

# Moreland Household Survey Reweighting

December 2020



Social  
Research  
Centre

**Report prepared for:**

Sam Citroen  
Principal Social Research Officer  
Moreland City Council  
SCitroen@moreland.vic.gov.au

**Report prepared by:**

Sebastian Misson  
Senior Survey Statistician  
The Social Research Centre  
Level 9, 277 William Street  
MELBOURNE VIC. 3000  
Tel: (613) 9236 8500  
Fax: (613) 9602 5422  
Email: Sebastian.Misson@srcentre.com.au

[www.srcentre.com.au](http://www.srcentre.com.au)

Version: December 12 2020



# 1. Introduction

In July 2020 The Social Research Centre delivered a report to the Moreland City Council reviewing two of its surveys: the Moreland Community Indicators Survey, which runs in even years, and the Moreland Household Survey, which runs in odd years. The report identified several deficiencies in the weighting used for the Household Survey, mainly a lack of appropriate design weights and a simple weighting scheme involving suburb of residence as the sole adjustment factor. The report was also concerned by the lack of documentation surrounding the weighting process.

In November 2020 the Moreland City Council commissioned the Social Research Centre to recalculate the weights for the Household Surveys for 2015, 2017 and 2019 considering these recommendations. As noted in our proposal, consideration of design weights was impossible since this would require knowing the sizes of the sampling frames used by the original vendors and the sample sizes drawn from these frames. A potential extra step of using the sample frame to adjust for survey non-response is also impossible for similar reasons. This report will therefore focus on identifying variables available for post-stratification adjustment and evaluating their use in a revised weighting scheme.

## 2. Evaluating potential benchmark variables

Sample surveys are a commonly used method for drawing inferences about a population based on responses from just a subset of it. To be able to draw such inferences requires a probability sample – one in which each element of the population has a known, non-zero chance of selection. Some units in the population may not have a chance of selection (for instance, persons without a telephone have no chance of selection for a telephone survey), however, and there may be different rates of response across unit characteristics. As a result, many sample surveys yield subsets that imperfectly cover their target populations despite the best possible sample design and data collection practices (Valliant *et al.*, 2013). In such situations, weighting can reduce the extent of any biases introduced through non-coverage and non-response.

For a probability survey, the typical approach to deriving weights consists of the following steps:

1. Compute a design weight for each respondent as their probability of being selected from the population of interest to participate in the survey.
2. Adjust the base weights so that they match population frequencies for selected respondent characteristics.

The first step is essential in providing the statistical framework necessary for making population inferences from a sample survey. The second step accounts for non-response bias and ensures that survey estimates are consistent with other sources.

For the Household Surveys, the first step in the process above was impossible due to lack of information about the respondents invited to participate in the survey who didn't respond. An alternative approach, called "super-population" weighting, can be used in this circumstance. This approach fits models to the non-probability survey's analytic variables and projects these to the full population. By including variables in the models that are correlated with the survey outcomes and for which population distributions are known, it is possible to calculate weights that align the non-probability sample more closely to the population of interest (Valliant, 2019). In practice, super-population models are approximated using generalised regression weighting (Deville and Särndal, 1992), setting all inverse selection probabilities to 1.

To be considered for inclusion in the weighting scheme variables need to have a known distribution for the general population, also known as a benchmark. This involves identifying variables that are common to the survey to be weighted and an external source of information. In this case the Census, conducted every five years by the Australian Bureau of Statistics, was used to set benchmarks.

For the three years of the Household Survey, Table 1 shows the benchmarks selected with their proportions in the sample for each of the three years and the average weights these imply. Large average weights were most associated with age (particularly the 20 to 45 age category) and having lived in the household for less than a year.

**Table 1. Benchmark and sample percentages for three years of the survey with implied average weights<sup>1</sup>.**

Category	Pop %	2015		2017		2019	
		Samp %	Ave. weight	Samp %	Ave. weight	Samp %	Ave. weight
<b>Age<sup>2</sup></b>							
0 to 12	15.6	10.4	1.5	7.3	2.1	7.0	2.2
13 to 20	6.1	7.5	0.8	6.8	0.9	4.9	1.3
21 to 45	46.7	19.7	2.4	18.0	2.6	16.8	2.8
45+	31.5	62.4	0.5	67.8	0.5	71.3	0.4
<b>Country of birth</b>							
Australia	63.6	70.9	0.9	71.0	0.9	72.1	0.9
Other English-speaking country	5.7	5.5	1.0	4.8	1.2	6.4	0.9
Non-English-speaking country	30.7	23.6	1.3	24.3	1.3	21.5	1.4
<b>Education</b>							
Aged Less than 20	21.8	17.9	1.2	14.1	1.5	11.8	1.8
Has bachelor's degree	30.6	27.3	1.1	28.2	1.1	31.6	1.0
Does not have bachelor's degree	47.7	54.8	0.9	57.6	0.8	56.5	0.8
<b>Gender</b>							
Male	48.9	46.4	1.1	46.8	1.0	46.5	1.1
Female	51.1	53.6	1.0	53.2	1.0	53.5	1.0
<b>Time in current home</b>							
Less than 1 year	18.7	2.8	6.7	1.8	10.6	2.4	7.8
1 to 4 years	27.2	12.5	2.2	11.0	2.5	11.4	2.4
5 years or more	54.0	84.7	0.6	87.2	0.6	86.2	0.6
<b>Language other than English spoken at home</b>							
Yes	40.3	26.7	1.5	25.3	1.6	23.7	1.7
No	59.7	73.3	0.8	74.7	0.8	76.3	0.8

<sup>1</sup> Note: Data in this table have been imputed to remove missing data. This involved imputing 181 (2.6%) cases for age based on the median age for each cases relationship to person 1, 190 cases (2.7%) for country of birth imputed to come from a Non-English speaking country, 175 cases (2.5%) for education imputed to not have a bachelor's degree, 88 cases (1.3%) for time in home (years living at current address) imputed to have been there for longer than 5 years, and 142 cases (2.0%) for language who were imputed to speak a language other than English at home. This level of missing data is typical of many research surveys and should not have a meaningful effect on the final weight. Note that missing and "other" categories for gender have not been imputed. Since the ABS does not provide benchmarks for "other" genders, to avoid the need to misgender respondents our standard approach for weighting is to adjust the benchmarks to have "other" equal the sample proportion, but this is not necessary for this stage of the process.

<sup>2</sup> The categories have been collapsed here from those originally in the data file to assist in creating a more efficient weight. Categories have been chosen so that cases that need to be weighted up are grouped into separate categories from those that need to be weighted down.

Category	2015			2017		2019	
	Pop %	Samp %	Ave. weight	Samp %	Ave. weight	Samp %	Ave. weight
<b>Suburb</b>							
Glenroy	13.7	7.0	2.0	7.3	1.9	8.5	1.6
Fawkner	8.5	7.6	1.1	6.5	1.3	8.1	1.0
Oak Park	3.8	9.1	0.4	9.1	0.4	8.9	0.4
Hadfield	3.4	7.7	0.4	8.7	0.4	6.1	0.6
Gowanbrae/ Tullamarine	1.8	6.0	0.3	7.1	0.3	4.5	0.4
Pascoe Vale	10.5	7.9	1.3	9.9	1.1	11.4	0.9
Pascoe Vale South	6.2	10.4	0.6	8.1	0.8	9.3	0.7
Coburg	16.1	8.3	1.9	8.9	1.8	9.5	1.7
Coburg North	4.7	9.5	0.5	7.9	0.6	7.1	0.7
Brunswick	15.1	8.0	1.9	9.2	1.6	10.5	1.4
Brunswick East/ Fitzroy North	7.6	9.4	0.8	8.4	0.9	8.0	1.0
Brunswick West	8.7	9.1	1.0	8.9	1.0	8.2	1.1

Key: Pop % = Population percentage, Samp % = sample percentage, Ave. weight = Average weight.

