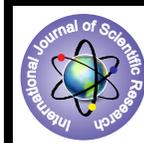


Analysis and Forecast for Demand of Colour Tele-Visions Targeted at Lower and Middle Income Group



Management

KEYWORDS : Color TV, peak season, production, demand

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ABSTRACT

Wholesalers' Observations for electronic goods indicate that a major part of the annual sales takes place during certain peak seasons targeted at middle and lower income groups, in India. These include Diwali, Navratri, Marriage time etc. for example refrigerators - with peak season during summers, colour televisions and washing machines with peak demand during festivals and marriage time, etc. In such cases, forecasting the demand becomes a complex task and the wholesaler faces a complicated problem while planning his purchase and marketing strategies. In this paper, on the basis of empirical data, some important factors affecting demand of televisions as a prototype of electronic goods targeted at middle and lower income groups have been identified and demand forecast has been presented. The main research methodologies are Regression Analysis and Time Series.

It is shown that demand for such products depends upon a large number of factors. For example, consider the dependence on the type of region: for supply to retailers in rural region, demand during festival season will depend upon the coming yield of crop, while for urban region, demand will be affected by the week of a month during which a festival falls. Hence, while planning his purchase, the wholesaler must take into consideration the relevant factors. While marketing the inventory, he must consider various revenue management aspects.

Introduction:

In today's competitive scenario business organization in India are most worried about the future uncertainty. An increasing no of market planners are finding that growing complexity and uncertainty of the environment are difficult to cope up behavioural dimensions added new complexity to marketing people. Still there is no other alternative but to face this situation, (Betlis and Hills, 1995). The Colour TV industry in India has seen dramatic changes in the past decade as Globalization set in the Indian subcontinent making its market highly competitive and consumer driven. With the fast changing liberalization policies, changing and growing demands of the consumers made the industry competitive. The constant desire of the companies (domestic or international) to have a major share in the market often leads them to die many deaths. The results revealed that the purchasing decision of the consumer depends on the Quality, Goodwill Popularity, Affordability, Features, and Support Services of the product, this phenomenon observed in all income groups. The results also revealed that the brand preference is independent of age, income and education, (SESHAIAH, and KRISHNA, 2003).

In this section, we present our intuition about how seasons especially festive and marriage affects the consumer durables sales. As India is a religious and spiritual country where people believes in Tithi's (dates according to the Indian calendar) and Muhurths for doing marriages and even for purchasing of new products. They plan to purchase that on Dhanteras or in Pushya Nakshatra. It highly influences the sales. The same is true for consumer durables also they don't purchase new things in Shraddh; they avoid to marry in mal mass (a month which is not considered to be good for doing shubh karya). Our intuition directed that in an agriculture based countries like India where the crops and even the time when it comes in market has also influenced the consumer durable industry.

I analyse the effect of festival season on sales of different brands CTVs and also tried to forecast the sale selecting the data for the last period. Diwali is the season to be merry for consumers, but for brands in consumer durables, garments and food, the festive months are no holiday. New sale occasions are created all year round by retail chains—such as the Independence Day sale from Big Bazaar and the New Year's Day sale by Chennai-based Vivek's. But the festive season, particularly Diwali, is still an opportunity and no brand can afford to miss it. In the case of durables, Diwali alone accounts for 30% of annual sales. Of their revenue, that is one third of their sales this time of the whole year. Durables make it to the festive season after a much better year, a slow first quarter notwithstanding. Both LG Electronics India Pvt. Ltd and Samsung Electronics India Pvt. Ltd had a 45% increase in sales over Diwali 2009 and just about every durable company worth its salt has its eyes set on the premium

consumer. A bumper growth of over 55 per cent in colour television sales this festive season is likely to drive the industry's sales past the 10 million units mark by the end of the year.

