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8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

In any discussion of magazine audience measurement procedures the primary focus tends to be on the validity of the methods used to estimate the single or average issue audience. This is certainly understandable and justifiable. In this paper, however, we will not discuss the issue of the validity of the method used to estimate the single-issue audience. This is not to say that we do not have a very strong point of view on that issue.

On the other hand, there is a second element of magazine audience research where validity is just as important, namely, the validity of estimates of audience accumulation — reach and frequency — of a given magazine or group of magazines. After all, magazines are bought more than one page at a time on schedules that must be estimated just as precisely as is the average issue audience. It is to this issue which we address this paper.

Many of the people at this symposium were instrumental in the development of the different models currently in use for estimating reach and frequency and we are certainly not going to announce a breakthrough or improvement on those models today. The breakthroughs came in the late 1950's and early 1960's with a burst of intellectual activity both in Europe and in the United States which led to the nearly universal acceptance of the Bernouilli binomial model driven by the beta function (ie the beta binomial).

The Beta Binomial model itself is driven by two parameters. We can estimate these parameters for a magazine by knowing the coverage of any two given issues (if an issue specific technique is used) or the coverage over any two different time periods (if a recency approach is used). In practical terms, computer programs usually deal with this by beginning with a single-issue audience (or C_1) and a two-issue audience (or C_2). But people are not necessarily computers, and traditionally the easiest way for people to deal with this concept has been to work with a one-issue audience (or a C_1) and the turnover. Turnover is simply the proportion of the audience from one-issue or time period that would not be a part of any other single randomly selected issue or time period.

In the United States there has certainly been more than one way of determining these two essential parameters — the average issue audience and the turnover.

One way — the most direct way — is to determine the parameters empirically. Two interviews are conducted with each respondent at least six weeks apart. In this way the C_1, or average issue audience, and the C_2, or two-issue audience and the turnover are measured directly.

A second way is to conduct one-interview to determine the average issue exposure. The C_2 and turnover are estimated using personal probabilities developed from a frequency question.

A third way is to conduct one-interview to determine the average issue exposure and at the same time determine multiple issue exposure with a question that covers a multiple issue time period — like a six or twelve-month filter question.

A fourth way is simply to get personal probabilities from a frequency question alone and develop both the C_1 and turnover from those personal probabilities.

We will discuss only the first three options in this paper, since the fourth is not really a viable method for estimating average issue audience because of its high estimates of readership.

The 1981 Simmons Study of Media and Markets used two methods for measuring magazine audiences. While that approach was not greeted with universal acceptance, to understate the case, it has certainly provided us with an ideal database for examining all three of the reach and frequency alternatives just mentioned on a comparable basis. In this study respondents were interviewed twice, with the second interview at least six weeks after the first. In each interview a through-the-book and a recent reading procedure were used: 50 magazines were a part of the through-the-book portion of the interview and 98 magazines were included in the recent reading portion. The through-the-book magazines were for the most part the largest circulation publications. Regardless of the basic readership procedure used, a frequency of reading

8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

question was asked of all respondents claiming to have read the magazine in the past six months. The respondents were asked to indicate the number of issues out of four read for each magazine screened in.

Those familiar with the Simmons Study and the, by now famous (or infamous) ARF Comparability Study, know that recent reading produces levels that far exceed those produced by through-the-book. Also, these differences vary depending upon the publication frequency of the magazines involved. The Simmons estimates of audience in the 1981 study for the recent reading magazines were calibrated to through-the-book levels.

For this paper, we determined to use the recent reading data as collected, that is before calibration. We also only used respondents in the 1981 sample from whom we actually collected two magazine interviews. This was about 80% of the full study sample of 15,029, or 12,331. This sample, all of whom had completed two interviews, was completely reweighted and projected to the US population before any tabulations were made.

