Social Studies 201 – Fall 2006
Answers to Computer Problem Set 1

1. Frequency distributions

PRIORITY Priority for Federal Surplus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Reduce Debt	235	33.2	34.9	34.9
	2 Reduce Taxes	225	31.8	33.4	68.2
	3 Infrastructure	26	3.7	3.9	72.1
	4 Social Programs	160	22.6	23.7	95.8
	5 Other	28	4.0	4.2	100.0
	Total	674	95.3	100.0	
Missing	6 More than one response	2	.3		
	7 Uncertain	9	1.3		
	9 No response	22	3.1		
	Total	33	4.7		
Total		707	100.0		

RESPECTG Respect for Governments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 No Respect	51	7.2	7.4	7.4
	2	137	19.4	19.8	27.2
	3	289	40.9	41.8	68.9
	4	183	25.9	26.4	95.4
	5 Great Respect	32	4.5	4.6	100.0
	Total	692	97.9	100.0	
Missing	9 No Response	15	2.1		
Total		707	100.0		

RESPECTP Resepect for Politicians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 No Respect	107	15.1	15.7	15.7
	2	235	33.2	34.5	50.1
	3	276	39.0	40.5	90.6
	4	57	8.1	8.4	99.0
	5 Great Respect	7	1.0	1.0	100.0
	Total	682	96.5	100.0	
Missing	7 Uncertain	1	.1		
	9 No Response	24	3.4		
	Total	25	3.5		
Total		707	100.0		

SAFETY Personal Safety a Problem?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Great Problem	45	6.4	6.4	6.4
	2 Minor Problem	358	50.6	51.3	57.7
	3 Not a Problem	295	41.7	42.3	100.0
	Total	698	98.7	100.0	
Missing	7 Uncertain	1	.1		
	9 No Response	8	1.1		
	Total	9	1.3		
Total		707	100.0		

b. Comments.

PRIORITY. Over two-thirds of students favour using the federal surplus to reduce debt or taxes (34.9+33.45=68.2%). Approximately one-quarter of students support using the federal surplus for expanding social programs but very few (less than 5%) support using the surplus to improve infrastructure. Four per cent suggest other uses for the surplus but there is no information available about what these other uses might be.

RESPECTG and RESPECTP. The distribution of respect for government shows about thirty per cent express respect (26.4 plus 4.6 per cent) while approximately one-quarter express little or no respect (7.4 plus 19.8 per cent). Students show less respect for politicians than they do for government, with only 9.4 per cent on the respect side of a neutral response for politicians. In contrast, fifty per cent of students report little or no respect for politicians, in contrast with the approximately thirty per cent who show little or no respect for governments. For each variable approximately forty per cent of students report the middle, or neutral response. In summary, student respondents show some respect for governments but little respect for politicians.

SAFETY. Only six per cent of students report concerns about personal safety to be a great problem for them. The other ninety-four per cent report it is not a problem or only a minor problem.

2. Views about multiculturalism

Statistics

		M1 Diversity Fundamental	M2 Equal Access	M3 Preserve Cultural Heritage	M4 Eliminate Barriers	M5 Fund Festivals	M6 Canadian Society Enriched
N	Valid	700	698	697	689	697	701
	Missing	7	9	10	18	10	6
Mean		4.10	4.52	4.02	4.11	3.04	4.32
Median		4.00	5.00	4.00	4.00	3.00	5.00
Mode		5	5	5	5	3	5

M1 Diversity Fundamental

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	11	1.6	1.6	1.6
	2	25	3.5	3.6	5.1
	3	133	18.8	19.0	24.1
	4	245	34.7	35.0	59.1
	5 Strongly Agree	286	40.5	40.9	100.0
	Total	700	99.0	100.0	
Missing	9 No response	6	.8		
	System	1	.1		
	Total	7	1.0		
Total		707	100.0		

