

## ANALYSIS

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## Estimates of Personal Savings, Personal Outlays and Excess Savings by Demographic Group

### INTRODUCTION

Moody's Analytics estimates personal savings, personal outlays and excess savings by demographic group based on the Federal Reserve's quarterly Financial Accounts and the triennial Survey of Consumer Finances. The demographic groups include age, educational attainment, homeownership and income. Our methodology has its roots in research done at the Federal Reserve to understand household wealth effects beginning in the stock market bubble that developed in the late 1990s.

# Estimates of Personal Savings, Personal Outlays and Excess Savings by Demographic Group

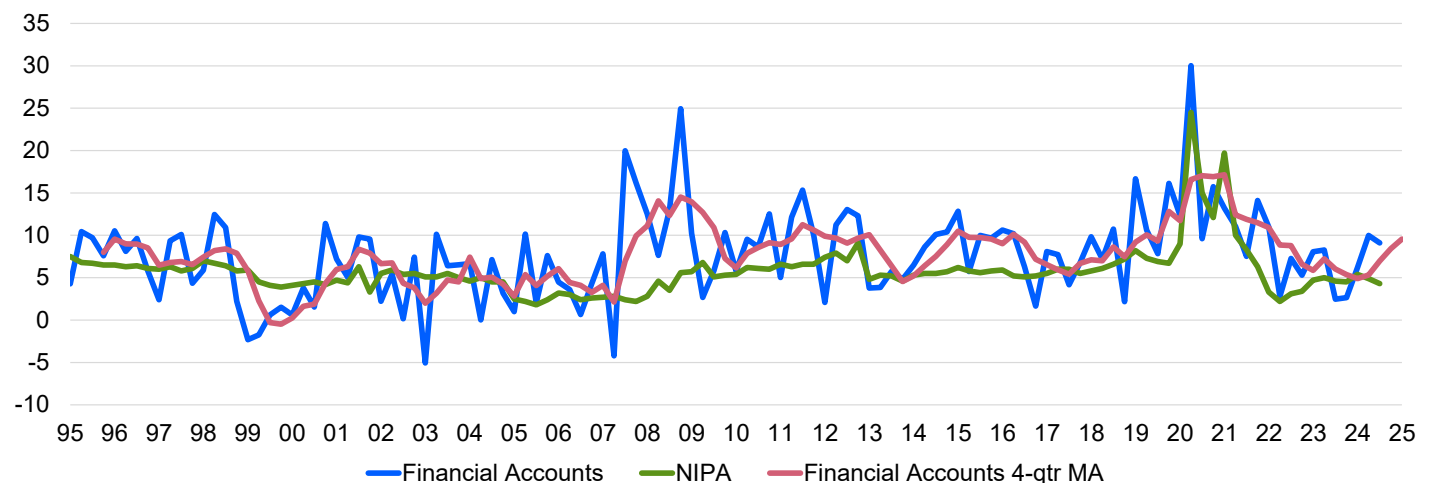
BY MARK ZANDI, SCOTT HOYT AND SHANDOR WHITCHER

Moody's Analytics estimates personal savings, personal outlays and excess savings by demographic group based on the Federal Reserve's quarterly [Financial Accounts](#) and the triennial [Survey of Consumer Finances](#). The demographic groups include age, educational attainment, homeownership and income. Our methodology has its roots in research done at the Federal Reserve to understand household wealth effects beginning in the stock market bubble that developed in the late 1990s.

The Financial Accounts provide data on the stock and flow of the assets owned and liabilities owed by households. The net acquisitions of assets and liabilities determine personal savings. That is, household savings are used to purchase an asset or pay down a liability. The drawdown of savings is done by selling assets or adding to liabilities. This provides a measure of saving that is theoretically consistent with [saving as measured by the Bureau of Economic Analysis](#)—the difference between personal outlays and personal disposable income—but given the differences in data sources and concepts, it differs empirically (see Chart 1).

## Chart 1: Saving Measures Track Over Time

Saving rate, % of disposable income



Sources: BEA, Federal Reserve, Moody's Analytics

We use the Survey of Consumer Finances data to determine savings across demographic groups. The SCF provides data on families' assets and liabilities, pensions, and income across demographic groups and is used to share the flow of assets and liabilities from the Financial Accounts to demographic groups. These shares represent the proportion of the stock of a given financial asset or liability held by each demographic group as indicated in the SCF. The calculated shares are then applied to the corresponding saving flows in the Financial Accounts, assuming these flows mirror the SCF shares. The mapping between the assets and liabilities in the Financial Accounts and SCF is provided in Table 1.

