

CONFIDENTIAL DOCUMENT

Technical Appendix

Vividata Winter 2021 Study



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1. Sampling

Prior to 2019, different sampling methods namely, Landline, IVR, Access Panel, River Sample and SPBM Boost were used to generate the sampling frame where most participants (90%) were recruited via landline telephones and the remaining 10% of respondents were recruited from online panels. Given the importance of nationally representative sample, starting 2019, a hybrid approach is being used to recruit survey participants: half of the sample is recruited via phone and the other half is recruited from online panels. More specifically, a national representative sample for approximately 75% of the total recruits is conducted and 25% of the sample are held back for “rotating sample boosts in major markets”. This hybrid approach provides better coverage of populations with a demographic balance on age, gender and household income in each market.

The main sample frame was constructed at the local market level and rolled up to a national level using Statistics Canada census DAs. For each CMA or CA, DA codes are cross-referenced to the Postal Code Conversion File (PCCF) to identify all postal codes that cover the relevant geography.

1.1 CATI Sample

Since 2019, the sample is a dual frame RDD sample. It is constructed using a top-down strategy. Sample is generated as a national sample and broken out to the constituent markets using a Bayesian approach. The prior information comes from sample information while the actual geography is confirmed from the respondent’s postal code using very detailed postal code definitions.

As the previous approach of recruiting 90% of the sample via landline telephones is dated, it is replaced by an approach which recognises the primacy of cell phones as the way many Canadians now communicate with each other. Sampling for this study involves drawing from dual RDD frames – 35% landlines and 65% cell phones – and inviting them to complete the online survey. This dual RDD frame regionally fine tunes the mix so that Atlantic Canada and the Prairies are a somewhat higher percentage of landlines.

Respondents from the landline RDD frame are selected via the next birthday approach, approaching a classical probability sample approach. Sample from the cell phone and landline frames is allocated out evenly over the course of a month, to ensure an even demographic coverage for publications on a weekly cycle. Spreading the recruiting phase over the course of a month also allows to maximize our reach.

1.2 Online Sample

Given that the number of internet users has increased rapidly over the years and most of them prefer to answer surveys online instead of using the telephone, particularly younger generation, the proportion of online sample for this study has increased to 50%. Participants’ age, sex, household income and market are controlled for to achieve a balanced sample mirroring the national census population.

Online sample has been generated from different sources to ensure long-term feasibility of this tracking program. Ipsos uses its own panel named iSay. In addition, external survey panels namely, Dynata, Cint, ROI Rocket, Leger, Lucid and Market Cube are used not only to get more sample but also wider coverage of the universe.

1.3 Respondent Selection

CATI Respondent selection involves the selection of the individual in each household to be interviewed. The procedure is to select the individual living in the household, who is 16 years of age or older, had the most recent birthday, and is at home when the household is contacted.

For Online sample, panel members aged 18 years or older are initially invited to participate in the survey. These respondents are asked whether there are any children under the age of 18 living in the household and their relationship to the children. If respondents are parents or legal guardians and their children are between the ages of 14 and 17 years, then respondents are asked whether their children can participate in the survey. If respondents provide consent, children aged 14 to 17 participate in the survey instead of their parents or legal guardians. Otherwise, respondents (18 years or older) who receive the initial invite continue.

Sample By Market

| Market | Province | Population (14+) | Q3'20 Sample |
|--------------------------------|----------|-------------------|--------------|
| Toronto | Ont | 5,521,808 | 900 |
| Montréal | Que | 3,735,660 | 598 |
| Vancouver | BC | 2,335,724 | 373 |
| Calgary | Alta | 1,284,511 | 200 |
| Edmonton | Alta | 1,247,594 | 200 |
| Ottawa/Gatineau | Que | 1,240,248 | 188 |
| Québec City | Que | 712,111 | 100 |
| Winnipeg | Man | 704,959 | 125 |
| Hamilton | Ont | 681,438 | 113 |
| Kitchener/ Cambridge/ Waterloo | Ont | 482,755 | 75 |
| London | Ont | 464,806 | 75 |
| Halifax | NS | 376,581 | 63 |
| St. Catharines - Niagara | Ont | 360,930 | 55 |
| Victoria | BC | 346,115 | 63 |
| Windsor | Ont | 303,752 | 55 |
| Saskatoon | Sask | 271,687 | 50 |
| Regina | Sask | 219,340 | 38 |
| Sherbrooke | Que | 198,322 | 30 |
| St. John's | NFLD | 190,104 | 38 |
| Trois-Rivieres | Que | 140,966 | 25 |
| Saguenay | Que | 135,169 | 25 |
| Balance Canada* | | 11,294,536 | 1,611 |
| TOTAL CANADA* | | 32,249,116 | 5,000 |

* Excluding Territories

2. Data Collection

2.1 Recruitment Survey

The SSPD study utilizes CATI recruitment to an online Readership survey followed by online Product surveys.

Recruitment is conducted continually throughout the year, seven days per week (excluding holidays). The recruitment survey allows for up to 7 callbacks to be conducted. The recruitment interview is limited to gaining cooperation and gathering the necessary identification information.

2.1.1 Field Period

Telephone recruitment for Q3 2020 commenced on July 02, 2020 and ended on September 30, 2020. Weekday dialling took place from 5:00pm to 9:00pm local time. On weekends, the dialling times were: Saturday 11.00am to 6.00pm and Sunday between 3.00pm and 9.00pm. Dialling was conducted from Ipsos's Call Centres.

2.1.2 Training Procedures

All field staff received extensive training prior to the start of data collection. A briefing document was developed specifically for the study and provided to each supervisor and interviewer as part of the field briefing. The briefing session, in which all field staff participated, covered the following activities:

- An overall explanation of the study
- Respondent selection procedures
- Recording call outcomes
- Effective handling and conversion of refusals
- Recruitment survey content
- Train using the Script in a training setting and are fully briefed on the study prior to dialling
- Commonly asked respondent questions

2.1.3 Quality Control

Throughout the recruitment phase, quality control procedures were continuously administered to ensure the highest standards:

- Monitoring %: 14% of Landline wave and 13% of Cell Phone wave (10% of completes in each wave)
- Daily monitoring of production and quality by the national field manager
- Daily communication between the national field manager and study manager
- Periodic monitoring of recruitment by national field manager and study manager
- If an e-mail sent to a respondent is bounced back, Ipsos listens to the recruitment recording on the same day (where possible) to check the spelling and make the correction. If Ipsos finds the email address as invalid, Call Centre places a quality assurance follow-up call explaining that the email which the respondent provided could not be delivered and attempt to rectify the problem either by correcting the spelling or obtaining an alternate email.

2.2 Readership and Product Surveys

2.2.1 Field Period

Online surveys for Readership are conducted among both Online recruited sample and CATI recruited sample. Online recruited respondents were invited to answer Readership survey using standard online procedure. CATI recruited respondents were recruited via phone (landline or mobile) and were sent their unique survey link via email after the screening interview. Readership surveys for Q3-2020 started on July 02, 2020 and ended on September 31, 2020.

Product surveys began on July 06, 2020. At the end of Readership survey, respondents were asked for their consent to send a new survey. All respondents that consented were sent an email with a link to the Product survey. The product survey was closed one month after the close of the Readership survey to maximize the number of completes.

2.2.2 Quality Control

Skews in demographics are controlled for by age, gender and household income. Measures are also put in place to look at softer data like the number of surveys a panel member has completed and the length of time they have been on the panel – both of which can be indicators of how 'professional' a respondent they are.

As well as this, survey responses are monitored for the speed at which they are answered, any obvious patterns of response ('skimming', 'straight-lining' etc.) and consistency of responses between questions (including the insertion of 'trick' questions into the survey).

2.2.3 Incentives

Incentives are provided to improve the completion rate of the Readership Survey: CATI recruits are entered into a monthly draw and online recruits earn points. All respondents who complete the Product survey receive an additional incentive.

3. Response Rate

Readership completion targets were achieved in Q3-2020. Response to both Readership and Product component remains generally consistent with previous quarters.

| | Total All Markets |
|------------------------------------|-------------------|
| Readership Completes Target | 6000 |
| Online recruit | 3794 |
| CATI recruit | 2350 |
| Total Readership Completes | 6144 |
| Product Completes Target | 1800 |
| Response Rate | 33% |
| Product Completes Core | 2057 |

4. Readership Questionnaire

All respondents complete the same magazine and newspaper readership questionnaire with appropriate customizations for randomization of magazine titles and local market newspaper data capture. National newspapers are asked of all respondents. Rotations are used to minimize order bias, including rotation of magazine and newspaper questions, and rotation of print and digital formats. Half respondents are asked about magazines first, and half about newspapers first. Half respondents are asked about print first, and half about digital first.

MAGAZINES

Magazine audience measurement in the SSPD study is based on use of a recent reading (RR) methodology. The RR procedure is designed to produce an estimate of the number of individuals who have contact with a particular issue of a publication during its issue life. All recency models set out to measure the audience of any publication by measuring the number of people who see it during the typical issue period (past week for weeklies, past month for monthlies, and so on). It can be shown that the number of people who see any issue of a publication during the issue period will be a close approximation of the real requirement, that is, the number of people who see a typical issue.

Unfortunately, with more than a handful of publications, measurement becomes onerous for the respondent, and therefore, efforts are made to reduce the interview fatigue.

Most significant is the use of a screening question to quickly establish likelihood of exposure to the survey issue and hence reduce the necessity of determining precise recall of “when read” for each magazine surveyed.

4.1 Readership Section Questions And Routing

4.1.1 Magazines

Formats/platforms measured: Printed Issue, Digital Content

Screening

An integral part of this method is a preliminary screening procedure to determine whether the respondent might have read or looked into any copy of the magazine in the past year. This question allows the opportunity of claiming occasional readership of, or familiarity with, a magazine while screening out those who, in all probability, would not qualify as average issue readers.

For each publication respondents are shown a black and white logo or title card which indicates language and frequency of publication, and asked the following question:

Have you read or looked into this publication in the past year? That is...any printed issue or digital content for this publication.

Yes

Not Sure

No

Respondents who claim not to have read or looked into a copy of the magazine in the past year (i.e., who "screen-out") are classified as non-readers of that magazine and therefore not asked the recency question. The remaining respondents, those saying "yes" or "not sure" (i.e., who "screen-in") are classified as potential issue readers and are asked subsequent questions. The screening question is asked of all titles before proceeding to the language, platform, and recency and frequency questions.

Platform

For each magazine screened in, platform read (print, digital) is confirmed.

Again thinking about the past year, when you read or looked through this publication, was it print issues, digital content, or both?

- Print issue
- Digital content
- Both print issue and digital content

Average Issue Readership

For each magazine "screened-in" the respondent is asked about the last time that any issue was read.

When did you last read or look through any printed issue for this publication?

When was the last time you accessed any digital content for this publication?

Only respondents who claim to have read or accessed the publication in the typical issue period are classified as average issue readers. As an aid to memory, for each group of print titles different time scales are presented.

