Understanding the Impacts of Leegin in Channels: An Analysis of Dealer-Initiated RPM*

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August 4, 2010

Abstract

In Leegin Creative Leather Products Inc. vs. PSKS, dba Kay’s Kloset, the U.S. Supreme Court ruled in 2007 that, under the rule of reason, a manufacturer can now

*Research supported by NSERC Canada and Athabasca University. The first author’s research was partly supported by MICINN and JCYL under projects ECO2008-01551 and VA001A10-1.
set the minimum retail price a dealer can charge to consumers, while horizontal price-fixing among dealers remains unlawful per se. An analytical model featuring a manufacturer and two adjacent dealers is proposed to investigate how this ruling affects the implementation of dealer-initiated resale price maintenance (RPM) arrangements, which are generally suspected to support unlawful collusion. It is demonstrated that collusion between dealers who sell the same brand can either reduce or increase the network output. The manufacturer only endorses collusive prices through RPM when they increase consumer demand and support enhanced investments in national advertising and retail services. The use of RPM in such a context meets the standard set by the rule of reason. Conversely, collusion between dealers may occur to the manufacturer’s disadvantage when it reduces the overall demand of the dealer network. Any RPM implemented to support collusive dealers in such a context would be illegal under the rule of reason and would not benefit the manufacturer. Surprisingly, despite the new ruling, both the manufacturer and dealers may favor horizontal competition for a better market coverage and to secure a higher demand in the whole network. The scenario in which the manufacturer prefers collusion and the dealers opt for competition is not sustainable at the equilibrium. Managerial and policy implications are discussed.

**Key Words:** dealer collusion, intrabrand competition, marketing channels, RPM, price-fixing.
**INTRODUCTION**

In *Leegin Creative Leather Products Inc. vs. PSKS, Inc. dba Kay’s Kloset* (2007), the Supreme Court of the United States of America overturned *Dr. Miles Medical Co. v. John D. Park & Sons*, 220 U.S. 373 (1911), which had made it per se illegal for a manufacturer and its distributor to agree on a minimum price at which the distributor may resell the manufacturer’s product. The 2007 ruling held that these types of agreements are not per se violations of Section 1 of the Sherman Act and must be evaluated under the rule of reason. The per se rule made resale price maintenance (RPM) agreements illegal in and of themselves and assumed de facto that they were anticompetitive, while the rule of reason now allows the use of RPM agreements, providing that manufacturers or other suppliers can prove these agreements have procompetitive effects and do not damage consumer welfare.

It is believed that this new ruling of the Supreme Court is likely to have several implications on channel decisions and structures. For instance, opponents of RPM have argued that this practice harms competition and facilitates manufacturer or dealer cartels. The rationale is that RPM can be used to obtain the same outcomes as horizontal agreements, which are per se unlawful. Following this line of reasoning, one could expect to see an increase of cartel-like decisions either by dealers or manufacturers in several industries. On the other hand, it has also been argued that price and territorial restraints can be substitute instruments (Mathewson and Winter 1984). The manufacturers can use either one to protect the dealer margin, as they are both considered responses to horizontal free-riding. Maintaining dealer margins induces a greater provision of information by dealers and supports further investments that stimulate consumer demand (Mathewson and Winter 1988). Therefore, one could believe that the fact that RPM has been illegal for several years has forced manufacturers to prefer territorial restraints as an alternative way to limit some of the horizontal channel externalities. For example, in business-franchising-format, one can speculate that the practice of granting a bigger territory to a single dealer who is then given the freedom to operate several outlets in the territory (Kaufmann and Dant 1996; IFA Educational Foundation 2002) may have been motivated, among other factors, by the prohibition on RPM. As a matter of fact, Waterson (1988) observed that dealer territories expanded after the prohibition of RPM in the U.K. in the late 60s.

However, even with the recent changes in the law regarding RPM, any restriction on retail prices initiated by either a dealer or a manufacturer, that harms the profits of other channel partners or consumer welfare is still likely to be challenged as illegal. Manufacturers should then act carefully under the rule of reason to avoid conflicts with their dealers and make arrangements that can pass the procompetitive test and other related antitrust laws. Indeed,
in its decision on Leegin, the U.S. Supreme Court identifies factors that should be carefully scrutinized in invoking or applying the rule of reason to RPM agreements. These factors are: the number of competitors in the market that have adopted RPM agreements; whether the manufacturer or dealer party to the RPM agreement has market power; and, whether the RPM originated with the manufacturer or dealers, with the belief that dealer-initiated RPMs are more likely to be anticompetitive.

In this paper, we focus on dealer-initiated RPM. It is important to reinforce that even if RPM can be legal under the rule of reason, horizontal price-fixing is still a per se offense under the antitrust laws. This eliminates the need to study the reasonableness of any individual horizontal price-fixing arrangement in light of the real market forces at work. Thus, any plaintiff against an RPM arrangement might use horizontal-price-fixing allegations between dealers to support its case. The court might buy into these allegations and prevent the manufacturer from invoking the rule of reason that applies to RPM. This recent asymmetry in the legal treatment of RPM and horizontal-price-fixing introduced by Leegin creates major managerial challenges. For instance, manufacturers might turn down all initiatives undertaken by their dealers that directly or indirectly impact on retail prices even if they can improve the efficiency of their dealer networks. Manufacturers might avoid RPM and use alternative vertical restraints to achieve similar goals or take other wasteful measures that penalize the efficiency of their dealer networks.