**Table 1: Financial Accounts and SCF Mapping**

Financial account variable	SCF variable
Foreign deposits	Total financial assets
Checkable deposits and currency	Checking accounts ex money market
Time and savings deposits	Saving accounts, money market deposit accounts, and certificates of deposits
Money market fund shares	Money market pooled investment funds
Securities	Total financial assets
Other Treasury securities	Mortgage-backed bonds and U.S. government and government agency bonds and bills
Agency- and GSE-backed securities	U.S. government and government agency bonds and bills
Municipal securities	Tax-exempt bonds
Corporate and foreign bonds	Corporate and foreign bonds
Corporate equities	Directly held stocks
Mutual fund shares	Directly held pooled investment funds ex money market funds
Life insurance reserves	Cash value of whole life insurance
Pension fund reserves	Quasi-liquid retirement accounts
Miscellaneous and other assets	Other miscellaneous financial assets, other managed assets
Residential fixed investment	Primary residences, residential property ex primary residences
Consumer durables	Vehicles, other miscellaneous nonfinancial assets
Mortgage debt on nonfarm homes	Debt secured by primary residences, debt secured by other residential property
Consumer credit	Credit card balances after last payment, other lines of credit (not secured by residences), installment loans
Other liabilities	Other debts
Net capital transfers	Total net worth
Less net investment in consumer durables	Vehicles, other miscellaneous nonfinancial assets
Other loans and advances	Margin accounts
Less government insurance and pension fund reserves	Cash value of whole life insurance
Adjustment to contributions for social insurance paid for U.S. afflicted areas	Quasi-liquid retirement accounts

Sources: Federal Reserve, Moody's Analytics

The SCF is also used to allocate personal disposable income available from the Bureau of Economic Analysis across demographic groups. Similar to the savings estimation, disposable income shares are calculated for various demographic groups according to the proportions established in the SCF. These shares are then applied to total disposable income, providing an estimate of disposable income by demographic.

The personal saving rate, the ratio of personal savings to personal disposable income by demographic, is then calculated by taking the ratio of estimated savings and estimated income. Personal outlays, which include consumer spending, interest payments on consumer installment debt, and transfers such as donations by demographic group, are then calculated as the difference between personal disposable income and personal savings. Excess savings by demographic group are the personal savings since the pandemic that are greater than would have occurred if the savings rate had remained at its average rate in 2015-2019, the five years before the pandemic.

## TECHNICAL ADJUSTMENTS

Since the frequency of the Financial Accounts data is quarterly and the SCF data's is triennial, quarterly estimates of the SCF data must be estimated. To do this, the SCF data for a given year are assumed to be as of the third quarter of that year, consistent with the quarter when most of the survey is conducted. For example, the 2022 SCF data are assumed

to be as of the third quarter of 2022. The quarters between SCF survey years are determined through linear interpolation. The shares for that final third quarter are held constant for the quarters following the third quarter of the last available year of SCF data.

The Financial Accounts data can be highly volatile from quarter to quarter, as seen in Chart 1. To address this, we apply a four-quarter moving average to the data to abstract from the short-term fluctuations to get to the underlying trend.

Additionally, the Financial Accounts combine data for households with data for nonprofits and nonfinancial noncorporate businesses. While some of the data exclude nonprofits and other organizations, they do not do so for the flows of financial assets, which are needed to calculate savings. We thus assume that the household share of asset flows is the same as the share of the stock of those assets (see Table 2).

**Table 2: Financial Accounts Variable Adjustments**

Financial account variable (F.6)	Financial account variable adjustments (F.104, B.101, B.101.h)
Other Treasury securities	Total U.S. government securities and municipal securities (households), Treasury securities (households and nonprofits), agency- and GSE-backed securities (households and nonprofits), municipal securities (households and nonprofits)
Agency- and GSE-backed securities	Total U.S. government securities and municipal securities (households), Treasury securities (households and nonprofits), agency- and GSE-backed securities (households and nonprofits), municipal securities (households and nonprofits)
Municipal securities	Total U.S. government securities and municipal securities (households), Treasury securities (households and nonprofits), agency- and GSE-backed securities (households and nonprofits), municipal securities (households and nonprofits)
Corporate and foreign bonds	Corporate and foreign bonds (households), corporate and foreign bonds (households and nonprofits)
Corporate equities	Corporate equities and mutual fund shares (households), corporate equities (households and nonprofits), mutual fund shares (households and nonprofits)
Mutual fund shares	Corporate equities and mutual fund shares (households), corporate equities (households and nonprofits), mutual fund shares (households and nonprofits)
Securities	Mortgages (households), mortgages (households and nonprofits), other loans and advances (households), other loans and advances (households and nonprofits)
Residential fixed investment	Gross fixed investment, consumption of fixed capital
Other loans and advances	Other loans and advances (households), other loans and advances (households and nonprofits)
Foreign deposits	Other deposits including time and savings deposits (households), time and savings deposits (households and nonprofits), foreign deposits (households and nonprofits)
Checkable deposits and currency	Checkable deposits and currency (households), checkable deposits and currency (households and nonprofits)
Time and savings deposits	Other deposits including time and savings deposits (households), time and savings deposits (households and nonprofits), foreign deposits (households and nonprofits)
Money market fund shares	Money market fund shares (households), money market funds (households and nonprofits)
Miscellaneous and other assets	Proprietors' equity in noncorporate businesses, total miscellaneous assets

