

## 2.13 Replicated and parallel readership

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Average Issue Readership is defined as the number of individuals who have made an eligible contact with the average issue of a given publication by the end of its life. AIR can be measured directly as the average number of individuals who have had contact with sampled issues that have accumulated the whole of their readership. This is of course the basis of through-the-book methods, except that issues are of fixed age and have not necessarily completed their lives. TTB estimates are biased if this fixed age does not correspond with a constant proportion of final accumulated readership for all publications covered. An alternative correct measure is obtained by identifying the total number of *issues* of each publication read for the *first time only* in a fixed period of time. This is the basis of recent reading methods. Since it is difficult to make this measure directly, the technique in practice substitutes as an estimator the number of *individuals* exposed to *any* issue of the publication in a fixed period of time.

It has been recognised for at least 20 years that the recent reading model *can* lead to severely biased estimates of AIR. (1) An informant who buys and retains a single issue of a magazine, and rereads it at intervals, should be reported as an average issue reader throughout the period over which this behaviour occurs. Similarly, an informant who obtains several issues of a publication together, and reads and rereads them exclusively within a short period, should be reported as a reader of a single issue. The over- and under-estimates of readership resulting from these types of behaviour are respectively known as replicated and parallel readership. If the two effects are not in balance for a given publication, its readership estimate will be subject to model bias.

The most important implication of model bias is that readership estimates for particular publications may be subject either to net replication – a positive error – or to net parallel readership – a negative error. Thus, if net estimation errors of, say, 10% occur in opposite directions for two different publications, their relative average issue readership estimates will be changed by about 20%.

Model bias has other effects that can be significant even if replicated and parallel readership should happen to be in balance for all publications, so long as the magnitude of each individual effect is not small. It is likely that the individuals who generate replicated and parallel readership for a given publication have dissimilar demographic characteristics. Consequently, the publication's reader profile will be affected by the assumption that the two groups of informants are interchangeable. Duplication estimates will be affected in the same way,

bearing in mind that each of the two publications concerned may be subject to errors of opposite sign for a particular informant.

At the same time it is not easy to establish the scale of model bias, since it is difficult to measure except as a residual or as a difference compared with other methods of readership estimation. If it were true that magnitudes were small and closely balanced for all publications it would probably be better to accept uncorrected estimates than to make a complex and hazardous attempt at correction.

There are a number of ways in which the problem of estimating the scale of model bias can be approached. In the first place indications of sign and orders of magnitude can be obtained by considering the probable patterns of readership of different types of publication. For newspapers, the great majority of all reading occurs on the day of issue only and most readers are regular. The potential for model bias is therefore quite limited.

Weekly magazines with topical contents, however, are likely to be read over a period of several days in their original purchasers' households but several issues are only likely to be read on the same occasion or during the same week in rather unusual circumstances. Consequently, if purchase is irregular, replicated reading is likely to arise but parallel reading will probably be rare. Programme magazines are an extreme example of this type of publication. The reading of a single issue will normally extend over at least seven days, so that up to half of the readership claims of informants who do not see the next issue should be replicated. Few people are likely to read two or more issues of programme magazines exclusively within a week; there should be little offsetting parallel readership.

In contrast, magazines with less topical contents and long lives may frequently be read in parallel, especially if issues are widely available in waiting rooms. This parallel reading may be offset by replicated reading if a high proportion of copies are bought by irregular purchasers. But if most sales are on subscription, or from news-stands to regular buyers, there will be little opportunity for replicated readership claims to arise.

This analysis demonstrates that model bias is likely to have effects of opposite sign on different categories of publication. It also suggests that the importance of model bias will vary quite widely from country to country. It will be particularly significant in countries in which similar publications use differing distribution strategies which affect the proportions of regular and irregular domestic

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**TABLE 1**  
Theoretical and observed reading probabilities, Sunday newspapers

Claimed frequency	Theoretical probability	Observed probabilities	
		All Sundays	Three quality Sundays
4 of 4	1.00	.937	.904
3 of 4	.75	.568	.541
2 of 4	.50	.376	.357
1 of 4	.25	.221	.182
<1 of 4	—	.188	.078

Source: National Readership Survey 1980 1

buyers compared with institutional buyers. But UK experience is unlikely to apply directly in countries where subscribers are a much more important element in the magazine market.

A second guide to the extent of model bias is provided by comparisons of frequency claims and recent reading claims. Such comparisons must be approached with care, since model bias is not the only factor that is likely to affect the relationship between the two measures. The true distribution of reading frequencies may differ between two publications, while one publication may be more subject than another to overclaims of frequency on grounds of prestige.

In the UK, Sunday newspaper reading probabilities demonstrate this point. **Table 1** shows observed reading probabilities for three Quality Sundays compared with all National Sundays.

If it is accepted that model bias is not a significant problem for this category of publication, the small and

consistent difference between the two sets of reading probabilities is best explained by the prestige of quality Sundays together with small real differences in frequency distributions.