Data comparisons will be made between three approaches to reach and frequency estimation. For simplicity's sake we will refer to these approaches as 'two interviews', 'frequency' and 'screens'. We describe briefly how each approach was executed.

For all three approaches turnover rates were computed by first estimating the one and two-issue coverage and then applying the following definitional formula:

$$\text{TURNOVER} = \frac{C_2 - C_1}{C_1}$$

For the two-interview approach the respondents' direct testimony about exposure to a 'specific issue' (in the case of the through-the-book method) or a 'specific time period' (in the case of the recent reading method) was used to determine average single issue coverage and two-issue coverage. Since this is based on direct testimony at two different and distant interviewing occasions, these data are the benchmark for evaluating single-interview estimates of turnover.

That is, in the two-interview approach single issue audience (C_1) was directly determined as the average claimed exposure over two interviews. The two issue net audience (C_2) was also directly determined from respondent testimony over two interviews. Thus the turnover rate is also a direct empirical quantity.

The frequency method uses the single issue audience estimate from one interview and the frequency of reading claims which were obtained from respondents for all titles read or looked into during the last 6 months. Frequency categories presented to screened-in respondents were 'less than 1 out of 4 issues', '1 out of 4 issues' '2 out of 4 issues', '3 out of 4 issues' and '4 out of 4 issues.' In the US, the standard procedure for using this frequency information to develop turnover rates involves computing the within-group frequency levels using the reported issue or interval exposure claims. For example, if 80% of the respondents who place themselves in the 4 out of 4 issue frequency group are determined to be readers (with either the through-the-book or recent reading method) then it is assumed that the actual single issue probability for this group is 0.80 rather than 1.00. These probabilities are used together with the estimated number of respondents in the probability class to determine the gross and net audience of two issues. This adjustment of probability levels to conform to single issue or last time period levels is used because the direct application of claimed probabilities produces single issue audience levels that are different from those produced by any issue specific or recency method.

This results in an estimated two issue coverage which can be used with the single issue audience estimate obtained in the first interview to determine the turnover rate. In computations involving this procedure average issue audience was from only the first interview about the specific audience issues shown for the through-the-book method or over the last publishing interval for the recent reading method. This strategy of determining the average issue audience from *only* the first interview was followed in order to simulate the impact of using the frequency question in conjunction with a single-interview. It should be noted that the audience estimates tend to be more similar between the first and second interview using the through-the-book method. The recent reading method tends to produce slightly lower issue audiences in the second interview.

The screens method of determining turnover makes use of the 'six month qualification or filter' question and average issue audience — again taken from one interview. The filter question asked about 'at least one' exposure to the magazine during the past 6 months. Depending on the publication interval of the magazines the filter question responses were taken as either:

C_{26} = 26 issue net coverage
in the case of weeklies

C_{13} = 13 issue net coverage
in the case of bi-weeklies

C_6 = 6 issue net coverage
in the case of monthlies

The well known recursive formula based on the 'beta-binomial' model was used in an iterated fashion to determine the two-issue coverage level C_2. This was accomplished using a 'binary search' procedure in which various 'trial' values for C_2 were extended to the C_6, C_{13} or C_{26} as appropriate until the C_2 produced an extended value which agreed with those obtained in the survey.

Only magazines which were reported individually in

8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

the 1981 Simmons study were used in this analysis. This involveda total of 100 magazines: 47 magazines measured through-the-book and 53 magazines measured recent reading.

First the data for the through-the-book magazines.

The 47 through-the-book magazines had an average rating, or coverage of 5.7% with a turnover rate of .414 when measured empirically with two interviews (see **Table 1**).

One interview in combination with the frequency question yields virtually the same rating, 5.6% with a substantially lower turnover rate .349.

And the turnover that results from using the screens in conjunction with the first interview is .403 in the aggregate, relatively close to the empirical data.

