Slotting Allowances and Retailer Market Power

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Abstract

This paper uses a bilateral oligopoly model to study the slotting allowances in retailing industries. There are two symmetric manufacturers competing in the upstream market. In the downstream, there are a large retailer with considerable market share, and many small retailers with insignificant market shares. Suppose that only the large retailer is able to require slotting allowances. The retailers engage in price competition with spatial differentiation. The model suggests that the large retailer uses slotting allowances to capitalize its market power. By requiring slotting fees, the large retailer can raise the wholesale prices faced by the competing small retailers, and therefore lower their profit margins and market shares. The large retailer, on the contrary, achieves greater profit margins and market share. The lump sum part of the slotting fees is wholly bore by the manufacturers. But the slotting fees that are linear to the sales are actually bore by the competing small retailers and their customers. In this sense, requiring slotting allowance is an exclusionary strategy of the large retailer.

Keywords: Exclusionary strategy, Market power, Slotting allowance

JEL Classification: L1, L4, M2

1. Introduction

Slotting allowances refer to the fees that manufacturers pay retailers in order to have their products being carried by the retailers. Slotting allowances have emerged together with large chain stores in early 1980s. It first appeared in department supermarkets, and then spread to other stores that sell electronics, computer software, medicines, books, etc. According to a national survey conducted by Bloom, Gundlach and Cannon (2003) in 1996, which gathered the opinions of about 800 manufacturers and retailers regarding slotting allowances, both of the surveyed manufacturers and retailers reported that retailers were more likely to require slotting allowances or fees of all kinds in early 1990s. Product categories of heavy use of slotting allowances include frozen food, dry grocery and beverages. It was estimated that the allowances range from $75 to $300 per item per store in the U.S. (FTC (2001a)). And the total spending on slotting allowances in the US grocery industry is roughly $16 billion per year (Desiraju (2001)), which is a big amount of money in play.

Slotting allowance remains virtually unregulated in the United States. But it has been the subject of congressional hearings and investigations of the Federal Trade Commission (FTC). There is a recent FTC case regarding slotting allowances. In April 2000, the Independent Bakers Association, the Tortilla Industry Association and the National Association of Chewing Gum Manufacturers jointly petitioned the FTC for the issuance and enforcement of guidelines on the use of slotting allowances in the grocery industry. The FTC conducted two public workshops on May 31 and June 1 2000 to discuss the issue. Finally, the Commission decided not to issue slotting allowance guidelines at the time being, but promised to further investigation on possible slotting allowances abuses in the retailing

industry (FTC (2001a)).

In the literature, slotting allowances are often referred as lump sum, up-front fees that manufacturers pay retailers for stocking their products, especially new products. According to this definition, slotting fees allow the retailers and manufacturers to share the risk in marketing new products, and thus may improve the distribution efficiency. The lump sum nature of the fees also implies that slotting allowances only lead to redistribution of industry profits between the manufacturers and the retailers, but do not harm the welfare of the society or the consumers. However, slotting allowances are often not only lump sum fees for new products. There are plenty of evidences indicating that slotting fees are often required for matured products too. For instances, Bloom (2001) studies the slotting fees in the tobacco market,[1] and Rennhoff (2004) considers the "merchandising allowances" in the ketchup industry. The products considered in those papers are mostly matured products. On the other hand, as it will be shown in Section 5, slotting fees are often positively related to the quantities of sales. It means that the slotting fees can be used by the retailers to obtain (actual) wholesale prices that are lower than average.

The survey of Bloom, Gundlach and Cannon (2003) identifies an interesting fact regarding slotting fees: both manufacturers and retailers agree that large retailers are more likely to require slotting fees than small retailers. The survey also suggests that larger retailers benefit more from slotting fees than smaller retailers. These findings indicate that slotting allowances are positively related to the retailers' market power. This finding is not difficult to understand. Large retailers are able to demand higher rates of slotting fees because

[1] According to FTC (2001b), the tobacco companies have been increasing their spending on slotting fees and promotions, from $856 million or 33% of their promotional budget in 1987, to $3.54 billion or 43% in 1999.

they have greater bargaining powers in the upstream markets. Actually it has been frequently argued that large retailers use slotting allowances to achieve competitive advantage over small retailers. But theoretic justification of this idea is insufficient in the literature. This paper wishes to fill this gap.

