UNEMPLOYMENT RATES, SELF SELECTION, AND THE CPS REINTERVIEW PROGRAM: FURTHER ANALYSES

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Introduction

In a research program that started during the tenure of the senior author as an ASA/NSF/BLS Senior Research Fellow during academic year 1988-1989, we have been investigating possible artifacts in the measured unemployment rates for youths 16 to 24 years of age. (Rates for this age group are often three or more times as high as rates for adults.)

Unemployment rates are estimated from the Current Population Survey (CPS), a monthly survey of some 60,000 household locations carried out by the Bureau of the Census for the Bureau of Labor Statistics. According to CPS rules, an individual who did not work during the reference week is classified as unemployed if s/he was available for work during that week had it been offered, and had actively searched for work during the previous four weeks. (Non-working individuals who fail these tests are classified as not in the labor force.) It is the final requirement, active job search, that may be a source of artifactual difference between unemployment rates for youths and adults. If youths conceptualize job search differently than adults do, then they may well be differentially likely to report themselves as actively looking for work and hence differentially likely to be classified as unemployed.

But the situation is somewhat more complicated than the above description suggests. Proxy reporting is permitted in the CPS, with a single household respondent reporting for all members of the household. Indeed, a large majority of youths are reported for by proxies, most often their parents. Thus, if youths and adults conceptualize job search differently, adults who report by proxy for youths may report on the youths' job search differently than the youths would have reported for themselves, had they self reported. Hence youths reported for by proxy may be differentially likely to be classified as unemployed compared to youths reporting for themselves or compared to how they would have been classified had they reported for themselves.

In a series of presentations (e.g., Tanur and Shin, 1990a; 1990b; 1990c; Tanur, 1992; Tanur and Lee, 1992; Tanur, Shin, and Lee, 1991a, 1991b, 1992) we have explored this thesis, finding that unemployment rates measured on the CPS differ between self- and proxy- reporting youths, and some limited support for differential conceptualizations of job search between youths and adults.

Our findings to date on differences in unemployment rates between self-reporters and proxy-reporters have been haunted by the specter of selection bias. It might be that differences are real, rather than measurement artifacts -- individuals who are home and thus available to self report are perhaps more likely to be unemployed than those who are not available at home. We have presented arguments that self-selection bias cannot account for all of our findings. In particular, it is hard to see how self selection bias can account for the effects of proxy reporting differing among age-by-sex groups. But Tanur and Lee (1993), described below, presented the first formal test of the self-

selection argument.

Data and Analysis

As part of its quality control efforts the CPS conducts a reinterview program. A random sample of the households in each month's CPS is recontacted approximately a week after the initial interview and reinterviewed about the same reference week. In some cases the respondent differs between interview and reinterview, and in particular, in some cases an individual who has self reported at interview is reported for by proxy in the reinterview, and vice versa. These cases represent a natural experiment that controls for self selection (although at the cost of introducing possible recall errors engendered by the week's delay between interview and reinterview). Data from three years of CPS reinterviews (1983, 1984 and 1985) are analyzed in Tanur and Lee (1993) as well as in this paper to explore whether earlier findings (that young men reported for by proxy have higher unemployment rates than those reporting for themselves, with the differences going in the other direction for all other age-by-sex groups) are replicated in this natural experiment.

Each year's data supplied us with some 60,000 cases, each with 2 readings of labor force status. From these, we calculated an unemployment rate for each sub-group defined by year (1983, 1984, 1985), sex, age (16-24 vs. 25 and over), interview vs. reinterview, reconciliation status and proxy status. Reconciliation status refers to the practice of the Census Bureau of providing the reinterviewer with interview results for some 80% of the cases and withholding such information for the remaining 20%. Proxy status for each individual falls into one of five categories: self report on both interview and reinterview; self report on interview, proxy report on reinterview; proxy report on interview, self report on reinterview; same proxy reporting on both interview and reinterview; and different proxies reporting on interview and reinterview. This gave us 80 unemployment rates for each year's data. In Tanur and Lee (1993) we then took unweighted averages of the unemployment rates over each of the five dimensions (sex, age, interview vs. reinterview, reconciliation status, and proxy status reduced to self vs. proxy) and considered how these means differed from the grand mean. Using these "effects", we then modelled the unemployment rate for each age-sex-proxy situation and explored how well the model fit. We repeated the analysis using only the 32 unemployment rates for each year that represent proxy statuses self/proxy and proxy/self--that is, for those individuals who answer for themselves once and were answered for by proxy once. These individuals constitute the natural experiment.

