DOES EXPOSURE TO PRESS REALLY MOVE SALES OF A FMCG BRAND?

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I. Background and scope of the research

Cable and Satellite TV (C&S TV) penetration in India has exploded. It is now widely available in the upmarket households. Thus, C & S TV is a natural choice as an advertising medium for premium products/brands.

While developing a TV plan for a premium detergent brand, it was discovered that it was next to impossible, and certainly very expensive to deliver reach in excess of 50% of Cable and Satellite homes. This implied that for many upmarket brands, the reach may be limited if we were to rely on TV alone. Since exposure to Press is at a fairly high level among upmarket consumers, it was felt that Press would be an appropriate medium for building reach. Press was to be used for the first time in the history of the brand, and therefore there was also a need to track the effectiveness of Press.

We would be limited by the distribution of Press and TV exposures as generated in the marketplace. This may severely limit our understanding of the relationship. We therefore felt that we should be looking at many brands, (rather than just one brand) and product categories to ensure that the full range of independent variables i.e. full range of exposure distribution, is available for study. A larger data set (because of larger number of brands) would give us a more robust understanding of the relationship between exposures and purchase.

Therefore, in order to do full justice to the issue of Press effectiveness, we have broadened the scope of enquiry to all brands directed at the upmarket housewife.

Our approach is aimed at tracking the effects of Press on purchase of brands by an upmarket audience. The objective would be to examine the effect of exposure of TV and Press advertising on consumer purchase behaviour. In order to achieve the above objective, we ran a short term panel (16 weeks) among upmarket housewives i.e. housewives from TV owning households with monthly income of Rs. 4000/- or more so that exposure and purchase could be tracked at the individual level.

Weekly interviews were conducted to elicit titles and brands purchased (in some pre-specified product categories) over last seven days. We propose to relate exposures to understand whether additional brand exposures through Press lead to an increase in purchase probability of the brands. Recall of TV ads over seven days was an unreasonable expectation, and therefore, respondents were visited thrice over a seven-day period to elicit programmes watched over last two-three days in each visit.

Earlier work on sales effect of TV advertising has often been based on a single brand and consists usually of econometric modelling. (Aakar and Carmen, 1982). There have also been real environment meta-analytic analysis of advertising effects. However, these experiments have examined advertising affects at an aggregate level.

II. Methodology and associated data

II.1 Choice of Cities and Target Segment

Delhi, Bombay and Bangalore are clearly the three largest markets for premium brands. Since Bombay is quite atypical of urban India, we chose Delhi and Bangalore.

In terms of the municipal corporation, Delhi is the second most populous city in India, while Bangalore is the fifth.

As can be seen from Table 1 below, Rs 4000+ TV owning households account for 15% of urban population in India. The proportion of population which belongs to Rs 4000+ TV owning households is 18% for Delhi and, 32% for Bangalore.

Table 1 : Proportion of Rs.4000+ TV owning households in Bangalore and Delhi

	All Households			All TV owning households		
	All ('000)	4000+ HH ('000)	%	All ('000)	4000+ HH ('000)	%
Urban India	44856	7402	17	27016	6889	25
Bangalore	976	183	19	741	175	24
Delhi	2027	657	32	1713	639	37

Source : IRS 1995

II.2 Product Categories Chosen

Given that our panel comprises only housewives, we have confined the list of product categories to only those which are purchased by the housewife either for the household or for herself.

Since we propose to examine the impact of exposures on purchase, it was prudent to ensure that product categories included were not just solus TV or solus Press product categories. ORG-MARG TV and Press Audit data was used for this purpose. The twenty most heavily advertised housewife directed product categories were extracted separately for TV & for Press (Jan-Dec 1996).

These are given in Table 2a and 2b below :

Table 2a : Top Twenty housewife directed product categories - TV spend

Housewife directed product categories	TV spend (Rs. millions)
Toilet soaps	860
Washing powders/liquids	668
Toothpastes	597
Shampoos	529
Rubs & balms	272
Tea	260
Milk beverages	236
Detergent cakes/bars	235
Digestives	229
Hair oils	190
Toothbrushes	175
Mosquito repellants	172
Biscuits	154
Antiseptic creams/liquids	150
Talcum powder	146
Edible oils	137
Spices	121
Coffee	112
Analgestic/cold tablets	97
Moisturising lotions/creams	89

Note : 36 Rupees = 1 US$ approximately
Source : ORG-MARG TV Audit Database

Table 2b : Top Twenty housewife directed product categories - Press spend

Housewife directed product categories	Press spend (Rs. millions)
Shampoo	66
Tea	62
Toilet soaps	58
Hair oils	55
Toothpastes	41
Edible oils	40
Milk beverages	38
Blues	34
Spices	31
Washing powders/liquids	29
Biscuits	25
Ice cream/frozen desserts	25
Mosquito repellants	23
Coffee	23
Toothbrushes	23
Condoms	22
Non stick cookware	21
Moisturising lotions/creams	20
Squashes/cordials/syrups	18
Chyanvanprash	17

Source : ORG-MARG Press Audit Database

Since the exposure–purchase relationship had to be looked at at the brand level, we also obtained a list of most advertised brands from housewife directed product categories, The list is shown in Table 2c below :