We will discuss the effects of slotting allowances with a bilateral oligopoly model, since bilateral oligopoly is the market structure in which slotting allowances are most frequently observed. The upstream market consists of two symmetric manufacturers that produce substitute products. All the products must be sold through the downstream retailers. The downstream market has a powerful large retailer with considerable market share, and many small retailers whose market shares are insignificant. Whether a retailer is able to require slotting allowances depends on its bargaining power in the upstream market, which in turn depends on the retailer's market share in the downstream. In order to simplify the discussion, assume that only the large retailer has the ability of demanding slotting allowance from the manufacturers, while the small retailers cannot. The consumers have unit demand for the products. In contrast with the market power theories in the literature, our model features in market powers in the upstream, and asymmetry in the downstream.

We find that requiring slotting allowance is a method for the large retailer to capitalize its market power. Slotting allowances not only transfer some profits from the manufacturers to the large retailer, but also hurt the small retailers by raising their marginal costs. Slotting allowances enhance the large retailer's profit and market share. On the contrary, the small retailers are left with smaller profits and market shares. The lump sum part of the slotting fees is wholly bore by the manufacturers. But the slotting fees that are linear to the sales are

actually bore by the competing small retailers and their customers. Hence the major concern of the manufacturers is the lump sum slotting fees, rather than the linear slotting fees. Our model provides no evidence that slotting allowances lead to significantly higher average retail prices, as long as the small retailers were not driven out of business. But the allowances do affect the price structure in the retail market. Particularly, with slotting allowances, the large retailer would offer lower retail prices since its marginal cost gets lower, but the small retailers would offer higher prices since their marginal costs get higher. The exclusive effect of slotting allowances might justify some antitrust concern.

This paper will proceed as follow: Section 2 briefly reviews the literature on slotting allowances. Section 3 describes the bilateral oligopoly model. Section 4 studies the market outcomes caused by slotting allowances, and discusses the welfare effects on each participant of the market. Section 5 devotes to a case study on slotting allowances. Section 6 concludes the paper.

2. The Literature

There are mainly two schools of thoughts in debate regarding slotting allowances. One school, represented by Kelly (1991), Chu (1992), Lariviere and Padmanabhan (1997) and Sullivan (1997), argues that slotting allowances help to improve the distribution efficiency of retailing industry. Slotting allowances can be used by manufacturers to signal the quality of newly introduced products, or by retailers to screen the products that are suitable for them to stock. Retailers can also use slotting fees to distribute their limited shelf spaces more efficiently. Managers of chain supermarkets generally prefer this school of

thought. They tend to attribute the use of slotting fees to increasing number of new products, rather than the retailers' market powers. However, according to the efficiency theories, retailers should not charge substantial slotting fees for matured products. But this is often untrue in the real world.

The other school of thought argues that requiring slotting allowances is an exercise of market powers by large retailers. For instance, Shaffer (1991) considers slotting allowances and resale price maintenance as facilitating devices. He shows that slotting allowances diminish retail competition and thus lead to higher retail prices. Shaffer considers a symmetric model with perfectly competitive manufacturers in the upstream and two identical retailers in the downstream. The retailers, who have considerable market powers, can pick a single supplier from the competitive manufacturers. The suppliers are required to pay slotting fees, but are also offered wholesale prices that are higher than their marginal costs. Assuming the transaction contracts were public information (the "observability assumption"), higher wholesale prices would lead to higher retail prices and consequently higher profits for the retailers. In this sense, the slotting allowances serve as a facilitating device for the oligopoly retailers. As Shaffer has mentioned, the observability assumption is critical for the results to be valid.[2] In another theory, MacAvoy (1997) claimed that slotting allowances damage competition among manufacturers when resourceful manufacturers bid up the fees in order to foreclosure competitors. Still another popular argument is that slotting allowances may harm manufacturer and retailer relationships, and therefore damage channel efficiency.