In selecting variables for weighting two factors should be considered.

The first is the presence of non-response bias (i.e. the extent to which the characteristics of respondents to the survey differ from those of the general population). If serious non-response bias isn't present including the variable as a benchmark will have little effect on the weight and is less necessary to include (i.e. little or no weighting is needed to correct the variable for bias).

The second factor is the effect of the variable on other survey outcomes to be estimated. If there is bias associated with a variable, but that variable doesn't affect a respondent's answer to other questions in the survey, weighting that variable will not have a meaningful effect on survey estimates other than introducing unnecessary variance. Alternately if the variable does show a strong association with the respondent's answer to one or more questions (response variables), weighting may be needed to correct for bias, and becomes more important to do so where more response variables it affects.

Figure 1 graphs these two factors for the variables being considered for inclusion in the weighting scheme. The presence of non-response bias is measured here by weighting inefficiency (Kish, 1965)<sup>3</sup>. This gives a measure of the amount of work the weights need to do to correct bias for each variable as a univariate weight. The influence of the variable on other estimates is measure by the average chi-square term. Chi-square gives the level of association between two categorical variables. The formula for this is:

$$X^2 = \sum_{i=1}^K \frac{(O_i - E_i)^2}{E_i}$$

Where:

<sup>3</sup> This is more commonly expressed as weighting efficiency, with high scores representing a weight that is more efficient. Inefficiency is used here so high scores represent greater need for weighting.

$X^2$  = Chi-squared

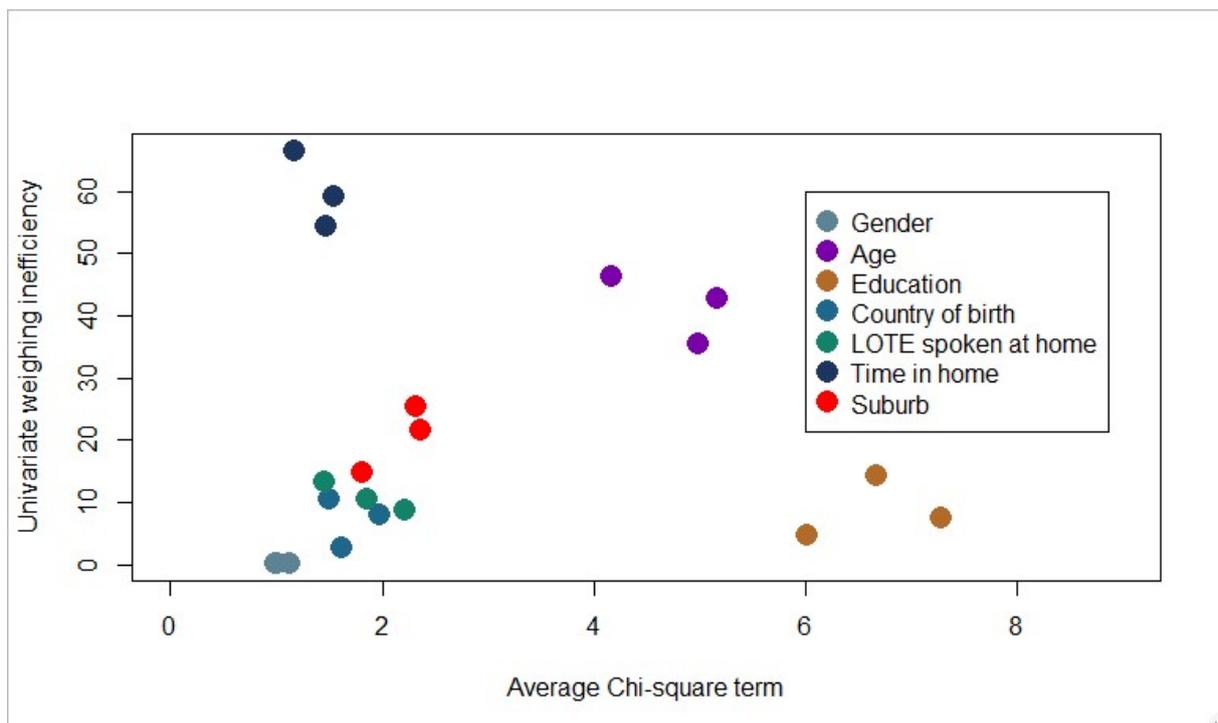
$O_i$  = Observed value

$E_i$  = Expected value

$K$  = The number of cells in the cross-classification of the two variables.

Here the addition term is substituted for the mean of terms so that variables with higher number of categories aren't artificially inflated relative to those with fewer categories. The variables chosen to observe the effect on other estimates are those from the tables in Appendix 1.

The variable represented by the dots in the lower left part of the figure can be withdrawn from consideration for weighting. They have little effect on other survey estimates and show little evidence of non-response bias. It should be noted that the current weighting variable, suburb (Market Solutions, 2019), is among this list, suggesting that the original weighting scheme is not addressing the most important sources of error. Only age represents a variable that shows both high levels of bias and influence on other variables. Time in home (years lived at current address) is extremely biased, though relatively unimportant to other survey items, so introducing this into the weights has the potential to add large amounts of variance to the estimates that don't require this adjustment. Education is very influential to other items, so may be important to correct for, but only has modest amounts of non-response bias associated with it, so will have little effect on the weights. Since there's already a reasonable degree of inefficiency (~ 50%) in weighting for age alone, the final weights will not attempt to add extra variables to the weighting solution.



**Figure 1. Non-response bias presence (y-axis weighting inefficiency) versus outcome bias importance (x-axis Chi-square term).**

Note: **Non-response bias** is measured in terms of weighting inefficiency (Kish, 1965) and gives a measure of the amount of work the weights would need to do to correct for non-response bias (i.e. need to correct sample population to overall population). **Outcome bias** is measured by the average chi-square term and gives the level of association between two categorical variables (i.e. whether the

variable causes bias in one or more responses to survey questions). **Time in home** refers to length of time (years) living at current address.

### 3. Weight calculation and evaluation

Two weights were calculated for each year of the survey: an individual weight and a household weight. Both weights were calculated using R software package (R Core Team, 2019) with the household weight additionally using the *survey* package (Lumley, 2019). Some descriptive statistics for the weights case be seen in Table 2.

Note: The household weight differs from the individual weight in that it is calculated using household as the unit to be weighted, so each member of the household is given the same weight, even though the benchmarks used are at the individual case level. For this to work correctly so the weight adds simultaneously at the individual and household level to the correct population count, an extra benchmark variable is required indicating the primary member of the household. The benchmark used for calculating this weight was the number of households in the population at the last population census (70704) for the primary members and the number of individuals in the population minus the number of households at the last population census (162,560 – 70,704 = 91,856) for other household members. Because the household weights are adjusting entire households as units, they often have more extreme values for the weights, therefore are less efficient than individual level weights.