Table 2c : Brand spends TV and Press

Television			*Press*		
Brand name	**Product category**	**Ad spend (Rupees millions)***	**Brand name**	**Product category**	**Ad spend (Rupees millions)***
Colgate Dental Cream	Toothpaste	137	Ujala Liquid Blue	Blues	30
JVG detergent	Detergent	112	Horlicks Junior	Milkfood Beverage	16
Pepsodent Paste	Toothpaste	110	Medimix	Soap	16
Close Up All New	Toothpaste	109	Organics	Shampoo	14
Surf Excel International	Detergent	103	Clinic All Clear	Shampoo	14
Colgate Gel toothpaste	Toothpaste	98	Sunsilk Nutra Care	Shampoo	12
Organic	Shampoo	98	Kwality Walls	Ice cream	11
Pantene	Shampoo	97	Surf Excel International	Detergent	11
Sunsilk Nutra Care	Shampoo	91	Pepsodent G Toothpaste	Toothpaste	9
JVG Avatar Washing Powder	Detergent	83	Tata Premium CTC Leaf	Tea	8
D'Cold	Rubs & balms	83	Tata Cafe	Coffee	8
Horlicks	Milkfood Beverage	77	Zandu	Balm	7
Nirma Super	Detergent	76	Palmolive Optima	Shampoo	7
Liril Lime Fresh	Soap	72	Horlicks	Milkfood Beverage	7
Complan	Milkfood Beverage	66	Dove Bath Soap	Soap	7
Dabar Hajmola	Candy	61	Horlicks 3 in 1	Milkfood Beverage	7
Nirma Beauty	Soap	57	Keo Karpin	Hair oil	6
Clinic Plus	Shampoo	56	Dabur Vatika	Hair oil	6
Rin Supreme	Detergent bar	49	Royal	Toothbrush	6
Krack Cream	Creams	49	Britannia Pure Magic	Biscuits	5

** Note : 36 Rupees = 1 US$ approximately* *Source : ORG-MARG TV & Press Audit Database*

The product categories that were finally selected were those which had brands with moderate to heavy press usage. This was absolutely essential to ensure a fair distribution of Press exposures across panel members (since most FMCG's tend to use a TV dominant media strategy).

A total of nine product categories were thus selected and these are enumerated below :

1. Coffee
2. Hair oils
3. Mosquito repellants
4. Shampoo
5. Spices
6. Packaged tea/tea bags
7. Toilet soaps
8. Toothpaste
9. Washing powders/liquids

II.3 Establishment Survey – Design Considerations

An establishment survey had to be conducted primarily to serve as a sampling frame for panel construction. It also needed to double up as universe structure estimation resource, particularly on some of the more dynamic variables such as cable & satellite penetration and availability of specific channels which are changing fairly rapidly.**

*** Census data which is available in India gives the distribution of the population by sex and age. The IRS (Indian Readership Survey) provides basic data on population and household demographics. While this database is sufficient for balancing the panel on basic demographics (which have not changed much since 1995 when IRS was last conducted); this was not true with regard to TV related variables - such as TV penetration and Cable and Satellite penetration; the latter being extremely dynamic in India .*

In a multilingual society with media vehicles available in many languages, press and TV exposure is also likely to be driven by languages read and understood respectively. The listing exercise therefore had to define the population on all variables relevant for the study. This included variables such as education of the housewife, languages read and understood, in addition to TV related variables.

The establishment survey data was compared with basic demographic data from the Indian Readership Survey (IRS 1995) and found to be robust and representative on these parameters. The table below gives the comparision between the establishment survey and universe data.

Table 3 : Comparision of Establishment Survey with Universe

	Delhi		Bangalore	
	Universe (IRS) %	Establishment Survey %	Universe (IRS) %	Establishment Survey %
Age of Housewife				
Upto 34 years	31	35	37	32
35-44 years	32	31	33	31
45+	37	33	30	37
Education of housewife				
Below SSC	31	13	33	19
SSC+, but not graduate	25	30	38	46
Graduate & above	44	55	27	33
MHI				
Rs.4000 – 6000	53	55	62	54
Rs.6001- 10,000	32	33	29	39
Rs.10,000+	15	13	9	7

Base : TV owning households with MHI Rs.4000+

A list of all the variables on which the data was gathered through establishment survey is outlined below :

Household descriptors
- Monthly household income
- Socio-economic class
- Products consumed

Housewife characteristics
- Age
- Education
- Languages read
- Languages understood

TV related variables
- TV ownership
- Cable and Satellite availability
- Channels tuned in

In both Delhi and Bangalore,1500 housewives each in our target group were contacted for the establishment survey. In each of the cities, the fieldwork was spread out over 25 localities.

II.4 Panel Sample Structure

The establishment survey was the basis of the panel formation. As described earlier, data was collected on a number of variables which would affect exposure. The panel was constructed in a manner such that it reflected the universe on those variables which affect exposure.

Primary panel control variables were age, education of housewife, languages read and understood by housewife and Cable and Satellite availability.

The table below gives the comparision between the panel and universe structure on all primary panel control variables:

Table 4 : Comparision of Panel profile with Establishment Survey profile

	Delhi		Bangalore	
	Establishment (%)	**Panel (%)**	**Establishment (%)**	**Panel (%)**
C&S Availability	60	60	71	69
Age of Housewife				
Upto 34 years	35	33	32	32
35-44 years	31	32	31	34
45+	33	36	37	35
Education of housewife				
Below SSC	13	14	19	21
SSC+, but not graduate	30	33	46	46
Graduate & above	55	53	33	33
Languages read				
Kannada only	NA	NA	14	14
Kannada + English only	NA	NA	6	9
Kannada, English & Hindi	NA	NA	12	14
Hindi, English, Kannada &	NA	NA	5	9
Others	NA	NA	63	54
Hindi only	12	10	NA	NA
Hindi & English only	46	26	NA	NA
Hindi, English & Punjabi only	17	26	NA	NA
Others	25	38	NA	NA
Languages read/understood				
Kannada only	NA	NA	16	19
Kannada & English only	NA	NA	13	14
Kannada, English & Hindi	NA	NA	22	20
Others	NA	NA	49	47
Hindi only	19	15	NA	NA
Hindi & English only	46	47	NA	NA
Hindi, English & Punjabi only	32	28	NA	NA
Others	3	10	NA	NA

Base : TV owning households with MHI Rs.4000+

The panel was therefore selected so that the cell wise break-up would be representative of the universe. While selecting the panel in such a manner i.e. retaining the universe structure, there were a few cells which ended up with low sample sizes. In order to get sufficient representation in these, there was a necessity to boost the sample in these cells. For instance in a city like Bangalore where there are more than three languages significantly represented, the third and fourth language would be represented inadequately. Their representation therefore had to be boosted.