We develop an analytical model to demonstrate that the imbalance in the legal treatment of RPM and horizontal price-fixing may be inappropriate under certain conditions, and to improve the understanding of the impacts of dealer collusion on channel decisions and structures. We consider a manufacturer that sells a product to two symmetric and adjacent dealers. The manufacturer is a monopolist who commits to investing in national (or brand-building) advertising and sets the wholesale prices, while the two dealers determine their retail prices and retail services. The term retail service is used in a broad perspective and may mean any pre-sale services such as demonstrations, persuasive or informative local advertising, credit, delivery, pleasant surroundings and parking. Depending on which type of service is critical in the market, the activities of one dealer may generate positive or negative spillovers for the other dealer. We also investigate a specific case where the demand is only a function of the manufacturer’s national advertising and where the retail prices and the provision of retail services by dealers do not have a critical impact on consumer demand. On the whole, we consider a situation where the two dealer outlets are relatively close, such that, some customers may reasonably consider buying from either one. Competing dealers make decisions separately and deal either with free-riding or competition in retail services,
as well as competition on retail prices. A dealer cartel avoids competition and free-riding and sets both the retail price and retail services to maximize the aggregate profits for the two dealers. Essentially, the dealers collude to fix prices and services to consumers and then try to compel the manufacturer to support the arrangement with RPM. Our focus being on retailer-initiated RPM, we exclude the scenario where the manufacturer purposely sets a common retail price to maximize its own profits and both the manufacturer and retailers work together to set prices and the level of retail services. As is common in the channel literature, the manufacturer enjoys the leadership role within the network and the dealers, individually or acting as a cartel, are followers (Dant and Berger 1996).

We show that collusion between adjacent dealers can improve channel efficiency and lead to an increase in consumer demand. An RPM arrangement in such a circumstance will pass the precompetitive test, but if there is evidence that the practice is used to support collusion, it will automatically become an offense under the antitrust laws. The increase in consumer demand does not stem from lower prices, but is generated by better investments in retail services and national advertising. The existence of discounting dealers within a dealer network, especially when services generate a positive spillover, can hurt the whole network. However, even without free-riding on retail services, we show that the manufacturer can still support RPM initiated by dealers both to have enough resources to invest in national advertising and to provide dealers with enough margin to support their local activities. Also, the existence of limited competition in the retail services offered does not prevent the manufacturer from supporting retailer-initiated RPM.

Confirming the concerns of RPM opponents, we show that the dealers may indeed collude to reduce channel output, and that it is not in the economic interest of the manufacturer to support this type of initiative with RPM not to mention the fact that these initiatives are anticompetitive and illegal under the rule of reason. When retailer cartels organize solely to obtain monopoly profits and reduce channel output, they either reduce both the retail price and investments in services or increase the retail price and reduce investments in services. In the two cases, the gains that the dealers make by reducing their investments in services are not sufficiently passed on to customers, in terms of lower retail prices, to stimulate a sufficient increase in demand.

Along the same lines, we also show that, in the particular case where the provision of retail services is not a strategic competitive activity and the dealers exclusively compete on retail price while the manufacturer invests in national advertising, the manufacturer should not support any horizontal price-fixing initiated by retailers by an RPM regardless of whether the retail price is increased or reduced. In all these scenarios, a dealer cartel obtains a lower
wholesale price from the manufacturer, but this leaves the manufacturer with fewer resources to invest in national advertising and expand consumer demand. The dealers collude in this particular case mostly to take advantage of the vertical externality created by the involvement of the manufacturer in the management of consumer demand through national advertising.

Finally, we establish that the authorization of retailer-initiated RPM does not mean that the dealers will all collude locally or seek the support of their manufacturers. Under certain conditions, the manufacturer and dealers may all prefer horizontal competition to collusion. In such a case, it is not optimal for the manufacturer to use any vertical restraints to limit intra-network competition. It is worth mentioning that competition between dealers may not necessarily benefit customers in terms of lower retail prices as is commonly argued, but it does contribute to expanding primary demand through heavier investments in national advertising and adequate investments in retail services. The rationale is that competing dealers allow the manufacturer to charge a higher wholesale price to support heavier investments in national advertising. On the other hand, horizontal competition between dealers can either increase or reduce investments in retail services as well as increase or decrease retail prices depending on whether or not retail services by either dealer contribute to expanding the primary demand.

The remainder of the paper is organized as follows. Section 2 provides the theoretical background on RPM and horizontal collusion. Section 3 presents the models and derives equilibria. Section 4 compares the results for cooperating and competing franchisees. And lastly, Section 5 provides conclusions and suggestions for future research.

**Theoretical Background**

The belief that the main objective of a horizontal agreement among competitors to fix prices is to restrict competition and decrease output has pervaded the economic thought during the last decades. For many years, scholars who expressed hostility toward RPM concurred with the previous position of the courts that RPM was identical in effect to horizontal price-fixing and that both RPM and horizontal price-fixing were anticompetitive and illegal per se. Following an increase in theoretical and empirical evidence supporting that RPM arrangements can and do have procompetitive effects (e.g., Ippolito 1991; Mathewson and Winter 1984), the U.S. Supreme Court has changed its stance and now considers that RPM can either be anticompetitive or procompetitive and should be examined under the rule of reason, while horizontal price-fixing is anticompetitive and remains per se illegal. In the following lines, we summarize the special-service and dealer-collusion theories and develop some arguments to explain why collusion among dealers of the same brand may improve the network efficiency and therefore be procompetitive.
The procompetitive justification of RPM is based on the special-service theory developed by Telser (1960). The theory stipulates that manufacturers use RPM arrangements to prevent any discounting dealers from free-riding on the selling services of the other dealers. Originally, this theory applied exclusively to certain specific services such as showrooms, knowledgeable sales assistance, and demonstrations that consumers can use without purchasing the product. This theory has since evolved to include several other services including, for example, quality certification, promotions, and post-sale services (e.g., Fabricant 1990; Klein and Murphy 1988; Marvel and McCafferty 1984). Overall, the key ingredient for the application of this theory remains the existence of horizontal externalities that create free-riding among dealers. Basically, by implementing RPM, manufacturers wish to protect dealer margins and give them an incentive to provide these special services, which would otherwise be subject to erosion by free-riding. This is because discounting dealers can free-ride on dealers who provide services and then capture some of the increased demand those services generate. Consequently, the direct effect of RPM within a dealer network are increased investments in services as well as an increase in the retail price. In such a context, a single manufacturer can simply implement RPM if the enhanced level of services offsets the negative impact of a higher retail price and increases the demand for the product (Mathewson and Winter 1984). Similarly, the dealer will only agree to make the necessary investment in services if the return obtained is sufficient. Under this scenario, the dealers and manufacturer are better off and, as consumer demand increases, RPM is considered welfare enhancing (Marvel and McCafferty 1985). Thus, RPM increases network output because of the improved efficiency in pricing and service management. In a market where there are several manufacturers, RPM is procompetitive, given that competition between efficient dealer networks will provide consumers with more options.

