

國立台灣大學商學研究所博士班入學考試試卷 (100 學年度)

科目 個體經濟學

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(考試時間 2 小時)

1. (35%) 獨佔廠商 M 正打算為其生產的兩個商品 X 與 Y 決定單位價格  $P_x$  與  $P_y$ 。已知消費者共有 A、B、C 君三人。M 生產一單位的商品 X 須耗成本 3 元，生產一單位的商品 Y 須耗成本 1 元。此外，M 接受每一份訂單，不管訂貨量多寡，均須發生送貨成本 2 元。消費者每人或購買商品 X 一單位，或購買商品 Y 一單位，否則就完全不購買。廠商志在追求利潤極大。消費者則志在追求消費者剩餘極大。M 也可以選擇不賣其生產的商品。當它不想賣商品  $j$  時，它可以將  $P_j$  定在 100 元，使 A、B、C 君三人都買不起。以下我們假設消費者無法彼此轉賣自 M 購得的物品，且消費者只要能在其最適購買決策之下獲得非負的消費者剩餘就會進行購買。下表彙整三個消費者對兩個商品的願付價格。

	A 君	B 君	C 君
對 X 願付價格	\$12	\$4.5	\$4.5
對 Y 願付價格	\$4	\$3	\$3

- (i) 試問使 M 達到利潤極大的  $P_x$  與  $P_y$  分別為何？M 因而獲得的極大利潤為何？
- (ii) 現在假設 B、C 君兩人可以進行團購，A 君則無法參加。假設 M 只允諾團購者訂 Y 產品，且 Y 產品只有團購才買得到；亦即買 Y 產品的訂單只有一次買兩單位以上的才會被 M 接受。假設 B、C 君兩人在團購物品送達之後各須耗費 0.5 元成本去取貨。試問在這新的情境裏，使 M 達到利潤極大的  $P_x$  與  $P_y$  分別為何？M 因而獲得的極大利潤為何？
- (iii) 假設情形一如(ii)所描述，除了現在 A 君也可以參加 B、C 君兩人的團購，且 A 在團購物品送達之後取貨不須耗費成本。試問在這新的情境裏，使 M 達到利潤極大的  $P_x$  與  $P_y$  分別為何？M 因而獲得的極大利潤為何？
2. (35%) 竹本樂園的遊樂設施可以兩天玩遍。它目前推出可以玩一天、與可以玩兩天的門票，並正考慮推出第三種選擇：即玩兩天的門票外帶一份西點餐盒。假設目前只有兩個潛在的消費者 A 與 B，下表彙整了 A 與 B 在竹本樂園玩第一天和玩第二天的願付價格。最末一欄則是 A 與 B 對竹本樂園可能附帶販售的西點餐盒之願付價格。

	玩第一天	玩第二天	西點餐盒
A 君願付價格	\$1000	\$200	\$a

B 君願付價格	\$800	\$b	\$c
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令 P1、P2 分別表示可以玩一天、與可以玩兩天的門票價格，並令 Q 為玩兩天的門票附加一個西點餐盒之價格。假設當竹本樂園不想賣出以上三種東西的任何一項時，它會把該價格定在 10,000 元。簡化分析起見，我們假設竹本樂園經營遊樂設施和製造西點餐盒都不花費成本。

- (i) 假設  $a=c=0$ ， $b=400$ 。試問使竹本樂園達到利潤極大的 P1、P2 與 Q 分別為何？竹本樂園因而獲得的極大利潤為何？
- (ii) 假設  $a=c=0$ ， $b=650$ 。試問使竹本樂園達到利潤極大的 P1、P2 與 Q 分別為何？竹本樂園因而獲得的極大利潤為何？
- (iii) 假設  $a=0$ ， $c=450$ ， $b=200$ 。試問使竹本樂園達到利潤極大的 P1、P2 與 Q 分別為何？竹本樂園因而獲得的極大利潤為何？

3.(30%) Suppose that an industry consists of a pure click company A (selling its product only online), and a pure-brick company B (selling its product only offline). Suppose all consumers can access the Internet while there exists a group of consumers who will consider buying products only online due to its convenience, denoted by I-users. All other consumers can access dual channels (both the online and the offline channels), denoted by D-users. A's loyal consumers are all I-users while B's loyal consumers are all D-users. All D-users can consider buying either through the online channel or through the offline channel. As for switchers, they feel indifferent between the two brands (when both available at the channel they can access); some of them are D-users (with a proportion 0.1), who are searching for the best offer across brands and channels while some of them are I-users (with proportion 0.3), who can only access and consider buying either brand through the traditional channel. Firm A is considering whether to expand into the traditional (offline) channel. If he does not, he can still choose to serve switchers online. For simplicity, all costs are assumed to be zero. Suppose that each consumer buys at most one unit of the product provided by A or B, but not both. The highest prices that consumers in different segments are willing to pay are as follows:

Segment	Proportion	Valuation for A's product sold at the accessible channel	Valuation for B's product sold at the accessible channel
Loyal to A (I-users*)	0.2	2	0
Loyal to B (D-users*)	0.4	0	2
Switchers (I-users*)	0.3	1.2	1.2
Switchers (D-users*)	0.1	1.2	1.2

**D-users\***: those who can access both the online and the offline channels and can consider buying through either channel;

**I-users\***: those who can only access the online channel and thus can consider buying only through the online channel.

Consider the following scenarios and answer the corresponding questions independently.

- (i) Suppose A and B remain to be a pure click company and a pure brick company, respectively.
- (i-a) For attracting switchers (and before considering their rival's price), what are the lowest prices that firm A and firm B are willing to charge, respectively? What will be the optimal prices set by the two firms in equilibrium?
- (i-b) If all buyers are industrial buyers and therefore both firms can identify who are loyal customers and charge different prices to different segments, will the two firms compete for switchers less or more aggressively than (i-a)? Why or why not?
- (ii) Suppose firm A expands into the traditional channel while firm B remains to be pure brick company.
- (ii-a) Suppose firm A can choose whether to adopt uniform pricing or different prices across the two channels. Will firm B compete for switchers more aggressively than firm A (i.e., the price B is willing to charge for attracting switchers being lower than that of A)? Will firm A prefer uniform pricing or multi-channel pricing? What if the proportions of I-users and D-users in the segment of switchers become 0.1 and 0.3, respectively?
- (ii-b) Use the context of this example to illustrate the relative advantages and disadvantages of pure-click, pure-brick, and click-and-brick companies.