Different brands would have different channel mixes because of their advertising schedules, and therefore it becomes important to represent availability of channels in the panel as it occurs in the universe; thereby not biasing the panel towards any particular brand. Therefore, availability of key channels was used as a secondary panel control variable.

II.5 Panel Data Collection

II.5.1 Methods

The panel was visited three times a week in order to obtain exposure data. A fully structured questionnaire was used for eliciting data on readership, viewership and product/brand purchase.

A weekly data collection procedure was adopted since it was felt that this would optimise between respondent irritation and respondent memory demands. It was felt that a daily data collection methodology would have intruded heavily on

the respondent while, once a fortnight assessment would have meant loss of data because it made too much demand on respondent memory.

Memory with regard to TV viewing is short-lived and, therefore, the respondent was visited on Mondays, Wednesdays and Saturdays to obtain viewing data. The questionnaire used on Wednesday also obtained purchase and Press readership data. (While everyday reading or looking at newspaper was assessed, for magazines the question was designed to ask about readership in the previous week.)

Forcing the respondent to recall all advertisements seen even on the previous day would be quite a mammoth task, both, time-wise and memory-wise. We also felt that, actual implementation of this method for both Press and TV continuously over 16 weeks would drive the respondent to despair. We therefore decided to measure exposure at the next level i.e. at the vehicle level.

In the case of TV programmes, all relevant channels and programmes were precoded and the following method was followed :

- On Monday, ask about Sunday and Saturday viewing.
- On Wednesday, ask about Tuesday and Monday viewing.
- On Saturday, ask about Friday, Thursday and Wednesday viewing.

Saturday was the only day where we asked respondent to recall viewing over last three days. This had to be done because both the Monday interview (because of weekend viewing) and the Wednesday interview (because of Press and Purchase questions) were already fairly loaded. Since our methodology meant repeated contact with the same respondent, there was the possibility that this might influence the respondents' behaviour. In order to reduce/dilute the quantum of this influence on purchase, five product categories were added to the relevant once for purchase question. Thus weekly purchase of 16 product categories were sought, of which brand level data was obtained on 11; the other five dummy categories were used for masking.

Some aspects of the scaling and measurement methodology require special mention since they impact the analysis and interpretation of the data.

II.5.2 Measures

A. Definition of Exposure

A.1 Press

In the panel questionnaire, the following measures have been used for publications

Publication Frequency	Measures
Monthly Fortnightly Weekly	Read or looked at in the last seven days
Daily	Read or looked at - Yesterday - Day before yesterday
Sunday supplement	Read or looked at last Sunday

A respondent who said that she had read or looked at the particular publication was considered to have been exposed to the vehicle. Whether the respondent was actually exposed to a particular brand's advertising was determined only by overlaying Press audit data onto the respondent's publications' exposure data.
Over a seven day period, a respondent could get exposed to upto seven different issues of a daily, and could therefore receive upto seven exposures for a brand through the same publication. In order to assess the exact number of exposures through dailies, their readership was measured for each day of the week.

A2. Television

The television viewing questions were asked to those respondents who had watched TV on the concerned day for at least five minutes. Further, the channels which were queried about were those which the respondent had watched for at least two to three minutes.

Only if a channel was filtered in, was the respondent asked about viewership of programmes pertaining to this channel.

The programme viewership question consisted of using the complete programme list by channel and time slot. Thus, for each relevant channel, the complete list of programmes were listed and the respondent was asked to indicate those she had watched for at least two minutes.

As is the case of press, exposure/non–exposure to a particular brand's TV advertising was determined only by mapping the Television advertising audit data onto the respondent exposure data.

B. Measurerment of Purchase

Purchase was defined as 'brand purchased' last week. This was irrespective of the number of units purchased and the pack size purchased. The objective of the paper was to examine the linkage between advertising and brand purchase and data was therefore restricted to the brand level. Data by pack size and number of units would have been useful; however we felt that, given the intensity of interaction with the respondent i.e three visits every week for 16 weeks, overloading the questionnaire with too much detail was avoidable. Also, considering the relatively homogenous target group, we felt that the pack size and units bought would not vary too much.

III. Hypotheses

For any given week (or for that matter any other finite period of time), and for any given brand, different respondents would be exposed to different levels of press and TV advertising. All respondents could then be classified as:

		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1	G 2	G 3
	Insufficient exposure (1 – 2)	G 4	G 5	G 6
	Sufficient exposure (3+)	G 7	G 8	G 9

Of course, the cut – off for sufficient exposures being 3 + could itself be debated. And we have later examined this issue of calibration of 'sufficient' number of exposures.

For the purpose of our paper, we are particularly interested in:

a. ***Comparing the propensity to purchase a brand among G 7 with that among G 3.***
b. ***Examining whether propensity to purchase a brand in G 9 is significantly higher than that among G 3.***

1V. Collation and analysis of data

IV.1 Using Vehicle Exposure Data to Arrive at Brand Exposure Data

The questionnaire administered to every panel member elicited data on programmes watched and publications read or looked at over one week period. (The rationale for eliciting respondent's interaction with vehicles rather than with specific ads has already been outlined earlier.)