Frequency

Respondents are asked the frequency of reading/accessing the magazine for each platform.

How many printed issues do you usually read or look through for this publication?

- All or almost all
- Most issues (about 3 in 4)
- Some issues (about half)
- A few issues (about 1 in 4)
- Less than a few

How often do you access digital content for this publication?

- Once a day or more
- A few times a week
- Once a week
- A few times a month
- Once a month
- Less often

The answers to these questions enable all readers to be classified into discrete claimed reading frequencies and, for each category, a reading probability can be established.

Qualitative Readership Measures

After recency and frequency questions are asked for all magazines, those who qualify as average issue readers are asked a series of questions about their involvement with the publication:

1. Source of copy

2. Method used to access (online)
3. Number of times read/looked through
4. Devices used to access (online)
5. Time spent

NEWSPAPERS

Newspapers are grouped into weekday and weekend issues. Weekday readership questions are asked before weekend readership questions.

4.1.2 Newspapers

Formats/platforms measured: Printed Issue, Digital Content

Screening

Initial screening determines if respondents might have read or looked into any copy of the newspaper in the past three months. This question gives the opportunity of claiming occasional readership of, or familiarity with a newspaper, while screening out those who are unlikely to qualify as average issue readers.

For each publication respondents are shown a black and white logo or title card.

Have you read or looked through this newspaper in the past 3 months? That is...any printed issue or digital content for this newspaper.

- Yes
- Not Sure
- No

Respondents provide the answer for each platform (printed and/or digital), depending on newspaper availability on the platform.

Respondents who claim not to have read or looked into the newspaper in the past three months (i.e., who "screen-out") are classified as non-readers of that newspaper and therefore not asked the recency question. The remaining respondents, those saying "yes" or "not sure" (i.e., who "screen-in") are classified as potential issue readers and are asked subsequent questions. The screening question is asked of all titles before proceeding to the recency and frequency questions.

Average Issue Readership

For each newspaper "screen-in", audience measurement is based on "issue specific" recall.

When did you last read or look through any weekday (Monday to Friday) printed issue of this newspaper?

When did you last read or look through this newspaper's (weekend day) printed issue?

When did you last access any digital content for this newspaper?

Average issue readers are defined as read yesterday for weekday issues and read last weekend readers for weekend issues.

Frequency

All respondents are also asked the frequency of reading each newspaper measured, both weekday and weekend issues. Weekday frequency is based on claimed readership of the number read out of the last five weekday issues; weekend frequency is based on claimed readership of the number read out of the past four

specific Saturday and specific Sunday issues. Digital platforms follow the same pattern, based on claimed accessing of online content.

In a typical week, how many weekday (Monday to Friday) printed issues of this newspaper do you read or look through?

In the past month, how many (weekend day) printed issues of this newspaper did you read or look through?

How often do you access digital content for this newspaper?

Qualitative Readership Measures

Like the magazine section, average issue readers are asked a series of questions about their involvement with the publication:

1. Source of copy
2. Method used to access
3. Devices used to access
4. Time spent

4.1.3 Community Newspapers

Formats/platforms measured: Printed Issue, Digital Content.

Screening

Like daily newspapers, initial screening determines if respondents might have read or looked into any copy of the newspaper in the past three months.

For each publication respondents are shown a black and white logo or title card.

Have you read or looked through this newspaper in the past 3 months? That is...any printed issue or digital content for this newspaper.

- Yes
- Not Sure
- No

Respondents provide the answer for each platform (printed and/or digital), depending on newspaper availability on the platform.

Respondents who claim not to have read or looked into the community newspaper in the past three months (i.e., who "screen-out") are classified as non-readers of that community newspaper and therefore not asked the recency question. The remaining respondents, those saying "yes" or "not sure" (i.e., who "screen-in") are classified as potential issue readers and are asked subsequent questions. The screening question is asked of all titles before proceeding to the recency and frequency questions.

Average Issue Readership

For each community newspaper "screen-in", audience measurement is based on "issue specific" recall.

When did you last read or look through any printed issue of this newspaper?

When did you last access any digital content for this publication?

Average issue readers are defined as reading in the past week.

Frequency

All respondents are also asked the frequency of reading each community newspaper measured,

How many printed issues do you read or look through for this publication?

Qualitative Readership Measures

Average issue readers are asked a series of questions about their involvement with the publication:

1. Source of copy
2. Time spent

5. Product Questionnaire

All respondents who complete the readership questionnaire are asked to participate in the follow-up product survey.

In order to reduce burden on respondents, the Product questionnaire is split into multiple sections with each respondent completing a portion of these sections. To ensure that every respondent carries all data from the Product questionnaire so that there are no gaps in the data, a double ascertainment model is utilized. A typical ascertainment will see data from one respondent being donated to another respondent (based on compatible ascertainment variables/hooks); however, double ascertainment requires a respondent to complete double roles to donate data to other respondents and receive data from other donors.

Question areas are organized into a Core section and two primary sections (A and B). The Core section of the product questionnaire is asked of all respondents, and includes questions that are of significant importance, low incidence or provide good linkage for ascertainment. The remaining product questionnaire is divided into two sections (A and B), and each of the two sections is divided into four sub-sections.

Respondents are asked to complete the Core section plus four out of 8 sub-sections.

The order of the primary survey sections is rotated so that survey A and B have an equal chance of being the first sections completed. Within each primary section, the sub-sections that are to be asked are also rotated but within specific pairings/groupings. This is done to minimize the complexity of the data ascertainment and ensure completion is maximized to form the basis of the donor pool. This donor pool will then be used in the double ascertainment model to populate the remaining respondents without data in those sections.

6. Recent Reading

The Recent Reading (RR) model is used in SSPD questionnaire. The RR model for print adapts the title specific reading question with a qualifying period response scale tied to the print publication interval to capture the needed responses to derive the average issue readership. The RR question has four scale points with the first two scale points covering the qualifying periods for the derivation of readership estimates and the remaining two scale points are outside the qualifying period. Exhibit 1 shows the scales used for print titles with different publication frequencies.

The RR model estimates the average issue print readership by accepting all readers fall into the first scale point and then a proportion fall into the second scale point. The proportion applied to the second scale point is an approximation to the factor that when applied to the qualifying period will closely estimate the publication interval. Exhibit 2 listed the factors to be applied to different publication intervals.

Exhibit 1 – Print

| | Scale ID | Response Scale (Qualifying Period) | | |
|--------------------------|----------|------------------------------------|-------------------------|------------------|
| | | 1 | 2 | 3/4 |
| MAGAZINES | | | | |
| Weekly or 47+ issues | A | Yesterday | Past Week (7 Days) | Longer ago/Never |
| Biweekly or 23-46 issues | B | Past Week (7 Days) | Past 2 Weeks (14 Days) | Longer ago/Never |
| Monthly or 11-22 issues | C | Past 2Weeks (14 Days) | Past Month (30 Days) | Longer ago/Never |
| 10 issues | D | Past Month (30 Days) | Past 5 Weeks | Longer ago/Never |
| 8-9 issues | E | Past Month (30 Days) | Past 6 Weeks | Longer ago/Never |
| Bi monthly or 6-7 issues | F | Past Month (30 Days) | Past 2 Months (60 Days) | Longer ago/Never |
| Quarterly or 4-5 issues | G | Past 2 Months (60 Days) | Past 3 Months (90 Days) | Longer ago/Never |
| DAILIES | | | | |
| 4-7 /wk | H | Yesterday | 2 Days Ago | Longer ago/Never |
| 3 / wk | I | 2 Days Ago | 3 Days Ago | Longer ago/Never |
| 2 / wk | J | 2 Days Ago | 4 Days Ago | Longer ago/Never |

Exhibit 2 – Recent Print Reading

| PUBLICATIONS BY FREQUENCY | | | | | | | SCALE POINTS | | AIR based on | |
|---------------------------|------------|------------|----------|------------------|------|-----------------------|-----------------------------|--------------------------|--------------|------------------------|
| | Issues /wk | Issues /yr | # titles | Publcn. interval | | | 1 | 2 | Scale points | Rounded 1 + 2 * factor |
| | | | | Days | Wks | Mos | | | | |
| Daily | 7 | 364 | | 1.00 | 0.14 | | Yesterday | 2 Days Ago | 1 only | |
| 6 per wk | 6 | 312 | | 1.17 | 0.17 | | Yesterday | 2 Days Ago | 1 only | |
| 5 per wk | 5 | 260 | | 1.40 | 0.20 | | Yesterday | 2 Days Ago | 1 only | |
| 4 per wk | 4 | 208 | | 1.75 | 0.25 | | Yesterday | 2 Days Ago | | 75% |
| 3 per wk | 3 | 156 | | 2.33 | 0.33 | | Past 2 Days incl. Yesterday | 3 Days Ago | | 50% |
| 2 per wk | 2 | 104 | | 3.50 | 0.50 | | Past 3 Days incl. Yesterday | 4 Days Ago | | 50% |
| Weekly | 52 | 1 | 7.00 | 1.00 | 0.23 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 51 | | 7.16 | 1.02 | 0.24 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 50 | | 7.30 | 1.04 | 0.24 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 49 | | 7.45 | 1.06 | 0.24 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 48 | | 7.60 | 1.08 | 0.25 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 47 | | 7.77 | 1.11 | 0.26 | | Yesterday | Past Week (7 Days) | 1 & 2 | |
| | 46 | | 7.93 | 1.13 | 0.26 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 45 | | 8.11 | 1.16 | 0.27 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 44 | 1 | 8.30 | 1.18 | 0.27 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 43 | | 8.49 | 1.21 | 0.28 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 42 | | 8.69 | 1.24 | 0.29 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 41 | | 8.90 | 1.27 | 0.29 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 40 | | 9.13 | 1.30 | 0.30 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 39 | | 9.36 | 1.33 | 0.31 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 38 | | 9.61 | 1.37 | 0.32 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 25% |
| | 37 | | 9.86 | 1.41 | 0.32 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 50% |
| | 36 | | 10.14 | 1.44 | 0.33 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 50% |
| | 35 | | 10.43 | 1.49 | 0.34 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 50% |
| | 34 | | 10.74 | 1.53 | 0.35 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 50% |
| | 33 | | 11.06 | 1.58 | 0.36 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 50% |
| | 32 | | 11.41 | 1.63 | 0.38 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 75% |
| | 31 | | 11.77 | 1.68 | 0.39 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 75% |
| | 30 | | 12.17 | 1.73 | 0.40 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 75% |
| 29 | | 12.59 | 1.79 | 0.41 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | | 75% | |
| 28 | | 13.04 | 1.86 | 0.43 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | | |
| 27 | | 13.52 | 1.93 | 0.44 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | | |
| Biweekly | 26 | | 14.00 | 2.00 | 0.46 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | |
| | 25 | | 14.60 | 2.08 | 0.48 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | |
| | 24 | | 15.21 | 2.17 | 0.50 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | |
| | 23 | | 15.87 | 2.26 | 0.52 | | Past Week (7 Days) | Past 2 Weeks (14 Days) | 1 & 2 | |
| | 22 | | 16.59 | 2.36 | 0.55 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 25% |
| | 21 | | 17.38 | 2.48 | 0.57 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 25% |
| | 20 | | 18.25 | 2.60 | 0.60 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 25% |
| | 19 | | 19.21 | 2.74 | 0.63 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 25% |
| | 18 | | 20.28 | 2.89 | 0.67 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 50% |
| | 17 | | 21.47 | 3.06 | 0.71 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 50% |
| 16 | | 22.81 | 3.25 | 0.75 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 50% | |
| 15 | | 24.33 | 3.47 | 0.80 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 75% | |
| 14 | 1 | 26.07 | 3.71 | 0.86 | | Past 2Weeks (14 Days) | Past Month (30 Days) | | 75% | |
| 13 | | 28.08 | 4.00 | 0.92 | | Past 2Weeks (14 Days) | Past Month (30 Days) | 1 & 2 | | |
| Monthly | 12 | 3 | 30.42 | 4.33 | 1.00 | | Past 2Weeks (14 Days) | Past Month (30 Days) | 1 & 2 | |
| | 11 | 2 | 33.18 | 4.73 | 1.09 | | Past 2Weeks (14 Days) | Past Month (30 Days) | 1 & 2 | |
| | 10 | 7 | 36.50 | 5.21 | 1.20 | | Past Month (30 Days) | Past 5 Weeks | 1 & 2 | |
| | 9 | 2 | 40.56 | 5.79 | 1.33 | | Past Month (30 Days) | Past 6 Weeks | 1 & 2 | |
| | 8 | 4 | 45.63 | 6.52 | 1.50 | | Past Month (30 Days) | Past 6 Weeks | 1 & 2 | |
| Bimonthly | 7 | 1 | 52.14 | 7.43 | 1.71 | | Past Month (30 Days) | Past 2 Months (60 Days) | | 75% |
| | 6 | 10 | 60.83 | 8.67 | 2.00 | | Past Month (30 Days) | Past 2 Months (60 Days) | 1 & 2 | |
| Quarterly | 5 | 2 | 73.00 | 10.40 | 2.40 | | Past 2 Months (60 Days) | Past 3 Months (90 Days) | | 50% |
| | 4 | 8 | 91.25 | 13.00 | 3.00 | | Past 2 Months (60 Days) | Past 3 Months (90 Days) | 1 & 2 | |
| | 3 | | 121.7 | 17.33 | 4 | | Past 2 Months (60 Days) | Past 4 Months (120 Days) | 1&2 | |
| | 2 | | 182.5 | 26 | 6 | | Past 3 Months (90 days) | Past 6 Months (180 Days) | 1&2 | |
| | 1 | | 365 | 52 | 12 | | Past 6 Months (180 days) | Past Year (365 Days) | 1&2 | |

