

ARF COMPARABILITY STUDY  
A CONTROLLED FIELD EXPERIMENT  
COMPARING THREE METHODS OF ESTIMATING MAGAZINE AUDIENCES

The First of Two Reports of the  
Comparability Subcommittee of the  
Magazine Research Development Council  
Advertising Research Foundation

Study executed by

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## INTRODUCTION

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In the summer of 1978 Simmons and Axiom Market Research Bureau (TGI) merged to form the Simmons Market Research Bureau (SMRB). In prior years, each company had produced a separate magazine audience study. After the merger there was to be only one survey with a new design which combined the Simmons and TGI techniques in a single interview. Weeklies, bi-weeklies and large monthlies would be measured by through-the-book; smaller monthlies would be measured by recent reading.

This was a new approach to the old problem of how to include a large number of magazine titles in a single study. Like most new approaches, it was, and still is, controversial.

### COMPARABILITY

The controversy centers on "comparability". The through-the-book and recent reading techniques are very different approaches to measuring magazine audience.

Through-the-book is issue-specific. It asks about reading of an issue of a magazine after the issue has had a chance to accumulate its audience -- usually about five weeks after issue appearance for weekly magazines, six weeks after for bi-weeklies and 10 weeks after for monthlies. To help the respondent remember, the technique uses a copy of the issue as a memory aid.

Recent reading is time-specific. It asks about reading of any issue of a magazine during a specific period of time equal to its publication interval - past week for a weekly, past month for a monthly. In concept, recent reading recovers magazine issue reading however long after publication of the issue it may occur.

Both methods report "average-issue audience". Through the-book measures this directly. Recent reading requires the assumption that "audience of the average issue" is equal to "audience of any issue during the average publication interval". This equivalence holds only when two other conditions are met. First, recent-reading claims must be for "first time" reading only. Repeat-issue reading that spans the publication interval inflates recent reading estimates by counting the same issue-reader twice. For example, when you refer back to an old magazine issue you can create what

is known as the "replicated reading" problem for the recent-reading method.

The second condition is that no more than one issue of a magazine be read for the first time during a publication interval. First-time reading of more than one issue in the same publication interval deflates recent reading estimates by counting different issue readings as if they were one. For example, when you allow subscription copies to pile up and read several issues in one sitting, you can create what is known as the "parallel reading" problem for the recent-reading method.

These conceptual differences between through-the-book and recent-reading audiences, along with differences in audience estimates produced by Simmons and TGI, raised questions about the comparability of the two measurements. When SMRB announced that both methods would be used in the new study, industry reaction was swift and negative. Comparability became a central issue. There was widespread concern that mixing the methods could help or hurt a magazine depending upon which method was used to measure its audience. There was fear also that mixing recent-reading and through-the-book questions in the same interview might affect through-the-book measured audience levels.

#### THE COMPARABILITY STUDY

These concerns were strong enough to produce an industry response. In December of 1978, the ARF was urged by its membership to design a large-scale comparability experiment to provide side-by-side comparisons of magazine audience levels produced by three different techniques:

1. Traditional Through-the-Book (TTB-T).
2. SMRB Through-the-Book Mixed Method (TTB-M).
3. SMRB Recent-Reading Mixed Method (RR).

By March of 1979 the ARF Study had sufficient funding to begin field preparations. In June, the six-month survey began. By late December, data became available for analysis.

However, well before field work was completed on the ARF study, the lack of comparability between the two SMRB techniques became apparent. SMRB tabulations of recent reading data from their own study showed audience levels averaging 90% higher than comparable through-the-book levels from the prior year.

In September, SMRB informed the industry it would deflate recent reading audience levels by eliminating readers who claim to read less than two of four issues. This became known as the SMRB "qualified recent reader" adjustment.

REPORTS AND RELEASE OF DATA

The following pages are a first report of the ARF Comparability Study findings. They show the size and pattern of differences in audience as measured by the three techniques. They also show the effects of the SMRB qualified recent-reader adjustment on these patterns of difference.

It should be noted that comparisons of turnover rates produced by the three techniques are not possible from this study. SMPB estimates of turnover rates are based on two phases of interviewing while respondents for the Comparability Study were interviewed only once.

