

# COMPETITIVE PRICE DISCRIMINATION AS AN ANTITRUST JUSTIFICATION FOR INTELLECTUAL PROPERTY REFUSALS TO DEAL

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## I. INTRODUCTION

The Federal Circuit's recent decision in *CSU v. Xerox*<sup>1</sup> created a conflict over what antitrust standard should govern an intellectual property holder's refusal to deal. In ruling that Xerox did not violate the antitrust laws when it unilaterally stopped supplying patented replacement parts and copyrighted service drawings to a group of independent service organizations (ISOs), the court essentially immunized intellectual property holders from antitrust liability for refusals to deal. Specifically, the court concluded that "in the absence of any indication of illegal tying, fraud on the Patent and Trademark Office, or sham litigation, the patent holder may enforce the statutory right to exclude others from making, using, or selling the claimed invention free from liability under the antitrust law."<sup>2</sup>

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<sup>1</sup> *In re Independent Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322 (Fed. Cir. 2000), *cert. denied*, *CSU, L.L.C. v. Xerox Corp.*, 531 U.S. 1143 (2001).

<sup>2</sup> *Xerox*, 531 U.S. at 1327. The Federal Circuit based its conclusion on *Miller Insituform Inc. v. Insituform of North America*, 830 F.2d 606, 609 (6th Cir. 1987), and *SCM v. Xerox Corp.*, 645 F.2d 1195, 1206 (2d Cir. 1981). With regard to Xerox's refusal to license its copyrights, the Federal Circuit adopted the First Circuit's rebuttable presumption standard of *Data General v. Grumman Systems Support*, 36 F.3d 1147 (1st Cir. 1994). *Xerox*, 531 U.S. at 1328–29. See PHILLIP AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 704.1 (Supp.

This holding conflicts with the Ninth Circuit's decision in *Kodak*,<sup>3</sup> where that court found an antitrust violation on an almost identical set of facts. The Ninth Circuit affirmed Kodak's antitrust liability for refusing to sell replacement parts to ISOs that wanted to service Kodak machines.

One can make some fine distinctions between the cases.<sup>4</sup> Nevertheless, the Federal Circuit's unambiguous conclusion that intellectual property holders can refuse to deal as long as their behavior does not involve illegal tying, fraud, or sham litigation is clearly contrary to the *Kodak* framework, where protection of intellectual property rights is a presumptively valid but rebuttable business justification. Under this rebuttable presumption standard, the Ninth Circuit rejected as pretextual the protection of intellectual property justification offered by Kodak for its refusal to deal with ISOs.<sup>5</sup> This result clearly contradicts the Federal Circuit's premise in *Xerox* that it is not necessary to undertake a fact-based inquiry into a patent holder's business justifications for its refusal to deal. In fact, Xerox did not claim that the desire to protect its intellectual property rights motivated its refusal to deal; it merely asserted that the existence of such intellectual property rights immunized its conduct.<sup>6</sup>

How should this circuit conflict be resolved? We believe it is important to understand the economic motivation and effect of business conduct before courts either condemn or immunize it. While general liability

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2001) (summarizing the decision as giving patent holders "an absolute right to refuse to license others").

<sup>3</sup> *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 125 F. 3d 1195 (9th Cir. 1997).

<sup>4</sup> In particular, Xerox not only permitted customers that self-serviced their machines to purchase replacement parts, but, in contrast to Kodak, also permitted customers that contracted for service from ISOs to purchase replacement parts. However, such direct purchases were subject to Xerox's "on-site user verification." This procedure, instituted by Xerox to assure that the ordered parts were for the particular customer's machine, caused repair delays and made it extremely difficult for ISOs to compete effectively with Xerox in supplying aftermarket service. Michelle M. Burtis and Bruce H. Kobayashi, in *Why an Original Can Be Better than a Copy: Intellectual Property, the Antitrust Refusal to Deal, and ISO Antitrust Litigation*, 9 SUP. CT. ECON. REV. 143 (2001), recognize that Kodak's and Xerox's refusal to deal conduct was fundamentally the same, covering both unpatented and patented replacement parts. However, they distinguish between the scope of the Federal Circuit's decision, which they claim only concerns the narrow issue of refusing to deal patented replacement parts, and the Ninth Circuit's decision, which concerns a refusal to deal a bundle of patented and unpatented parts.