For digital reading, the RR model adapts the title specific reading question with a qualifying period response scale tied to industry reporting standards (e.g., past week, past month) as opposed to being related to that publication’s publishing frequency to capture the needed responses to derive the average issue readership. That is to say, the recency scale for all publications (newspapers and magazines) regardless of their print publication frequency is measured the same and comprises a 6-point scale: Yesterday, Past week, Past month, Past 2 months, Past 3 months, and Longer Ago. In this case, the RR model estimates the average digital readership by accepting all readers that fall *yesterday* and *past week* as Past Week digital readers or similarly, Past Month digital readers would be all those who claimed *yesterday*, *past week* or *past month*.

6.1 Publications Measured: Magazines by Frequency and Region

| Language | Publication Title | Frequency | Nat'l | Nfld / NS / PEI | NB | QC-excl Gatineau | ON (Incl. GTA ; ex Ott/ North ON) | Ottawa/ Gatineau | North ON | MB | SK | AB | BC |
|----------|-------------------------|-----------|-------|-----------------|----|------------------|-----------------------------------|------------------|----------|----|----|----|----|
| FRE | Urbania – digital only | 0 | | | x | x | | x | x | | | | |
| ENG | AMA Insider Magazine | 4 | | | | | | | | | | x | |
| ENG | CAA Magazine | 4 | | x | x | | x | x | x | | | | |
| ENG | CAA Manitoba | 4 | | | | | | | | x | | | |
| Biling | CAA Quebec | 4 | | | | x | | x | | | | | |
| ENG | CAA Saskatchewan | 4 | | | | | | | | | x | | |
| FRE | Les Affaires Plus | 4 | | | x | x | | x | x | | | | |
| ENG | Professionally Speaking | 4 | | | | | x | x | x | | | | |
| ENG | Food & Drink | 5 | | | | | x | x | x | | | | |
| FRE | Magazine Véro | 5 | | | | x | | x | | | | | |
| ENG | Best Health | 6 | x | | | | | | | | | | |
| ENG | Canada's History | 6 | x | | | | | | | | | | |
| ENG | Canadian Geographic | 6 | x | | | | | | | | | | |
| ENG | Chatelaine | 6 | x | | | | | | | | | | |
| FRE | Chatelaine (Fr) | 6 | | | x | x | | x | x | | | | |
| ENG | Cottage Life | 6 | x | | | | | | | | | | |
| ENG | Our Canada | 6 | x | | | | | | | | | | |
| ENG | Today's Parent | 6 | x | | | | | | | | | | |

| Language | Publication Title | Fre- quency | Nat'l | Nfld / NS / PEI | NB | QC-excl Gatineau | ON (Incl. GTA ; ex Ott/ North ON) | Ottawa/ Gatineau | North ON | MB | SK | AB | BC |
|----------|---------------------------------|----------------|-------|-----------------------|----|---------------------|---|---------------------|-------------|----|----|----|----|
| ENG | Cineplex Magazine | 6 | x | | | | | | | | | | |
| ENG | Zoomer Magazine | 6 | x | | | | | | | | | | |
| ENG | Report on Business Magazine | 7 | x | | | | | | | | | | |
| FRE | Clin d'oeil | 8 | | | x | x | | x | x | | | | |
| ENG | Fashion Magazine | 8 | x | | | | | | | | | | |
| FRE | Ricardo | 8 | | | x | x | | x | x | | | | |
| Biling | Air Canada enRoute | 8 | x | | | | | | | | | | |
| FRE | Les Idées de ma Maison | 9 | | | x | x | | x | x | | | | |
| ENG | Style at Home | 9 | x | | | | | | | | | | |
| FRE | ELLE Québec | 10 | | | x | x | | x | x | | | | |
| ENG | Canadian Living | 10 | x | | | | | | | | | | |
| FRE | Coup de Pouce | 10 | | | x | x | | x | x | | | | |
| ENG | ELLE CANADA | 10 | x | | | | | | | | | | |
| ENG | Good Times | 10 | x | | | | | | | | | | |
| ENG | Reader's Digest | 10 | x | | | | | | | | | | |
| FRE | Selection du Reader's Digest | 10 | | | x | x | | x | x | | | | |
| FRE | Bel Age Magazine | 11 | | | x | x | | x | x | | | | |
| ENG | Canadian House & Home | 11 | x | | | | | | | | | | |
| ENG | Maclean's | 12 | x | | | | | | | | | | |
| ENG | Toronto Life | 12 | x | | | | | | | | | | |
| FRE | L'actualité | 12 | | | x | x | | x | x | | | | |
| FRE | Les Affaires | 14 | | | x | x | | x | x | | | | |
| ENG | Hello! Canada | 44 | x | | | | | | | | | | |

Community Newspapers and Other Publications

| Title | Market / Where Distributed |
|---------------------|-----------------------------------|
| Scarborough Mirror | Scarborough CSD |
| Mississauga News | Toronto-Mississauga |
| Brampton Guardian | Brampton |
| Niagara This Week | St. Catharines- Niagara CMA |
| Toronto Star Wheels | Toronto Star Saturday |

7. Weighting Procedure And Population Projection

The SSPD survey weighting is designed to adjust the survey completions to account for the effects of disproportionate sampling design, differential response rate by day of week, demographics and ultimately projection to the most recent Canada population age 14 and over.

In general, the weighting structure can be summarized in 5 different stages, each executed sequentially and cumulatively:

1. Size of household
2. Sample equalization by week
3. Sample equalization by day of week
4. Personal income adjustment
5. Population projection

A final step is included to develop household projections on top of population projections.

7.1 Size of Household Weight

First stage of weighting is to align the household size characteristics of the data to the known population distribution within each market. Household size categories are:

- i) Single person
- ii) 2 persons
- iii) 3 persons
- iv) 4 or more persons

7.2 Sample Equalization by Week Weight

Due to the uneven number of completions achieved over the weeks within each quarter, a balancing weight based on 52 weeks is applied across markets to even out the pre-weighted sample.

7.3 Day of Week Equalization Weight

It is also necessary to equalize the sample contribution by each day of the week to minimize distortion to average readership estimates. At this stage, the pre-weighted sample is adjusted to achieve an equal number of weighted respondents per day. This is done within each market.

7.4 Personal Income Weight

Ipsos uses Statistics Canada Income Tax Filers and Census data to update the income distribution of the most recent census. This updated distribution is applied to the pre-weighted data to improve the currency of personal income profile of the sample. This adjustment is done within each market.

7.5 Age within Gender Population Adjustment and Projection

The last stage of weighting is to combine the adjustment due to differential response rates by demographics (age and gender) with the population growth, and project to each market's population in one single step. All secondary population adjustments/projections within market such as language in Montreal and Ottawa-Gatineau are also incorporated in this stage. This adjustment is done within each market.

7.6 Household Weighting and Projection

Household weights are established by the following four stages done within each market:

1. Conversion from people base to households
2. Alignment to census household size distribution
3. Household income distribution adjustment
4. Projection to current household estimate

7.6.1 Conversion from people base data to households

The weighted people base data is converted to households by establishing a pre-weight at the respondent level. This is done by dividing the population weight factor by the number of people (all ages) in the household for each respondent record. For example, a respondent may carry a combined sample adjustment and projection weight of 1000. If the respondent lives in a 4-persons household, then his household pre-weight will be 250 (1000/4).

7.6.2 Alignment to census household size distribution

The pre-weighted household data is then weighted to the census household distribution.

7.6.3 Household income distribution adjustment

The next step of the household weighting is to refine the weighted household data by applying the updated household income distribution. Statistics Canada Income Tax Filers data is used to create the updated census household income distribution targets for this weighting step.

7.6.4 Projection to current total household

The last step of the household weighting is the projection to the current estimate of households in each market.

7.7 Household and Population Projections

Current estimates of households and population as of July 01, 2020 are not directly available from Statistics Canada. Projections were therefore developed by Manifold Data Mining Inc.

Manifold's projections of households and population based on analyses of growth rates and population movement were compared with Statistics Canada estimates wherever possible. Adjustments were subsequently made to ensure that relationships within and across strata were generally preserved.

