Technical Document: The Methodology for Distributing Personal Saving via a Joint Distribution of Disposable Personal Income and Personal Consumption Expenditures

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The Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS) have produced a new distribution of personal saving (PS) that provides a joint distribution of disposable personal income (DPI) and personal consumption expenditures (PCE).

This work builds off of the previously constructed independent distributions of DPI and PCE, produced by BEA and BLS, respectively. DPI has been distributed to households using microdata from the Annual Social and Economic Supplement of the Current Population Survey (hereafter, "CPS"), such that household-level incomes aggregate to national accounts totals (full methodological description). PCE has been similarly distributed to consumer units using the Consumer Expenditure Survey (CE) (full methodological description). Additional steps were taken to combine the distributions and distribute personal outlays to arrive at PS, as described below.

Methodology Overview

Beginning from the independent distributions as constructed by BEA and BLS, there were four main steps toward calculating a distribution of PS. For a detailed explanation of each step, please see BLS Working Paper 575.
1. Create a "comparable" income, consisting of income sources common across the CE and CPS (e.g., labor income, interest/dividends, and some transfers)
2. Assign consumer unit-level PCE and personal outlays to CPS households: this was done via multiple imputation with predictive mean matching by decile of equivalized comparable income.
    a. CPS and CE were ranked on equivalized comparable income and separate models were estimated for each decile and tenure (owner/renter in the CE).

b. Total PCE was modeled as a function of demographics and income source indicators.

c. Predicted values formed the measures of distance between CPS and CE observations, with a match chosen from the closest 5 observations.

3. Harmonize overlapping components of DPI and PCE such that estimates of PS are unimpacted by differing estimates for the same items
   a. Health items: CPS allocations were used for the joint distribution
   b. Rental income of Owner-Occupied Housing: CE rental equivalence values were used for the joint distribution

4. Compute distributional estimates
   a. A joint distribution of PI & PCE, and subsequently PS, was constructed by equivalized DPI quantile
   b. Distributional statistics are computed 5 times (then averaged) using the CPS (one for each of the multiple imputations)

Available Results

A summary file containing results for all presently available years has been uploaded for ease of comparison of concepts and quantiles across the time series, consistent with the flat file presently available for DPI. This summary file contains two tables: (1) shares of DPI and PCE by quantile, from their independent and joint distributions, and (2) shares of households, DPI, and PCE in each quantile pairing (e.g. 11.1% of households are in the bottom quintile of both equivalized DPI and equivalized PCE).

Share of Households by Eq. Quintiles, 2022

		Eq. PCE Quintiles				
		0-20%	20-40%	40-60%	60-80%	80-100%
Eq. DPI Quintiles	0-20%	10.10%	4.70%	2.60%	1.70%	0.90%
	20-40%	5.20%	5.90%	4.40%	2.90%	1.50%
	40-60%	2.90%	4.90%	5.40%	4.40%	2.40%
	60-80%	1.30%	3.20%	4.90%	6.00%	4.70%
	80-100%	0.50%	1.40%	2.70%	5.00%	10.40%