[2] Caillaud, Juliien and Picard (1995) and other authors also point out that even when the observability assumption is satisfied, the firms have incentive to secretly renegotiate the contracts toward lower wholesale prices together with lower lump sum fees.

Manufacturers typically favor the market power theories. They tend to see weak relationship between slotting allowances and the introduction of new products, and hope that antitrust authorities could put some control over slotting allowances from this perspective. Note that the products in the market power theories do not have to be new products at all. The powerful retailers have the incentive as well as ability to require slotting fees for both new products and matured products.

3. The Model

Consider a bilateral oligopoly with manufacturers in the upstream and retailers in the downstream. The product in consideration has two brands, manufactured by firm *a* and *b* respectively. We also denote the two brands as *a* and *b*. Without loss of generality, suppose that the marginal production costs of the manufacturers are zero. The manufacturers engage in price competition with product differentiation. The wholesale prices of the manufacturers are denoted as w_a and w_b respectively. The downstream market has a large retailer, who might have multiple outlets, and many small retailers. When there is no slotting allowance, the market share of the large retailer is $\alpha \in (0,1)$. Each of the other retailers takes insignificant market share. They jointly take $1-\alpha$ of the market. Suppose that all the retailers have zero marginal operating costs. The retailers also engage in price competition, but with spatial differentiation.

The consumers are evenly distributed in the city geographically and they have unit demand toward the products. Suppose that the inter-brand competition leads to equilibrium prices that are much lower than the consumers' reservation prices for the goods. The

consumers buy the good from a store if and only if they do shopping at that store and the store has the good in stock. There is one continuum of consumers who prefer to each brand of the product. A consumer would incur a switch cost of x if she chooses her less preferred brand. The values of x vary for different consumers, and they are evenly distributed on interval $[0,T]$, where T is a positive number. Notice that the average switch cost of the consumers is $T/2$. Hence a big T indicates high degree of product differentiation between the two brands, and vise verse. Assume that the value of parameter T is small enough in order to exclude monopoly cases, which are less interesting. The preferences of the consumers are unobservable to the retailers. Hence it is impossible for the retailers to do price discrimination. We also assume that the consumers' preferences between the two brands are unrelated to their geographical locations.

We assume that only the large retailer is able to demand slotting allowances from the manufacturers. For a given good, the amount of slotting allowance depends on the comparative bargaining powers of the retailer and manufacturers. We omit the exact bargaining process, which is rather difficult to predict. But simply assume that the bargaining results in each manufacturer paying the large retailer a lump sum fee of S, and at the same time a linear fee of $\delta > 0$ per unit of sell. Hence if other small retailers get wholesale prices of w_a and w_b, the large retailer actually gets wholesale prices of $w_a - \delta$ and $w_b - \delta$ respectively. The configuration of slotting fees should not drive the manufacturers to stop selling to the large retailer. Suppose that for each retailer, its profit margins of the two brands of goods are the same.[3] Particularly, suppose that when there is no slotting allowance,

[3] If the retailers' profit margins were positively related to the wholesale prices, certain variations of the

the large retailer's profit margins of the two brands are β per unit, while the smaller retailers' margins are γ per unit. The profit margins usually satisfy $\beta \leq \gamma$ in the real world, [4] though we do not need this as an assumption.

The game played in this market is: The two manufacturers first simultaneously announce their wholesale prices of w_a and w_b. Second, each of the manufacturers pays a lump sum fee *S* to the large retailer. At the same time they offer actual linear wholesale prices of $w_a - \delta$ and $w_b - \delta$ to the large retailer and w_a and w_b to the other retailers. The retailers simultaneously order stocks from the manufacturers and determine their retail prices. Finally, the consumers enter the market and decide where to do shopping. Notice that when *S* and δ were both zero, we would obtain a game without slotting fees.