Since we had access to actual advertising activity both on TV and press, we have been able to convert vehicle interaction data to brand exposure through either of these media.

For example, let us consider a respondent who claimed to have read 'Times of India' both on Tuesday and Thursday as well as 'Outlook' during a given week.

ORG-MARG Press Audit data for two brands Ariel detergent powder and Close-Up toothpaste, reveals the following advertising pattern for this week.

	Ariel Detergent Powder	Close-Up Toothpaste
Times of India (Tuesday)	1 x 60cc	1 x 200cc
Times of India (Thursday)	1 x 200cc	-
Outlook	1 full page colour	-

This data superimposed on our panel measurement for the week for this respondent implies that the respondent has received three OTS's of Ariel detergent powder advertising and one OTS of Close-Up toothpaste advertising.

There is, of course, the issue of whether exposure to 60 column-centimeter ad and 200 column centimeter ad should be considered comparable and, therefore additive. However, we have ignored the differences in size and duration of advertisements for Press and TV respectively for the purpose of this paper.

IV.2 Definition of Week

There are two competing considerations with divergent implications for when the week should begin.

Given the fact that purchase question is being asked on Wednesday and it refers to all purchases over seven days ending Tuesday, perhaps the week should close on Tuesday so that the final purchase measurement can capture the effect of all the advertising over the week.

Another issue that is worthy of consideration for definition of week is distribution of advertising exposures over different days of the week. In India, TV viewing is highest on Sundays leading to a greater amount of advertising also being scheduled on Sundays. Table 5 below gives the distribution of advertising spots and advertising seconds by day of the week.

Table 5 : Distribution of TV advertising by day of the week

Days	Share of total TV spots (%)	Share of TV advertising seconds (%)
Base	***54547***	***1358440***
Sunday	18	18
Monday	14	13
Tuesday	15	15
Wednesday	13	13
Thursday	13	13
Friday	15	15
Saturday	13	13

As we can see, the skew in favour of Sunday is not a dramatic one. Therefore, given the fact that purchase question has been administered on Wednesday for the seven day period ending Tuesday, we have chosen the week to commence on Wednesday and close on Tuesday.

IV.3 Period of analysis

It is true that we have conducted our panel measurements once every week (In fact, TV programme viewing data has been collected three times a week). However, most household products are purchased only once a month. This can be traced to most households receiving their salary cheque once a month.

All the purchases may not be confined to any one week. Therefore, the time interval between successive purchases of a product category is an important parameter for relating advertising exposure to purchase. To give an example: Let us assume that modal interval between successive purchases of spices is two weeks. If this is so, any attempt to relate advertising exposures to purchase at an interval which is shorter than this is likely to lead to misleading inferences. For example, in the week after previous purchase, there may be lot of advertising exposure generated by the brand, with virtually no advertising exposure in the following week, as illustrated below:

	Purchase	Week 1 after purchase	Purchase in Wk 1	Week 2 after purchase	Purchase in Wk 2
No of ad exposures	1	5	0	Nil	1

If we were to look for a relationship at weekly interval i.e. five exposures leading to no purchase (in week 1) and Nil exposures leading to a purchase (in week 2), we would end up inferring that exposures have no relationship with purchase. However only if we were to look at the data at two weekly interval, would we be able to draw any meaningful inferences.

We, therefore, propose to look at the distribution of time between successive purchases, for each of the product categories. For each of the categories, the modal time interval between successive purchases would be the time period over which advertising exposure to purchase relationships would be examined.

Table 6 on the next page clearly suggests that a total of 80% of respondents purchase any of these FMCG categories once in four weeks. Hence, we believe that our period of analysis should be four weeks.

Our analysis of the purchase sequences shows up an interesting finding. Purchase seems to be concentrated in the initial part of the month. In our panel as much as 40% of the purchase took place in the first week after receipt of the salary cheque. Thus, most purchases occur in the first week of the month (subsequent to obtaining the salary) and therefore in subsequent weeks, especially in the last two weeks of the month, the extent of category purchase has really gone down.

IV.4 Calibrating 'Sufficient' Exposures

If we were to look at it from an advertising viewpoint, the threshold number of exposures, which can move sales would determine the 'sufficient' number of exposures.

However, since purchase probability is the resultant variable which we are studying, we cannot possibly let it determine the calibration of sufficiency.

'Sufficiency' of exposures has, therefore, been defined from another viewpoint. Whatever be the definition of 'sufficient' number of exposures, we have to have adequate number of respondents receiving it, so as to ensure that we have a fair number of observations in the last row and last column (i.e. cells G3, G6, G7, G8 and G9 in the grid shown in Section III).

One possible approach is to look at distribution of all respondent x brand observations at different exposure levels and define certain number of exposures as sufficient for all brands uniformly.

This approach ignores the difference in average advertising levels, and those in resultant exposure distributions across different product categories.