On the other hand, RPM is often considered as anticompetitive as it is believed that it primarily supports collusion by either the dealers or manufacturers (see, Fabricant 1990; Jullien and Rey 2007). More specifically, in the dealer-collusion theory, the RPM initiative is first taken by dealers, who then ask the manufacturer to enforce a collusive retail price. The opponents of RPM have argued that collusion among dealers prevents the development of more efficient forms of distribution by protecting less-competitive dealers who cannot afford to sell the product at the market price. The output of a collusive-dealer network is expected to decrease, and the retail price is expected to increase as cartel members strive to maximize their profits at the expense of consumers.

The argument made in this research is that collusion among dealers can improve a dealer network efficiency and therefore becomes procompetitive. The dealer-collusion theory over-
looks both horizontal and vertical nonprice externalities that may exist in a dealer network. It is true that the output of a dealer network depends on retail prices, but in many cases, it also depends on various services that the dealers and supplier provide, or on investments they make to enhance the product image. At the horizontal level, the reasoning used in the special-service theory does apply to collusion among dealers. Explicitly, price-fixing may just be one of the various approaches that the dealers use to address free-riding on services that may take place among them. Kaufmann (1988) for example points out that the most pernicious issue in distribution channels is free-riding rather than price cutting or discounting. Colluding to address free-riding among dealers will more likely increase the level of services provided to consumers, and as a result, the output of the dealer network may also increase. In such a context, although the collusive price is set by the dealers, the interests of the manufacturer, dealers, and consumers may all be aligned. As a matter of fact, Sigué and Chintagunta (2009) show that, in a context where the dealer margins are exogenously determined, the dealers will favor collusion among them to eliminate free-riding on brand-building advertising and that this collusion may also benefit the manufacturer and increase consumer demand. Moreover, in the real world, several lawful collusive initiatives among dealers do not involve price-fixing. For example, Muhleman (1994) who investigates the use of advertising cooperatives in franchising observes that many suppliers encourage the formation of, and participation in, local advertising cooperatives to limit free-riding. She then concludes: “After all, working together to achieve mutual goals is what franchising is all about. Advertising co-operatives are just one more benefit a franchise system can provide its members.”

The dealers’ decision to collude or not to collude may also be dictated by vertical externality concerns within the dealer network. The active involvement of the manufacturer and dealers in the management of the product demand creates a double moral-hazard problem (see, Mathewson and Winter 1985; Lal 1990). Each party requires appropriate incentives to offer the level of services that is optimal for the other party. Consequently, to cope with the upstream moral hazard, the dealers may decide either to collude or to compete, depending on the expected output, to motivate the manufacturer to invest heavily in national advertising and build a strong brand image. One way to motivate the manufacturer is to offer him an opportunity to charge a high wholesale price to fund additional investments in national advertising. Similar reasoning applies to the downstream moral hazard. The manufacturer allows the dealers to obtain higher margins to increase their investments in retail services (Klein and Murphy 1988; Mathewson and Winter 1984; Rey and Tirole 1986). The use of these incentives to address vertical externalities may increase retail prices, but their net effect on demand is expected to be positive as they contribute to aligning the interests of the
parties involved. For instance, Romero (1994) investigates the contractual relationship in
the presence of double moral hazard in a bilateral monopoly (which is similar to a scenario
where a manufacturer deals with a dealer cartel) and finds that the use of RPM helps resolve
vertical externalities and improves channel efficiency.

**THE MODEL**

Consider a Manufacturer (player $M$) who sells its products to two symmetric dealers
(players 1 and 2) in the same area. We assume symmetry to ensure that the differences in
outcomes between the different settings are only due to the behavioral assumptions and not
to other data. The manufacturer makes sure that each dealer has a territory of a decent
size, but cannot totally ensure territorial protection for various reasons. The dealers clearly
understand that their decisions may affect each other. Thus, the market structure is that
of a manufacturer dealing with two potentially competing retailers (Ingene and Parry 1995;
Iyer 1998).

Let us consider a contract in which the manufacturer controls the transfer price $w$ to the
dealers as well as the advertising and other promotional expenditures in national media $A$,
while dealer $i$ decides the retail price $p_i$ and the level of investment in service activities $s_i$.

The demand function for dealer $i$ is given by

$$d_i(p_i, p_j, A, s_i, s_j) = 1 + \theta A - p_i + \gamma p_j + \lambda s_i + \mu s_j, \quad i, j = 1, 2, i \neq j,$$

where $\theta, \gamma, \lambda$, and $\mu$ are parameters whose admissible values are defined as follows. The
parameters $\theta \in (0, 1)$ and $\gamma$ respectively, denote the effectiveness of the manufacturer’s
national advertising on demand and the impact of the competitor’s price on demand at
outlet $i$. We adopt the standard assumption that the cross-price effect is lower than the
direct-price effect, i.e., $\gamma < 1$. The parameter $\lambda \geq 0$ represents the effectiveness of a dealer’s
own service parameter, while $\mu$ measures the impact of the competitor’s service on demand.
Parameter $\mu$ can be positive, negative or zero, depending on whether the competitor’s local
service activities push the demand of dealer $i$ up or down, or have no effect on it. The effect of
local service activities on demand is assumed to be lower than the effect of price, and greater
than or equal to the effect of the competitor’s service activities, and therefore, $1 > \lambda \geq | \mu |$.