A second, more comprehensive analysis is in preparation for release in March. In addition to audience, it will look at differences in screening levels and frequency-of-reading claims for the three techniques. It will also include the results of ARF attempts to calibrate recent reading to through the book.

This second report will give a better understanding of the comparability of magazine audience measurement methods and may help to increase the usefulness of a mixed-method approach to measuring a long list of titles in a single interview. Successful calibration could mitigate current concerns about non-comparability.

This subcommittee feels strongly that all data from this and other syndicated studies should be made generally available. To facilitate this, Comparability Study respondent data will be available on-line through Telmar and IMS.

VALIDITY

This study compares SMRB recent reading and through-the-book audience estimates; it is not designed to answer the question of which, if either, of the two methods produces a valid measure of audience. Through-the-book or recent-reading may appear to "make sense" but neither technique has been validated as to how well it identifies readers and non-readers of an average issue.

Some 25 years ago, when virtually all magazine audience studies were custom-sponsored, through-the-book was checked for overclaiming by LIFE, READER'S DIGEST and other magazines. Individual aspects of the through-the-book technique such as the filter-screen and the sequence of asking about magazines, were also looked at critically.

In the years that followed, syndicated magazine research developed and with it, the need to cover more magazines in each interview. This also meant using fewer aids to help the respondent recall issue reading. During this time, the matter of validity -- does the technique identify both readers

and non-readers of an average issue -- was virtually ignored in this country.<sup>1</sup>

Three years ago, ARF began work on validation. The MRDC Validity subcommittee has now completed and published three small-scale experiments aimed at developing a "maximum method" for use as a validator for current through-the-book and recent-reading techniques.

A version of through-the-book was tested in two out-of-home reading situations. The first was set in a laboratory waiting room, and the reading was brief and casual. The second was set in a normal waiting room environment, and the reading was somewhat longer and more intense. In both experiments, some interviews were conducted one day later and some were conducted one week later. Notwithstanding the differences in reading circumstance the through-the-book method did not identify a substantial proportion of observed readings, and the failure rate increased as the time between observation and interview increased.

This does not mean that the through-the-book method understates out-of-home audience. Although neither experiment could provide a controlled measure of overclaiming, there was evidence in both experiments that some people may claim to read an issue when in fact they did not. What these experiments clearly suggest is that the through-the-book method may not identify certain kinds of readers and non-readers with sufficient accuracy.

The Council cannot comment on the validity of recent reading beyond the earlier discussion of the "replicated" and "parallel" readership problems because it is extremely difficult to design similar controlled validation experiments for that method. The absence of this kind of information should not be a comfort. Recent very large and unanticipated increases in recent-reading audience levels heighten our concern about the validity of this technique.

Although this report does not deal with validity, the question of how accurately through-the-book, recent reading or some other method identifies readers or non-readers is clearly a very important one. A status report of the Council's Validity Subcommittee will be published shortly, including its plans for further research on the measurement of both in-home and out-of-home reading.

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<sup>1</sup>We acknowledge the considerable work done by Dr. William Belson in the U.K.

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Erwin Ephron

Chairman

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PUBLICATION AND ANALYSIS PLAN

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This is a "top-line" report. It focuses on the over-all effects of differences in measurement method on audience levels reported. A second report to be published in March will tell us whether these differences vary by type of magazine or person in a systematic way.

If there are obvious patterns it may be possible to convert audience levels obtained by one method to what would have been obtained by the other method ("calibration"). If there are no such patterns -- if the differences are random rather than systematic -- that in itself will be a key finding, with important implications for future research design.

The over-all analysis plan will examine "screen-ins", "sure-reads" and "read-to-screen" ratios for the three techniques -- in total, in-home; out-of-home and by demographics.

Magazine types are defined by the following 10 variables:

1. Publication interval
2. Editorial content
3. Circulation size
4. SMRB method of measurement
5. Per cent of articles in stripped issue
6. Special editions as a proportion of circulation
7. Unique editorial and title
8. Possibility of title confusion
9. Per cent single-copy circulation
10. Screen-ins per copy

The resulting tabulations fill over 3,500 pages.



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MAJOR FINDINGS

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1. The through-the-book mixed-method (TTB-M) and the through-the-book traditional method (TTB-T) show:

- . small differences for weekly magazines
- . larger differences for monthly magazines
- . very large differences for triweekly magazines

As seen in Table 1, the overall difference for weeklies is small, -1%. Furthermore, the differences are generally small across demographic groups.

