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EE312 Macroeconomics, 1/2020 (Sec. 046401)
Problem Sets: Ch.7 A Closed Economy One-Period Macroeconomic Model

No need to submit. Self study.

1. In one-period model, education can be represented as time spent by the representative consumer that is neither leisure nor time applied to producing output. What the economy gains in the future is that the representative consumer then has more time available, as measured in terms of effective units of labour time (adjusted for skill level, or what economists call human capital).

   (a) Using the one-period model, show what effects additional education has in the present on consumption, leisure, employment, aggregate output, and the real wage.

   (b) Similarly, show the effects of the additional education that people acquire today will have in the future consumption, leisure, employment, aggregate output, and the real wage.

   (c) What does your analysis in parts (a) and (b) have to say about trade offs society makes between the present and the future in investing in education.

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2. Suppose that government spending makes private firms more productive; for example, government spedning on roads and bridges lowers the cost of transportation. This means that there are now two effects of government spending, the first being the effects discussed in this chapter of an increase in G and the second being similar to the effect of an increase in the nation's capital stock K.

   (a) Show that an increase in government spending that is productive in this fashion could increase welfare for the representative consumer.

   (b) Show that the equilibrium effects on consumption and hours worked for an increase in government spending of this type are ambiguous but that output increases, You must consider income and substitution effects to show this.

3. Suppose there are but two countries, namely A and B. Each country is indexed by "j" for j = A and B. Both countries have no government, i.e. $G_j = T_j = 0$. Suppose the technology of both countries are linear production in labor hours. That is, $y_j = z_j N_j$ where N_j is the number of working hours in country j and z_j is the level of technology in country j. Suppose that $z_A = 2 > z_B = 1$ and preferences of consumers in both countries are identical

   (a) Assuming a fixed time endowment in both countries to be equal to 1 unit, construct the PPF of each country. Putting both PPFs in the same figure and locate all important points. Comments on the differences and similarities between the two PPFs.

   (b) Determine the competitive equilibrium in both countries. Is there any wage differentials in the equilibrium? Which one of the country is supposed to experience a higher wage? Why? How about the allocation in both countries?

   (c) Redo the problem (a) and (b) above, but instead assume that the labor endowment in both countries are different, i.e. $h_A = 1$ and $h_B = 4$. Comment on the possible sources that generate the wage differentials, if any?