8. Editing And Coding

8.1 Editing

The use of computerized systems for online interviewing provides a level of ongoing editing. The programming of the questionnaire is such that subsequent questions are not presented until valid responses are entered on previous questions. This internal control ensures that the correct question routing is followed and that, when required, the randomization or rotations of stimuli are executed.

8.2 Occupation Coding

Respondents are asked the following questions to gather information for classifying their occupations:

- What is your job title? (Open-Ended)
- Describe the type of work do you do, including your field of work (Open-Ended)
- Which of these best describes your job title?
- What type of company do you work for?
- What is the most significant corporate area of business for your company or employer?
- What is the name of your company?
- How many people report to you either directly or indirectly through your subordinates?
- Which of the following areas in your company are you directly involved with?

Responses to the above questions are used to classify each respondent's occupation based on the type of job duties and work that respondent does, which is a coding system similar to the National Occupation Classification (NOC).

8.3 MOPES

This is a common acronym used to include managers, owners and professionals. Individual job titles comprising these groups are listed in the Codebook section "Occupation – Detailed Codes".

8.4 Summary Metrics

Summary Metrics –

Demos

| Summary Code | Category |
|----------------------|--------------|
| Age 18+ | Demographics |
| All Measured Markets | Demographics |
| Major Markets | Demographics |

Newspapers

| Summary Code |
|---|
| 1 Weekly Time Spent (min) – Print |
| 2 Total Print/Digital Weekday AIR |
| 3 Total Print/Digital Saturday AIR |
| 4 Total Print/Digital Sunday AIR |
| 5 Total Print/Digital Last Day Time Spent (min) |
| 6 Print 5-Day Cume |
| 7 Print 6-Day Cume |
| 8 Print 7-Day Cume |
| 9 Total Print/Digital Weekly Cume |
| 10 Net Digital Weekly Cume |

Magazines

| Summary Code |
|--|
| 1 Total Print/Digital AIR |
| 2 Total Print/Digital Time Spent (min) |
| 3 Net Digital Time Spent With Last Issue |

Q1 Summary Metrics with Calculation Formula – Addition to current list

All Markets/All Titles – GENERIC

| Summary Code | |
|--------------|---|
| 1 | Average # Print Issues/Week |
| 2 | Total Time With Any Print issue Last Saturday (hrs) |
| 3 | Total Time With Any Print issue Last Sunday (hrs) |
| 4 | Total Weekly Time With Any Print Issue (hrs) |
| 5 | Time Spent With Any Print Issue Last Day Weekday (hrs) |
| 6 | Digital Time Spent With Any Title Last Day (hrs) |
| 7 | Total Print/Digital Time Spent With Any Title Last Day hrs) |
| 8 | Read/Looked Any Yesterday |
| 9 | # of Any Print Weekday Issues Read/Looked Through |
| 10 | Read/Looked Through Any Print Saturday Issue Past Month |
| 11 | Read/Looked through Any Print Sunday Issue Past Month |
| 12 | How Last Print Issue Obtained Weekday/Saturday/Sunday |
| 13 | Devices Used to Access Digital Content |
| 14 | Print Cumes – 5 Day; 6/7 Day |

All Titles – GENERIC

| Summary Code | |
|--------------|---|
| 2 | Digital Time Spent with any title Last Day (hrs) |
| 3 | Device Used to Access Digital Content |
| 4 | Total Print/Digital Time spent with any Title (hrs) |
| 5 | Average # of Print issues read/month |
| 6 | Time Spent Reading Any Print Issue (hrs) |
| 7 | Time Spent With-Last Printed Issue |

8.5 J.D. Power And Associates – Automotive Groupings

| SEGMENT | SUB-SEGMENT |
|-----------------|---|
| Sub-Compact | City Car Small Car Small Premium Car Small Premium SUV Small SUV |
| Compact | Compact Car Compact Multi-Purpose Vehicle Compact Sporty Car Compact SUV |
| Compact Premium | Compact Premium Car Compact Premium SUV |
| Midsize | Midsize Car Midsize Pickup Midsize Sporty Car Midsize SUV Minivan |
| Midsize Premium | Midsize Premium Car Midsize Premium Sporty Car Midsize Premium SUV |
| Large | Large Car Large Heavy Duty Pickup Large Light Duty Pickup Large SUV Large Van |
| Large Premium | Large Premium Car Large Premium SUV |

| 2021 Segment | 20210 Sub-segment | Make / Model |
|--------------|-------------------|----------------------------------|
| Compact | Compact Car | Chevrolet Cruze |
| Compact | Compact Car | Chevrolet Uplander |
| Compact | Compact Car | Dodge Dart |
| Compact | Compact Car | Ford Focus |
| Compact | Compact Car | Ford Focus Electric |
| Compact | Compact Car | Honda Civic/Civiv Hybrid/Insight |
| Compact | Compact Car | Hyundai Elantra |
| Compact | Compact Car | Kia Forte/Forte 5 |
| Compact | Compact Car | Mazda 2/3/ Protegé/5 |
| Compact | Compact Car | Mitsubishi Lancer |
| Compact | Compact Car | Nissan LEAF |
| Compact | Compact Car | Nissan Sentra |
| Compact | Compact Car | Scion iM |
| Compact | Compact Car | Subaru Impreza |
| Compact | Compact Car | Subaru WRX/WRX STI |
| Compact | Compact Car | Toyota Corolla |

| 2021 Segment | 2021 Sub-segment | Make / Model |
|--------------|-------------------------------|-----------------------------------|
| Compact | Compact Car | Toyota Corolla Hatchback |
| Compact | Compact Car | Toyota Corolla Hybrid |
| Compact | Compact Car | Toyota Matrix |
| Compact | Compact Car | Toyota Prius |
| Compact | Compact Car | Toyota Prius Plug-In |
| Compact | Compact Car | Toyota Prius Prime |
| Compact | Compact Car | Volkswagen Beetle |
| Compact | Compact Car | Volkswagen Beetle Cabrio |
| Compact | Compact Car | Volkswagen City Golf / City Jetta |
| Compact | Compact Car | Volkswagen Golf |
| Compact | Compact Car | Volkswagen Golf TDI |
| Compact | Compact Car | Volkswagen Golf Wagon |
| Compact | Compact Car | Volkswagen Jetta |
| Compact | Compact Car | Volkswagen Jetta TDI |
| Compact | Compact Car | Volkswagen Rabbit |
| Compact | Compact Multi-Purpose Vehicle | Ford C-Max Energi |
| Compact | Compact Multi-Purpose Vehicle | Ford C-Max Hybrid |
| Compact | Compact Multi-Purpose Vehicle | Kia Soul/Soul EV |
| Compact | Compact Multi-Purpose Vehicle | Nissan NV 200 |
| Compact | Compact Multi-Purpose Vehicle | Scion xB |
| Compact | Compact Multi-Purpose Vehicle | Toyota Prius V |
| Compact | Compact Sporty Car | Fiat 124 Spider |
| Compact | Compact Sporty Car | Lexus LFA Series |
| Compact | Compact Sporty Car | Mazda Miata / MX-5 |
| Compact | Compact Sporty Car | Mini Cooper |
| Compact | Compact Sporty Car | Scion FR-S |
| Compact | Compact Sporty Car | Scion tC |
| Compact | Compact Sporty Car | Subaru BRZ |
| Compact | Compact Sporty Car | Toyota 86 |
| Compact | Compact Sporty Car | Volkswagen EOS |
| Compact | Compact Sporty Car | Volkswagen GTI |
| Compact | Compact SUV | Chevrolet Equinox |
| Compact | Compact SUV | Ford Escape |
| Compact | Compact SUV | GMC Terrain |
| Compact | Compact SUV | Honda CR-V |
| Compact | Compact SUV | Jeep Cherokee |
| Compact | Compact SUV | Jeep TJ/Wrangler |
| Compact | Compact SUV | Mazda Truck / SUV |
| Compact | Compact SUV | Mitsubishi Outlander |
| Compact | Compact SUV | Mitsubishi Outlander PHEV |
| Compact | Compact SUV | Mitsubishi RVR |
| Compact | Compact SUV | Nissan Rogue |
| Compact | Compact SUV | Subaru Forester |

| 2021 Segment | 2021 Sub-segment | Make / Model |
|-----------------|-------------------------|--|
| Compact | Compact SUV | Toyota FJ Cruiser |
| Compact | Compact SUV | Toyota RAV 4 |
| Compact | Compact SUV | Toyota RAV 4 Hybrid |
| Compact Premium | Compact Premium Car | Audi A4/A5/A6 |
| Compact Premium | Compact Premium Car | BMW 1 Series |
| Compact Premium | Compact Premium Car | BMW 3 Series |
| Compact Premium | Compact Premium Car | BMW Active Hybrid 3 |
| Compact Premium | Compact Premium Car | Infiniti Q50 |
| Compact Premium | Compact Premium Car | Infiniti Q60 |
| Compact Premium | Compact Premium Car | Kia Stinger |
| Compact Premium | Compact Premium Car | Lexus CT |
| Compact Premium | Compact Premium Car | Lexus ES Series |
| Compact Premium | Compact Premium Car | Lexus HS Series |
| Compact Premium | Compact Premium Car | Lexus IS Series |
| Compact Premium | Compact Premium Car | Lexus RC Series |
| Compact Premium | Compact Premium Car | Lincoln MKZ |
| Compact Premium | Compact Premium Car | Lincoln MKZ Hybrid |
| Compact Premium | Compact Premium Car | Mercedes Benz B-Class, CLA |
| Compact Premium | Compact Premium Car | Mercedes Benz C-Class |
| Compact Premium | Compact Premium Car | Volvo S 60 |
| Compact Premium | Compact Premium Car | Volvo V 60 |
| Compact Premium | Compact Premium Car | Volvo V 60 Cross Country |
| Compact Premium | Compact Premium SUV | Acura RDX |
| Compact Premium | Compact Premium SUV | Infiniti EX35/QX50 |
| Compact Premium | Compact Premium SUV | Lexus NX Series |
| Compact Premium | Compact Premium SUV | Lincoln MKC |
| Compact Premium | Compact Premium SUV | Volvo XC 60 |
| Large | Large Car | Buick Lacrosse/Allure |
| Large | Large Car | Chevrolet Impala |
| Large | Large Car | Chrysler 300/300C |
| Large | Large Car | Dodge Charger |
| Large | Large Car | Ford Taurus |
| Large | Large Car | Kia Cadenza |
| Large | Large Car | Nissan Maxima |
| Large | Large Car | Toyota Avalon |
| Large | Large Heavy Duty Pickup | Chevrolet Silverado Heavy Duty 2500/3500 |
| Large | Large Heavy Duty Pickup | Ford F-Series Super Duty 250 / 350 |
| Large | Large Heavy Duty Pickup | RAM Heavy Duty 2500/3500 |
| Large | Large Light Duty Pickup | Chevrolet Silverado 1500 |
| Large | Large Light Duty Pickup | Ford F-Series Light Duty F150 |
| Large | Large Light Duty Pickup | GMC Sierra 1500-3500 |
| Large | Large Light Duty Pickup | Nissan Titan |
| Large | Large Light Duty Pickup | RAM 1500 |

