The proposed project comply with the requirements of being basic research within economics. We believe our project will provide output of a high scientific quality.

can be measured precisely, and true exogenous variation is produced by controlled manipulation, allowing for ..rm conclusions about causality. This is the great advantage of experimentation.

The cost is uncertainty with respect to external validity. We share the view that laboratory

The experimental literature on multiple equilibria and coordination is large. Several papers deal with equilibrium selection criteria (Straub 1995, Van Huyk et al 1990; cfr. Camerer 2003:ch 7). In general it is found that coordination on an equilibrium is more likely the smaller the product of deviation losses is for this equilibrium. Another literature - partly within psychology - deals with the importance of focal points (Schelling 1960) in solving coordination problems (Bacharach & Bernasconi 1997; Mehta et al. 1994). It ...nds that focal points do play a prominent role in equilibrium selection.

A particularly relevant paper on coordination is Fehr & Tyran (2008). They show - in a context of money illusions - that even though people frequently make mistakes, they tend to acknowledge this rapidly. If unilateral corrections can be carried out, initial mistakes will be corrected without delay. However, mistakes can (and do) have persistent e¤ects in strategic contexts, since mistakes may (and do) lead subjects to coordinate on inferior equilibria and get locked in to them.

Only a couple of experimets focus explicitly on coordination in markets with network ex-

- Does initial monopoly prevent tipping to a PD platform when PD and RD conflict over platforms?

- Can focal point characteristics prevent or promote tipping to a PD platform when PD and RD conflict over platforms?

- Which focal point characteristics prevent and promote tipping to a PD platform when PD and RD conflict over platforms?

inclined to pursue pure self-interest. So, whether results are due to learning or the suppression of social preferences is an open question.

In search theory there is a huge di¤erence in prices, depending on whether the buyer observes one or more than one price in the market. In the ...rst case the seller captures the entire rent, in the latter case perfectly competitive prices result. No additional insights are produced in the theory by letting the buyer observe more than two prices. With only one price quote, the bargaining protocol essentially allow the seller to o¤er an ultimatum price to the buyer. As soon as the buyer can turn to an alternative seller, the bargaining powers of sellers are eroded by a Bertrand process.

We propose to investigate three hypothesis; the role of social preferences in the determination of prices; the mechanisms of learning and price convergence; the importance of outside options for search behavior and price determination.

Social preferences: As noted, in Abrams, Sefton & Yavas (2000) prices does not converge fully to the competitive level when buyers get two price quotes. Roth et al. (1991) show that in pure ultimatum bargain (no search market) with four buyers (...rms/proposers) and one seller (worker/responder), o¤ers from buyers quickly approach the competitive price where the seller gets the entire surplus. This ...nding holds over subject samples in four di¤erent countries. With this as a back drop it seems interesting to replicate the Abrams, Safton & Yavas (2000) experiment - but introduce two, three and four price quotes. If prices do not reach competitive levels as the number of price quotes increases there seems to be "something other" than social preferences over the division of the surplus at work. Results from such an experiment should provide clues as to what "it" is, and how to design follow-up experiments that can pin-point "it".

Learning and convergence: Several papers suggest that learning helps reproducing major features in experimental data (see Erev & Roth 1995, Camerer 2003:ch 6). Modeling agents with learning helps explaining for example the autocorrelation in player's choices, the importance of initial conditions under slow learning. Various learning models have been used to structure data from laboratory experiments: in general agents are assumed to learn from past experience (putting bigger weight on strategies that performed well in the past) We will draw on this literature to explore the dynamic paths of play revealed by the data generated in our experiments.

