

Flawed Economic Models have Misled RPM Policy in the US, Canada and the EU

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This Draft: July 8, 2013

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JEL classification: L42

Keywords: Resale Price Maintenance, Welfare Effects, Antitrust

1. INTRODUCTION

Retail price maintenance (RPM) occurs when an upstream firm, a manufacturer with monopoly power, sets a minimum price below which downstream competitive retailers are not permitted to make sales. In the economics literature some RPM practices have been objected to from a competition policy point of view when they are instruments to enable or facilitate collusion or to foreclose competition. There is little - if any - disagreement on this point. However, in another branch of the literature, with the

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exception of a few authors, RPM not associated with collusion or foreclosure is portrayed as enhancing consumer welfare. We claim that this result is based on a false premise and show, in contrast, that the introduction of RPM can reduce consumer surplus.

We show further that even those few authors who pointed out that RPM can reduce consumer surplus in fact underestimate the consumer welfare loss. We conclude that RPM that induces sterile services - i.e. services that do not modify the value in use of a product - can reduce consumer welfare by potentially far more than has been recognized in the economic and legal literature. Importantly, although in equilibrium RPM must increase profits¹, or it would not be instituted, this effect may be more than offset by consumer surplus loss so that RPM may reduce total welfare as well.

Many economics authors have touted the potentially beneficial consequences of RPM practices. In the legal context, since the 2007 U.S. Supreme Court decision in *Leegin*,² ruling that vertical agreements to fix minimum prices are no longer a *per se* violation of section of the Sherman Act, there has been a renewed interest in the topic. In Canada, the *Competition Act* was amended in 2009 so that RPM is no longer a criminal violation *per se*. Now it may be a civil violation depending on the circumstances, according to a *rule of reason* approach. Even in Europe it appears that there may be the potential for softening of the policy towards RPM.³ It is our concern that this current apparent leniency towards RPM stretches too far. In light of our discussion, it is advisable that competition authorities remain vigilant against potentially harmful RPM practices.

Our argument develops around the “services”⁴ arguments made famous by Telser (1960). In particular, we focus on the presales services that inform consumers about the

true value of a product pre-purchase. We argue that pre-sales informative sales service has little social value and should not be considered to be procompetitive in the way many economists have modeled them and the Court interpreted them in *Leegin*.

RPM is not profitable for all products, its potential profitability is for those products for which, in the absence of informative pre-sale services, consumers' initial valuations are low. In this context "low" could mean a low expected value or, given an expected value, low expected utility if variance/uncertainty is high. So we look at products for which in the absence of informative pre-sales services consumer valuations are low in comparison to the value they would realize from the actual use of the product were they to purchase it.

More generally, products can be overvalued, correctly valued, slightly under valued or significantly undervalued. But it is only this last category, apriori significantly undervalued, for which firms would consider initiating RPM so it is only products of this nature which we will model.⁵

To model profitable RPM we will assume that consumer initial valuations are low but that when retailers offer pre-sale services *expected valuations* increase but their *actual valuations* in use remain unaltered. We shall call this type of service sterile pre-sale services. As a consequence, the RPM equilibrium price and quantity are higher while consumer surplus is reduced as the infra-marginal consumers – those consumers who would buy the product even without the services – end up paying more without any gain in their actual in-use value of the product.

A different rationale for RPM may explain why manufacturers of luxury goods impose RPM on retailers. It is possible that some consumers value luxury goods at high prices as a sign of social status. In addition to the utility of the product from its functionality, these consumers may derive great satisfaction from showing off their highly priced products, characterizing a form of snob effect⁶ (one could think of jewellery as an example of the sort). In *Leegin*, the manufacturer of luxury leather products sought to profit from the snob effect of its products through the imposition of RPM. Our concern is that the U.S. Supreme Court's leniency towards RPM motivated by the snob effect rationale be extended towards RPM motivated by the sterile pre-sale services rationale.

If a manufacturer institutes RPM to induce demand stimulating but sterile pre-sales services, one presumes it believes profits will be higher with these services. By setting a wider margin⁷ (as compared to the margin without RPM), the manufacturer prompts retailers to provide the services as the RPM price covers the service's costs. Assuming perfect competition among retailers and constant returns to scale (in both sales and services), retailers are indifferent between offering services with RPM and not offering services without RPM. When RPM is desired by a manufacturer it is because RPM is perceived by the manufacturer as a profitable scheme because those services stimulate demand so that the RPM outcome is greater demanded quantity at a higher price.

We expose flaws in some economic literature that has had pivotal impact on policy and court decisions. In the U.S., for instance, in the Brief of Petitioner in *Leegin*,

the Court Of Appeals For The Fifth Circuit cited prominent authors. We challenge some of these authors' arguments (in particular, Bork (1978) and Posner (1976)).

There have been effects of the pro-RPM wave outside the U.S., as well. In Europe, while the overall approach to RPM remains more restrictive than the approach determined by the U.S. Supreme Court for RPM, the 2010 European Guidelines on Vertical Restraints opens up a possibility of an efficiency defense that is equally flawed.

In light of our findings, a self-contained, freestanding (independent of the core competitive violations: collusion, exclusion, foreclosure, or abuse of dominance) treatment of RPM in competition statutes is a sensible attitude. Furthermore, based on our results, per se illegality - or at a minimum a presumption of illegality - of RPM *that solely induces presale services* is advised in countries where competition enforcement hinges on a consumer surplus standard. In total welfare jurisdictions competition authorities should remain skeptical about the weight of any presales services justification for RPM as a claim that it is an efficiency improving strategy.

We proceed as follows. Section 2 inserts the reader into the historic and legal context of RPM. In Section 3, we briefly review some related literature. The graphical analysis of Section 4 is an intuitive explanation of our conceptual discussion that exposes the flaw in the influential literature in *Leegin*. We move towards deepening the analysis by presenting a numerical example in Section 5 with endogenous wholesale prices (the literature relied on in *Leegin* is based on an unrealistic assumption that wholesale prices are exogenous, unchanged when demand is stimulated by RPM). Section 6 graphically displays the correctly measured welfare redistribution due to the introduction of RPM in

a richer framework with endogenous prices. In Section 7 we discuss implications of our analysis in terms of legal treatment depending on the welfare standard of a jurisdiction. Section 8 concludes the paper.

2. HISTORIC AND LEGAL CONTEXT

In this Section we briefly describe the evolution of the legal treatment of RPM in Canada, the United States and Europe.

In Canada, the *per se* illegality of resale price maintenance was first introduced in the predecessor legislation to the Competition Act in 1951.⁸ The original provisions generally prohibited any attempt to directly or indirectly induce a supplier to sell a product at a minimum price or mark-up. Since then the applicable section has been periodically amended. In 1960,⁹ certain statutory defenses were added. In 1976,¹⁰ the offense was broadened to apply to horizontal price maintenance,¹¹ to cover all services (not only articles) and to cover attempted price maintenance. Following the 1976 amendments, there was an increase¹² in formal enforcement proceedings, about nine cases a year between 1976 and 1990,¹³ following which enforcement began to decline. By 1990 the Canadian Competition Bureau had decided to assign a lower priority¹⁴ to RPM enforcement in order to pursue other matters believed to cause greater economic harm.

Canada's *per se* price maintenance criminal offense was repealed in March 2009 as part of a major overhaul of the Competition Act.¹⁵ It was replaced¹⁶ with a *rule of reason* approach, which translated into a more narrowly defined non-criminal RPM

provision that includes a competitive effects test. The current legal framework effectively allows suppliers to set resale prices in Canada unless and until prohibited by the specialized Competition Tribunal.

In Europe, competition policy used to be country-specific and the treatment of RPM varied across countries accordingly. A continental competition policy developed after the formation of the European Union. The Treaty of the Functioning of the European Union has portrayed RPM as a restriction of competition,¹⁷ with virtually no scope for meeting the strict conditions for exemption, so that, in practice, RPM has been considered to be a *per se* violation of EU competition rules. It appears, however, that there may be the potential for some softening of the European Commission's policy towards RPM, as materialized in the 2010 Guidelines on Vertical Restraints¹⁸, possibly as an aftershock of the arguments in *Leegin*¹⁹ that we contend are flawed. Under this new approach, RPM is not necessarily *per se* illegal. It continues to be presumed to be an illegal restriction of competition and unlikely to fulfill the conditions for exemption.²⁰ Under the EU Guidelines the Commission makes the presumption rebuttable, leaving open the possibility for firms to assert an efficiency defense.²¹ In broad terms, we concur with the European presumption of illegality.

The Guidelines suggests that the European Commission is inclined to accept an efficiency defense when a manufacturer introduces a new product. Following a line of reasoning similar to Telser (1960), the Guidelines concedes that RPM may be helpful during an introductory period of low demand. The Guidelines concludes - as do Bork (1978) and Posner (1976) – that when a manufacturer introduces a new product, “RPM

may provide the distributors with the means to increase sales efforts and if the distributors in this market are under competitive pressure this may induce them to expand overall demand for the product and make the launch of the product a success, also *for the benefit of consumers.*”²² (Italics added). Our results are contrary to this conclusion, i.e., we show that when consumers undervalue *a priori* (without services) a product - as may be the case with new products - the adoption of RPM to provide information services to consumers generally reduces consumer surplus. It can even reduce total welfare.

In the United States, RPM’s legal treatment has followed a “nonlinear” path over time due to the interaction between Federal and State legislation and Supreme Court decisions, which have not been perfectly aligned all of the time. RPM was considered illegal *per se* following the 1911 U.S. Supreme Court decision in the *Dr. Miles* case.²³ However, in the 1930s, most States enacted laws that permitted the practice. By 1937, 42 of at that time 48 States had done so.²⁴

In 1937 the U.S. Congress amended Section 1 of the Sherman Act²⁵ with the intention to remove federal antitrust obstacles to RPM contracts sanctioned by the States.²⁶ At some point RPM was legal in all but three States and the District of Columbia.²⁷ Later, in 1975 Congress overrode the ability of States to permit fair trade/RPM.²⁸ Therefore, from the 1930s to 1975, RPM was not only legal, but enforceable by the governments of the states in the U.S. Moreover, with non-signer clauses,²⁹ RPM could be imposed even over the objections of the manufacturer. Essentially think about a chain like Sears. It would buy directly from manufacturers. Ma and Pa operations would need to use wholesalers, which would accumulate orders and

then send out efficient truck routes to drop at multiple stores. Under non-signers clauses these wholesalers could impose retail prices on the direct purchasers even over the manufactures' objections.

