Economics 817 **Winter 2017**

Advanced Macroeconomic Theory II **Thorsten Koeppl**

Assignment 6

(Due: Wednesday, April 12)

1. Consider the Pissarides model discussed in class.

   (a) Find necessary and sufficient conditions on (y, b) such that an equilibrium exists. [Hint: Look at the bargaining problem and formulate participation constraints for the worker and the firm.]

   Assume now a matching function of the form

   $$M(u, v) = u^{\gamma} v^{\nu}.$$

   (b) For $\gamma + \nu = 1$ show that there is a unique equilibrium.

   (c) For $\gamma + \nu > 1$, are there multiple equilibria? If so, interpret your answer.

2. Consider an economy with a measure 1 of investors. A fraction s of investors holds one unit of an asset. Upon acquiring an asset, an investor values the asset at u for one period, before the valuation of the investor drops to $u - \delta > 0$. All investors discount the future by $\beta \in (0, 1)$.

   Assume that each investor meets another investor with probability λ at the start of the period. If there is a trade opportunity with positive surplus, the buyer makes a take-it-or-leave-it-offer P to the seller.

   (a) Find the value functions for the different types of investors. [Hint: There are only two types of agents, owners and non-owners. All owners have low valuations and are willing to sell. All non-owners have high valuations and are willing to buy.]

(b) Find the solution P to the bargaining problem.

(c) Find the steady state equilibrium.

Suppose now that there is a monopolist dealer that investors meet with probability $(1-\lambda)\rho$, i.e. conditional on not meeting another investor the probability is ρ to meet the dealer. A dealer makes a take-it-or-leave-it-offer to buy at price B and offers to sell at price A. He can instantaneously pass on the asset from one investor to the next.

(d) Find the value functions for the different type of investors and the solution to the bargaining problems (P, A, B).

(e) Find the steady state equilibrium. How does the presence of a dealer change the equilibrium?