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3.3 Some rotation effects in the British survey

SUMMARY

This paper looks at the problem of rotation in the British Readership Survey – the effects of the order in which publications are presented to informants in the interview, and deduces that the findings have implications flatly contrary to received wisdom on the subject.

By an examination of results of different publication groups in the first two positions in the interview, it is deduced that the best and fairest estimates can be obtained by the adoption of one standard presentation order. This furthermore would make it possible to expand the within-group rotation of titles, the need for which is also implied in the findings.

CURRENT ROTATION PRACTICE

The British industry research, JICNARS, seeks to measure the readership of over 100 nationally distributed titles. These are broadly separated into four groups; daily newspapers, Sunday newspapers, weekly magazines and monthly magazines. In the interests of fairness – and some would say received research wisdom – it has long been the practice to vary the order in which different respondents are asked about these four publications groups. Those of a mathematical turn of mind will quickly calculate that four items give rise to a maximum of 24 different orders of presentation, in which each item can appear first in six of the different orders. In addition, however, the order of the titles within each of the four publication groups also calls for variation; these are therefore rotated in a forward and reverse order within each of the 24 rotations, to give a total of 48 rotations in all. (See Appendix A.)

Readership levels by position in booklet

Table 1 examines the average-issue readership levels for different publication groups by their position in the 48 rotated orders. Thus the result for daily newspapers, for example, in position three is an average of the aggregated AIR levels for all dailies when they follow any two of the other three publication groups (Sundays, weeklies, monthlies) in any sequence; it is therefore an average of dailies in 12 of the 48 rotations (6 × forward/reverse orders). In the table, these aggregate readership levels are

TABLE 1
Readership levels (aggregate AIR's for all adults) by order in the questionnaire

	Position 1	Position 2	Position 3	Position 4
Daily newspapers	98	102	100	100
Sunday newspapers				
Colour magazines	104	83	111	100
Newspapers	102	101	97	98
Weekly magazines				
General	105	100	97	98
Women's	97	96	101	106
Monthly magazines				
General	118	103	93	83
Women's	118	107	93	83

Table reads: If monthly magazines appeared first in the questionnaire in every interview the aggregate levels of readership for monthlies would be increased by 18%. (The Index of 100 in the table is equal to the aggregate average-issue readership levels shown in the JICNARS January–June 1979 data.)

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TABLE 2
ABCI's and under-35s as percentage of samples

Dailies in	Sample size	ABCI %	Under 35s %
1st position forward order	1928	36.7	36.0
1st position reverse order	1796	38.6	36.5
2nd forward	1900	40.3	38.1
2nd reverse	1823	40.3	37.6
3rd forward	1849	38.3	38.8
3rd reverse	2043	35.9	36.6
4th forward	1841	40.5	37.3
4th reverse	1952	41.5	38.7
Total	15,132	39.0	37.4

expressed as an index on the level across all 48 rotations.

Sub-sample comparisons

Questions will immediately arise as to the comparability of the samples analysed. These are not as easy to deal with as might superficially appear, because the aggregate of the actual rotations for say, the dailies in first position is not the same as that for the other publication groups in first position. In the interests of brevity, **Table 2** shows the sample compositions for dailies, in each of the four positions in the interview subdivided between the forward and reverse orders.

The writer has not pursued this analysis through all publication groups, but the class variations revealed for dailies (with a range of 5.6 percentage points in ABCI composition) suggests that any thorough-going analysis of rotation effect would need to equalise the differences in sample composition, or measure their contribution to variance.

Monthlies suffer most variation

Table 1 shows that monthly magazines among the four publication groups are most subject to variance in readership levels across the four positions. This is not of course the first time this analysis has been made. The writer first saw it in the early 60s, but similar analyses in the past have indexed the data on the first position. This table shows directly that if monthly magazines were asked about first in all interviews, their aggregate readership level would increase by 18%.