The overall difference for monthlies is 10% (larger circulation 8%, smaller circulation 15%). This difference is not statistically significant; however, the fact that there are positive differences in almost all demographic groups suggests that later analyses may indicate significance.

The overall difference for triweeklies is 27%. This difference is statistically significant and the differences are generally large across demographic groups. <sup>1</sup>

The reader is cautioned that magazine group results may not apply to individual titles. These show considerable variation from the averages due to sampling errors as well as differences between the methods under study.

Table 1

Through-the-Book Mixed-Method (TTB-M) vs.

Through-the-Book Traditional Method (TTB-T)

Audience Coverage Estimates: All Adults

	TTB-M	TTB-T	Ratio	Per Cent Difference
12 Weekly Magazines	7.69%	7.76%	0.99	-1%
54 Monthly Magazines	4.02	3.66	1.10	10%
18 Larger Circulation Monthlies	8.31	7.70	1.08	8%
36 Smaller Circulation Monthlies	1.87	1.64	1.15	15%
2 Triweekly Magazines	13.63	10.77	1.27	27%*

\*Significant at the 5% level.

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<sup>1</sup>The subcommittee is puzzled by the finding for triweeklies and has, as yet, found no reason why this group should show so large a difference.

2. SMRB recent reading (RR) produces audience levels significantly higher than through-the-book (TTB-M) for weekly, monthly and triweekly publications.

Summary data supporting this conclusion are reported in Table 2. The data show that the difference between the two methods increases as publication frequency decreases.<sup>2</sup> The difference for weekly magazines is 27%, for monthly magazines 86%, for triweekly magazines 41%.<sup>3</sup> Every difference is statistically significant at the 1% level.

Table 2  
SMRB Recent Reading Method (RR) vs.  
Through-the-Book Mixed Method (TTB-M)  
Audience Coverage Estimates: All Adults

	<u>RR</u>	<u>TTB-M</u>	<u>Ratio</u>	<u>Per Cent Difference</u>
12 Weekly Magazines	9.78%	7.69%	1.27	27%**
54 Monthly Magazines	7.49	4.02	1.86	86%**
18 Larger Circulation Monthlies	14.65	8.31	1.76	76%**
36 Smaller Circulation Monthlies	3.91	1.87	2.09	109%**
2 Triweekly Magazines	19.16	13.63	1.41	41%**

\*\* Significant at the 1% level

In addition to these data, differences by the vast majority of subdivisions (sex, education, marital status, employment status, household income, editorial content, etc.), show significance at the 1% level (See Appendix A).

For the smaller circulation monthlies, which are the only magazines SMRB measures by the recent reading method, the margins of difference appear to vary by magazine type and also across demographic groups. Demographically, the differences are larger for females, older people, less well-educated people and the unemployed.

<sup>2</sup> SMRB found a 90% increase in audience from one year to the next for a group of smaller circulation monthlies which moved from the TTB to the RR method. In this case, although the group of monthlies is not identical, the difference is 109%.

<sup>3</sup> For administrative reasons, a uniform recent reading question was applied to both monthlies and triweeklies which asked about reading in the last "month". Had the appropriate recency period for a tri-weekly been used, (past "three weeks"), the difference between recent reading and through-the-book might have been smaller than reported for the triweeklies.

For weeklies, triweeklies and monthlies alike, differences between recent reading and through-the-book audience levels were considerably higher for reading reported to have taken place out-of-the-home (See Appendix A).

3. The SMRB qualified recent reading method (QRR) and the through-the-book mixed method (TTB-M) show:

- . small differences for weekly magazines
- . larger differences for triweekly magazines
- . very large differences for monthly magazines

Data supporting this conclusion are shown in Table 3. In this comparison, the SMRB "Qualified Reader" adjustment was applied. This procedure adjusted recent reading audiences down by eliminating readers who reported reading fewer than two of four issues published.

