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Executive Summary

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VALIDATION STUDY OF EARNINGS DATA IN THE SIPP—DO OLDER WORKERS HAVE LARGER MEASUREMENT ERROR?

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Earnings data in the Survey of Income and Program Participation (SIPP) are based on the answers to a set of questions about monthly earnings gathered in interviews administered every four months. Since respondents seldom know exactly how much they earned in each of the previous four months, these self-reported earnings reflect both true earnings and measurement error. The question addressed in this study is the extent to which reporting error may lead to erroneous conclusions about the earnings of older workers.

We are primarily interested in the effect of measurement error on the mean and dispersion of earnings for people of different ages and on the correlation in earnings across years, which is a measure of earnings mobility. While our primary focus is on labor force and earnings dynamics as respondents near retirement age we also present evidence for the wider non-retired population. This allows us to contrast the role of measurement error across age groups.

Methods and Data

We follow the procedures used in most previous validation studies by comparing self-reported earnings in the SIPP with administrative records, which we assume to be free of reporting error. Specifically, we compare SIPP self-reported earnings with earnings from IRS W-2 forms.

Our SSIP analysis file includes respondents 25 and over who are not in school. We use the 1996 SIPP panel which includes earnings data covering a 36 month period starting in April 1996. We compare measures of annual earnings from the SIPP, with its counterpart constructed from the Detail Earning Records (DER)... Since the DER contains earnings information from W-2s for all jobs held by the individual it does not suffer from the standard limitations of FICA records which are top-coded at the FICA max and exclude persons in sectors not covered by the FICA tax.

Results

Since we can only compare annual earnings in the SIPP and the DER for a subset of observations that are matched to the DER this opens the possibility that the comparison between reported and actual earnings cannot be generalized to the full SIPP sample. We, therefore, start by comparing the observed characteristics of the matched sample with the characteristics of those who could not be matched to DER records. We find these two subsets of the SIPP sample are very similar on the basis of these labor market characteristics, which include employment rates and mean hours and earnings of those employed. While we cannot rule out selection on unobservables, we find no evidence of selection on observables.

We then turn to a direct comparison of the SIPP with the DER for the matched sample. We start by comparing measures of employment and measures of central tendency and dispersion in the distributions of positive earnings in the SIPP and DER. While the life-cycle patterns in employment rates are similar in the two data sets, the DER gives consistently higher levels of employment than the SIPP. Earnings in both data sets exhibit the standard lifecycle patterns but earnings are somewhat higher in the DER than the SIPP for males up through their late 50's. For older males and for females there is no systematic difference between data sets. While mean earnings are similar in the two data sets inequality is consistently lower in the SIPP than the DER.

Having compared the distributions of log earnings in these two data sets, we then turn to the correlation between DER and SIPP earnings. The correlation between DER log earnings and SIPP log earnings is consistently high, around .75, especially for workers with non-imputed earnings. The fact that the correlation for workers over 65 is roughly as high as the correlation for younger workers indicates that older SIPP respondents are not making larger reporting errors than younger workers...

We then turn to the impact of measurement error in SIPP earnings on regression coefficients that use SIPP earnings as dependent or independent variables. We show that the impact of measurement error on parameter estimates depends crucially on whether measurement error is random or whether it is correlated with the true level of earnings, which we take to be DER earnings. We show that measurement error is negatively correlated with DER earnings for both males and females. This negative relationship is especially strong when earnings are imputed. The negative correlation between DER earnings and measurement error is consistent with our finding that earnings inequality is considerably higher in the DER than in the SIPP data. This negative correlation implies that workers with low earnings tend to overstate their earnings, while respondents with high earnings tend to underreport their earnings in SIPP. This reduces inequality of reported earnings in the SIPP.

The fact that measurement error is negatively correlated with true earnings implies that regression coefficients are downward bias when SIPP earnings are used as the dependent variable in OLS regressions. This type of mean reverting measurement error, however, tends to offset the downward bias in regression coefficients when SIPP earnings are used as an independent variable.

We then turn to the impact of measurement error on estimates of mobility. While it is often assumed that measurement error increases mobility, this is not necessarily true if measurement error is negatively correlated with earnings. We, in fact find that mobility is lower in the SIPP than the DER.

In summary, we find that while there is clearly measurement error in the SIPP, earnings in this data set are highly correlated with earnings in the DER. Furthermore, measurement error is no higher for older workers than for younger workers. The measurement error in the SIPP is mean reverting in the sense that workers with low earnings tend to overstate their earnings and workers with high earnings tend to understate their earnings. This measurement error has little impact on mean earnings but it tends to lead to underestimates of earnings inequality and earnings mobility.

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