| 2021 Segment | 2021 Sub-segment | Make / Model |
|---------------|-------------------------|----------------------------------|
| Large | Large Light Duty Pickup | Toyota Tundra |
| Large | Large SUV | Nissan Armada |
| Large | Large SUV | Toyota Sequoia |
| Large | Large Van | Ford Econoline |
| Large | Large Van | Mercedes Benz Sprinter/Metris |
| Large | Large Van | Nissan NV 1500 / 2500 |
| Large | Large Van | Nissan NV 3500 |
| Large | Large Van | RAM Pro Master |
| Large Premium | Large Premium Car | Audi A8 |
| Large Premium | Large Premium Car | BMW 7 Series |
| Large Premium | Large Premium Car | Hyundai Equus |
| Large Premium | Large Premium Car | Infiniti Q80 |
| Large Premium | Large Premium Car | Lexus LS Series |
| Large Premium | Large Premium Car | Mercedes Benz S-Class |
| Large Premium | Large Premium SUV | Infiniti QX56/QX80 |
| Large Premium | Large Premium SUV | Lexus LX |
| Midsize | Midsize Car | Chevrolet Malibu |
| Midsize | Midsize Car | Chrysler 200 |
| Midsize | Midsize Car | Dodge Avenger |
| Midsize | Midsize Car | Ford Fusion |
| Midsize | Midsize Car | Ford Fusion Energi |
| Midsize | Midsize car | Ford Fusion Hybrid |
| Midsize | Midsize Car | Honda Accord |
| Midsize | Midsize Car | Hyundai Sonata |
| Midsize | Midsize Car | Hyundai Sonata Hybrid |
| Midsize | Midsize Car | Kia Optima |
| Midsize | Midsize Car | Kia Optima Hybrid/Plug-in Hybrid |
| Midsize | Midsize Car | Nissan Altima |
| Midsize | Midsize Car | Subaru Legacy |
| Midsize | Midsize Car | Toyota Camry |
| Midsize | Midsize Car | Toyota Camry Hybrid |
| Midsize | Midsize Car | Volkswagen Passat |
| Midsize | Midsize Car | Volkswagen Passat CC |
| Midsize | Midsize Car | Volkswagen Passat TDI |
| Midsize | Midsize Pickup | Chevrolet Colorado |
| Midsize | Midsize pickup | Ford Ranger |
| Midsize | Midsize Pickup | Jeep Gladiator |
| Midsize | Midsize Pickup | Nissan Frontier |
| Midsize | Midsize Pickup | Toyota Tacoma |
| Midsize | Midsize Sporty Car | Chevrolet Camaro |
| Midsize | Midsize Sporty Car | Dodge Challenger |
| Midsize | Midsize Sporty Car | Ford Mustang |
| Midsize | Midsize SUV | Buick Enclave |

| 2021 Segment | 2021 Sub-segment | Make / Model |
|-----------------|----------------------------|-----------------------------------|
| Midsize | Midsize SUV | Dodge Durango |
| Midsize | Midsize SUV | Dodge Journey |
| Midsize | Midsize SUV | Ford Edge |
| Midsize | Midsize SUV | Ford Explorer/Sport Trac |
| Midsize | Midsize SUV | Ford Flex |
| Midsize | Midsize SUV | Ford Freestyle/Taurus X |
| Midsize | Midsize SUV | Hyundai Santa Fe |
| Midsize | Midsize SUV | Jeep Grand Cherokee |
| Midsize | Midsize SUV | Kia Sorento |
| Midsize | Midsize SUV | Kia Telluride |
| Midsize | Midsize SUV | Mazda CX-5/7/9 |
| Midsize | Midsize SUV | Nissan Murano |
| Midsize | Midsize SUV | Nissan Pathfinder |
| Midsize | Midsize SUV | Subaru Ascent |
| Midsize | Midsize SUV | Subaru Outback |
| Midsize | Midsize SUV | Toyota 4 Runner |
| Midsize | Midsize SUV | Toyota Highlander |
| Midsize | Midsize SUV | Toyota Highlander Hybrid |
| Midsize | Midsize SUV | Toyota Venza |
| Midsize | Minivan | Chrysler Pacifica/Pacifica Hybrid |
| Midsize | Minivan | Chrysler Town & Country |
| Midsize | Minivan | Chrysler Sebring |
| Midsize | Minivan | Dodger Caravan / Grand Caravan |
| Midsize | Minivan | Ford Freestar/Windstar |
| Midsize | Minivan | Honda Odyssey |
| Midsize | Minivan | Kia Sedona |
| Midsize | Minivan | Toyota Sienna |
| Midsize Premium | Midsize Premium Car | Audi A7 |
| Midsize Premium | Midsize Premium Car | BMW 5 Series |
| Midsize Premium | Midsize Premium Car | Hyundai Genesis |
| Midsize Premium | Midsize Premium Car | Infiniti Q70 |
| Midsize Premium | Midsize Premium Car | Lexus GS Series |
| Midsize Premium | Midsize Premium Car | Mercedes Benz E-Class |
| Midsize Premium | Midsize Premium Car | Volvo S 90 |
| Midsize Premium | Midsize Premium Car | Volvo V 90 |
| Midsize Premium | Midsize Premium Sporty Car | Chevrolet Corvette |
| Midsize Premium | Midsize Premium Sporty Car | Dodge Viper |
| Midsize Premium | Midsize Premium Sporty Car | Lexus LC Series |
| Midsize Premium | Midsize Premium Sporty Car | Nissan GTR |
| Midsize Premium | Midsize Premium SUV | Acura MDX |
| Midsize Premium | Midsize Premium SUV | BMW X3/X5/X6 |
| Midsize Premium | Midsize Premium SUV | Infiniti FX/QX60 |
| Midsize Premium | Midsize Premium SUV | Lexus GX |

| 2021 Segment | 2021 Sub-segment | Make / Model |
|-----------------|---------------------|--------------------------------------|
| Midsize Premium | Midsize Premium SUV | Lexus RX Series |
| Midsize Premium | Midsize Premium SUV | Lincoln MKX |
| Midsize Premium | Midsize Premium SUV | Volkswagen Touareg |
| Midsize Premium | Midsize Premium SUV | Volvo XC 90 |
| Sub-Compact | City Car | Fiat 500/500C |
| Sub-Compact | City Car | Fiat Abarth |
| Sub-Compact | City Car | Scion iQ |
| Sub-Compact | City Car | Smart (Any) |
| Sub-Compact | Small Car | Chevrolet Sonic |
| Sub-Compact | Small Car | Ford Fiesta |
| Sub-Compact | Small Car | Honda Fit/HR-V/Pilot |
| Sub-Compact | Small Car | Hyundai Accent |
| Sub-Compact | Small Car | Kia Rio Sedan/Rio Hatchback |
| Sub-Compact | Small Car | Mitsubishi Mirage |
| Sub-Compact | Small Car | Nissan Micra |
| Sub-Compact | Small Car | Toyota Prius C |
| Sub-Compact | Small Car | Toyota Yaris |
| Sub-Compact | Small Premium Car | Audi A3 |
| Sub-Compact | Small Premium SUV | BMW X1 |
| Sub-Compact | Small Premium SUV | Infiniti QX30 |
| Sub-Compact | Small SUV | Buick Encore |
| Sub-Compact | Small SUV | Chevrolet Trax |
| Sub-Compact | Small SUV | Fiat 500L/ 500X |
| Sub-Compact | Small SUV | Ford EcoSport |
| Sub-Compact | Small SUV | Hyundai Kona |
| Sub-Compact | Small SUV | Hyundai Tucson |
| Sub-Compact | Small SUV | Jeep Compass |
| Sub-Compact | Small SUV | Jeep Patriot |
| Sub-Compact | Small SUV | Jeep Renegade |
| Sub-Compact | Small SUV | Kia Niro/Niro Plug-in Hybrid/Niro EV |
| Sub-Compact | Small SUV | Kia Sportage |
| Sub-Compact | Small SUV | Mini Countryman |
| Sub-Compact | Small SUV | Nissan Kicks |
| Sub-Compact | Small SUV | Nissan Qashqai |
| Sub-Compact | Small SUV | Subaru Crosstrek |
| Sub-Compact | Small SUV | Toyota C-HR |
| Sub-Compact | Small SUV | Volkswagen Tiguan |
| Unclassified | Unclassified | Acura ILX/RLX/TLX |
| Unclassified | Unclassified | Other Acura |
| Unclassified | Unclassified | Alfa Romeo (Any) |
| Unclassified | Unclassified | Audi Q5/Q7 |
| Unclassified | Unclassified | Other Audi |
| Unclassified | Unclassified | Other BMW |

| 2021 Segment | 2020 Sub-segment | Make / Model |
|--------------|------------------|---|
| Unclassified | Unclassified | Other Buick |
| Unclassified | Unclassified | Any Cadillac |
| Unclassified | Unclassified | Other Chevrolet |
| Unclassified | Unclassified | Other Chrysler |
| Unclassified | Unclassified | Other Dodge |
| Unclassified | Unclassified | Fiat 500 Turbo |
| Unclassified | Unclassified | Other Fiat |
| Unclassified | Unclassified | Other Ford |
| Unclassified | Unclassified | Other GMC |
| Unclassified | Unclassified | Other Honda |
| Unclassified | Unclassified | Hummer (Any) |
| Unclassified | Unclassified | Other Hyundai |
| Unclassified | Unclassified | Other Infiniti Car |
| Unclassified | Unclassified | Other Infiniti Truck / SUV |
| Unclassified | Unclassified | Jaguar (Any) |
| Unclassified | Unclassified | Other Jeep |
| Unclassified | Unclassified | Other Kia |
| Unclassified | Unclassified | Landrover (Any) |
| Unclassified | Unclassified | Other Lexus Car |
| Unclassified | Unclassified | Other Lexus SUV |
| Unclassified | Unclassified | Other Lincoln |
| Unclassified | Unclassified | Other Mazda |
| Unclassified | Unclassified | Mercedes Benz GLE, GLE Coupe, GLS, G-Class |
| Unclassified | Unclassified | Mercedes Benz GLA, GLC / GLK, GLC Coupe |
| Unclassified | Unclassified | Mercedes Benz SL, CLS, AMG GT, S-Cab, S-Coupe, E-Cab, E-Coupe |
| Unclassified | Unclassified | Mercedes Benz SLC /SLK, C-Cab, C-Coupe |
| Unclassified | Unclassified | Other Mercedes-Benz Car |
| Unclassified | Unclassified | Other Mercedes-Benz Truck / SUV |
| Unclassified | Unclassified | Mercury (Any) |
| Unclassified | Unclassified | Other Mini |
| Unclassified | Unclassified | Other Mitsubishi |
| Unclassified | Unclassified | Other Nissan |
| Unclassified | Unclassified | Oldsmobile (Any) |
| Unclassified | Unclassified | Pontiac (Any) |
| Unclassified | Unclassified | Porsche (Any) |
| Unclassified | Unclassified | Other RAM |
| Unclassified | Unclassified | Saab (Any) |
| Unclassified | Unclassified | Saturn (Any) |
| Unclassified | Unclassified | Other Scion |
| Unclassified | Unclassified | Other Subaru |
| Unclassified | Unclassified | Tesla (Any) |
| Unclassified | Unclassified | Other Toyota |
| Unclassified | Unclassified | Other Volkswagen |
| Unclassified | Unclassified | Other Volvo |

9. Data Processing

9.1 Quality Procedures

All key processes are validated in the programming stage by performing QC on the programming logic. We then perform a separate output QC step to verify the result matches by comparing the output variables with the input variables.