M2 Equal Access

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	4	.6	.6	.6
	2	12	1.7	1.7	2.3
	3	53	7.5	7.6	9.9
	4	175	24.8	25.1	35.0
	5 Strongly Agree	454	64.2	65.0	100.0
	Total	698	98.7	100.0	
Missing	9 No response	8	1.1		
	System	1	.1		
	Total	9	1.3		
Total		707	100.0		

M3 Preserve Cultural Heritage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	12	1.7	1.7	1.7
	2	43	6.1	6.2	7.9
	3	140	19.8	20.1	28.0
	4	225	31.8	32.3	60.3
	5 Strongly Agree	277	39.2	39.7	100.0
	Total	697	98.6	100.0	
Missing	9 No response	9	1.3		
	System	1	.1		
	Total	10	1.4		
Total		707	100.0		

M4 Eliminate Barriers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	10	1.4	1.5	1.5
	2	31	4.4	4.5	6.0
	3	122	17.3	17.7	23.7
	4	235	33.2	34.1	57.8
	5 Strongly Agree	291	41.2	42.2	100.0
	Total	689	97.5	100.0	
Missing	7 Uncertain	2	.3		
	9 No response	15	2.1		
	System	1	.1		
	Total	18	2.5		
Total		707	100.0		

M5 Fund Festivals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	91	12.9	13.1	13.1
	2	151	21.4	21.7	34.7
	3	199	28.1	28.6	63.3
	4	150	21.2	21.5	84.8
	5 Strongly Agree	106	15.0	15.2	100.0
	Total	697	98.6	100.0	
Missing	7 Uncertain	1	.1		
	9 No response	8	1.1		
	System	1	.1		
	Total	10	1.4		
Total		707	100.0		

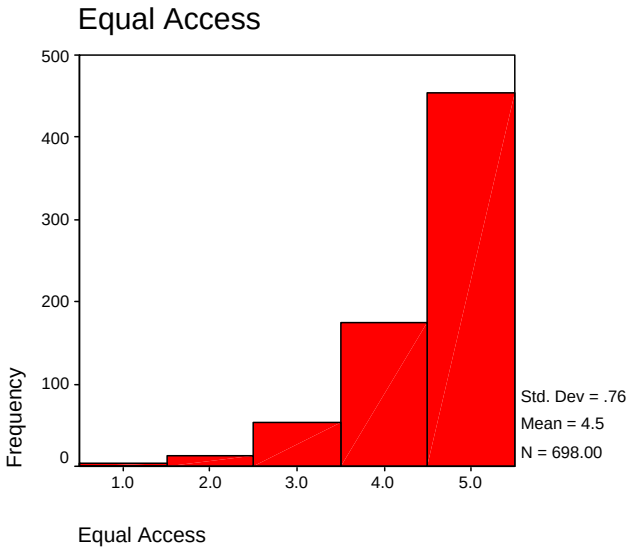
M6 Canadian Society Enriched

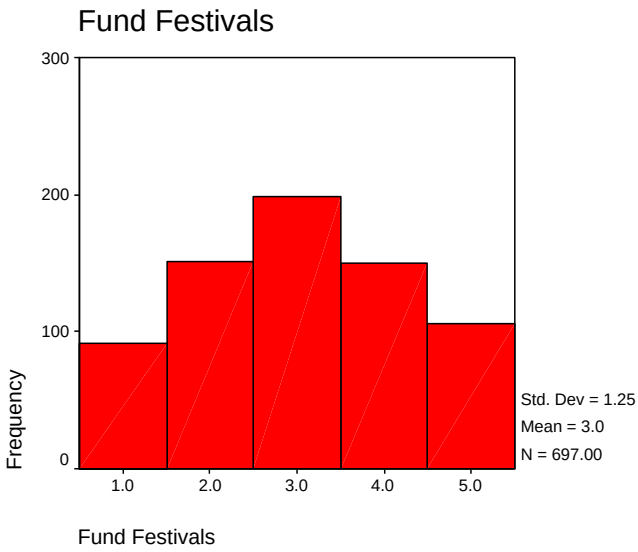
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	6	.8	.9	.9
	2	18	2.5	2.6	3.4
	3	88	12.4	12.6	16.0
	4	224	31.7	32.0	47.9
	5 Strongly Agree	365	51.6	52.1	100.0
	Total	701	99.2	100.0	
Missing	7 Uncertain	1	.1		
	9 No response	4	.6		
	System	1	.1		
	Total	6	.8		
Total		707	100.0		