Readers might have noticed that we did not depict the game in the downstream market with all details.[5] In order to solve the game, we need more assumption regarding how the game shall be played. Since the game among the retailers is nothing but a typical price

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wholesale prices would result in greater changes in the retail prices. Hence the inter-brand competition would be artificially intensified. The retailers might have incentive to do this if there were no other way to capitalize their market powers. On the contrary, if the retailers' profit margins were negatively related to the wholesale prices, the inter-brand competition would be artificially alleviated. Our assumption regarding the profit margins ensures that the inter-brand competition is neither intensified nor alleviated. This is an appropriate start point for the study of the effects caused by slotting allowances.

[4] Small retailers, like convenience stores, usually have the advantage of locating close to residential areas. That is why they can have relatively high profit margins. On the other hand, large chain supermarkets often have to price low in order to attract consumers from many different residential areas. Hence they may have relatively small profit margins. Wal-Mart's "always low prices" is a good example for this view.

[5] The reason is that explicitly solving a bilateral oligopoly model is often extremely difficult. Even in a simple case with two stores, denoted as *X* and *Y*, selling two manufacturers' products, denoted as *a* and *b*, each consumer would face the problem of making the best decision from four choices: buying *Xa*, *Xb*, *Ya*, or *Yb*. This decision-making problem is rather complex. If we also have to take into consideration of consumer heterogeneity, the model would be too complicated to be interesting. This paper is an attempt to avoid the tractability problem of a bilateral oligopoly by doing analyses at the margins.

competition game, the variables that we introduced above should follow the typical relationships in price competition games. In detail, we assume that:

(i) The retailers' subgame has an unique stable pure strategy equilibrium for reasonable configurations of slotting allowances;

(ii) Since the retailers offer substitute goods, the prices of the retailers shall be strategic complements to each other (following Bulow, Geanakoplos and Klemperer (1985)). In other words, if a retailer raises its prices, the competitors would respond by raising their prices too, and vise verse.

(iii) Other things being constant, a retailer's prices shall non-negatively depend on its marginal costs.

(iv) Since the bargaining power of the large retailer depends on its market power, the slotting fees shall non-negatively depend on its market share, which means $\frac{\partial S}{\partial \alpha} \geq 0$ and $\frac{\partial \delta}{\partial \alpha} \geq 0$.

4. The Market Outcomes

We will first study the market outcomes of slotting allowances with the retailers' market shares and profit margins being fixed. We will then consider the situation when the market shares and profit margins are free to change.

With slotting allowances, the retail prices of the two brands are $w_a - \delta + \beta$ and $w_b - \delta + \beta$ respectively at the large retailer's stores, and $w_a + \gamma$ and $w_b + \gamma$ respectively at the other stores. Therefore the retail prices of the two brands differ by $w_b - w_a$ in all stores. Since the switch costs of the consumers are evenly distributed on $[0, T]$, the price gap of

$w_b - w_a$ induces consumers of measure $\frac{w_b - w_a}{T}$, who prefer brand *b* to brand *a*, to buy brand *a* product. Hence manufacturer *a*'s sale at the large retailer is $\alpha(1+\frac{w_b - w_a}{T})$, and at the other stores is $(1-\alpha)(1+\frac{w_b - w_a}{T})$. The profits function of manufacturer *a* is:

$$\pi_a = \alpha(w_a - \delta)(1+\frac{w_b - w_a}{T}) + (1-\alpha)w_a(1+\frac{w_b - w_a}{T}) - S \quad (1)$$

The first order condition of manufacturer *a*'s profit maximization problem is

$$w_a = \frac{1}{2}(T + w_b + \alpha \cdot \delta) \quad (2)$$

Symmetrically, for manufacturer *b* we have the first order condition of

$$w_b = \frac{1}{2}(T + w_a + \alpha \cdot \delta) \quad (3)$$

In equilibrium, we shall have

$$w_a^* = w_b^* = T + \alpha \cdot \delta \quad (4)$$

From (4), if $\delta = 0$, we have $w_a^* = w_b^* = T$, which are the equilibrium wholesale prices when there is no slotting allowance. When the large retailer requires wholesale discounts in terms of linear slotting allowances, the manufacturers would raise their "announced" wholesale prices. They thus sell to the large retailer at actual prices of $T + \alpha \cdot \delta - \delta = T - (1-\alpha)\delta$, but sell to the other retailers at price of $T + \alpha \cdot \delta$. Hence the linear slotting allowances lower the marginal cost of the large retailer but raise those of the small retailers. Substituting (4) into (1), we obtain manufacturer *a*'s equilibrium profit as $\pi_a^* = T - S$. This result suggests that if the market shares and profit margins were fixed, the linear slotting allowance actually do not hurt the manufacturers, because it can be completely passed on to other small retailers via higher wholesale prices. But the lump sum parts of the slotting allowances are fully bore by

