Notes on

John Brehm, <u>The Phantom Respondent:</u>
<u>Opinion Surveys and Political Representation</u>

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In carrying out a comparison of the General Social Survey (GSS) (National Opinion Research Center, University of Chicago) and the National Election Studies (Institute for Social Research, University of Michigan) to the Current Population Survey (CPS) (Bureau of the Census), John Brehm used inappropriate weights on the GSS and NES to adjust for the probability of selection.

The GSS and NES, like most full-probability samples of adults living in households in the United States interview one randomly selected respondent per household. This means that a person's probability of selection is 1/n where n is the number of eligible respondents in a given household. This overrepresents adults living in households with other adults. For example, in a single adult household, there is one eligible respondent and the probability of selection is 1.0. If there were four eligible respondents in a household, the probability of selection would be one out of four or .25.

To adjust for the unequal selection probability, one needs to weight by the reciprocal of the probability of selection. In this case that is n, the number of eligible respondents in the household. Brehm however weighted the GSS and NES data by the probability of selection (1/n) rather than its reciprocal (n) (Brehm, 1993, Table A.5 and Brehm, personal communication, 7/12/93). Brehm acknowledges that incorrect weights were used and that "all the figures and tables in ch. 2 will need a revision" (Brehm, 1993, personal communication, 7/14/93).

Naturally this incorrect weight exaggerates rather than compensates for any bias created by the unequal sampling. Table 1 shows the raw GSS frequencies for gender, age, race, and education, those frequencies when weighted by n, and those frequencies as reported by Brehm. The raw frequencies are generally moved in opposite directions by the two weights. For example, the correct weight always increases the % male, while Brehm's weight always decreases it. In general, the correct weight moves the samples towards the frequencies reported by the CPS while Brehm's incorrect weight moves the frequencies away from the CPS figures.

Overall, when correctly weight and otherwise adjusted, the differences between the GSS and CPS are small (Table 2). (See also, Smith, 1991.) First, the GSS, like all surveys based on a random respondent, does underrepresent men (Smith, 1979).[1] This comes mostly from a greater propensity of men to be refusers. When we look at the gender composition of adults in GSS households, we find that from 1978 to 1988 the 47.6% of adults were male. This is almost exactly what the CPS reports for the same period.

Second, GSS shows a slight tendency to underrepresent those 18-29. This shows up in only 3 of five years and averages -1.4 percentage points from 1980 to 1988. This may well be due to the CPS figures in Table 2 being based on the resident population, while the GSS covers the household population which in 1985 was

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[1]But that underrepresentation is about half what Brehm's figures indicate.

97.3% of the resident population. However, only 90.6% of those 18-24 lived in households. Thus, some of the difference is due to the fact that the household population has proportionally fewer young adults than the resident population.

Third, the GSS comes close to matching the CPS figures on race. It equals the CPS in two years, is slightly higher twice and is slightly lower twice.

Finally, the GSS appears to overrepresent those with less than a high school education. However, variations in reporting procedures, way of asking the education question, and sample universe rather than nonresponse bias probably creates most, if not all, of this difference. First, the CPS relies on an informant to report about 40% of the demographics. For gender, age, and race the error created by proxy reports rather than self-reports is probably minimal. Education however is a more complex, less obvious, and less salient variable that is less accurately reported by informants than by respondents themselves. Second, the CPS and GSS ask and code education in different ways. The GSS definition used in Table 2 is based on years of schooling (i.e. less than high school is less than 12 years of school completed). It excludes those who finished high school in less than 12 years and those who obtained a high school degree via a GED. (But counts as having a high school education those who completed 12 years of schooling, but did not get a degree.) If those with a degree are moved into the high school category, the % with less than a high school education falls by an average of 2.3 percentage points. Finally, Brehm's exclusion of non-citizens probably reduces the % with less than a high school education in the CPS sample. When these factors are taken into consideration, there are no appreciable differences between the CPS and GSS. For example, when the 1986 GSS is adjusted for those with high school degrees and compared to official CPS figures (Kominski, 1988), there is virtually no difference in % less than high school between the CPS (24.0%) and GSS (24.8%).

With the exception of gender, the GSS produces a demographic profile that closely matches the CPS (Smith, 1991). An incorrect weight and an overemphasis on nonresponse as opposed to differences in sample universe, measurement procedure, and the definition of terms, leads Brehm (1993) to overstate nonresponse bias in the GSS and presumably in the NES.

Table 1

GSS Frequencies: Raw and Weighted

	Year					
	1978	1980	1982	1984	1986	1988

A. Gender (% Male)

	1978	1980	1982	1984	1986	1988
Raw	42.0	43.7	42.4	40.6	42.2	43.1
Correct Weight	43.3	44.8	44.7	42.4	44.1	45.1
Brehm's Weight	40	42	39	39	40	41

B. Age (% 18-29)

	1978	1980	1982	1984	1986	1988
Raw	26.7	24.5	26.4	26.8	22.3	24.1
Correct Weight	28.6	26.6	29.4	29.1	24.4	27.4
Brehm's Weight	25	23	27	25	20	22

C. Race (% Black)

	1978	1980	1982	1984	1986	1988
Raw	10.3	9.5	10.4	11.5	12.5	12.6
Correct Weight	10.4	9.9	10.2	10.9	12.1	12.2
Brehm's Weight	11	10	11	13	13	13

D. Education (% Less than high school)

	1978	1980	1982	1984	1986	1988
Raw	31.8	31.8	30.6	28.0	28.5	26.5
Correct Weight	31.1	31.0	29.9	27.1	27.3	26.1
Brehm's Weight	33	33	32	29	31	27

S a m p l e   s i z e s :
1978=1532,1980=1486,1982=1506,1984=1473,1986=1470,1988=1481

Table 2

Weighted GSS Compared to CPS

	1978	1980	Year 1982	1984	1986	1988
A. % Male[a]						
GSS	43.3	44.8	44.7	42.4	44.1	45.1
CPS	47.6	47.6	47.6	47.7	47.7	47.8
B. % 18-29[a]						
GSS	28.6	26.6	29.4	29.1	24.4	27.4
CPS	----	30.4	30.0	29.1	28.0	26.7
C. % Black[a]						
GSS	10.4	9.9	10.2	10.9	12.1	12.2
CPS	10.4	10.6	10.7	10.9	11.0	11.2
D. % Less than high school[b]						
GSS	31.1	31.0	29.9	27.1	27.3	26.1
CPS	27	26	24	23	21	21

[a]CPS based on figures reported in Statistical Abstracts for the resident population. Since the GSS covers the household population, the universes covered by the CPS and GSS do not match.

[b]Based on Brehm's calculations. Brehm excluded non-citizens from his CPS figures. The GSS includes non-citizens.

References

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