b. Results in *Report*. The percentages in the *Report* were obtained by adding together the 4 and 5 responses for each question to produce the percentage of responses that were on the agree side of centre. For example, for "Canadian society enriched" there were 32.0% who responded with a 4 and 52.1% who responded with a 5, for a total of 84.1%. This is reported as 84% in the table in the *Report*. In the *Report*, the variables are then placed in order, from those having the greatest level of agreement to those having the least agreement.

The results from these tables demonstrate that students generally support the principles of multiculturalism, at least as stated in these questions. There is strong support for equal access to jobs (91%) and students consider that diverse cultures have enriched Canada (84% agreement). The one exception to support for principles of multiculturalism is that of funding festivals, where the mean response is at neutral (3.04) and approximately equal numbers of students disagree and agree with this policy. For all the other questions, the mean is above 4.0 on a five-point scale, indicating a high level of agreement on each issue.

The histograms are as follows and these two histograms differ dramatically. For equal access, the distribution of responses is concentrated at the agree end of the spectrum, with almost all respondents agreeing, at response levels 4 or 5. In contrast, the distribution of responses for the funding festivals question is spread out, with the largest single number of respondents at the neutral response of 3 and with many respondents at each of the other response levels. The distribution is close to symmetrical, with more respondents at the middle and fewer responses at each response level further from the centre.


Equal Access
500
400
300
200
100
0
Frequency
1.0
2.0
3.0
4.0
5.0
Std. Dev = .76
Mean = 4.5
N = 698.00
Equal Access


Fund Festivals
300
200
100
0
Frequency
1.0
2.0
3.0
4.0
5.0
Std. Dev = 1.25
Mean = 3.0
N = 697.00
Fund Festivals

3. Stem-and-leaf display and associated statistics

Descriptives

			Statistic	Std. Error
JOBHOURS HOURS PER WEEK AT JOB - F98	Mean		20.12	.591
	95% Confidence Interval for Mean	Lower Bound	18.96	
		Upper Bound	21.29	
	5% Trimmed Mean		19.47	
	Median		20.00	
	Variance		138.388	
	Std. Deviation		11.764	
	Minimum		1	
	Maximum		**	
	Range		99	
	Interquartile Range		13.00	
	Skewness		1.521	.123
	Kurtosis		6.221	.245

HOURS PER WEEK AT JOB - F98 Stem-and-Leaf Plot

```
 Frequency    Stem &  Leaf

    24.00        0 .  122333444444
    38.00        0 .  555556666678888889
    50.00        1 .  00000000000001222222233444
    81.00        1 .  555555555555555556666666666777788888888&
    88.00        2 .  00000000000000000000000000000112222333444
    34.00        2 .  5555555555677888
    32.00        3 .  000000000000222&
    14.00        3 .  555677&
    24.00        4 .  000000000000
    11.00 Extremes    (>=45)

 Stem width:  10
 Each leaf:       2 case(s)
 & denotes fractional leaves.
```

