

# Information Economics, Fall 2015

## Final Project

Instructor: Ling-Chieh Kung  
Department of Information Management  
National Taiwan University

For the final project, students need to apply what they learn in this course to write a research article for a self-selected topic. There is no restriction on the research topic, as long as it is broadly related to the scenario described below. There is also no restriction on the research scope. However, to make sure that your topic is “good,” i.e., challenging enough while doable, you are strongly encouraged to discuss with the instructor about your project. Students may either do an *individual* project or form a team with *two* students to do a group project. Doctoral students and students in the instructor’s lab are expected to do individual projects.

## 1 The scenario

Starting from 2006, online retailers started to display and sell competitors’ products. In the *direct referral* practice, retailer A may display retailer B’s product on its website and actually sell it if a consumer places an order for it. In this case, the consumer’s payment goes to retailer B while retailer A shares some revenues (say, 10%). Retailer A may also charge retailer B for a monthly listing fee. Alternatively, retailer A may adopt the *third-party referral* practice to display links to retailer B’s products and charges retailer B if a consumer is referred from A to B and completes a purchase at retailer B. In this case, a third party (typically a search engine like Google) is responsible for providing retailer B’s product information and will also share the revenue. These practices are all called *in-store referrals* in general. To obtain more ideas, Cai and Chen (2011) provide a good starting point.

Why do retailers advertise for their competitors? An obvious reason is to earn by sharing revenues. However, as these advertisements also reduce the sales volume of one’s own products, it is unclear whether in-store referrals can really increase a retailer’s profit. The problem can be further complicated if we recognize the existence of one-way and two-way referrals: In the former, A refers to B but B does not refer to A; in the latter, both retailers refer to each other. Why in equilibrium we have all these different practices, direct referrals and third-party referrals, one-way referrals and two-way referrals? Are these referrals mutually beneficial? Are there other ways of referring? What if these retailers are selling homogeneous products? What if they are selling horizontally or vertically differentiated products? When a referring retailer designs a contract for a referred one, may incentive-compatible contracts help? How about consumer heterogeneity and market segmentation?

In this final project, you are invited (actually forced) to study a problem related to in-store referrals. As we list above, there are so many issues related to in-store referrals! Please take a look at current practices, form your own research topic, and apply the knowledge and techniques you learn in this course to study it.

## 2 Tasks and their due times

Students should sign up by providing the names of team members and preferred presentation date to the TA Ho Ho at r03725041ntu.edu.tw by **23:59, November 20**. Students who do not sign up by the due time will do individual projects and be assigned a presentation date by the instructor. If too many teams select the same date, the allocation will be determined randomly.

Each team will be allocated 15 to 20 minutes on **November 30** to do an individual meeting with the instructor to discuss their proposal. An at-most-two-page proposal must be submitted by **23:59 pm, November 27**. Each team needs to submit one *report* and give one *presentation* on either **January 4 or 11**. Students need to make slides for their project presentations. Reports and slides should be

submitted *electronically* by sending the files to Ho Ho's e-mail box. The due time of slides is **8 am** of the presentation day. The due time of reports is **23:59** of the presentation day.

### 3 Proposal and problem selection

Each team must write a proposal to describe the problem they want to study in the final project. First, the motivation and background of the problem should be introduced. Then the problem should be defined in words. If possible, they should explain why the problem is interesting, i.e., challenging and important. Real-world observations are good for motivating your study.

The problem should have the flavor of decentralized decision making, information asymmetry, or both. Though you do not need to provide a complete model for your problem, you should identify where in your problem people make decisions in a decentralized manner with, if any, asymmetric information. Game-theoretic models and/or the principal-agent model should be applied to analyze the problem.

The proposal should contain at least two sections: "introduction" for describing the problem, and "expected results" for describing the possible findings of your study. Beside them, a tentative model that describes the problem may also be included.

### 4 Project, report, and presentation

Each team should write a research paper as their final project. In the paper, one should introduce the problem, list related works, formulate a model that describes the problem, analyze the model to find equilibria, and finally make interpretations about the results. Numerical studies may help if analytical solutions cannot be obtained. The problem needs not to be the same as that in the proposal.

Please do not forget to do a literature review for your project. You do not need to read 100 papers before you write your paper. However, you need to provide a list of roughly five to ten papers that address similar issues as yours. More importantly, you need to contrast your paper with theirs and specify what is new in your paper.

You may write your report in English or Chinese. In either case, please make sure that it is readable. As a researcher, you should write professional reports. Some general suggestions for formatting your report can be found on the course website. Limit your report to **twelve pages**, including everything.

Each team needs to do a presentation for the final project. The presentation should be given with slides. The length of each presentation will be determined after the number of teams are fixed. You may do your presentations in English or Chinese. In either case, please make it comprehensive and interesting.

### 5 Grading

The project will be graded with the following grades breakdown:

1. 10% for proposal report and meeting. As long as a team submits the report in time and is not late for the meeting, it gets full credits.
2. 60% for project quality, including the selection of the topic, the completeness of the analysis, and the contribution of the findings.
3. 30% for project presentation. A presentation will get good grades if it is clear, interesting, well-organized, and under a good time control.

### References

Cai, G., Y.-J. Chen. 2011. In-store referrals on the internet. *Journal of Retailing* **87**(4) 563–578.