Literature Review:

Before globalization in India, the consumer was at the mercy of the producer and savings management were prevailing in the sense that individuals saved and then consumed. This might be because of no financing facilities, no credit card facilities and moreover demand side economic were prevailing. After globalization the total scenario has changed- consumers in India moved from savings management to expenditure management. This is because of the availability of goods and services at lower price, availability of credit cards, availability of finance at low interest and in some cases zero interest and moreover the death of power of monopoly in many sectors because of the entry of the foreign players. Producers have become price takers rather than price setters. The tastes and preferences, life style and consumption patterns of the consumers have also changed. Like other third world countries, people in India have started spending much more money on eating out; started buying a flat or a car or consumer durables because of the availability of credit cards and easy financing facilities; and there has been a distinct shift from joint family system to that of nuclear families. Now, Consumers in India with open markets on an average are enjoying lower prices, improved consumption, and improved savings and rising standards of living, (Seshaiah and Krishna, 2003).

As per the estimates of the confederation of Indian Industry (CII) the Indian consumer durable industry is Rs 20,000 crore business industry. The industry is highly dominated by the foreign players occupying the top slots in the market shares. From a recent data obtained from the Equitymaster.com the market share of all the MNCs in the colour TV segment is about 65%. The biggest attraction for these players is the growing Indian middle class, which is approximately 250 million, and also low penetration levels characterize this market Because of the entry of the foreign players. According to supply corporation (applied market intelligence), colour television sales will grow at a rate of 9.6%. The products covered under the colour television segment are Flat-panelled plasma, Regular 21-inch CRT (cathode ray tube) or a small set 29-inch flat-screen CRT TVs.

The television industry is currently undergoing major technological developments. A high definition television promises to be the next generation of televisions. This technology has broad implications for consumer markets, as well as the underlying manufacturing, technology development and R & D activities of firms, (Bayus,1993).

Many MNC and domestic companies are now making India as a manufacturing centre because of their Low cost skilled labour, Tax free zones i.e. SEZs Qualified workforce, Untapped domestic

market, Excellent supply base for glass and colour picture tubes but there are some major barriers before the companies who want to make an entry into the market are Poor government spending on rural and small town electrification program and Poor distribution network. A company practicing market segmentation realizes that buyers differ in their needs and wants, purchasing behaviour, demographic specifications, product/service usage patterns, geographic locations, buying habits and other characteristics, (Kotler, 2000).

A summary of literature review in branding reveals that the brand perception is not predominantly depend upon on external parameters like age, income and education but depends on more on personality and psychological dimensions. In India Consumers buy not the products but bundle of emotions. Modern goods are recognized as essentially psychologically things, which are symbolic of personal attributes and goals and of social patterns and strivings, (Sidney Levey, 1959).

Predicting the future sales of new and established product is a critical activity for companies to be able to plan and control their operations. Forecasting consumer durable sales is an especially difficult and challenging task since the market place is always changing. (Bayus et. al.,1989).

The consumer's perception on buying behaviour on colour television is mostly affected by the factors such as structural add-on, words of mouth, technical features, durability, ground realities etc., (Das et. al.,2008).

In India maximum people believes even the literates ones likes to purchase the durables on some special dates or on some festive dates which increases their joys of shopping and this will increase the sale to a tremendous peak for these seasons. Company people have to prepare a lot they plan for Diwali sale in July only and start to work on that like to decide their market strategy their discounts, their schemes to attract people etc.

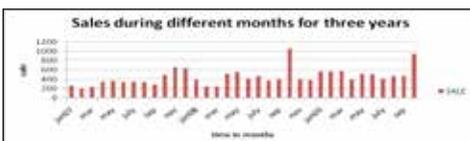
Research Design:

In order to serve the objectives I used secondary data of sales which is collected from Indore based Firm RELIABLE AGENCIES having the distribution of SANSUI and ONIDA for Indore and Up countries for some different models of colour TVs of 14, 20 and 21 inch flat panels with picture tube since most of the lower and middle income group have a choice to buy these TV's. Data was collected for three years. The data has been collected from their Tally package and then we have scrutinized that according to our need. It has been analysed with the help of MS Excel. After the data was fed we tried to analyze the data both statistically as well as qualitatively which is explained below. Firstly we have noted the sale for each month for different brands and the whole territory is then divide in to urban (Indore, Ujjain, Dewas, Ratlam, Khadwa, Burhanpur, Neemuch etc.)And rural areas (Sanwer, Suhasra, Badwani, Tarana, Mahidpur, Badnagar, Gogava etc.) areas and then again the sale for different months for three years are collected. This gives the sale for rural and urban areas for the same time period. One more kind of data that we need is the sale before Diwali month. It has been collected date wise for analysis.