Case Processing Summary

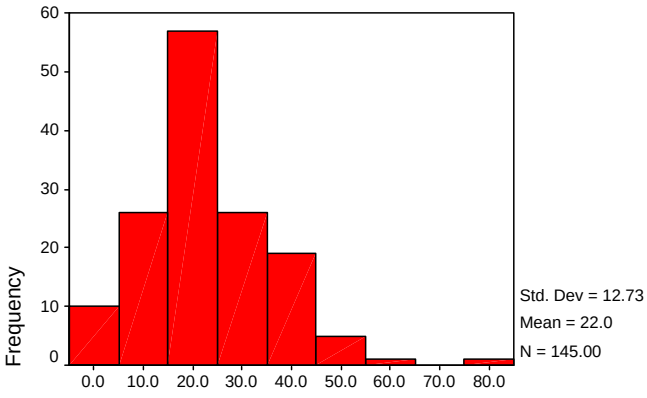
		Cases					
		Valid		Missing		Total	
	SEX SEX OF RESPONDENT	N	Percent	N	Percent	N	Percent
JOBHOURS HOURS PER WEEK AT JOB - F98	1 MALE	145	55.3%	117	44.7%	262	100.0%
	2 FEMALE	251	56.4%	194	43.6%	445	100.0%

Descriptives

	SEX SEX OF			Statistic	Std. Error
JOBHOURS HOURS PER WEEK AT JOB - F98	1 MALE	Mean		22.00	1.057
		95% Confidence Interval for Mean	Lower Bound	19.91	
			Upper Bound	24.09	
		5% Trimmed Mean		21.34	
		Median		20.00	
		Variance		162.000	
		Std. Deviation		12.728	
		Minimum		1	
		Maximum		80	
		Range		79	
		Interquartile Range		15.50	
		Skewness		.983	.201
		Kurtosis		2.172	.400
	2 FEMALE	Mean		19.04	.698
		95% Confidence Interval for Mean	Lower Bound	17.67	
			Upper Bound	20.41	
		5% Trimmed Mean		18.40	
		Median		18.00	
		Variance		122.120	
		Std. Deviation		11.051	
		Minimum		2	
		Maximum		**	
		Range		98	
		Interquartile Range		13.00	
		Skewness		1.950	.154
		Kurtosis		10.661	.306

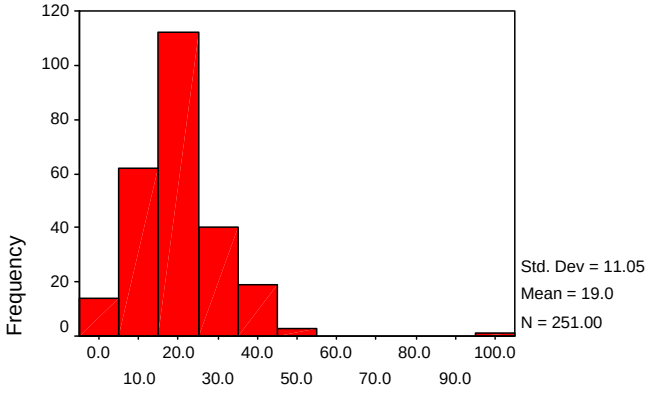
Histogram

For SEX= MALE



Histogram

For SEX= FEMALE



HOURS PER WEEK AT JOB - F98

Stem-and-Leaf Plots

HOURS PER WEEK AT JOB - F98 Stem-and-Leaf Plot for
SEX= MALE

```
 Frequency    Stem &  Leaf

    10.00        0 .  1123344444
    11.00        0 .  55556666888
    15.00        1 .  000000222233444
    23.00        1 .  55555555566666666688888
    34.00        2 .  00000000000000000000000002222334444
    13.00        2 .  5555555556688
    13.00        3 .  0000000000022
     6.00        3 .  555568
    13.00        4 .  0000000000000
     2.00        4 .  55
     3.00        5 .  000
     2.00 Extremes    (>=56)

 Stem width:  10
 Each leaf:       1 case(s)
```