As is common in the marketing literature (e.g., Chu and Desai 1995; Jørgensen et al.
2000), we assume the following convex-increasing costs for each dealer’s local service:

$$C(s_i) = \frac{1}{2} s_i^2, \quad i = 1, 2.$$
The manufacturer and dealers strive to maximize their respective, following objective functions:

\[ \Pi_M = \sum_{i=1}^{2} wd_i - \frac{1}{2} A^2, \quad (2) \]

\[ \Pi_i = (p_i - w)d_i - \frac{1}{2}s_i^2, \quad i = 1, 2. \quad (3) \]

The problem is modeled as a Stackelberg game. The sequence is the following: The manufacturer, as the first mover (leader), announces its wholesale price and advertising strategies. This information is taken into account by the dealers (followers), who then choose the optimal retail prices and investments in local service. Once the information about these decisions is made available to the manufacturer, it decides on its actual wholesale price and advertising expenditures.

**Colluding dealers**

In this first scenario, we assume that the dealers coordinate their pricing and service decisions in view of maximizing their joint profit, and hence, we solve the following optimization problem:

\[ \max_{p_1, p_2, s_1, s_2} \sum_{i=1}^{2} \Pi_i = \sum_{i=1}^{2} \left( (p_i - w)d_i - \frac{1}{2}s_i^2 \right). \quad (4) \]

The equilibrium strategies of the game between the jointly profit-maximizing dealers and the manufacturer are as follows (the superscript \( c \) stands for colluding dealers):

\[ w^c = \frac{2(1 - \gamma) - (\lambda + \mu)^2}{2(1 - \gamma)(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)}, \]

\[ A^c = \frac{\theta}{2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2}, \]

\[ s^c = \frac{\lambda + \mu}{2(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)}, \]

\[ p^c = \frac{3(1 - \gamma) - (\lambda + \mu)^2}{2(1 - \gamma)(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)}. \]
The demand at each outlet and the players’ profits are given by

\[ d_i^c = \frac{1 - \gamma}{2(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)} \]
\[ \Pi_M^c = \frac{1}{2(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)} \]
\[ \Pi_i^c = \frac{2(1 - \gamma) - (\lambda + \mu)^2}{8(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)^2}, \quad i = 1, 2. \]

To derive this equilibrium, we first consider the optimization problem in (4). From the first-order conditions, we obtain the following reaction functions of the dealers to the manufacturer’s announcement:

\[ p_c(w, A) = p_i^c(w, A) = \frac{1 + \theta A + ((1 - \gamma) - (\lambda + \mu)^2) w}{2(1 - \gamma) - (\lambda + \mu)^2}, \quad (5) \]
\[ s_c(w, A) = s_i^c(w, A) = \frac{(1 + \theta A - (1 - \gamma)w)(\lambda + \mu)}{2(1 - \gamma) - (\lambda + \mu)^2}, \quad i = 1, 2. \quad (6) \]

Inserting the above into the manufacturer’s optimization problem and maximizing with respect to \( w \) and \( A \) leads to the equilibrium strategies for the manufacturer. Substituting for the latter in the dealers’ reaction functions provides the equilibrium retail price and service expenditures for the dealers.

To secure an interior solution and a positive demand at each outlet, the following condition must be satisfied:

\[ 2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2 > 0. \quad (7) \]

The above condition depends on the intensity of price competition, the impact of the two dealers’ service, and the effectiveness of national advertising. This condition in particular is more likely to hold when price competition between dealers is limited, competition in service is pronounced, and the impact of the manufacturer’s advertising on demand is relatively small. Alternatively, when service contributes to enhancing the whole dealer-network image, the condition in (7) may not be satisfied, as its impact on demand becomes very significant.

**Competing dealers**

In the non-collusive scenario, each dealer independently decides on its retail price and investment in service, in order to maximize its own profits. The mode of play is still à la Stackelberg. However, here we first have to solve an equilibrium problem, instead of an optimization problem as in the colluding-dealers scenario, in order to obtain the reaction
functions of the followers to the manufacturer’s announcement of the transfer price and advertising. The findings of the competition scenario are given as follows (the superscript \( nc \) stands for non-colluding dealers):

\[
\begin{align*}
    w^{nc} &= \frac{2 - \gamma - \lambda (\lambda + \mu)}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \\
    A^{nc} &= \frac{\theta}{(1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2}, \\
    p^{nc} &= p_i^{nc} = \frac{3 - 2\gamma - \lambda (\lambda + \mu)}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \\
    s^{nc} &= s_i^{nc} = \frac{\lambda (1 - \gamma)}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \quad i = 1, 2.
\end{align*}
\]

The demand and the players’ profits are given by

\[
\begin{align*}
    d^{nc} &= d_i^{nc} = \frac{1 - \gamma}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \\
    \Pi_M^{nc} &= \frac{\lambda (1 - \gamma)}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \\
    \Pi_i^{nc} &= \frac{1 - \gamma}{2 \left[ (1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 \right]}, \quad i = 1, 2.
\end{align*}
\]

We first solve the Nash game between the dealers. From the first-order conditions, we obtain the dealers’ reaction functions to the leader’s announcement, i.e.,

\[
\begin{align*}
    p^{nc}(w, A) &= p_i^{nc}(w, A) = \frac{1 + \theta A + w (1 - \lambda (\lambda + \mu))}{2 - \gamma - \lambda (\lambda + \mu)}, \\
    s^{nc}(w, A) &= s_i^{nc}(w, A) = \lambda \left( \frac{1 + \theta A - w (1 - \gamma)}{2 - \gamma - \lambda (\lambda + \mu)} \right), \quad i = 1, 2.
\end{align*}
\]

Substituting for \( p \) and \( s \) in the manufacturer’s optimization problem, differentiating with respect to \( A \) and \( w \), and equating to zero leads to the manufacturer’s equilibrium strategies. Substituting for \( A \) and \( w \) in the above reaction functions provides the dealers’ equilibrium strategies.