In a 1980 decision,³⁰ the U.S. Supreme court upheld the 1911 *Dr. Miles* jurisprudence, reaffirming the *per se* illegality of RPM in the United States, so it was not possible to claim offsetting efficiencies as a defense. However, in 2007, the Supreme Court reversed itself in *Leegin* and ruled that possible efficiency benefits of RPM must be taken into account in the analysis of RPM on a case-by-case basis, thereby bringing RPM under a “rule of reason.” Under that approach, potential anticompetitive effects are balanced against potential efficiency benefits. In another strong swing of the RPM pendulum, in March 2010, the U.S. Senate Judiciary Committee³¹ voted to pass legislation to counteract the effects of *Leegin*. A little earlier, in January 2010, the U.S. House Judiciary Committee had passed similar legislation.³² Currently this proposed legislation under the title Discount Pricing Consumer Protection Act awaits Congressional action.³³

3. RELATED LITERATURE

Telser (1960) - in an attempt to solve what, at the time, he called “a long-standing puzzle to economists” offered some potential explanations for why some manufacturers may impose RPM on distributors. It seemed counter intuitive that the manufacturers would set a floor to the resale price, thus limiting their sales. Telser noticed that retailer services could stimulate the demand for a product so that both price and quantity could be higher. However, because this outcome could be desirable for the manufacturer, but not

necessarily for the retailers (the retailers assume the cost of providing the services), RPM may be a feature that induces retailers to abide by the manufacturer's terms, especially when free-riding³⁴ on the services is a relevant issue. He indicated that RPM would most benefit new products that consumers do not know about yet.³⁵

Telser's paper is silent about the effect RPM might have on consumer surplus in this context. In summary, Telser gives several reasons for fair trade, but he focuses on the reason for manufacturers wanting it. Comanor (1985) noted that what Telser's analysis "does not do, nor claim to do, is answer the question whether dealers' provision of additional services is efficient – that is, whether the additional services justify the higher price charged for the product."

The implications of vertical restraints more generally for economic efficiency are the object of Bork (1966). He contends that restrictions on output are anticompetitive, and increases in output are procompetitive. Therefore, he concludes, all restraints imposed by manufacturers must be efficiency enhancing and procompetitive. We call his conclusion the Bork proposition. He explains that manufacturers would not find it profitable to impose vertical restraints when consumers did not value the services at least as much as their incremental cost. Posner (1976, p. 150) validates Bork's reasoning by revealing that he thinks that "It is difficult (...) to understand how giving the consumer presale services that he must want is a form of monopolizing in some invidious sense." We shall detail Bork's reasoning and one of its flaws in Section 4.

Comanor (1985) and Scherer (1983), using all but one of Bork's assumptions, came to a different conclusion. If some infra marginal consumers – those who buy the

product even without services - value services at V_i and marginal consumers – those who do not buy the product in the absence of services but buy it if services are provided - value services at V_m and $V_i < V_m$, then when manufacturers gain and provide RPM one *may* have a decrease in consumer surplus and total welfare as well. Thus, Comanor says, “there is no basis on which to conclude that vertical restraints will *always* enhance economic efficiency” (emphasis added, p. 998). Nonetheless Bork’s and Telser’s analyses became the conventional economic wisdom on vertical restraints at their time and their impact ripples still today, despite their shortcomings. Bork and Posner echo, for instance, in Motta (2006). In discussing RPM and other vertical restraints more generally, Motta sums up that they “... avoid or reduce the free-riding problem to the benefit of both producer and consumer surplus” (p. 315). And crucially, Bork and Posner shape the Brief of Petitioner in *Leegin*, the Court Of Appeals For The Fifth Circuit.

Following Bagwell’s (2007) taxonomy for advertising, our work is related to traditional informative views of advertising in as much as it is one channel through which information about the true value in use of a good may be communicated to consumers. In this context, using insights of Dixit and Norman (1978), we expose the welfare measures used in these conventional models of RPM. Dixit and Norman evaluate the welfare impact of advertising. They conclude that monopoly advertising is socially excessive, even when one adopts the post-advertising tastes as the welfare standard. We neither endorse nor rebuff their main conclusion here. The point of their analysis that is directly relevant to our paper is the reference or standard against which changes in tastes or valuations ought to be measured. They appropriately emphasize: “Whichever standard is

chosen, one wants to measure the effect of a change in output as judged by that standard, and not the effect of altering the standard on the value of a given level of output.”

In the context of our discussion, there are three candidate standards: (i) the consumers’ expected utility when they do not receive or use the presales services; (ii) their expected utility after they receive those services, but before they use the product; and (iii) their actual utility as they use the product. Dixit & Norman (1978) also instruct us to seek the standard that most accurately and precisely captures “the consumer’s true interests” (p. 4). Accordingly, with all this in mind, we adopt the most natural standard and measure changes in consumer surplus from the consumers' utility derived from actually using the product.

Now consider the type of service. If the service raises the value of the product in use, we have one model. Alternatively in our model we look at the service of presale information as something which raises consumers' prepurchase assessments of the value of the product in use. But if this is all the service does, provide that information, inframarginal consumers would not experience an increase in their utility of using the product but would face a higher price with RPM. Their value in use consumer surplus comes from the post service demand curve regardless of whether there is RPM or receipt of services. When the post service demand curve measures the value in use consumer surplus, Dixit & Norman (1978) teach us, consumer surplus before RPM should be measured as the area between the post service demand and the no service price for all who purchase the product without RPM.³⁶

Even though correctly criticizing the Bork proposition, Comanor (1985) and Scherer (1983) apply what Dixit and Norman reveal to be a double standard in their measurement of consumer surplus change, just as Bork did. Comanor's figure 2 (p. 996) clearly reveals his double standard approach. If Comanor had followed Dixit & Norman, his figure would suggest some consumer harm as opposed to his conclusion in the third line in p. 997 where he says that in that particular example "Consumers are better off." So Comanor, using his measurement of consumer surplus, recognizes that although consumers would be worse off under some demand specifications, they can be better off under others. What we show is that the standards he used lack the power to uncover harmful cases. In other words, in reality consumers can be made worse off for a much broader family of demand specifications than he recognized. Comanor could have gotten his legitimate point across with less analytical effort than he employed in criticizing Bork.

Scherer's first and second lines in p. 698 identify the area between the original demand and the post-services demand and above the post-service equilibrium price as "a pure increase in consumer surplus." This also employs what Dixit and Norman note is a double standard, the same double standard used by Comanor, Bork and Posner. Before RPM, consumer surplus is measured as the area of the triangle under the original demand curve and above the original price line. After RPM, it is measured as the area of the triangle made up of the new demand curve, the new price and the vertical axis. Both Scherer and Comanor show that using Bork and Posner's reasoning that consumer surplus (of inframarginal buyers) *may* fall with RPM, but what our analysis shows is that consumer surplus of inframarginal consumers *will* uniquely fall with RPM using the true

standard of product value in use. All in all, our results are in line with Scherer, Steiner and Comanor (2005) who state “It is quite possible to have increased output as a result of RPM and at the same time reduced consumer welfare.” But our argument suggests a much greater loss in consumer surplus than these authors’ analyses would suggest. Da Graça and Masson (2012) present an economic model that formally computes the single standard welfare changes.

Beyond the “plain services” arguments of Bork and Posner and (in contrast) Comanor and Scherer, others have addressed different aspects of RPM, Mathewson and Winter (1998) and Elzinga and Mills (2007) describe commonly known hard core anti-competitive explanations for RPM (e.g. exclusion and foreclosure). Asker and Bar-Isaac (2011) present a model of competitive harm that arises from the exclusion of a more efficient entrant through using RPM. Jullien and Rey (2007) formalize the use of RPM as a tool to monitor and enforce an up-stream cartel agreement. But Kleit (1993) concludes that it seems unlikely that the primary motivation for RPM is cartel facilitation. Our paper abstains from the discussion of whether or not RPM facilitates cartelization, as it does not require collusion (or exclusion for that matter) to generate negative welfare results.

Some less legally contentious explanations for RPM have been offered, as well. For example, Klein and Murphy (1988) examine manufacturer desired retail services when retailer monitoring is costly. In a model where there is no role for demand stimulating services O’Brien and Shaffer (1992) show that vertical contracting without vertical restraints may not be sufficient to maximize joint profits. Deneckere *et al.* (1996)

examine RPM as influencing manufacturer desired retailer inventory behavior under demand uncertainty. Rey and Vergé (2010) capture strategic interactions among manufacturers and retailers through a combination of RPM and a two-part tariff at the wholesale level. These papers are important exceptions to the vast majority of the RPM literature, ours included, that focuses upon Telser's "free riding on services" insights.

4. A SIMPLIFIED GRAPHICAL ARGUMENT

In this section we present our points in a traditional microeconomics framework where we make use of demand curves to characterize the concepts of interest. Recall that Bork (1966), Posner (1976), Comanor (1985) and Scherer (1983) all seem to apply the same double standard approach to their analyses. Yet orthogonal conclusions emerge. A little intuition helps understanding the source of their divergence. Bork and Posner contend that output increasing RPM is welfare enhancing and that RPM will only be imposed by a manufacturer if it creates an increase in output. Let us see where this comes from.

At this stage we do not speculate about the type of service, informing consumers of "value" or maybe provision of a local service department for repairs. Following the Bork proposition, however, suppose that "services" raise demand for a product and this is represented by a *parallel shift* in demand as in Figure 1 where wholesale price is unaltered. Initially consider the benchmark and simplest case where *both* firms and consumers are indifferent between having, or not having, RPM.

Absent RPM Bork, Posner, Comanor and Scherer all assume that there are no other costs for retailers other than the wholesale price, so without RPM the retail price p_0

equals the wholesale price, w_0 , i.e., $p_0 = w_0$. Also, following these authors, we model the manufacturer as having constant returns to scale, a horizontal marginal cost curve, mc , which is also equal to its average costs.