Data Analysis: We have analysed data in subparts and seen the effect of following factors on sales of colour televisions.

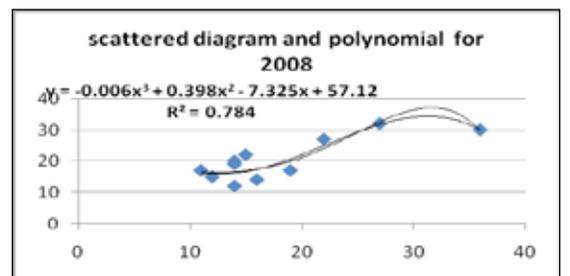
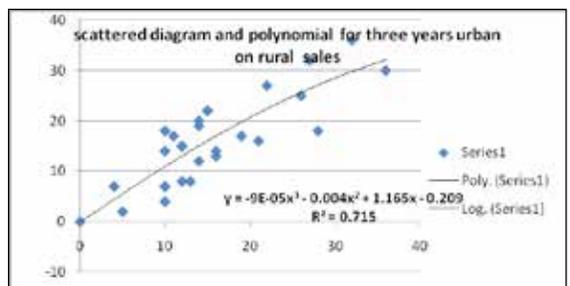
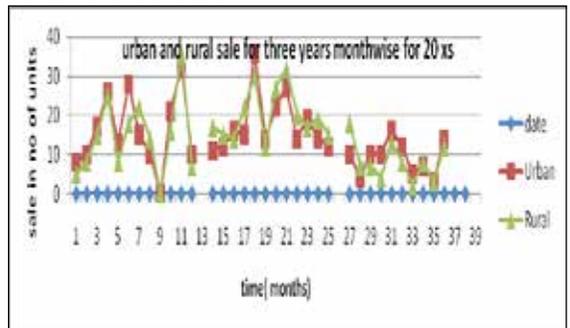
1. Influence of festival and marriage seasons on sales of CTV's: I made graph of the total sale of the firm for the three years, different brands taken together and irrelative of their percentage we found clearly some result from the following graph. The two highest peaks show the sale at Diwali in Nov. and Oct. in 2007 and 2008 on 17th Oct. and 9th Nov.

Fig-1



From the graph of sales of Colour TV's, it is seen that the sale have peaks in Oct. Nov. that is around Diwali seasons. One more thing that we can point out is that the sale is very less in Sept. month and that is approximately shradh period and most of the Indian people avoid to purchase new things in this period. In 2009 there is some sale in Sept. due to early arrival of shradha from 3 to 18 Sept., after that their is Navratri in Sept. and Dasha- ra is also in Sept. which shows some significant sale in comparison to earlier years. We can also observe the effect of marriage season even from this simple graph. The sale in Jan. and Feb. is less in 2007 and 2008 due to "TARA" and in that no muhurt of marriages are there. In 2007, Diwali was on 9th Nov. that's why sale is divided in two months Oct. and Nov. and just after that due to marriages in Dec. sale is again good. In comparison to this in 2008, Diwali was on 28th Oct. that's why sale is concentrated in Oct. month only in that year there is a record sale of 1065 TVs in Oct. month while in 2009 Diwali was on 17th Oct. so again the sale was distributed in September and Oct.. From this simple analysis, we can say that in India consumer durable market is totally dependent on our customs and rituals which highly effect the sale, companies and wholesalers have to plan according to that as we says earlier the companies are planning for Diwali season from July.

2. Comparison of rural and Urban area sales: Reliable agencies is authorised to sale its products in Indore, upcountry and in near surroundings .We have divided the complete sale of Reliable for a model of a particular brand says 20 XS of Sansui and collected the data for its urban and rural areas which is shown in Fig-2. It is clear that the correlation between them is highly positive and gives us a direction for finding regression between both to find a curvilinear relationship with the help of excel which shows a 6 degree polynomial regression, but it is observe that if the regression is found out with three years data then it is smaller than, if it was calculated from one year data. It was concluded that TV industry is changing fast and due to small lifecycle of the products we must use only past year data for comparing the sale of urban and rural areas.