The following condition has to be met to obtain an interior solution and a strictly positive demand at each outlet:

\[
(1 - \gamma) (2 - \gamma - \lambda (\lambda + \mu)) - \theta^2 > 0.
\]
advertising on the demand are relatively low, and when the service of the competing dealers 
generates negative or very little positive spillover.

From now on, we assume that the conditions in (7) and (14) are satisfied.

**Managerial insights**

**Comparing the manufacturer’s profits and strategies**

We investigate whether or not manufacturers can benefit from horizontal collusion bet-
tween dealers. In the following proposition, we compare the manufacturer’s strategies and 
profits in the two scenarios analyzed above.

**Proposition 1** The manufacturer’s optimal strategies and profits, as well as consumer de-
mand, when dealers collude or do not collude, compare as follows:

\[
w^c - w^{nc} \geq 0 \Leftrightarrow A^c - A^{nc} \geq 0 \Leftrightarrow d^c - d^{nc} \geq 0 \Leftrightarrow \Pi^c_M - \Pi^{nc}_M \geq 0
\]

\[
\Leftrightarrow \gamma (\gamma - 1) + (\lambda + \mu) (\gamma \lambda + \mu) \geq 0.
\]

**Proof.** Direct computations using the results of the two above solutions.

The difference between the manufacturer’s payoffs and strategies in the two scenarios 
involves almost all of the model parameters, except the effectiveness of national advertising 
(\( \theta \)). In other words, Proposition 1 supports the view that whether or not the manufacturer is 
better (worse) off with colluding dealers depends on both horizontal and vertical externalities, 
and especially, on the intensity of retail-price competition and on the impacts of the services 
provided by the two dealers. As expected, the manufacturer welcomes collusion between 
dealers only if it increases the total demand for the dealer network, offers the opportunity 
to charge a higher wholesale price, and supports greater investments in national advertising. 
We obtain further findings numerically. For example, in Figure 1, we set \( \theta = 0.5 \) and examine 
the manufacturer’s preference in the space \((\lambda, \mu)\) for different values of \( \gamma \).

(Insert Figure 1 here)

Figure 1 shows that the area where the manufacturer welcomes collusion between dealers 
decreases as the intensity of price competition increases. Thus, for product categories for 
which the cross-price elasticity is high and in which customers are constantly looking for 
better values, manufacturers are less likely to endorse dealer collusion.
Surprisingly, however, the existence of negative or positive spillovers from the dealers’ service levels does not lead to a clear-cut conclusion. Specifically, if there are positive (negative) spillovers from service, the manufacturer may be either better or worse off if the dealers collude, depending on how significant are the impact of cross-price and its own level of service on local demand. Even when the dealers offer competitive services, such as local advertising, that also aim at differentiating their own retail outlets or attracting customers to their specific store, horizontal collusion can still increase the dealer-network output. The same applies when the service provided by one dealer has no effect on the demand of the other dealer. Obviously, the requirement to obtain the manufacturer’s endorsement of horizontal collusion is that the retail services provided by either dealer has to generate a sufficient increase in consumer demand.

The analysis of the manufacturer’s preferences in the space \((\lambda, \mu)\) for different values of \(\theta\), holding \(\gamma = 0.5\) shows similar qualitative results as those in Figure 1. This time, however, the manufacturer is less likely to embrace cooperation between dealers, as the impact of national advertising on demand becomes significant. A possible explanation for this finding is that, knowing that national advertising is critical to their mutual success, colluding dealers will push the manufacturer to invest in it heavily by setting higher retail prices and lowering their investment in services.

**Comparing the dealers’ profits and strategies**

We now analyze the conditions under which the dealers may choose to collude and how such a collusion can affect their strategies and payoffs. The following proposition compares the dealers’ strategies and profits in the two scenarios.

**Proposition 2** The dealers’ optimal strategies and profits, when the dealers cooperate or do not cooperate, compare as follows:

\[
\begin{align*}
p^c - p^{nc} \geq 0 & \iff \gamma^3 + (1 + \theta^2)\mu(\lambda + \mu) + \gamma^2(2(\theta^2 - 1) + \mu(\lambda + \mu)) \\
& \quad + \gamma(1 - 2\mu(\lambda + \mu) + \theta^2(-2 + \lambda(\lambda + \mu))) \geq 0, \\
s^c - s^{nc} \geq 0 & \iff \gamma^2(\lambda - \mu) + (\theta^2 - 2)\mu + \gamma(\lambda(-1) + 3\mu) \leq 0, \\
\Pi_i^c - \Pi_i^{nc} \geq 0 & \iff (1 - \gamma)^2(\lambda^2 - 2)(2(1 - \gamma) - (\lambda + \mu)^2 - \theta^2)^2 \\
& \quad + (2(1 - \gamma) - (\lambda + \mu)^2)[(1 - \gamma)(2 - \gamma - \lambda(\lambda + \mu)) - \theta^2] \geq 0.
\end{align*}
\]

**Proof.** Direct computations using the results of the two above solutions. ■
The differences between the dealers’ payoffs, retail prices, and service, in the two scenarios, are polynomials involving all of the model parameters. Thus, the dealers’ decision to collude or not to collude, as well as their respective strategies depend on the intensity of retail-price competition, the impact of the services provided by the two dealers, and the impact of the manufacturer’s national advertising on consumer demand. Numerical analyses provide additional insights. In Figure 2, we set $\theta = 0.5$ and illustrate the dealers’ preference and decisions in the space $(\lambda, \mu)$ for different values of $\gamma$.