<sup>5</sup> In fact, the district court failed to give any instruction to the jury on the effect of intellectual property rights on the application of the antitrust laws. However, the Ninth Circuit excused the district court's failure as harmless, concluding that the jury would have rejected the protection of intellectual property business justification offered by Kodak as pretextual because only 65 of the thousands of replacement parts used in Kodak equipment were patented parts and Kodak's parts manager testified that patents did not cross his mind when Kodak instituted its parts policy. *Kodak*, 125 F.3d at 1219.

<sup>6</sup> Jonathan Gleklen, *Antitrust Liability for Unilateral Refusals to License Intellectual Property: Xerox and Its Critics*, Prepared for FTC-DOJ Hearings on Competition and

rules and “safe harbors” may evolve from such an understanding, for a generation modern antitrust law has favored “demonstrable economic effect” over “formalistic line drawing.”<sup>7</sup> An implication of this devotion to economic rationality is that a common set of antitrust rules should apply to both intellectual and non-intellectual property.<sup>8</sup> Therefore, we do not focus in this article on whether the presence of intellectual property rights should be a sufficient legal defense for a refusal to deal.

We also do not focus on the essentially legal question of whether a refusal to deal can be categorized as unilateral or conditional. While the Federal Circuit in *Xerox* considered unilateral refusals to deal with regard to patented parts as essentially per se legal, it condemned conditional refusals in the form of tying as an illegal extension of patent rights.<sup>9</sup> However, as a practical matter, it may be difficult to distinguish between unilateral and conditional refusals in terms of economic effect. Because Kodak and Xerox sold replacement parts separately to customers that serviced their own machines, they were not strictly conditioning the sale of parts on the purchase of service. But the effect of the refusal to deal with ISOs was that most Xerox and Kodak customers could not obtain replacement parts unless they also purchased service from Xerox or Kodak. Rather than arguing over whether to label the Xerox and Kodak conduct a unilateral refusal to deal or a de facto conditional tying arrangement, we merely analyze the conduct in terms of its likely economic purpose and competitive effects. This economic analysis provides insight into the appropriate antitrust treatment of the conduct, however it is categorized.

Part II of this article demonstrates that the most likely economic explanation for Kodak’s and Xerox’s refusals to deal with ISOs was to protect their price discrimination marketing arrangement. What we mean by price discrimination here is not the price discrimination of the Robinson-Patman Act variety, where identical products are sold to different customers at different prices. All Kodak and Xerox customers could have faced identical prices for equipment and for service. However, by lowering equipment prices and raising service prices, price discrimination existed in the economic sense that high-intensity users that demand more service pay higher total package prices relative to cost than low-intensity users that demand less service. Under this strategy of economic

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Intellectual Property Law and Policy in the Knowledge-Based Economy, May 1, 2002, available at <http://www.ftc.gov/opp/intellect/detailsandparticipants.htm#May%201>.

<sup>7</sup> *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 59 (1977).

<sup>8</sup> U.S. Department of Justice and Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property § 2.1 (1995) [IP Guidelines].

<sup>9</sup> *Xerox*, 531 U.S. at 1327.

price discrimination, aftermarket service sales are used as a meter to measure differences in customer values, which are presumed to vary with intensity of use. To make this price discrimination strategy work, however, it was essential that Xerox and Kodak block ISOs from obtaining replacement parts and supplying lower-priced service directly to high-intensity Kodak and Xerox customers.

Part III of the article explains how the aftermarket metering price discrimination involved in *Xerox* and *Kodak* is a common feature of highly competitive markets and is generally efficient. Indeed, when the meter is a good measure of consumer value, this type of price discrimination—including the related and necessary refusal to deal with aftermarket service suppliers—increases equipment sales as well as resources devoted to innovation. Therefore, courts should not arbitrarily condemn such conduct as an antitrust violation. Rather, we submit that protecting such competitive price discrimination should be a legitimate business justification for refusals to deal.

Part IV of the article confronts the main reason price discrimination is not considered a legitimate business justification. This reason is the incorrect belief, embedded in much antitrust scholarship and some case law, that price discrimination implies the presence of market power. This erroneous notion flows from the inappropriate use of the economic definition of market power—namely, a firm's own-price elasticity of demand—as a measure of antitrust market power. These concepts, however, are distinct.

The economic definition of market power would coincide with antitrust market power if all products in a market were perfectly homogeneous. But in virtually all real-world markets competitive firms produce goods and services that are unique in some dimension. As a result, each firm faces less than a perfectly elastic demand. Real-world competitive firms, therefore, price above marginal cost and may often find it profitable to price discriminate. These firms do not necessarily possess any antitrust market power at all, in the legal sense of an ability to control or even influence market outcomes. Antitrust market power as defined in case law thus is not an extreme form of economic market power, but is simply a different idea.