All processes are reviewed for efficiency and increased automation.

Detailed review of all process documents, checklists and quality control steps.

At all major stages of data production, all input data is compared to the output and all variances in the data. Any exceptions or omissions are reviewed, modified if necessary and/or escalated for resolution.

Ipsos begins creating the tables and documents required for verification and quality control as early as possible.

A detailed project plan outlining all processing and quality control tasks is used. The key milestones are summarized in a schedule, which includes the time required or due date to complete each task, the time required or due date to perform quality control for each task, and the process and tools used to verify each step.

9.2 Data Fusion – Dealing with Missing Values

9.2.1 Introduction

Audience measurement of today must deal with the paradox of survey research: media owners and agencies want to know more-and-more, but respondents are less-and-less willing to participate in long and sometimes repetitive questionnaires. The solution lies in making questionnaires more attractive by making a shorter set of questions to be asked. By making a random selection of sections (blocks of questions) instead of asking the complete questionnaire we shorten the length for individual respondents, but we keep the complete list of variables of interest asked to some respondents. The missing information for the not asked sections must however be filled with data fusion techniques.

The other reasons for missing data is item or survey non response, as the refusal to sensitive questions, or non-response to follow-up surveys.

In the Vividata project both forms of missing patterns occur: we have missing values for respondents who didn't answer income questions. We have respondents who didn't answer the complete product survey (which follows the audience measurement part) and we have missing data because we only asked them a maximum of five sections including Core from the nine product surveys.

Data fusion is the general term for dealing with missing values, but other terms are used as well. Ascription, or row-wise fusion is the technique to copy a complete record of information from a donor (with answers) to a recipient (with missings). Imputation, or column-wise fusion, use all available information on donors to model/predict the value, which is given to the recipients.

Each methods name reveals how data is ascribed. We will describe in more detail these two main forms of data fusion: "row-wise" and "column-wise". For each data fusion process, respondents are categorised into two groups: donors (those who answer questions) and recipients (those who receive answers from donors). Ideally in a project we have more donors than recipients, so there is room to choose.

9.2.2 Missing information

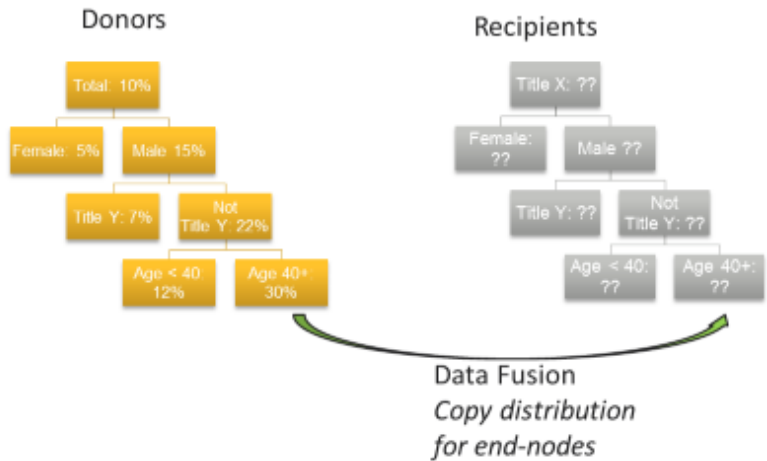
In this project, there are two sets of surveys answered by respondents: Readership survey and Product survey(s). Every respondent who completes the Readership survey is offered to complete the Core survey. If respondents complete the Core survey, only then are they offered to complete two or a maximum of four sections from the remaining eight product sections.

In Q3'20, all respondents were asked the Readership survey first with an extensive set of questions and within this survey there are some questions related to income. Some respondents chose not to answer those questions and in order to fill in gaps in data, "column-wise data fusion" was performed on the data collected in Q3'20 (the act of ascribing data from one respondent to another after finding the "best fit"). In order to find the best fit, a series of predictor variables were chosen (variables that could influence the target variable). These predictors can change depending on the case and the target variable (dependent variable/variable with missing responses). As a matter of fact there is more than one income variable such as: household income, threshold questions on household income (below or above a certain amount) and personal income. They are all treated in a similar way, and the (consistent) structure of how they interact is used to get a better prediction of the income: personal income relates to household income (based on household composition) and respondents who give answers to the boundaries of their income, only have to be fused partly.

The second set of surveys was the product survey containing nine separate surveys with the core being the initial part followed by sections 1 through 8. Approximately 35% of respondents who participated in the Readership survey completed the Core survey and about one-in-two (49%) of these Core survey respondents completed the full set of product surveys (i.e., Core + 4 sections). In order to make use of the fuller dataset, another type of fusion was performed for these product surveys. This time instead of individual results being transferred whole sections of answers were donated to the recipients. It is possible to use the same technique (Column-wise fusion) used for Readership; however, it does not guarantee that skip patterns would be followed. Moreover, it is both time consuming and computationally exhaustive. Therefore, it is optimal to ascribe whole sections and retain the questionnaire structure. This method is known as "row-wise data fusion".

enough predictor to split them, the process ends. This leaves with a set of groups who have matching values based on the path in the tree they followed.

Column-wise Chaid based fusion: analyzing discriminating factors



These respondents should have a similar set of answers to the dependent variable, typically a minimum and a maximum number of recipients per donor is set. Often the minimum is zero and the max depends on the ratio of donors to recipients. This minimum and maximum also affect the formation of the groups which is one of the reasons that the minimum is usually set to zero. Some of the respondents in these groups have answered the question that needs to be filled out, in order to keep results realistic we “give” one of these real values at random to someone who is missing this value. That is the column-wise fusion (ascription) process. With smart planning this technique can be used to shorten questionnaires in order to provide the full set of results and answers without needing to ask all the questions.

Some examples of typical predictors (that were also used in this fusion process) would be: Gender, Age, # of kids in households, Level of education, and Employment status. These are all quite typical segmenting factors that go some way to being able to predict all sorts of things in market research.

9.2.4 Row-Wise Fusion

Row-wise fusion is the most common form of ‘ascription’ of missing values. Row-wise fusion is used when a large section (or a complete questionnaire) of answers are missing from respondents. A set of predictors are chosen from a set of common variables to define the best match between a donor (with data) and a recipient (with missing data). As a result a portion of the row from the donor will then be completely donated to the recipient. For example, some respondents don’t answer the portion of a survey about the drinks they enjoy. A suitable match is found and the recipient is given all the answers on drinks enjoyed from their donor. To make this process accurate it is important to find the smallest set of important predictors for each section. If too much predictors are used it is unclear on which combination of predictors a donor is matched to a recipient. Predictors are combined in a distance function in order to be able to find the closest distance between donor and recipient.

Some predictor variables are identified as critical. Critical variables are used to segment the population to get so called ‘waterproof’ cells within donors and recipients are matched, and outside which never a match will occur. For instance section 1 had questions about usage of menstrual products and so only women were fused

with women and men with men. Critical variables are an important aspect of row-wise fusion. As whole sections are provided to recipients, ascribed data would follow the survey structure fully. A list of all predictors and critical variables can be found below.

This minimal use of critical and predictive variables was done because segmenting too far or using too many predictors could stretch the donors too thin. In some cases, it produced groups lacking any donors at all. In order to prevent only a few respondents providing answers to many recipients, a minimum and maximum number of possible donations was set. The core possessed enough donors to afford to have a minimum of zero ascriptions, this is preferred as it doesn't shoehorn poor fits upon recipients. Unfortunately, the rest of the survey needed a minimum of 1. The core had a maximum of 10 (more than enough coverage) all sections other than 5 had a maximum of 15 (slightly more than enough to cover the whole set, good enough for each group) and 5 had a maximum of 20 in order to cover its donor lacking groups.

Data Fusion of missing information: row wise

| Predictors (Socio demos) | Media titles | | | | | | | | | | | | | | | |
|--------------------------|--------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| X | X | X | X | X | X | X | X | X | X | X | ? | ? | ? | ? | ? | ? |
| X | X | X | X | X | X | X | X | X | X | X | ? | ? | ? | ? | ? | ? |
| X | X | X | X | X | X | X | X | X | X | X | ? | ? | ? | ? | ? | ? |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

The diagram above shows the predictors as a selection of common variables suitable for predicting a good match. The right-hand red section is the rest of the filled survey, it is the pool of data that will be used to fill the white area once the predictors find a good match.

Table below shows the list of the predictors and critical variables and in which surveys/sections they were applied. An 'o' is critical, an 'x' is a predictor, and a 'y' is partial critical (a critical value not applied to all segment groups). Clusters of regions are used for all sections as a critical variable, and region itself in some other as additional predictor variable.

| | Income | Product - Core | Section 1 | Section 2 | Section 3 | Section 4 | Section 5 | Section 6 | Section 7 | Section 8 |
|--|--------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Province / Region | x | o,x | o,x | o,x | o,x | o,x | o,x | o,x | o,x | o,x |
| Gender | x | y,x | o,x | o,x | y,x | x | y,x | o,x | o,x | o,x |
| Age | x | x | x | x | x | x | x | x | x | x |
| Number of children in household | x | x | x | x | x | x | x | x | x | x |
| Number of residents in household | x | | | | | | | | x | x |
| Own computer in household | x | | | | | | | | | |
| Own smart phone in household | x | | | | | | | | | |
| Own cell phone in household | x | | | | | | | | | |
| Own e-reader in household | x | | | | | | | | | |
| Own tablet in household | x | | | | | | | | | |
| Own smart watch in household | x | | | | | | | | | |
| Own game console in household | x | | | | | | | | | |
| Own smart TV in household | x | | | | | | | | | |
| Own streaming device in household | x | | | | | | | | | |
| Highest level of education | x | x | x | x | x | x | x | x | x | x |
| Years of post secondary education | x | | | | | | | | | |
| Currently enrolled in education | x | | | | | | | | | |
| Enrollment status | x | | | | | | | | | |
| Type of school | x | | | | | | | | | |
| Level of study enrolled in | x | | | | | | | | | |
| Current marital status | x | | x | x | | x | | | | |
| Does your family own or rent your home | x | x | | | | o | | | | |
| Is it a condominium? | x | | | | | | | | | |
| Best description of job title | x | | | | | | | | | |

| | | | | | | | | | | |
|--|---|-----|---|---|---|-----|-----|---|-----|-----|
| What type of construction is your home? | x | | | | | | | | | |
| How many people does your organization employ across Canada? | x | | | | | | | | | |
| Number of contributors to household income | x | | | | | | | x | | |
| Device owned | | x,y | | | | | y,x | | | |
| Phone owned | | x,y | | | | | | | | |
| Online device | | | | | x | | | | | |
| Banking device | | | | | | y,x | | | | |
| Who does the grocery shopping for the household | | | x | x | x | | x | | o,x | o,x |
| Employment status | | x | | | | | | x | | |
| Statement that describes your home | | x | | | | x | | | | |
| Household income | | x | x | x | x | x | x | x | x | x |
| Area of work | | x | x | x | x | x | x | x | | |
| Head of household | | | | | | x | | | | |
| Involved in acquisition of purchase within company | | | | | | x | x | | | |
| Length of marriage/partnership | | x | x | x | x | | x | x | | |
| Personal income before tax | | x | x | x | x | x | x | x | x | x |
| Language most often spoken at home | | x | | | | | | | | |
| Are you a grandparent? | | | | | | | | | | x |

