Government Debt: Practice Problems

1. In nominal terms, this statement is true. More generally, the budget deficits since 2009 have been the largest nominal deficits in U.S. history. In real terms (measured as a fraction of GDP), however, they are much smaller than those of World War II.

2. This plan combines several means of deficit reductions. It includes spending cuts both to entitlements (such as Social Security and Medicare) and defense spending. It also seeks to increase tax revenue primarily by eliminating deductions.

3. The latter by a lot.

4. Taxes in the United States are proportional. During a recession as wages and employment decline, so do personal income taxes paid. Likewise as corporate profits decline, so does corporate tax revenue. The recession itself explains a significant share of the increase in budget deficits since Fall 2008.

5. There is no obvious level of debt to GDP that precedes a sovereign debt crisis. Discuss how you think the following may affect this level:

   a. This relationship is not obvious. In principle, measuring debt by dividing by GDP should eliminate this effect. It is notable, however, that Japan, a very wealthy country, has been able to survive extreme levels of debt without a crisis.

   b. Higher tax rates reduce the ability of governments to increase their tax revenue beyond current levels. A country with higher tax rates is at greater risk of a debt crisis than a country with lower rates but the same debt to GDP ratio.

   c. Countries with underdeveloped tax systems, such as Greece, have less of an ability to increase revenue. They are thus at greater risk.

6. Consider the following model. A household lives for two periods. In the first period it earns $100, pre tax. It earns nothing in the second period. Having no assets, its lifetime wealth equals:

$$LW_t = \$(100 - T_t) - \frac{T_{t+1}}{1 + i_t} \tag{1}$$

where T represents the level of taxes in each period and i_t is the interest rate which is used to discount future disposable income. Now suppose that the government spends \$25 per person each period, and pays for these expenditures by taxing each person the same amount.

a. In this case, the household's lifetime wealth is \$50. It thus consumes \$25 each period.

b. Under these assumptions, such a policy would require that the government raise taxes to \$35 in period $t+1$. Lifetime wealth is thus unaffected. The household continues to consume \$25 each period.

c. This is an example of Ricardian Equivalence. The household internalizes government debt resulting from the tax cut in period t by saving i the tax cut in order to pay the higher taxes that will occur in period $t+1$.

d. Now the government may not have to increase taxes in period $t+1$. The tax cut in period t potentially increases lifetime wealth and allows for consumption to increase as well.

e. Some future generation in 6d may now have to pay for the tax cut in period t. The tax cut will thus reduce their consumption. The current generation is thus able to increase their consumption at the expense of a future generation.