DIFFERENCES IN THE FILTER QUESTION

There are many hypotheses as to why the monthly magazines figures decrease as they appear later in the interview. However any investigation needs to keep in mind that the recent-reading question from which these data derive follows a procedure whereby the respondent has paged through the entire masthead booklet answering the screen-in frequency question for each title on the survey. There are 48 rotated versions of the booklet, and there are three forms of the frequency question – one for dailies, one for Sundays and weeklies, and one for monthlies as follows:

DAILIES "In an average week these days I read or look at this number of issues.
6, 5, 4, 3, 2, 1, less than 1, none."
WEEKLIES "In an average month I read or look at this number of issues.
4, 3, 2, 1, less than 1, none."
MONTHLIES "In the last six months I have read or looked at this number of separate issues.
6, 5, 4, 3, 2, 1, none."

Only publications for which non-zero claims are made become the subject of the recent-reading question, 'when was the last time you read or looked at a copy of . . . .'

Considering the elements of inconsistency in these questions, such as the use of the words 'these days' for

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dailies, the fact that dailies and weeklies are related to an *average* period of time and monthlies to the *last* six months; and also the introduction of 'separate issues' in the wording of the monthly question, one might speculate – even boggle at – what effects are produced on respondents as a result of these questions popping up in different sequences through the interview.

Analysis of the survey data over a full year (or longer) within groupings of the 48 rotations would appear to offer the opportunity of examining some of these effects. It appears to be the received wisdom that average-issue readership levels (on the recency question) show a fairly constant relationship with the numbers screened-in for this question. We should investigate whether this is generally the case or whether there are hidden variations related to the sequence of publication groups through the masthead booklet. The writer shied away from the complexity and volume of analyses of this kind.

Forward/reverse order results in Position 1

In the first instance he elected to look more closely at the data for the four publication groups when each appears in the first position, ie, as a group at the beginning of the masthead booklet; and also, within that position to compare results for the forward and reverse orders. The reason for this is that the four groups are not homogeneous; three of them divide into two sub-groups. The group of Sunday newspapers is in fact divided into the colour supplements and the newspapers themselves as discrete groups; the weekly magazines and the monthly magazines each come in discrete groups of general magazines and women's magazines. Thus, in the within-group forward order of titles, the colour supplements precede Sunday newspapers, and general magazines precede women's magazines. In the reverse order of titles, Sunday newspapers precede colour supplements, women's weeklies precede general weekly magazines, and women's monthlies precede general monthly magazines.

The logic was that first position on the interview, being uncontaminated by recency questions about any other group of publications, should represent a yardstick of measurement free of rotation effects and therefore a level which would represent fairness for all. It is also seemed imperative to conduct these analyses separately among men and women respondents. **Table 3** gives the results – again in terms of the same measure and on the same index as in **Table 1**. It shows that not all the publication sub-groups achieve higher levels when first in the interview – and yet another hypothesis bites the dust! Among men, women's weeklies show better figures when following the general weeklies than they do when preceding them. Also the colour supplements do marginally better among women, when second after the

Sundays themselves. But who would have guessed that among women, the women's monthlies would produce lower levels (25% lower) when they open the interview, compared to being second after the general monthly magazines.

In considering the data in **Table 3**, a number of points should be kept in mind.
(a) they all derive from question 2, the recency question; they therefore represent those who convert to average-issue readers after having passed through the frequency filter as non-zero claims as a result of first going through all the mastheads in the booklet. This suggests that **Table 3** should be expanded to examine the ratios of non-zero claims to average-issue readership.
(b) the figures alongside publication sub-groups asked second in the interview, arise after the recency question has been answered for a previous group. Owing to the

TABLE 3
Aggregate average-issue readership levels
Position 1 only

	Men	Women
Colour supplements		
When first in the interview	113	115
Second, after the Sundays	(98)	(95)
Sunday newspapers		
When first in the interview	(108)	(98)
Second after colour supplements	101	103
General weeklies		
When first in the interview	115	101
Second after women's weeklies	(108)	(92)
Women's weeklies		
When first in the interview	(87)	(99)
Second after general weeklies	105	99
General monthlies		
When first in the interview	129	157
Second after women's monthlies	(108)	(90)
Women's monthlies		
When first in the interview	(116)	(101)
Second after general monthlies	123	133

Note: Aggregate average-issue readership levels when group asked first or second in the interview, expressed as an index where 100 = average across all rotations for the designated publication group within the designated sex. Brackets indicate reverse order of titles to the listing in the questionnaire.

manner in which the survey categorises 'general' and 'women's' magazines it is easy to forget that many of the so-called 'general' magazines are in fact specialist magazines, and many of the so-called 'women's' monthly magazines are dual-audience magazines. We thus have labels which may confuse our thinking.