9.2.5 Success criteria

There are several ways to evaluate the quality of the fusion. For Row-wise ascription we can compare the distribution of some key variables of donors and recipients. However, this is of course only circumstantial evidence, because when non-response is selective the distribution for donors and recipients might be different due to the fact that the fusion is correcting for the selectiveness. A better way is to evaluate the quality of the matching. When we compare the characteristics of the donors and recipients and they are identical we can call this a perfect match. For some (ordinal) variable (indicated with *) we not only considered exact matching as perfect but also when there is only one category difference.

As can be seen in the table below the level of perfect matching is really high. It is not possible to have a perfect match on all variables, so we can also see that for some (less important) variables the magnitude of the match is lower.

| Section | Variable | Perfect* Match |
|-------------------------|-----------------------------|----------------|
| Core | Economic Sector | 36.6% |
| | Gender | 99.7% |
| | Region | 91.0% |
| | Employment | 65.8% |
| | Rental/Own house | 81.0% |
| | Type of House | 64.2% |
| | Household Income* | 52.9% |
| | Age (cats)* | 94.4% |
| | Education Level | 49.1% |
| | No Children<18 | 85.7% |
| | Phone ownership | 99.4% |
| | Device ownership | 99.4% |
| | Marriage/Partnership Length | 48.9% |
| | Personal Income* | 76.4% |
| Language spoken at home | 89.9% | |
| Section 1 | Shopper | 85.3% |
| | Gender | 100.0% |
| | Region | 62.3% |
| | Household Income* | 53.3% |
| | Age (cats)* | 89.5% |
| | No Children<18 | 86.6% |
| | Education Level | 55.5% |
| | Economic Sector | 49.2% |
| | Marriage/Partnership Length | 65.0% |
| | Personal Income* | 72.5% |
| Marital Status | 87.6% | |
| Section 2 | Shopper | 58.4% |
| | Gender | 100.0% |
| | Region | 93.3% |
| | Household Income* | 52.5% |
| | Age (cats)* | 89.7% |
| | No Children<18 | 85.8% |
| | Education Level | 50.6% |
| | Economic Sector | 42.0% |
| | Marriage/Partnership Length | 56.5% |
| | Personal Income* | 70.9% |
| Marital Status | 71.3% | |
| Section 3 | Economic Sector | 49.5% |
| | Gender | 96.8% |
| | Region | 95.6% |
| | Household Income* | 51.9% |
| | Age (cats)* | 88.5% |
| | No Children<18 | 89.7% |
| | Education Level | 40.6% |
| | Online device ownership | 96.5% |
| | Personal Income* | 70.2% |
| | Marriage/Partnership Length | 55.5% |
| Shopper | 70.3% | |
| | Head of Household | 84.1% |

| | | |
|-----------------------------|-----------------------------|--------|
| Section 4 | Gender | 71.7% |
| | Responsible in company | 80.8% |
| | Type of House | 65.9% |
| | Region | 93.6% |
| | Household Income* | 45.4% |
| | Age (cats)* | 84.7% |
| | No Children<18 | 80.8% |
| | Educational Level | 45.0% |
| | Banking Device | 98.1% |
| | Economic Sector | 42.4% |
| | Marital Status | 68.4% |
| Personal Income* | 64.4% | |
| Section 5 | Shopper | 55.0% |
| | Gender | 99.8% |
| | Education Level | 56.6% |
| | Region | 95.3% |
| | Household Income* | 48.7% |
| | Age (cats)* | 87.3% |
| | No Children<18 | 83.1% |
| | Responsible in company | 74.1% |
| | Device ownership | 98.8% |
| | Marriage/Partnership Length | 50.5% |
| | Economic Sector | 45.6% |
| Personal Income* | 67.3% | |
| Section 6 | Region | 64.4% |
| | Employment | 78.9% |
| | Gender | 100.0% |
| | Working Status | 89.4% |
| | Retirement | 98.2% |
| | Household Income* | 49.1% |
| | Age (cats)* | 88.0% |
| | No Children<18 | 86.8% |
| | Educational Level | 48.6% |
| | Personal Income* | 82.0% |
| | Economic Sector | 54.2% |
| No Income contributors | 73.8% | |
| Marriage/Partnership Length | 61.5% | |
| Section 7 | Region | 93.2% |
| | Household Income* | 47.8% |
| | Age (cats)* | 84.0% |
| | No Children<18 | 88.5% |
| | Household Size | 67.7% |
| | Shopper | 94.3% |
| | Gender | 100.0% |
| | Education Level | 43.6% |
| Personal Income* | 63.2% | |
| Section 8 | Region | 92.8% |
| | Household Income* | 46.9% |
| | Age (cats)* | 83.9% |
| | No Children<18 | 88.5% |

| | |
|------------------|--------|
| Household Size | 74.6% |
| Shopper | 92.7% |
| Gender | 100.0% |
| Education Level | 37.3% |
| Personal Income* | 59.3% |

9.3 Quintiles / Tertiles

Quintiles and Tertiles are established for publications and broadcast media, respectively. In the quintile or tertile analysis respondents are ranked in descending order of total hours tuned, hours spent on the internet, or aggregate magazine or newspaper readership with the list of respondents in each case then broken into equal fifths, or thirds. (All quintiles or tertiles except internet are established on weighted data using a base of individuals 18 years of age and over. All respondents 14 years of age and over are, however, assigned to the defined quintiles.)

Proportional quintiles or tertiles for each medium have been established for Total Canada, English Canada and French Canada. Additionally, subscribers may custom access data using any definition of viewing/listening hours or readership—respondents' aggregate scores for each medium have been written to the data file and can be accessed through computer analysis.

9.3.1 Broadcast Tertiles

A hypothetical case illustrating the methodology behind the Tertile grouping is shown below:

Example:

Respondent "A" stipulates that he watches television 2 to 4 hours per day.

From this information it can be determined that Respondent "A" watches a total of 21 hours of television in an average week:

| | |
|-------------------------|----------|
| 2 to 4 Hours Per Day | 3 Hours |
| X 7 Days | X 7 |
| <hr/> | |
| Total Viewing Time/Week | 21 Hours |

This procedure is followed for all respondents. The respondents are ranked in descending order of hours tuned, and the list is broken into equal thirds, or tertiles.

The parameters of each of the established broadcast tertiles are shown below:

Television (Weekly Watching—Total Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 39.1 |
| 2 | 10.51 – 21.00 | 36.7 |
| 3 | 21.01 + | 24.2 |

Television (Weekly Watching—English Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 39.7 |
| 2 | 10.51 – 21.00 | 36.5 |
| 3 | 21.01 + | 23.8 |

Television (Weekly Watching—French Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 36.9 |
| 2 | 10.51 – 21.00 | 37.1 |
| 3 | 21.01 + | 26.0 |

Radio tertiles are established in a similar manner.

Radio (Weekly Listening—Total Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.51 | 51.5 |
| 2 | 3.51 – 10.50 | 27.2 |
| 3 | 10.51 + | 21.3 |

Radio (Weekly Listening—English Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.51 | 51.8 |
| 2 | 3.51 – 10.50 | 27.2 |
| 3 | 10.51 + | 21.0 |

Radio (Weekly Listening—French Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 18 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.51 | 50.6 |
| 2 | 3.51 – 10.50 | 27.1 |
| 3 | 10.51 + | 22.3 |

9.3.2 Publication Quintiles

Magazines

From issue readership and frequency of reading information, it is possible to assign respondents to publication quintiles based on their aggregate average monthly exposure to all magazines.

In order to determine the aggregate score for a particular respondent, it is necessary to calculate the probability of reading on the basis of a reading frequency classification.

Consider this hypothetical illustration for Publication "A".

| Reading Frequency Classification | Number Of Respondents | Average Issue Readers | Reading Probability* |
|----------------------------------|-----------------------|-----------------------|----------------------|
| All Or Almost All | 1000 | 875 | 0.8750 |
| Most (About 3 In 4) | 500 | 350 | 0.7000 |
| Some (About Half) | 500 | 225 | 0.4500 |
| A Few (About 1 In 4) | 500 | 100 | 0.2000 |
| Occasionally | 500 | 50 | 0.1000 |
| Never | 1000 | 25 | 0.0250 |

* Reading probabilities were calculated on a base of individuals 14 years of age and older.

A similar procedure is carried out for each publication in the survey.

Each publication also has an issue frequency factor. For example, a monthly publication has a factor of 1.00 (issues per month), and a publication that publishes 10 times a year has a factor of 0.833. (In our example, if publication "A" is published weekly, it has an issue frequency factor of 4.33.)

The average monthly exposure for each publication can now be calculated for each respondent. If a particular respondent claims to read "Most (3 in 4)" issues of publication "A", the reading probability score multiplied by the issue frequency score produces the average monthly exposure to publication "A", i.e., $(0.7000 \times 4.33) = 3.031$. This procedure is followed for every magazine in the survey. An array of the sum of the average monthly exposure scores for each respondent is used to establish SSPD Publication Quintiles.

It should be noted that the quintile into which a respondent falls does not necessarily relate to readership of any individual magazine. For example, a respondent may fall into the "lightest" reading quintile, yet still be a reader of 4 out of 4 issues of a particular magazine.