Initially, before RPM, demand is D_0 and the quantity sold is q_0 . Next suppose that the manufacturer imposes a retail price of $p_{rpm} > p_0 = w_0$. In this section, for simplicity we consider w_0 to be unaltered by the RPM (that is $w_{rpm} = w_0$). This again is the assumption that was employed by each of Bork, Posner, Comanor and Scherer. Later we shall consider a different wholesale price, w_{rpm} , when RPM is introduced, i.e., an endogenous wholesale price, w_{rpm} .

Again, following this earlier literature, in competitive retailing all of the RPM induced differential of $(p_{rpm} - w_0)$ is eroded in costs of providing service, as each retailer tries to make more sales by providing customer service and this leads to the competitive (constant returns to scale) zero profit condition following standard ideas of competition and of rent seeking behavior.³⁷

Let us carefully examine this benchmark case. Suppose the demand shift to D' is *parallel* to D_0 and has exactly the same vertical axis shift as the difference $(p_{rpm} - w_0)$. The standard interpretation of this benchmark case is that the service *value* to consumers equal to their costs $(p_{rpm} - w_0)$. By construction using D' there is no change in quantity, q remains at q_0 . Consequently, if one *inappropriately* - as we shall discuss - defines consumer surplus as the area above price and below demand, consumer surplus becomes $A+C$. Before RPM, however, consumer surplus was $A+B$. Importantly the triangles $A+C$ and $A+B$ are congruent.³⁸ Hence the change in consumer surplus is zero. It is immediate to see that the producer surplus in both cases is $(w_0 - mc) q_0$, or rectangle H , so $\Delta\pi=0$.

Now consider the situation in which p_{rpm} and w_0 remain constant as illustrated in Figure 1, but suppose that the parallel demand shift, ΔD , were less than $(p_{rpm} - w_0)$. The quantity of the good sold would then be some q_{aux} less than q_0 . Note q_{aux} is not illustrated in Figure 1 because it is “uninteresting” as we show next. q_{aux} is simply an auxiliary reference.

If the demand shift is less than what would retain q_0 and the manufacturer were to put in RPM, consumer surplus as measured by Bork, Posner, Comanor and Scherer would go down. Retail profit would still be zero which means that the cost of service would be $(p_{rpm} - w_0) q_{aux}$. The manufacturer’s profit though would be $(w_0 - mc) q_{aux}$, which is less than $(w_0 - mc) q_0$, the no-service profit. So because the manufacturer would earn lower profits with RPM, it would not implement RPM to begin with. So RPM would not be implemented if the effect would be a smaller parallel demand shift.

Next consider the situation in which demand increases by more than $(p_{rpm} - w_0)$, so that there is a parallel demand shift from D_0 to D'' instead. Again, to simplify, we assume that both the RPM price, p_{rpm} , and the wholesale price, w_0 , are unaltered, as illustrated in Figure 1. Using the Bork, Posner, Comanor and Scherer measures consumer surplus is $A+B$ before RPM and it becomes $A+C+G+E$ under RPM. Note that $A+C$ and $A+B$ are congruent triangles. This implies that $B=C$, so $A+C+G+E$ can be written as $A+B+G+E$. Hence, the change in CS is equal to $(A+B+G+E)-(A+B) = G+E > 0$.

Profit used to be $(w_0 - mc) q_0$, area H as illustrated. With RPM there is a quantity increase to $q_1 > q_0$. After RPM it is $(w_0 - mc) q_1$, or area $H+I$ so $\Delta\pi = I > 0$, i.e., RPM increases profits.

Suppose that we accept the basic assumption used by Bork, Posner, Comanor and Scherer that consumer surplus is the difference between demand and price both before and after RPM. Then this would be the correct way to analyze welfare effects, if RPM is profitable and demand shifts are parallel, then both consumer and producer surplus increase with RPM. This is the Bork proposition.

Let us ponder a little longer on the source or causes of the demand shift. Think of a new generation computer. High value demanders may be the ones that possess or seek to acquire on their own information about it so that their undervaluation of the product in the absence of presales services may be less than $(p_{rpm} - w_0)$. This means that the demand curve might shift in a nonparallel fashion. As noted by Comanor and Scherer, the vertical shift for higher demand buyers *might be* lower than the vertical shift for low demand price buyers. If so, say Comanor and Scherer, consumer surplus is less likely to increase under RPM.

The Bork Proposition - as we illustrate it in figure 1 - is based on every consumer getting the same value V from service, a parallel demand shift. If infra marginal consumers (those who would buy regardless of whether they received the service) place a value on service of V_i where $V_i < V_m$, where V_m is the value of service to the marginal consumers, then Comanor (1985) and Scherer (1983) demonstrate that the Bork Proposition fails, even with his, Bork's own, definition of consumer surplus as demand minus price (which we contend is inappropriate, given the insights of Dixit and Norman (1978)).

This is Scherer's and Comanor's point. They note that the quantity shift and the increase in profits would lead to RPM when demand shifts out by V_m for the marginal

customers even if demand goes up by a lesser value of V_i , $V_i < V_m$ for inframarginal consumers.³⁹ So again, using the double standard welfare measure we contend is wrong, they show that consumer surplus may fall, and even total welfare *may* fall with RPM.

Next we drop the assumptions used by these four authors and look at the surplus values using the insights in Dixit-Norman (1978). We now look at the value in use versus perceived value before having sales service. Suppose that services provide full information about the true value in use of the product. Without RPM all *inframarginal* buyers up to q_0 have *expected* surplus from purchase of $A+B (=A+C)$, but if they buy the product without RPM their *realized surplus* is $A+B+C+J+G$ including their *unanticipated* surplus of $C+G+J$, i.e., surplus for the *inframarginal* consumers without RPM is the area below demand D'' and above $p_0 = w_0$ between the origin and q_0 .

For all buyers to the left of q_0 their surplus with RPM is $A+C+G$ (the area between demand D'' and $p_{rpm} > p_0 = w_0$ up to q_0) which is lower than their surplus without RPM by the difference $B+J$ (the service cost $B+J$ has no value to those who will realize the value in use with or without RPM). ΔCS for *inframarginal* consumers is $\Delta CS_i = -(B+J) < 0$. This makes sense because with RPM, price goes up from p_r to p_{rpm} but there is no change in the value of the product in use.

Importantly, there are new (marginal) buyers, those between q_0 and q_1 . They did not buy without RPM so they get zero consumer surplus without RPM. With RPM they find out that their true values are given by the area under D'' and above price, p_{rpm} (the integral between D'' and p_{rpm} from q_0 to q_1) so their surplus goes up by E because now they know to buy the product, i.e., for these marginal consumers $\Delta CS_m = E > 0$.

The analysis of seller surplus is unchanged, it goes up by the same area I, $\Delta PS = I > 0$. For completeness of the analysis, consider the area B+J+F, this is simply the retailers' costs of selling the product under RPM (the cost of the extra sales service time provided under RPM). All in all $\Delta W = \Delta PS + \Delta CS_m + \Delta CS_i = I + E - (B+J)$ which in this illustration is negative.

Now the flaw in the Bork Proposition is revealed to be far more robust than already pointed out by Scherer and separately by Comanor. Scherer and Comanor illustrated what happens if a demand curve, which in their models *measures value*, moves out in a fashion which is not parallel with the initial demand/*value*. They show that the shift *may* involve $V_i < V_m$ and a potential loss of CS (a loss at the margin), *but* it may instead involve $V_i > V_m$. In this latter case there is a gain in consumer surplus.

On the contrary, what we note is that if the services are presales information about the product's value the position of D' is irrelevant to the value calculation in use given by D'' which is not altered with or without services. In other words, the in-use value demand does not go up. What this reveals is that the RPM induced change in actual consumer surplus, value in use, is negative for a vastly greater set of parameters. For consumer surplus to be positive the value misperception without services must be huge. The value of E in Figure 1 must exceed B+J, which would require that D'' be huge relative to D₀, e.g., leading to a q_1 well over double q_0 in our illustration. So the change in consumer surplus is negative for a vastly wider set of parameters.

Now contrast this with the Bork Proposition and variants such as those from Scherer and Comanor. In particular, suppose that the value in use were D', not D''. The change in welfare would be $\Delta W = - (B+J) < 0$. Under Bork's analysis the change in

welfare would be zero, not minus the entire margin of $(p_{rpm}-p_0)$. And how does this compare with the Scherer and Comanor analyses? Suppose that we take their case in which RPM raises welfare, where infra marginal consumers have higher valuations than those of the marginal consumers. To simplify, suppose that value in use demand were to go through the point p_{rpm}, q_0 like D' in the illustration. Now pivot the value in use demand through this point (not illustrated) such that the demand curve has a more negative slope (higher vertical intercept). Under the Scherer-Comanor assumptions RPM would raise welfare. But using the Dixit-Norman insight, if this is the value in use demand, the change in welfare still is the same loss of B+J illustrated by assuming that D' were the value in use demand.

Let us return to the case that is illustrated in Figure 1 where E is strictly greater than zero. Admittedly the marginal consumers' gains plus incremental profits (E+I) can exceed the losses for inframarginal consumers of B+J. It can happen if D" shifts so far to the right that the gap between q_1 and q_0 increases enough that the rectangle I plus the triangle E are large enough to equal the rectangle defined by B+J.

A large increase in quantity reflects a situation in which a sufficiently large number of consumers who did not buy before services decide to buy after the RPM induced services and experience some surplus (area E). A large increase in quantity also corresponds to a large increase in profits (area I). A high degree of initial undervaluation of the product can be modeled as a large separation between the original demand D_0 and the value in use demand D".

