

**MEETING-THE-COMPETITION, GUARANTEED RETAILER MARGINS,
AND VERTICAL PRICE-FIXING**

by

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ABSTRACT

Economists have forwarded many explanations of how meet-the-competition (MTC) guarantees can aid firms' efforts to engage in tacit horizontal price fixing. Here manufacturers employ these same guarantees in an explicit effort toward vertical price-fixing. The paper argues that in at least some settings this is a more plausible explanation than the extant literature offers, and it links the literatures on MTC guarantees and manufacturer-imposed minimum resale prices. Similar logic underlies guaranteed retailer margins. The results also suggest that it may be difficult, if not impossible, for antitrust officials to deter manufacturers from influencing or fixing resale prices.

Beginning with the wide-scale introduction of branded goods in the late nineteenth century, manufacturers have often tried to impose minimum resale prices on the retail outlets carrying their products. And since roughly the same time antitrust experts have debated why they would do so.¹ Less attention has focused on what manufacturers do when they can not impose minimum prices, even though legal obstacles have forced them to look for alternatives.

So what do manufacturers do when they cannot legally set the prices their outlets charge?² Many antitrust officials believe they go right on setting prices, either flaunting the law (often despite vigorous enforcement efforts) or finding some means to circumvent it. Lloyd Constantine, former antitrust chief for New York state, contends that the practice is ubiquitous, but based upon "winks and nods" rather than written agreements that could be used in court.³ Current N.Y. Attorney General Robert Abrams argues that vertical price fixing is "endemic," claiming that "... antitrust officers can recount scores of tales of retailers calling our offices too scared to give their names, telling of coercion and intimidation by manufacturers' representatives and rival dealers because their prices were too low."⁴ Public Citizen's Congress Watch claims that a bill to stiffen the ban on RPM would curtail the practice enough to save consumers \$20 billion annually,⁵ and this figure has been widely quoted by its Congressional sponsors.⁶ In an especially colorful assessment, former FTC Commissioner Terry Calvani argues that a manufacturer practicing RPM "... would have to have 'an I.Q. two points lower than a carrot' to get caught."⁷

The prospects for "wink and nod" RPM are not hard to appreciate. For example, suppose a manufacturer wants to impose a \$500 sanction on any discount outlet. If it cannot do so overtly, it may instead impose a lump-sum charge of \$500 on all outlets and ex post "reward" non-discount outlets with a \$500 rebate. Given this scheme's transparency, courts, legislators, and antitrust of-

officials should not be fooled. Yet the rebates could be indirect and discreet: they could be spread over several periods and parceled out in small quantities as compensation for point-of-sale services, to defray overhead, to pay for advertising or training, and so forth. Hence, it may be hard for outsiders to prove a link between what the manufacturer pays each retailer and that retailer's price. Moreover, in some instances antitrust officials may want an excuse to loosen the legal restrictions on RPM and may themselves wink and nod at these practices. Finally, antitrust officials themselves can not always (and perhaps can not often) distinguish legitimate cost-sharing arrangements from maneuvers to control resale prices. As such, they must proceed carefully.

This paper shows how manufacturers can also employ two other legal means to fix resale prices. First, they can coordinate retailers' meet-the-competition (MTC) guarantees. Antitrust experts have long believed that retailers can on occasion independently extend MTC guarantees to their customers to discourage price competition.⁸ Here a manufacturer coordinates retailers' efforts by financing some or all of the MTC-related rebates they make, so in equilibrium all retailers adopt the "suggested" price. While previous models of MTC guarantees focus exclusively on tacit horizontal price-fixing, this paper examines explicit vertical price-fixing. Second, the manufacturer can persuade retailers to charge its suggested price by guaranteeing the margins of those victimized by price-cutting rivals. In equilibrium, no outlet wants to cut price first, so discounting does not occur at all.

This paper therefore draws important links between three previously unrelated practices, and it provides new insights into the collusive potential of MTC guarantees. In contrast to the large extant literature on this subject, the analysis here includes the manufacturer in the deployment of MTC guaran-

tees, and in doing so dramatically expands the scope for successful price-fixing. Here the manufacturer does what retailers cannot do on their own behalfs: it redistributes their payoffs. It can thereby make MTC guarantees individually rational for retailers to offer, even under circumstances where they would not otherwise arise. On those frequent occasions when manufacturers seek some control over retailers' prices, it is quite plausible that they would use this means to do so, especially if other options are legally foreclosed.

These results also highlight an asymmetry in antitrust policy: RPM is per se illegal, but MTC provisions and guaranteed margins are unchallenged. Of course, the practices are not identical and the appearance of MTC provisions does not necessarily indicate an effort by the manufacturer to fix prices, but the asymmetry adds theoretical support to the perceived wisdom among antitrust officials that legal restrictions on RPM have little practical impact.

Section I's example adopts Telser's (1960) "special services" problem to show how a manufacturer can guarantee retailers' margins or finance their MTC guarantees to induce all outlets to adopt its "suggested" price. Section II elaborates and argues, as well, that the results generalize beyond the special services motive. The basic insight, in other words, addresses the mechanics of vertical price-fixing rather than the motives. Manufacturer-financed MTC guarantees, guaranteed margins, and RPM are all similar means to precisely the same end. Sections III and IV offer a discussion and conclusion.