Figure 2 shows that dealers collude in the following three different regions of the parameter space: R1, R2, and R3. In R1, collusion leads to an increase in both retail price and services ($p^c > p^{nc}$ and $s^c > s^{nc}$). Observe that, in this area, there are positive or relatively small negative spillovers in local service. The existence of some level of competition in local services does not prevent dealers from colluding. The increase in retail price serves to provide more services to consumers, and this is more likely to improve the efficiency of the whole network. In R2, collusion leads to an increase in the retail price and lowers the investments in services ($p^c > p^{nc}$ and $s^c < s^{nc}$). This occurs when local service creates significant negative spillovers and customers are less sensitive to price competition. The main goal of dealer collusion in this case is to decrease competition in both retail price and services. The existence of substantial negative spillover means that the services provided by the two dealers may not play a major role in expanding the primary demand for the product. Lastly, in R3, collusion leads to a lower retail price and lower services ($p^c < p^{nc}$ and $s^c < s^{nc}$). In such a context, collusion between dealers reduces investments in competitive services to the minimum required to effectively stimulate the dealer-network demand, especially when customers are not highly sensitive to price competition. Part of the savings realized in service is passed on to customers, in terms of lower retail prices. The rationale is that, when the intensity of competition in services in high, noncollusive dealers tend to overspend on persuasive activities such as local advertising, which are known to have a limited effect on primary demand and to spoil consumer welfare.

Surprisingly, there are four other regions in the parameter space in which dealers would rather compete than collude: R4 ($p^c > p^{nc}, s^c > s^{nc}$), R5 ($p^c > p^{nc}, s^c < s^{nc}$), R6 ($p^c < p^{nc}, s^c < s^{nc}$), and R7 ($p^c < p^{nc}, s^c > s^{nc}$). While collusion between dealers is generally expected to address horizontal externalities, the presence of vertical externalities in this model also affects the dealers’ decision to collude or not to collude. For instance, in region R4, the dealers may find it optimal to charge a low retail price and reduce their investments in local
services if they realize that by doing so the manufacturer will step in and substantially invest in national advertising to increase the demand for its product. The same rationale applies to the remaining three regions. The dealers be less likely to collude if they realize that the manufacturer is able and willing to surmount their horizontal externalities by making the necessary investments to increase consumer demand.

The message to be taken from Figure 2 is that the dealers’ decision to collude or not to collude depends mostly on the relative values of the model parameters. For example, dealers tend to favor collusion when the impact of the manufacturer’s national advertising on local demand is relatively small. Consequently, it would be reasonable to believe that dealers in young dealership networks will collude more often than their counterparts in well-established networks where the manufacturer’s brand name or trademark is a key factor in their success.

**Contrasting players’ profits**

We now set $\theta = 0.5$ and contrast the manufacturer’s and dealers’ preferences in the space $(\lambda, \mu)$ for different values of $\gamma$.

(Insert Figure 3 here)

Figure 3 shows different areas in the parameter space where: (1) the dealers and the manufacturer prefer horizontal collusion ($\Pi^c_M > \Pi^{nc}_M$ and $\Pi^c_i > \Pi^{nc}_i$); (2) both the dealers and manufacturer prefer horizontal competition ($\Pi^c_M < \Pi^{nc}_M$ and $\Pi^c_i < \Pi^{nc}_i$); and (3) the manufacturer prefers competition, while the dealers opt for collusion ($\Pi^c_M < \Pi^{nc}_M$ and $\Pi^c_i > \Pi^{nc}_i$).

Observe that the scenario where the manufacturer embraces collusion and the dealers prefer competition ($\Pi^c_M > \Pi^{nc}_M$ and $\Pi^c_i < \Pi^{nc}_i$) is not part of the equilibrium and therefore cannot be sustained. If a manufacturer tries to enforce collusive strategies through mechanisms such as RPM and vertical nonprice restraints, in areas where the value of joint profit maximization is not accepted by all the dealers, some will eventually complaint about the manufacturer’s abuse of power to protect the most inefficient among them.

On the other hand, regardless of whether local service generates a positive or negative spillover, both the manufacturer and dealers are better off with horizontal collusion when it leads to higher prices and higher investments in services and national advertising. It is worth mentioning that the horizontal collusion that occurs in such a context also increases demand. Thus, the primary purpose of any collusion that benefits all network members is to eliminate
price competition and give members incentives to make appropriate investments in national advertising and local services to better serve their customers.

Competition between dealers can also be a better scenario for all dealership members, regardless of whether local service generates a positive or negative spillover. This is because competition can give the manufacturer an incentive to increase wholesale prices and invest heavily in national advertising, while at the same time, have dealers make decisions about pricing and service that secure increased demand, to the benefit of all dealership members.

Finally, dealers may choose to collude to the disadvantage of the manufacturer when cooperation does not lead to a demand increase for the dealer network, and basically helps either to reduce the retail price and competitive services or to increase the retail price and reduce competitive services. This is because a major part of competitive services does not translate into an increased primary demand for the dealer network. The surplus that colluding dealers realize from competitive services is not sufficiently passed on to customers, in terms of lower retail prices, to stimulate a sufficient increase in demand.

