

Information Economics, Fall 2016

Midterm Project

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1 The problem

In this project, we invite (actually, force) you to build a model to explain the follow observation in the cellphone data network business. Today, most telecom companies offer multiple data plans for a consumer to self-select. For example, Figure 1 contains the 4G data plans offered by Taiwan Mobile.¹ We can see that nine different contracts are offered at nine different prices in a menu. The reason for Taiwan Mobile (and almost all telecom companies) to do so is clear: As consumers are heterogeneous in their willingness to pay for a large amount of quota, and one's willingness-to-pay is her/his private information, offering multiple options for consumers to self-select is to do screening. Economists call this practice *price discrimination*.

月租費		\$399	\$599	\$799	\$999	\$1,199	\$1,399	\$1,599	\$1,899	\$2,599
上網優惠	原上網傳輸量	300MB	1GB	2GB	3GB	4GB	合約期間上網吃到飽 (不降速)			
	優惠一	3GB	6GB	9GB	16GB	26GB				
	優惠二	約期30個月 ▶ 前3個月上網吃到飽	約期24個月 ▶ 前6個月上網吃到飽	約期24個月 ▶ 前12個月上網吃到飽	約期30個月 ▶ 前12個月上網吃到飽	約期30個月 ▶ 前15個月上網吃到飽				
語音優惠	網內免費	每週前3分鐘	每週前5分鐘	每週前10分鐘	每週前10分鐘	網內免費				
	網外免費	20分鐘	30分鐘	40分鐘	50分鐘	70分鐘	100分鐘	120分鐘	200分鐘	220分鐘

Figure 1: Data plans offered by Taiwan Mobile

Interestingly, some companies try to do more. Consider Taiwan Star as an example. Figure 2 illustrates the “lowest-price guarantee” offered by this company.² A consumer does not need to select one out of nine contracts. Instead, at the end of each month, the company automatically identify the contract that charges the consumer the least according to her/his usage amount.

With this observation, some questions naturally emerge. While the lowest-price guarantee seems to be good to consumers, is it good to the company? Can it attract more consumers? If so, from where? Why would a company give up the chance of price discrimination, if that is considered the (second) best in the screening theory? If you own a telecom company, when would you offer such a lowest-price guarantee?

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 telecom company 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, traditional price discrimination is good, otherwise lowest-price guarantee is good. Try to find such a condition to explain the observation and provide suggestions to decision makers in practice.

¹Source: http://www.taiwanmobile.com/mobile/postpaid/4g_rateplan.

²Source: <http://doc.tstartel.com/BP/>.

保證最低價 出帳前自動依用量試算9組資費

月租費	188	288	388	488	588	688	788	888	988
上網收費 (\$488吃到飽)	1250	1000	250	0	0	0	0	0	0
網內通話收費	0	0	0	0	0	0	0	0	0
網外通話收費	80	60	30	60	0	0	0	0	0
市話通話收費	30	30	30	30	30	30	30	30	30
出帳試算金額	1548	1378	698	578	618	718	818	918	1018

* 試算金額不含國際通信費/漫遊費/增值服務/小額付款/代收帳款

以最低
金額
出帳

Figure 2: The lowest-price guarantee offered by Taiwan Star

2 Teams and submissions

Students should form teams to do the project. Each team should have *at most 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. Limit your report to *twelve 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 *23:59, November 20, 2016*. Please submit an electronic copy to CEIBA by the due time. Only one student in each team needs to do the submission. Please also submit a hard copy to the instructor by *10:20, November 21, 2016* in class.

3 Grading

The report will be graded with the following grades breakdown:

1. 40%: the correctness of the model and analysis.
2. 20%: the economic intuitions of the analytical results.
3. 20%: the managerial implications of the analytical results.
4. 20%: the readability and format.