I. AN EXAMPLE

Telser (1960) argues that RPM may arise if customers can procure point-of-sale services from one retailer that incurs the cost of providing them, but buy from discounters with low prices. In equilibrium full-service retailers exit. Telser concludes that RPM prevents discounters from free riding by shifting re-

tailers' focus from price to service competition. The example in this section illustrates the link between RPM, "wink and nod" RPM, guaranteed margins, and MTC guarantees in the context of a simple version of Telser's story. The next section argues that the basic intuition generalizes.

As shown in Table 1, a manufacturer sells its product at five shopping centers. These centers vary in size: q_i ($i=1, \dots, 5$) consumers at center i will pay up to 100 for one unit (all others will pay nothing), where $q_1=100$; $q_2=200$; $q_3=100$; and $q_4=50$. The only costs associated with manufacturing or marketing this product involve point-of-sale information. Ex ante the manufacturer must train sales personnel at a cost of 2500 per person, and ex post each person can then provide information (for simplicity, at zero marginal cost) to up to 50 customers who otherwise would not buy the product. To sell q_i units at outlet i , therefore, the manufacturer must train $q_i/50$ sales reps at a cost of 50 for each potential customer. The vertically integrated manufacturer earns 50 on each unit sold and $\Pi_m^* = 50 \sum_{i=1}^5 q_i = 37,500$ overall.

Next suppose this same manufacturer must instead sell through five independent retailers. Assume a perfectly elastic supply of retailers at each location. If each retailer i provides information and charges 100, then its gross profit is

$$(1) \quad \Pi_i^*(w) = (50-w)q_i,$$

where w is the wholesale price. At one extreme, for example, if $w=0$, then $\Pi_1 = \Pi_2 = \Pi_3 = 10,000$; $\Pi_4 = 5000$; and $\Pi_5 = 2500$. At the other, if $w=50$, then $\Pi_1 = \Pi_2 = \Pi_3 = \Pi_4 = \Pi_5 = 0$. The manufacturer can appropriate these profits by setting a franchise fee (ex ante) equal to these amounts, and thereby earn Π_m^* .

But suppose the manufacturer can neither dictate retailers' prices nor determine whether individual retailers train their personnel. Assume, as well,

that retailers cannot charge customers for information, and that ten percent of the consumers at each center would procure services "at home" and then travel to another outlet if that meant saving 20. Of course, a discount outlet could not simply lower its price to 80 and lure away ten percent of its rivals' customers, since these rivals would lower their own prices to 99.99 and very cheaply stem defections. Ex post each full-service retailer i would reduce its price as low as P_i^d to protect its customer base, where

$$[P_i^d - w]q_i = [100 - w](0.9)q_i.$$

The left-hand side is i 's net revenues if it charges P_i^d and retains all customers; the right-hand side is i 's net revenues if it charges 100 and concedes $(0.1)q_i$ customers to the discounter. Hence, P_i^d is the price such that i is just indifferent between responding to the discounts and acquiescing. Solving for P_i^d gives

$$(2) \quad P_i^d = P^d(w) = 90 + (w/10).$$

All retailers have the same threshold, and $\partial P^d / \partial w > 0$. At one extreme, if $w=0$, then $P^d=95$, and a discounter could charge no more than 75. At the other, if $w=50$, then $P^d=90$ and a discounter could charge no more than 70.

Suppose four retailers train their personnel and then charge 100. Would the fifth do likewise? If the fifth retailer i charges P^d-20 , it lures

$$D_i = (.10) \sum_{j \neq i} q_j$$

customers away from other outlets and earns profits of

$$(3) \quad \Pi_i^d(w) = [P^d - 20 - w]D_i + \delta [P^d - 70 - w]q_i,$$

where $\delta=1$ if i trains its personnel ex ante and $\delta=0$ if it does not. The first right-hand-side term is the net receipts from luring away rivals' custom-

ers, and the second is the net receipts on i 's home customer base. Since i has the option not to provide services, $\delta=1$ if and only if $[P^d-70-w] \geq 0$. Substituting from equation (2) gives a critical wholesale price, 18.18, above which a lone discounter i would not provide services.

With this in mind, suppose $w=0$ and compare columns 3 and 6 in Table 1. For the two smallest retailers $\Pi_i^d(0) > \Pi_i^*(0)$: either of these two outlets would find it profitable to discount its price to $P^d-20=70$ if the other four retailers charge 100. Intuitively, the smallest retailers have the most to gain from discounting and the least to lose — they can attract the most defectors and must offer the fewest number of discounts to their home customers. Moreover, it is a simple exercise to show that retailer $i=5$ would find it profitable to discount its price to 70 whether or not any other individual retailer also discounts to this price; and retailer $i=4$ only finds a price cut profitable if it is the lone discounter. As such, once all outlets train their sales personnel ex ante, there is exactly one Nash equilibrium to the subsequent price game: the smallest retailer charges $P^d-\epsilon=70-\epsilon$; the other four retailers charge 100; and the smallest retailer successfully lures away ten percent of its rivals' customers.⁹

Since $d\Pi_i^*/dw < d\Pi_i^d/dw$ for all five retailers and for all w , the manufacturer would only make matters worse by raising the wholesale price. This is graphically illustrated at the other extreme, where $w=50$. Columns 4 ($\Pi_i^*(50)$) and 6 ($\Pi_i^d(50)$) in Table 1 show that each of the five retailers would find it profitable to forego services (and hence abandon its customer base) and discount if the other four retailers provided services and charged P^d or more.