HOURS PER WEEK AT JOB - F98 Stem-and-Leaf Plot for
SEX= FEMALE

```
 Frequency    Stem &  Leaf

    14.00        0 .  233444
    27.00        0 .  555666788889
    35.00        1 .  00000000012222234
    58.00        1 .  55555555555566666667777888888&
    54.00        2 .  000000000000000000001122334
    21.00        2 .  5555557788
    19.00        3 .  00000022&
     8.00        3 .  577&
```

```
   11.00        4 .  00000
    4.00 Extremes    (>=45)

Stem width:  10
Each leaf:       2 case(s)


& denotes fractional leaves.
```

b. Comparison of distributions. The histograms for male and female hours worked at jobs are very similar, with a peak number of hours worked around 20 and then fewer respondents reporting either more or less hours of work the further the distance from the centre. For males though the peak is at a larger number of hours, whereas for females the peak occurs at fewer hours. This is apparent from the stem-and-leaf display, where the row with the largest number of male respondents is 20-24 hours of work. For females, the row with the greatest number of cases is that with 15-19 hours of work. There is also a greater proportion of males at higher numbers of hours of work (above 20) while for females there is a larger proportion at fewer hours (less than 20). The larger mean of 22 hours for males and only 19 hours for females is consistent with this difference.

For males, as noted in the last paragraph, the modal category is 20-24, with the 34 respondents, more than any other row in the display. For females, the mode is the 15-19 category, with 58 respondents, more than any other row. If a single mode is desired, for males it is at 20 hours, with more 20s than any other value. For females it is also 20, with more females at exactly 20 hours than at any other single value. (See the large number of 20s in the fifth row of each stem-and-leaf display).

For males, there are 145 valid cases, so the median would be at the 73rd case. Counting from the smallest value of hours, there are 10+11+15+23=59 cases less than 20 and then 24 cases at exactly 20 hours. So the 73rd case is right at 20 and the median value is 20. This is also the value listed for the median in the descriptive statistics table for males.

For females, there are 251 valid cases, so the median would be at the 126th case. Counting from the smallest value of hours, there are 14+27+35=76 cases less than 15 and then 58 cases in the 15-19 interval. Counting across the 15-19 category, the median is at the 126-76=50th case in that row. Since each leaf represents two cases, this is one the the 18s, since there are twenty-six 15s, twelve 16s, and eight seventeens the 50th case in this row is at 18, so the median for females is 18 hours per week. This is also the value listed for the median in the descriptive statistics table for males.

4. EMP1-4

Statistics

		EMP1 Jobs for Visible Minorities	EMP2 Nonwhite Jobs Restricted	EMP3 White Males Lose Jobs	EMP4 Skills and Knowledge
N	Valid	682	675	684	675
	Missing	25	32	23	32
Mean		2.27	2.65	3.11	3.12
Median		2.00	3.00	3.00	3.00
Mode		1	3	3	3
Std. Deviation		1.162	1.167	1.296	1.097
Percentiles	25	1.00	2.00	2.00	2.00
	50	2.00	3.00	3.00	3.00
	75	3.00	3.00	4.00	4.00

EMP1 Jobs for Visible Minorities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	233	33.0	34.2	34.2
	2	160	22.6	23.5	57.6
	3	188	26.6	27.6	85.2
	4	72	10.2	10.6	95.7
	5 Strongly Agree	29	4.1	4.3	100.0
	Total	682	96.5	100.0	
Missing	9 No Response	21	3.0		
	System	4	.6		
	Total	25	3.5		
Total		707	100.0		

