P2}{P2 + P3}\right)$$

Table 3: Nodal potential to repetition or to be cyclic

Node	Link	Nodal Requirement (Conditional)
0	0-1	-
1	1-2	S0≤P1− P0
2	2-3	S1≤P2− P1
3	3-4	S2≤P3− P2
. . .	. . .	. . .
n-1	(n-1) to n	Sn-2≤Pn-2− Pn-1
n	n to (n+1)	Sn-1≤Pn− Pn-1
n+1	(n+1) to (n+2)	Sn≤Pn+1− Pn

For node n,

$$\frac{En}{100} = \left(\frac{Pn}{Pn+Pn+1}\right) \quad \text{(Eq.4)}$$

Again, for node 2, we can write the following (by applying Figure 2):

If, S1+P1≤S2

Then, P2≥S1+P1

Or, S1≤P2−P1

So, for n+1 node,

Pn+1≥Sn+Pn

Sn≤Pn+1− Pn

Thereby, we can write for an equilibrium as,

$$P_{n+1} - P_n = S_n \quad \text{(Eq.5)}$$

Subjectively it is mentioned here that the modeling methodology should be known by nodal requirement to sales pursuance and each node is hereby given by such requirement (which may only be as optional kind for understanding of the modeling methodology) that should never ever restricted to the one shown by Table 3. So, varying nodal needs may be anything based on business objective fulfillment. This study is assumed to be valid to the need at nodes as given by Table 3.

Eq.(4) is hereby written as,

$$\frac{En}{100} = \frac{P_n}{(P_{n+1}^2 - P_n^2)}(P_{n+1} - P_n) \quad \text{(Eq.6)}$$

Putting Eq.5 into Eq.6,

$$\frac{En}{100} = \left(\frac{P_n}{P_{n+1}^2 - P_n^2}\right) S_n$$

Or, $S_n = \left(\frac{En}{100}\right)\left(\frac{P_{n+1}^2 - P_n^2}{P_n}\right)$ (Eq.7)

Eq. 7 shows that it is the formulation where for any level, S could be determined, of n-th cycle (Figure 2). Also, as marketer always desires to keep continuing of marketing promotions at varying levels by magnitude, so Eq.7 would thereby be needful in that regards owing to the revenue, competitive profitability and loyalty of marketing.

Annexure I.1 has been created in determination of modeling of this study. This tabulation has an insight to find out set of values for a given set of variables' values. Such enunciation is one of a kind and henceforth the study attracts many more research creations like Annexure I.1 to arrive at a modeling construction. However, for a given set of values against two successive promotion requiring nodes, sales values are obtained correspondingly in accordance to Eq. 7. Such values are shown in annexures (from Annexure I.2 to Annexure I.7).

Modeling of Cyclic Promotion

Annexure I.1 has an overview of the findings as determined by Eq. 7 as explained above. It shows a dividing line, called as zero-sales line distinguishing positive sales from negative sales and vice-versa, as obtained in above mentioned annexures. Such a line has all the same value along its gradient and the same value is of zero quantity by numerical value. This line may also be called as line of equivalency or equivalent promotion or sales line. On the following annexures, it is found (by application of Annexure I.1) that depending on variation in value of efficiency, concentration of values in positive or negative zone is also changing or shifting. Such a change must be with respect to zero line always.

Above-mentioned annexures show that how distribution and concentration of values below or above zero or equivalency line is taking place over changes in efficiency. Such values above and below zero line are further analyzed to obtain their weighted average (WA) and mean which are presented in graphic presentation view in Appendix 1.1 and Appendix 1.2 and these are the objective modeling or modeling profiles. Annexure I.8 and Annexure I.9 has showcased the modeling profile equations with respect to positivity and negativity with respect to line of equivalency - it is with the aim of finding the profile significance with or without the contribution made by zero-sales curve.

With this, modeling determination is accomplished with an objective of promotion equivalent sales modeling or sales equivalent promotion modeling, whichever applicable.

It is now evident that there are three variables pertinent to the subjective description. These are efficiency, slope and sales (or promotion) level, by value. On the purview of slope, a basic and fundamental tabulation is prepared and that'd be useful in finding out sales or promotion level on a broader spectrum of knowledge, learning and expertise. Regression between efficiency and sales promotion levels is analyzed and explained above. But, question is now what's about efficiency versus slope modeling? This has been given by finding as obtained by Appendix K (Appendix K.1 and K.2.). These two representations are to linearity and inversely variation between efficiency and slope of sale or promotion line (+ve or -ve). This kind of finding is fundamental by nature as it unfolds a complete range of determination which could be useful in other mode of application in addition to the present one. However, profiles are also drawn out for the two representations and shown in Annexure I.10 and Annexure I.11. Also, based on values obtained by annexures (from Annexure I.2 to Annexure I.7) and as similar to Annexure I.8 and Annexure I.9 (for with and without zero-sales curve consideration), modeling profiles of WA and Mean values are determined and shown in Annexure I.12. So, suitable use of the modeling profiles so determined by the study could be applied to, as useful and as appropriate.

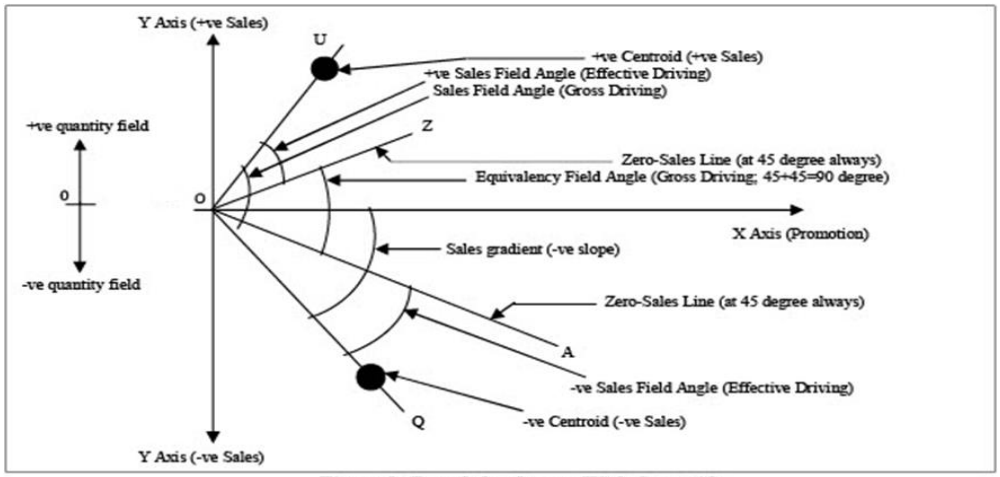


Figure 3: Zero-Sales Curves With Centroids

By above description, it is clear that there are two sets of values obtained by Eq.7 with respect to zero-sales curve. One set is found out with +ve notation and other set as –ve notation. These two notations are respectively called here as positive and negative sales for given promotion as defined by Eq.7 which is the base equation of all findings. To be mentioned that zero-sales curve is the curve where sales outcome is found out by zero quantity by Eq.7 so far as Annexure I.1 is concerned in this. All descriptions so given so far well up to this are with respect to meaning as stated by +ve and -ve sales as defined above.

[Note: By significance, +ve sales are actually negative one and -ve sales are positive one if sales outcome is regarded as a positive indication or output of promotion or promotional effort.]

Using Annexure I.1, all +ve and -ve sales have been plotted on modeling profiles in order to obtain the modeling equation discussed above. In there, certain parameters may need standard fundamentalism or which Appendix K has been constructed. Appendix K may be useful to suitable conversion and transformation as the determination may need.

Interaction Equivalency Dynamics

One thing is clear that with zero-sales curve, there would be formation of +ve and -ve sales as a response result of promotion. Such profile nature has already been shown by Appendix 1.1 and Appendix 1.2 which altogether could be represented by Figure 3 for its fundamental discussion. Small dark circle, as shown in Figure 3, is centroid location of all WA's (+ve or -ve).

Circles may also be indicating mean value of +ve or -ve sales. However, there are two fields, one +ve and another -ve one defined by signage as they are obtained by Eq.7. Though, their actual significance is described above. With such a centroid location, all sales values can be considered to be concentrated at one prime location with respect to which the entire representation can get reflected out. With such enunciation and methodological perspective, such centroid (in +ve and -ve field for +ve and -ve sales respectively) should be under effective control, driving and dominance by zero-sales curve which also happens to occur to both the fields.