As Telser explains, the manufacturer ultimately bears the consequences of this problem, because its franchise fees of $\Pi_i^*(w)$ per outlet assumed that all

would charge 100 and provide services. Here only the discounter recoups this fee; all others incur losses and refuse to participate the next time around. And presumably many prospective full-service retailers may anticipate this outcome from the outset and refuse to participate in the first place.

Of course, the manufacturer may have strategic instruments other than the wholesale price. For example, it may hire independent retailers at the three largest centers but operate the two smaller outlets itself. With $w=0$, this solves the problem. But presumably there may be reasons, not captured in this example, why a manufacturer might be unwilling or unable to do this, and as the remainder of this section shows, it has less drastic measures available.

A. Resale Price Maintenance, "Wink and Nod" RPM, and Tacit Collusion

If the manufacturer could legally dictate a minimum resale price, it could set the minimum at 100 and penalize discounters $\Pi_i^*(w) - \Pi_i^d(w)$ or more. As long as it also charges $w \leq 50$, individual retailers would find it profitable to charge 100 and supply services, and the manufacturer would reap the benchmark profit, Π_m^* . If the law prohibits this, the manufacturer could try bribing retailers to adopt a "suggested" price of 100.¹⁰ If the law forecloses bribes, the manufacturer may try disguising them as cost-sharing arrangements designed to elicit services, gain wider product distribution, or defray retailers' overhead, training, or advertising. In either event, while penalties against discounters may be ruled out, rewards to non-discount outlets may not. This arbitrary distinction could provide all the maneuvering room manufacturers need to establish de facto RPM, enforced, perhaps, with "winks and nods."¹¹

And if the manufacturer finds these approaches legally foreclosed, it may turn to retailers, hoping tacit collusion might bring about the desired result. With $w=0$, for example, suppose retailer $i=5$ cuts its price to $p_i^d - t - \epsilon = 70 - \epsilon$,

where ϵ is an arbitrarily small positive number. While other retailers all prefer to charge 100 or $P^d - 90$ in response (by definition they are indifferent between them), all could lower their prices to $90 - \epsilon$ at virtually no cost and thereby stem defections. Only a small amount of cooperation (perhaps motivated by reputational considerations that might enter into repeated plays) is needed to deprive the smallest retailer of any of the returns from discounting to this level. Alternately, if any two of the four larger retailers commit ex ante to match the lowest price offered by their rivals, then no outlet, including the smallest, would profit from discounts.

But tacit collusion is clearly not as easy as this. First, while it is unlikely in any kind of dynamic version of this example that a price as high as $P^d - \epsilon = 70 - \epsilon$ would discourage other retailers from stemming defections, the two smallest retailers are willing to go much lower. With $w=0$, for example, the smallest retailer would be willing to charge as little as 35.50 if doing so lures away ten percent of all of its rivals' business. For the smallest retailers' rivals, stemming defections under these circumstances would prove quite costly. Furthermore, while MTC guarantees from two retailers would eliminate any profit from discounting, the smallest retailer would still find it profitable to discount if only one retailer extends the guarantees. As such, cooperation among the four larger retailers is crucial — if one extends MTC guarantees but is not joined by another outlet, then the smallest retailer proceeds with its discounts. The MTC guarantees then obligate the benefactor to discount, as well, with costly consequences. Suppose again, for example, that $w=0$. If the smallest retailer charges $70 - \epsilon$, a lone large retailer ($q_1 = 200$) extending MTC guarantees earns at most 5750 (versus 9000 sans guarantees); if the smallest retailer charges less than $70 - \epsilon$ (e.g., in a dy-

namic version of this example), or if either of the two other retailers lower their prices to $90-\epsilon$ to stem defections (some of whom would have gone to the retailer extending MTC guarantees), then the lone retailer extending the guarantees could see even more of its profits evaporate.

B. Guaranteed Retailer Margins

If RPM, "wink and nod" RPM, and tacit collusion are legally foreclosed or ineffective, at least two other options remain: guaranteed retailer margins and manufacturer-financed MTC guarantees. Begin with guaranteed margins.

Suppose the manufacturer announces 100 as its "suggested" resale price and commits to protect the margins of those retailers adopting it. Specifically, it promises each retailer i that if it charges 100 while some other retailer j charges $P_j < 80$, then i can lower its price to $P_j + 20$ while receiving a per unit transfer from the manufacturer of $80 - P_j$. This ensures i of a net price of 100. Its margin is guaranteed. But while the manufacturer guarantees margins for those victimized by discounting, assume also that it denies any obligation to outlets that initiate price cuts, perhaps with the rationalization that they do not deserve restitution because they voluntarily cut their prices and were not damaged by other outlets.¹²

Consider discounters' profits under this scheme. If retailer j unilaterally cuts its price to $P_j - P^d - 20$ or lower to attract defectors from rival outlets, others respond by charging $P_j + 20$ and stemming the defections — regardless of how low the discounter goes, the manufacturer's guarantees ensure that rivals will follow it down. This, in turn, renders discounting unprofitable. If the manufacturer sets its suggested price at 100 and guarantees the margins of retailers that adopt it, then all outlets charge 100 and provide services, the manufacturer makes no transfers, and it reaps Π_m^* .