**Table 2. Basic descriptives for the 6 weighting variables.**

Weight	Year	Inefficiency <sup>4</sup>	Minimum	Maximum
Household	2015	61.8	13.3	432.0
	2017	66.0	13.4	446.6
	2019	65.2	18.5	531.2
Individual	2015	35.5	31.4	147.0
	2017	42.7	29.8	165.9
	2019	46.3	39.2	245.9

While the potential benchmark variables other than age have not been included in the weight scheme, it is likely that adjusting for age will bring them more in line with their benchmarks. Table 3 suggests this is the case for the two other potentially most serious sources of bias from Figure 1: education and time spent living in the home. However, the percentage estimates for people born in non-English speaking countries and those speaking a language other than English at home actually moved away from the benchmarks, suggesting that these biases were somewhat ameliorated by the age bias, (i.e. getting more older people, meant getting more people from culturally and linguistically diverse backgrounds, even if these groups were less likely to respond to the survey than other older people). Consideration was given to adding country of birth or language to the weighting solution in light of this, however the drop in efficiency was considered too high given it required the weights to pull the sample in two different directions, particularly given these variables were of low importance (on the whole) for other survey estimates.

<sup>4</sup>The presence of non-response bias is measured here by weighting inefficiency (Kish, 1965) This is more commonly expressed as weighting efficiency, with high scores representing a weight that is more efficient. Inefficiency is used here so high scores represent greater need for weighting.

**Table 3. Improvement relative to benchmarks for non-selected potential weighting variables.**

Category	Benchmark	Unweighted		Weighted		Abs. imp.
	%	%	Diff.	%	Diff.	
<b>Country of birth</b>						
Australia	63.6	71.3	7.7	78.3	14.8	-7.1
Other English-speaking country	5.7	5.5	-0.3	4.4	-1.3	-1.0
Non-English-speaking country	30.7	23.3	-7.4	17.2	-13.5	-6.1
<b>Education</b>						
Has bachelor's degree	39.1	33.8	-5.2	41.7	2.7	2.6
Does not have bachelor's degree	60.9	66.2	5.2	58.3	-2.7	2.6
<b>Gender</b>						
Male	48.9	46.6	-2.3	48.4	-0.5	1.8
Female	51.1	53.4	2.3	51.6	0.5	1.8
<b>Time in current home</b>						
Less than 1 year	18.7	2.3	-16.4	3.7	-15.0	1.4
1 to 4 years	27.2	11.7	-15.5	17.9	-9.4	6.2
5 years or more	54.0	86.0	31.9	78.4	24.4	7.6
<b>Language other than English spoken at home</b>						
Yes	40.3	25.4	-14.9	22.1	-18.2	-3.3
No	59.7	74.6	14.9	77.9	18.2	-3.3
<b>Suburb</b>						
Glenroy	13.7	7.5	-6.2	7.3	-6.4	-0.2
Fawkner	8.5	7.4	-1.1	7.2	-1.3	-0.2
Oak Park	3.8	9.1	5.2	9.1	5.3	-0.1
Hadfield	3.4	7.6	4.2	7.1	3.7	0.5
Gowanbrae/ Tullamarine	1.8	6.0	4.2	5.9	4.2	0.0
Pascoe Vale	10.5	9.5	-0.9	9.1	-1.4	-0.5
Pascoe Vale South	6.2	9.3	3.1	9.4	3.2	-0.1
Coburg	16.1	8.8	-7.3	9.6	-6.5	0.7
Coburg North	4.7	8.3	3.6	8.2	3.5	0.1
Brunswick	15.1	9.1	-5.9	9.1	-5.9	0.0
Brunswick East/ Fitzroy North	7.6	8.7	1.1	9.2	1.7	-0.6
Brunswick West	8.7	8.8	0.1	8.8	0.1	0.0

Key; Diff = Difference between percentage and benchmark percentage, Abs. Imp. = Absolute Improvement is the improvement if the percentage difference in absolute terms (e.g. a change from -5% to +2% represents an absolute improvement of +3%).

Appendix 1 shows revised estimates for several key variables from the survey, alongside similar tables from the 2019 Household Survey Report. Some interesting changes to note with the revised weighting included:

- increases in the percentage of respondents in “Excellent” health.
- falls in the proportion of respondents participating in gardening
- increased access to the internet via mobile phone and laptop
- increase use of Moreland council social media as an information source or having no information source on council matters and less use of the Moreland Leader.
- a decrease in the proportion of people trying to use less water and gas

## 4. Summary and recommendations

While the reweighting of the household surveys has improved the reliability of estimates coming out of the survey, there are some important caveats to note.

Due to the amount of 'work' the weights were required to do to reduce the age bias present in the past datasets of the household survey, some potentially important secondary sources of bias were not included and therefore remain unaccounted for in the weighting. In particular, our study indicates that other key sources of bias in the existing datasets include;

- Education (does or doesn't have a bachelor's degree and/or is younger than 20)
- Length of time living at current address (time in home) (Less than 1 year, 1 to 4 years or 5+ years)
- Measures of cultural and linguistic diversity (country of birth and/or language spoken at home)<sup>5</sup>.

While our original intention was to incorporate such sources of bias into the weighting scheme, our study showed that after weighting for the age bias already present in the survey sample, incorporating weighting for bias in these other variables resulted in highly inefficient weights (measured as per; Kish, 1965). In other words, incorporating variables other than age into the weighting scheme resulted in so much weighting being applied to the samples that the results became unreliable. Therefore, the final reweighted datasets from the household survey are only weighted based on age.

### Revised weighting scheme

Only age represented as a variable that showed **both** high levels of bias and influence on other variables in the dataset (see Figure 1), and was therefore prioritised for the revised weighting scheme. Note; suburb was tested and was found to have little effect on other survey estimates and show little evidence of non-response bias, suggesting that the original weighting scheme (which included suburb) was not addressing the most important sources of error.

The categories for weighting age were collapsed from those originally in the data file to assist in creating a more efficient weight (as per table 1). Categories have been chosen so that cases that need to be weighted up are grouped into separate categories from those that need to be weighted down. While the potential benchmark variables other than age have not been included in the weight scheme, it is likely that adjusting for age will bring them more in line with their benchmarks.

Overall, this has resulted in a weight that better identifies and remedies the non-response bias present in these surveys and will therefore produce more reliable estimates for the Moreland City Council to apply in decision making.

### Recommendations

- Proactive consideration should be given to calculating design weights for future iterations of the survey, which would require the provision of detailed sampling information from the survey provider (e.g. case level information on respondents contacted, means of contact and outcomes). While it is difficult to know the effect this would have on survey estimates, it is in line with best weighting practice and would likely result in greater survey accuracy. In particular, Section 5.6 of the previous report to Moreland City Council (Social Research

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<sup>5</sup> Respondents who have spent less time in their home are still underrepresented by weighted estimates, while respondents from culturally and linguistically diverse backgrounds are more underrepresented in weighted estimates than they are in unweighted estimates.

Centre, 2020) has some suggestions for improving the representation of young people in surveys. This would give greater leeway to include more variables in the weighting in the future, further ameliorating bias. Additionally, consideration should be given to using similar techniques to reach other underrepresented groups.

- While exclusion of prospective sources of bias in the survey data from the weighting scheme (other than age) is expected to have relatively limited influence on survey estimates as a whole, the effect on individual estimates might be more pronounced. Where this is likely to be a problem consideration should be given to reporting results cross-classified by these variables rather than reporting the full sample result.