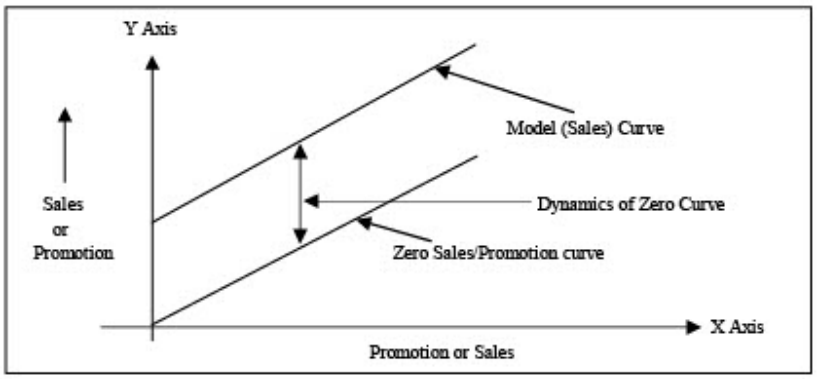


Figure 4: Zero-Sales Curve and Model Curve (Implication of Eq.7)

Various angular measures that are marked on such a representation are self-expressive by their meaning and significance. In the study, zero-sales curve is also called as equivalency curve or curve of equivalent measure as to the regards of zero sales obtained by Eq.7 which may be regarded as an equivalent level between promotion and sales.

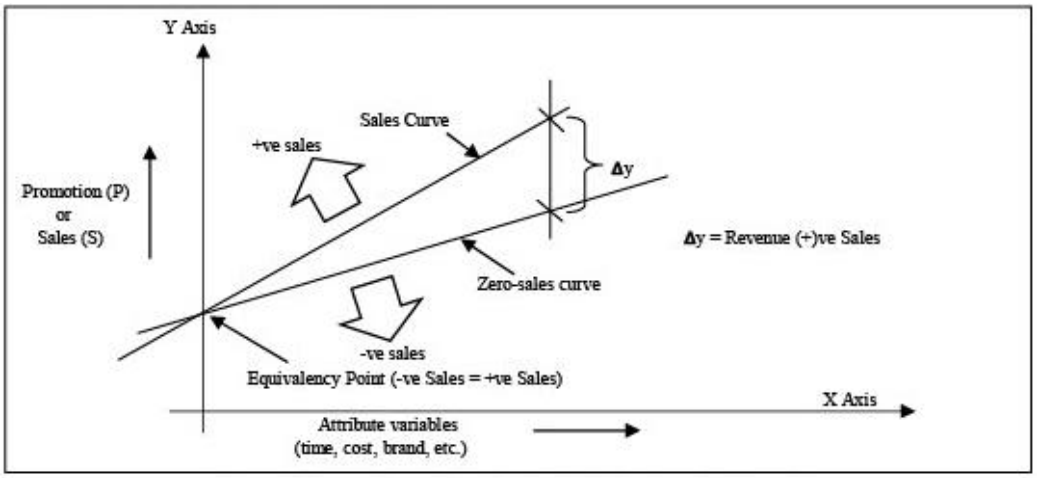


Figure 5: Transformation of sales (Attributes Implication)

Gross and effective driving angles are the angular measure at given (field) marketing scenario and controlled scenario respectively. Moreover, a gross angle indicates as an event or the corresponding scenario that has already been done or accomplished whereas effective one provides activities that can be prepared of suitably or have time yet to the thought of how the scenario can be improved more.

This way of methodology gives a driving nature which monitors and controls the movement of sales on +ve and

-ve regards. Such driving nature as assumed to be imposed by zero-sales curve is nothing but the angular measure which is the effective angles, calculated and shown by Annexure I.8 and Annexure I.9. This angle calculation of effective nature is only for +ve and -ve sales curves other than zero-sales curve, as latter one is by evident of geometry is to be 90 degree always (since promotion becomes equivalent to sales at zero-sales curve resulting to the slope equal to numerical 1.0).

So, it is hereby established that there should be always a dynamics of sales "phenomenon" to move across positivity and negativity by zero-sales curve (Figure 4) and the modeling is thereby found to be an effective one to bring forth the sales as to be desired by a marketer by considering positive revenue with positive sales all the time (Figure 5) if negativity is not considered as a bad one to sale or revenue outcome in the business.

[Note: In a given promotion, a zero-sales curve must always exist along with +ve and -ve sales curve as expressed by Figure 4. For +ve sales curve there should always be a zero-sales curve acting to be as a guidance and similarly for -ve sales curve also. Position of +ve or –ve sales curve may be above or below zero-sales curve against the one as shown by Figure 4. Each of +ve and -ve sales curve must be holding a centroid always, as considered in by the study.]

Table 4: Within sales trade-off (Zero Sales Retrospective)

Kinds Of Sales (Effect)^		Positive Sales^^	
		High	**Low**
Negative Sales^^	**Low**	▪ Consumables ▪ Service exists ▪ Saturation possibility of promotion	▪ Pandemic ▪ Falling economy ▪ No service ▪ Skimming
	High	▪ Competitive ▪ Service high ▪ Demanding market/economy/product	▪ Risk (Both Long-term and Short-term Business) ▪ Shut-down coverage ▪ New proposition (start-up)

^outcomes defining the (jointly) business character, that may be for an economy, product, any qualitative measure etc. Again, either quantity may be a field and another one as its quantity of subjection, as correspondent. Also, "low" may be ignorable.
^^-ve or +ve by definition of it signifies to further promotion needs; sales may be representative here and that could be also for promotion; high +ve sales means sales is high and promotion need is less/low whereas high -ve sales means less sales and higher promotion needs to make sales higher.

There must be an interaction outcome in between positive and negative sales in a business or such. Such outcomes are given in Table 4 which is important one to describe how a business is.

Future Scopes of the modeling

- In an axial system, two sales (+ve and -ve) curves are shown on presence of zero-sales in Figure 5. There can be two ways to determine modeling outcomes – one is implication of Eq.7 and another is attributes of promotion or sales. Figure 4 has been described above which the basic basement over which the modeling is done. Figure 5 is another outset which could bring out similar modeling construction. As shown, there must a point where +ve and -ve sales would be *becoming* equal to each other. For the figure and its curves as shown in Figure 5, above the point (of equivalency), there should revenue and below the point is loss of revenue. So, Figure 5 could also be constructed into an interaction modeling as done by Eq.7 for Figure 4.
- Table 4 is to be a highlighting part of the discussion. An interaction outcome can be obtained between +ve and -ve sales by their related meanings as in the business. The trade-off outcomes reflecting a proposition nature or a market character or else can be set to the table (Table 4) of research pursuits to make them a check and further validation also. All these are fundamental findings.

Assumptions of the modeling

- Interaction function should continue to infinity sequence or n-th times, as shown by Figure 2.
- Each cycle may comprise two successive interaction functions. There should be two such functions, To-and Fro-, shown by Figure 1.
- Fro- cycle function is always to be regarded as acting or existing along the direction of interaction as To-

cycle function is subjected to.

- Prime emphasis is always to be given on coming node or interaction function (in the interaction direction) once previous ones are found as insufficient.
- Succeeding nodes or promotions are emphasized more than preceding nodes of promotions.
- Basis of modeling is optionally as well as suitably applicable, be it sales or promotion, to regards of processes the modeling follows to.
- The modeling is equally valid for sales and promotion respective both.
- The modeling is to be having a background with factorial such as efficiency etc.
- Results of modeling in terms of sales or promotion are assumed to be uniformly distributed. So all inputs are also to be of the same order.
- Suspicious promotional effects may be ignored into the resulting calculations so that dilution over accuracy may be minimized.
- Subjective marketing field may be heterogeneous by nature but there must be always be homogeneity in sets of promotion and sales. There should not be a bad relationship between expected and process input.
- Included angle between gradient of positive and negative "equivalent" sales or promotion should never exceed 90 degree (preferably 90 degree always).
- Included angle between gradient of +ve and -ve sales or promotion must be a summation of the two gradients always.
- Above twos are independent of quadrant (of coordinate geometry), especially to sign regard.
- Linear trends are suitable for stable (uniform) growth rate while exponential and polynomial trends for uncertain or rapid and moderate or modest growth rate respectively. This growth rate is to sales making effort of interaction function based on promotion or else such.

Major Findings of the Study

- Appendix 1 gives various features of the modeling sales and promotion. Zero sales happen to occur with variability without having a "continuous" linearity. This means there may be more zero sales occurrences by quantity in comparison to corresponding promotion quantity or efficiency. On increasing efficiency levels, chances of such occurrence is higher, leading to indicate more stability facility or possibility of equivalency may be experienced.
- Above remark is applicable for individual (or both together simultaneously) dynamics scenario of +ve and -ve sales or promotion.
- Entire modeling is done on a finite sales effect that sale occurrence must be exceeding promotion level at some point of time or efficiency.
- Line of zero sales or promotion is a dividing line always having an existence in between positivity and negativity. On summation of paths or values of zero sales shown by Appendix 1.1 and Appendix 1.2 we get one single path of zero sales profile as shown by Annexure I.1.
- There should be always a set of two quadrants, one of which is +ve and other one -ve quantity or measure.
- The study has observed a twist in its findings. All sales of positive nature as explained by +ve sign should be not corresponding to that "good effect" definition of positivity and consequently -ve sales to mean to not as that "bad" sales or promotion imposition. So, there should be a check on it by the definition and significance so expressed by it. Thereforth, positivity so expressed by the study is actually meaning to bad sales or low sales that is close enough to negativity concern while -ve sales so written in the study is to +ve nature or enhancement so far as a good effect is recognized by well returning or improving revenue on regards of a promotional effect. Summarily, positive promotion is +ve sales as expressed by the study which is actually a negativity in sales and conversely, a promotion is found to be diminishing its presence to be continuing with which does not give positive sales but a positive to sales regard as sales is there is promotion is not required indicating the diminishing pattern or profile. For a product going to be dying soon, may

expose above explanation in otherwise different meaning though. So, the study is meant to be defining not for such product but for those one who must have the potential to have a sales recognition in response to promotion. With this in view, expression should be taken as an alteration by meaning as given above.