Indeed it is implausible that guaranteed margins could ever arise except under scenarios like the one described here. If margins are guaranteed whether retailers initiate price cuts or merely respond to them, then all would charge an arbitrarily low price to maximize sales (and deter consumers from defecting to even lower priced outlets), and they would bankrupt the manufacturer. Thus, the manufacturer must not subsidize those who discount from the outset. At the same time guaranteed margins have no point unless retailers can respond to discounters with price cuts of their own. Retailers can guarantee their own margins by steadfastly refusing to charge less than 100 even when rivals do so. For this they do not need the manufacturer. But their margins do them little good if rivals steal their sales. For the guarantee to be worth something the margin must remain intact when retailers lower their prices to stem defections.

C. **Manufacturer-Financed Meet-the-Competition Provisions**

Economists have long known that under some circumstances retailers can independently offer MTC provisions to their customers and thereby collude tacitly on their own.¹³ But the literature also shows (and this example concurs) that such uncoordinated efforts may not succeed, and where they do succeed they may not restrict price competition as much as the manufacturer would like. In such circumstances the manufacturer's financial support could bring about the desired result: where retailers already employ MTC provisions to collude, the manufacturer's backing may reinforce their efforts (i.e., by generating a price above what retailers could establish on their own) and ensure that this collusion does not break down; and where retailers compete vigorously the manufacturer's financial support may boost them to a cooperative outcome.

To illustrate manufacturer-financed MTC guarantees, suppose the manufacturer pays for the MTC rebates retailers make up to but not exceeding $100 - P_j$

per unit, where j is the lowest-priced retailer. If $P_j < 100$, no retailer would find it profitable to extend MTC guarantees and then post a price below 100, because by raising its price to 100 it could increase its payments from the manufacturer without altering its sales or profits. And there would be no point in charging more than 100 since doing so alters neither the net price its customers pay (P_j) nor its compensation from the manufacturer. If any retailer charges less than 100 every other retailer charges 100.

Moreover, knowing that all other retailers will extend MTC guarantees, retailer j knows that its profits decline if it charges less than 100. In short, if all other retailers charge 100 and extend MTC guarantees to their customers, j will follow suit. This implies, in turn, that the manufacturer incurs no costs related to its backing of the MTC provisions and reaps Π_m^* .

II. A MORE GENERAL INTUITION

Although this example is highly stylized and narrowly focused on point-of-sale services, the intuition generalizes: where legal restrictions prevent the manufacturer from enforcing minimum resale prices, little may prevent it from hiring its retailers to enforce these minimum prices on its behalf — when one outlet discounts, the manufacturer pays other outlets to do the same, and in doing so it renders the initial discounts unprofitable. Nothing about this result is specific either to the example or to Telser's special services argument. Guaranteed retailer margins and MTC guarantees have little to do with why manufacturers fix prices and much to do with how they fix them. This paper deals with the mechanics of vertical price-fixing rather than the motives.

To illustrate, consider another example. Beginning in 1955, Texaco, Inc. began subsidizing the losses its dealers incurred during the frequent inter-brand price wars plaguing retail gasoline markets. Under this arrangement,

when a price war began Texaco absorbed 75% to 85% of the decline in price, and when dealers' margins became too thin it assumed all losses. The arrangement was widely copied by other oil companies and practiced for over a decade.¹⁴ Given the inter-brand competition, perhaps the most plausible motive for these margins was to reduce, if only for brief intervals, the intense price competition in this industry. Texaco and other oil companies may have hired their own dealers to provide discipline, paying them to respond aggressively to rival oil companies' discounts. Moreover, regardless of motive, it is difficult to fathom how Texaco or any other oil company would subsidize 75% or more of its dealers' price cuts, especially given the frequent breakdowns in discipline, unless they wielded considerable control over their dealers' pump prices.

This section offers a very simple model that generalizes the intuition of Section II's example so that it can encompass other settings such as this.

A. The Model

Consider a manufacturer that sells its product at I locations. Let P_i be retailer i 's price and P_{-i} the $(I-1)$ -vector of prices charged by its rivals. Let $\Pi_i = \Pi_i(P_i, P_{-i})$ denote i 's gross profits before subtracting its franchise fee, F_i ; and let $\Pi_m = \Pi_m(P_i, P_{-i})$ denote the manufacturer's profits before adding in franchise fees. Let S_i denote retailer i 's reservation surplus ($\Pi_i - F_i \geq S_i$) and let S_m denote the manufacturer's reservation surplus (if $\Pi_m + \sum_i F_i < S_m$, then the manufacturer shuts down).