The qualified recent reading method shows differences for weeklies of -1% and for triweeklies of 5%. For monthly magazines, the SMRB-type adjustment produced audience levels which were 23% higher on average than the through-the-book mixed method (TTB-M), 21% for the larger and 26% for the smaller circulation monthlies. All of these differences are significant at the 1% level.<sup>4</sup>

Table 3

Qualified Recent Reading Method (QRR) vs.  
Through-the-Book Mixed Method (TTB-M)  
Audience Coverage Estimates: All Adults

	QRR	TTB-M	Ratio	Per Cent Difference
12 Weekly Magazines	7.58%	7.69%	0.99	-1%
54 Monthly Magazines	4.94	4.02	1.23	23%**
18 Larger Circulation Monthlies	10.09	8.31	1.21	21%**
36 Smaller Circulation Monthlies	2.37	1.87	1.26	26%**
2 Triweekly Magazines	14.31	13.63	1.05	5%

\*\*Significant at the 1% level

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<sup>4</sup> In the SMRB study, the adjustment procedure was applied to data from each of two waves of interviews and the results were averaged. In this study, since only one interview per person was conducted, the adjustment procedure could be applied only to the one interview. As a check, the adjusted SMRB two-interview averages were compared to the adjusted SMRB first interview results. The effect of the adjustments was essentially similar (See Appendix B).

Smaller circulation monthlies are the only magazines SMRB measures by the recent reading method. As noted previously, the margins of difference between recent reading (RR) and through-the-book mixed (TTB-M) for these monthlies varied by type of magazine and in a somewhat systematic way, across demographic segments. The SMRB adjustment (QRR), while providing an across-the-board reduction in audience level, does not correct for these differences. The importance of these differences will vary by type of magazine.

The direction of these demographic differences is illustrated by Table 4 below, which shows audience composition differences by sex, age, education, and employment status for TTB-M, RR, and QRR for 36 smaller circulation monthlies.

Table 4  
 DEMOGRAPHIC COMPOSITION PRODUCED  
 BY THREE MEASUREMENT PROCEDURES  
 FOR 36 SMALLER CIRCULATION MONTHLIES

	<u>TTB-M</u>	<u>RR</u>	<u>QRR</u>
	%	%	%
<u>SEX</u>			
Male	59.5	56.0	57.0
Female	40.5	44.0	43.0
<u>AGE</u>			
18-34	55.6	51.4	49.2
35-54	29.9	31.0	33.2
55+	14.5	17.5	17.6
<u>EDUCATION</u>			
Attended College	47.8	45.6	45.0
High School Graduate	40.4	39.7	40.3
Did not graduate High School	11.8	14.6	14.7
<u>EMPLOYMENT STATUS</u>			
White Collar	42.6	40.7	42.4
Blue Collar	33.1	30.5	29.2
Unemployed	24.4	28.8	28.4

While the differences may or may not appear large when looked at as audience composition, they are substantial when expressed in terms of audience size as shown by Table 5 below.

Table 5

RECENT READING (RR) AND QUALIFIED RECENT READING (QRR) vs.  
THROUGH-THE-BOOK MIXED METHOD (TTB-M)  
FOR 36 SMALLER CIRCULATION MONTHLIES

Per Cent Difference - By Sex

	<u>ALL ADULTS</u>	<u>MALES</u>	<u>FEMALES</u>
RR vs TTB-M	108%	95%	129%
QRR vs TTB-M	26%	21%	34%

Per Cent Difference - by Age

	<u>ALL ADULTS</u>	<u>18-34</u>	<u>35-54</u>	<u>55+</u>
RR vs TTB-M	108%	92%	116%	150%
QRR vs TTB-M	26%	11%	40%	54%

Per Cent Difference - By Education

	<u>ALL ADULTS</u>	<u>ATTENDED COLLEGE</u>	<u>H.S. GRADUATE</u>	<u>DID NOT GRADUATE H.S.</u>
RR vs TTB-M	108%	89%	105%	157%
QRR vs TTB-M	26%	19%	26%	58%

Per Cent Difference - By Employment Status

	<u>ALL ADULTS</u>	<u>WHITE COLLAR</u>	<u>BLUE COLLAR</u>	<u>UNEMPLOYED</u>
RR vs TTB-M	108%	100%	92%	117%
QRR vs TTB-M	26%	26%	12%	47%

For example, after application of the SMRB qualification method there was a 26% difference over-all between the total audience estimates for QRR and TTB-M; among individuals classified by sex, the differences were 21% for males and 34% for females.