Let us consider a numerical example to discuss the balance between consumer surplus gains and losses in the context of Figure 1. Consider a product market where $q_0 =$

1000 units, $p_0 = \$83$, $\Delta D = \$21$ (i.e., RPM increases pre purchase expected valuation by \$21 uniformly across all consumers), $p_{rpm} = \$100$. This means that the “free” (no RPM) price is 17 percent lower than the RPM price.⁴⁰ Given this input, $B+J = q_0(p_{rpm} - p_0) = \$17,000$. $E = (\Delta D - p_{rpm})(q_1 - q_0)/2 = 4(q_1 - 1000)/2 = 2(q_1 - 1000)$. Consider also a marginal cost mc of \$51. Area $I = (p_0 - mc)(q_1 - q_0) = 32(q_1 - 1000)$. So $E+I = 34(q_1 - 1000)$. With some algebra one can show that $E+I$ is equal to $B+J$ or, in other words, RPM is consumer surplus neutral only if q_1 is equal to 1,500 units. Therefore, if there is a quantity increase of less than 50 percent, then in this example RPM reduces consumer surplus. The point we want to emphasize is that unless the quantity increase is huge, even a small increase in price due to RPM can hurt consumers.

5. ENDOGENOUS WHOLESALE PRICE, A NUMERICAL

EXAMPLE

We provide a highly simplified numerical example to illustrate the main points of our argument. This example also illustrates that our argument remains valid even when wholesale price changes in response to the introduction of RPM, i.e., when w_0 is an endogenous variable. We proceed this way because, contrasted with the exogeneity assumption used in the prior literature, an endogenous wholesale price is a more realistic formulation of a real RPM problem. This makes our analysis more robust and better fitted to business realities.

Imagine that a manufacturer brings to the market a new electronic device at marginal cost \$200. Suppose that after the actual use of the product, i.e., after exploring all its capabilities and new features, consumers A and B value the product at \$500.

However they just do not know it yet nor do they realize the true value when they enter the retail store and get to know about the mere existence of the product and its features as described in its packaging. There remains a great deal of uncertainty about how useful this new product actually is for the consumer. In the absence of any additional presales information or services let us assume that consumer A and B's reservation prices are \$250 and \$200, respectively. If the retail price is set at \$250, the manufacturer's profit would be \$50 selling only to consumer A. To sell to consumer B as well would require a price of \$ 200 equal to production costs, and hence zero profits for the manufacturer. Retailing is assumed to be a competitive activity so that the retailer's margin is zero.

Now let us imagine the possibility that the store trains a salesperson so as to clearly communicate to the consumers all the nice features of the product before the purchase at a cost of \$75 per customer. Suppose this service raises the consumers' reservation prices (or the highest willingness to pay) to, say, \$450 and \$400, respectively.⁴¹ It is important to note that here unlike the situation described in Figure 1, where service provides full information, we are adding to realism by permitting some additional undervaluation. In this case the manufacturer would like to set the wholesale price at \$325.

Setting the wholesale price at \$325 can only be profitable for the manufacturer when the retailer does offer presales service and consumers are exposed to the demand stimulating services. If no consumer is exposed to those services, no sales are made at \$325. So the manufacturer would like that services be provided by the retailer. But for any wholesale price, the retailer does not offer those costly services as the retailer can be

undercut by a no-service competing retailer. The manufacturer understands this and, accordingly, imposes RPM in the form of setting the retail price at \$400 for all retailers, the wholesale price of \$325 plus the cost of services of \$75. RPM solves the issue, as it curbs the possibility of undercutting (below \$ 400) among retailers that sell that product. In other words, this arrangement eliminates what has been called intra-brand competition at the retail level.

With services induced by RPM, both consumers A and B buy the product, 2 units in total, at price \$400 for total revenue of \$800. The manufacturer's profit goes up from \$50 to \$250 ($= 2 \times [\$325 - \$200]$). The retailer's profit is still zero as its costs, \$ 400, are the sum of the wholesale price and the service cost, $\$325 + \75 .

The next step is the measurement of the change in consumer surplus in response to the introduction of these presale services. Recall that Dixit & Norman (1978) point out that the unique standard should reflect the consumer's true interests. In the context of this paper, the actual value in use of the product corresponds to such interests. Accordingly, in our example, the \$500 value both consumers derive from the actual use of the product becomes the unique and appropriate standard against which we measure the change in consumer surplus in response to the introduction of the presale services. Initially, consumer A's surplus is \$250 (\$500 in true value net of price of \$250). After the services, total consumer surplus is \$200 ($2[\$500 - \$400]$). Consumer A's surplus drops from \$250 to \$100, but consumer B's surplus rises from the non-purchase level of zero to also equal \$100 with the purchase. The introduction of the services reduces total consumer surplus by \$50.

Note what this says about the Bork proposition that if quantity goes up, it must be that Consumer Surplus has gone up. In this example quantity is doubled and the change in consumer surplus is still negative.

Efficiency is a concept that in economics may have different meanings depending on the context. If one measures efficiency in terms of consumer surplus, then we have just seen that imposition of RPM to facilitate prepurchase information service is inefficient. Additionally, comparing the with- and the without services outcomes, the with-services outcome is not what an economist would call a Pareto improvement. That is it does not benefit some entities *without disadvantaging other ones*. Although Consumer B and the manufacturer are made better off, Consumer A is made worse off. Consumer A's surplus is \$250 without services and \$ 100 with services.

Using the example as it is, one could point out that total welfare is higher with services because although CS decreases by \$50, PS went up by \$200 so the sum $W=(CS+PS)$ increases by \$250. Therefore, if economic efficiency is measured in terms of total welfare, one could argue that the change is beneficial for society. However it is important to note that the direction of total welfare movement depends on the number of consumers of each type. Using the same dollar figures, with-services total welfare is less than without-services welfare when there are more than 3 type A consumers for each type B consumer, for instance.⁴² Hence, this simple example reveals three conceptual ways in which RPM may affect economic efficiency: change in consumer surplus, in the Pareto sense, and change in total welfare. Also it crucially reveals that the interests of the manufacturer and consumers are *not* aligned, in fact the latter lose as the former wins.

We can use this simple example to gain more insights. In particular we can gain insights about retailer behavior using this example. Recall that in our narrative the manufacturer is a monopolist and there are many competitive retailers who sell the manufacturer's product. This means that the manufacturer earns all of the profits while the retailers just break even in both scenarios. The manufacturer sets its RPM wholesale price at \$325 (\$75 above the wholesale price it would set without RPM) and sets the RPM price at \$400 so that retailers cover their service costs and the wholesale price.

With RPM setting the retail price no lower than \$400, *price* competition among the retailers results in a retail price of \$400. In the absence of RPM, retail price competition would bring the price further down to \$325. At \$325 all retailers make zero profits. Given that RPM sets a floor for the price competition that is above the unrestrained competition price, the nature of competition among retailers changes when the retail price is at \$400, the RPM price. Retailers continue competing vigorously in *services* rather than in *price*. The *service* competition is such that retailers completely "burn" the margin ($\$400 - \325) offering *sterile* services that stimulate demand without increasing the true value of the product or service in use.

A retailer that does not engage in the *service* competition is driven out of that product's market because in the absence of such service, demand is not stimulated at that point of sale. In the context of the present numerical example, it means that consumers A and B's reservation prices remain at \$250 and \$200. Hence, they do not buy at the RPM price of \$400 at a non service retailer⁴³

6. DEMAND CURVE ANALYSIS WITH ENDOGENOUS PRICES

In this section we apply the in use value standard approach for measuring the effect of the introduction of RPM with an endogenous wholesale price. In our analysis accompanying Figure 1 we showed how the standard models in the literature with downward sloping demand and unaltered wholesale prices should be interpreted with the appropriate value in use criterion. The previous highly stylized numerical example demonstrates how an endogenous wholesale price can be added to a value in use model. The numerical example captures the intuition behind why an endogenous wholesale price may be important for analysis. In particular, considering the analysis in Figure 1, the gain in Producer Surplus is only due to a change in quantity sold whereas RPM may be more valuable to producers than this would suggest. In our simplified numerical example much of the gain in producer's surplus comes from being able to realize a higher wholesale price when employing RPM.

A reader may feel that both intuitions (value in use with traditionally sloped demand curves and unaltered wholesale price and the importance of endogenous wholesale prices when demand changes in a stylized model) have been established and skip this more complex hybrid model – a Figure 1 type analysis, but with endogenous wholesale price. Or for completeness, the reader may wish to see a more traditional model with the addition of an endogenous wholesale price. The former reader may skip this section and move to the next one on “Legal Treatment.”

We shall demonstrate that the introduction of RPM can hurt consumers and may reduce welfare in a more realistic model. Differently than in Section 4, for simplicity and

parsimony, herein we skip the steps that show the welfare measures under the flawed double standard approach and the steps that demonstrate the distribution of consumer surplus losses and gains among the inframarginal and marginal consumers. One can easily perform these skipped evaluations in the present context with area analyses similar to those in Section 4.

In Figure 2 we illustrate three different demand curves and refer to the relevant areas with *ITALIC CAPITAL* letters so as to differentiate them from the areas in Figure 1. Importantly, the same letter has different meanings in the figures (for instance, area A in Figure 1 has an interpretation that is different than the interpretation of area A in Figure 2). The line D_0 corresponds to the demand curve in the complete absence of presales services. Demand D_{rpm} is the demand with the level of service induced in the RPM equilibrium. Now, unlike the figure 1 model, we also assume that service may not lead to perfect consumer information (after all, do consumers always believe everything salesmen have to say about products?). The perfect information demand curve, the *true value in use* demand curve is D_{viu} .

Consider the no RPM equilibrium pricing using the demand curve D_0 and to reduce clutter we assume (unlike Figure 1) that manufacturing marginal costs are zero. The corresponding marginal revenue curve is identified by MR_0 . As before, we assume that the retail sector is competitive and that the only marginal cost of being a retailer is the wholesale price charged by the monopoly manufacturer. Implicitly this imposes constant returns to scale in retailing just as assuming manufacturing $mc=0$ also imposes constant returns to scale for the manufacturer.