Assume the following. First, aggregate manufacturer-retailer surplus is maximized when all retailers charge \bar{P} . Let $\bar{P}_{-i} = (\bar{P}, \dots, \bar{P})$, $\bar{\Pi}_i = \Pi_i(\bar{P}, \bar{P}_{-i})$, and $\bar{\Pi}_m = \Pi_m(\bar{P}, \bar{P}_{-i})$. Second, when $P_i = \bar{P}$ for all i , aggregate surplus is greater than or equal to the sum of reservation values: $[\bar{\Pi}_m - S_m] + \sum_i [\bar{\Pi}_i - S_i] \geq 0$. Hence, an appropriate choice of franchise fees allows the individual ra-

tionality constraint to be satisfied for all concerned. Third, holding each retailer's contractual commitments constant, all retailers prefer \bar{P} to any lower uniform price. Finally, holding each retailer's contractual commitments constant, at least one retailer would find it profitable — where it is allowed — to charge less than \bar{P} . Any retailer that maximizes its own profit by charging less than \bar{P} will be referred to as a discounter. Discounters rule out the possibility that \bar{P} would arise as the equilibrium price.

The notation and these assumptions are consistent with a variety of explanations for why manufacturers seek to fix resale prices. It is a simple exercise, for instance, to show that the special services example from Section I conforms. Moreover, Telser's (1960) "manufacturer cartel" hypothesis also fits this simple framework: with a perfectly elastic supply of retailers, manufacturers collectively would like to set the resale price at the monopoly level (\bar{P}), and then extract all of the associated rents by assessing franchise fees of $S_i - \bar{\Pi}_i$ on each outlet i . A retailer cartel facing competitive manufacturers would also like to set the resale price at the monopoly level, and then negotiate the franchise fees among its members such that they extract all the surplus except what is necessary to motivate the manufacturer to enforce the resale price. By focusing on changes in gross profits (before adding in franchise fees), this model can avoid the issue of how the surplus is divided.

Suppose that if all other outlets charge \bar{P} , discounter j would maximize its own profit by charging P_j^d , and let

$$(4) \quad \Delta_j^* = \Pi_j(P_j^d, \bar{P}_{-j}) - \bar{\Pi}_j > 0.$$

For $i \neq j$, j 's actions alter profits by

$$(2) \quad \Delta_i = \Pi_i(\bar{P}, \dots, \bar{P}, P_j^d, \bar{P}, \dots, \bar{P}) - \bar{\Pi}_i \leq 0.$$

The immediate change in the manufacturer's profits could be positive or negative, but the ultimate consequences are negative. Under the special services motive, full-service retailers will either cease providing services, demand lower franchise fees, or stop carrying the manufacturer's product. In any event, the manufacturer's profits will fall. Under the manufacturer cartel hypothesis, if one of its outlets discounts, the manufacturer may enjoy a short run increase in profits at the expense of other manufacturers, but in the long run the cartel may break down, causing profits to plummet. Under the retailer cartel hypothesis, if the manufacturer cannot discipline discounters, other retailers boycott its product. As such, regardless of the motive for fixing resale prices, the manufacturer has incentives to stop the discounting.

B. Resale Price Maintenance and "Wink and Nod" Resale Price Maintenance

If it were legal, the manufacturer could set a minimum price of \bar{P} and impose sanctions of $\Delta_j^* + \epsilon$ on any outlet j that discounts, where ϵ is any positive number. This effectively deters discounting. And if such overt measures are ruled out, the manufacturer could try charging retailers franchise fees of $F_i = \bar{\pi}_i + \Delta^*$ ($i=1, \dots, I$), where $\Delta^* = \text{Max}_j \Delta_j^*$, and then covertly reward every outlet that charges \bar{P} with a Δ^* rebate. The manufacturer never "punishes" discounters — it merely withholds their rewards! And the reward is large enough that no outlet forgoes it in favor of discounts.

B. Guaranteed Retailer Margins and Manufacturer-Financed MTC Provisions

Suppose the manufacturer promises each retailer i that if it charges \bar{P} while another retailer j charges $P_j < \bar{P}$, then i can lower its price to match while receiving a per unit transfer from the manufacturer of $\bar{P} - P_j$. This ensures i of a net price of \bar{P} . Its margin is guaranteed. But while the manufacturer guarantees margins for those victimized by discounting, assume, as before, that it denies any obligation to outlets initiating cuts.

Consider discount retailers' profits under this scheme. If retailer j unilaterally cuts its price to $P_j < \bar{P}$, then all other retailers follow suit (the manufacturer's guarantees ensure that it will be profitable to do so). But if all outlets charge $P_j < \bar{P}$, then by assumption j 's profits decline. If the manufacturer sets its suggested price at \bar{P} and guarantees the margins of retailers that adopt it, then in Nash equilibrium all retailers charge \bar{P} and provide services, and the manufacturer makes no transfers.

Alternately, suppose the manufacturer agrees to pay for the MTC rebates retailers make up to but not exceeding $\bar{P} - P_j$ per unit, where j is the lowest-priced retailer. Using the same logic as in the example, if $P_j < \bar{P}$, it follows that no retailer would find it profitable to extend MTC guarantees and then post a price below \bar{P} , because by raising its price to \bar{P} it could increase its payments from the manufacturer without altering its sales or profits. And there would be no point in charging more than \bar{P} since doing so alters neither the ultimate price its customers pay (P_j) nor the compensation it receives from the manufacturer. Hence, if any retailer charges less than \bar{P} every other retailer charges \bar{P} .

Moreover, knowing that all other retailers will extend MTC guarantees, retailer j knows that its profits decline if it charges less than \bar{P} . In

short, if all other retailers charge \bar{P} and extend MTC guarantees to their customers, j will follow suit. In equilibrium, therefore, all retailers charge the manufacturer's suggested price and the manufacturer incurs no costs related to its backing of the MTC provisions.