- The modeling is better applicable to proposition having potential of sales or ability to exhibit sales by promotion on short or long term. Interestingly, a testing may be executed by the modeling whether a product is having the potential or not (rather dying!). Subjectively, a proposition may be regarded as dying if it does not respond over promotion or remains obsolete so.
- Angular value of 90 degree of zero line indicates that it drives and controls the changes in sales from positivity to negativity or reverse. That means there is an arrival of zero line on changing the signage every time in a given promotional effort.
- Modeling of gradient (slope) of curves (zero line and +ve or -ve sales) with efficiency could provide the internal co-ordination to make the study broadly applicable. In view of it, Appendix K (K.1 and K.2) gives a fundamental basis to observe and determine proportionality constant which is found to be decreasing on higher slopes and efficiency in both the cases of linear and inverse changes. This finding by keeping slope as independent variable, efficiency can thereby be said to be having a retarding effect caused by proportionality modeling (as observed by Appendix K) on sales outcome; higher retardation on higher slopes or higher efficiency or higher sales output. Promotion equivalent modeling is hereby perspicuously established.

4. Results and Discussion

Negativity in sales, so far described in the study, indicates the ending of (further) promotion needs, leading to more proclivity to sales attainment which means there's immediate happening of sales occurrence or purchase making. This is a good indication though but it may also linger the sales happening by increasing suitable changes into the involved functional variables. However, in no case of suitable happening or occurrence, there should be an implication of using several outlets of facility which could alleviate the badness, as such, of promotion results on terms of sales. Such facility may include incentive, sales strategy (quota selling etc.), motivation, personal selling, differentiated sales by publicity etc and etc[38].

Negative consumer review may not always act as negative as it appears to by defining and etc. and there must be a well co-ordination among such reviews (both positive and negative) and brand strength because nobody knows how the reviews do play with the brand value[39]and thereforth a best-fit influencing relationship is expected to play around in a good manner with stable revenue returns as the sales result. Such is an opinion under expectation definitely but there could be otherwise specialty of case-sensitive nature that may be of narrow lane of profitability.

With the advent of technology and its booming period in recent years, online customer reviews are getting a subject of research where negativity (negative promotion) by twist is a high point of interest that most marketers do follow and apply. Online promotions are making promotion advantages to a premium kind of feeling which is as prestigious as sophisticated one, making the entire sales-promotion regression as a "digital" marketing rather than physical complexity (in branding and etc.)[40].

Like various enticing manifestation, there should be a strong way-out through management basis and that is by product or brand variability. This is one of the high point of strategies that may be adopted while negative or positive interrogation plays within marketing strategy[41]. Actually, such variation often enhancing the ability and potential of innovation and entrepreneurship, is an obvious first step ontowards mitigating such problems occurred by misinterpretation or bad effect of sales-promotion relationship. Again, such the variants should also be kept under proper balancing control otherwise of which that could slow down or ruin the business growth in all.

With variants application as a strategy, it does also reflect the potential of the product under subjection. That is none other than defined by life cycle of product. Although, it does not always a true that variants application is always to be functional to life cycle[42].

As explained earlier in the study, there is the attitude gaining by promotion marketing[1], [25]and thereforth a low gaining would reflect a low in sales output, leading to define lesser attribution of promotion[43]. But, as always mentioning, as low or bad kind as a result, the promotional effort does not make sense till concerns point to the

results. This justifies to the study itself since the beginning. Also, economic environment (business cycles, inflation, employability, etc.) do have an effect over promotional results in terms of sales or profitability.

All profiles whose linear trends are not shown in their respective figures are hereby revealed that they have the similarity as to their profiles so obtained. Conversely, linear trend-lines are coinciding with their obtained or given profiles.

To fight over negative sales, positivity should be the target definitely but marketers use the prudence to turning negative issues into positivity. In doing so, compensation of sales by other means in addition to above should always be thought of, by research, innovation and entrepreneurship. Visionary must be there in place always[44]. Management of promotion may itself open up a supply chain within and that is very interesting with respect to advertising, branding, variants, etc[45].

Modeling so obtained by the study is through fundamental application and it is well suitable to all necessaries as it requires as explained above. Besides fundamental outcomes, the study has given a way to drive and control dynamics of sales fluctuations with promotional efforts. This would enhance marketers to provide suitable strategy with compatible product as well as brand variant.

Dynamics of sales, as positive or negative, should always provide a basis for product differentiation, resulting to new dimension of product/brand design. In all, an efficacy standard is possible to be created by the modeling of this present study.

5. Conclusions

From findings of modeling description, it is observed that higher efficiency has influence on position of sales centroid location and negativity has the significance to proclaim immediate closing of further needs of promotion. Equivalency curve is to be acting as driving device to maneuver centroid locations. With these findings in hand, it can be said that sales promotion activities are essential to influence on sales growth and business endeavor. It's been a continuous curiosity whether promotion needs are a need to business at all or not[46]! Such curiosity still roams around some kinds of business till now, at this very age of technological booming. The study's findings give the clarity to know the meaning of promotional influences and every business should always have budget for promotional activities, irrespective of nature and size of business. Regarding branding, there is the range of sales level options designed by equivalency curve that may be increased or decreased owing to budget and equity concern of brand promotion. Brand equity is better observed as gains on long-term promotion[47].

Sometimes, negative publicity using technology has been eventful and profit making[48], [49]. Technological imbibing can also be enhanced by the study's finding. Now-a-days, digital outlets are almost engulfing all ranges of businesses fully, totally and completely as way ahead future is what we can presume over by it[50]and such indulgence shall be more adventurous once equivalency curve can be put into it to all.

High velocity sale is the new entry by term in sales management and marketing. It pursues as similar as above technological implications[51], [52]. Social media does play a great part in it. However, in all segments of business tools, technologies, new business objective terminology etc can also take part their jobs to accomplish accordingly by study's sales modeling by equivalency curve and all.

There must be a referencing of promotion limitations as social entities (across demography) are an essential part of business always. Such limitation can well be achieved by equivalency consideration as explained by the study. So, a business potential can be known by such curve by a "referencing" sales. The study has several uses on regards of following objects surrounding a business -

- Economy
- Agriculture
- People demography
- Efficacy in consumption
- Effective use of budget
- Shutdown avoidance or remission or rejuvenation

- Compatibility with sustainability and resilience
- Climate control

There might be certain factors required to be reckoned to using of the equivalency curve concept and application. These factors may be at each and every component of sales attainment system of marketing promotion. Any modeling approach must pursue this[53], especially in digital marketing where a correct influence is required along with balancing system compatibility among all. Again, various pursuits-making endeavor that makes sales happen in a marketing strategy backed by sales forecasting might become a factorial to sales definition by equivalency curve implementation[54], [55], [56]. Such are strategies by suitable promotion indeed so long as long-term effects of promotion belong to suitable promotion's activities. Therefore, it is found that the study is useful to kinds of applications, pursuits, factorials, etc. as useful to a business.

With these all, the present study is equipped with modeling constructions to make it to software-based applications to evaluate a market, marketing strategy and product itself[57]. The study would be able to unfold several insights of the interaction (modeling) which are remained in the study as future research.

References

[1] Singh, J., Ehrenberg, A., and Goodhardt, G. 2008. Measuring Customer Loyalty to Product Variants. International Journal of Market Research. 2008. 50(4):513-532. doi:10.1177/147078530805000408.

[2] Hermiyenti, Suci., and Wardi, Yunia. 2019. A Literature Review on the Influence of Promotion, Price and Brand Image to Purchase Decision. 2nd Padang International Conference on Education, Economics, Business and Accounting (PICEEBA-2 2018). Advances in Economics, Business and Management Research (Published by Atlantis Press). Volume 64. pp. 538-545.

[3] Francesco, G. 2018. The Rule of Persuasion in the Marketing Process. Psychol Behav Sci Int J. 2018; 9(5): 555775. doi: 10.19080/PBSIJ.2018.09.555775.