When the producer is a monopolist, basic microeconomics informs us that the monopoly quantity occurs when marginal revenue equals marginal cost, in this case, when MR_0 is equal to zero. Graphically it occurs when the MR_0 line hits the horizontal axis, defining the quantity q_0 . From there, moving vertically up until reaching the demand line D_0 , one determines the monopoly wholesale price w_0 as the vertical distance from the horizontal axis. Because we are under the assumption that retailing is a competitive activity and the wholesale price is the only marginal cost retailers face, the pre-RPM retail price, p_0 , is equal to the wholesale price, i.e., $p_0 = w_0$. Therefore, the pre-RPM monopoly solution corresponds to the point (q_0, p_0) in Figure 2. Without RPM and services producer's surplus, profits, are given the rectangle D and consumer surplus defined by value in use minus price paid is $A+B+C$.

Suppose that at a retail store it takes a fixed number of minutes, say s minutes, to explain a new product's features to a potential buyer. The service is demand stimulating so that the demand curve goes up to D_{rpm} , but not all the way to D_{viu} , because we assume that the explanation is treated with some slight skepticism by consumers.

RPM induces the offering of s in services which stimulate demand as represented by the line D_{rpm} in Figure 2. The corresponding marginal revenue curve is represented by MR_{rpm} . Analogously to the pre-RPM description, the quantity profit maximizing condition yields the post-RPM equilibrium as the point (q_{rpm}, p_{rpm}) .

In Figure 2, notice that the analysis assumes parallel shifts of the demand curves. This analytical detail gains importance to the extent that parallel shifts underlie Bork's analysis and conclusion. Assume further that the straight line D_{viu} represents the demand

when consumers have perfect information about the product. D_{viu} can also be understood as the demand that would emerge if consumers knew at the moment of their purchases their true valuations of the product. As such we elect D_{viu} as the standard against which we measure changes in consumer surplus.⁴⁴ As noted above consumer surplus without presales services, CS_0 , is determined by the sum of the areas A , B and C in Figure 2. Likewise, consumer surplus with RPM, CS_{rpm} , is determined by the sum of the areas A and E . Consequently, the change in consumer surplus as result of the introduction of RPM is $\Delta CS = CS_{rpm} - CS_0 = E - (B + C)$. In Figure 2, $B + C$ is clearly larger than E so the change in consumer surplus is negative in this example.

Now let us examine the manufacturer's profits. In the absence of the services, profit is determined by the area D . Once services are available to clients, profit is determined by the area $C + D + G + H$ total revenues of $B + C + D + F + G + H$ minus the cost of services equal to the margin $p_{rpm} - w_{rpm}$ times q_{rpm} or the area $B + F$.

The size of $B + F$ ($p_{rpm} - w_{rpm}$) is not derived in Figure 2, but derived in a separate set of calculations. p_{rpm} is from D_{rpm} and q_{rpm} in Figure 2, but the gap between p_{rpm} and w_{rpm} is not and comes from marginal conditions not illustrated. Note, however, if retailing is competitive and has zero profits for this reason, it must be that in equilibrium the area $(p_{rpm} - w_{rpm})q_{rpm}$ must be equal to the total costs of retailer services.

The change in profit as result of the introduction of presales services is $\Delta \Pi = \Pi_{rpm} - \Pi_0 = C + G + H$. Obviously a manufacturer will implement RPM only if the change in profit (taking into account the cost of service) is positive.

The change in total welfare (ΔW) is the sum of the change in consumer surplus (ΔCS) and the change in producer surplus ($\Delta \Pi$). So $\Delta W = E + G + H - B$. Given the parameters used here, the change in total welfare is positive, but for other parameters one could have a negative change in total welfare.

7. LEGAL TREATMENT

We have demonstrated with economic arguments that RPM associated with provision of informative content about the value in use of a product in the form of presale services can reduce consumer surplus, i.e., cause economic loss to consumers. The following issues are legal in nature. Given that RPM increases producer surplus (otherwise RPM would not be implemented by the manufacturer⁴⁵), how does a jurisdiction balance gains and losses related to RPM? The answer will depend on the adopted welfare standard in the jurisdiction. Next, if RPM is deemed as unacceptable in a jurisdiction given the adopted standard, we briefly discuss alternatives for RPM with similar economic effects and their potential welfare impact.

Welfare standard

In competition policy, the standard upon which decisions are based often takes the form:

$$\Delta W = \Delta CS + \alpha \Delta \Pi ,$$

α is a number between 0 and 1 that varies across countries and may vary over time within a given country. Given α , competition policy is designed so as to maximize the equation

above. Posner and Easterbrook (1981, p.154), referring to the U.S. antitrust context, say that “Probably most (but certainly not all) scholars today accept the proposition that the antitrust laws either have, or should be treated as having, the sole goal of consumer welfare or efficiency.” In terms of the equation above, this consumer welfare goal corresponds to $\alpha=0$ and a total welfare goal corresponds to $\alpha=1$. The former encompasses an argument that competition policy is a consumer protection set of statutes,⁴⁶ i.e., that consumers possess a kind of property right to not be “over charged,” so that consumer surplus is the economic aggregate of interest. Implicitly protection of consumer welfare seems to be the directive underlying the new U.S. horizontal merger guidelines that were issued in August 2010, for example.⁴⁷ In the $\alpha=0$ scenario our analysis suggests a presumption of illegality of RPM that induces solely the provision of services that do not affect value in use utility of the product even in *rule of reason* jurisdictions.

Under the other view of competition policy, where $\alpha=1$, total welfare becomes the measure of highest relevance.⁴⁸ As we have shown RPM unequivocally increases profits (otherwise, the manufacturer would not implement it). But, as we have seen in our model, the increase in profits may not offset the loss in consumer surplus so that a reduction in total welfare is a plausible outcome. Consequently, even in jurisdictions that adopt total welfare as the competition policy standard there should still be skepticism about the traditional services defense of RPM rather than a *prima facie* acceptance of such claims.

Admittedly there are certain types of services induced by RPM that do enhance the value in use of a product. Our model does not apply to these types. Post-sale services can enhance the quality of some products and, in consequence, can be valuable for

consumers of these products. For instance, the owner of an Italian legendary red sport car certainly values having a specialized mechanic nearby. On the other hand, for some other products, say fluorescent lamp ballasts under RPM, a chain of repairs shops is hardly a convenience that consumers care about.⁴⁹

Our skepticism towards the traditional service defense is justified in as much as this broad defense includes – erroneously, we argue - sterile provision of services, i.e., provision of services that do not change the value in use. Sterility of service is a feature apparent in (but not restricted to) pre-sale services in the form of information that we formally model herein. Shelf-positioning and some types of post-sale services induced by RPM are likely to possess this sterility feature as well. Even though we do not formally model these sterile demand stimulating alternatives, our arguments, conclusions and policy recommendations with respect to the legal treatment of RPM apply to them just the same.

Per se illegal approach, rule of reason approach or something else?

The broad justification behind a *per se* prohibition rule is that it inhibits a practice that results in negative outcomes in a large majority of all situations that involve that practice. By moving away from the *per se* RPM prohibition in *Leegin*, the U.S. Supreme Court subscribes to the view that RPM does not result in negative outcomes as often as would be necessary to justify a *per se* prohibition.

In fact, the economic theoretical models supporting *Leegin* advance the view that - except in the cases where RPM concurs with other violations (e.g. with collusion) –

RPM is beneficial not only in a total welfare sense, but in a consumer surplus perspective as well.

What we show herein is that when one correctly accounts for the change in consumer surplus consumer harm is far greater than even the detractors of RPM imagined. Also we show in our work in Da Graca and Masson (2012) that the consumer harm of RPM occurs over a broad and realistic range of scenarios (the model we present here is one of those scenarios). Accordingly, we argue that RPM consumer harm is far more likely to occur in the real world than anyone has ever predicted with theoretical models and than what the U.S. Supreme Court implicitly endorses in *Leegin*.

In the U.S., the judicial-legal debate around the preferred treatment of RPM oscillates between two mutually exclusive alternatives: rule of reason or per se treatments. The analysis we offer herein establishes a rigorous framework that is closer to, but not necessarily identical to, the earlier common sense intuition against the practice of RPM which translated into its *per se* prohibition than to the current rule of reason approach.

The potential magnitude of the consumer harm due to RPM and its perceived high likelihood of occurrence are not the only factors behind the societal choice of one treatment or the other. The polarity of the roles actors play in the supply chain may influence the choice of the judicial-legal treatment of RPM. In what follows, we shall discuss these polarities and argue that the rebuttable presumption of illegality of RPM – as it has been treated in Europe - is a workable alternative to the per se vs. rule of reason dichotomy.

A large fraction of RPM is such that the manufacturers - one group of the actors in the RPM game - impose RPM on retailers. The manufacturer plays an *active* role, i.e., the manufacturer imposes RPM according to its own interest. If RPM does not increase its profits, the manufacturer chooses not to impose it.

The retailers - the second group of players in the RPM - assume a position of neutrality in terms of the polarity of their roles. In the real world some retailers may gain from accepting the manufacturer imposed RPM, others loose (there have been retailers that have proposed anti-RPM legislation). On balance, however, neutrality adequately describes retailers' typical roles in the RPM game. In other words, it is proper to characterize retailers as indifferent on average to RPM.

Consumers are the passive pole in this context. They are subject to the decision of the manufacturer in terms of the adoption of RPM without responding or initiating an action in return. In our discussion above we show that for presales information provision although a few marginal consumers may benefit from RPM, all inframarginal consumers lose so that the overall effect of RPM that induces the offer of sterile services is negative to consumers as a group.

Numerically, the distribution of actors in terms of polarity of their roles in the RPM play is such that there is one or only a few active actors (manufacturers), many neutral actors (retailers) and numerous passive actors (consumers).

A consumer's expenditure share on a particular RPMed product is typically small, so that a consumer does not have an incentive to voice her/his opinion as to whether RPM benefits or harms her/him (this is consistent with characterizing individual consumers as passive). Also, other than the interest in consuming the RPM product, there is hardly any

other dimension that is common to all consumers. This, together with the large number of heterogeneous consumers, virtually kills any possibility of coordination of consumers to fight back a manufacturer that imposes RPM that extracts surplus from them (this is consistent with characterizing consumers as passive as a group).

Institutions such as competition authorities and/or consumer protection agencies have mandates to represent consumers as a whole precisely to circumvent the consumer coordination problem. However, in a jurisdiction in which RPM follows a *rule of reason* approach this institutional solution is still likely to be insufficient. The problem is that the number of RPMed products in the marketplace is potentially much larger than the number of RPMed products that are effectively challenged, given these institutions' limited budgets and the typically high costs of litigation.