Table 6 : Purchase sequence frequencies

Purchase Pattern	Coffee		Hair Oil		Ice-cream / frozen desserts		Milk Beverages		Mosquito Repellants		Shampoos		Spices		Tea		Toilet Soaps		Toothpastes		Washing powder/ liquids		All categories	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1000	14	5	3	3	-	-	5	3	1	1	6	3	3	3	5	3	13	3	8	3	11	4	69	3
0100	110	35	48	44	25	48	66	45	52	45	71	34	39	44	73	39	165	38	105	38	117	41	871	39
0010	60	19	28	26	16	31	36	24	25	22	54	26	13	15	40	21	78	18	56	20	55	19	461	21
0001	47	15	13	12	6	12	23	16	24	21	38	18	24	25	29	15	75	17	55	20	51	18	385	17
All purchasing once in 4 weeks	**231**	**74**	**92**	**85**	**47**	**91**	**130**	**88**	**102**	**89**	**169**	**81**	**79**	**87**	**147**	**78**	**331**	**76**	**324**	**81**	**234**	**82**	**1786**	**81**
1100	14	5	3	3	-	-	5	3	1	1	6	3	3	3	5	3	13	3	8	3	11	4	69	3
1010	4	1	3	3	-	-	1	1	2	2	8	4	2	2	4	2	16	4	10	4	8	3	58	3
1001	4	1	1	1	-	-	2	1	1	1	-	-	1	1	6	3	7	2	5	2	2	1	29	1
0110	23	7	3	3	2	4	2	1	3	3	7	3	3	3	11	6	14	3	10	4	6	2	84	4
0101	7	2	-	-	-	-	5	3	3	3	6	3	1	1	6	3	14	3	4	1	9	3	55	2
0011	8	3	4	4	3	6	1	1	1	1	6	3	-	-	4	2	10	2	5	2	3	1	45	2
All purchasing twice in 4 weeks	**60**	**19**	**14**	**14**	**5**	**10**	**16**	**10**	**11**	**11**	**33**	**16**	**10**	**10**	**36**	**19**	**74**	**17**	**42**	**16**	**39**	**14**	**340**	**15**
1110	1	-	1	1	-	-	1	1	1	1	4	2	-	-	-	-	5	1	4	1	1	-	18	1
1101	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1	-	-	1	-	11	-
1011	4	1	1	1	-	-	1	1	-	-	1	-	-	-	1	1	5	1	-	-	1	-	14	1
0111	8	3	-	-	-	-	-	-	2	2	2	1	-	-	3	2	7	2	4	1	3	1	29	1
All purchasing thrice in 4 weeks	**17**	**5**	**2**	**2**	**-**	**-**	**2**	**2**	**3**	**3**	**7**	**3**	**-**	**-**	**4**	**3**	**23**	**5**	**8**	**2**	**6**	**1**	**72**	**3**
1111	2	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	1	-	4	1	10	-
ALL purchasers	**310**	**100**	**108**	**100**	**52**	**100**	**148**	**100**	**116**	**100**	**210**	**100**	**89**	**100**	**188**	**100**	**429**	**100**	**275**	**100**	**283**	**100**	**2208**	**100**

xxxx represents purchase pattern over four weeks :

Week1 = 30th July - 5th August Week3 = 13th August - 19th August

Week2 = 6th August - 12th August Week4 = 20th August - 26th August

Thus 0010 implies that a purchase for that category took place in Week3 and no other week.

The two Tables 7 and 8 below, bear ample testimony to such differences.

The Press and TV exposure distributions in these two tables have then been used to calibrate 'Sufficient ' exposures for each product category. As a thumb rule, the media exposure has been used as the cut-off for sufficiency.

Table 7 : Distribution of TV exposures in our panel for different product categories (Period : 6th August - 2nd September)

Coffee		Hair Oil		Mosquito Repellants		Shampoo		Spices		Tea		Soap		Toothpaste		Washing Powder /liquid	
#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
3703	100	4377	100	2503	100	3401	100	2078	100	5616	100	9783	100	4116	100	5644	100
168	45	605	24	456	30	790	17	380	46	688	35	2349	36	873	22	1597	33
65	63	443	41	343	52	544	29	188	68	322	52	1339	57	658	38	1077	55
34	72	204	49	218	66	520	40	112	82	177	61	908	71	477	50	657	69
30	80	149	55	159	77	368	48	52	88	134	68	662	81	364	59	481	79
20	85	119	59	64	81	338	55	38	93	108	74	373	86	350	68	294	85
13	89	133	64	53	84	307	62	18	95	86	78	255	90	236	73	204	89
10	92	101	68	30	86	243	67	26	98	63	81	161	93	209	79	138	92
9	94	81	72	18	87	218	71	2	98	66	85	127	95	153	82	123	95
6	96	77	75	22	89	204	76	6	99	50	87	92	96	125	85	58	96
16	100	651	100	172	100	1129	100	10	100	247	100	246	100	587	100	203	100
Total Exposed :																	
371		**2563**		**1535**		**4661**		**832**		**1941**		**6512**		**4032**		**4832**	
Insufficient Exposure Range :																	
1		*1-3*		*1-2*		*1-4*		*1*		*1-2*		*1-2*		*1-3*		*1-2*	
Sufficient Exposure Range :																	
2+		*4+*		*3+*		*5+*		*2+*		*3+*		*3+*		*4+*		*3+*	

Table 8 : Distribution of Press exposures in our panel for different product categories (Period : 6th August - 2nd September)

Coffee		Hair Oil		Mosquito Repellants		Shampoo		Spices		Tea		Soap		Toothpaste		Washing Powder/ liquid	
#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
4035	100	6622	100	3692	100	7146	100	2408	100	7502	100	15885	100	7576	100	9889	100
13	33	281	78	313	82	424	42	177	35	29	45	268	65	416	73	456	78
7	51	76	99	69	100	403	83	248	85	24	83	82	85	82	87	94	94
6	67	4	100		100	94	92	61	97		83	26	91	11	89	34	99
13	100	1	100		100	46	97	11	99		83	23	97	2	89	3	100
	100		100		100	7	97	5	100	1	84	11	100		89		100
	100		100		100	6	98		100	4	91	1	100		89		100
	100		100		100	6	98		100		91		100	61	100		100
	100		100		100	3	99		100		91		100		100		100
	100		100		100	8	100		100	1	92		100		100		100
0	100	0	100	0	100	5	100	0	100	5	100	0	100	0	100	0	100
Total Exposed :																	
39		**362**		**382**		**1002**		**502**		**64**		**411**		**572**		**587**	
Insufficient Exposure Range:																	
1-2		*1*		*1*		*1*		*1*		*1*		*1*		*1*		*1*	
Sufficient Exposure Range :																	
3+		*2+*		*2+*		*2+*		*2+*		*2+*		*2+*		*2+*		*2+*	

IV.5 Choice of a 'result' of advertisng measure

The first 'result' measure we looked at, could be called purchase probability. This would be measured for any given brand and for any Press-TV exposure combination. We propose to look at all purchases within each of the nine cells and we would divide it by number of all respondents present in that cell.