[4] Berger, Jonah., Sorensen, Alan T., Rasmussen, Scott J. 2010. Positive Effects of Negative Publicity: When Negative Reviews Increase Sales. Marketing Science ISSN 0732-2399. Vol. 29, No. 5, pp. 815-827. doi: 10.1287/mksc.1090.0557.

[5] Fornell, Claes., Robinson, William T., and Wernerfelt, Birger. 1985. Consumption Experience and Sales Promotion Expenditure. Management Science (JSTOR Publication). Vol. 31, No. 9, pp. 1084-1105.

[6] Familmaleki, Mahsa., Aghighi, Alireza., and Hamidi, Kambiz. 2015. Analyzing the Influence of Sales Promotion on Customer Purchasing Behavior. International Journal of Economics and Management Sciences (ISSN: 2162-6359). 4:4, pp. 1-6. doi: 10.4172/2162-6359.1000243.

[7] Kanagal, Nagasimha Balakrishna. 2013. Promotions as market transactions. Journal of Management and Marketing Research. pp. 10-13.

[8] Dekimpe, Marnik G., and Deleersnyder, Barbara. 2018. Business cycle research in marketing: a review and research agenda. J. of the Acad. Mark (Springer Publication). Sci. 46:31–58. doi: 10.1007/s11747-017-0542-9.

[9] Ataman, M.B., van Heerde, H.J., and Mela, C.F. 2010. The long-term effect of marketing strategy on brand sales. Journal of Marketing Research (JMR). 47(5), pp. 866-882. doi:10.1509/jmkr.47.5.866.

[10] Kumari, Dr. Pallavi. 2020. Effective Sales Promotion Strategies For Gaining Competitive Edge And Intensive Growth. International Journal Of Scientific and Technology Research (ISSN 2277-8616). Volume 9, Issue 04, pp. 2784-2788.

[11] Marcu, Mihaela., and Gherman, Cristina. 2010. The Efficiency Of Promotional Instruments Related To The Product Life Cycle Stages. Annals of the University of Petroşani. Economics. 10(1), pp. 169-176.

[12] Ziliani, Cristina. 2005. Target promotions: How to measure and improve promotional effectiveness through individual customer information. Journal of Targeting, Measurement and Analysis for Marketing (Palgrave Macmillan Ltd 1479-1862/06). Vol. 14. 3, pp. 249–259.

[13] Santini, Fernando de Oliveira., Sampaio, Cláudio Hoffmann., Perin, Marcelo Gattermann., Espartel, Lelis Balestrin., and Ladeira, Wagner Junior. 2015. Moderating Effects of Sales Promotion Types. Brazilian Administration Review (BAR). Rio de Janeiro. v 12, n 2. art 3, pp 170-189. doi: 10.1590/1807-7692bar2015140057.

[14] van Heerde, Harald J. 2005. The proper interpretation of sales promotion effects: supplement elasticities with absolute

sales effects. Applied Stochastic Models In Business And Industry. Appl. Stochastic Models Bus. Ind. (Published online in Wiley InterScience). 21:397–402. doi: 10.1002/asmb.577.

[15] Coibion, Olivier., Gorodnichenko, Yuriy., and Hong, Gee Hee. 2015. The Cyclicality of Sales, Regular and Effective Prices: Business Cycle and Policy Implications. American Economic Review. 105(3):993-1029. doi:10.1257/aer.20121546.

[16] Shin, Hyun S., Hanssens, Dominique M., Gajula, Bharath. 2008. The Impact of Positive vs. Negative Online Buzz on Retail Prices (Corpus ID: 14446638). pp.1-36. URL: https://www.semanticscholar.org/paper/The-Impact-of-Positive-vs-.-Negative-Online-Buzz-on-Shin-Hanssens/99ec57e6c19c061b4da104d3f335196dd2d9f9ff.

[17] Kumar, Atul. 2020. Marketing Management Strategies for different Phases of Product Life Cycle. IJCRT ISSN: 2320-2882. Volume 8, Issue 12, pp. 1-4.

[18] Ma'ruf, M. Hasan. 2017. The Influence Of Product Variations, Prices And Sales Promotions On Consumer Decisions In Buying Mitsubishi Cars In Surakarta. International Journal of Economics, Business and Accounting Research (IJEBAR) ISSN:2614-1280. Vol-1, Issue-1, 2017, pp. 48-56. URL: https://jurnal.stie-aas.ac.id/index.php/IJEBAR.

[19] Kamthe, Milind., Verma, Dr. Devendra Singh. 2013. Product Life Cycle And Marketing Management Strategies. International Journal of Engineering Research and Technology (IJERT) ISSN: 2278-0181. Vol. 2, Issue 4, pp. 2035-2042.

[20] Cao, Hui., and Folan, Paul. 2011. Product Life Cycle: the evolution of a paradigm and literature review from 1950-2009. Production Planning and Control (The Management of Operations). Volume 23.2012, Issue 8, pp. 641-662.

[21] Boronenkova, Svetlana., Chepulyanis, Anton., and Nikulionok, Svetlana. 2021. Methods of marketing analysis at all stages of the product life cycle. E3S Web of Conferences 296. 06032(2021), pp. 1-8. doi: 10.1051/e3sconf/202129606032 ESMGT2021.

[22] Bergen, Mark., Dutta, Shantanu., and Shugan, Steven M. 1996. Branded Variants: A Retail Perspective. Journal of Marketing Research. Vol. XXXIII, pp. 9-19.

[23] Koshy, Abraham., and Dang Jha, Priya. 2004. An Empirical View of the Diferent Types of Consumer Promotions in India. IIMA Working Papers WP2004-03-03. Indian Institute of Management Ahmedabad Research and Publication Department. http://hdl.handle.net/11718/469.

[24] Genchev, E., and Todorova, G. 2017. Sales Promotion Activities - Effective Tool Of Marketing Communication Mix. Trakia Journal of Sciences (Trakia University) ISSN 1313-7069 (print) ISSN 1313-3551 (online). Vol. 15, Suppl. 1, pp. 181-185. doi:10.15547/tjs.2017.s.01.033.

[25] Joshi, Dipanti., and Bhatt, Dr. Viral. 2021. Does The Advertisement And Sales Promotion Have Impact On Behavioral Intentions Of Online Food Delivery Application Users? Palarch's Journal Of Archaeology Of Egypt/Egyptology ISSN 1567-214x. PJAEE. 18(7) (2021), pp. 1398-1418.

[26] Jedidi, Kamel., Mela, Carl F., and Gupta, Sunil. 1999. Managing Advertising and Promotion for Long-Run Profitability. Marketing Science. Vol. 18, No. 1, pp. 1-22. doi: 10.1287/mksc.18.1.1.

[27] Lockett, Asia R. 2018. Online Marketing Strategies for Increasing Sales Revenues of Small Retail Businesses. Doctoral thesis of Doctor of Business Administration. Walden Dissertations and Doctoral Studies (Walden University). pp. 1-148.

[28] Osinga, Ernst C., Zevenbergen, Menno. and van Zuijlen, Mark W.G. 2019. Do mobile banner ads increase sales? Yes, in the offline channel. International Journal of Research in Marketing. International Journal of Research in Marketing 36 (2019) 439-453. doi: 10.1016/j.ijresmar.2019.02.001.

[29] Batra, Rajeev., and Keller, Kevin Lane. 2016. Integrating Marketing Communications: New Findings, New Lessons, and New Ideas. Journal of Marketing: AMA/MSI Special Issue ISSN: 0022-2429 (print) 1547-7185 (electronic). Vol. 80, 122–145. doi:10.1509/jm.15.0419.

[30] Gielens, Katrijn., and Steenkamp, Jan-Benedict E.M. 2019. Branding in the era of digital (dis)intermediation. International Journal of Research in Marketing. 36(2019),367-384. doi: 10.1016/j.ijresmar.2019.01.005.

[31] Brito, Pedro Quelhas., and Hammond, Kathy. 2007. Strategic Versus Tactical Nature of Sales Promotions. Journal of Marketing Communications. Vol. 13, No. 2, pp. 131–148. doi: 10.1080/14697010601081969.

[32] Carl F. Mela, Kamel Jedidi, and Douglas Bowman. 1998. The Long-Term Impact of Promotions on Consumer Stockpiling Behavior. Journal of Marketing Research Vol. XXXV, No.2, pp. 250-262.

[33] Public Health England. 2020. Impact of COVID-19 pandemic on grocery shopping behaviors. PHE publications (Public

Health England Wellington House Waterloo Road London UK) www.gov.uk/phe. November 2020.

[34] Blattberg, Robert C., Kim, Byung-Do., and Ye, Jianming. 1996. Defining Baseline Sales In a Competitive Environment. Seoul Journal of Business. Volume 2, Number 1, pp. 1-38.

