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Ph.D. Thesis: Zuzana Dorotkova

Modelling an interconnected economy- general equilibrium and matching model approaches

Chapter 1.

The first chapter studies the role of building up long term linkages between firms on the steady state of the economy. Linkages are necessary for exchange between intermediate production firms and final production firms. Firms can create them at some costs. Links disappear when they are not used and, even if used, with some exogenous probability. On the one hand, linkages allow for risk sharing between firms. On the other hand, the presence of links between firms can create propagations of bad shocks between linked firms.

In this setting the author compares the steady state properties of the link-building economy with the steady state outcome of the same model without linkages. It shows that intermediary production is lower in the link-building model as compared to the benchmark model. This result is driven by the following considerations. One, in a model with linkages, workers wages is generally lower than in a model without linkages. Two, low productivity firms do not create any linkages and therefore they hire more workers and produce more than low productivity firms in a model without linkages. However, high productivity firms have incentive to build up linkages, which are costly, and this decreases production as compared to high productivity firms in the no-linking model. Overall, the second effect is stronger than the former.

I think that this chapter has a good potential to be published in good journal. However, the author should try to change the presentation of the analysis. As it is now it is fine for a Ph.D. dissertation. But, the elaboration of the results require to be more compact to transform the chapter in a paper. In particular, the results should be put in propositions. Otherwise, it is easy that the reader gets lost in the reading. It is also important that the difference between the steady state in the model with linkages and the steady state of a "standard" model are flashed out more clearly. The presentation also lacks of economic intuitions. For example, the result discussed above comes because there are two confounding forces and one dominates the other. How does this result depend on the specific functional forms considered?

Chapter 2.

This chapter considers a matching model with heterogeneous agents. Agents are heterogeneous in their probability of exiting the economy. This implies that the length of a match between two agents depend on the types of the agents involved. Therefore the types of the agents involved in a matching determine the expected benefit of that match. A match between i and j allows a production of 2π and this production is allocated between the two agents based on a take-it-or-leave-it bargaining game.

Not surprisingly, in this setting there are multiple equilibria. In general, if there is a low probability of matching, then agents accept any proposed match. When the probability of matching is high, then there is a scope for agents to reject a proposed match with the view of getting a better match in the future. This dynamic may lead to suboptimal matchings.

It is clear that this is an interesting model. However, the model as it is does not seem to be particularly tractable in the sense that the results are not neat. One possible extension that the author could try to develop in the future is to endogenise the probability that an agent stays in the match. When players are ex-ante homogenous this will lead to identical probability of staying in the match. Yet, this probability would depend on the primitive of the model. This model should be possible to solve and comparative statics exercise may lead to some interesting insights. Then, one could introduce some ex-ante heterogeneity which would lead to different investment decision and therefore ex-post asymmetries in the probability of staying in the match. Another possible way to make the problem more tractable is to relax the assumption that agents' types are common knowledge. Formulating the problem in a Bayesian framework, once the possibility of a match to be create arises, a player knows his type, but he only has an expectation about the type of the matched agent.

Chapter 3.

This chapter is very similar to chapter 2 and I have problems to understand if there is any substantial difference between the two chapters. Indeed, also the results are very similar. My feeling is that in a model with worker and firms, it would be nice to have firms setting wages. In this case, the split of the production 2π would not be determined by a bargaining solution, but it would be the result of competition for workers. In this sense, the model would be different from the model in chapter 2. As it is now, it seems to be that chapter 3 is analogous to chapter 2, with a slight modification in the specification of types.

General Comments

I enjoyed reading this Ph.D. thesis. To the best of my knowledge, the three chapters are original and they provide a new approach and new insights in this field. The first chapter is very interesting and it has the potential to be published in a good international journal. The second chapter is also of some interest, but I feel that the author has to twist the model someone to make it more tractable and able to provide neat insights.