Sources: Federal Reserve, Moody's Analytics

Because SCF income shares reflect pretax distributions while BEA personal disposable income is the measured net of taxes, we adjust our SCF-based income weighting to reflect after-tax income using federal effective tax rates from the Congressional Budget Office's Distribution of Household Income. For each SCF year, we map CBO estimates of federal effective tax rates to our SCF income cohorts and multiply each cohort's income share by its net-of-tax rate (1 – ETR), then renormalize the six cohort shares to sum to one. We do not rebucket households or alter any non-income component shares, preserving consistency with our existing cohort definitions and saving-rate inputs. This adjustment applies to the income demographic cut only; shares for age, educational attainment and homeownership are unaffected. The adjustment uses federal effective tax rates only; the SCF does not identify respondents' state or locality, making it impossible to map state and local tax

burdens to cohorts. Because state and local taxes tend to be regressive, the adjustment likely understates the relative tax burden for lower-income cohorts.

## COMPARING WITH THE CONSUMER EXPENDITURE SURVEY

While our estimates of personal outlays are frequently compared with those from the Consumer Expenditure Survey, key differences arise due to methodology, data sources and definitional scope. The CES relies on consumer surveys, which are subject to errors due to respondents' inaccurate recall or reluctance to report some spending. These errors are not random—high-income households [systematically underreport](#) expenditures, and the highest-income households are [less likely to participate at all](#), compressing measured spending inequality. It has been widely reported that CES income shares at the top of the income distribution are well below those in the Fed's Survey of Consumer Finances. Therefore, it can be presumed that the same applies for expenditures. By contrast, our estimate of personal outlays is derived from asset and liability flows in the Financial Accounts, avoiding these survey-related biases.

There are also several significant definitional differences. The CES measures consumer expenditures, whereas our estimates follow the BEA's definition of personal outlays. Personal outlays include, in addition to consumer spending, interest payments on consumer installment debt and transfers such as donations. Moreover, healthcare expenditures differ meaningfully between the two datasets. The CES captures only out-of-pocket payments for health insurance and medical costs, whereas the BEA measure includes total medical spending, regardless of whether it is paid out of pocket, by insurance, or provided for free. Housing expenses are also measured differently: The CES records actual rent payments and homeownership costs, while the BEA approach measures owners' equivalent rent, which assumes homeowners pay themselves rent. The cost of financial services and other spending categories also differs across datasets.

As a result of these methodological and definitional differences, CES estimates of consumer expenditures by demographic group may not align with our estimates of personal outlays. Where divergence is most pronounced—particularly at the top of the income distribution—it likely reflects the CES's well-documented underreporting problems rather than genuine differences in spending behavior. Our Financial Accounts and SCF-based approach [avoids these pitfalls](#) and provides a more reliable basis for distributional analysis.

## ABOUT THE AUTHORS

**Mark Zandi** is chief economist of Moody's Analytics, where he directs economic research. Moody's Analytics, a subsidiary of Moody's Corp., is a leading provider of economic research, data and analytical tools. Dr. Zandi cofounded Economy.com, which Moody's purchased in 2005.

Dr. Zandi is on the board of directors of MGIC, the nation's largest private mortgage insurance company, is the lead director of PolicyMap, a data visualization and analytics company used by policymakers and commercial businesses, and is a director of the Coleridge Initiative, a nonprofit that facilitates the exchange of data across governments.

He is a trusted adviser to policymakers and an influential source of economic analysis for businesses, journalists and the public. Dr. Zandi frequently testifies before Congress and conducts regular briefings on the economy for corporate boards, trade associations and policymakers at all levels.

Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which assesses the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360° Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by The New York Times as the "clearest guide" to the financial crisis. Dr. Zandi is host of the Inside Economics podcast.

Dr. Zandi earned his BS from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania

**Scott Hoyt** is senior director for Moody's Analytics, responsible for the firm's consumer forecasts and analysis. Dr. Hoyt contributes to Economic View, speaks at conferences, and oversees the production of the U.S. economic forecast. He has done custom modeling for credit and consumer sector clients. His projects include estimating market size geographically for several large retail clients, analysis of spending by demographic groups and implications for the spending outlook, credit portfolio modeling, and delinquency and loss modeling. His areas of expertise include consumer spending, retail sales and industry performance, consumer credit, household income, demographics, and other aspects of consumer behavior and its macroeconomic and industry implications.

Before joining Moody's Analytics, Dr. Hoyt spent five years as an economist for J.C. Penney, where he did extensive work supporting the company's strategic planning efforts, real estate research department, merchandise departments, and credit department. He received his PhD and MA in economics from the University of Pennsylvania and his BA summa cum laude from Bates College.

**Shandor Whitcher** is an economist in the research department at Moody's Analytics and is part of the firm's real estate, regional forecasting, and U.S. national forecasting teams. He covers the economies of Arizona, Wisconsin and the U.S. Virgin Islands, as well as several metro areas. Shandor regularly presents to a diverse group of audiences on the national and regional economic outlook, as well as specific areas of interest, including commercial real estate, single-family housing, and consumer credit. He received his master's degree in economics from Drexel University and his bachelor's degree in economics from Northern Arizona University.

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