[35] Vasilev, Julian., and Kehayova-Stoycheva, Maria. 2017. Sales analysis by the rectangle method. Leonardo Electronic Journal of Practices and Technologies ISSN 1583-1078. Issue 30, pp. 149-160.

[36] van. Heerde, Harald J., and Neslin, Scott A. 2017. Chapter 2 Sales Promotion Models. Springer International Publishing AG 2017. pp. 1-65.

[37] Chandon, Pierre., Wansink, Brian., and Laurent, Gilles. March 2000. A Benefit Congruency Framework Of Sales Promotion Effectiveness. Forthcoming Journal of Marketing, Version: JM 4-12-2000.doc, pp. 1-64.

[38] Persson,Per-Goran. 1995. Modeling the Impact of Sales Promotion on Store Profits. A Dissertation for the Doctor's Degree in Philosophy Stockholm School of Economics. The Economic Research Institute at the Stockholm School of Economics Box 6591S-11383 Stockholm Sweden. pp. 1-344.

[39] Bullemore, Jorge., and Cristobal-Fransi, Eduard. 2018. Personal selling, incentives and motivation. A systematic literaturere view. Revista ESPACIOS ISSN 07981015. Vol. 39 (Number 45), pp. 1-8.

[40] Varga, Marton., Albuquerque Paulo. 2019. Measuring the impact of single negative consumer review on online search and purchase decisions through a quasi-natural experiment. European Journal of Business and Social Sciences ISSN: 2235 -767X (Marketing Science Institute Working Paper Series - Report No. 19-103). Vol. 3, No.1, pp. 16-32.

[41] Ho-Dac, Nga N., Carson, Stephen J., and Moore, William L. 2013. The Effects of Positive and Negative Online Customer Reviews: Do Brand Strength and Category Maturity Matter? Journal of Marketing ISSN: 0022-2429 (print) 1547-7185 (electronic). Vol. 77, pp. 37-53. doi: 10.1509/jm.11.0011.

[42] Trinh Giang., Dawes, John., and Lockshin, Larry. 2009. Do product variants appeal to different segments of buyers within a category? Journal of Product and Brand Management. Emerald Group Publishing Limited (ISSN 1061-0421). 18/2(2009)95-105. doi:10.1108/10610420910948997.

[43] Prasad, Ram Komal., Jha, Manoj K., and Verma, Sanjeev. 2019. A Comparative study of product life cycle and its marketing applications. Journal of Marketing and Consumer Research (www.iiste.org) ISSN 2422-8451. Vol. 63. doi: 10.7176/JMCR/63-06.

[44] Konya-Baumbach, Elisa., Schuhmacher, Monika C., Kuestera, Sabine., and Kuharev, Victoria. 2019. Making a first impression as a start-up: Strategies to overcome low initial trust perceptions in digital innovation adoption. International Journal of Research in Marketing. 36(2019)385-399. doi: 10.1016/j.ijresmar.2019.01.008.

[45] Chung, Doug J., Kim, Byungyeon., and Syam, Niladri B. 2020. A Practical Approach to Sales Compensation: What Do We Know Now? What Should We Know in the Future? February 2020.

[46] Wierenga, Berend., and Soethoudt, Han. 2010. Sales promotions and channel coordination. Journal of the Academy of Marketing Science. J. of the Acad. Mark. Sci. 38:383-397. doi: 10.1007/s11747-009-0161-1.

[47] Manalel, Dr. James., M. C., Jose., and Zacharias, Siby. 2007. Sales Promotions – Good or Bad? International Marketing Conference on Marketing and Society (IIMK). pp 325-329.

[48] Valette-Florence, Pierre., Guizani, Haythem., and Merunka, Dwight. 2011. The impact of brand personality and sales promotions on brand equity. Journal of Business Research. 64(2011)24-28. doi:10.1016/j.jbusres.2009.09.015.

[49] Zinko, Robert., Patrick, Angela., Furner, Christopher P., Gaines, Shalanda., Kim, Mi Dya., Negri, Matthew., Orellana, Elsy., Torres, Shelby., and Villarreal, Carmen. 2021. Responding to Negative Electronic Word of Mouth to Improve Purchase Intention. J. Theor. Appl. Electron. Commer. Res. 2021, 16, pp. 1945–1959. doi: 10.3390/ jtaer16060109.

[50] Vermeer, Susan A.M., Araujo, Theo., Bernritter, Stefan F., and van Noort, Guda. 2019. Seeing the wood for the trees: How machine learning can help firms in identifying relevant electronic word-of-mouth in social media. International Journal of Research in Marketing. 36 (2019) 492–508. doi: 10.1016/j.ijresmar.2019.01.010.

[51] Reinartz, Werner., Wiegand, Nico., and Imschloss, Monika. 2019. The impact of digital transformation on the retailing value chain. International Journal of Research in Marketing. 36(2019)350-366. doi: 10.1016/j.ijresmar.2018.12.002.

[52] https://resources.docs.salesforce.com/latest/latest/en-us/sfdc/pdf/high_velocity_sales_impl_guide.pdf.

[53] Bahhouth, Victor., Spillan, John., and Karsaklian, Eliane. 2014. Are Students Driven By Negative Or Positive Perception About Sales Profession In France? European Journal of Business and Social Sciences ISSN: 2235-767X. Vol. 3, No.1,

pp 16-32.

[54] Wlömert, Nils., andPapies, Dominik. 2019. International heterogeneity in the associations of new business models and broadband Internet with music revenue and piracy. International Journal of Research in Marketing. 36 (2019) 400-419. doi: 10.1016/j.ijresmar.2019.01.007.

[55] Wu, Meng., Teunter, Ruud H., and Zhu, Stuart X.. 2019. Online marketing: When to offer a refund for advanced sales. International Journal of Research in Marketing. 36(2019)471–491. doi: 10.1016/j.ijresmar.2018.11.003.

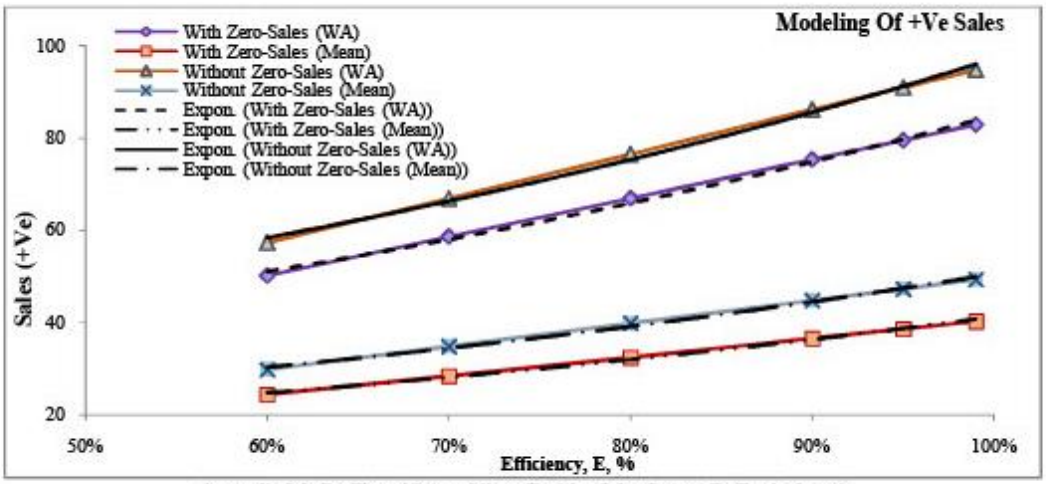
[56] Schulz, Petra., Shehu, Edlira., and Clement, Michel. 2019. When consumers can return digital products: Influence of firm-and consumer-induced communication on the returns and profitability of news articles. International Journal of Research in Marketing. 36 (2019) 454–470. doi: 10.1016/j.ijresmar.2019.01.003.

[57] Biswas, P., et al. 2022. Promotion-Selling Interaction: Discovering out a modelling inception in fundamental proposition management of advertising and marketing management. 13th National Conference on Business Research, Innovation and Technology. Apeejay School Of Management (ASM) Dwarka New Delhi India. pp. 1-20.

