Intermediate macroeconomic theory I (ECON303)

Tutorial #2: The consumer's problem

Paul values consuming goods (c) and enjoying leisure (l). Paul has 16 unit of time to divide between working or enjoying leisure. For each hour worked, he receives receives 10 units of the consumption good. Suppose that Paul's preferences are such that, at the margin, he is willing to give up $2c/l$ units of consumption for an additional unit of leisure. Paul also owns shares in a factory which give him an additional 16 units of income. The government in this economy taxes labour income only and using the proceeds to buy consumption goods which are then thrown away. Paul pays 20% of is labour earnings in income taxes.

a) Write down Paul's budget constraint. Explain how Paul should determine consumption and leisure in order to maximize utility.

b) Find Paul's optimal choice of consumption and leisure. Illustrate with a graph. Explain why it is not optimal for Paul to supply 6 units of labour.

c) Suppose that everyone else in this economy has the same income and the same preferences as Paul. This economy's total population is 50 (including Paul). Calculate this economy's GDP using the income approach and using the expenditure approach.

d) Suppose that, in order to increase government spending, the government increases the tax rate to 40%. How are Paul's optimal decisions affected by this change? Will this economy's GDP increase or fall?

e) Explain your result in d) in terms of the income and the substitution effects. Which effect is the strongest in the present case?