

Social Studies 201
Winter 2005
Problem Set 2
Due Monday, January 31, 2005

Note: If you hand in this problem set on Friday, January 28, we will attempt to mark it by Tuesday, February 1. If handed in on Monday, January 31, it will likely not be marked prior to the midterm examination. Model answers will be available on the web site late on January 31.

1. “Regina near average” was the headline of an article in the *Leader-Post*, September 30, 2004, p. F4. The article noted “Regina’s energy use falls in the middle of a group of cities.” The data in Table 1, for nine large cities in Canada, form the basis for the comments in the article.

- Using the data in Table 1, compute the median, mean, and range for each of the three variables – commuting distance, density, and energy use.
- Explain which measure of centrality (mode, median, mean) appears to be used in the headline “Regina near average” and the quote concerning energy use.

Table 1. Municipal ecological footprints

Location	Median commuting distance (km)	Density (people per square kilometer)	Energy use (global hectares)
Vancouver	7.6	690	4.21
Calgary	7.7	187	6.03
Edmonton	7.6	100	5.85
Regina	4.5	57	4.18
Saskatoon	4.8	44	4.11
Winnipeg	6.0	162	3.73
Windsor	8.6	301	4.09
London	5.4	195	3.95
Toronto	9.2	793	4.05

Source: Federation of Canadian Municipalities, *Ecological Footprints of Canadian Municipalities and Regions*, September 2004, Table 2. From <http://www.fcm.ca/english/communications/eco.pdf>

2. Ages of Saskatchewan individuals who were employed and who never worked in the labour force. The frequency distributions in Table 2 have been regrouped from the ungrouped data and stem-and-leaf display of question 3 of Problem Set 1. Construct the histogram of age of individuals for each of the two groups, employed and never worked in the labour force. Using the distributions of Table 2, obtain the mode and mean age for each of the two groups.

Table 2. Frequency distributions of ages of individuals who were employed and individuals who have never worked in the labour force, Saskatchewan, 1996

Age in years	Frequency for group:	
	Employed	Never worked
15-19	2	13
20-29	7	7
30-34	6	1
35-39	13	2
40-49	9	1
50-59	6	0
60-69	6	7
70-85	1	9
Total	50	40

3. Alcohol consumption by income. Frequency distributions of weekly alcohol consumption, classified by income, for a sample of Saskatchewan respondents, are given in Table 4. These data come from Saskatchewan respondents in the Canadian Community Health Survey, conducted by Statistics Canada in 2002. Using these data

- Compute the mean, median, and seventieth percentile of alcohol consumption for the respondents in each of the two income groups.
- In a sentence or two, compare the two distributions of alcohol consumption.

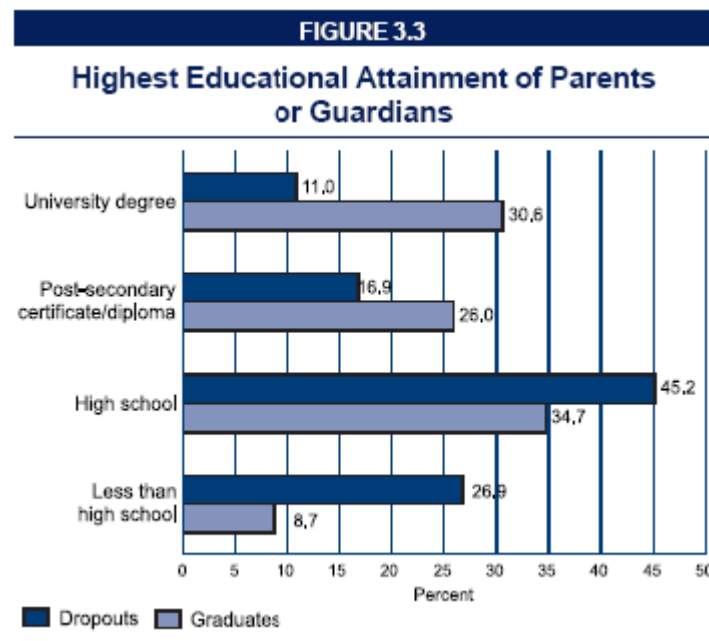
Table 3. Frequency distributions of Saskatchewan respondents, classified by number of alcoholic drinks consumed per week, low and high personal income

Number of alcoholic drinks consumed per week	No. of respondents with income of:	
	<\$30,000	\$30,000 plus
None	370	188
1-4	214	185
5-9	94	106
10-19	54	74
20-39	30	29
Total	762	582

Source: Adapted from Statistics Canada. Canadian Community Health Survey, cycle 1.2 [machine readable data file]. First Edition. Ottawa, ON: Statistics Canada [publisher and distributor] 6/21/2004.

4. Education of parents of high school graduates and dropouts. Figure 3.3 comes from the publication *At a Crossroads: First Results for the 18 to 20-Year-Old Cohort of the Youth in Transition Survey* by Jeffrey W. Bowlby and Kathryn McMullen, Human Resources Development Canada and Statistics Canada, Ottawa, 2002. This publication examines the issue of high school dropouts. Using Figure 3.3, answer the following.

- What is the modal education level of parents?
- What is the mean educational level for parents of each of dropouts and graduates, assuming “less than high school” represents 10 years of schooling, “high school” represents 12 years of schooling, “post-secondary certificate/diploma” represents 14 years of schooling, and “university degree” represents 16 years of schooling?
- In a few words, compare the two distributions.



5. Averages. Explain which concept of average (mean, median, mode) appears to be used in each of the following quotes.

- “Province below average in MRI technicians” was the headline on an article by Pamela Cowan, *Leader-Post*, January 18, 2005, p. B2. The article stated:

The report shows that technologists who run MRIs in the province increased from 369 in 2002 to 395 in 2003 – 39.5 MRTs per 100,000 people.

The national rate is 49 per 100,000.

- “Sharpen your mind with a drink, study suggests” was the headline of a Reuters News Agency article in *The Globe and Mail*, January 20, 2005, p. A19. Referring to the study of women aged 70-81, the articles stated:

On average, the women who quaffed a beer or a glass of wine each day tended to have the mental agility of someone a year and a half younger than abstainers.