C. Ceteris Paribus Assumptions

To keep matters simple, the model suppresses all variables except resale prices. Perhaps most significantly, it ignores the cost of monitoring behavior and meting out the various penalties, transfers, and customer rebates — effectively holding all such costs constant at zero. Yet recognizing these costs would not necessarily give one means for fixing resale prices a decisive edge over the others under all circumstances. For example, while conventional RPM may have the lowest administrative costs, it has no means for dealing with transshipment to unauthorized dealers unless they can somehow be punished directly or cut off by the manufacturer. Where transshipment is an issue, MTC guarantees and guaranteed margins may be more effective because they provide an indirect means for punishing such discounters. Moreover, even where RPM does prove cheaper or more effective than the two alternatives outlined here, it may not be significantly cheaper or substantially more effective. As such manufacturer-financed MTC guarantees and guaranteed margins may work nearly as well — and they may be especially attractive when conventional RPM is foreclosed.

D. Scaling Back the Manufacturer's Support

In this simple framework minimum resale prices, manufacturer-financed MTC provisions, and guaranteed margins always yield the same equilibrium outcome: each retailer i charges \bar{P} , earns $\bar{\Pi}_i$, and is neither punished nor rewarded by the manufacturer. Yet the out-of-equilibrium payoffs may differ, since MTC provisions and guaranteed margins obligate the manufacturer to pay rebates rat-

her than extract penalties. If the manufacturer's efforts to control prices occasionally break down (as in the retail gasoline markets mentioned above), it may seek to modify its support to limit its potential liabilities.¹⁵

When the manufacturer finances all MTC-related rebates retailers are more than fully compensated for the damages imposed by discounters — they receive \bar{P} for each unit while enjoying the added profits that may come with higher sales. This raises the prospect that the manufacturer could scale back its support, perhaps by compensating retailers for just a fraction of the rebates they make. Moreover, where retailers' own efforts to collude are almost but not quite sufficient, or where they offer MTC guarantees but raise the price to some level below \bar{P} , they may require only a modest boost to charge \bar{P} . Again, the manufacturer may succeed by financing only a fraction of retailers' MTC-related rebates. Finally, the manufacturer might deter price cuts by backing only one or a few key retailers. The commitment these "enforcers" make to discipline discounters may suffice, and by supporting only a subset of outlets the manufacturer limits its exposure should discounting ever occur.

In the example from Section I, tacit collusion was tenuous because to deter retailer 1-5 from discounting, at least two of the other four retailers had to offer MTC guarantees. If one stepped forward with the guarantees but a second did not, then the one retailer offering them faced the prospect of enormous reductions in profits. But suppose the manufacturer finances even one "enforcer retailer." Once the other three retailers know that the manufacturer has backed this retailer, it is individually rational for them to extend the guarantees, as well, and discounting ends. All retailers charge 100.

Moreover, these "retailer enforcers" may assume the responsibility for disciplining discounters for a flat fee from the manufacturer. To illustrate,

suppose the hypothetical manufacturer of Section I is trying to introduce its product anew at the five shopping centers. To do so, it must somehow resolve the Telser free rider problem by finding some way to focus retailers' rivalry on services rather than prices. Otherwise, they will refuse either to carry the product or to provide services. So suppose that among the prospective outlets is a retailer with a longstanding reputation for adopting manufacturers' suggested prices and providing services, but a commitment, as well, to respond aggressively to rivals' discounts. Then if the manufacturer can persuade this one retailer to carry its product, other full-service retailers will follow suit (offering MTC guarantees of their own), knowing that this enforcer will deter discounters, and that rivalry will then focus on services.

Rather than reimburse this enforcer for every rebate it makes, the manufacturer could make a lump-sum payment each period and let the enforcer assume financial responsibility for the discounts. The enforcer would then earn a profit on its disciplinary services if it can keep its total rebates to less than the lump-sum fee from the manufacturer. And if it shirks on its disciplinary role, the manufacturer (and perhaps other manufacturers, as well) will withdraw future business.¹⁶ Note, too, that the lump-sum payment is crucial, since otherwise this enforcer retailer's posture might not be individually rational.

This hypothetical highlights some key differences between the tacit horizontal price-fixing modeled throughout the literature on MTC guarantees and the explicit vertical price-fixing described here. The extant literature begins by assuming that retailers extend MTC guarantees if and only if it is individually rational for them to do so. The expected increment to revenues, in other words, must exceed the expected costs on a retailer-by-retailer basis. This may explain why tacit collusion often has only modest success even under

the most ideal circumstances (duopoly sans entry) and why it enjoys much less success when the number of firms is large. Here, though, the manufacturer has a variety of means to loosen this individual rationality constraint: with higher franchise fees for all retailers followed by rebates to cooperative outlets it can directly redistribute payoffs among retailers; and with other lump-sum payments or rebate-contingent reimbursements it can assume some of retailers' costs of MTC guarantees. This may markedly enhance the viability of these provisions and explain how they could appear in multiple-outlet settings. Once again, the same reasoning applies to guaranteed margins.