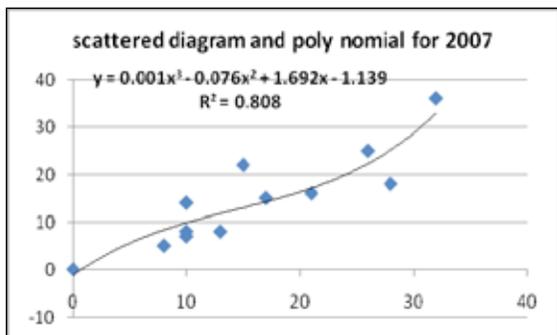


Fig. 2

3. Effect of crop production on sale in rural areas during festival season: Indian economy is an agriculture based economy ,here crop production affect the sale. In rural area where the people are dependent on crop, if the crop is good they are happy and in a position to purchase otherwise not. The data was collected for the sale one month before Diwali. Data for production of Soya bean from SOPA.(Soya bean comes in winter season around diwali and it is a main crop of central india) from these data I tried out to find out the relationship between production and sale.

This must be keep in mind that we are working on a wholesalers data and this is not necessary that if production in one area is higher, than sale also,it will be also depend on the wholesaler's network how strong his network is in a particular area or how many dealers he is having in a particular belt. so we can't directly compare sale with production here it must be in the light of a region for example we can compare the sale and production for mahidpur for three years similarly for others. The following graphs will explain the things clearly.

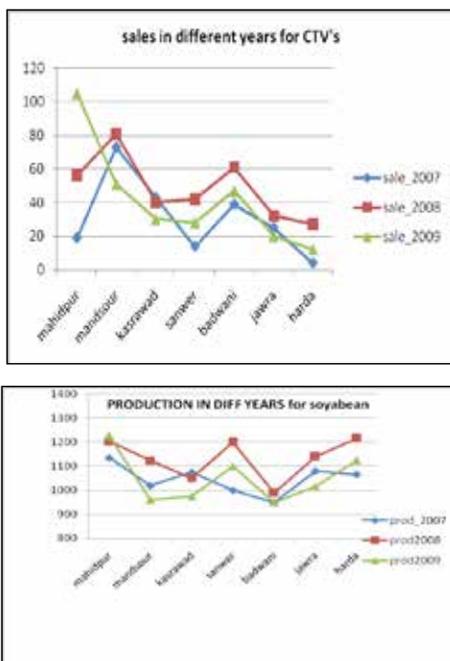


Fig. 3

The above two graphs shows, except some points the production of soybean and sales of CTV are going in same direction like in Badwani the production is highest in 2008 and sale also. So, it shows us strong relationships in production and sale

In a wholesaler data there are too much up and downs and that depends on their relations with the dealers so it is very difficult to find a clear regression between both of this ,but after some data cleansing I got a good regression between them sale and production of soya bean and the following graph shows it well.

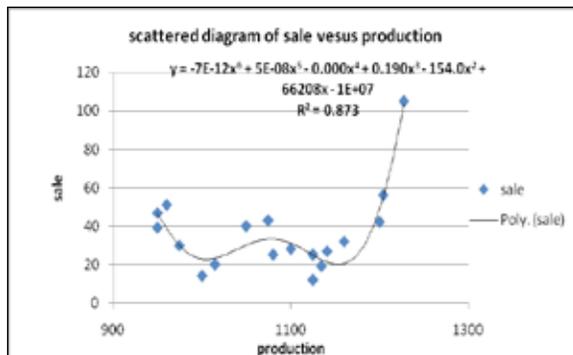


Fig-4

4. Sales forecast for the TV industry: I chooses exponential smoothing for forecasting. It is a very popular method to produce a smoothed Time Series. In this, there are one or more smoothing parameters to be determined (or estimated) and these choices determine the weights assigned to the observations. There are different models for different situations and from them halt-winters model is best since it considers seasonal factor also.