the manufacturers. The large retailer's profit becomes $\alpha\beta + S$. The total profit of the small retailers becomes $(1-\alpha)\gamma$, which is unaffected by the slotting fees. Finally, the average wholesale price is:

$$\alpha(T + \alpha\delta - \delta) + (1-\alpha)(T + \alpha\delta) = T \tag{5}$$

And the average retail price is:

$$\alpha(T + \alpha\delta - \delta + \beta) + (1-\alpha)(T + \alpha\delta + \gamma) = T + \alpha\beta + (1-\alpha)\gamma \tag{6}$$

Hence neither the average wholesale price nor the average retail prices depends on the slotting allowances, conditional on the market shares and profit margins of the retailers being fixed. If we had $\beta \le \gamma$, the slotting fees would enlarge the degree of price dispersion in the retail market. The price gap between the two types of stores increases from $\gamma - \beta$ to $\gamma - \beta + \delta$. The consumers who do shopping at the large retailer's stores would face lower prices, but the consumers who buy from the small retailers pay more for the same things. We summarize the results as a lemma

Lemma: *With retail market shares and profit margins being fixed, the lump sum slotting allowances of the large retailer transfer profits from the manufacturers to the large retailer. The linear slotting allowances lead to lower (actual) wholesale prices for the large retailer, but higher wholesale prices for the small retailers. However, slotting allowances do not affect the average wholesale prices or retail prices.*

The result conditional on fixed retail market shares and profit margins cannot explain why the large retailer requires linear slotting fees, which implies that the condition is unreasonable. If slotting allowances were required for most products that the large retailer

carries, the retailers' market shares, profit margins, and other variables would be considerably affected. Intuitively, since linear slotting allowances lead to lower prices for the large retailer and higher prices for the small retailers, the large retailer would sure gain some competitive advantage in the price competition game. And the competitive advantage should eventually be materialized into extra profit for the large retailer. Using the Lemma as a benchmark, we can discuss the effects of slotting allowances on each market participant, without exogenously fixing the retailers' market shares and profit margins.

First, from the benchmark case, when there are linear slotting allowances in play, the competing stores offer higher prices, which means that the large retailer faces less intensive competition. According to the assumption (ii) stated at the end of Section 3, the large retailer would increase its profit margin from β (i.e., the drop in the large retailer's price should be less than the drop in its unit cost). On the contrary, the small retailers' profit margins would become smaller than γ when there are linear slotting fees. The price gap between the two types of retailers finally should be less than $\gamma - \beta + \delta$. On the other hand, note that the price gap $\gamma - \beta$ is sustainable when the two types of retailers have the same marginal costs. According to the assumption (iii) at the end of Section 3, the retail price gap should be greater when slotting allowances lower the large retailer's marginal cost but raise the small retailers' marginal costs. Hence the price gap with slotting fees should finally lie between $\gamma - \beta$ and $\gamma - \beta + \delta$.

Second, because the slotting allowances lower the large retailer's price but raise the small retailers prices, more consumers would be induced to do shopping at the large retailer's stores. Therefore the large retailer's market share would be bigger with linear slotting fees.

The changes in profit margins and market shares would raise the large retailer's profit. The small retailers' profits, on the contrary, are lowered by the slotting fees that the large retailer demands from the manufacturers. This result implies that the linear slotting allowances have some exclusionary effect.

Third, the enhanced market share of the large retailer would increase its bargaining power in the upstream market, which allows it to extract more slotting allowances from the manufacturers. This leads to a cycle in which the large retailer gets better and better off, while the manufacturers and the small retailers always getting worse off, until the market reaches the new equilibrium.