III. THE DIFFICULT TASK CONFRONTING ANTITRUST OFFICIALS

Foreclosing RPM and "wink and nod" RPM does not end manufacturers' control over resale prices. Manufacturers can then turn to the still-legal practices of guaranteeing retailers' margins or supporting their MTC guarantees. Yet even if antitrust officials scrutinized these practices, they would have a most difficult time linking MTC provisions and guaranteed margins to vertical price-fixing. First, as with wink and nod RPM manufacturers could spread out their transfers to retailers over several periods and parcel them out under a variety of auspices. As such, officials would need as much skill in uncovering these practices as they are assumed to have if they can foreclose "wink and nod" RPM. Second, manufacturers have incentives, as discussed earlier, to keep their backing low. By financing the MTC guarantees of a single retailer, for example, a manufacturer may in some cases establish de facto RPM. Yet it would seem premature to conclude that minimum prices have been established every time one or more outlets meet the competition. Finally, where MTC provisions spring up, there may be no way to determine whether the guarantees were sponsored by manufacturers, established independently by retailers, or generated spontane-

ously. And where manufacturers have played no part in their introduction they cannot be charged with fixing prices.

This last point seems especially problematic. Section II argues that retailers with reputations as "enforcers" may assume responsibility for disciplining discounters for a flat fee from the manufacturer. Consequently, it may be impossible to prove an immediate link between enforcement services rendered and compensation received and to establish whether or not the manufacturer initiated the arrangement. A naive manufacturer may "fix" resale prices without even realizing it. It may know only that to introduce its product into its desired outlets, it must first convince an "enforcer retailer" to stock it; and to do this it must both pay the enforcer a premium and establish an acceptable suggested resale price. Likewise, the enforcer may not realize that its actions serve to fix resale prices. It may know only that with its reputation it can command generous allowances from manufacturers that more than cover any losses from its aggressive actions toward discounters. In short, price-fixing may arise spontaneously, and as such be impossible to document.

Unfortunately for economists, the very forces that stymie antitrust officials make it unlikely that we could ever compile systematic evidence that manufacturers barred from adopting RPM have turned to other means for pursuing the same ends. Nonetheless, conventional wisdom suggests that they may routinely do so. As mentioned previously, guaranteed margins provide direct evidence that manufacturers wield control over the prices their retail outlets charge, and these guarantees arise in many settings. Note, too, that the "enforcer" scenario described at various points here also arises spontaneously in other settings, including professional hockey (see note 16). And of course, anti-trust officials themselves believe manufacturers routinely fix resale prices.

Finally, in a development significant enough to warrant front-page coverage in The New York Times,¹⁷ Citibank in April of 1991 announced plans to guarantee people who shop with its credit cards that they will pay the lowest available prices for their purchases. Citibank, in other words, rebates the difference between the prices its clients pay and the lowest prices available. The guarantees have few restrictions¹⁸ and test-marketing in California indicated that they increased charge card volume by five percent and imposed only minimal costs on the bank. Citibank's low cost could simply reflect vigorous retail competition manifesting itself in uniform but low prices. Yet the program is still suggestive. If Citibank can finance a blanket program covering thousands of goods, even though it wields absolutely no control over their output, distribution, or resale prices, then it seems plausible that individual manufacturers could finance MTC guarantees limited to their own narrow product lines.

IV. CONCLUSIONS

This paper demonstrates how manufacturers barred by law from setting minimum resale prices by sanctioning discount retailers can reach the same outcome by rewarding non-discount retailers instead. The paper highlights important links between resale price maintenance, MTC provisions, and guaranteed margins. Others have shown how retailers in some settings can independently offer MTC provisions to their customers to collude tacitly, but this is the first work to show how manufacturers can coordinate these efforts, and it shows the similarity between these manufacturer-financed MTC provisions and guaranteed margins.

These links illustrate an important asymmetry in antitrust policy: resale price maintenance is per se illegal, but MTC provisions and guaranteed margins have gone essentially unchallenged. Of course, the practices are not identi-

cal and the appearance of MTC provisions does not necessarily indicate an effort by the manufacturer to fix prices, but the asymmetry suggests that restrictions on RPM that are limited only to explicit price-fixing may have little practical impact. The testimony of many of those most closely involved in antitrust enforcement corroborates this conclusion.

Since manufacturer-financed MTC guarantees generate de facto resale price maintenance, any explanation for minimum resale prices could also explain MTC guarantees and vice versa. This is important because there is a rich but heretofore unconnected literature on both practices. Ironically, though MTC guarantees have never been successfully challenged by antitrust officials, the extant literature offers many anticompetitive explanations for them and lacks a strong pro-competitive argument.¹⁹ This paper shows that a variety of pro-competitive cases can be made, including Telser's special services argument.

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ENDNOTES

¹While an exhaustive bibliography would not be feasible in so short a space, recent articles include Blair and Kaserman (1983), Comaner (1985), Comaner and Kirkwood (1985), Gilligan (1986), Goldberg (1982), Klein and Murphy (1988), Marvel and McCafferty (1985), Marvel (1982), Mathewson and Winter (1984), Ornstein and Hanssens (1987), Ornstein (1985), Overstreet (1983), Rey and Tirole (1986), and White (1985).

