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Survey Measurement of Tax Rates

Despite widespread use of tax rate variables in both micro and macro-economic research, *measurement* of tax rates has largely been ignored. When tax returns are unavailable, income variables are used to compute tax rates. Measurement error in income and unobserved deductions, exemptions and credits make these inherently noisy measures of true rates.

This dissertation reports new survey measures of average (ATR) and marginal (MTR) income tax rates from the Cognitive Economics (CogEcon) Study. These are interpreted as noisy measures of subjective rates, which are perceptions of the tax rates as they might influence decisions. Survey measures of income and tax rates are used to impute subjective and true rates which correct for survey noise, characterize heterogeneity in how subjective rates diverge from true rates, and analyze the relationship between these various measures and retirement savings behavior.

Chapter 1: Survey Measurement of Tax Rates: Estimation and Behavioral Implications

This paper develops a new method of measuring and analyzing tax rates using survey data from the Cognitive Economics (CogEcon) study. Comparing survey measures of marginal (MTR) and average (ATR) tax rates with rates computed using reported income, respondents overestimate ATR, slightly underestimate MTR, and exhibit less progressivity in their cross-sectional responses. A statistical model of MTR and income is used to jointly estimate survey noise in income and MTR, identify systematic heterogeneity based on demographics, cognitive ability, and use of paid tax preparers, and impute individual measures which correct for measurement error. Variation in subjective MTR has explanatory power after conditioning on the true rate. Participation in and contributions to tax-advantaged retirement accounts are strongly related to the accuracy of subjective MTR, cognitive ability, and the use of professional tax preparers. Ignoring measurement error in MTR underestimates the relationship between tax rates and retirement savings behavior.

Chapter 2: Marginal Tax Rates, Average Tax Rates, and Tax-Advantaged Retirement Savings

This paper refines and extends the statistical model of MTR and income developed in chapter 1 by incorporating an equation for ATR and using data from both CogEcon 2011 and CogEcon 2013. This model accommodates a more flexible representation of the subjective tax rates error structure. The estimated parameters are used to impute true and subjective ATR as well as true and subjective MTR. These two measures are used to test whether observed savings behavior is more highly correlated with average or marginal tax incentives.

Chapter 3: A Taxing History of Tax Uncertainty

This paper compares the methodology and technique used in chapters 2 and 3 with earlier empirical studies. While earlier studies used survey/reported data, more recent work uses experiments or observational data. These studies are spread across the years since the 1950s, in the U.S., Canada and across Europe. No studies measure both ATR and MTR. Overall, little is known about tax perceptions and even less is known about the interaction between perceptions and behavior. At the same time, theory provides little guidance for interpreting the results.

The second part of the paper sheds light on theoretical issues related to subjective tax rates, taking a normative standpoint on the positive results. Adam Smith and John Stuart Mill's political economy arguments presented an unequivocally negative perspective on having tax rates not perfectly known or understood by the electorate. In contrast, optimal tax theory suggests a more optimistic interpretation, as randomness in taxation could reduce efficiency costs of distortionary taxes. The paper concludes with a discussion of whether the classical economists were rightly or wrongly concerned about "tax uncertainty."