Fourth, the effect of slotting allowances on the total consumer surplus is ambiguous in this model, because the change in average retail price cannot be accurately identified in the model. And we also have to take into account the changes in the transportation costs of the consumers.[6] What we can say for sure is that the consumers who used to do shopping at the large retailer's stores would be better off with the linear slotting fees, since they would be able to buy at lower prices. But the consumers who always buy from the small retailers would be worse off, because the linear slotting fees of the large retailer indirectly raise the small retailers' prices.

Finally, the consequences of the linear slotting fees discussed above would further increase the announced wholesale prices. One shall notice that in our model, the inter-retailer competition influences the inter-brand competition only through parameter α and δ.

[6] If $\beta < \gamma$ is true, since slotting allowances push more consumers to do shopping at the large retailer's stores instead of buying from nearby convenience stores, the total transportation cost of the consumers tends to become higher. This leads to some loss in the social welfare.

Readers can review the expressions (1)-(4) in order to obtain a better idea regarding this. Therefore, since the linear slotting allowances tend to increase the large retailer's market share and bargaining power, the exclusionary effect stated in the Lemma would be intensified when the retail price margins and market shares are endogenous.

Summing up the results discussed above, it can be seen that most of the results in the Lemma are still valid, except that we cannot say accurately about the average retail prices. We summarize some key results regarding the equilibrium of the slotting allowances game in the follow proposition.

Proposition: *The linear slotting allowances lead to larger market share and profit margins for the large retailer, but smaller market shares and profit margins for the small retailers. The consumers who used to buy from the large retailer are better off with the slotting fees. But those who always buy from the small retailers are worse off with the fees.*

5. A Case Study

Empirical study on slotting allowances is scarce in the literature, mostly because data on slotting fees are difficult to obtain. The allowances are typically negotiated in secrecy. And they appear in many different names and forms. In the summer of 2003, there was a high profile conflict regarding slotting allowances between *Shanghai Seed and Nut Roasters Association (SSNRA, China)* and *Carrefour (China)*. This event provides a valuable window for people to look into the nature of this business practice.

It was reported that the slotting allowances that Carrefour demanded from the roasted seed and nut manufacturers caused considerable discontent among the manufacturers for a

long time. On June 13, SSNRA held a three-hour talk with the representatives of Carrefour upon the slotting allowance issue. The talk failed to reach a solution to the problem. SSNRA hence immediately announced that ten manufacturers of the association would temporarily stop selling to the 34 stores of Carrefour in China since June 14. SSNRA claimed that the slotting fees required by Carrefour were unbearable for the manufacturers. And they also resulted in higher prices to the consumers. Carrefour nevertheless asserted that collecting slotting fees was an internationally recognized business practice in retailing industry. And it was the way that Carrefour allocated its shelf spaces. After several rounds of arduous bargaining, SSNRA and Carrefour finally reached an agreement on July 22, 2003. The terms of the agreement was not revealed to the public. On the same day, SSNRA announced that its members would proceed to sign one-year contracts with Carrefour, which means the conflict was temporally pacified.

A menu of the slotting allowances of Carrefour (China) was broadly cited by Chinese media, which includes: French holiday celebration (because Carrefour is headquartered in France): 100,000 RMBs per year (1 RMB ≈ 0.12 USD); Chinese holiday celebration: 300,000 RMBs per year; Grand opening of each new store: 10,000 to 20,000 RMBs; Store maintenance fee: 10,000 to 20,000 RMBs per year; In-store advertising: 2340 RMBs per store per advertise (there are 34 Carrefour stores in China. Each store usually do 10 advertises a year. Hence the total cost is about 790,000 RMBs per year); Entrance fee for new items: 1000 RMBs for each new product in each store; Wholesale discount: 8% of the sales; Service fee: 1.5% to 2% of the sales; Consulting fee: about 2% of the sales; Shelf space management fee: 2.5% of the sales; Fine for late delivery: 0.3% per day; Breakage: Carrefour does not pay

for damaged products; Returned products: about 3-5%; Tax refunding: 5%-6%; Fine and refunding of price difference: suppliers have to pay Carrefour certain amount of fine if Carrefour found lower (wholesale) prices for the same products in other supermarkets. Note that the last term is important because it implies that the manufacturers cannot cover the slotting fees by simply increasing their selling prices to Carrefour.