²Lester Telser (1960) addresses this question in the context of his "special services" model. He proposes the following substitutes: retailers could sell their services separately; the manufacturer could reward full service retailers with a lower wholesale price; the manufacturer could reimburse retailers directly for the services they provide; or the manufacturer could cut off retailers who do not provide services. But he then outlines drawbacks for each option (revolving around monitoring problems and resale between retailers) and concludes that in many cases there are few practical substitutes for RPM. Bork (1978) and others have argued more generally that if manufacturers cannot legally impose vertical restraints, they may integrate forward to develop their own retail outlets. Yet this approach may often prove too costly, especially for small manufacturers with narrow product lines. In short, the literature has no practical answer to the question raised here.

³See Barrett, Paul, "Anti-Discount Policies of Manufacturers are Penalizing Certain Cut-Price Stores," Wall Street Journal, p. B1, February 27, 1991.

⁴Letter to the Editor, New York Times, April 18, 1991.

⁵Timmons, Karen, "Advocates Say Price Fixing Could Save Consumers Billions," United Press International, May 5, 1991.

⁶Barrett, p.B1.

⁷See Abrams, New York Times, April 18, 1991.

⁸See, for example, Frederic Scherer (1980), David Grether and Charles Plott (1981), Charles Hult and David Scheffman (1985), Stephen Salop (1986), Thomas Cooper (1986), and Butz (1990).

⁹In this example services are arranged ex ante and prices are set ex post, but this is for expositional convenience only. Since services are unobservable ex post, it would change nothing if services and prices were instead chosen simultaneously.

¹⁰The persuasive power of bribes is well-known in the literature. As Telser (1960) suggests, for example, full-service/full-price retailers can be offered lower wholesale prices than discounters.

¹¹Telser (1960) makes a similar suggestion. Suppose a manufacturer that charges a uniform wholesale price of \$1 per unit seeks to punish discounters by raising their price to \$3. If legal restrictions prevent it from doing so, Telser suggests what, in effect, amounts to charging a uniform price of \$3 and offering a \$2 discount to those adopting the suggested price. And the manufacturer can justify the discount under the guise of compensation for point-of-sale services. The difference between the two approaches is purely semantic, yet one is legal while the other is not.

¹²The manufacturer should often have little difficulty determining which outlet has discounted. First of all, only the discounter charges a price 20 below the other outlets. Second, to attract customers to its outlet, the discounter must post its price prominently so as to inform customers who would otherwise shop elsewhere. Non-discount outlets, in contrast, can post a price of 100, and then lower their in-store prices as necessary when consumers arrive to procure point-of-sale services.

¹³See footnote 1.

¹⁴See "Are Price Wars at an End?", Business Week, May 29, 1965, p. 138.

¹⁵See Green and Porter (1984) for an example of collusive behavior that exhibits occasional breakdowns.

¹⁶Consider a professional hockey analogy. In addition to written rules, this sport (like many others) has an unwritten code of conduct designed to keep competition within certain bounds, and thereby limit injuries. For example, less aggression is allowed against a team's star player(s) and goalie; and more is permitted against bigger players with reputations of their own for aggressive play. But what prevents opportunistic players or teams from breaking the code and enjoying a competitive advantage? How is this code administered? By players who enforce it with variations on a tit-for-tat strategy that closely resembles the MTC guarantees described in this paper. Significantly, though these enforcers are compensated for their role, they do not get paid for each retaliatory blow they mete out (or incur), and they are never reimbursed directly for league-imposed fines. In other words, there would be no way for any outsider to link pay and immediate performance. And enforcers rarely, if ever, receive explicit instructions ex ante or immediate rewards ex post (at least, not from management or coaches). The arrangement arises spontaneously. Enforcers simply know what to do, and they command high salaries ex ante (relative to their underlying hockey skills) and are discouraged from shirking by ex post settling up in the labor market for enforcers. Despite frequent charges that owners encourage violence to sell more tickets (violence also sells baseball tickets, and yet we see less fighting there because the risks of injury from unacceptable competition are lower), enforcers reduce aggregate violence.

¹⁷"Credit Card Users Promised Lowest Price on Goods," The New York Times, April 1, 1991, page A1.

¹⁸They do not cover "going-out-of-business," "limited quantity," "cash only," or "close-out" sales and for obvious reasons do not apply to such heterogeneous goods as restaurant meals and airplane tickets. They extend for

sixty days.

¹⁹See footnote 1. The few pro-competitive arguments for these guarantees include Butz (1986), Mulherin (1986), Kimenyi (1986), and Smith (1981) who argue that the provisions preclude discrimination (since all who receive these guarantees must be treated equally) and adjust contracts in accord with the market conditions reflected in subsequent contracts. In doing so, they lower transactions costs, discourage opportunism, and provide a flexible and effective means for adjusting contract prices over time. However, none of these arguments applies directly to the case of retail trade.

<u>Retailer</u>	<u>q_i</u>	<u>$\Pi_i^*(0)$</u>	<u>$\Pi_i^*(50)$</u>	<u>D_i</u>	<u>$\Pi_i^d(0)$</u>	<u>$\Pi_i^d(50)$</u>
1	200	10,000	0	55	7850	1375
2	200	10,000	0	55	7850	1375
3	200	10,000	0	55	7850	1375
4	100	5,000	0	65	6550	1625
5	50	2,500	0	70	5900	1750

Table 1