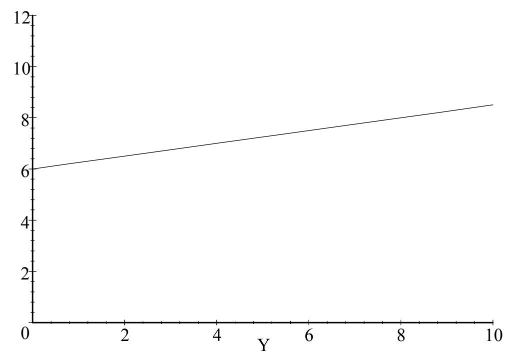
Solutions to Problem Set 5

Fall 2003

1. Repeated from Problem Set 4, question 3.
2. Repeated from Problem Set 5, question 4.
3. No, because the purchases we do with our credit cards are done on credit. Only by exercising our credit do we add up to the money supply.
4. (a) $E = A + [C_y(1-t) - IM_y]\,Y = 6 + 0.25Y$



   (b) In equilibrium: $Y = E \Leftrightarrow Y = 6 + 0.25Y \Leftrightarrow Y = \$8$ trillion.

   (c) $\mu = \frac{1}{1-C_y(1-t)+IM_y} = \frac{1}{0.75} = \frac{4}{3}$.

   (d) $\Delta Y = \mu \Delta A = \$133.33$ billion.

5. Changes that increase equilibrium real GDP: a, b, c, e, and f.

   Changes that decrease equilibrium real GDP: d and g.

6. On broad terms, the government would need to do three things. First, convince itself of the relevant economic relationships. Second, identify the policy instruments under its control and with bearing on those relationships. And, third, gather the required statistical evidence to quantify by how much it would have to intervene in the economy in order to predictably get the required increase of \$800 billion to real GDP.

7. (a) Fist of all determine the level of autonomous spending from the equilibrium condition:

$$Y = \frac{1}{1 - C_y(1-t) + IM_y} A \Leftrightarrow A = \mu^{-1} Y = \frac{3}{4} 11,000 = \$8,250 \text{ billion}$$

To get the t at which $Y = \$12,000$ just replace:

$$12,000 = \frac{1}{1.2 - 0.6(1-t)} 8,250 \Leftrightarrow t = 14.583\%$$

Hence, the tax rate is required to fall by 10.416%. Total tax collections change from $0.25\% \times 11,000 = \$2,750$ billion to $14.583\% \times \$12,000 = \$1,750$ billion.

(b) Just replace in the expression for the equilibrium level of income:

$$1,000 = \mu \Delta G \Leftrightarrow \Delta G = \$750 \text{ billion}$$

(c) The required increase in government spending is smaller than the necessary cut in taxes to boost real GDP by the same amount because as $C_y \in (0,1)$ only a fraction of the cut in taxes is passed to increased consumption.

8.

9. Some possibilities:

- Flexibilize labor laws to reduce costs of renegotiation of wages;
- Promote overall competition and fight the accumulation of market power;
- Enforce a monetary policy targeted to fight inflation and, therefore, minimize the effects of money illusion.

10. Check the reformulation of Okun's law in yearly changes at page 331 of the Book:

$$\Delta u = -0.4 \left(\frac{\Delta Y}{Y} - \frac{\Delta Y^*}{Y^*} \right)$$

and just replace: between 2003 and 2005 unemployment rate falls by $2 \times 0.4(4.3 - 3.8) = 0.4$ to 5.9%.