

General Equilibrium - Problem Set 3
due: classes on Jan, 7th 2020

Problem 1 (3p) Consider exchange economy with 2 consumers and 3 goods: one in date $t = 0$ and two (conditional on realization of state) in date $t = 1$. Endowment is given by $\omega_1 = (2, 2, 0)$ and $\omega_2 = (0, 2, 2)$. Preferences of consumer A over these three goods are given by $\ln(x_0) + \ln(x_1) + \ln(x_2)$ and for consumer B by $2\ln(x_0) + \ln(x_1) + \ln(x_2)$. Assume $p_0 = 1$. Find prices and allocations of both assets in Radner equilibrium with the three assets structures:

- assume there are two assets with $r_1 = (1, 0)$ and $r_2 = (0, 1)$.
- now assume there are three assets: $r_1 = (1, 0)$, $r_2 = (0, 1)$, $r_3 = (1, 1)$.
- what if there is only one asset with $r_3 = (1, 1)$?

Problem 2 (3p) Read paper: *Competition in Financial Innovation* (A.Carvajal, M.Rostek, M.Weretka, *Econometrica* 80, p. 1895–1936, 2012). Consider two games as analyzed in section 5.1.

- when a Nash equilibrium of a game played between 2 firms offering financial assets leads to a complete market structure?
- explain using intuition resulting from assumptions placed on u''' ,
- how will that equilibrium change if we consider n firms?

Problem 3 (4p) In the following exercise you will modify a Rogerson (1988) model as analyzed in class but now allowing for three levels of labour hours choices, i.e. $\{0, \underline{h}, \bar{h}\}$, where $0 < \underline{h} < \bar{h} \leq 1$.

- define CE,
- can a WE allocation be symmetric? (i.e. that each individual chooses the same level of hours worked?),
- characterize WE allocations (consider all necessary cases),
- consider a central planner's problem as analyzed in class. Is CE allocation the same as analyzed by a social planner?