There are thousands of seed and nut roasters in China, but SSNRA members are the best known ones. There are 52 seed and nut roasters in SSNRA in 2003. Nearly all of them are privately owned. And the industry is purely market-oriented. The top six members of the association take about 75% of the market in Shanghai. They also have similar market shares in the whole country. Since there are many different varieties of roasted seed and nut products, the market in consideration is a typical oligopoly with considerable product differentiation. On the other hand, Carrefour is one of the biggest players in the retailing industry of China, particularly in some big cities. Its market power in the retailing industry allows it to force its suppliers to accept rather tough transaction terms. Also note that the roasted seed and nut products in consideration are mostly matured products, which means the efficiency theories cannot fully explain Carrefour's use of slotting allowances.

In the list of slotting fees described above, many of them, such as fees for holiday celebrations, grand openings, advertising, and new product introductions, are not directly related to the quantities of sales. These fees represent transfer of profits from the manufacturers to Carrefour. But there are also many others, such as wholesale discount, service fee, consulting fee, and shelf space management fee, are proportional to the sales. Only these four terms amount to about 14% of the sale revenues, which is substantial. This

fact strong supports our key assumption: slotting allowances are not only lump sum fees. They are positively related to the quantities of sales. Interestingly, one can see that the slotting fees for new products are far from important compared to the other fees.

Our model suggests that slotting allowances help to raise Carrefour's profits and market share at the costs of the manufacturers as well as other small retailers. The SSNRA members are upset mainly because of the lump sum slotting fees. What is easy for people to overlook is the negative externality of slotting allowances on other competing supermarkets: Linear slotting allowances lower Carrefour's cost, but raise other small supermarkets' costs. Hence profits and market shares are transferred from the small supermarkets to Carrefour. The consumers who do shopping at Carrefour stores benefit from the slotting fees. But those who always buy stuff from small convenience stores have to pay higher prices because of Carrefour's slotting fees.

6. Conclusion

We use a bilateral oligopoly model to study the impacts of slotting allowances, particularly linear slotting allowances. The model suggests that powerful retailers actually use slotting allowance as a tool to capitalize their market powers. In our model, the retail market is consisted of a large retailer and many small retailers, and only the large retailer is capable of requiring slotting allowances from manufacturers. We show that the linear slotting allowances raise the large retailer' profits and market share, at the costs of the manufacturers and the competing small retailers. The lump sum parts of the slotting fees are fully bore by the manufacturers. This is the main reason that the manufacturers are against slotting fees.

But the linear slotting fees can be transferred to the small retailers and their customers. Generally, as long as the large retailer is able to attain greater rate of linear slotting allowances than the small retailers, the linear allowances will lower the large retailer's cost (and price) but raise the small retailers' costs (and prices). Our model shows no evidence that slotting allowances raise the average retail price. From the perspective of antitrust authorities, linear slotting allowances represent an exclusionary strategy, because large retailers can raise their rivals' costs by demanding slotting allowances from upstream manufacturers. Hence there might be antitrust concern over this business practice. Since slotting allowances are sustained by the market powers of large retailers, government might wish to put some control over the expansion of the large retailers and try to develop a retailing industry with several players of similar sizes.

Bloom, Gundlach and Cannon (2003) conjecture that there are characteristics of product markets that make one school of thought regarding slotting fees more valid. Particularly, in highly competitive product markets, theorems of the efficiency school may be more valid. But in less competitive product markets, the market power theories should make more sense. Our finding is consistent with this view.

A crucial assumption of our model is the linear slotting allowances. Though there are some evidences in support of this assumption, it would be valuable to do more empirical studies on this issue. It would also be interesting to observe empirically whether the levels of slotting allowances were related to the retailers' market shares, in addition to what the survey of Bloom, Gundlach and Cannon (2003) has revealed.

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