When the 53 recent reading magazines are analysed, the empirical two interview approach yields an average rating of 1.9% with an average turnover of .457. The frequency and screen methods do not even approximate that turnover level (.292 and .240 respectively) with only a slightly higher average rating — 2.1% (see **Table 2**).

The analysis done separately by men and women show no discernible difference — the turnover rate obtained using one interview with either a frequency or screen approach is almost half that of the empirical data for these recent reading magazines.

Looking at a demographic category such as age for these recent reading magazines shows no change in these relationships. Nor does looking at education (see **Table 3**).

Nor does examining the magazines stratified according to circulation level. The frequency and screen approaches yield remarkably lower estimates of turnover than the empirical data show (see **Table 4**).

It is quite clear from these data that when recent reading is used, the estimates of turnover that result from one interview taken in conjunction with the frequency claims or the screens are dramatically lower than the two interview results. There can be no question then, regardless of any prior disposition to the method itself, that the estimates of accumulation and duplication extended beyond one issue are wrong if those estimates are based on the results of only one interview.

The through-the-book data were not nearly as disparate for the three approaches as was the case for recent reading. When the weekly magazines are examined separately, we see the same basic relationship between the turnover that results from the frequency approach and the empirical data — .363 compared to .410. However, using the screens yields a much lower turnover rate than does the two interview approach (see **Table 5**).

And as you would expect after seeing these weekly numbers, the screens actually yield a higher turnover rate than the empirical data suggest when only monthlies are analysed.

So while the data at first seem to indicate that the screen approach is an acceptable alternative to conducting two interviews for the through-the-book method, the disparity between weeklies and monthlies makes that a difficult conclusion to support.

It becomes an even more suspect conclusion if we look at men separately from women. As can be seen, the screens and one interview approach yields substantially higher turnovers than the empirical data for men. The frequency and one interview approach produces turnovers which are consistently 20% lower than the empirical data (see **Table 6**).

And finally, we have examined monthly magazines measured through-the-book stratified by circulation size. Monthly publications above 2 million in circulation behave no differently with either of these three reach and frequency methods than do those under 2 million in circulation (see **Table 7**).

We have not tried to explain in this analysis what causes the disparity in the results between the three methods examined. That is probably the fodder for a detailed statistical paper which can be expected from us at the next symposium. But the data could be no more conclusive in pointing out the inadequacy of a one interview design for accurately estimating the size of the two-issue audience of any publication.

TECHNICAL APPENDIX

This appendix provides details of the procedures used to compute the average issue rating and turnover rates reported in this paper.

The term 'rating' defines the average 'single issue' coverage of the specified magazine expressed as a percentage of the specified total population. In the formulas presented below the single issue coverage in absolute terms is denoted by C_1. Thus the rating is simply:

$$\text{RATING} = 100\% \frac{C_1}{P}$$ where P is the total population size.

The term 'turnover' is used to describe the proportion of the magazine's single issue audience that is not covered or reached in a randomly selected previous or succeeding issue. For example, if in a population of 100 persons an average issue is seen by 5 persons, and 7 persons see at least one of two issues in a randomly selected *pair*, the turnover rate for the magazine would be (7-5)/5 = 0.40. On average, two additional persons are added to the magazine's net or (seen at least once)

8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

audience between the first specified issue and the second specified issue. Two persons represent four tenths (0.40) of the magazine's average single-issue audience.

In this comparative study, turnover rates were computed by first estimating the one and two-issue coverage and then applying the following definitional formula:

$$\text{TURNOVER} = \frac{C_2 - C_1}{C_1}$$

The one and two-issue coverages were estimated by three different approaches: Two-interviews; screens; frequency.

Two-interview procedure

In this method the respondents' direct testimony about exposure to a "specified time period" (in the case of the recent reading method) was used to determine average single-issue coverage and two-issue coverage.