Results from Tanur and Lee (1993)

Table 1, slightly corrected from Tanur and Lee (1993) shows the unweighted means analysis for each of the three years. The most striking finding is that, although the overall unemployment rate varies across years, the only sizeable deviations from the grand mean are on the age dimension, with youths consistently higher than the overall mean and adults consistently lower. The effects of sex, proxy status, interview/reinterview, and reconciled/unreconciled were small and inconsistent over years.

Table 2, also corrected from Tanur and Lee (1993), applies the simple main effects model (predicted unemployment rate = grand mean + age effect + sex effect + self/proxy effect) to groups defined by age, sex, and proxy status. First let us

look at the unweighted observed means. We see the expected pattern for young males with proxy reports showing a higher unweighted mean unemployment rate each year than self reports. For all other groups (except young females in 1984) self reports show higher unweighted mean unemployment rates than proxy reports.

We see from the residuals that the fit of the model is least good for young males in two out of three years, and fairly bad for all groups in the middle year.

Thus far the results seem to coincide with our previous findings of an anomalous pattern for young males. But we have not taken real advantage of the natural experiment offered by the reinterview data -- our unweighted mean unemployment rates for self reports includes both of the readings for those who reported for themselves on both occasions and our means for proxy reports includes both of the readings for those reported for twice by proxies. Table 3 (slightly corrected from Tanur and Lee, 1993) shows data only for those who self reported on one occasion and were reported for by proxy on the other. Thus each individual contributes two readings to a particular age mean, a particular sex mean and a particular reconciliation status mean, but the same individuals are represented in both the self mean and the proxy mean and in the interview mean and the reinterview mean. We see a pattern that parallels that of Table 1-- especially a large and consistent effect of age with youths showing higher unweighted mean unemployment rates. All other effects are always small and often inconsistent.

Similarly, Table 4 (slightly corrected from Tanur and Lee, 1993) parallels Table 2. We see, however, that the young men are no longer anomalous in the same sense. Now that we are looking at the same individuals as self reporters and as proxy reporters, the mean of the self reports is higher than the mean of the proxy reports for young men, just as it is for all other groups (except young women in 1984). We note, however, that the difference between self and proxy reports is much higher for young men than for any other age-by-sex-group. The residuals suggest that the model fits all groups reasonably well.

New Results

We conducted three way ANOVAS, with age, sex and proxy status as the factors. We see from Table 5 for the total sample that for each year there was a statistically significant age effect and at least one statistically significant interaction involving proxy status. The means for the main effects and the 3-way interactions appear in Table 6. Again we see youths with consistently higher unemployment rates than adults, but the other main effect are inconsistent over years. In all three years, the three-way interaction shows the now familiar pattern of young males having higher unemployment rates when reported for by proxy than when self reporting and all other groups (except young females in 1984) showing the reverse effect. Multiple comparison tests declare all self-proxy differences significant for all years except young females in 1985.

But when we consider the true natural experiment, that is, those people who answered for themselves once and were answered for by proxy once, the picture changes drastically. In Table 7, we see statistically significant age effects in all three years, and sex effects that are consistent over years with males having higher unemployment rates (and the different reaching statistical significance in two out of the three years). But no interactions involving proxy status reached statistical significance.

Further, for every age by sex group, including young males, self reports showed a higher unemployment rate than proxy reports. And while the difference between self and proxy reports was consistently highest for young males across the three years, the difference never reached statistical significance.

Discussion

So, what are we left with? When we control for self selection the anomalous results for young males disappear, and they join all other groups in demonstrating higher unemployment rates for self reports than for proxy reports--and marginally demonstrating the effect more strongly. Thus, the puzzle that needs explaining moves from why young men are differentially reported as unemployed by self and proxy to why self selection works differently for young men than it does for other age x sex groups. How does looking for work relate to being at home to report one's job search for young men--and how does that relationship differ from the similar one for other groups?

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Table 1. Unweighted Means Analysis--Reinterview Data, Unemployment Rates--Total Sample

Group	1983 Unemp. rate	1983 Dev. from mean	1984 Unemp. rate	1984 Dev. from mean	1985 Unemp. rate	1985 Dev. from mean
Total	.127		.116		.093	
Youths	.184	.057	.159	.043	.130	.037
Adults	.070	-.057	.073	-.043	.056	-.037
Males	.135	.008	.123	.007	.093	.000
Females	.119	-.008	.109	-.007	.094	.001
Self	.132	.005	.116	-.000	.093	.000
Proxy	.122	-.005	.116	.000	.093	-.000
Reinterview	.131	.004	.121	.005	.095	.002
Interview	.123	-.004	.111	-.005	.091	-.002
Unreconciled	.129	.002	.117	.001	.095	.002
Reconciled	.126	-.001	.115	-.001	.091	-.002

