Information Economics, Spring 2018 (106-2)
Case Study 2

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1 The problem

In many cases, sellers of a product offers *warranties* for that product. Under the warranty protection, a consumer may get her broken product fixed by the seller at no charge (or a very low price). There are obviously some reasons for offering a warranty. The most traditional reason is to provide some insurances to consumers. Consumers, especially risk-averse consumers, are willing to pay for a warranty. Sellers may thus sell more products (or even sell the warranty itself) by offering warranties.

Interestingly, warranties also have their *informational* impacts. For example, when one's degree of risk aversion is private, offering an optional warranty may help the seller to *screen* out risk-averse consumers. When the product's quality is private, offering a warranty may help a high-quality seller *signal* its quality.[1] A firm should make its decision by taking these informational impacts into consideration.

In this case study, you are invited (actually forced) to construct a game-theoretic model to explain why firms offer warranty. You must specifically have *information asymmetry* in your model. Your goal is to, by comparing the strategies of offering warranty or not, show that offering warranty is beneficial by mitigating information asymmetry. It would be great if you compare the first best and second best.

At this moment, you certainly have some explanations in mind. Try to build a game-theoretic model to demonstrate your ideas. Ideally, your model should contain (at least) one firm (a manufacturer, a retailer, or something else) and a group of potential consumers heterogeneous in some aspect(s). The company's optimal strategy should be contingent to some exogenous parameters: Under this condition, offering a warranty is good, otherwise it is not. Try to find such a condition (or conditions) to explain the observation and provide suggestions to decision makers in practice.

2 Teams, submissions, and grading

Students should form teams to do the case study. Each team should have **three to four** students. There is no need to sign up. Please just indicate the names and student IDs of your members on your report.

Each team needs to submit one report. Please **type** your report; hand-written reports are not accepted. You are strongly encouraged to use LaTeX to type your report. Limit your report to **eight pages**, including everything. You may write your report in English or Chinese. In either case, please make sure that it is easy to read. As a researcher, you should write professional reports. Some general suggestions for formatting your report can be found on the course website.

The due time of reports is **8:00 AM, June 1**. Please submit an electronic copy as a PDF file to CEIBA by the due time. Only one student in each team should do the submission.

The report will be graded with the following grade breakdown: 40% for the correctness of the model and analysis, 30% for the economic intuitions and managerial implications of the analytical results, and 30% for the readability and format.

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[1]Once a warranty is offered, consumers then are "motivated" to use the product less carefully. The *moral hazard* problem may then emerge. As we do not formally introduce how to model and analyze moral hazard in this course, we suggest you to consider adverse selection first. You may of course still consider moral hazard, and the instructor will be more than happy to discuss with you.