Thus, single-issue audience C_1 was directly determined as the average claimed exposure over two-interviews. The two-issue net audience C_2 was also directly determined from respondent testimony over two-interviews. (ie the projected sample persons claiming to have been exposed to at least one of two-issues/time periods). As noted above the turnover rate was then determined as:

$$T = \frac{C_2 - C_1}{C_1}$$

Screens procedure

The screens method of determining turnover made use of respondent information provided in the "six month qualification or filter" question and respondent reporting of average issue/time period exposure. The filter/qualification question involved the respondent's claim about "at least one" exposure to the magazine during the past 6 months. The level of average issue coverage was determined by the respondent's testimony in the first interview only, about the specific issues shown (TTB method) or the last publishing interval (RR method). This strategy of determining the average issue audience from *only* the first interview was followed in order to simulate the impact of using the filter question in conjunction with a single-interview. As is noted elsewhere, audience estimates tend to be more similar between the first and second interview using the through-the-book method. The recent reading method tends to produce lower issue audiences in the second interview.

Depending on the publication interval of the magazines the coverage of the magazine during the last six months was taken as either:

C_{26} = 26 issue net coverage in the case of weeklies

C_{13} = 13 issue net coverage in the case of biweeklies

C_6 = 6 issue net coverage in the case of monthlies

The well known recursive formula based on the beta-binomial model was used in an iterated fashion to determine the two issue coverage level C_2:

$$C_N = C_{N-1} + \frac{b + N - 2}{k + N - 1}\,(C_{N-1} - C_{N-2})$$

Where $k = \dfrac{C_2 - C_1}{2C_1 - C_2 - (C_1^2)/P}$

$b = k(1 - C_1/P)$

and P = the projected total population.

This was accomplished by a 'binary search' algorithm in which various trial values for C_2 were extended to either C_6, C_{13} or C_{26}. The process terminated when the value for C_2 produced an extended value which agreed with those obtained in the survey.

The resulting two issue coverage estimate C_2 was used in conjunction with the respondent's reported single issue coverage C_1 as determined in the first interview to yield the estimated turnover as $T = (C_2 - C_1)/C_1$.

Frequency procedure

Frequency or reading claims were obtained from respondents for all titles which the respondent claimed to have seen during the last 6 months (ie frequency of reading was determined for all screened-in magazines). Frequency categories presented to screened in respondents were: less than 1 out of 4 issues; 1 out 4 issues; 2 out of 4 issues; 3 out of 4 issues; and 4 out of 4 issues. In the US, the standard procedure for using this frequency information to develop turnover rates involves a computation of within group frequency levels using the reported issue or interval exposure claims. For example, if 80% of the respondents who place themselves in the 4 out of 4 issue frequency group report

either having read the issue within the most recent publishing interval (RR method) or having seen a specific issue (TTB method), then it is assumed that the actual single-issue probability for this group is 0.80 rather than 1.00. These probabilities are used in conjunction with the estimated number of respondents in the probability class to determine the gross and net audience of two-issues:

Let GR =

$$\text{Gross audience two issues} = 2\sum_{i=1}^{k} N_i P_i$$

$$\text{Net audience two issues} = C_2 =$$

$$= GR - \sum_{i=1}^{k} N_i P_i P_i$$

where P_i

= the empirical single issue probability of exposure for individuals in the i^{th} frequency class, and

N_i = the projected number of persons in the i^{th} frequency class.

It should be noted that this adjustment of probability levels to conform to single issue or last time period levels has been adopted because direct application of claimed probabilities produces single issue audience levels that are significantly higher than those produced by any issue specific or recency method.

The resulting two issue net coverage estimate is used in conjunction with the single issue audience estimate obtained in the first interview to determine the turnover rate.