Table 2. Main effects model (age, sex, proxy)--Total Sample

Group	1983 Obs.	1983 Pred.	1983 Resid.	1984 Obs.	1984 Pred.	1984 Resid.	1985 Obs.	1985 Pred.	1985 Resid.
YMS	.174	.197	-.023	.153	.166	-.013	.104	.130	-.026
YMP	.217	.187	.030	.179	.166	.013	.157	.130	.027
YFS	.187	.181	.006	.142	.152	-.010	.138	.131	.007
YFP	.159	.171	-.012	.162	.152	.010	.121	.131	-.010
AMS	.090	.083	.007	.095	.080	.015	.063	.056	.007
AMP	.059	.073	-.014	.063	.080	-.017	.046	.056	-.010
AFS	.077	.067	.010	.075	.066	.009	.068	.057	.011
AFP	.056	.057	-.001	.058	.066	-.007	.046	.057	-.011

Y=Youth M=Male S=Self Reported
A=Adult F=Female P=Proxy Reported

Table 3. Unweighted Means Analysis--Reinterview Data, Unemployment Rates, Self/Proxy and Proxy/Self Only

Group	1983 Unemp. rate	1983 Dev. from mean	1984 Unemp. rate	1984 Dev. from mean	1985 Unemp. rate	1985 Dev. from mean
Total	.132		.108		.089	
Youths	.199	.067	.150	.042	.123	.034
Adults	.066	-.067	.067	-.041	.054	-.035
Males	.142	.010	.115	.007	.089	.000
Females	.123	-.009	.102	-.006	.088	-.001
Self	.135	.003	.109	.001	.094	.005
Proxy	.129	-.003	.108	.000	.083	-.006
Reinterview	.135	.003	.111	.003	.090	.001
Interview	.129	-.003	.106	-.002	.087	-.002
Unreconciled	.139	.007	.105	-.003	.085	-.004
Reconciled	.125	-.007	.112	.004	.092	.003

Table 4. Main effects model (age, sex, proxy)--Self/proxy and proxy/self only

Group	1983 Obs.	1983 Pred.	1983 Resid.	1984 Obs.	1984 Pred.	1984 Resid.	1985 Obs.	1985 Pred.	1985 Resid.
YMS	.220	.212	.008	.162	.158	.004	.138	.128	.010
YMP	.206	.206	.000	.154	.157	-.003	.106	.117	-.011
YFS	.185	.193	-.008	.136	.145	-.009	.130	.127	.003
YFP	.184	.187	-.003	.149	.144	.005	.118	.116	.002
AMS	.074	.078	-.004	.073	.075	-.002	.056	.059	-.003
AMP	.068	.072	-.004	.071	.074	-.003	.056	.048	.008
AFS	.061	.059	.002	.064	.062	.002	.053	.058	-.005
AFP	.060	.053	.007	.059	.061	-.002	.052	.047	.005

Y=Youth M=Male S=Self Reported
A=Adult F=Female P=Proxy Reported

Table 5. Significance Levels of Main Effects and Interactions Involving Proxy Status, Total Sample

	1983	1984	1985
Age	.001	.001	.001
Sex	.001	.02	
Proxy Status	.01		
Age x Proxy	.001	.001	.001
Sex x Proxy	.001		.001
Age x Sex x Proxy	.001		.001

Table 6. Weighted Means
Unemployment Rates - Total Sample

	1983	1984	1985
Age			
Youths	.186	.162	.135
Adults	.071	.071	.056
Sex			
Male	.096	.090	.070
Female	.095	.091	.075
Proxy Status			
Self	.096	.089	.072
Proxy	.095	.091	.073
Age x Sex x Proxy Status			
YMS	.170	.152	.105
YMP	.210	.170	.153
YFS	.182	.145	.126
YFP	.163	.164	.125
AMS	.090	.092	.064
AMP	.060	.062	.047
AFS	.080	.074	.067
AFP	.056	.063	.049

Table 7. Weighted Means
Unemployment Rates - Self/Proxy and Proxy/Self Only

	1983	1984	1985
Age			
Youths	.188****	.154****	.128****
Adults	.068****	.068****	.053****
Sex			
Male	.094***	.084**	.067*
Female	.084***	.079**	.063*
Proxy Status			
Self	.092	.083	.067
Proxy	.087	.081	.064
Age x Sex x Proxy Status			
YMS	.208	.167	.142
YMP	.193	.161	.127
YFS	.179	.145	.122
YFP	.173	.145	.121
AMS	.075	.072	.057
AMP	.073	.071	.055
AFS	.063	.065	.050
AFP	.059	.062	.050

* $p < .09$
** Significantly different, $p < .05$
*** Significantly different, $p < .01$
**** Significantly different, $p < .001$