The fit of the data in fig-5 is not very exact but for such an unpredictable data which is season dependent or Festival dependent we can't expect more because our seasons are dependent on tithe's like sometime Diwali occurs in Oct. and sometimes in Nov. and our problem solvers works according to dates. SPSS fitted graph also shows that the max. sale is forecasted in Oct., since for the next two years Diwali is in Oct. only, but in 2007 it is in Nov. and the actual sale is in Nov. similarly for shraddh the actual and forecasted values are mostly same because the shraddh is in September only for all three years either in mid or start, in Indian context these kind of seasons are also very important

Model	Number of Predictors	Model Fit statistics					Ljung-Box Q(18)		
		Stationary R-squared	R-squared	RMSE	MAPE	MAE	Statistics	DF	Sig.
sale-Model_1	0.839	.645	112.114	18.312	80.434	38.709	15	.001	0
Model	Estimate		SE	t	Sig.				
sale-Model_1	Alpha (Level)	.085		.056	1.52	.138			
	Gamma (Trend)	1.16E-005		.008	.001	.999			
	Delta (Season)	.001		.147	.007	.995			

Table II - model statistics and Exponential Smoothing Model parameters

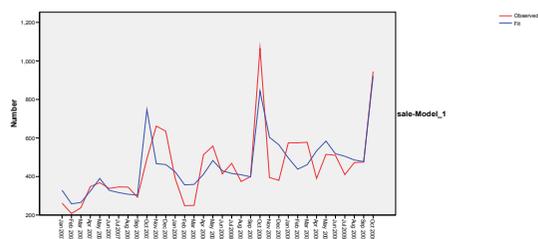


Fig-5- Fitting of estimated value and observed value

5. Effect of the week in which Diwali occurs on sales: Here I want to compare the sale if diwali comes in different weeks for different years. For this analysis we divided our month in three parts, the first ten days before diwali, second ten days or twenty days before diwali, and last ten days which includes diwali. for ex. Urban people are having money in their hand in first ten days but less money in last ten days so If diwali is in first ten days of month like 9th Nov. in 2007 then sale must be greater than in last ten days which includes diwali from the sale in which diwali is in last days of month like in 2008 it is in 28th Oct. for this I collected the data of one month before diwali and distributed this according to date and then found out the significance of difference. I applied Kruskal-Wallis Test of finding independence bet k samples.

Null hypothesis H0: there is no significance difference between the sales of three years for different weeks.

If we keenly observe the data we will be on the conclusion that the sale is higher in last ten days before Diwali if it falls in first ten days of month i.e. the situation in 2007 because the people are having money in their hand in urban areas. Applying KW test SPSS shows the values of chi square as 6.489 at 2 d. f. and the p value is .039, which concludes that there is a significant difference between the sales of three years.

Diwali in first ith days-> Sale in jth ten days before Diwali for different years	I=1	I=2	I=3
J=1	303	364	310
J=2	100	173	210
J=3	64	80	152
Total	467	617	672

Table III

Conclusions and further implication:

I made an attempt to analyze that in a country like India, which is known as the country of festivals, the festival and marriage seasons plays a major role to influence the buying decision of the consumer. In addition I tried to validate that in an agriculture based economy crop conditions also plays an important role to affect the sales figures in rural and urban sectors. Further it is analyzed that what will be the effect on sales figure if the particular festival falls at different dates according to Indian Hindu calendar. It's concluded that that the sales figure for color T.V's for the consumer in India depends on the festival season, crop production as well as on time when festival falls during the month, and this phenomenon is observed for lower and middle income groups, which can be extended to all income groups also in further studies.

In this research paper the concentration is on color T.V. sales only, which can be extended to whole consumer durable industry either for a particular brand or for multiple brands, for a particular model or for more than one model. In today's scenario where every company is motivated towards these kinds of research to improve their sales figures this will prove a great help to them. We proved that there are many factors which affect the sales figures including socio-economic conditions of that particular area. Due to dynamic nature of the industry models are discontinued soon and every company is eager to introduce new models in the market, it is very difficult to get data for particular models for long time. The data which we used is of three years only, so the time frame for data collection can be extended. The distributors and company people must have exhaustive and rigorous planning for festival seasons which should be based on prior as well as current information about crop production, socio economic status etc. to compete in market.

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