

# **The Savers-Spenders Theory of Fiscal Policy: A Correction**

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Martin Feldstein has called to my attention an error in my paper "The Savers-Spenders Theory of Fiscal Policy." Specifically, the discussion of Proposition 4 in that paper contains a mistake that, while not affecting the proposition as stated, alters the proof and the numerical calibration that follows it.

Proposition 4 examined how government debt affects the capital stock in an economy where the steady state is pinned down by the Euler equation for an infinitely-lived Ramsey consumer but, in contrast to standard Ricardian analysis, taxes are distortionary. If taxes are raised with a proportional income tax with rate  $\tau$ , the following equations describe the steady state:

$$y = f(k)$$

$$\tau y + \tau rD = rD + g$$

$$r = f'(k)$$

$$(1-\tau)r = \rho$$

where the notation is standard. The first equation is the production function. The second equation states that the government's tax revenue  $\tau y + \tau rD$  equals its expenditure for interest on the government debt  $rD$  and government spending  $g$ . The third equation states that the interest rate  $r$  equals the marginal product of capital. The fourth equation states that the after-tax interest rate equals the rate of time preference  $\rho$ .

The mistake I made was omitting the second term from left-hand side of the second equation. Tax revenue should include the tax from interest income earned on the government debt, which equals  $\tau rD$ . (If this interest income is not subject to tax, then the third and fourth equations must change. As the model is now written, the tax does not affect the equality of the

interest rate and the marginal product of capital because interest income and capital income are taxed at the same rate.) The same error is made in Elmendorf and Mankiw (1999, p. 1651-1652).

By differentiating this corrected system of equations, we can solve for how much debt crowds out capital:

$$dk/dD = [\tau/(1-\tau) + ff''/(f')^2]^{-1}.$$

If the production function is Cobb-Douglas  $y = k^\alpha$ , this becomes:

$$dk/dD = [\tau/(1-\tau) - [(1-\alpha)/\alpha]^{-1}].$$

For the U.S. economy, taxes are about one-third of income ( $\tau = 1/3$ ), and capital earns about one third of income ( $\alpha = 1/3$ ). For these parameter values,  $dk/dD = -2/3$ . That is, an extra dollar of government debt reduces the steady-state capital stock by about 67 cents. This is a slightly smaller effect than I had calculated in my original (mistaken) paper.

## References

Elmendorf, Douglas, and N. Gregory Mankiw, "Government Debt," in Handbook of Macroeconomics, edited by J.B. Taylor and M. Woodford, Eslevier Science B.V., 1999, pp. 1615-1669.

Mankiw, N. Gregory, "The Savers-Spenders Theory of Fiscal Policy," *American Economic Review*, May 2000, pp. 120-125.