To illustrate, if there are 200 respondents in Zero Press-Zero TV exposure cell and among these 200, a total of 24 purchases have taken place over the four week period, then probability of purchase would be 24/200 = 0.12.

However, after closely examining this model, we realise that a brand purchase would happen only if the respondent needed to or got around to purchasing that category.

This model assumes that NOT only can advertising move up the brand preference but can ALSO induce category purchase. This is obviously an unreasonable expectation.

We, therefore, need to construct a measure which is based on the premise that advertising is expected to move up the brand preference. In purchase terms, given that a respondent does a category purchase, the advertising for a brand should ensure a greater likelihood of 'that' brand being purchased.

This can best be captured in a 'Share of category purchase' measure. To elaborate, this would be calculated as follows :

For any given brand AND in a given Press-TV exposure cell

$$\text{Share of category purchase} = \frac{\text{Total brand purchases}}{\text{Total category purchases}}$$

Proceeding on the method of analysis outlined in the section above, we had two alternative modes of analysing the data. This was to do with the temporal sequence of exposures to purchase. Models of advertising usually relate advertising to sales at the aggregate level. Thus one route open was to relate gross exposures to gross purchases. However, at the individual level, it could happen (in the above case) that the purchases and exposures were not in a particular order. Thus the following sequence could occur for a respondent :

	Week1	Week2	Week3	Week4
Purchase	0	1	0	0
Exposure	0	0	1	1

In the above case, we have decided to accumulate all exposures and all purchases and then examine probabilities at the aggregate level of each of the conditions (cells). We do know that exposure prior to this four week period would influence purchases in this four week period. Similarly exposure in this four week period would influence purchase after this four week period. We are assuming that incoming effects of exposures in prior period would cancel outgoing effects of exposures in this period causing purchases beyond this period.

The purchase question was asked in the Wednesday interview and this pertains to the purchase across the week i.e. from the previous Wednesday to the Tuesday just gone by. However, these purchases could be distributed in any manner. The exposurre questions (readership & viewership) too were asked on Wednesday : in addition viewership questions were asked on Mondays and Saturdays. However, media consumption for the week cannot be related to purchase of the same week because purchase would not necessarily happen after exposure. It was necessary therefore from a logical point of view to lag purchases by a week. Thus our model relates exposure of the week 't-1' to purchases of the week 't'.

IV.6 Brands used for Analysis

An analysis at the nine cell level (G1-G9) which is based on Share of Category purchase can only be conducted for those brands which have at the very least non-zero category purchasers in each of the nine cells. If, for any brand, a few of the nine cells do not have even one category purchaser, we would not be able to calculate any share of category purchase for such cells.

Our analysis would then be most affected by the cells with the smallest count of category purchases.

We therefore decided to look at sum of category purchasers in three smallest cells. All brands were arranged in the descending order of this sum. Top 25 brands in the descending order of this sum are given in the table below :

Table 9 : Brands in the descending order of sum of the three smallest cells

Brand	G1	G2	G3	G4	G5	G6	G7	G8	G9
Hamam Soap	459	273	83	102	61	34	88	46	22
Medimix Ayurvedic Soap	786	52	95	78	19	42	47	23	26
Surf Excel Detergent Powder	20	45	151	20	75	265	6	31	133
Anchor White Toothpaste	436	25	36	57	20	47	23	6	37
Organics Shampoo	25	56	183	2	24	49	4	30	151
Everest Masala	18	9	21	10	8	14	45	10	27
Head & Shoulders Shampoo	20	102	232	2	22	34	3	13	96
Pepsodent 2 in 1 Toothpaste	43	206	351	1	18	40	5	10	13
All Clear Clinic Shampoo • *	4	14	138	0	11	133	2	12	210
Autan Insect Repellant Lotion • *	123	65	26	4	7		10	8	5
Tortoise Mosquito Coil • *	71	48	29	42	26	24	2	2	4
Premium Gold Tea •	346	195	19	14	4		19	10	0
Dabur Vatika Hair Oil *	29	43	172	1	1	25		2	6
Keo Karpin Extra Hair Nourisher *	116	70	84	2	3	3			1
Nirma Washing Powder	125	223	303	10	28	57			
Ariel Green Detergent Powder	472	146	44	50	24	10			
Colgate Dental Cream • *	94	253	265				2	26	47
Pantene Pro V Shampoo	33	168	285		3	32		3	
Mysore Sandal Soap •	870	197	66	24	6		5		
Goodknight Mosquito Mats	120	47	50	12	11	8			
Parachute Coconut Oil *	36	49	173			3		9	9
Colgate Calciguard Toothpaste •	104	293	270		16		2	2	
Nirma Premium Soap	870	262		18	1		15	2	
Ashwini Hair Oil	228	19		19	13				
Badshah Masalas •	113	26	5	13			5		

Thus there are eight brands with non-zero category purchasers in each of the nine cells.

