SI 710 Assignment 4: Experiment Design

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1 Opening notes on collaboration for this project

We can use this for collaborative document-editing.

Note that, there is also a chat feature, and the icon is at the right-margin of the window.

2 Summary of the tasks

In the lecture on Monday, there were two market mechanisms proposed. We are asked to propose a workable experiment, in which the network effects may be tested in form of market experiment.

Please add your insights on this. I am offering a skeleton only.

3 Introducing Social Network

Networks could be either induced by the experimenter, or brought into the experiment from the real world.

3.1 A quick random thought: Games shared through Facebook

Facebook friends shall form a natural, if not real, social network. We may devise an online-"game" that is sharable through links onto Facebook.

Due to the asynchronistic nature of these online platform, it is hard to control the size of games. There are two possibilities:

1. We may believe in a wide spread of the game, if it is well designed. Then, a large sample shall get collected and we can sort out those games played by a certain number of "friends";
2. We may well devise the market mechanism in a way that the solution concept is "scale free" from the number of participants. (Not sure if the market-design should still hold valid in this case.)

Despite the drawbacks, as long as the initial nodes in the "Facebook-network" is drawn in a random-enough way, this snowball approach of sampling may provide a network with several close clusters that is robust against biases. As long

as the subjects may coordinate into sizable groups simultaneously, we are in an ideal experimental setting where subjects are visible to other participants and they are recognizable through names by their friends.

3.2 An induced social network approach

3.2.1 Self-selected network?

In a lab-setting, we may have more power to "manipulate" subjects and have them form various groups in a self-selection manner. For one possibility, experimenter may propose a few conflicting categories and have subjects self-select into those categories. The conflicting nature of these self-selected groups, will then help form preferences over trading partners.

Nevertheless, this self-selected method may be no different from a mere testing of social identity, which is lack of "network structure".

3.2.2 Network through market design

In the market design, we may implement several trading clusters, where sellers and buyers may only see the price in this cluster. However, let there be several brokers who may have access to prices (and thereby trading power) in other clusters. Bestow some initial wealth for the brokers, and let the brokers have the freedom of buying and selling, as long as their budget constraint is not binding yet.

In this manner, artificial links are created and thereby a network is induced. Though it remains a problem if this is a social network, we may argue that this is the way the market really works: through interpersonal connections, trade may happen. That is to say, unless one *knows* the people there, no one in another cluster will trade with him/her.

3.2.3 Another possible thought on network structure

So far, we have been taken the network structure as fixed. What if we add network dynamics into the experiment? Not sure if this might worth discussing.

References