(c) in trying to evaluate differences for a publication sub-group when appearing first and second in the interview, we have to remember that the order of titles within the sub-group is reversed.

(d) it is also desirable to remember that the penetrations in AIR terms are small for many titles, particularly among the monthlies, and that the samples concerned are of the order of 800 to 1000. One feels the need for some account of statistical significance.

SCREEN TO READ RATIOS

The differing ways in which different groups of publications are consumed (or used) by readers would not suggest any expectation for a constant relationship across publication groups – or indeed across titles within our designated groups. **Table 4** shows the average proportions of all non-zero claims who 'convert' to average-issue readership for the following groups, when asked first in the interview.

It is emphasised that these figures relate only to first questioning in the interview. As mentioned earlier this type of analysis by booklet order or groups of booklets might throw further light on rotation effect in all its guises, that is, position of the publication group (or sub-group) in the interview, and the nature of frequency scales previously encountered.

The writer has made this analysis only for Position 1 in

TABLE 4
Average proportions of non-zero claims converting to average-issue readership
Position 1 only

	Men	Women
Dailies (forward order)	50.8	47.9
Weekend colour magazines	46.9	52.9
Sundays	(67.1)	(67.3)
General weeklies	39.9	34.9
Women's weeklies	(36.4)	(43.5)
General monthlies	59.7	52.8
Women's monthlies	(43.1)	(48.5)

NB: Brackets indicate reverse title order to the listing in the questionnaire.

the interview, and can therefore only offer a comparison of the forward and reverse orders within that first position. However, as we have seen this does offer an

TABLE 5
(Position 1 only)

	Men Asked 1st	Men Asked 2nd	Women Asked 1st	Women Asked 2nd
15 general weeklies				
Non-zero claims	271	249	195	175
Average-issue readers	119	113	85	78
AIR: NZC				
Average proportion	40%	41%	35%	33%
Correlation	.9		.9	
Number of titles significantly different	4	3	3	0
9 women's weeklies				
Non-zero claims	55	58	240	229
Average-issue readers	23	28	111	110
AIR: NZC				
Average proportion	36%	46%	44%	46%
Correlation	.2		.6	
Number of titles significantly different	3	3	1	1
16 general monthlies				
Non-zero claims	187	175	100	58
Average issue readers	115	98	52	30
AIR: NZC				
Average proportion	60%	51%	53%	48%
Correlation	.8		.1	
Number of titles significantly different	9	3	11	1
27 women's monthlies				
Non-zero claims	124	115	308	363
Average-issue readers	55	59	151	200
AIR: NZC				
Average proportion	43%	54%	49%	54%
Correlation	.1		.5	
Number of titles significantly different	6	8	6	14

Note: The table shows aggregates for non-zero claims and average-issue readership levels; the average proportion of AIR to non-zero claims, and the correlation of these proportions across titles within the Group. It also shows the number of titles where the AIR is significantly different from that over all rotations, at the 95% confidence level.

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opportunity to compare the publication sub-groups, when asked first or second in the interview (though clouded by the reverse order within the group). **Table 5** shows this comparison for the average proportion of non-zero claims converting to average-issue readership. It also includes correlation coefficients of these proportions by title within each publication sub-group, as between first and second position in the interview.

PUBLICATION GROUP POSITION EFFECT OR TITLE ORDER EFFECT

A study of these two types of data against the absolute aggregate levels for non-zero claims (those screened-in) and the absolute aggregates for average-issue reading helps to shed some light.

Taking the general weeklies first, it is seen that among both men and women the screen-to-read ratio is stable whether they precede or follow women's weeklies, and the correlation between the ratios per title is of a high order. This suggests little title order effect, and that the differences in reading level derive at the screening level, ie, a publication group order effect.