TABLE 1
Through-the-book method

Base = Total Adults	*Two Interviews*		*One Interview*		
				Turnover	
	Rating	*Turnover*	*Rating*	*Frequency*	*Screens*
Better Homes & Gardens	12.7	0.405	12.4	0.355	0.460
Bon Appetit	1.7	0.409	1.8	0.279	0.405
Business Week	2.4	0.506	2.2	0.396	0.401
Cosmopolitan	5.7	0.451	5.7	0.388	0.425
Ebony	4.1	0.257	3.9	0.244	0.248
Field & Stream	5.4	0.404	5.4	0.376	0.434
Forbes	1.0	0.482	1.0	0.318	0.396
Fortune	1.4	0.503	1.4	0.374	0.411
Glamour	3.6	0.515	3.6	0.426	0.488
Golf Digest	1.4	0.275	1.3	0.202	0.317
Good Housekeeping	11.2	0.402	11.0	0.346	0.414
House & Garden	3.1	0.511	3.0	0.391	0.603
House Beautiful	2.8	0.521	2.8	0.388	0.561
Ladies' Home Journal	9.0	0.391	8.9	0.336	0.391
Life	5.1	0.497	4.9	0.501	0.628
McCall's	9.9	0.413	10.0	0.310	0.357
Mechanix Illustrated	2.7	0.436	2.7	0.341	0.439
Nation's Business	1.1	0.343	1.1	0.294	0.322
National Enquirer	8.8	0.366	8.7	0.299	0.192
National Geographic	13.3	0.292	13.2	0.258	0.340
New York	0.6	0.431	0.6	0.397	0.389
New Yorker	1.4	0.495	1.3	0.486	0.491
Newsweek	9.3	0.441	8.8	0.433	0.338
Organic Gardening	2.2	0.314	2.3	0.223	0.321
Outdoor Life	3.0	0.383	3.1	0.327	0.403
Parents	2.8	0.368	2.9	0.358	0.448
Penthouse	4.2	0.488	3.8	0.448	0.489
People	12.0	0.469	12.0	0.434	0.270
Playboy	8.0	0.365	8.1	0.361	0.370
Popular Mechanics	3.8	0.411	3.6	0.334	0.512
Popular Science	2.9	0.423	2.9	0.371	0.464
Prevention	2.5	0.428	2.4	0.305	0.470
Psychology Today	2.0	0.491	2.1	0.444	0.619
Reader's Digest	25.2	0.280	23.9	0.229	0.292
Redbook	5.8	0.449	5.7	0.357	0.487
Seventeen	1.9	0.592	1.9	0.471	0.615
Smithsonian	2.7	0.301	2.6	0.260	0.399
Southern Living	3.0	0.370	3.2	0.287	0.274
Sport	2.7	0.420	2.8	0.339	0.346
Sports Illustrated	8.1	0.383	8.2	0.348	0.277
Sunset	1.7	0.371	1.7	0.283	0.474
TV Guide	25.1	0.385	24.5	0.194	0.130
The Star	5.8	0.404	5.8	0.316	0.196
Time	12.8	0.389	12.5	0.334	0.283
True Story	3.0	0.385	2.8	0.360	0.445
US News & World Rep	6.1	0.411	6.1	0.354	0.312
Vogue	2.8	0.554	2.9	0.527	0.608
AVERAGE	5.7	0.417	5.6	0.349	0.403
Standard deviation	5.450	0.075	5.281	0.076	0.012