EMP2 Nonwhite Jobs Restricted

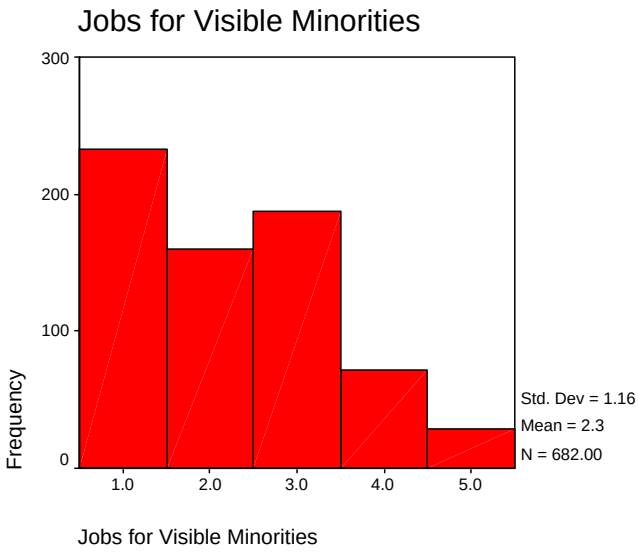
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	137	19.4	20.3	20.3
	2	163	23.1	24.1	44.4
	3	213	30.1	31.6	76.0
	4	120	17.0	17.8	93.8
	5 Strongly Agree	42	5.9	6.2	100.0
	Total	675	95.5	100.0	
Missing	7 Uncertain	1	.1		
	9 No Response	27	3.8		
	System	4	.6		
	Total	32	4.5		
Total		707	100.0		

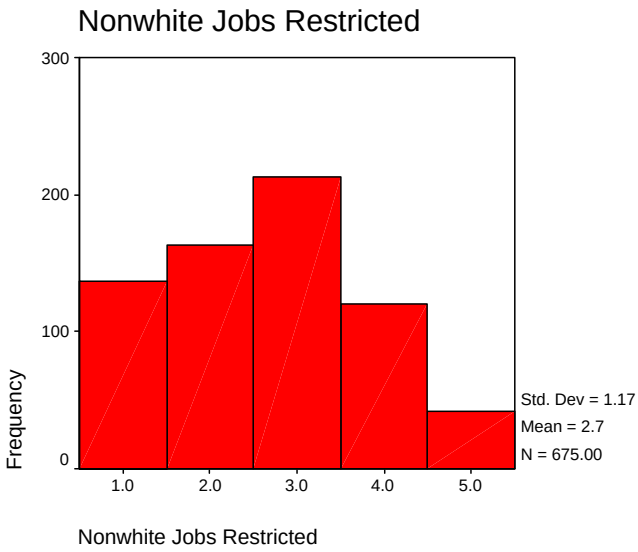
EMP3 White Males Lose Jobs

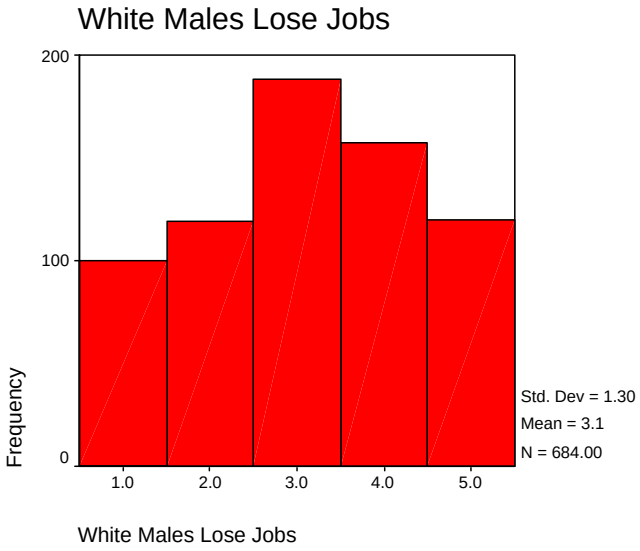
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	100	14.1	14.6	14.6
	2	119	16.8	17.4	32.0
	3	188	26.6	27.5	59.5
	4	157	22.2	23.0	82.5
	5 Strongly Agree	120	17.0	17.5	100.0
	Total	684	96.7	100.0	
Missing	7 Uncertain	2	.3		
	9 No Response	17	2.4		
	System	4	.6		
	Total	23	3.3		
Total		707	100.0		