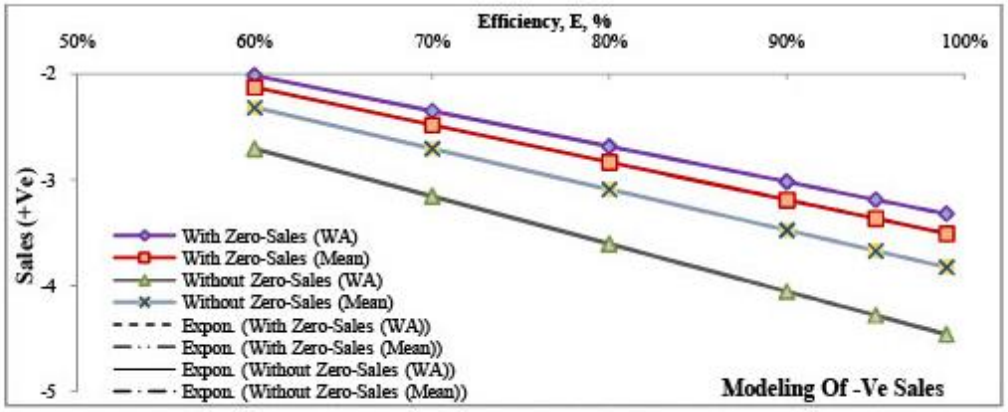
Appendices

(Appendix 1 and Appendix K)

APPENDIX 1 (Modeling Profiles)



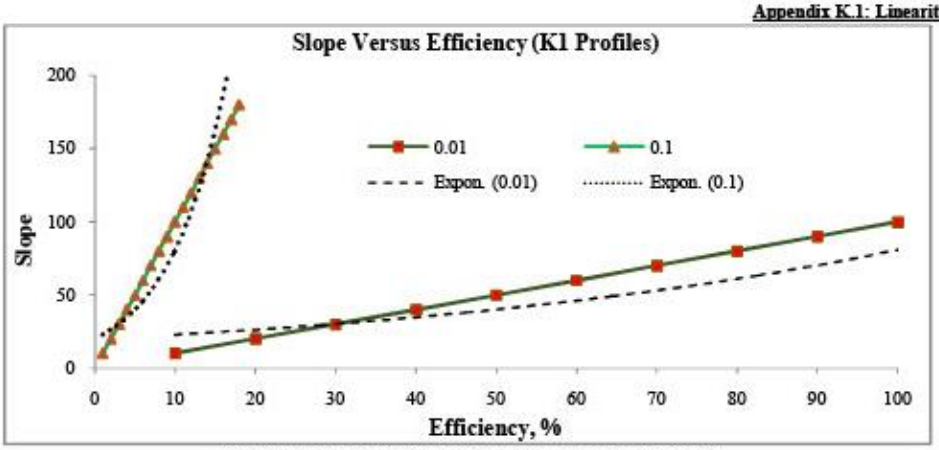
Appendix 1.1: Profiles with trend lines (Positive Sales Output By Equivalency)



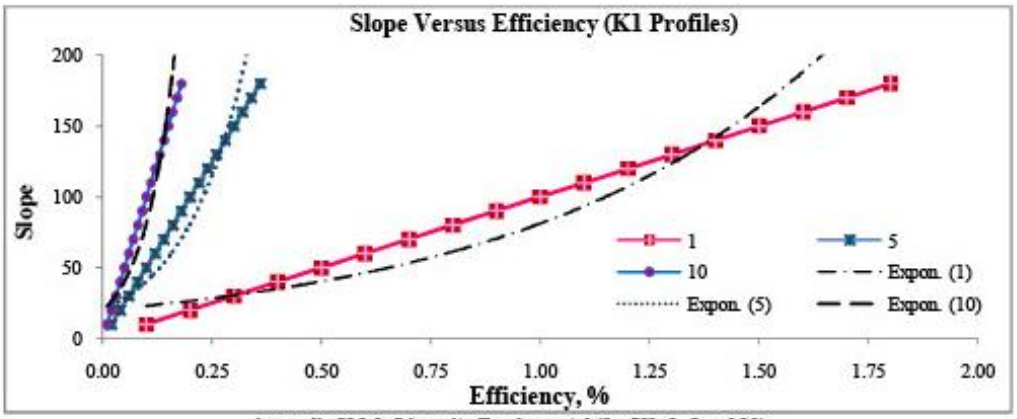
Appendix 1.2: Profiles with trend lines (Negative Sales Output By Equivalency)

APPENDIX K (Fundamental K)

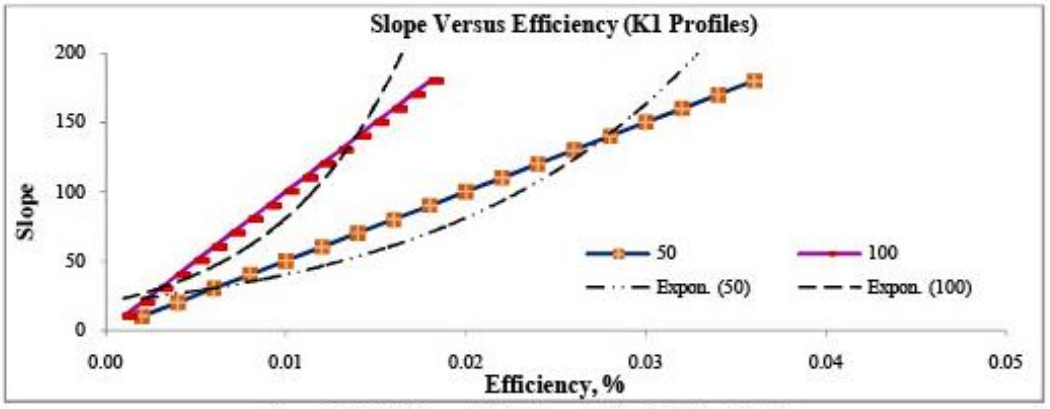
Appendix K.1: Linearity Fundamental



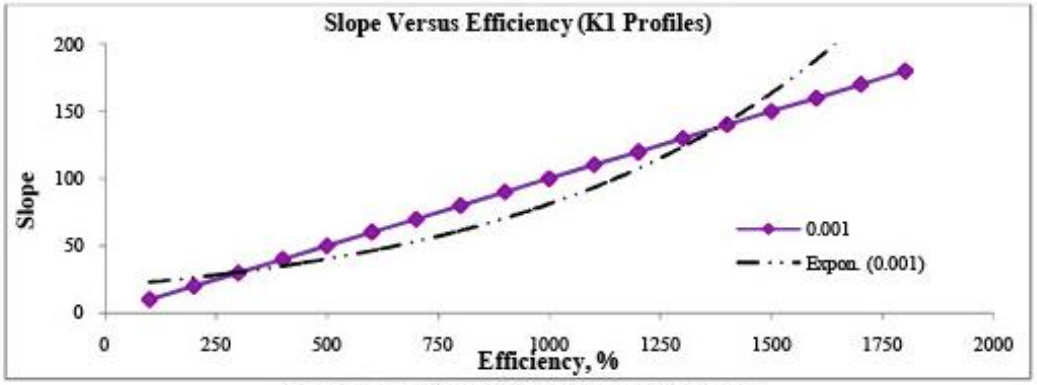
Appendix K.1.1: Linearity Fundamental (for K1=0.01 and 0.1)



Appendix K.1.2: Linearity Fundamental (for K1=1, 5 and 10)

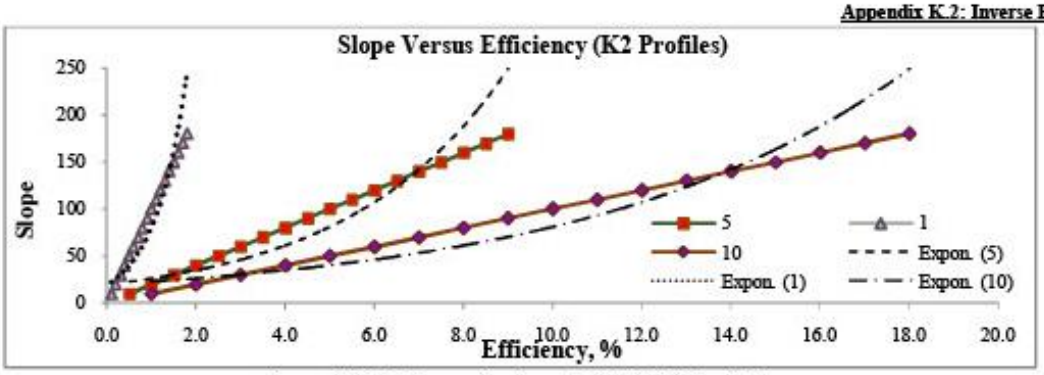


Appendix K.1.3: Linearity Fundamental (for K1=50 and 100)

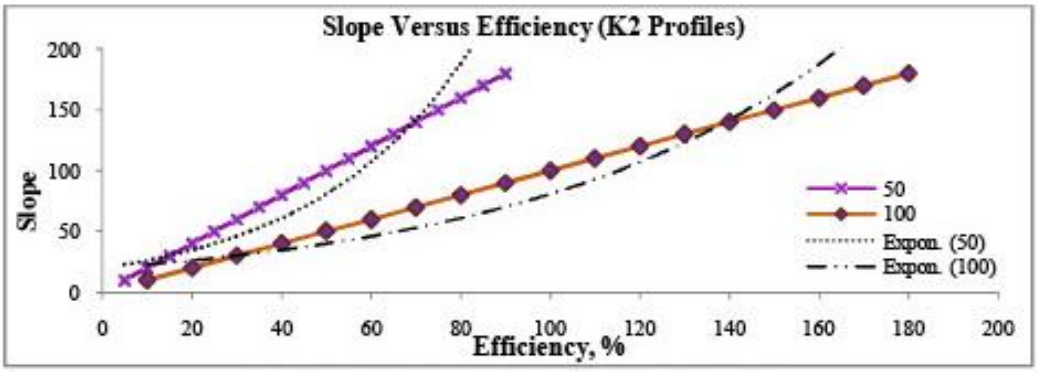


Appendix K.1.4: Linearity Fundamental (for K1=0.001)