The SMRB qualified recent reading method (QRR) had the effect of removing relatively more out-of-home than in-home readers, and thereby produced figures more nearly comparable with the through-the-book method for both groups. In particular, for the smaller circulation monthlies which SMRB measured by the recent reading method, the relative differences in reading levels after adjustment were 32% for in-home and 20% for out-of-home reading compared with the overall difference of 26%.

Further analyses will be made, and other adjustment procedures will be tested to determine their effects on both audience levels and composition.

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STUDY DESIGN

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The purpose was to provide a direct comparison of magazine audiences obtained by the through-the-book and recent reading methods as employed in the current SMRB mixed-method interview, and to measure the effect of the SMRB "mixed-method" interview procedure on the traditional through-the-book audience measurement.

The population under study was adults living in households within the coterminous United States.

An area probability sample of 132 clusters in 55 sample areas was selected from the SMRB master sample. Separate samples of males and females were designated for interview with quotas of completed interviews set for each cluster to yield a total of about 600 interviews. Within each cluster, interviewing was conducted over a six-week period, including two weeks for each of the three questionnaire versions. The order of questionnaire version was rotated from cluster to cluster. The study period was 24 weeks, June through November 1979.

Three samples were interviewed concurrently. Sample A (1000) used the traditional through-the-book (TTB-T) interview while samples B (1800) and C (1800) used the current mixed-method interview.<sup>1</sup> To simulate the interview length of SMRB's syndicated study, an additional 56 recent reading (RR) magazines were studied in samples B and C, but not tabulated.

<u>Magazines</u>			<u>Study Samples</u>		
<u>group</u>	<u>number</u>	<u>Measured by SMRB</u>	<u>A</u>	<u>B</u>	<u>C</u>
(a)	16	TTB	TTB	TTB	RR
(b)	16	TTB	TTB	RR	TTB
(c)	18	RR	TTB	TTB	RR
(d)	18	RR	TTB	RR	TTB
(e)	56	RR	-	RR	RR
Total Magazines			68	124	124
TTB			68	34	34
RR - tabulated			-	34	34
RR - not tabulated			-	56	56

A full description of the study design is found in Appendix A, including the assignment of magazine titles by method and sample.

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<sup>1</sup>The ARF version differed from SMRB's to the extent of including a recent-reading question for weekly magazines.



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METHOD OF ANALYSIS

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An audience coverage estimate was computed for each magazine. Then, for the comparison of methods, the ratios of averages of these estimates were calculated for each group of magazines compared. For example, the average weekly magazine was found to have a 9.78% adult audience coverage by the recent reading method (RR) and a 7.69% coverage by the through-the-book mixed method (TTB-M). The ratio was 9.78 to 7.69 or 1.27. Similarly, ratios were calculated for all data sets analyzed.

In this report the ratio is shown as a percentage. It is computed by subtracting one from the ratio and multiplying the result by 100 thereby converting the result to percentage form. For example:

$$\begin{aligned} 1.27 - 1 &= .27 \\ .27 \times 100 &= 27\% \end{aligned}$$

This number expresses the relative difference in audience produced by the two methods as a percentage. In this case, the RR:TTB-M result would be shown as 27% and its meaning would be that the RR method produced an audience coverage for the average weekly magazine which is 27% higher than the TTB-M method.

STATISTICAL SIGNIFICANCE

Since the per cent differences compared in this report are obtained from samples of the population, they are subject to sampling error. For this reason a statistical test of significance has been applied to the differences reported (See Appendix B).

When a difference is asterisked as "significant", this means it is unlikely to be a result of sampling variability alone. When no significance is indicated, this means that a sample difference of this magnitude could occur with a probability higher than five per cent where there is no difference in the population.

Several caveats should be noted by the reader:

First, because a difference is not indicated as significant does not mean that no true difference exists. Indeed, the best single estimate of the true difference is the difference reported.

Second, significance of difference depends very heavily on sample size; therefore, a non-significant difference might well show significance were the sample size larger.

Third, the tests used are stringent. Significance at the one per cent level means that were there no true differences in techniques, sample differences this big would occur only one out of 100 times by chance alone. Significance at the five per cent level has a comparable meaning. Generally, one infers that such differences are real.

Finally, because we are dealing with sample data, and a large number of significance tests, readers are advised to avoid undue emphasis on single differences -- rather, they should focus on patterns of differences.