Modeling the Internal Revenue Code in a Heterogeneous-Agent General Equilibrium Framework *

Rachel Moore
Rachel.Moore@JCT.gov

Brandon Pecoraro
Brandon.Pecoraro@JCT.gov

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Abstract

We develop a large-scale, deterministic overlapping generations model for analyzing the macroeconomic effects associated with federal tax policy proposals in the United States. The economy is decentralized, as the interaction of households, firms, financial intermediaries, and government takes place in a competitive market environment. The model features ex ante heterogeneity in the household sector, which allows for households of different ages, labor productivity, and marital status. This individual-level heterogeneity lends itself to the use of a built-in individual tax calculator that can explicitly model particular provisions applied to earned income in the Internal Revenue Code. Our approach contrasts with the existing literature which typically specifies a parameterized tax function with the intention of approximating the US tax code. We explicitly model those provisions responsible for the largest tax expenditures and the largest deviations from the statutory rate schedule: the child tax credit, the earned income credit, the home mortgage interest deduction, the charitable giving deduction, state and local tax deductions, the high-income and medicare surtaxes, personal exemptions, and the alternative minimum tax. By taking care to account for the phase-in and phase-out regions of deductions and credits, and the possible changes to these regions and amounts following a tax reform proposal, we can explicitly capture the idiosyncratic responses to tax policy changes and ensure they are reflected in changes to macroeconomic aggregates. We compare the observed macroeconomic revenue feedback under our approach against that under the conventional approach.

*This research embodies work undertaken for the staff of the Joint Committee on Taxation, but as members of both parties and both houses of Congress comprise the Joint Committee on Taxation, this work should not be construed to represent the position of any member of the Committee. This work is integral to the Joint Committee on Taxation staff's work and its ability to model and estimate the macroeconomic effects of tax policy changes.