Part V of the article analyzes the possible anticompetitive effects of refusals to deal. The aim here is to provide insight into the appropriate relevant market definition for analyzing the claim that firms like Xerox or Kodak have monopolized the aftermarket service of their own products. A "holdup" theory is the only anticompetitive theory that may imply a relevant market consisting of the aftermarket servicing of an individual

company's own products. Once price discrimination is considered a legitimate business justification, this theory is less likely to be accepted.

## II. PRICE DISCRIMINATION IS THE MOST LIKELY EXPLANATION FOR KODAK'S AND XEROX'S REFUSAL TO DEAL

### A. AFTERMARKET SERVICE SALES IS A PRICE DISCRIMINATION METERING DEVICE

The most likely reason Xerox and Kodak found it in their business interests not to deal with ISOs is because ISOs were defeating Xerox's and Kodak's price discrimination. Xerox and Kodak were using sales of aftermarket service to meter demand across their customers. In particular, both Xerox and Kodak found it profitable to price their equipment at relatively low levels and price their service at relatively high levels, so that the overall package price of the equipment and service would be positively related to a customer's intensity of use and, therefore, demand for service. If the ISOs could get the repair parts they needed, they would be able to undercut the relatively high service prices essential for this discriminatory arrangement.

A clarifying disclaimer is necessary at the outset. In labeling Xerox and Kodak's actions as "price discrimination," we are not referring to price discrimination in the law. Xerox's and Kodak's conduct would not be illegal under the Robinson-Patman Act. Instead, we are referring to price discrimination in a different sense. We use the generally accepted economic definition of price discrimination, whereby a firm takes advantage of differing elasticities of demand for similar goods by charging different profit-maximizing prices relative to marginal cost.<sup>10</sup> Price differences relative to marginal cost may be either interpersonal (when a different price is charged different consumers) or intrapersonal (when a lower price is charged an individual consumer for increased purchases) or, as in the Xerox and Kodak arrangements, a combination of interpersonal and intrapersonal.<sup>11</sup> A separate economic distinction can be made between whether consumers are given a choice to self-select into price categories (when, for example, a firm supplies higher-priced "custom" and lower-priced "standard" versions of a product) or whether the dis-

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<sup>10</sup> See, e.g., Hal R. Varian, *Price Discrimination*, in HANDBOOK OF INDUSTRIAL ORGANIZATION 597 (Richard Schmalensee & Robert D. Willig eds., 1989) (surveying price discrimination theory and practices).

<sup>11</sup> The distinction between interpersonal and intrapersonal discrimination is discussed in Mark Armstrong & John Vickers, *Competitive Price Discrimination*, 32 RAND J. ECON. 579 (2001).

criminating firm sets prices on the basis of some verifiable demand characteristic (e.g., movie tickets priced according to whether the buyer is an adult, a child, or a senior).

In the aftermarket metering used by Kodak and Xerox, as in many other examples of economic price discrimination, buyers are not paying different prices for the same commodity. In fact, every buyer may face the same exact price for both equipment and aftermarket services. The manufacturer, however, finds it profitable to decrease its equipment price from the price that would be charged if the aftermarket service used with its equipment were sold at cost and to increase the price of aftermarket services. In this way, there is price discrimination in the overall package of equipment plus service. This situation holds both across customers (a higher package price relative to marginal cost for customers that use the equipment more intensively and thus demand more aftermarket service) and across units of the package for any individual customer (incremental machines that are used less intensively have a lower package price). If intensity of equipment use is related to customer value, this price discrimination will be profitable.

Price discrimination in this sense of aftermarket metering of demand has long been recognized by economists.<sup>12</sup> It is a very common market phenomenon. For example, makers of home video game systems price their video game console below cost and earn profits on game sales, either produced by themselves or on per-game disc license fees charged to independent game publishers.<sup>13</sup> Another example is computer printer manufacturers, which earn profits primarily on the ink jet cartridges used in their machines.<sup>14</sup> The list of similar intellectual property aftermarket metering examples is extensive: the IBM Selectric typewriter and carbon ribbon cartridges; the Polaroid camera and film; and so on.

Pricing based on the intensity of aftermarket usage has the potential to increase a seller's overall profit because it permits collection of consumer surplus across different users and uses. If buyers that use a machine more intensively generally have higher consumer surpluses on the package than buyers that use a machine less intensively, then an aftermarket pricing upcharge is a way to charge higher package prices to relatively

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<sup>12</sup> See, e.g., Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NW. U. L. REV. 281 (1956); Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 23-24 (1957).