Learning about the game and about other player's strategies happens through experience: players observe and react to prior play. Therefore, decreasing noise in the history facilitates learning. Cason & Friedman (2000) show that using many robot buyers speeds up convergence of learning. Our hypothesis is that *robot buyers* may also speed up convergence because they *weed out social preferences*. To check wether this is the case, we plan to run sessions with large markets of human buyers. Our capacity at BI allow us to run sessions with as many as 68 human subjects in one market. In the existing literature experimental search markets are typically small,

workers is matched with a ..rm, wages must be bargained. We design the bargaining game such that the equilibrium corresponds to the (cooperative) Nash equilibrium of wage bargaining in the DMP model. In the bargaining game the alternative to agreement is for the worker to continue searching. Theoretically the search option should impact crucially on the division of surplus between workers and ..rms. We wish to analyze whether and to what extent search behavior and wage formation in the experiments coincide with the predictions of the DMP model. We also wish to explore the sources of deviations between the DMP model and lab behavior. In particular we are interested in exploring the e¤ects of "unemployment bene..ts" (non-wage income of unemployed workers while searching) on search behavior and wage levels, and hence also on the implied "unemployment rate" (fraction of workers searching). Finally we wish to analyze the sensitivity of worker behavior to changes in ..rm productivity, measured as changes in the range of feasible agreements in the bargaining game.

We propose to test the following general hypothesis:

- Is there a di¤erence between getting two and getting more than two price quotes in experimental search markets? And if so, why?

- Do subjects learn to play the equilibrium (or something close to it) in large search market with human players?

- Are large markets more or less conducive to convergence than sessions with many trading periods?

- How do subjects learn to play the equilibrium?

- To what extent is the DMP model con..rmed by actual behavior in the lab

- How does search behavior and wage setting respond to "unemployment bene..ts" and ..rm productivity in experimental markets?

A detailed project plan is accounted for in the online application.

The project team consisist of Espen R. Moen (project leader); Leif Helland and Tom-Reiel Heggedal - all at the Economics Department / BI Norwegian School of Management; Krisztina Molnár - at the Economics Department / Norwegian School of Economics and Business Administration; and Jean-Robert Tyran - at the Economics Department / Unversity of Vienna. The team includes experienced and merited reserarchers within their ..elds. Together they cover search theory; theory of network externalities; experimental design; behavioral economics; and learning theories.

The project will be a part of the project portfolio of the Center for Research in Economics and Management at the Economics Department / BI Norwegian Business School, directed by professor Espen R. Moen. The center already houses several projects, including "Incentives in Labor Market Equilibrium" ..nanced by the Research council under the FRIPRO programme, and "R&D, Industry Dynamics and Public Policy" ..nanced by the Research Council under the programme "Vekstforsk".

The economics laboratory at the BI Norwegian School of Management is state of the art. It has the largest capacity of the Norwegian permanent economics laboratories. In standard set up it runs with up to 48 subject machines in a dedicated room, in which each subject machine is boxed in by a permanent cubicle (to minimize experimenter e¤ects). The lab can be expanded with an

additional 20 subject machines located in a separate room. We have access to 7.500 (updated) undergraduate e-mail adresses, from which we are free to recruit subjects to experiments.

The project has a total budget of 8 million NOK over the four year period 2012-16. Details of the budget is found in the online application.

The proposed project will be in full compliance with the strategic documents for FRISAM.

The markets covered by the application have real world counterparts. Markets with network externalities and coordination challenges over platforms cover as diverse phenomena as credit cards; search engines on the net; online dating sites; operating systems; and stock exchanges. Most markets have tangible search costs - and search and matching are central to crucial markets such as those for labor and consumer durables. Expanding our knowledge of the mechanisms at work in such markets should ultimately improve policy advise on how to make them function better. The welfare gains of improved advise could be considerable.

The proposed project will not have direct or indirect environmental impacts.

We will obey the ethical codes of the experimental economics society. In particular we will follow a strict no-deception policy in execution of the proposed experiments. This means that what subjects are told will happen in a session, is what happens in the session.
   Anonymity of subjects will be preserved during all experiments, and results will be presented on a format that precludes identi…cation of individuals.

We summarily include gender as a variable in analysis of experimental data - to check wether gender e¤ects are discernible. This requires recruitment of fairly balanced samples of subjects to our experiments, enabling roughly equal numbers of male and female students to bene…t from the experience of participating in experimental markets.
   The project team includes a prominent female researcher - Krisztina Molnár.
   Under conditions of roughly equal competence in the pool of applicants, we will select a female PhD student to the project.

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