**Special case: No retail-service interaction**

Let us consider the specific case where local service is not a critical strategic intra-system competitive tool because of other exogenous contractual considerations not investigated in this paper. This specification corresponds to the scenario where, $\lambda = \mu = 0$ in (1). The manufacturer controls the transfer price $w$ to the dealers as well as advertising and other promotional expenditures in national media $A$, while dealer $i$ decides on the retail price $p_i$. The model allows competition exclusively on retail prices, while the dealers rely entirely on the manufacturer’s advertising to expand the baseline demand. This model is a direct extension of previous traditional pricing models with two competing retailers (Ingene and Parry 1995; Iyer 1998). The difference is that the manufacturer keeps investing in a national marketing program that contributes to expanding the demand at each dealer outlet. The following proposition summarizes the comparative results of this particular case.

**Proposition 3** The strategies, demands, and payoffs in the two scenarios of the special case

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1Within the contract, the manufacturer may limit the competitive effect of advertising by prescribing a desired level of local services (advertising) for each dealer and giving over control of the content of local services through various mechanisms such as cooperative advertising and other advertising-assistance programs. With the subsequent decrease in advertising competition, the dealers mainly compete among themselves over retail prices.
in which the dealers mainly compete over retail prices compare as follows:

\[w^c < w^{nc}, \ A^c < A^{nc}, \ d^c < d^{nc}, \ \Pi^c_M < \Pi^{nc}_M,\]

\[p^c < p^{nc} \iff \gamma - 1 + 2\theta^2 > 0,\]

\[\Pi^c_i - \Pi^{nc}_i > 0 \iff \gamma(1 - \gamma)^2 + \theta^2(\theta^2 - 2(1 - \gamma)) > 0.\]

**Proof.** Straightforward from the two equilibria above when \(\lambda = \mu = 0.\) 

Proposition 3 shows unambiguously, i.e., independently of the parameters’ values, that the manufacturer is worse off if the dealers collude. When the dealers collude, they become a monopsonist vis-à-vis the manufacturer and can therefore induce the latter to charge a lower wholesale price than it would otherwise. This leaves it with less funds for advertising which, in turn, leads to a decrease in demand and lower profits. This result is rather intuitive.

Surprisingly, however, the dealers may not find it optimal to collude. Proposition 3 states that the profitability of the cartel depends, in a highly non-linear fashion, on the values of the cross-price sensitivity \(\gamma\) and the effectiveness of the manufacturer’s advertising \(\theta.\) By colluding, the dealers obtain a lower wholesale price. However, this strategic gain must be evaluated against the other strategic interaction, namely, between the retail price and the manufacturer’s advertising. The demands at both outlets, and hence the revenues of the dealers, increase with manufacturer advertising and decrease with retail price. The magnitude of these shifts is captured by the relevant parameters, i.e., \(\gamma\) and \(\theta.\)

(Insert Figure 4 here)

Figure 4 shows how the retail price and the dealers’ profits compare in the two scenarios in the space \((\theta, \gamma).\) There are two areas in the parameter space in which competition provides more profits to the dealers than does collusion regardless of whether \(p^c < p^{nc}\) or \(p^c > p^{nc}.\) In these two areas, the manufacturer is either relatively effective or very effective at raising demand through national advertising (i.e., \(\theta\) is high). The reason for this is that the advantage of cooperation, in the form of a lower wholesale price, does not sufficiently compensate for its negative externality, namely, the reduction of the manufacturer’s advertising. Conversely, there are two other areas in which dealers are better off colluding regardless of whether \(p^c < p^{nc}\) or \(p^c > p^{nc}.\)

From the consumer-welfare perspective, collusion among dealers will unequivocally reduce consumer demand. This reduction may not necessarily stem from increases in the retail price, as is generally expected from a cartel—indeed, in some cases, consumers may even pay a lower
retail price—but from inappropriate market coverage resulting from the decrease in national advertising expenditures.

**CONCLUSION**

Since its ruling on *Leegin Creative Leather Products. Inc. vs. PSKS Inc. dba Kay’s Klose* in 2007, the U.S. Supreme Court now acknowledges that the economic effects of RPM and horizontal price-fixing are different. The former can be either anticompetitive or pro-competitive and should be evaluated under the rule of reason, while the latter is almost always anticompetitive and is therefore per se unlawful. This imbalance in the legal treatment of these two practices may affect the implementation of dealer-initiated RPM, which is generally suspected to support horizontal collusion among dealers. The aim of this paper was to improve the understanding of the impacts of dealer collusion on channel decisions and structures. Particularly, we wanted to identify the conditions under which dealer collusion can be either procompetitive or anticompetitive, to facilitate the use and the defense of dealer-initiated RPM. We built a model in which a manufacturer sells a product to two adjacent dealers. The manufacturer commits to investing in national advertising and sets the wholesale prices, while the two dealers determine their retail prices and their investments in retail services.

**Findings and implications**

We provided a formal proof that collusion between dealers may indeed increase the network output and align the interests of the manufacturer, dealers, and consumers by improving the network efficiency. Consequently, consumers pay more to access the product, but in return, they receive better retail services and enhanced national advertising programs. Although horizontal price-fixing is unlawful per se, the manufacturer might find it optimal to enforce such collusive strategies through price and nonprice vertical restraints. The use of RPM under these circumstances will pass the procompetitive test under the rule of reason.