For the women's weeklies, more women screen-in when this group precedes the general weeklies than when it follows, but the slight difference in the screen-to-read ratio evens matters out. Not much apparent group position effect but the correlation is poor suggesting a title order effect. Here are the issue-readership indices. There would also seem to be some title confusion.

If women are subject to title confusion in relation to these essentially women's books, it is not surprising that

TABLE 6
Among women

Woman's weeklies	Forward order: 2nd after general magazines	Reverse order: 1st before general magazines
Woman's Realm	110	82
Woman	103	101
Woman's Weekly	103	95
Woman's Own	87	105
My Weekly	97	106
People's Friend	97	99
Jackie	105	98
Loving	92	120
Love Affair	99	152

Average-issue reading indexed on all rotations.

the data for men show no correlation.

The general monthlies, tend to be male-orientated magazines – five of them are motoring titles, two are DIY and four are skin books, out of a total here analysed of 16. Among men they appear to suffer slightly when following the women's monthlies both at the screening level and in terms of screen-to-read. However the screen-to-read correlation suggests little title order effect; the titles in this group are linguistically quite distinct.

Among women, the differences for general monthlies between preceding and following women's monthlies are large and should be considered in relation to the data for women's monthlies.

The drop in levels for general monthlies when asked after the women's monthlies rather than before them, and the increase in levels for women's monthlies when asked second after the general monthlies rather than first, are both so large as to throw serious doubts on our methodology. But how does one interpret these results?

I suggest there is a lesson for us here. When the general monthlies come first, the woman respondent is asked about 16 or so largely male-orientated titles. We saw earlier that five are motoring books and four are skin magazines. Many will be on the periphery of her interest, though not beyond her casual acquaintance. Coming at the beginning of the interview, with the interviewer's instructions ringing in her ears, it seems more than likely that such a group of titles develop a response-set geared to capturing the fringe readers, which continues when she comes to answer for the women's monthlies. In my view, this mode of response is highly consistent with aims of the survey's definition of average-issue reading – ie, reading or looking at, any issue, anywhere.

Consider the reverse order, she is immediately presented with some 27 titles, all of which may be perceived as being of interest to women. Will she consider each one as carefully in terms of a casual contact. The evidence suggests not, and of course when she then comes to the general monthlies she does not apply the same rigorous criteria to her responses as she would in the forward order.

This latter behaviour may be felt by some to be more appropriate and relevant to the needs of the advertising industry. In this, I cannot agree. It can be shown that even casual contact has some advertising value, but this is not really the point. Given that the survey has resolved a definition of average-issue reading, it should therefore seek to measure each title to its potential within that definition.

It is up to others, publishers mostly I guess, to qualify that measure in whatever terms are appropriate to particular advertising campaign requirements. An analogy would be the relationship of presence studies to TV ratings.

CONCLUSIONS

What do I conclude? First one must point out that all these data are based on six-months figures only. It is necessary to conduct similar analyses on other periods and on longer periods – to establish that there is stability in the pattern of results that I have shown. An article by Aitchison in the latest *ADMAP* (January 1981) which I saw just before leaving London suggests that the same order of results was not visible in 1975 and 1970. I am not happy that those earlier years are relevant because there were fewer

TABLE 7
Among women

	Forward order: 2nd after general magazines	Reverse order: 1st before general magazines
Women's monthlies		
Vogue	160	65
True Romances	144	90
She	154	86
Good Housekeeping	173	80
Cosmopolitan	140	98
True Magazine	144	101
Woman & Home	152	91
True Story	114	142
Woman's Journal	147	170
Honey	137	105
Look Now	122	94
Mother	97	114
Family Circle	146	95
Annabel	123	124
Hers	63	156
Living	133	92
Pins & Needles	114	103
"19"	102	108
Home & Freezer Digest	112	105
Ideal Home	142	113
Homes & Gardens	107	118
House & Garden	73	156
Harpers & Queen	84	85
Good Life	99	86
Company	117	118
Over 21	100	87
Womancraft	99	148
Parents	106	79

Average-issue reading indexed on all rotations.

booklet rotations in use in those days, but it needs looking at.