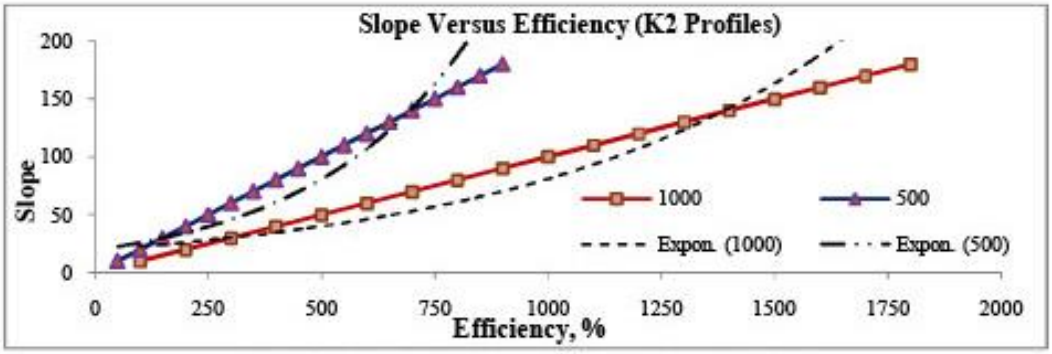
Appendix K.2: Inverse Fundamental



Appendix K.2.1: Inverse Fundamental (for K2=1, 5 and 10)



Appendix K.2.2: Inverse Fundamental (for K2=50 and 100)



Appendix K.2.3: Inverse Fundamental (for K2=500 and 1000)

Annexure I (Modeling)

Annexure I.1: Selling level at a given promotion at given efficiency

Sl.	Attribute variables	Sales at η_{in}(%)^										
		Level of promotion										
		Promotion at n-th stage	Promotion at (n+1)-th stage									
		P_n	P_{n+1}									
0	set of variables (to be) deputed against each level	0.1	0.1	1	2	3	4	5	6	7	8	9	10
1		1											
2		2											
3		3											
4		4											
5		5											
6		6											
7		7											
8		8											
9		9											
10		10											

^please see "Major Finding" segment for detail clarification.

Annexure I.2: Sales level output at 60% process

Sl.	Promotion at n-th stage	Sales at η_n(60%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.06	0.00	5.94	23.94	53.94	95.94	149.94	215.94	293.94	383.94	485.94	599.94
2	1	-0.60	-0.59	0.00	1.80	4.80	9.00	14.40	21.00	28.80	37.80	48.00	59.40
3	2	-1.20	-1.20	-0.90	0.00	1.50	3.60	6.30	9.60	13.50	18.00	23.10	28.80
4	3	-1.80	-1.80	-1.60	-1.00	0.00	1.40	3.20	5.40	8.00	11.00	14.40	18.20
5	4	-2.40	-2.40	-2.25	-1.80	-1.05	0.00	1.35	3.00	4.95	7.20	9.75	12.60
6	5	-3.00	-3.00	-2.88	-2.52	-1.92	-1.08	0.00	1.32	2.88	4.68	6.72	9.00
7	6	-3.60	-3.60	-3.50	-3.20	-2.70	-2.00	-1.10	0.00	1.30	2.80	4.50	6.40
8	7	-4.20	-4.20	-4.11	-3.86	-3.43	-2.83	-2.06	-1.11	0.00	1.29	2.74	4.37
9	8	-4.80	-4.80	-4.73	-4.50	-4.13	-3.60	-2.93	-2.10	-1.13	0.00	1.28	2.70
10	9	-5.40	-5.40	-5.33	-5.13	-4.80	-4.33	-3.73	-3.00	-2.13	-1.13	0.00	1.27
11	10	-6.00	-6.00	-5.94	-5.76	-5.46	-5.04	-4.50	-3.84	-3.06	-2.16	-1.14	0.00

^ applying Annexure I.1.

Annexure I.3: Sales level output at 70% process^

Sl.	Promotion at n-th stage	Sales at η_n(70%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.07	0.00	6.93	27.93	62.93	111.93	174.93	251.93	342.93	447.93	566.93	699.93
2	1	-0.70	-0.69	0.00	2.10	5.60	10.50	16.80	24.50	33.60	44.10	56.00	69.30
3	2	-1.40	-1.40	-1.05	0.00	1.75	4.20	7.35	11.20	15.75	21.00	26.95	33.60
4	3	-2.10	-2.10	-1.87	-1.17	0.00	1.63	3.73	6.30	9.33	12.83	16.80	21.23
5	4	-2.80	-2.80	-2.63	-2.10	-1.23	0.00	1.58	3.50	5.78	8.40	11.38	14.70
6	5	-3.50	-3.50	-3.36	-2.94	-2.24	-1.26	0.00	1.54	3.36	5.46	7.84	10.50
7	6	-4.20	-4.20	-4.08	-3.73	-3.15	-2.33	-1.28	0.00	1.52	3.27	5.25	7.47
8	7	-4.90	-4.90	-4.80	-4.50	-4.00	-3.30	-2.40	-1.30	0.00	1.50	3.20	5.10
9	8	-5.60	-5.60	-5.51	-5.25	-4.81	-4.20	-3.41	-2.45	-1.31	0.00	1.49	3.15
10	9	-6.30	-6.30	-6.22	-5.99	-5.60	-5.06	-4.36	-3.50	-2.49	-1.32	0.00	1.48
11	10	-7.00	-7.00	-6.93	-6.72	-6.37	-5.88	-5.25	-4.48	-3.57	-2.52	-1.33	0.00

^ applying Annexure I.1.

Annexure I.4: Sales level output at 80% process^

Sl.	Promotion at n-th stage	Sales at η_n(80%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.08	0.00	7.92	31.92	71.92	127.92	199.92	287.92	391.92	511.92	647.92	799.92
2	1	-0.80	-0.79	0.00	2.40	6.40	12.00	19.20	28.00	38.40	50.40	64.00	79.20
3	2	-1.60	-1.60	-1.20	0.00	2.00	4.80	8.40	12.80	18.00	24.00	30.80	38.40
4	3	-2.40	-2.40	-2.13	-1.33	0.00	1.87	4.27	7.20	10.67	14.67	19.20	24.27
5	4	-3.20	-3.20	-3.00	-2.40	-1.40	0.00	1.80	4.00	6.60	9.60	13.00	16.80
6	5	-4.00	-4.00	-3.84	-3.36	-2.56	-1.44	0.00	1.76	3.84	6.24	8.96	12.00
7	6	-4.80	-4.80	-4.67	-4.27	-3.60	-2.67	-1.47	0.00	1.73	3.73	6.00	8.53
8	7	-5.60	-5.60	-5.49	-5.14	-4.57	-3.77	-2.74	-1.49	0.00	1.71	3.66	5.83
9	8	-6.40	-6.40	-6.30	-6.00	-5.50	-4.80	-3.90	-2.80	-1.50	0.00	1.70	3.60
10	9	-7.20	-7.20	-7.11	-6.84	-6.40	-5.78	-4.98	-4.00	-2.84	-1.51	0.00	1.69
11	10	-8.00	-8.00	-7.92	-7.68	-7.28	-6.72	-6.00	-5.12	-4.08	-2.88	-1.52	0.00

^ applying Annexure I.1.

Annexure I.5: Sales level output at 90% process^

Sl.	Promotion at n-th stage	Sales at η_n(90%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.09	0.00	8.91	35.91	80.91	143.91	224.91	323.91	440.91	575.91	728.91	899.91
2	1	-0.90	-0.89	0.00	2.70	7.20	13.50	21.60	31.50	43.20	56.70	72.00	89.10
3	2	-1.80	-1.80	-1.35	0.00	2.25	5.40	9.45	14.40	20.25	27.00	34.65	43.20
4	3	-2.70	-2.70	-2.40	-1.50	0.00	2.10	4.80	8.10	12.00	16.50	21.60	27.30
5	4	-3.60	-3.60	-3.38	-2.70	-1.58	0.00	2.03	4.50	7.43	10.80	14.63	18.90
6	5	-4.50	-4.50	-4.32	-3.78	-2.88	-1.62	0.00	1.98	4.32	7.02	10.08	13.50
7	6	-5.40	-5.40	-5.25	-4.80	-4.05	-3.00	-1.65	0.00	1.95	4.20	6.75	9.60
8	7	-6.30	-6.30	-6.17	-5.79	-5.14	-4.24	-3.09	-1.67	0.00	1.93	4.11	6.56
9	8	-7.20	-7.20	-7.09	-6.75	-6.19	-5.40	-4.39	-3.15	-1.69	0.00	1.91	4.05
10	9	-8.10	-8.10	-8.00	-7.70	-7.20	-6.50	-5.60	-4.50	-3.20	-1.70	0.00	1.90
11	10	-9.00	-9.00	-8.91	-8.64	-8.19	-7.56	-6.75	-5.76	-4.59	-3.24	-1.71	0.00

^ applying Annexure I.1.