Contrary to the idea that intrabrand competition is always bad for dealers, who will rather prefer to eliminate it, we provided theoretical evidence that, under certain conditions, regional competition is better for both the manufacturer and the dealers. For example, dealers in well-established networks where the manufacturer’s brand name or trademark is a key success factor for their outlets may not find it optimal to collude. Similarly, dealers

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2Verhoef et al. (2007) show for example that, in the automobile industry, dealers of economy and prestige brands simply function as a point of purchase and rely heavily on the manufacturers’ investments in their brands. In such a context, collusion among dealers may not be worth considering.
may prefer to compete when customers are very price-sensitive and they offer competitive services. The idea is that competition under these circumstances can increase demand more than collusion can. Competition between dealers may not necessarily benefit customers in terms of lower retail prices, but it does contribute to expanding the primary demand through greater investments in national and retail services. Thus, in addition to the antitrust laws that prohibit price fixing, there is also an economic rationale under which, in some dealer networks, the dealers do not see the need to collude. Also, in this particular context, the manufacturer does not find it optimal to use any vertical restraints (including RPM) to limit intra-network competition. This finding is consistent with Kaufmann’s (1988) belief that a manufacturer and its dealers can benefit from a system comprised of various dealers who offer various combinations of prices and services to avoid direct price competition and to target different market segments. The key ingredient for the sustainability of this finding is the manufacturer’s involvement in the management of the network demand through national advertising.

Another important finding of this research is that the dealers’ selected mode of play may be contentious and generate adversarial relationships in some networks, depending on the nature of both vertical and horizontal externalities within the network. In particular, dealers may choose to collude to the disadvantage of the manufacturer when collusion reduces the network demand. The goal of horizontal collusion in this case is not to improve the whole network efficiency, but mainly to free-ride on the manufacturer’s national advertising. The dealers induce the manufacturers to invest more in national advertising and capture the benefit by setting suboptimal retail prices and services. It is not in the manufacturer’s interest to support such collusive initiatives by implementing an RPM policy. The manufacturer can challenge this type of collusion as being unlawful. However, the case can be difficult to prove, especially if, by colluding, the dealers reduce retail prices, as the general belief remains that collusion among dealers increases retail prices.

We also found that the scenario where the dealers prefer competition and the manufacturer favors horizontal collusion is not sustainable at the equilibrium. Remember that manufacturers only favor horizontal collusion when it increases the network output as well as investments in national advertising. Under this condition, the dealers’ preference to compete is mainly motivated by vertical free-riding and can only hurt the network’s efficiency. Consequently, the dealers will less likely call for an RPM policy. When faced with the unwillingness or inability of dealers to collude, a manufacturer can use other alternatives to improve the efficiency of its dealer network. For instance, a manufacturer can initiate an RPM program and impose it on the dealers as Leegin Creative Leather Products did with its retailers. A
manufacturer can also impose territorial restrictions on dealers and allow one dealer to sell its product in a given area through a single or multiple outlets. In an already established dealer network, the manufacturer may have to take radical and often very costly measures and cut some dealers to improve the efficiency of its network. For instance, General Motors recently eliminated 1100 dealers in the U.S. to better compete with foreign-based rivals such as Toyota Motor Corp. and Honda Motor Co. (Terlet 2009).

The findings of this research also have a major policy implication. We have shown that the legal imbalance in the treatment of RPM and horizontal price-fixing within a dealer network is inappropriate. Similarly to RPM, collusion between dealers who sell the same brand can be anticompetitive or procompetitive. There is no theoretical evidence that dealer-initiated RPM will lead to unlawful collusion between dealers. When dealers collude to reduce the network output, they also hurt the manufacturer’s interest, and any RPM implemented in such a context will not pass the procompetitive test under the rule of reason. The U.S. Supreme Court could take another step forward and recognize the potential procompetitive nature of intranetwork collusions. Consequently, the rule of reason would seem the appropriate standard to judge price-fixing arrangements between dealers of the same network.

**Limitations**

The findings presented in this paper are based on some simplifying assumptions that can be relaxed to deal with more complex situations. Here are a few examples. First, we considered two symmetric dealers while, in some cases, some dealers are more powerful than others and can play a leadership role at the horizontal level. Also, market conditions may differ from one market to another, and this requires that each dealer adopt marketing strategies that effectively appeal to its consumers. Also, some of the findings discussed in this paper may also change if the number of dealers becomes significantly larger.

Second, local collusion between dealers with regard to service may generate economies of scale that are not taken into account in the current modelling effort.

Finally, it may be interesting to analyze the problem of collusion among dealers in a spatial model and see if the main conclusions reached here remain valid.
References


Figure 1: Comparison manufacturer’s profits. \( \theta = 0.5, \gamma = 0.25 \) (up-left); \( \gamma = 0.5 \) (up-right); \( \gamma = 0.75 \) (down)
Figure 2: Comparison dealers’ profits and service levels and retail prices. 
\( \theta = 0.5, \gamma = 0.25 \) (up-left); \( \gamma = 0.5 \) (up-right); \( \gamma = 0.75 \) (down).

R1: \( \Pi_i^c > \Pi_{i}^{nc}, p^c > p^{nc}, s^c > s^{nc} \); 
R2: \( \Pi_i^c > \Pi_{i}^{nc}, p^c > p^{nc}, s^c < s^{nc} \); 
R3: \( \Pi_i^c > \Pi_{i}^{nc}, p^c < p^{nc}, s^c < s^{nc} \); 
R4: \( \Pi_i^c < \Pi_{i}^{nc}, p^c > p^{nc}, s^c > s^{nc} \); 
R5: \( \Pi_i^c < \Pi_{i}^{nc}, p^c > p^{nc}, s^c < s^{nc} \); 
R6: \( \Pi_i^c < \Pi_{i}^{nc}, p^c < p^{nc}, s^c < s^{nc} \); 
R7: \( \Pi_i^c < \Pi_{i}^{nc}, p^c < p^{nc}, s^c > s^{nc} \).
Figure 3: Comparison manufacturer’s and dealers’ profits.  $\theta = 0.5, \gamma = 0.25$ (up-left); $\gamma = 0.5$ (up-right); $\gamma = 0.75$ (down)
Figure 4: Exclusive retail price interaction. Comparison retail prices and dealers’ profits