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THE EQUIVALENCE OF THE SOCIAL SECURITY'S TRUST FUND PORTFOLIO
ALLOCATION AND CAPITAL INCOME TAX POLICY

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risk if (i) the government taxes only the risky return around the risk-free rate and (ii) the tax is symmetric by taxing the difference between the risky and risk-free return – positive or negative. Assumption (i) is usually justified on tax law provisions, or on the low historic risk-free rate relative to the average return to equities. For example, at historical values, the 30-year average return to equities is approximately ten times larger than the risk-free rate. So ignoring a tax on the risk-free rate may not be material even outside of tax law. Assumption (ii) is often justified on the basis of loss offset rules imbedded in the tax law. Gordon (1985) shows that these conditions hold approximately for the United States.

The previous literature on the taxation of risky capital income, though, focused on *neutrality*. In particular, the previous literature argued that placing a tax on capital income had no impact on consumption. Two types of models were used to show this result. The first type of model was Ricardian in which agents are connected to their future selves and are the residual claimants of all government risk. Gordon (1985), in particular, considered a single-agent two-period model. His paper was first in this literature to formally include the government’s budget constraint and to explain its relevance. He proved that a tax on risk did *not* have any impact on the private demand for capital or bonds, or on consumption.

The second type of model in the literature is more related to classic Modigliani-Miller neutrality theorem of corporate finance. The papers in this literature abstracted from the government’s budget constraint and instead focused on the saving levels and portfolio choice of private agents in the presence of capital income taxes. Mossin (1968) and Stiglitz (1969) considered capital income taxes in one-period models. The papers by Sandmo (1969, 1985) modernized the discussion to the context of a two-period inter-temporal choice model with multiple assets. Bradford (1995) considered the taxation of risky capital income returns in the context of fundamental tax

portfolio held by its Social Security system.

Section II gives an overview of the overlapping-generations model used herein. Section III derives a closed-form solution for the value of the capital income tax rate that is equivalent to the investment portfolio of the Social Security trust fund. Section IV reports simulation evidence. Section V extends the analysis to include agents with no saving and calculates new equivalent tax rates. Section VI concludes.

Table 1
Parameters and Implied Values along Mean Path in the Initial Stochastic Steady State
(I.e., Before the Social Security Trust Fund is Invested in Equities)

Variable Description	Value
Exogenous Parameters (same in all simulations, unless indicated otherwise)	
Average annual depreciation rate, $\overline{\delta}_{annual}$	5 %
Capital share, α	0.30
Arbitrary Scaling of the Initial Productivity, A_0	1.00
Pre-tax 30-year return to equities on mean path, $\overline{E}(e_1 k_1)$ (Corresponding annual return)	1,056 % (8.5 %)
Coefficient of Variation, $\overline{\sigma}_e / \overline{E}(e_1 k_1)$	0.87
Pre-tax 30-year risk-free real return on mean path, r (Corresponding annual return)	143 % (3 %)
Rate of 30-year labor-augmenting tech. progress, λ (Corresponding annual return)	143 % (3 %)
Debt-capital ratio, \overline{d}	25 %
Tax rate on capital income, τ^K	20 %
Social Security pay-as-you-go liabilities tax rate, $\tau_{s \geq 0}^{SS,P}$	11.5 %
Social Security funded portion tax rate, $\tau_{s \geq 0}^{SS,F}$	0.5 %
Non-Social Security wage tax rate, τ^W	15 %
Implied Endogenous Variables (same in all simulations)	
Net national saving rate	4.4 %
“On Budget” Spending as a fraction of GDP, $G_0/[A_0 k_0^\alpha]$	15.3 %
Capital income tax revenue as a fraction of GDP	4.8 %
Non-Social Security wage income tax revenue as a fraction of GDP	10.5 %
Exogenous Parameter (only for the benchmark)	
Correlation between capital income returns and wages	0.75