Turning to the 27 weekly magazines covered by the UK National Readership Survey, very different patterns of reading probabilities are found. **Table 2** shows observed probabilities for three categories of magazine: the two programme magazines, *Radio Times* and *TV Times*; two non-topical magazines of high quality that are widely stocked by waiting rooms, *Country Life* and *Punch*; and the 23 other weekly consumer magazines covered by the NRS.

It will be seen that the 23 other weeklies obtain reading probabilities that are very similar to those observed for Sunday newspapers for each of the three intermediate reading frequency categories. The programme magazines obtain progressively higher reading probabilities than Sunday newspapers as frequency declines; for the one out of four frequency category their observed reading probability exceeds the theoretical probability of 0.25 by as much as 40%. In contrast, *Country Life* and *Punch* obtain probabilities for each frequency category other than four out of four which are 40% to 50% less than the theoretical probabilities.

The hypothesis of net replicated readership fits the observed pattern of probabilities for programme magazines very well; as actual reading frequency declines, consecutive pairs of issues will be read less often. Similarly the hypothesis of net parallel reading explains satisfactorily the observed probabilities for *Country Life* and *Punch*, since parallel reading should affect probabilities for all reading categories in a consistent way. It is not suggested that model bias is the only factor affecting these two categories of publication; there will also be errors arising from prestige and from true

**TABLE 2**  
Theoretical and observed reading probabilities, weekly magazines

Claimed frequency	Theoretical probability	Observed probabilities		
		Radio Times/ TV Times	Country Life/ Punch	Other
4 of 4	1.00	.950	.705	.842
3 of 4	.75	.676	.437	.536
2 of 4	.50	.463	.253	.370
1 of 4	.25	.349	.151	.227
<1 of 4	—	.156	.070	.095

Source: National Readership Survey 1980 1

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differences in the frequency distributions. However, if alternative readership estimates are calculated by applying the observed probabilities for all Sunday newspapers to these two categories of weeklies, the effect is to reduce the estimated readership of programme magazines by 5% and to increase estimated readership of *Country Life/Punch* by 42%. While the calculation is merely illustrative, it suggests that, at the extreme, model bias effects AIR estimates for pairs of publications to an extent that cannot be ignored.

Similar comparisons are made for the general monthly magazines on the NRS publication list in **Table 3**. The publication groups shown divide total readership between seven motoring magazines together with five men's magazines, compared with three household and five general interest monthlies.

The general and household magazines are likely to be widely read in waiting rooms or to be passed on to other households in bulk. Half of their gross readership is accounted for by *Reader's Digest*, which is primarily sold on subscription. Hence parallel readership is likely to be a much more important element for this category than for the men's and motoring category for which it is likely that regular purchasing and waiting room reading will be less common.

As in the case of weeklies, the differences in reading probabilities may be better explained by variations in the incidence of parallel and replicated reading than by false frequency claims, given that the two series diverge as claimed frequency falls. If this is the case the adjustment that would have to be made to general and household magazines to bring their AIR estimates into line with men's and motoring magazines would be an average increase of 15%. For extreme pairs of publications the suggested adjustment would be about twice this size.

To repeat this argument, large differences in reading probabilities for intermediate claimed frequency categories are likely to reflect model bias rather than real differences in behaviour. The differences found suggest that model bias affects the AIR estimates of many pairs of publications in the UK by magnitudes of 20% or more.

A third approach to the estimation of model bias is by other indirect measurements of various kinds. In the UK we have the finding from the National Readership Survey that there are between 1.2 and 1.3 housewife readers of the average issue of programme magazines. This can be explained either by high levels of pass-on readership, or by significant net replication. In the United States, *TV Guide* is found to have 41% more readers by the recent reading method than by the TTB method. (2) This compares with a difference of about 20% for eleven other weekly magazines. This finding is again consistent with the hypothesis of net replicated reading bias for programme magazines compared with other weeklies, though other factors may of course be involved.

Lastly, there are certain examples of direct measurement of model bias. In a total of 8000 interviews conducted in Germany in 1973 a single publication for which readership was claimed in the past four weeks was selected. (3) The informant was then asked to identify the number of different issues read in this period, and to say for each when it had been first and last read.

The paper emphasised that this experimental work had not been carried out on a sufficient scale to yield definitive results for individual publications. However, the conclusions were that 'the present research methods can produce readers-per-issue values both over-estimated up to a tenth of the actual value ... and can, in isolated cases, given an even larger error ... as well as underestimated by 10% below the actual figure'.

Two recent surveys conducted by Research Services Limited in 1979 and 1980 investigated model bias for particular types of publication. Both studies used samples of only about 400 and were mainly concerned with editorial issues. In each case the technique used was to identify claimed magazine readers in the past seven days by the normal NRS method; supplementary questions were asked at the end of the standard readership section. These questions identified individually the separate issues of the publications that had been seen at all in the past seven days. Each such issue was then classified by the date when it had first been seen. The number of separate issues first seen in the past seven days was recorded.