Annexure I.6: Sales level output at 95% process^

Sl.	Promotion at n-th stage	Sales at η_n(95%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.10	0.00	9.41	37.91	85.41	151.91	237.41	341.91	465.41	607.91	769.41	949.91
2	1	-0.95	-0.94	0.00	2.85	7.60	14.25	22.80	33.25	45.60	59.85	76.00	94.05
3	2	-1.90	-1.90	-1.43	0.00	2.38	5.70	9.98	15.20	21.38	28.50	36.58	45.60
4	3	-2.85	-2.85	-2.53	-1.58	0.00	2.22	5.07	8.55	12.67	17.42	22.80	28.82
5	4	-3.80	-3.80	-3.56	-2.85	-1.66	0.00	2.14	4.75	7.84	11.40	15.44	19.95
6	5	-4.75	-4.75	-4.56	-3.99	-3.04	-1.71	0.00	2.09	4.56	7.41	10.64	14.25
7	6	-5.70	-5.70	-5.54	-5.07	-4.28	-3.17	-1.74	0.00	2.06	4.43	7.13	10.13
8	7	-6.65	-6.65	-6.51	-6.11	-5.43	-4.48	-3.26	-1.76	0.00	2.04	4.34	6.92
9	8	-7.60	-7.60	-7.48	-7.13	-6.53	-5.70	-4.63	-3.33	-1.78	0.00	2.02	4.28
10	9	-8.55	-8.55	-8.44	-8.13	-7.60	-6.86	-5.91	-4.75	-3.38	-1.79	0.00	2.01
11	10	-9.50	-9.50	-9.41	-9.12	-8.65	-7.98	-7.13	-6.08	-4.85	-3.42	-1.81	0.00

^ applying Annexure I.1.

Annexure I.7: Sales level output at 99% process^

Sl.	Promotion at n-th stage	Sales at η_n(99%)											
		Level of promotion											
		Promotion at (n+1)-th stage											
	P_n	P_{n+1}											
		0	0.1	1	2	3	4	5	6	7	8	9	10
1	0.1	-0.10	0.00	9.80	39.50	89.00	158.30	247.40	356.30	485.00	633.50	801.80	989.90
2	1	-0.99	-0.98	0.00	2.97	7.92	14.85	23.76	34.65	47.52	62.37	79.20	98.01
3	2	-1.98	-1.98	-1.49	0.00	2.48	5.94	10.40	15.84	22.28	29.70	38.12	47.52
4	3	-2.97	-2.97	-2.64	-1.65	0.00	2.31	5.28	8.91	13.20	18.15	23.76	30.03
5	4	-3.96	-3.96	-3.71	-2.97	-1.73	0.00	2.23	4.95	8.17	11.88	16.09	20.79
6	5	-4.95	-4.95	-4.75	-4.16	-3.17	-1.78	0.00	2.18	4.75	7.72	11.09	14.85
7	6	-5.94	-5.94	-5.78	-5.28	-4.46	-3.30	-1.82	0.00	2.15	4.62	7.43	10.56
8	7	-6.93	-6.93	-6.79	-6.36	-5.66	-4.67	-3.39	-1.84	0.00	2.12	4.53	7.21
9	8	-7.92	-7.92	-7.80	-7.43	-6.81	-5.94	-4.83	-3.47	-1.86	0.00	2.10	4.46
10	9	-8.91	-8.91	-8.80	-8.47	-7.92	-7.15	-6.16	-4.95	-3.52	-1.87	0.00	2.09
11	10	-9.90	-9.90	-9.80	-9.50	-9.01	-8.32	-7.43	-6.34	-5.05	-3.56	-1.88	0.00

^ applying Annexure I.1.

Annexure I.8: Positivity By Equivalency^

Modeling/Slope	With Zero Sales	Without Zero Sales	With Zero Sales	Without Zero Sales
Equation Modeling				
Linear	$y = 83.66x - 4E-14$	$y = 95.64x + 4E-13$	$y = 40.67x + 2E-13$	$y = 49.83x + 3E-13$
	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$
Exponential	$y = 23.75e^{1.274x}$	$y = 27.15e^{1.274x}$	$y = 11.54e^{1.274x}$	$y = 14.14e^{1.274x}$
	$R^2 = 0.995$	$R^2 = 0.995$	$R^2 = 0.995$	$R^2 = 0.995$
Slope Calculation				
Slope (by equation)	83.66	95.64	40.67	49.83
Slope (degree)	89.315	89.4	88.59	88.85

^ please see Appendix 1.1.

Annexure I.9: Negativity By Equivalency^

Modeling/Slope	With Zero Sales	Without Zero Sales	With Zero Sales	Without Zero Sales
Equation Modeling				
Linear	$y = -3.355x$	$y = -4.506x$	$y = -3.540x$	$y = -3.862x - 2E-14$
	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$
Polynomial	$y = 2E-13x^2 - 3.355x + 1E-13$	$y = -4.506x$	$y = 7E-14x^2 - 3.540x + 4E-14$	$y = -1E-13x^2 - 3.862x - 7E-14$
	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$	$R^2 = 1$
Slope Calculation				
Slope (by equation)	3.355	4.506	3.54	3.862
Slope (degree)^^	73.4	77.487	74.22	75.483

^ please see Appendix 1.2.
^^ summing up of slope values of Appendix I.8 and Appendix I.9, as respective.

Annexure I.10: Linearity Fundamental (K1 Basis)^

K1 Value	Linear Regression		Exponential Regression	
	Equation	Value of R^2	Equation	Value of R^2
0.001	y = 0.1x	$R^2 = 1$	$y = 19.91e^{0.001x}$	$R^2 = 0.872$
0.01	y = x	$R^2 = 1$	$y = 19.91e^{0.014x}$	$R^2 = 0.872$
0.1	y = 10x	$R^2 = 1$	$y = 19.91e^{0.140x}$	$R^2 = 0.872$
1	y = 100x - 2E-14	$R^2 = 1$	$y = 19.91e^{1.403x}$	$R^2 = 0.872$
5	y = 500x	$R^2 = 1$	$y = 19.91e^{7.016x}$	$R^2 = 0.872$
10	y = 1000x	$R^2 = 1$	$y = 19.91e^{14.03x}$	$R^2 = 0.872$
50	y = 5000x - 1E-13	$R^2 = 1$	$y = 19.91e^{70.16x}$	$R^2 = 0.872$
100	y = 10000x - 1E-13	$R^2 = 1$	$y = 19.91e^{140.3x}$	$R^2 = 0.872$

^where y=Slope; x=Efficiency. Also, please see Appendix K.1.

Annexure I.11: Inverse Fundamental (K2 Basis)^

K2 Value^^	Linear Regression		Exponential Regression	
	Equation	Value of R^2	Equation	Value of R^2
1	y = 100x - 2E-14	$R^2 = 1$	$y = 19.91e^{1.403x}$	$R^2 = 0.872$
5	y=20x	$R^2 = 1$	$y = 19.91e^{0.280x}$	$R^2 = 0.872$
10	y=10x	$R^2 = 1$	$y = 19.91e^{0.140x}$	$R^2 = 0.872$
50	y=2x	$R^2 = 1$	$y = 19.91e^{0.028x}$	$R^2 = 0.872$
100	y=x	$R^2 = 1$	$y = 19.91e^{0.014x}$	$R^2 = 0.872$
500	y=0.2x	$R^2 = 1$	$y = 19.91e^{0.002x}$	$R^2 = 0.872$
1000	y=0.1x	$R^2 = 1$	$y = 19.91e^{0.001x}$	$R^2 = 0.872$

^where y, x=same as Annexure I.11. Also, please see Appendix K.2.
^^K2 value less than 1.0 is ignored here as efficiency is coming to lesser than 0.10% against that.

Annexure I.12: Sales Equivalency To Sales Dynamics

Sales/Driving Angle	Slope (in degree)			
	WA		Mean	
	With Zero Sales	Without Zero Sales	With Zero Sales	Without Zero Sales
+ve sales	89.315	89.4	88.59	88.85
-ve sales	73.4	77.487	74.22	75.483
Included angle (driving angle)^	**162.715**	**166.887**	**162.81**	**164.333**

^it would be zero quantity (by numerical magnitude) on singular convergence into either sales (on one go).