TABLE 2
Recent reading method

Base = Total Adults	Two Interviews		One Interview		
				Turnover	
	Rating	Turnover	Rating	Frequency	Screens
American Baby	1.9	0.392	2.2	0.231	0.177
Baby Talk	1.2	0.433	1.3	0.303	0.229
Black Enterprise	0.8	0.359	0.8	0.230	0.212
Car And Driver	1.8	0.418	2.0	0.285	0.222
Car Craft	1.1	0.529	1.2	0.355	0.289
Changing Times	2.8	0.454	3.2	0.276	0.232
Cuisine	1.2	0.389	1.4	0.200	0.190
Decorating & Craft Ideas	2.4	0.422	2.6	0.261	0.217
Esquire	2.5	0.484	2.8	0.345	0.252
Essence	2.0	0.275	1.9	0.202	0.174
Family Handyman	2.4	0.422	2.7	0.250	0.244
Family Health	2.5	0.441	2.9	0.282	0.235
Forum	1.2	0.616	1.5	0.417	0.338
Gentlemen's Quarterly	1.4	0.509	1.7	0.273	0.206
Golf Magazine	1.4	0.453	1.6	0.181	0.179
Gourmet	1.7	0.421	1.9	0.285	0.217
Guns & Ammo	2.4	0.441	2.6	0.243	0.210
Harper's Bazaar	2.3	0.555	2.6	0.452	0.409
Hot Rod	3.0	0.396	3.2	0.253	0.207
Industry Week	0.5	0.502	0.5	0.292	0.268
Inside Sports	2.4	0.458	2.6	0.320	0.259
Jet	3.2	0.350	3.1	0.285	0.134
Mademoiselle	3.8	0.470	4.4	0.301	0.232
Money	2.7	0.436	3.0	0.287	0.253
Motor Trend	2.1	0.406	2.3	0.266	0.223
Ms.	1.0	0.536	1.1	0.317	0.353
National Lampoon	1.7	0.539	1.9	0.359	0.359
Natural History	0.9	0.490	1.1	0.213	0.197
Omni	2.5	0.481	3.0	0.301	0.237
1,001 Decorating Ideas	3.4	0.478	3.4	0.336	0.278
Oui	2.1	0.476	2.3	0.347	0.277
Playgirl	1.8	0.596	2.2	0.420	0.314
Popular Hot Rodding	1.3	0.423	1.6	0.276	0.238
Road & Track	1.9	0.450	2.2	0.307	0.214
Rolling Stone	2.0	0.479	2.2	0.408	0.295
Runner's World	0.9	0.453	1.0	0.249	0.282
Saturday Evening Post	2.0	0.611	2.4	0.479	0.418
Saturday Review	0.8	0.479	1.0	0.301	0.301
Scientific American	1.8	0.487	2.0	0.310	0.254
Self	1.5	0.561	1.6	0.291	0.259
Ski	1.2	0.575	1.6	0.250	0.182
Soap Opera Digest	2.7	0.519	3.1	0.403	0.269
Sports Afield	4.0	0.353	4.2	0.191	0.128
Tennis	1.0	0.444	1.2	0.228	0.175
The Elks	1.4	0.200	1.4	0.093	0.056
The Sporting News	0.9	0.414	1.0	0.362	0.213
Town & Country	0.8	0.518	1.0	0.376	0.357
Travel & Leisure	1.5	0.455	1.7	0.239	0.249
Us	2.9	0.453	3.5	0.385	0.241
Weight Watchers	1.9	0.467	2.3	0.252	0.204
Workbasket	2.1	0.329	2.4	0.193	0.152
Working Woman	1.6	0.489	1.8	0.305	0.218
World Tennis	0.9	0.447	1.1	0.235	0.180
AVERAGE	1.9	0.457	2.1	0.292	0.240
Standard deviation	0.809	0.077	0.871	0.074	0.067

8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

TABLE 3
Recent reading method

	Average Rating		Turnover		
	2 Int	*1 Int*	*2 Int*	*Frequency*	*Screens*
Age					
18 - 34	2.6	3.0	0.466	0.291	0.243
35 - 49	1.9	2.0	0.444	0.276	0.235
50 +	1.1	1.1	0.490	0.247	0.252
Education					
Some College	2.6	2.9	0.436	0.264	0.226
H.S. Graduate	1.9	2.2	0.469	0.275	0.236

TABLE 4
Recent reading method

	Average rating		Turnover		
	2 Int	*1 Int*	*2 Int*	*Frequency*	*Screens*
Circulation					
1 million or more (7)	2.7	3.0	0.401	0.262	0.205
500 - 999,000 (29)	2.1	2.3	0.459	0.303	0.244
Less than 500,000 (17)	1.2	1.4	0.478	0.287	0.247