Magazine Quintiles—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 32.8 |
| 2 | 0.001 – 0.439 | 16.8 |
| 3 | 0.440 – 1.081 | 16.9 |
| 4 | 1.082 – 2.663 | 17.0 |
| 5 | 2.664 + | 16.5 |

Magazine Quintiles—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.000 | 31.5 |
| 2 | 0.001 – 0.439 | 17.0 |
| 3 | 0.440 – 1.081 | 16.9 |
| 4 | 1.082 – 2.662 | 17.3 |
| 5 | 2.663 + | 17.4 |

Magazine Quintiles—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.000 | 38.3 |
| 2 | 0.001 – 0.439 | 16.0 |
| 3 | 0.440 – 0.928 | 14.0 |
| 4 | 0.929 – 2.205 | 16.2 |
| 5 | 2.206 + | 15.5 |

Magazine (Users Only)—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.345 | 19.6 |
| 2 | 0.346 – 0.778 | 20.2 |
| 3 | 0.779 – 1.529 | 20.6 |
| 4 | 1.530 – 3.183 | 19.8 |
| 5 | 3.184 + | 19.8 |

Magazine (Users Only)—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.345 | 19.5 |
| 2 | 0.346 – 0.778 | 20.0 |
| 3 | 0.779 – 1.529 | 20.0 |
| 4 | 1.530 – 3.183 | 20.0 |
| 5 | 3.184 + | 20.5 |

Magazine (Users Only)—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 18 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.345 | 19.7 |
| 2 | 0.346 – 0.750 | 20.2 |
| 3 | 0.751 – 1.323 | 19.7 |
| 4 | 1.324 – 2.709 | 20.1 |
| 5 | 2.710 + | 20.3 |

Newspapers

Claimed frequency, on average, of reading specific daily newspaper during the week (1 to 5 issues) and of reading Saturday issues (1 to 4 issues over the past 4 weeks) and Sunday issues (1 to 4 issues over the past 4 weeks) are used to determine an aggregate 7 day reading score for each respondent.

In each case, the calculation involves adding the weekday, Saturday and Sunday readership factors derived from responses to each of the specific newspaper readership questions as indicated in the below table. The newspaper that generated the highest number of issues read per week by the respondent is the assigned value to the respondent for the purpose of quintile computation.

Newspaper Quintiles – Factors

| | | Factor |
|-----------------------------------|----------|--------|
| Weekday Issues (On Average) | Never | 0.00 |
| | Not Sure | 0.50 |
| | 1 Day | 1.00 |
| | 2 Days | 2.00 |
| | 3 Days | 3.00 |
| | 4 Days | 4.00 |
| Saturday Issues (Past 4 Weeks) | 5 Days | 5.00 |
| | None | 0.00 |
| | 1 | 0.25 |
| | 2 | 0.50 |
| | 3 | 0.75 |
| Sunday Issues (Past 4 Weeks) | 4 | 1.00 |
| | None | 0.00 |
| | 1 | 0.25 |
| | 2 | 0.50 |
| | 3 | 0.75 |
| | 4 | 1.00 |

Newspaper Quintiles—Total Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.000 | 59.0 |
| 2 | 0.001 – 1.125 | 11.0 |
| 3 | 1.126 – 2.250 | 9.9 |
| 4 | 2.251 – 4.750 | 9.8 |
| 5 | 4.751 + | 10.3 |

Newspaper Quintiles—English Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.000 | 62.3 |
| 2 | 0.001 – 1.125 | 10.1 |
| 3 | 1.126 – 2.250 | 8.9 |
| 4 | 2.251 – 4.750 | 9.0 |
| 5 | 4.751 + | 9.7 |

Newspaper Quintiles—French Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.000 | 45.1 |
| 2 | 0.001 – 1.125 | 14.8 |
| 3 | 1.126 – 2.250 | 14.1 |
| 4 | 2.251 – 4.750 | 13.0 |
| 5 | 4.751 + | 13.0 |

Newspaper (Users Only)—Total Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.875 | 18.1 |
| 2 | 0.876 – 1.625 | 22.9 |
| 3 | 1.626 – 3.125 | 19.9 |
| 4 | 3.126 – 5.500 | 20.8 |
| 5 | 5.501 + | 18.3 |

Newspaper (Users Only)—English Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.875 | 18.5 |
| 2 | 0.876 – 1.625 | 22.4 |
| 3 | 1.626 – 3.125 | 19.0 |
| 4 | 3.126 – 5.500 | 21.0 |
| 5 | 5.501 + | 19.1 |

Newspaper (Users Only)—French Canada

| Quintile | Range (Issues Per Week) | Proportion Of Population 18 Years And Over % |
|----------|-------------------------|--|
| 1 | < 0.875 | 17.0 |
| 2 | 0.876 – 1.625 | 24.3 |
| 3 | 1.626 – 3.125 | 22.3 |
| 4 | 3.126 – 5.500 | 20.2 |
| 5 | 5.501 + | 16.2 |

9.3.3 Digital Quintiles

In order to develop quintiles for digital reading of magazines and newspapers, the frequency scale for each digital publication is used as follows to calculate the number of times a month each digital publication was engaged with. The factors used, relative to the survey scale, are shown below for each metric.

| Digital magazine frequency | Factor applied/digital visits |
|----------------------------|-------------------------------|
| Once A Day Or More | 35 times per month |
| A Few Times A Week | 10 times per month |
| Once A Week | 4 times per month |
| A Few Times A Month | 2.5 times per month |
| Once A Month | 1 time per month |
| Less Often | 0.5 times per month |

These numbers of digital visits/exposures for each title read were aggregated for each respondent for magazines and newspapers separately to get their individual Total number of digital visits. The distribution of Total visits was split into (approximate) fifths to develop the digital quintiles as follows:

Digital Magazine—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 47.2 |
| 2 | 0.01 - 1.00 | 13.2 |
| 3 | 1.01 - 4.00 | 13.8 |
| 4 | 4.01 - 12.50 | 12.5 |
| 5 | 12.51 + | 13.3 |

Digital Magazine—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 47.8 |
| 2 | 0.01 - 1.00 | 13.4 |
| 3 | 1.01 - 4.00 | 13.5 |
| 4 | 4.01 - 12.50 | 12.2 |
| 5 | 12.51 + | 13.1 |

Digital Magazine—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 44.6 |
| 2 | 0.01 - 1.00 | 12.7 |
| 3 | 1.01 - 4.00 | 14.9 |
| 4 | 4.01 - 12.50 | 13.4 |
| 5 | 12.51 + | 14.4 |

Digital Magazine (Users Only)—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 1.01 | 25.1 |
| 2 | 1.01 - 3.00 | 18.9 |
| 3 | 3.01 - 7.00 | 18.1 |
| 4 | 7.01 - 18.00 | 18.7 |
| 5 | 18.01 + | 19.2 |

Digital Magazine (Users Only)—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 1.01 | 25.7 |
| 2 | 1.01 – 3.00 | 18.6 |
| 3 | 3.01 – 7.00 | 18.3 |
| 4 | 7.01 – 18.00 | 18.1 |
| 5 | 18.01 + | 19.3 |

Digital Magazine (Users Only)—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 1.01 | 22.9 |
| 2 | 1.01 – 3.00 | 20.1 |
| 3 | 3.01 – 7.50 | 19.0 |
| 4 | 7.51 – 17.50 | 18.6 |
| 5 | 17.51 + | 19.4 |

Digital Newspaper—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 35.8 |
| 2 | 0.01 – 2.50 | 16.8 |
| 3 | 2.51 – 10.00 | 15.8 |
| 4 | 10.01 – 35.00 | 16.6 |
| 5 | 35.01 + | 15.0 |

Digital Newspaper—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 37.7 |
| 2 | 0.01 – 2.50 | 18.2 |
| 3 | 2.51 – 10.00 | 16.3 |
| 4 | 10.01 – 30.00 | 13.3 |
| 5 | 30.01 + | 14.5 |

Digital Newspaper—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 0.00 | 28.0 |
| 2 | 0.01 – 5.50 | 18.0 |
| 3 | 5.51 – 22.50 | 17.7 |
| 4 | 22.51 – 70.00 | 18.9 |
| 5 | 70.01 + | 17.4 |

Digital Newspaper (Users Only)—Total Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 2.00 | 21.2 |
| 2 | 2.01 – 6.50 | 20.1 |
| 3 | 6.51 – 17.50 | 19.3 |
| 4 | 17.51 – 40.50 | 19.9 |
| 5 | 40.51 + | 19.5 |

Digital Newspaper (Users Only)—English Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 1.50 | 20.2 |
| 2 | 1.51 – 5.00 | 21.6 |
| 3 | 5.01 – 13.50 | 19.8 |
| 4 | 13.51 – 35.00 | 19.9 |
| 5 | 35.01 + | 18.5 |

Digital Newspaper (Users Only)—French Canada

| Quintile | Range (Issues Per Month) | Proportion Of Population 14 Years And Over % |
|----------|--------------------------|--|
| 1 | < 4.00 | 19.9 |
| 2 | 4.01 – 14.50 | 19.9 |
| 3 | 14.51 – 35.00 | 19.8 |
| 4 | 35.01 – 76.50 | 20.0 |
| 5 | 76.51 + | 20.4 |

9.3.4 Internet Tertiles

Internet tertiles are established in a similar manner as Television or Radio tertiles are developed. The parameters of each of the established Internet tertiles are shown below:

Internet (Weekly Time Spending—Total Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 36.8 |
| 2 | 10.51 - 21.00 | 32.7 |
| 3 | 21.01 + | 30.5 |

Internet (Weekly Time Spending—English Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 35.6 |
| 2 | 10.51 - 21.00 | 32.5 |
| 3 | 21.01 + | 31.9 |

Internet (Weekly Time Spending —French Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 10.50 | 41.9 |
| 2 | 10.51 - 21.00 | 33.4 |
| 3 | 21.01 + | 24.7 |

Mobile Internet (Weekly Time Spending—Total Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.50 | 40.3 |
| 2 | 3.51 - 10.50 | 28.4 |
| 3 | 10.51 + | 31.3 |

Mobile Internet (Weekly Time Spending—English Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.50 | 38.5 |
| 2 | 3.51 – 10.50 | 28.9 |
| 3 | 10.51 + | 32.6 |

Mobile Internet (Weekly Time Spending —French Canada)

| Tertile | Range (Hours Per Week) | Proportion Of Population 14 Years And Over % |
|---------|------------------------|--|
| 1 | < 3.50 | 47.7 |
| 2 | 3.51 – 10.50 | 26.5 |
| 3 | 10.51 + | 25.8 |

10. Special Circumstances And Adjustments

The following revisions were made to the Readership Questionnaire for the period Q3 2020.

10.1 Publication Deletions

- Magazines
 - Director Journal
 - Outdoor Canada
 - 5 ingrédients - 15 minutes

- Newspapers
 - The Journal Pioneer
 - Metro Montreal
 - La Presse

10.2 Publication Additions

- Magazines
 - None
- Newspapers
 - None

10.3 Publication Logo Revisions

- Magazines
 - None
- Newspapers
 - None

10.4 Publication Frequency Revisions

- Magazines
 - Urbania from 2 to 0
 - Elle Quebec from 11 to 10
 - Elle Canada from 11 to 10
 - Air Canada En Route from 12 to 8
 - Hello! Canada from 46 to 44
 - Style at Home from 10 to 9

- Newspapers
 - None

10.5 Publications Regional Revisions

- None

10.6 Publication Name Change

- None

10.7 Publication Type Change

- None