For testing the G3 vs G9 hypothesis, we only need to ensure that we have non-zero category purchasers in cells G3 and G9. There are seven such brands, in addition to the eight mentioned above. An asterisk (*) has been marked against all these brands in the table above.

Similarly comparison of G3 and G7 cells requires non-zero category purchasers in these two cells. There are a total of eight brands (marked (•)in the table above), in addition to the eight brands with all non-zero cells identified earlier.

Thus, we have a total of 15 brands available for analysis and comparison of G3 with G9.

Similarly 16 brands form data points for comparison of G3 with G7.

For both these analyses, we propose that we look at new brands more carefully. This is because we are conscious that the respondent in the panel would be purchasing the well established brands even if there is no exposure currently. This would mean that share of category purchase for these brands would be high even if there is no current exposure (because of the existing stock of the GRPs). However, for new brands or new campaigns launched just before our panel measurement began, the stock of accumulated GRPs would be low and impact of GRPs during campaign period in influencing purchase would not be overshadowed by accumulated GRPs. Clubbing these brands with others that have high stock of accumulated GRPs would not be appropriate. We therefore propose to consider new brands/new campaigns separately from those which had existing campaigns with an accumulated stock of GRPs prior to panel commencement.

Annexure to this paper gives the share of category purchased for all nineteen brands which are eligible for one or another analysis.

IV.7 Comparison of G9 with G3

G3 represents all respondents with sufficient exposure on TV but no exposure on Press. G9 represents all respondents with sufficient exposure on TV and sufficient exposure on Press.

Summary of Share of category purchases (SCP) for new brands and for existing brands, available for this analysis, is given below:

New Brands

$SCP_{G9} > SCP_{G3}$	$SCP_{G9} < SCP_{G3}$	$SCP_{G9} = SCP_{G3}$
Dabur Vatika Oil Keo Karpin Hair Nourisher Head & Shoulders Shampoo Medimix Ayurvedic Soap Pepsodent 2 in 1 Toothpaste Surf Excel Washing Powder Organics Shampoo	--	--

Existing Brands

$SCP_{G9} > SCP_{G3}$	$SCP_{G9} < SCP_{G3}$	$SCP_{G9} = SCP_{G3}$
Parachute Coconut Hair Oil Clinic All Clear Shampoo Hamam Toilet Soap	Tortoise Mosquito Coil Everest Masala Colgate Dental Cream	Autan Insect Repellant Oil Anchor White Toothpaste

For existing brands, the evidence is a mixed one. For all new brands (for these brands past exposures do not contaminate purchases measured during panel period) share of category purchase among those who receive sufficient exposure through press, over and above sufficient exposure through TV is higher than that among those who receive sufficient exposure through TV but no exposure through Press.

IV.8 Comparison of G3 with G7

G3 represents all respondents with sufficient exposures on TV but none on press. G7 represents the converse, i.e. all respondents with sufficient exposure on press but none on TV.

Summary of Share of category purchases for new brands and existing brands available for this analysis is given below :

New Brands

$SCP_{G7} < SCP_{G3}$	$SCP_{G7} > SCP_{G3}$	$SCP_{G7} = SCP_{G3}$
Mortein Mosquito Coil Organics Shampoo Medimix Ayurvedic Toilet Soap Pepsodent 2 in 1 Toothpaste Surf Excel Washing Powder	Head & Shoulders Shampoo	Premium Gold Tea

Existing Brands

$SCP_{G7} < SCP_{G3}$	$SCP_{G7} > SCP_{G3}$	$SCP_{G7} = SCP_{G3}$
Clinic All Clear Shampoo Hamam Toilet Soap Colgate Dental Cream Colgate Calciguard Toothpaste	Tortoise Mosquito Coil	Autan Insect Repellant Anchor White Toothpaste Badshah Masala Mysore Sandal Soap

Both for new and old brands, share of category purchase among those with sufficient exposure to TV alone is higher than that among those with the sufficient exposure to Press alone.

V. Conclusion

This analysis brings out that the rating of three different Press-TV media mixes, in the order of their effectiveness as measured through share of category purchase is as follows :

Sufficient TV, sufficient Press
is better than
Sufficient TV alone
which is better than
Sufficient Press alone

Thus, our analysis suggests that as a single medium, TV is more effective than Press for FMCGs. However, once sufficient TV exposures have been delivered, addition of sufficient exposures through Press does correlate with higher share of category purchase.

VI. Limitations of the research study

While we have come to quite definitive conclusions based on the research study, we are fully aware of the issues that impact on the findings of the study.

Currently the findings are based on four weeks of exposure data and four weeks of purchase data with purchase period lagging behind the exposure period by one week. This covers one purchase cycle. One would be happier concluding on the same issues over two purchase cycles at least. This would be possible at the time of the Symposium.

This obviously means that the sample size of brands is currently low because of the period available to us. This in itself places a limitation on generalising too much in the current state.

Another assumption which we have made is that 'reading or looking at' a vehicle program implies an 'exposure' to all advertisements carried in it. It is on this basis that a mapping of audit data and respondent media consumption behaviour data has lead us to an exposure distribution at the brand level. This assumption, while being the basis of media planning GRP calculations and OTS calculations in Readership Surveys, has obvious limitations when modelling the effect of exposures on purchase. However, this methodology does give us the licence to examine a large set of brands without loading the respondent beyond reason.

Our conclusions would have been stronger, had we examined these brands by separating them with respect to variables such as sales promotion, level of distribution etc. and calculating probabilities in each such cell (we had infact proposed to do this). However, the number of brands available to us limits the scope of the study currently.

