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Make-up Quiz #2
EE312 Macroeconomic Theory
Section 046402

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Instructions

1. Use the tools we study in chapter 7 to analyze and answer the questions
2. Write out your ID at the upper right of the first page

Question 1 (20 points) Answer each subquestion in one or two sentences

(1.1) **(10 points)** What are substitution and income effects? Explain

Substitution effect is the result of consumer demand from substituting away of one good from the other good when price changes, while (real) income effect is the result of consumer demand from the change in his/her purchasing power.

(1.2) **(10 points)** What is First fundamental welfare theorem? Explain.

Under certain conditions, a competitive equilibrium is Pareto optimal, that is, resources are efficiently allocated; there is no way to make someone better off without hurting the other

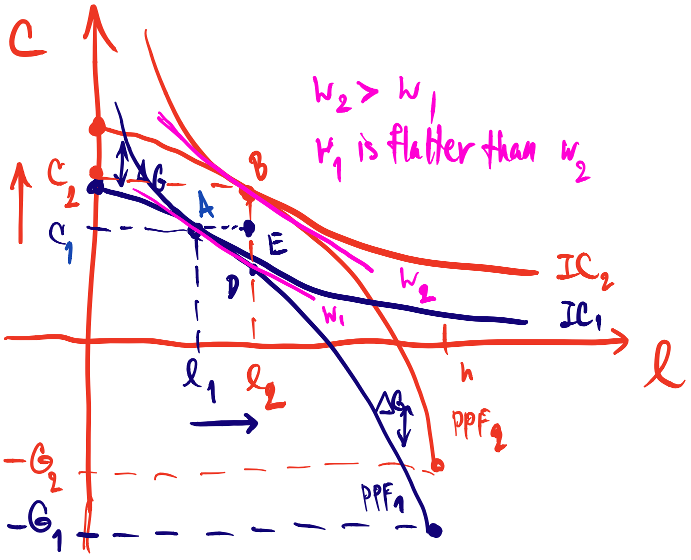
Question 2 (80 points) Suppose that an economy is populated with a household, a firm and a government. Household's objective is to maximize his/her utility $U(C, l)$ by choosing optimal consumption (C) and leisure (l) given the budget constraint, while firm's is to maximize its profit $\Pi = zY - wN^d$ by hiring household to work (N^d) with wage (w) and producing output Y to supply to household's consumption. The government will decide to tax household (T) and purchase a give amount of goods (G) from the firm. Answer the following subquestions:

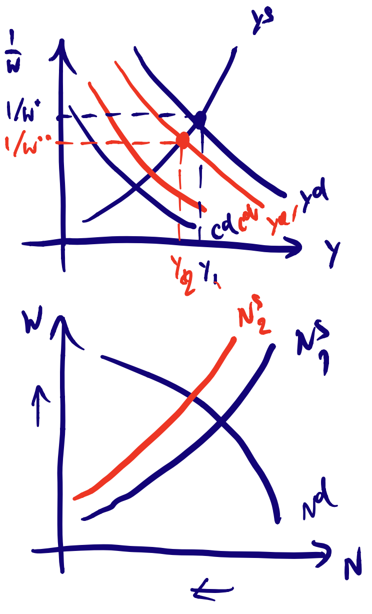
(2.1) **(30 points)** Describe the competitive equilibrium of this model. Hint: A brief description of each condition is fine.

Check competitive equilibrium definition in ch.7 handout on page 22.

(2.2) **(50 points)** What will happen to output (Y), labor employment (N), wage (w), and consumption (C) if the government decides to employ a contractionary fiscal policy to slow down the economy, assuming a stronger substitution effect? Use Edgeworth box and demand-supply diagrams to answer the question. Explain.

$$\begin{tikzcd}
G\downarrow \arrow[r, Rightarrow] & (\pi-T)\uparrow \arrow[r, Rightarrow] \arrow[d, Rightarrow] & Y^d\uparrow \arrow[r, Rightarrow] & \ell\uparrow \arrow[r, Rightarrow] & (h-\ell)\downarrow \arrow[d, Rightarrow] \\
 & C\uparrow\downarrow & Y\downarrow \arrow[l, Rightarrow] & & N^s\downarrow \arrow[d, Rightarrow] \\
 & & zF(K,N)\downarrow \arrow[u, Rightarrow] & N^d\downarrow \arrow[l, Rightarrow] & w\uparrow \arrow[l, Rightarrow]
\end{tikzcd}$$





∴ $G\downarrow \Rightarrow N\downarrow, Y\downarrow, C\uparrow, w\uparrow$