INTERMEDIATE MACROECONOMICS
3. Exam 28.2.2018
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1. Determine whether following statements are true or false. Right answer is worth 0.5 points and wrong answer costs 0.5 points. The total points cannot be negative however. There is a single right answer to each item.

    1. Gross domestic product is a flow variable.

    2. There is no significant correlation between investments and gross domestic product at business cycle frequencies.

    3. First fundamental welfare theorem states that general equilibrium allocation is Pareto efficient under certain conditions.

    4. Central banks typically use changes of reserve requirements in their day-to-day control of the money supply.

    5. Gross national product of Finland includes profits from a plant which is located in China but owned by a Finnish firm.

    6. A good is an inferior good if the substitution effect dominates the income effect.

    7. In general equilibrium macro models fiscal policy has no effect on the economy.

    8. Unemployment rate means the ratio of unemployed people to working age population.

    9. Production function $F(K, N) = K^{0.3}N^{0.6}$ has constant returns to scale.

    10. The government purchases of national income accounts include e.g. defense costs, costs of public education and unemployment benefits.

    11. Current account is by definition equal to net exports.

    12. According to Fisher equation there is an approximate relation $r = R - i$ between nominal interest rate R, real interest rate r and inflation rate i.

2. Assume the following Solow growth model. Savings rate is s from which it follows that investments I and consumption C are

$$I = sY$$
$$C = (1 - s)Y,$$

where Y is production. Production function is of Cobb-Douglas form:

$$Y = K^\theta N^{1-\theta}.$$

In above equation K is capital stock which has law of motion

$$K' = (1 - d)K + I,$$

where d is the depreciation rate. Second argument of production function is labor force N. Labor force grows with rate n:

$$N' = (1 + n)N.$$

Parameters have following restrictions:

$$0 < s < 1$$
$$0 < \theta < 1$$
$$0 < d < 1$$
$$n \geq 0.$$

a) Derive the law of motion for capital per capita (K/N).

b) Show that capital per capita (K/N) has a strictly positive steady state which is stable.

c) What does golden rule mean within the Solow model?

3. a) What does neutrality of money mean?

b) What does Ricardian equivalence mean?

4. The figure below is sometimes used to argue that the total government expenditure multiplier should be higher than unity. In the figure the government spending increases from G_1 to G_2 and the total demand curve shifts up by exactly the same amount.
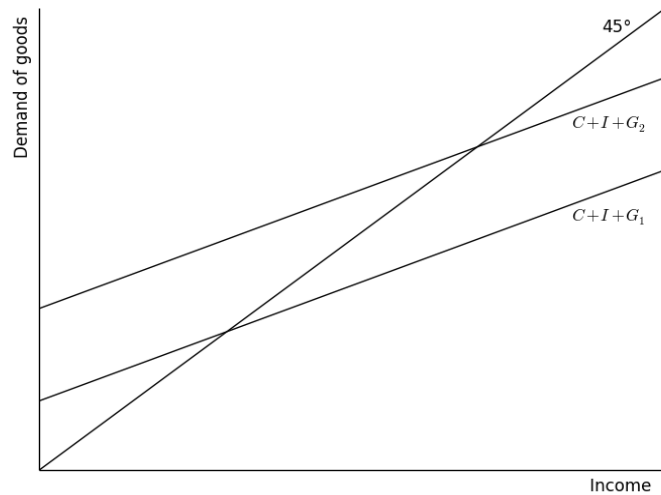
   a) What does the government expenditure multiplier mean and why is it greater than unity in the figure?

   b) What mechanisms of general equilibrium models are omitted in the above argument and how do the omissions affect the conclusions about the magnitude of the government expenditure multiplier?

5. How does an increase of money supply affect the macroeconomy in the short-run and in the long-run? Compare the views of different schools of thought.