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# Appendix 1 Revised Report Tables

Re-weighted results 2020:

		2015 (n=2600) %	2017 (n=2483) %	2019 (n=1829) %
How would the person describe their general health level? (please circle one only)	Excellent	40.3	36.0	37.4
	Very good	33.4	37.2	33.4
	Good	17.3	17.4	17.8
	Fair	6.3	7.3	7.5
	Poor	2.3	2.0	3.1
	Can't say	0.4	0.1	0.7

Results as originally reported 2019:

		2013 (n=2539) %	2015 (n=2600) %	2017 (n= 2483) %	2019 (n=1829) %
<b>11</b> How would the person describe their general health level? (please circle one only)  <i>Base: All answering</i>	Excellent	34.2	31.0	25.3	23.7
	Very good	32.4	32.1	36.4	32.0
	Good	21.2	22.5	22.3	24.2
	Fair	9	9.5	11.4	13.6
	Poor	2.7	4.3	4.4	5.9
	Can't say	0.4	0.6	0.2	0.7

Re-weighted results 2020:

		2015 (n=2567) %	2017 (n=2469) %	2019 (n=1822) %
What are the recreation, exercise and/or sporting activities the person usually participates in? (please circle as many as appropriate)	Walking (streets, parks)	47.5	45.0	51.2
	Gym	13.4	16.7	18.0
	Cycling/ bike riding	20.3	16.2	17.8
	Gardening	15.2	15.2	15.8
	Swimming	15.0	14.6	14.1
	Exercise in a park	9.2	8.9	10.1
	Running	9.7	8.9	9.6
	Yoga/ Pilates/ Tai Chi	7.5	6.7	9.0
	Other activity	8.9	9.3	7.9
	Dancing	7.1	5.4	7.0
	Group fitness classes	5.6	6.9	6.8
	Other sport (playing)	4.3	5.1	5.3
	Australian rules (playing)	4.6	4.3	5.0

Basketball	4.3	3.6	5.0
Tennis	4.0	3.9	4.8
Cricket	3.1	3.0	4.0
Golf	3.7	3.5	4.0
Soccer	6.2	5.2	3.5
Netball	3.0	2.2	2.7
Athletics	1.4	1.8	1.7
Skateboarding/ BMX	0.7	0.7	1.5
Boot camp/ outdoor fitness	1.6	0.9	1.3
Lawn bowls	0.7	0.8	0.6
Badminton	0.8	0.4	0.3
None of these	15.0	14.4	15.4

Results as originally reported 2019:

		2013 (n=2507)	2015 (n=2567)	2017 (n= 2469)	2019 (n=1822)	
		%	%	%	%	
<b>20</b>	<b>What are the recreation, exercise and/or sporting activities the person usually participates in?</b>	Walking (streets, parks)	51.9	49.6	50.1	53.3
	(please circle as many as appropriate)	Gardening*	-	20.1	23.5	26.2
		Cycling/ bike riding	20.2	16.4	15.0	14.0
		Swimming	18.2	12.7	11.1	10.9
		Gym	11.8	10.8	12.9	13.8
		Other activity	8.1	8.6	7.4	6.8
		Exercise in a park	9.1	7.2	7.1	6.8
		Yoga/ Pilates/ Tai Chi	6.5	6.8	6.9	7.9
		Dancing	5.2	5.8	5.0	5.8
		Running	8.2	5.7	6.7	6.1
		Group fitness classes	6.6	5.2	6.2	7.2
		Soccer	4.6	4.6	3.5	2.2
		Other sport (playing)	3.9	4.0	3.1	3.8
		Golf	5.2	3.9	4.1	4.4
		Tennis	4.0	3.0	3.1	2.8
		Australian rules (playing)	2.8	2.9	2.1	2.4
		Basketball	3.0	2.8	1.6	2.5
		Cricket	2.6	2.2	1.8	2.1
		Netball	1.5	2.1	1.2	1.2
		Boot camp/ outdoor fitness	0.8	1.4	0.6	0.7
	Athletics	1.0	1.2	1.1	1.1	
	Lawn bowls	1.9	1.2	1.5	1.0	
	Skateboarding/ BMX	1.3	0.9	0.5	0.7	
	Badminton	0.3	0.4	0.4	0.3	
	<i>None of these</i>	15.4	17.4	17.2	17.3	

\* New category in 2015

Base: All answering

Re-weighted results 2020:

		2015	2017	2019
		(n=0)	(n=2438)	(n=1789)
		%	%	%
Which of the following, if any, recreation and/or leisure services does the person use? (please circle as many as appropriate)	Sports clubs	-	13.1	13.7
	Active open space (e.g. sports ovals, sportsgrounds)	-	21.7	24.8
	Passive open space (e.g. parks, gardens and open space)	-	37.5	32.7
	Outdoor gym equipment	-	3.0	3.6
	Children's playgrounds	-	19.3	19.2
	Walking tracks	-	33.4	33.9
	Golf course	-	1.6	3.4
	Privately run sports activities (e.g. dancing, martial arts)	-	4.7	6.3
	Athletic centres	-	1.4	1.9
	Waterways	-	5.6	4.0
	Bicycle paths	-	22.8	24.1
	Moreland City Council run aquatic and leisure centres	-	23.3	22.1
	Privately run gyms or health clubs	-	9.1	12.6
	Privately run swim clubs	-	2.2	2.3
	Recreation & leisure facilities	-	14.1	12.5
None, do not use recreational & leisure services	-	25.7	27.3	

Results as originally reported 2019:

		2013 (n=)	2015 (n=)	2017 (n= 2438)	2019 (n=1789)	
		%	%	%	%	
21	Which of the following, if any, recreation and/or leisure services in Moreland does the person use?  (please circle as many as appropriate)	Sports clubs	-	-	10.1	9.1
		Active open space (e.g. sports ovals, sportsgrounds)	-	-	17.1	19.4
		Passive open space (e.g. parks, gardens and open space)	-	-	33.3	31.6
		Outdoor gym equipment	-	-	3.0	3.5
		Children's playgrounds	-	-	11.1	11.5
		Walking tracks	-	-	31.0	30.4
		Golf course	-	-	2.1	3.2
		Privately run sports activities (e.g. dancing, martial arts)	-	-	3.2	3.7
		Athletic centres	-	-	1.3	1.3
		Waterways	-	-	5.3	4.0
		Bicycle paths	-	-	20.1	19.1
		Moreland City Council run aquatic and leisure centres	-	-	20.6	20.4
		Privately run gyms or health clubs	-	-	6.6	8.1
		Privately run swim clubs	-	-	1.1	1.1
		* New question in 2017	Recreation & leisure facilities outside of Moreland	-	-	10.6
	None, do not use recreational & leisure services	-	-	32.8	33.5	

Re-weighted results 2020:

		2015 (n=2587)	2017 (n=2473)	2019 (n=1822)
		%	%	%
How does the person access the internet? (please circle as many as appropriate)	Mobile phone	50.0	62.3	63.7
	Laptop	0.0	54.9	53.2
	Tablet	41.1	41.3	36.0
	Own home computer	58.9	39.5	31.6
	Public library	2.8	1.6	2.2
	Shared home computer	23.0	0.0	0.0
	Work computer	21.2	0.0	0.0
	Other	1.3	0.0	0.0
	Does not access the internet	7.9	5.1	5.3
	Not applicable	4.8	6.3	7.6

Results as originally reported 2019:

		2013 (n=2520)	2015 (n=2587)	2017 (n= 2473)	2019 (n=1822)
		%	%	%	%
<b>23</b>	<b>How does the person access the internet?^</b>				
	(please circle as many as appropriate)				
	Own home computer	58.7	56.1	38.9	36.2
	Mobile phone	37.5	41	52.2	53.8
	Tablet	26.9	26.2	36.7	33.5
	Work computer	23.5	20	0.0	0.0
	Shared home computer	21.7	19	0.0	0.0
	Public library	3	3.0	2.4	2.3
	Other	1.9	1.5	0.0	0.0
	Laptop *	0	0	46.2	42.5
* New attribute in 2017					
^Question wording changed in 2019					
Base: All answering					
	Does not access the internet	9.8	12.9	9.0	8.0
	Not applicable (go to Q.28)	8	6.5	8.8	11.0

Re-weighted results 2020:

		2015 (n=0)	2017 (n=2435)	2019 (n=1804)
		%	%	%
What are the person's main sources of information for news about Council? (please circle as many as appropriate)	Moreland Council website	-	12.1	14.4
	Moreland Council social media	-	3.9	5.1
	Council's Inside Moreland magazine	-	0.0	11.9
	Council offices	-	0.0	1.9
	By telephoning Council	-	0.0	5.4
	Attending Council meetings	-	0.0	0.7
	Moreland Leader	-	35.0	24.0
	Library	-	0.0	4.3
	The Age	-	5.9	5.6
	Herald Sun	-	6.6	5.6
	Other newspapers	-	1.1	1.2
	Television	-	7.9	6.1
	Radio	-	6.5	4.3
	Multicultural publications/radio	-	0.0	0.3
	Friends and family	-	20.7	19.7
	Other (please specify)	-	3.5	2.0
	Don't get information about Council	-	27.8	27.4
	Can't say	-	11.9	16.0

Results as originally reported 2019:

		2013 (n=)	2015 (n=)	2017 (n= 2435)	2019 (n=1804)
		%	%	%	%
<b>32</b>	<b>What are the person's main sources of information for news about Council?^</b>				
	(please circle as many as appropriate)				
	Moreland Council website	-	-	13.0	17.3
	Moreland Council social media (e.g. Facebook, Twitter)	-	-	3.3	4.0
	Moreland Leader	-	-	47.7	37.1
	Council's Inside Moreland magazine			0.0	20.1
	The Age	-	-	8.8	7.7
	The Herald Sun	-	-	9.2	8.6
	Other newspapers	-	-	1.5	1.2
	Television	-	-	10.2	9.9
	Radio	-	-	9.2	6.7
	Friends and family	-	-	21.2	18.7
	Council offices	-	-	0.0	2.8
	By telephoning Council	-	-	0.0	8.4
	Attending Council meetings	-	-	0.0	0.7
	Library	-	-	0.0	6.9
	* New question in 2017				
^Question wording changed in 2019					
Multicultural publications/radio	-	-	0.0	0.6	
Other	-	-	4.0	1.8	
Don't get information about Council	-	-	18.4	17.6	
Base: All answering					
Can't say	-	-	9.9	11.0	

Re-weighted results 2020:

		2015 (n=1070)	2017 (n=1029)	2019 (n=673)
		%	%	%
<b>IF IN THE WORKFORCE</b> (otherwise go to Q.47) How does the person usually travel to work? (please circle as many as appropriate)	Car (as driver)	67.3	66.1	67.0
	Train	18.4	22.2	18.4
	Tram	18.0	16.1	18.3
	Bicycle	11.5	10.4	9.2
	Bus	3.8	5.1	4.4
	Car (as passenger)	5.3	4.9	4.2
	Walk only	3.7	3.3	3.3
	Only work at home	2.3	2.1	2.4
	Motorcycle/ scooter	1.8	1.8	0.9
	Other	1.1	1.0	1.1

Results as originally reported 2019:

		2013 (n=1190)	2015 (n=1070)	2017 (n= 1029)	2019 (n=673)
		%	%	%	%
<b>38</b>	<b>How does the person usually travel to work?</b>	63.6	66	63.0	65.3
	(please circle as many as appropriate)	19.1	19.6	16.4	19.8
	Car (as driver)	16.4	15	19.3	16.0
	Tram	13.9	11.7	12.0	9.8
	Train	4.8	6.1	5.4	4.2
	Bicycle	4.9	4.4	4.3	4.6
	Car (as passenger)	3.7	4.1	4.5	3.8
	Walk only	3.8	2.8	3.3	4.4
	Bus	1.6	1.3	1.2	1.4
	Only work at home (go to Q.40)	1.3	1.3	1.6	1.1
Motorcycle/ scooter					
Other					

Base: Currently employed

Re-weighted results 2020:

		2015 (n=2521)	2017 (n=2180)	2019 (n=1805)
		%	%	%
What discourages the person from using public transport more frequently? (please circle as many as appropriate)	Travel time	22.6	30.3	21.3
	Waiting time	24.7	26.2	20.7
	Personal safety	16.1	19.8	12.9
	Too many connections/ modes to destination	0.0	0.0	12.6
	Cost	13.4	17.5	12.4
	Comfort	14.5	15.5	12.2
	Distance of stop from destination	8.0	8.8	7.9
	Weather	12.1	14.8	7.7
	Distance of stop from home	8.1	12.0	5.6
	Own a car/ prefer/ need to drive	2.0	5.0	1.9
	Old age/ health/ mobility issues	1.7	0.0	1.8
	Too young	0.4	0.0	0.9
	Too difficult with kids/ not pram friendly	0.5	0.0	0.9
	Too crowded	0.7	0.0	0.4
	Unreliable	0.8	0.0	0.3
	Inconvenient NFI	0.6	0.0	0.1
	No direct route to destination	0.7	0.0	0.0
	Rude/ aggressive/ unhygienic people/ ticket inspectors	0.1	0.0	0.0
	MYKI/ ticketing issues	0.5	0.0	0.0
Not answered	0.0	0.0	0.0	

	Other	2.5	15.3	5.6
	Nothing	28.3	8.4	28.6
	Not applicable	13.3	23.3	16.4

Results as originally reported 2019:

		2013 (n=2459)	2015 (n=2521)	2017 (n=2533)	2019 (n=1805)
		%	%	%	%
<b>51</b>	<b>What discourages the person from using public transport more frequently?</b>				
	(please circle as many as appropriate)				
	Waiting time	26.3	22.9	20.3	16.3
	Travel time	23.7	21.3	23.9	15.8
	Personal safety	14.7	15.5	15.8	12.2
	Comfort	13.1	15.1	14.4	11.2
	Weather	9.9	11.7	14.3	6.3
	Cost	16.1	11.1	15.2	8.8
	Distance of stop from destination	7.6	7.0	7.6	5.8
	Distance of stop from home	8.7	5.8	7.9	4.7
	Too many connections/ modes to destination	-	-	-	10.6
	Old age / health / mobility issues	2.4	2.9	0.0	3.7
	Own a car / prefer / need to drive	2.4	2.0	5.1	3.3
	Inconvenient (NFI)	0.3	0.8	0.0	0.2
	No direct route to destination	0.0	0.8	0.0	
	Unreliable	0.3	0.6	0.0	0.3
	Too difficult with kids / not pram friendly	0.5	0.5	0.0	0.3
	Too crowded	0.4	0.5	0.0	0.5
	MYKI / ticketing issues	0.5	0.5	0.0	0.1
	Too young	0.2	0.2	0.0	0.4
Rude / aggressive / unhygienic people / ticket inspectors	0.6	0.2	0.0	0.0	
Other	2.2	2.5	12.5	5.0	
Nothing	28.8	30.2	10.1	32.3	
Not applicable	12.7	12.8	28.2	15.3	

Base: All answering

Re-weighted results 2020:

		2015 (n=1090)	2017 (n=1111)	2019 (n=818)
		%	%	%
Which of the following YOUTH SERVICES does your household currently use?	Youth activities (e.g. Life skills, recreation, arts and music)	2.1	2.6	2.4
	Education and employment	1.1	2.4	1.5
	Mental health services	2.7	1.3	1.4
	Health information and resources	2.9	2.0	1.2
	Individual youth counselling and support	0.3	1.3	0.9

	Family counselling and mediation	0.0	0.2	0.6
	Drug and alcohol services	0.0	0.3	0.2
	Housing services	0.6	0.5	0.2
	Support groups	0.8	1.9	0.1
	Youth resource centre/facility	0.4	1.5	0.1
	Leadership programs	0.6	0.1	0.0
	Do not use youth services	90.4	90.3	93.5

Results as originally reported 2019:

<b>53</b>	<b>Which of the following YOUTH SERVICES does your household currently use? ^</b>				
	<i>(Please circle as many as appropriate)</i>				
		<b>2013</b>	<b>2015</b>	<b>2017</b>	<b>2019</b>
		<b>(n=1009)</b>	<b>(n=1090)</b>	<b>(n=1111)</b>	<b>(n=818)</b>
		%	%	%	%
		3.3	1.7	1.2	1.0
	Health information and resources				
	Youth activities (e.g. Life skills, recreation, arts and music)	2.3	1.5	1.2	1.6
	Mental health services *	-	1.5	0.9	0.8
	Housing services *	-	1.1	0.6	0.4
	Education and employment support	2.4	1.0	1.3	0.9
	Leadership programs	0.3	0.5	0.3	0.1
	Support groups	0.3	0.4	0.7	0.1
	Individual youth counselling and support	1.4	0.2	0.7	1.0
Family counselling and mediation	0.6	0.2	0.3	0.5	
^ Wording changed in 2015	Youth resource centre/facility	0.2	0.1	1.1	0.3
* New category in 2015	Drug and alcohol services *	-	0.0	0.3	0.2
<i>Base: All answering</i>	<b>Do not use youth services</b>	<b>92.7</b>	<b>90.0</b>	<b>88.9</b>	<b>88.1</b>

Re-weighted results 2020:

		2015	2017	2019
		(n=1111)	(n=1121)	(n=872)
		%	%	%
Which of the following ARTS & CULTURE SERVICES does your household currently use?	Library service	50.3	49.6	43.5
	Sydney Road street party	27.8	22.9	27.7
	Festivals (outside Moreland)	30.2	27.3	27.1
	Music events	27.2	16.9	25.2
	Theatres	22.7	14.9	20.5
	Art galleries	21.7	16.8	20.2
	Brunswick Music Festival	19.1	11.2	16.7
	Library events	10.5	9.5	10.0
	Carols by the Lake	6.3	9.6	7.3
	Coburg Carnivale	7.1	11.0	6.1
	Fawkner Festa	5.6	5.0	5.7
	Mechanics Institute	2.9	2.1	5.1

	Glenroy Festival	5.0	6.7	5.0
	Art workshops	2.3	1.4	4.9
	Counihan Gallery, Brunswick	6.1	5.1	3.9
	Movies in the park series	5.1	7.1	2.3
	Music for the People Concert	1.5	1.6	1.3
	MoreArt	1.5	1.4	1.0
	Do not use arts & culture services	25.1	29.4	35.1

Results as originally reported 2019:

54	Which of the following ARTS & CULTURE SERVICES does your household currently use? ^	(Please circle as many as appropriate)			
		2013 (n=1025) %	2015 (n=1111) %	2017 (n=1121) %	2019 (n=872) %
	Library service	56.6	46.7	47.5	43.3
	Sydney Road street party	30.8	26.4	28.7	23.4
	Festivals (outside Moreland)	34.7	24.0	20.4	19.2
	Theatres	26.6	21.5	16.8	18.5
	Art galleries	26.8	21.1	18.3	18.7
	Music events	27.4	20.7	18.5	19.8
	Brunswick Music Festival	20.2	18.6	15.6	15.1
	Library events	16.4	9.2	7.2	11.2
	Counihan Gallery, Brunswick	13.3	8.4	7.7	8.1
	Coburg Carnivale	9.3	6.4	9.0	6.0
	Carols by the Lake	11.6	6.4	7.7	7.2
	Mechanics Institute	5.4	4.1	3.3	5.5
	Glenroy Festival	5.2	4.0	3.8	4.8
	Fawkner Festa	3.0	3.2	3.3	3.0
	Movies in the park series	8.3	2.9	3.9	3.1
	Art workshops	4.7	2.7	1.7	4.0
	Music for the People Concert	4.9	2.0	1.9	1.6
	MoreArt	1.7	1.0	1.7	0.9
	<b>Do not use arts &amp; culture services</b>	<b>23.7</b>	<b>29.8</b>	<b>27.7</b>	<b>35.5</b>

^ Wording changed in 2015

Base: All answering

Re-weighted results 2020:

		2015 (n=1111) %	2017 (n=1125) %	2019 (n=856) %
Thinking about facilities and/or infrastructure in Moreland, what do you think are the FIVE MAIN areas needing improvement or development?	Trees and plants	29.6	26.7	35.2
	Public toilets	37.0	33.4	32.8
	Footpaths	29.3	29.2	28.2
	Passive open space (e.g. parks and gardens)	23.1	22.2	27.0
	Local shopping areas	22.9	25.0	26.1
	CCTV cameras in public spaces	23.4	28.7	25.9
	Local roads	26.8	24.6	22.9
	Parking facilities	26.5	26.3	22.8
	Street lighting	28.9	19.7	20.0

Cycling paths	20.1	16.8	19.9
Playgrounds and play equipment	12.3	15.3	15.1
Open space facilities (e.g. picnic areas, BBQs)	14.7	11.7	15.1
Open space infrastructure (e.g. seating, shelter, lighting)	17.7	11.9	14.7
Recreation areas	6.4	11.5	14.6
Walking tracks	14.7	10.0	14.5
Leisure/aquatic centres	9.0	18.8	11.9
Facilities for seniors	10.0	10.8	10.8
Public art	9.2	5.0	9.8
Public Wi-Fi facilities	14.9	12.5	8.5
Entertainment facilities	10.1	7.1	8.4
Sport facilities	9.1	16.5	7.3
Facilities for babies and young children	5.2	5.3	6.7
Active open space (e.g. sports fields)	5.0	5.5	6.4
Outdoor social spaces	7.3	7.7	6.0
Performance areas/spaces	3.1	4.7	4.3
Facilities for youth	5.6	6.6	4.2
Indoor social spaces	2.1	5.4	4.0
Community meeting spaces	5.0	3.3	2.5
Dedicated youth centre	2.0	2.7	1.2
Other	4.4	6.8	3.2
Can't say	5.0	6.9	4.9

Results as originally reported 2019:

Thinking about facilities and/or infrastructure in Moreland, what do you think are the FIVE MAIN areas for **improvement** or development? ^