Finally, it is worthy of note that while we have examined the effect of different media weights, the research study has not differentiated between different copy weights which may have different levels of persuasive ability. Our assumption, rightly or wrongly, is that the effect of different creative executions gets evened out.

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ANNEXURE

Share of Category Purchase by Press-TV exposure cells

Brand : Dabur Vatika Hair Oil **Category : Hair Oil**		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = .1	G 2 = .12	G 3 = .13
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = .08
	Sufficient exposure (2+)	G 7 = -	G 8 = 0	G 9 = .17

Brand : Keo Karpin **Category : Hair Oil**		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = 0.02	G 2 = .06	G 3 = .04
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = 0
	Sufficient exposure (2+)	G 7 = -	G 8 = -	G 9 = 0

Brand : Parachute Coconut Oil **Category : Hair Oil**		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = .47	G 2 = .51	G 3 = .38
	Insufficient exposure (1)	G 4 = -	G 5 = -	G 6 = .33
	Sufficient exposure (2+)	G 7 = -	G 8 = .67	G 9 =.78

Brand : Anton Insect Repellant **Category : Insect Repellants**		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = 0	G 3 = 0
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = 0	G 9 = 0

Brand : Tortoise Mosquito Coil **Category : Insect Repellants**		Exposure to TV		
		No exposure	*Insufficient exposure (1 –2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .04	G 2 = .15	G 3 = .03
	Insufficient exposure (1)	G 4 = 0	G 5 = .08	G 6 = .21
	Sufficient exposure (2+)	G 7 = .50	G 8 = 0	G 9 = 0

Brand : All Clear Clinic Shampoo **Category : Shampoo**		Exposure to TV		
		No exposure	*Insufficient exposure (1 –4)*	*Sufficient exposure (5+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = .14	G 3= .07
	Insufficient exposure (1)	G 4 = -	G 5 = 0	G 6 = .04
	Sufficient exposure (2+)	G 7 = 0	G 8 = .17	G 9 = .11

Brand : Head and Shoulders Shampoo **Category : Shampoo**		Exposure to TV		
		No exposure	*Insufficient exposure (1 –4)*	*Sufficient exposure (5+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = .01	G 3 = 0
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = .03
	Sufficient exposure (2+)	G 7 = .67	G 8 = .08	G 9 = .02

Brand : Organics Shampoo **Category : Shampoo**		Exposure to TV		
		No exposure	*Insufficient exposure (1 –4)*	*Sufficient exposure (5+)*
Exposure to Press	*No exposure*	G 1 = .12	G 2 = .02	G 3 = .08
	Insufficient exposure (1)	G 4 = 0	G 5 = .13	G 6 = .06
	Sufficient exposure (2+)	G 7 = 0	G 8 = .10	G 9 = .11

Brand : Everest Masala **Category : Spices**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1)*	*Sufficient exposure (2+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = .11	G 3 = .14
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = .29
	Sufficient exposure (2+)	G 7 = .09	G 8 = .1	G 9 = .04

Brand : Hamam Soap **Category : Soaps**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .06	G 2 = .04	G 3 = .06
	Insufficient exposure (1)	G 4 = .02	G 5 = .03	G 6 = 0
	Sufficient exposure (2+)	G 7 = .01	G 8 = .04	G 9 = .18

Brand : Medimix Ayurvedic Soap **Category : Soaps**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .01	G 2 = .08	G 3 = .03
	Insufficient exposure (1)	G 4 = .05	G 5 = 0	G 6 = .05
	Sufficient exposure (2+)	G 7 = .02	G 8 = .13	G 9 = .04

Brand : Anchor White Toothpaste **Category : Toothpaste**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = 0	G 3 = 0
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = 0
	Sufficient exposure (2+)	G 7 = 0	G 8 = 0	G 9 = 0

Brand : Colgate Dental Cream Category : Toothpaste		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = .12	G 2 = .11	G 3 = .21
	Insufficient exposure (1)	G 4 = -	G 5 = -	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = .04	G 9 = .11

Brand : Pepsodent 2 in 1 Category : Toothpaste		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 3)*	*Sufficient exposure (4+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = .01	G 3 = .01
	Insufficient exposure (1)	G 4 = 0	G 5 = .06	G 6 = .03
	Sufficient exposure (2+)	G 7 = 0	G 8 = 0	G 9 = .15

Brand : Surf Excel Category : Detergent Powder		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .01	G 2 = .09	G 3 = .14
	Insufficient exposure (1)	G 4 = .25	G 5 = .16	G 6 = .12
	Sufficient exposure (2+)	G 7 = 0	G 8 = .29	G 9 = .24

Brand : Premium Gold Tea Category : Tea		Exposure to TV		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = .01	G 3 = 0
	Insufficient exposure (1)	G 4 = 0	G 5 = 0	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = 0	G 9 = -

Brand : Mysore Sandal Soap **Category : Soaps**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .08	G 2 = .07	G 3 = 0
	Insufficient exposure (1)	G 4 = .08	G 5 = 0	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = -	G 9 = -

Brand : Colgate Calciguard **Category : Toothpaste**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1 – 2)*	*Sufficient exposure (3+)*
Exposure to Press	*No exposure*	G 1 = .02	G 2 = .06	G 3 = .05
	Insufficient exposure (1)	G 4 = -	G 5 = .19	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = 0	G 9 = -

Brand : Badshah Masala **Category : Spices**		**Exposure to TV**		
		No exposure	*Insufficient exposure (1)*	*Sufficient exposure (2+)*
Exposure to Press	*No exposure*	G 1 = 0	G 2 = 0	G 3 = 0
	Insufficient exposure (1)	G 4 = 0	G 5 = -	G 6 = -
	Sufficient exposure (2+)	G 7 = 0	G 8 = -	G 9 = -