TABLE 5
Through-the-book method

Total Adults

	Average rating		Turnover		
	2 Int	*1 Int*	*2 Int*	*Frequency*	*Screens*
All (47)	5.7	5.6	0.417	0.349	0.403
Weeklies (11)	8.4	8.2	0.425	0.363	0.298
Monthlies (34)	5.1	5.0	0.409	0.345	0.437

TABLE 6
Through-the-book method

	Average rating		Turnover		
	2 Int	*1 Int*	*2 Int*	*Frequency*	*Screens*
Females					
All (47)	6.0	5.9	0.419	0.348	0.442
Female Monthlies (24)	7.7	7.5	0.403	0.341	0.461
Males					
All (47)	5.3	5.3	0.445	0.346	0.389
Male Monthlies (16)	7.1	6.9	0.377	0.323	0.384

8.2 A comparison of reach and frequency estimates: single versus dual interview approaches

TABLE 7
Through-the-book method

Base = Total Adults	*Two Interviews*		*One Interview*		
				Turnover	
	Rating	*Turnover*	*Rating*	*Frequency*	*Screens*
Reader's Digest	25.2	0.280	23.9	0.229	0.292
National Geographic	13.3	0.292	13.2	0.258	0.340
Better Homes & Gardens	12.7	0.405	12.4	0.355	0.460
McCall's	9.9	0.413	10.0	0.310	0.357
Ladies' Home Journal	9.0	0.391	8.9	0.336	0.391
Good Housekeeping	11.2	0.402	11.0	0.346	0.414
Playboy	8.0	0.365	8.1	0.361	0.370
Redbook	5.8	0.449	5.7	0.357	0.487
Penthouse	4.2	0.488	3.8	0.448	0.489
Cosmopolitan	5.7	0.451	5.7	0.388	0.425
Prevention	2.5	0.428	2.4	0.305	0.470
Field & Stream	5.4	0.404	5.4	0.376	0.434
AVG (<2 MIL CIRC)	9.4	0.397	9.2	0.339	0.411
Smithsonian	2.7	0.301	2.6	0.260	0.399
Southern Living	3.0	0.370	3.2	0.287	0.274
Glamour	3.6	0.515	3.6	0.426	0.488
Popular Science	2.9	0.423	2.9	0.371	0.464
Mechanix Illustrated	2.7	0.436	2.7	0.341	0.439
Popular Mechanics	3.8	0.411	3.6	0.334	0.512
Outdoor Life	3.0	0.383	3.1	0.327	0.403
Parents	2.8	0.368	2.9	0.358	0.448
Seventeen	1.9	0.592	1.9	0.471	0.615
Sunset	1.7	0.371	1.7	0.283	0.474
True Story	3.0	0.385	2.8	0.360	0.445
Ebony	4.1	0.257	3.9	0.244	0.248
Organic Gardening	2.2	0.314	2.3	0.223	0.321
Nation's Business	1.1	0.343	1.1	0.294	0.322
Life	5.1	0.497	4.9	0.501	0.628
Sport	2.7	0.420	2.8	0.339	0.346
Bon Appetit	1.7	0.409	1.8	0.279	0.405
Psychology Today	2.0	0.491	2.1	0.444	0.619
House & Garden	3.1	0.511	3.0	0.391	0.603
Vogue	2.8	0.554	2.9	0.527	0.608
Golf Digest	1.4	0.275	1.3	0.202	0.317
House Beautiful	2.8	0.521	2.8	0.388	0.561
AVG (<2 MIL CIRC)	2.7	0.416	2.7	0.348	0.452
AVERAGE (ALL)	5.4	0.410	5.3	0.348	0.436
Standard deviation	4.9	0.077	4.678	0.074	0.010