<i>(Please circle FIVE only)</i>	2013	2015	2017	2019
	(n=1012)	(n=1052)	(n=1073)	(n=856)
	%	%	%	%
Public toilets	33.1	37.7	36.0	36.7
Footpaths	31.0	36.5	34.2	34.5
Trees and plants	31.3	30.1	30.0	37.8
Local roads	24.1	28.7	23.8	24.1
Parking facilities	26.6	27.8	29.8	26.7
Street lighting	17.0	24.1	21.9	17.6
Passive open space (e.g. parks and gardens)	32.5	23.9	20.1	23.3
CCTV cameras in public spaces	25.3	23.2	32.2	22.3
Local shopping areas	24.0	21.9	21.7	19.8
Open space infrastructure (e.g. seating, shelter, lighting)	13.6	14.9	13.7	17.0
Cycling paths	18.6	14.9	16.8	15.5
Walking tracks	16.6	13.7	13.5	15.1
Facilities for seniors	16.6	12.1	15.6	17.5
Open space facilities (e.g. picnic areas, BBQs)	15.2	11.3	9.5	11.2
Public Wi-Fi facilities	11.1	11.3	7.7	6.9
Playgrounds and play equipment	12.3	8.2	8.2	8.8
Sport facilities	11.3	7.2	9.0	7.7
Recreation areas	11.0	7.0	8.1	10.6
Entertainment facilities	8.0	6.8	4.9	6.0
Leisure/aquatic centres	7.8	6.6	11.0	7.6
Outdoor social spaces	8.6	5.4	5.4	5.7
Public art	4.4	5.3	6.2	6.0
Facilities for youth	10.2	4.8	5.9	3.7
Community meeting spaces	3.8	4.2	3.3	2.5
Active open space (e.g. sports fields)	4.8	4.1	2.8	5.2
Facilities for babies and young children	3.8	3.4	2.7	2.3
Performance areas/spaces	3.8	3.1	4.6	3.5
Indoor social spaces	4.3	2.7	2.7	3.9
Dedicated youth centre	2.8	1.3	2.0	1.1
Other	4.0	2.0	6.5	6.2
Can't say	6.2	8.9	7.8	8.0

^ Wording changed in 2015

Base: All answering

Re-weighted results 2020:

		2015	2017	2019
		(n=1096)	(n=1058)	(n=830)
		%	%	%
Thinking about Council services in Moreland, what do you think are the FIVE MAIN areas needing improvement or development?	Parks and open space maintenance	31.4	33.6	34.0
	Tree and shrub planting	23.9	22.2	33.9
	Graffiti removal	28.1	23.9	27.2
	Street cleansing	31.7	30.1	26.7
	Planning and building approvals	28.3	27.7	26.5
	Town planning policy	28.3	26.8	23.1
	Waste services	20.1	21.7	22.4

Home and community care (HACC) (elderly support services)	18.3	16.8	19.2
Libraries	13.2	14.8	18.7
Recreation and leisure services	13.3	17.7	15.5
Enforcement of local laws	15.7	16.5	14.5
Public education programs	9.2	11.9	12.2
Community consultation	13.6	16.8	12.0
Arts and cultural services	6.8	4.9	11.9
Community events (e.g. Coburg Carnivale; community tree planting days etc.)	9.3	11.5	11.4
Family day care	10.3	10.0	10.7
Lobbying on behalf of the community	13.4	7.5	10.2
Community transport services	13.1	12.6	9.6
Environmental health (inspections of food premises etc.)	12.6	12.0	8.1
Youth services	6.7	8.4	6.7
Maternal and child health services	4.6	8.3	6.1
School holiday program	9.7	10.2	5.5
Children's services	7.2	9.1	5.2
Community events	11.8	1.7	3.5
Delivered meals	3.4	4.7	3.4
Other	1.3	2.9	7.8
Can't say	11.5	11.5	10.6

Results as originally reported 2019:

Thinking about Council services in Moreland, what do you think are the FIVE MAIN areas for improvement or development? ^

(Please circle FIVE only)	2013	2015	2017	2019
	(n=1039) %	(n=1085) %	(n= 1033) %	(n=830) %
Street cleansing	33.6	36.0	36.2	35.9
Graffiti removal	27.2	32.6	30.2	33.7
Parks and open space maintenance	36.2	28.9	28.9	29.1
Planning and building approvals	28.2	28.6	30.4	27.1
Tree and shrub planting	28.4	28.3	25.4	33.0
Town planning policy	28.3	27.2	25.8	25.9
Home and community care (HACC) (elderly support services)	23.8	19.9	25.0	25.5
Waste services	22.4	18.2	20.6	25.2
Enforcement of local laws	15.5	15.5	18.6	14.5
Community consultation	19.4	15.5	20.6	13.6
Environmental health (inspections of food premises etc)	15.0	13.6	12.7	9.6
Community transport services	11.2	12.3	11.4	10.1
Lobbying on behalf of the community	10.6	11.5	8.0	11.0
Libraries	16.6	11.2	13.2	13.4
Public education programs	8.0	8.7	8.1	9.5
Community events	7.1	8.3	8.1	2.9
Recreation and leisure services	12.1	8.1	11.7	11.5
School holiday program	6.7	7.0	4.3	4.3
Youth services	9.6	6.5	6.3	6.1
Community events (e.g. Coburg Carnivale; community tree planting days etc)	9.7	6.0	6.1	6.0
Family day care	4.4	5.8	3.8	4.4
Arts and cultural services	6.8	5.1	5.6	7.1
Children's services	6.0	4.1	2.8	2.3
Maternal and child health services	5.5	3.0	4.3	3.3
Delivered meals	3.3	2.8	2.8	5.1
Other	4.6	0.9	5.0	8.6
Can't say	11.3	14.0	13.7	11.7

^ Wording changed in 2015

Base: All answering

Re-weighted results 2020:

		2015	2017	2019
		(n=335) %	(n=300) %	(n=248) %
IF PURCHASING OR RENTING HOME: How much stress do you feel the rental or housing payment places on this household's finances in an average month?	No stress	14.9	15.9	11.3
	Low stress	29.2	26.7	35.6
	Moderate stress	38.9	45.6	37.9
	Heavy stress	15.1	10.2	13.1
	Can't say	1.9	1.5	2.2

<b>67</b>	How much stress do you feel the rental or housing payment places on this household's finances in an average month?		<b>2013</b>	<b>2015</b>	<b>2017</b>	<b>2019</b>
			(n=419)	(n=335)	(n=300)	(n=248)
			%	%	%	%
		No stress	20.9	19.5	22.3	17.2
		Low stress	30.3	25.3	26.4	28.8
		Moderate stress	30.0	37.8	35.8	37.8
		Heavy stress	13.7	14.1	11.4	11.1
Can't say	5.1	3.2	4.1	5.0		
<i>Base: Purchasing or renting</i>						

Re-weighted results 2020:

		<b>2015</b>	<b>2017</b>	<b>2019</b>
		(n=1110)	(n=1146)	(n=859)
		%	%	%
Have there been any times in the last 12 months when you ran out of food and could not afford to buy more?	Yes	4.5	3.2	4.2
	No	94.5	95.9	94.4
	Can't say	1.0	0.9	1.4

Results as originally reported 2019:

<b>68</b>	Have there been any times in the last 12 months when you ran out of food and could not afford to buy more?		<b>2013</b>	<b>2015</b>	<b>2017</b>	<b>2019</b>
			(n=1075)	(n=1110)	(n=1146)	(n=859)
			%	%	%	%
		Yes	3.3	4.1	2.8	3.1
		No (Go to Q70)	94.8	95.4	95.9	95.0
		Can't say (Go to Q70)	1.9	0.4	1.3	1.9
		<i>Base: All answering</i>				

Re-weighted results 2020:

		<b>2015</b>	<b>2017</b>	<b>2019</b>
		(n=43)	(n=33)	(n=25)
		%	%	%
IF RAN OUT OF FOOD LAST 12 MONTHS: How often have you run out of food and been unable to buy more?	Weekly	2.2	8.3	2.8
	Monthly	26.3	30.7	25.6
	Quarterly	0.6	9.7	28.8
	Every six months	4.9	30.4	27.6
	Once in last 12 months	29.0	9.6	8.0
	Can't say	37.1	11.3	7.1

How often have you run out of food and been unable to buy more? \*

	2013 (n=0) %	2015 (n=43) %	2017 (n=33) %	2019 (n=25) %
Weekly	-	6.0	15.0	9.0
Monthly	-	13.4	22.5	19.8
Quarterly	-	3.0	18.5	20.7
Every six months	-	13.2	16.3	12.6
Once in last 12 months	-	21.3	19.2	14.1
Can't say	-	43.1	8.5	23.9

\* New question in 2015

Base: Ran out of food last 12 months

Re-weighted results 2020:

How often does your household use/do the following out of consideration for the environment?