The first survey had a publication list of four women's weeklies, 17 women's monthlies and *Reader's Digest*. The sample consisted of women only. **Table 4** sets out the results obtained for these three categories of publication.

It will be seen that for the 17 women's monthlies and the four women's weeklies the adjustments are almost in

**TABLE 3**  
Theoretical and observed reading probabilities, general monthlies

Claimed frequency	Theoretical probability	Observed probabilities	
		Men's and motoring	General and household
6 of 6	1.00	.879	.869
5 of 6	.83	.839	.751
4 of 6	.67	.795	.648
3 of 6	.50	.621	.537
2 of 6	.33	.512	.402
1 of 6	.17	.378	.281

Source: National Readership Survey 1980 1

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balance; that is to say the excess of replicated over parallel readership for the monthlies gives an adjusted reading estimate for the previous week which is one quarter of directly observed recent reading in the previous four weeks. But for *Reader's Digest* the adjusted estimate suggests substantial net parallel readership.

The second study found that for *Country Life* and *Punch* adjustments of 4% of AIR should be made for replication and 24% for parallel readership. For the other eight weekly magazines the adjustments to be made were 7% for replication and 10% for parallel readership.

The two samples are much too small for quantitative conclusions to be drawn about individual titles. However, the studies do suggest that the scale of replicated and parallel readership is substantial, especially for monthlies; that the two effects are of similar magnitude across all titles, but that for individual titles this balance is not maintained; and that the titles affected by net parallel readership – *Reader's Digest*, *Country Life* and *Punch* – are those predicted from NRS reading probability data and from their patterns of distribution.

Although the results obtained in these experimental studies appear to be reasonable, it is not suggested that corrections for replicated and parallel readership can be made with great accuracy by such methods. It is clearly difficult for an informant to identify when he or she had first read a given issue from memory alone irrespective of the precise form of questioning. However, the fact that the separate gross corrections for parallel and replicated readership are in balance in **Table 4** for Women's Monthlies and Weeklies suggests that the correction procedures themselves are not biasing. In this case, if it is accepted that unadjusted readership estimates are subject to significant bias for specific publications, the procedures may substantially remove these biases even

though the corrections are subject to considerable random error.

A further argument for attempting to correct model bias is that unadjusted data cannot be linked with circulation. It is clear that most replicated readership is generated by irregular primary readers while parallel readership generally comes from pass-on readers. Consequently, if informants making uncorrected recent reading claims are asked about the origin of the issues they last saw, they will overestimate the incidence of copies bought by themselves or their households. If model bias correction procedures are carried out, the replicated readers responsible for these excess primary reading claims can be discarded and replaced by the parallel readership of other informants, who will be mainly pass-on readers. The resulting *first* primary reading claims may then be validated against circulation data.

A suggested correction procedure for standard recent reading methods is to add a new section to the questionnaire after the completion of basic readership questions. In this section additional questions are asked about all magazines which have generated recent reading claims in a suitable base period, which may be the last seven days. For each publication the following data should be obtained:

- (a) the number of separate issues read in the base period.
- (b) the identity of each of these issues expressed in terms of date or age.
- (c) the origin of each issue.
- (d) the *first* reading date of each issue.

The questions on age and origin of each issue should help the informant to answer the final question. The procedure should also help to remove overclaims at the recency question.

In the UK a base period of seven days generates

**TABLE 4**  
**AIR, replicated and parallel readership by magazine category**

	17 women's monthlies	4 women's weeklies	Reader's Digest
Unweighted base	383	484	383
	%	%	%
Gross readership in past four weeks	151	--	20
Gross readership in past seven days	48	91	10
less replicated readership	16	14	4
plus parallel readership	5	14	3
Adjusted readership in past seven days	37	91	9

Source: RSL

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about three reading claims for weekly and monthly magazines on average. The distribution is of course skewed. It may therefore be necessary to sample from all claims in extreme cases. However, since some two-thirds of all cases investigated will involve only a single issue read for the first time during the base period the procedure would only be demanding for a small minority of informants.

It may be noted that correction procedures could be undertaken with much greater confidence if informants had maintained a diary for the base period showing issue dates for each reading occasion. In this case the recall problems of identifying the first reading date for each issue seen in the base period would be largely overcome.

In conclusion, there is a substantial weight of evidence in the UK that the readership estimates for many magazines are significantly affected by net model bias in either direction. Comparisons between pairs of publications may often be subject to net bias of 20% or more.

Since methods of distribution are likely to play an

important part in the sign and magnitude of model bias, it does not follow that such bias will be similar for publications with similar editorial contents and target markets. There is therefore a case for attempting model bias correction as an extension to the recent reading technique wherever wide variations in distribution and reading patterns are known to exist.

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