

6.4 Public debt and the household budget constraint

How does a change in public debt affect household wealth, and through changes in wealth, household behaviour?

We will consider the impact of a current period tax reduction on the PV of real taxes

Some technical assumptions to make the example more simple:

constant P, M

exogenous G

Zero transfer payments

no initial government debt, $B_0^g = 0$

government budget constraint:

$$G_t + \frac{R_{t-1} B_{t-1}^g}{P_t} = \frac{T_t}{P_t} + \frac{(B_t^g - B_{t-1}^g)}{P_t}$$

if the government runs a balanced budget in every period, $B_t^g - B_{t-1}^g = 0$, and the

constraint reduces to $G_t = \frac{T_t}{P_t}$

Now suppose the government runs a deficit of €1 in period 1.

- T_1 falls by €1
- hh income in period 1 rises by €1
- $B_1^g = 1$

To repay the debt, the government must raise taxes in future periods.

In a simple two-period world, if $\Delta T_1 = -1$, $\Delta T_2 = (1+R)(1)$

Change in the PV of real taxes?

$$\frac{1}{P} [\Delta T_1 + (\frac{1}{1+R}) \Delta T_2]$$

$$\frac{1}{P} [-1 + (\frac{1}{1+R})(1+R)1]$$

$$\frac{1}{P} [-1 + 1] = 0$$

No aggregate wealth effects for households, and therefore no effect on consumption decisions

Agents know that current tax cut must be offset by future tax rises – buy bonds to hedge against future tax increases

This is an example of Ricardian Equivalence

Ricardian Equivalence holds even if the principal is never repaid.

In this case, the government just pays interest R each period, and $B_1^g = B_2^g = \dots = 1$

Change in the PV of real taxes?

$$\frac{1}{P} \left[-1 + \frac{R}{(1+R)} + \frac{R}{(1+R)^2} + \dots \right]$$

$$\frac{1}{P} \left[-1 + R \left(\frac{1}{(1+R)} + \frac{1}{(1+R)^2} + \dots \right) \right]$$

$$\frac{1}{P} \left[-1 + \left(\frac{R}{(1+R)} \right) \left(\frac{1+R}{R} \right) \right]$$

$$\frac{1}{P} [-1 + 1] = 0$$

Once again, shifts between taxes and deficit do not generate aggregate wealth effects

6.5 When does Ricardian Equivalence not hold?

violations of "conceptual assumptions"

1. Finite horizons

Alive for tax cut, but do not expect to be for future increase – there will be a wealth effect

Or do agents make decisions in context of infinitely lived extended families?

if so, intergenerational transfers will occur to offset tax increases suffered by future generations

2. Imperfect loan markets

Some agents have higher borrowing costs (higher R) than the government

if so, deficit financed tax cut can increase the PV of wealth, as the govt can borrow at a lower rate than possible for agents

3. Non lump-sum taxes

If $T = \tau Y$, where $0 < \tau < 1$, $T \uparrow$ if $Y \uparrow$, and $T \downarrow$ if $Y \downarrow$

This reduces uncertainty over future disposable income $Y - T$, which results in a positive wealth effect

4. “Rule of thumb” consumption behaviour