All this might have been in the minds of those who opted for a *per se* illegal approach to RPM as opposed to a rule of reason approach. While we see the point of those who are against the rule of reason approach, we believe that a rebuttable presumption of illegality is a better prescription than a *per se* prohibition, although the existence of substitutes to RPM like Marketing Assistance Programs (MAPs) mean that the loss from prohibition is not too great.

We envision a rebuttable presumption of illegality regime that would shift all the burden of proving the desirability of RPM to the manufacturer or, more broadly, to any active player that seeks to introduce RPM in the supply chain. Rather than demonstrating that the practice is beneficial to the active player itself (this is at times interpreted as demonstrating efficiencies), that active player would have to prove that the passive actors, i.e. consumers in most cases, do not lose from the imposition of the intended

practice. RPM that induces sterile services fails this requirement and as such should not be defensible.

In this regime it would be up to the manufacturer to show that the practice does not harm consumers overall. Importantly, it would not suffice to show that RPM is not harmful for a specific group of consumers. Nor would it suffice to show that some consumers benefit from RPM. Rather, it would be necessary to show that the aggregate effect on all consumers is not negative.

Under the presumed illegal RPM regime, it is highly likely that an attempt to impose RPM that only induces sterile services ends up being (correctly, we might add in light of our results herein) challenged in court. Moreover legal/litigation costs are expected to be non-negligible. These costs are higher to the manufacturer than to the challenger when the burden of proof falls on the manufacturer and potentially much higher than what it would be in a *rule of reason* regime (and potentially much lower to the challenger). As a consequence, this regime would work so that manufacturers would carefully examine whether or not the imposition of RPM could cause (intentionally or not) consumer harm before implementing it. RPM demonstrable not to harm consumers could be implemented with great chances of prevailing if legally challenged. On the other hand, RPM that the manufacturer themselves believe are not defensible from the consumers' standpoint would not be implemented, in a sort of self-selection effect.

From an enforcement point of view, the rebuttable presumption of illegality regime has the advantage of generating this self-selection effect that reduces the potential number of cases that require legal action. Hence for the same limited amount of budget resources, enforcement efficacy is expected to increase.

Therefore, a regime in which RPM is presumed illegal is expected to be more restrictive to RPM that is harmful to consumers than the *rule of reason* treatment is. Also, this regime with a rebuttal opportunity – as opposed to a *per se* treatment - leaves open a possibility that RPM that is desirable from the consumers’ point of view (a notion close to the notion of Pareto efficiency) would not be inhibited.

So far, our discussion in this subsection assumes a jurisdiction in which the antitrust/competition policy standard is based on consumer surplus. We acknowledge that the rebuttable presumption of illegality regime may be too strict for a total welfare jurisdiction in light of Da Graca and Masson (2012), where the framework herein is expanded to account a range of parameters of the model. One result that they find is that it is possible that sterile RPM enhances total welfare even when it reduces consumer welfare, although the likelihood of this happening is not high. Certainly, our discussion suggests a level of skepticism towards RPM in the total welfare jurisdictions substantially higher than the vast majority of the literature on the topic has prescribed.

In a total welfare jurisdiction that adopts a *rule of reason* regime, the skepticism we prescribe can take the form of assigning the burden of proof that total welfare increases in the case of RPM that induces sterile presale services by retailers.

Vertical structure and ownership rights

Within the vertical structure, the separation of ownership of the product and retail pricing decision authority is a distinguishing feature of RPM in contrast with Marketing Assistance Programs (MAPs) such as advertising support and contracted pre-sales services. In MAPs retailers who own the product decide on its retail price, RPM has the

retailers agreeing upon the price they will charge for a product they own with a manufacturer who doesn't own the product.

Putting aside the legal aspect of the separation of ownership and pricing decision authority, from an economic point of view, to the extent that MAP, advertising support, or contracted presales services are perfect substitutes to RPM there is no cost to manufacturers, retailers or consumers from banning RPM entirely. To the extent that they are not perfect substitutes, eliminating RPM raises the costs of demand stimulation and hence in profit maximizing neoclassical models this would lower demand stimulating behavior. As in Dixit-Norman (1978), at the margin there is a social gain from lowering such behavior in the case of sterile services induced by RPM.⁵⁰

Presumably this separation is a relevant issue in some new specific ownership arrangements for eBooks, for an example.⁵¹

8. CONCLUSIONS

In recent years competition policy towards RPM in Canada and in the United States has been changing from a plain and simple condemnation to a more lenient treatment under the influence of some economic literature that emphasizes efficiency arguments for some vertical restraints. In *Leegin*, the U.S. Court relied on the presales services arguments of prominent authors such as Bork (1978) and Posner (1976). The current policy environment is such that whenever RPM is an issue of concern, it is typically associated with some other anti-competitive behaviors that are typified in the legal statutes. In other words, as a generic, catch-all proposition RPM has been portrayed

as an efficient vertical restraint except when it is a facilitating, enabling or enhancing practice of some other condemned behavior: collusion, exclusion, foreclosure, or abuse of dominance.

We show that some influential literature supporting the RPM efficiency view is flawed when it relies on the presale service justification for RPM. In particular we consider presale services that do not modify in use value of a good, what we term sterile services. We debunk what we call the Bork proposition, using Bork's own assumptions except one. Specifically Bork does not consider the fact that value in use may differ from prepurchase perceived value in use. We apply the value-in-use standard which exposes the loss in consumer surplus in Bork's model and reveals that even Bork's dissenters significantly underestimate their calculated losses to inframarginal consumers.

Bork assumed unaltered wholesale prices. In a numerical example we illustrate that consumer surplus losses arise when one considers that the retail and wholesale prices may change in response to the adoption of RPM that induces service provision.

Next in a more complete model with endogenous prices we consider a monopolist manufacturer and perfectly competitive retailers. The introduction of sterile presales services at retail stores stimulates demand. These services are offered to the consumers for "free," but they are costly to the retailers. The manufacturer takes this into account and computes the RPM retail price and the wholesale price so that the retailers are induced to adopt sterile presales services. In equilibrium these sterile services stimulate demand sufficiently so that retailers wish to provide them, but still, in equilibrium the retailers only break even (any retailer which does not provide the services simply makes

no sales whatsoever). Absent RPM the services equilibrium may be unstable as some retailers may opt out of the service competition. In this context, RPM is an essential vertical restraint imposed on all retailers so as to promote service competition and stabilize the profit-enhanced outcome with sterile presales services. We show that sterile RPM induces a market outcome in which consumer surplus is reduced unless the product is initially highly undervalued, in which case the RPM-induced services cause a large quantity effect. The magnitude of the consumer surplus reduction can more than offset the increase in producer surplus or profits. Hence, sterile RPM can even reduce total welfare.

Within an antitrust/competition policy context, our results diverge from the literature influential in *Leegin*. When consumer surplus is the antitrust/competition policy standard, our results suggest that a *rule of reason* regime in which competition/antitrust authorities or consumer protection agencies bear the burden of proof is inferior to a *per se* regime. A viable alternative is the adoption of a presumption of illegality of RPM that induces presale services in these jurisdictions. Translating presumption of illegality into a *per se* illegality in this case would not be totally inappropriate, although it may be an overshoot.

RPM can induce services that enhance the value of the product as well (we have not modeled this type here but we are cognizant of it). As such, this type of RPM can increase consumer welfare. A *per se* illegal RPM regime would inhibit these potential services. A presumption of illegality of RPM with a rebuttal opportunity regime provides a legal opening for consumer welfare enhancing RPM. The difference between a

rebuttable presumption of illegality regime and a *rule of reason* regime is a clear and unambiguous shift of the burden of proof to the manufacturer or more broadly to whomever wishes to impose RPM on the supply chain.

Based on the same results we recommend skepticism against the sterile service justification for RPM in countries where antitrust enforcement hinges on a total welfare standard. For these countries, in a *rule of reason* regime for RPM, laying on the manufacturer the burden of proof that their services enhance total welfare can strike an adequate dose of skepticism.

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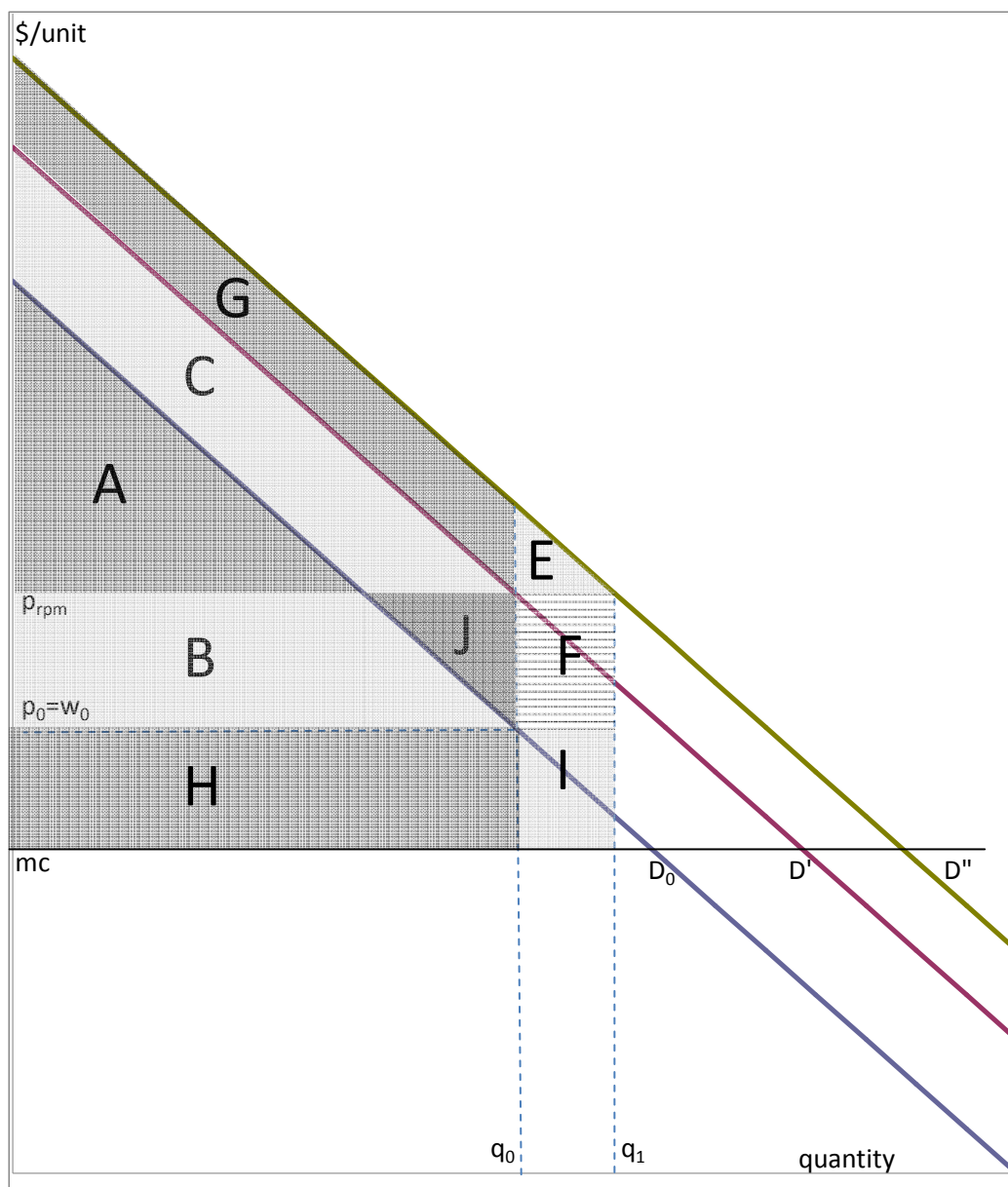