However, I lean towards two conclusions. Firstly, it seems clear to me that title confusion is a real problem, particularly among the women's magazines. (See **Table 7** for data relating to women's monthlies.) I do not readily see how within our present survey technique this title confusion can be eradicated. But we could do a great deal more to equalise it, to make it fairer (to use my favourite word) by employing more rotations of titles within groups. I know that some claims that shuffling the cards at each interview comes to the same end. But interviewers worry me, and sometimes I am not sure that the theory doesn't as well.

Secondly, I believe we should examine the possibility of reducing the number of publication group rotations – possibly even to the point of having one standard order of presentation. Ideally, it would be an order which would appear logical to the respondent, while at the same time maximising results for each publication group.

And as a matter of interest, the particular group order shown in **Table 8** might fit the specification. Being the result of one out of a total of 48 rotations, the data are based on small sub-samples of course (even over a year's data) but they suggest to me that this order gives a better measure of our reading definition, because nearly all the figures are bigger and most of them come close to the levels they would get in their best position in the interview.

Furthermore, with one standard publication order we could indulge in more title rotation within each publication group in order to equalise the effects of title confusion.

TABLE 8
Aggregate average-issue readership levels for booklet order as listed below

	Position in booklet	Men (n = 273)	Women (n=342)
General monthlies	1st	120	140
Women's monthlies	2nd	110	123
General weeklies	3rd	117	115
Women's weeklies	4th	107	102
Weekend colour magazines	5th	128	124
Sunday newspapers	6th	95	95
Daily newspapers	7th	100	103

100 = Aggregate levels across all rotations: January–December 1979.

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APPENDIX A
Order in which publication groups appear in different versions of the booklet since January 1977

Version of booklet	Booklet code	First	Second	Third	Fourth	Fifth
1	11	Dailies	WCM/Sundays	Monthlies	Weeklies	Bi-monthlies
2	12	WCM/Sundays	Weeklies	Dailies	Monthlies	Bi-monthlies
3	13	Dailies	Monthlies	Weeklies	WCM/Sundays	Bi-monthlies
4	14	Weeklies	Monthlies	WCM/Sundays	Dailies	Bi-monthlies
5	21	WCM/Sundays	Weeklies	Monthlies	Dailies	Bi-monthlies
6	22	Monthlies	WCM/Sundays	Dailies	Weeklies	Bi-monthlies
7	23	Weeklies	WCM/Sundays	Monthlies	Dailies	Bi-monthlies
8	24	Monthlies	Dailies	Weeklies	WCM/Sundays	Bi-monthlies
9	31	Weeklies	Dailies	Monthlies	WCM/Sundays	Bi-monthlies
10	32	WCM/Sundays	Dailies	Weeklies	Monthlies	Bi-monthlies
11	33	Weeklies	Monthlies	Dailies	WCM/Sundays	Bi-monthlies
12	34	Monthlies	Dailies	WCM/Sundays	Weeklies	Bi-monthlies
13	41	Monthlies	WCM/Sundays	Weeklies	WCM/Sundays	Bi-monthlies
14	42	Dailies	Weeklies	WCM/Sundays	Monthlies	Bi-monthlies
15	43	Dailies	Monthlies	WCM/Sundays	Weeklies	Bi-monthlies
16	44	WCM/Sundays	Monthlies	Dailies	Weeklies	Bi-monthlies
17	51	WCM/Sundays	Dailies	Monthlies	Weeklies	Bi-monthlies
18	52	Monthlies	Weeklies	WCM/Sundays	Dailies	Bi-monthlies
19	53	Weeklies	WCM/Sundays	Dailies	Monthlies	Bi-monthlies
20	54	Dailies	WCM/Sundays	Weeklies	Monthlies	Bi-monthlies
21	61	WCM/Sundays	Monthlies	Weeklies	Dailies	Bi-monthlies
22	62	Weeklies	Dailies	WCM/Sundays	Monthlies	Bi-monthlies
23	63	Dailies	Weeklies	Monthlies	WCM/Sundays	Bi-monthlies
24	64	Monthlies	Weeklies	Dailies	WCM/Sundays	Bi-monthlies

NB WCM = Weekend colour magazines/colour supplements