Please circle appropriate number for each

		Always %	Sometimes %	Rarely %	Never %	Can't say/ Not applicable %
A. Used compost bin/ worm	2015 (n=1042)	38.5	6.7	3.3	40.7	10.8
	2017 (n=973)	33.7	10.9	4.9	43.9	6.7
	2019 (n=748)	38.5	10.6	5.5	33.1	12.3
B. Tried to use less water	2015 (n=1096)	61.0	30.6	4.9	0.3	3.3
	2017 (n=1081)	57.2	34.1	3.6	4.2	0.8
	2019 (n=814)	59.4	33.7	2.6	2.7	1.6
C. Tried to use less gas	2015 (n=1084)	43.1	34.8	10.3	4.7	7.1
	2017 (n=1036)	44.9	35.0	7.7	8.3	4.0
	2019 (n=784)	44.8	29.2	9.4	7.4	9.2
D. Tried to use less electricity	2015 (n=1087)	56.0	30.0	7.2	2.5	4.3
	2017 (n=1065)	58.9	31.3	6.0	2.9	0.9
	2019 (n=806)	59.5	32.1	4.1	2.9	1.4
E. Used a household recycling bin	2015 (n=1094)	94.6	1.7	0.7	1.6	1.3
	2017 (n=1084)	92.5	5.5	0.4	0.8	0.8
	2019 (n=834)	93.1	3.0	0.9	1.1	1.9
F. Used a household green waste bin	2015 (n=1084)	76.3	4.5	2.4	8.7	8.1
	2017 (n=1067)	74.5	6.2	3.1	12.0	4.2
	2019 (n=825)	73.6	4.7	3.1	8.7	9.8
G. Used a green reusable shopping bag	2015 (n=1082)	53.9	28.4	7.6	5.4	4.7
	2017 (n=1045)	45.6	38.8	7.1	6.4	2.1
	2019 (n=817)	85.5	11.9	1.1	0.9	0.6
H. Bought items with least amount of packaging	2015 (n=1053)	26.5	44.5	10.9	8.4	9.8
	2017 (n=1001)	26.8	49.6	10.5	6.7	6.4
	2019 (n=770)	40.7	44.8	5.5	5.6	3.3
	2015 (n=1058)	12.6	17.7	18.5	41.2	10.0
	2017 (n=997)	12.1	21.7	16.5	44.4	5.2

I. Used own	2019 (n=757)	19.0	23.4	18.2	33.1	6.3
J. Used grey water to water gardens/lawns	2015 (n=1064)	18.2	25.3	16.6	26.6	13.3
	2017 (n=1020)	16.8	25.2	15.3	34.3	8.4
	2019 (n=764)	16.4	21.1	13.3	30.1	19.1

Results as originally reported 2019:

73		How often does your household use/do the following out of consideration for the environment? (Please circle appropriate number for each)					Can't say/ Not applicable
		Always %	Sometimes %	Rarely %	Never %		
A. Used compost bin/ worm farm/ bokashi bin	2013 (n=945)	40.4	12.3	5.9	33.9	7.5	
	2015 (n=1042)	40.6	8.3	4.0	33.4	13.7	
	2017 (n= 973)	44.9	7.9	4.9	32.3	10.0	
	2019 (n= 748)	48.2	9.0	4.6	28.7	9.6	
B. Tried to use less water	2013 (n=1054)	76.5	20.8	1.4	1.0	0.3	
	2015 (n=1096)	70.2	22.9	2.5	0.6	3.8	
	2017 (n=1081)	68.0	26.9	2.6	1.2	1.3	
	2019 (n=814)	71.7	23.0	2.3	1.9	1.0	
C. Tried to use less gas	2013 (n=1014)	55.3	28.4	7.6	5.0	3.7	
	2015 (n=1084)	47.6	31.9	9.4	3.2	7.9	
	2017 (n= 1036)	54.1	29.6	7.6	4.5	4.8	
	2019 (n=784)	55.1	25.1	7.0	6.4	6.3	
D. Tried to use less electricity	2013 (n=1046)	66.5	27.3	4.0	1.5	0.7	
	2015 (n=1087)	59.2	29.4	5.5	1.6	4.3	
	2017 (n= 1065)	63.7	28.5	4.9	1.4	1.6	
	2019 (n= 806)	66.7	25.3	3.7	2.9	1.4	
E. Used a household recycling bin	2013 (n=1056)	95.6	2.8	0.7	0.5	0.5	
	2015 (n=1094)	93.5	2.5	1.0	1.2	1.8	
	2017 (n= 1084)	94.4	3.1	0.6	0.6	1.3	
	2019 (n=834)	94.6	2.7	0.3	1.4	0.9	
F. Used a household green waste bin	2013 (n=1037)	82.9	4.4	0.9	5.6	6.2	
	2015 (n=1084)	80.6	3.8	1.7	6.0	7.9	
	2017 (n=1067)	84.4	3.8	1.6	5.5	4.7	
	2019 (n= 825)	84.7	4.5	0.8	4.9	5.1	
G. Used a "green" reusable shopping bag	2013 (n=1012)	55.2	34.7	4.9	4.4	0.9	
	2015 (n=1082)	56.7	29.6	4.9	3.1	5.8	
	2017 (n=1045)	56.5	32.1	5.3	3.9	2.2	
	2019 (n=817)	85.6	9.9	1.3	1.9	1.3	
H. Bought items with least amount of packaging	2013 (n=965)	27.6	45.3	14.4	8.5	4.2	
	2015 (n=1053)	27.3	43.9	10.3	6.9	11.5	
	2017 (n=1001)	28.8	48.6	10.2	4.3	8.2	

How often does your household use/do the following out of consideration for the environment?

(Please circle appropriate number for each)

		Always %	Sometimes %	Rarely %	Never %	Can't say/ Not applicable %
	2019 (n= 770)	41.0	42.5	6.9	4.6	5.0
	2013 (n=961)	11.4	19.2	19.9	43.6	5.9
I. Used own containers to buy food	2015 (n=1058)	12.9	18.2	19.3	36.9	12.7
	2017 (n=997)	12.9	22.8	20.2	36.1	8.0
	2019 (n=757)	21.2	22.9	16.6	31.8	7.5
	2013 (n=992)	23.0	28.4	14.4	25.5	8.7
J. Used grey water to water gardens/ lawns	2015 (n=1064)	21.9	28.6	12.7	21.6	15.3
	2017 (n=1020)	20.0	29.3	12.9	26.9	10.9
	2019 (n= 764)	20.9	24.9	12.8	27.9	13.5

Base: All answering