Figure 1: Welfare analysis under double and single standards and exogenous wholesale price

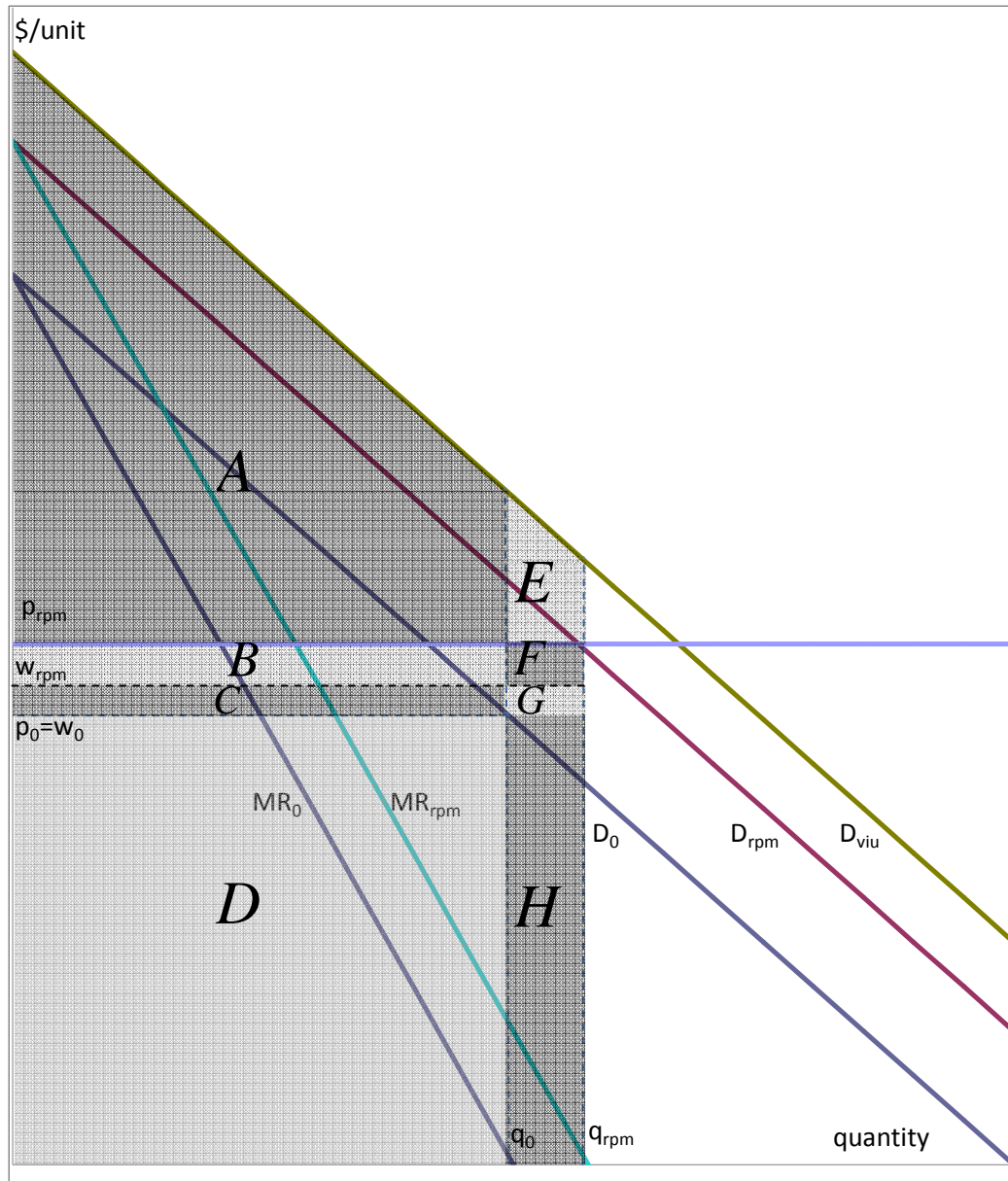


Figure 2: Value in Use Welfare Analysis with Endogenous Wholesale Price

Endnotes:

¹ Historically in the United States in some areas there were laws permitting non-manufacturers to impose RPM on manufacturers through “non-signor” clauses. We will not deal with this historical anomaly.

² *Leegin Creative Leather Products, Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007)

³ OECD Policy Roundtables (2008), pp. 37-38: “Some European commentators agree that the standard for RPM should be relaxed: ‘[E]conomically speaking, the prohibition of resale price maintenance in European law is incomprehensible. . . . [A] general ban, in other words a prohibition per se, cannot optimise the market results from an economic point of view, because it means that all positive effects which are achievable through the application of price maintenance would be prohibited or only realisable in another way at greater cost.’ ‘[T]he current per se ban on RPM should be relaxed, since RPM may have procompetitive as well as anti-competitive effects.’”

⁴ According to Ippolito (1991), pp. 282-283, these demand stimulating services can take the form of, for example, large display areas in the stores, knowledgeable salespeople, customer demonstrations, etc.

⁵ RPM can also be effective to bias shelf displays. For instance, in a world of incomplete information prominent shelf display may be generated by RPM, as alternative products may simply escape notice even if true valuation would be perceived if noticed.

⁶ A classic reference for the snob effect is Leibenstein, H. (1950). “Bandwagon, Snob, and Veblen Effects in the Theory of Consumers' Demand”. *Quarterly Journal of Economics* 64 (2): 183–207.

⁷ An increase in margin has been treated as equivalent to an increase in retail price in much of the service RPM literature which does not model wholesale price as endogenous.

⁸ Csorgo (2004), pp. 22 and 23. “Between 1951, when price maintenance was first made part of the *Combines Investigation Act*, and 1986, the last time amendments were made to these provisions, price maintenance changed to include all services (not just products), horizontal price maintenance, and attempts to influence upward or discourage the reduction of the prices at which goods are, rather than just vertical setting of a minimum resale price. While in 1960 the section was made somewhat less stringent, providing for several defences to the refusal to supply subsection (loss-leadering, ‘bait and switch’, misleading advertising and inadequate level of servicing), and in 1976 a new provision made clear that the section did not apply to communications between members of a firm or between affiliated companies, the broad-based, *per se* illegality of price maintenance was entrenched at a time when the economics literature advocated the possible pro-competitive effects of resale price maintenance.”

⁹ *Ibid.*, p. 23.

¹⁰ *Ibid.*

¹¹ Horizontal RPM refers to RPM, which is a vertical agreement setting resale price that is entered for the purpose of facilitating a horizontal cartel.

¹² Csorgo, *op. cit.*, Table 1.

¹³ *Ibid.*

¹⁴ Csorgo, *op. cit.*, p. 24. “The period of observed decline in enforcement activity coincided with a change in the Bureau’s publicly stated position on price maintenance throughout the 1990s. This position attributed price maintenance with lower economic harm and consequent low priority relative to price-fixing and bid-rigging, while nonetheless noting its *per se* illegal criminal status.”

¹⁵ A Guide to Amendments to the *Competition Act* (2009). (Available at [http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/A-Guide-to-Amendments-to-the-Competition-Act-e.pdf/\\$file/A-Guide-to-Amendments-to-the-Competition-Act-e.pdf](http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/A-Guide-to-Amendments-to-the-Competition-Act-e.pdf/$file/A-Guide-to-Amendments-to-the-Competition-Act-e.pdf))

¹⁶ *Ibid.*, p. 2. “The price maintenance provisions are designed to provide resellers of products with the freedom to set their own prices and to provide suppliers with the ability to compete through low-pricing policies.

The former criminal provision has been repealed and replaced with a new non-criminal provision. Similar to the refusal to deal provision, it must be shown that there is an “adverse effect” on competition before the Tribunal can issue an order under the civil price maintenance provision (to prohibit conduct or accept a customer).

There is a right of access for private litigants to bring cases for price maintenance to the Competition Tribunal.

The decriminalization of the price maintenance provision promotes aggressive pricing with no threat of criminal sanctions.”

¹⁷ Article 101(1) of the Treaty on the Functioning of the European Union.