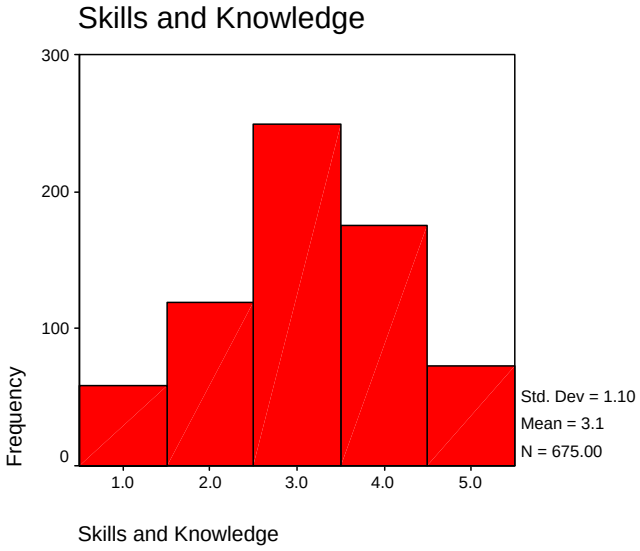
EMP4 Skills and Knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly Disagree	59	8.3	8.7	8.7
	2	119	16.8	17.6	26.4
	3	249	35.2	36.9	63.3
	4	175	24.8	25.9	89.2
	5 Strongly Agree	73	10.3	10.8	100.0
	Total	675	95.5	100.0	
Missing	6 Other	3	.4		
	9 No Response	25	3.5		
	System	4	.6		
	Total	32	4.5		
Total		707	100.0		


Jobs for Visible Minorities
300
200
100
0
Frequency
1.0
2.0
3.0
4.0
5.0
Std. Dev = 1.16
Mean = 2.3
N = 682.00
Jobs for Visible Minorities


Nonwhite Jobs Restricted
300
200
100
0
Frequency
1.0
2.0
3.0
4.0
5.0
Std. Dev = 1.17
Mean = 2.7
N = 675.00
Nonwhite Jobs Restricted





b. IQR and note

	P75	P25	IQR
EMP1	**3**	**1**	**2**
EMP2	**3**	**2**	**1**
EMP3	**3**	**2**	**1**
EMP4	**4**	**2**	**2**

For variable EMP1, the distribution is mostly concentrated at the disagree end of the scale. The mean response is only 2.27, on the lower end of the scale and almost 60% of respondents express an opinion of disagree or strongly disagree that there should be jobs reserved for visible minorities. For EMP2, there is also a tendency to disagree that jobs for nonwhites are restricted – the mean is 2.65, on the disagree side of centre. For EMP3 and EMP4, responses tend to be on the agree side, with

means of just over 3. However, the distribution for these two variables is close to symmetrical, with many respondents on each side of the neutral response of 3.

In terms of variation, the standard deviation and the IQR give different pictures. As judged by the standard deviation, EMP3 has the greatest variation, with EMP1 and EMP2 having slightly less variation, and EMP4 the least. However, the IQR is one point greater for EMP1 and EMP4 than it is for EMP2 and EMP3. For these variables, the standard deviation is probably a better measure in that it takes account of all the values and cases while the IQR is a positional measure. It just happens that the 25th and 75th percentiles happen to be further apart for the first and last variable than for the middle two variables.

5. Descriptive statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
V6 Government Helps Business	688	1	5	3.58	1.028
V7 Power to Affect Future	692	1	5	3.27	1.141
V8 User Fees	693	1	5	2.03	1.176
V9 More Health Care Dollars	686	1	5	3.49	1.067
Valid N (listwise)	679				

For V6, V7, and V9, the average responses are similar, with a mean of each being above 3, on the agree side of the issue. For V8 the response is more extreme and on the lower end of the scale, with a mean of just over 2, well on the disagree side of the issue. There is a seeming inconsistency in the two questions of V8 and V9 in that respondents express strong support for more health care dollars (mean of V9 is 3.49) but disagree on the user fees issue. However, if the wording of the questions is examined, the two sets of responses are consistent in that those who oppose user fees (disagree on V8) favour more health care dollars (agree on V9).

The standard deviations are all similar so the degree of variation in responses to these four questions is very similar.

Last edited October 18, 2006