Reply to Referee of the Second Version

Thank you for your further elaboration which will again contribute to clarify some points.

Now that the paper has been finally rejected I feel free to comment on your notes.

Let us assume no depreciation ($\delta = 0$), as depreciation on government bonds seems not to make too much sense. Let us assume further that the rate of interest is time invariant ($r_t = r$ for all t); else all subsequent equations in your note dealing with present values would be problematic. (I pointed out these lapses in my reply to your first report.)

The households' budget constraint is given in equation (3a) as

$$K_{t+1} - K_t + D_{t+1} - D_t = w_t N_t + r(K_t + D_t) - T_t - C_t \qquad (1)$$

With taxes

$$T_t = (1 - \alpha) G_t + r D_t$$

this can be written as

$$K_{t+1} - K_t + D_{t+1} - D_t = w_t N_t + r K_t - (1 - \alpha) G_t - C_t.$$

The left-hand side is total savings S_t in period t, i.e. $S_t = K_{t+1} - K_t + D_{t+1} - D_t$ and $w_t N_t + r K_t$ is total production X_t. Therefore we obtain

$$C_t + S_t = X_t - (1 - \alpha) G_t.$$

This is the households' budget constraint as commonly understood. $X_t - (1 - \alpha) G_t$ is also known as disposable income:

> "We define income after the payment of all taxes, $Y - T$, as **disposable income.**" (Mankiw, 1997, 56)

It is clearly dependent on the fiscal regime, as parametrized by α. ($\alpha = 0$ describes the pay-as-you-go regime and $\alpha > 0$ stands for the debt regime.)

This constrains the savings and consumption decisions of the households:

> "Households receive income from their labor and their ownership of capital, pay taxes to the government, and then decide how much of their after-tax income to consume and how much to save." (Mankiw, 1997, 56).

If the corresponding present values exist, this dependency on α carries over to the intertemporal budget constraint.

In short: Barro arrives at his result by redefining the households' budget constraint in an unusual way, namely by excluding interest income from government bonds from disposable income. This holds true for Barro's (1979) exposition as well as for yours. Please excuse me, but I consider this an elementary mistake. I see and respect, however, that you think otherwise.

The final result of your calculations - that the present value of taxes equals the present value of government spending - is just repeating Barro's corresponding statement and holds true in my example, as I have emphasized in section 4 of the revised version. This does not change the fact that, under the debt regime, the households receive income from interest on government bonds that are financed from those taxes, thereby reducing the *net* tax burden (taxis minus interest payment on government bonds). This destroys the Ricardian equivalence.

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References

Barro, R. J. (1979). On the Determination of the Public Debt. *The Journal of Political Economy*, 87(5/1): 940–71.

Mankiw, N. G. (1997). *Macroeconomics*. New York: Worth Publishers, 3 edition. ISBN 1572591412. URL http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=1572591412.