“The following shall be prohibited as incompatible with the internal market: all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market, and in particular those which:

(a) directly or indirectly fix purchase or selling prices or any other trading conditions;”

(Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008E101:EN:NOT>)

¹⁸ Guidelines on Vertical Restraints (2010), paragraph 225. “However, RPM may not only restrict competition but may also, in particular where it is supplier driven, lead to efficiencies, which will be assessed under Article 101(3). Most notably, where a manufacturer introduces a new product, RPM may be helpful during the introductory period of expanding demand to induce distributors to better take into account the manufacturer's interest to promote the product. RPM may provide the distributors with the means to increase sales efforts and if the distributors on this market are under competitive pressure this may induce them to expand overall demand for the product and make the launch of the product a success, also for the benefit of consumers. Similarly, fixed resale prices, and not just maximum resale prices, may be necessary to organise in a franchise system or similar distribution system applying a uniform distribution format a coordinated short term low price campaign (2 to 6 weeks in most cases) which will also benefit the consumers. In some situations, the extra margin provided by RPM may allow retailers to provide (additional) pre-sales services, in particular in case of experience or complex products. If enough customers take advantage from such services to make their choice but then purchase at a lower price with retailers that do not provide such services (and hence do not incur these costs), high-service retailers may reduce or eliminate these services that enhance the demand for the supplier's product. RPM may help to prevent such free-riding at the distribution level. The parties will have to convincingly demonstrate that the RPM agreement can be expected to not only provide the means but also the incentive to overcome possible free riding between retailers on these services and that the pre-sales services overall benefit consumers as part of the demonstration that all the conditions of Article 101(3) are fulfilled.”

¹⁹ OECD Policy Roundtables, *op. cit.*, p.263: “The claim is sometimes made that the situation in Europe is slightly different than the situation in the US was prior to *Leegin* because in Europe RPM is a ‘hard core restriction,’ which is different from *per se* illegality. Practically speaking, a hard core restriction under the EC law is almost identical – or at least very similar – to a *per se* violation under US law. Everything that the US Supreme Court said in *Leegin* should apply to Europe.”

²⁰ Guidelines on Vertical Restraints, *op. cit.*, paragraph 223. “(...) resale price maintenance (RPM), that is agreements or concerted practices having as their direct or indirect object the establishment of a fixed or minimum resale price or a fixed or minimum price level to be observed by the buyer, are treated as a hardcore restriction. Including RPM in an agreement gives rise to the presumption that the agreement restricts competition and thus falls within Article 101(1). It also gives rise to the presumption that the agreement is unlikely to fulfil the conditions of Article 101(3), for which reason the block exemption does not apply. However, undertakings have the possibility to plead an efficiency defence under Article 101(3) in an individual case. It is incumbent on the parties to substantiate that likely efficiencies result from including RPM in their agreement and demonstrate that all the conditions of Article 101(3) are fulfilled. It then falls to the Commission to effectively assess the likely negative effects on competition and consumers before deciding whether the conditions of Article 101(3) are fulfilled.”

²¹ Sokol (2010). “(...) the use of RPM would not necessarily mean that it would be *per se* illegal. RPM would continue to be presumed (i) to fall within Article 101(1) and (ii) to be unlikely to fulfill the conditions for exemption under Article 101(3). But the Commission would make the presumption rebuttable, leaving open the possibility for firms to plead an efficiency defense.”

²² Guidelines on Vertical Restraints, *op. cit.*, paragraph 225.

²³ *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

²⁴ Overstreet (1983), p. 4.

²⁵ Miller-Tydings Act (50 Stat. 693 [Aug. 17, 1937])

²⁶ Overstreet, *op. cit.*, pp. 4 and 5.

²⁷ Wilcox (1963), p. 382. “The [Miller-Tydings Amendment to the Sherman Act] amendment exempted from the federal antitrust laws interstate contracts fixing resale prices within those states where intrastate contracts had been legalized. As a result, the Federal Trade Commission and the Department of Justice could still prosecute persons attempting to maintain resale prices in three states and the District of Columbia, but not in the other 45 states.” (Expression in []s added)

²⁸ Overstreet (1983), p. 5.

²⁹ Essentially, with non-signer clauses, a wholesaler could impose RPM on all sales of a product even if non-signers (rival wholesalers and the manufacturer) opposed it.

³⁰ *California Liquor Dealers v. Midcal Aluminum*, 445 U.S. 97 (1980)

³¹ <http://thomas.loc.gov/cgi-bin/bdquery/z?d111:SN00148:@@X>

³² <http://thomas.loc.gov/cgi-bin/bdquery/z?d111:HR03190:@@X>

³³ *Ibid.*

³⁴ The free-riding argument used by Telser to show why a manufacturer may want to impose RPM on retailers is sufficient for his purpose. It is simple and clever. At the time of its publication it was a breakthrough, as Telser solved that long-standing puzzle. However, manufacturers may find RPM optimal even in the absence of the possibility of free-riding on the demand stimulating retailing services, as Klein (2009) discusses. Therefore, the possibility of free riding on those services is a sufficient condition for RPM but it is not necessary.

³⁵ Straightforward undervaluation occurs when one attributes a low value to something that actually is worth more. Another potential source of undervaluation is uncertainty around the true value. This uncertainty may be equated to risk.

³⁶ In da Graça and Masson (2012) more service means that the demand curve moves closer to the full information demand curve, which coincides with the true value in use demand curve. In this case, following Dixit and Norman (1978), the appropriate standard is the true value in use demand curve rather than the service, partial information demand curves.

³⁷ Note that this is a Chicago argument so competition and zero profits are a standard (retail) presumption.

³⁸ They are congruent by the “angle-side-angle” rule, where the “side” is zero to q_0 and the *parallel shift* maintains angles.

³⁹ Of course one can imagine $V_i > V_m$ scenarios and the corresponding welfare consequences that are potentially relevant in a rule-of-reason environment. Our model is such that $V_i = V_m$.

⁴⁰ Wilcox, *op. cit.*, p. 388, citing to Congressional Record May 7, 1952 p. 8912, says that the average price for 208 different items was 17 per cent lower in the States where RPM was illegal than in the remaining States where prices were legally maintained.

⁴¹ The quality/level/amount of services is such that some undervaluation about the true value of the product still remains. This means that the prospective consumers are not totally convinced by the sales person about the value in use of the product, either because they are suspicious of puffery or because for a risk averse person, presale information doesn’t totally resolve uncertainty.

⁴² Assume there are n consumers with the same profile as consumer A and 1 consumer B. Without-service total welfare is $W_0 = n [\$500 - \$250] + n \$50$. With-service total welfare is $W_1 = [n+1]x [\$500 - \$400] + [n+1]x [\$400 - \$200 - \$75]$. Whenever $n > 3$, $W_0 > W_1$.

⁴³ Even though the freeriding argument is stark, the earlier justification for RPM by Telser evolved around it. The freeriding hypothesis assumes that buyers are perfectly informed of the availability of services at one place and the no services price at the other and that it is costless to visit first one place to establish value and move to the other to purchase. There are several economic studies that suggest that freeriding is far less likely to happen, has happened far less in the past, than this stark assumption.

The adoption of the freeriding hypothesis adds a layer of complexity to the analysis without modifying the fundamental point we address in this paper. Importantly, whether or not freeriding is the justification for why a manufacturer imposes RPM is irrelevant for the broader point we make in this paper: that RPM induced, demand stimulating services reduce overall consumer surplus.

The free riding hypothesis is theoretically valid nonetheless. For the sake of completeness, we address this hypothesis in the context of the numerical example here. Suppose retailers fear the free riding problem. In

the situation described in the numerical example, in the absence of RPM, consumers could take advantage of the free presale services at one retailer and then buy the product at another retailer who had decided not to offer the services and sells for, say, \$350 (it could even go as high as \$ 399). This no-service retailer would make a profit of \$25 and the former retailer would be at a serious loss, because it has provided service at cost of \$75 to this consumer who uses the service information to purchase the product elsewhere. If retailers know this can happen, none of them would offer presales services. If there are no services retailers, offering no services does not yield a free rider effect, there are no services to free ride on. Furthermore, without services being provided, consumer valuations in this example never rise above \$250 and \$200 and one reverts to the wholesale price of \$250 selling only to consumer A.

When it is consumer free riding presales services is modeled starkly, as above, an equilibrium in which the monopolist sets the wholesale price at \$325 and some retailers offer presales services while others do not cannot emerge.

By contractually setting, monitoring and enforcing the minimum retail price at \$400, the manufacturer assures retailers that provide services that they will not lose business to no-service free-riding retailers due to price undercutting.

⁴⁴ If services provide perfect information, as they did in Figure 1, D_{vii} is equal to D_{rpm} and the analysis is less cluttered but unaltered.

⁴⁵ We remind the reader that we are not modeling “Fair Trade” with non-signer clauses which would have had worse welfare effects.

⁴⁶ Posner and Easterbrook (1981) provide excerpts analyzing the consumer welfare standard from publications by Posner (1976), Scherer (1977), Pitofsky (1979) and Bork (1978).

⁴⁷ Prior to Williamson’s (1968) influential paper in the *American Economic Review*, the consumer surplus standard prevailed in the U.S. merger laws.

⁴⁸ In Canada, for example, since *Superior Propane*, Ross and Winter (2003) point out that the standard “is in practice very close to the total surplus rule.” (p.20). *Canada (Commissioner of Competition) v. Superior Propane Inc.*, 2000 Comp. Trib. 16 (“original decision”); [2001] 3 FCA 185 (“first Court of Appeal decision”); [2002] C.C.T.D. No. 10 (“redetermination”); [2003] FCA 53 (“second Court of Appeal decision”).

⁴⁹ Ippolito, *op. cit.*, Table 10 shows a list of products according to the dealers’ ability to influence product quality. The left column displays products for which dealers are *important* to quality. The right column displays products for which dealers are *unimportant* to quality.

⁵⁰ As for the welfare effects of advertising in particular, an extension of Dixit-Norman to public policy would suggest a reduction in advertising, but not an elimination of advertising. An omniscient economic czar could devise a Pigouvian tax to decrease advertising by the ideal amount. The same could be said for MAPs, retail advertising support and RPM.

⁵¹ <http://www.euractiv.com/infosociety/eu-raids-ebook-publishers-antitrust-suspicion-news-502685> and <http://knowledgeproblem.com/2010/01/31/publishers-and-ebooks-innovation-drm-and-resale-price-maintenance>