<sup>13</sup> For example, Microsoft prices its Xbox console at \$125 below cost, which it hopes to make up with a per-game disc license fee of about \$7. N.Y. TIMES, Nov. 8, 2001, at G1; WALL ST. J., Jan. 31, 2002, at B1.

<sup>14</sup> See, e.g., *Hewlett-Packard Co. v. Nu-Kote Int'l, Inc.*, No. C-94-20647JW (N.D. Cal. July 16, 1999).

high-value buyers while charging lower overall prices to relatively low-value buyers. In contrast to setting different machine prices, the seller need not determine *ex ante* which buyers should be charged a higher or lower price. Instead, the marketing arrangement sets appropriate package prices across buyers on the basis of *ex post* buyer demand characteristics. In addition, package price discrimination via aftermarket metering eliminates the possibility of inter-buyer arbitrage via the resale of different-priced machines.<sup>15</sup>

#### B. REFUSING TO DEAL PREVENTS ISO “FREE RIDING”

The growth of ISOs is a natural development in response to discriminatory aftermarket metering arrangements. ISOs, often established by ex-service employees of the companies engaging in price discrimination, recognize the profit opportunity present in relatively high aftermarket service prices and enter the market in an attempt to arbitrage the discriminatory pricing arrangement. Equipment manufacturers want to prevent this arbitrage. This fact explains why Xerox and Kodak refused to sell ISOs the replacement parts necessary to service their copiers.

It is important to keep in mind that the relatively low initial equipment price and high service price that create the incentive for ISO arbitrage vitally depends on the manufacturer’s ability to prevent ISO arbitrage and thereby continue to use aftermarket service sales as a metering device. Xerox and Kodak set low equipment prices in anticipation of receiving high aftermarket service prices. Customers arbitraging this intended pricing arrangement with the assistance of ISOs, therefore, are in a sense “free riding” by taking advantage of the low equipment prices without paying the price of higher service prices. If the manufacturer could not prevent this “free riding” via ISO service sales, the manufacturer then would find it profitable to increase its equipment prices. The failure to do so in the face of ISO sales would imply a reduction in the overall package price to all customers (both high-value and low-value users), indicating the manufacturer initially had failed to set package prices at profit-maximizing levels before the ISO arbitrage.

#### C. SERVICE IS A BETTER METER THAN REPLACEMENT PARTS

Strictly speaking, aftermarket metering does not require the equipment manufacturer to refuse to deal with ISO service competitors. The

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<sup>15</sup> Marius Schwartz and Gregory J. Werden, in *A Quality-Signaling Rationale for Aftermarket Tying*, 64 ANTITRUST L.J. 387 (1996), present an alternative explanation for why a manufacturer would under-price equipment and tie over-priced aftermarket service. They claim it is a way to assure consumers about the quality of the equipment since lower-quality products will be used less intensively and generate lower profits under the pricing arrange-

manufacturer could meter value merely by including an upcharge in the price of a required aftermarket input that it supplies to the ISO service competitors. For example, as described above, video game console manufacturers employ aftermarket metering by setting an intellectual property license fee on the games supplied by other companies. Analogously, Xerox and Kodak could have done the same by setting an upcharge on their replacement parts. They thereby would have earned greater profits on those customers that used their copiers more intensively. Even if those customers used ISOs to service their machines, those customers still would have required more replacement parts.

The obvious economic question then is why Xerox or Kodak found it profitable to accomplish price discrimination the way they did—namely, on the direct sale of aftermarket service—rather than by freely selling replacement parts to ISOs at high and profitable prices. In fact, because consumer tastes vary, it may appear to be in an equipment manufacturer's business interest to give users of its product an increased choice of aftermarket service firms. The availability of greater service variety would increase the demand for the manufacturer's equipment that the manufacturer could collect in either higher initial equipment prices or in higher replacement parts prices.

One of us has described in detail elsewhere why replacement parts may not serve as an effective aftermarket metering device.<sup>16</sup> In contrast to the video game case, where there is no aftermarket substitute for games, service is to some extent an aftermarket substitute for parts. In particular, buyers can reduce their demand for replacement parts by servicing their copiers more frequently. An increased price of parts then would lead customers to economize on high parts prices by increasing the servicing of their equipment. This incentive to substitute service for parts could be large. The cost of parts is a relatively small share of total aftermarket expenses. If Kodak or Xerox had attempted to meter the differential value of its product across customers by placing an upcharge entirely on parts, the result would be a large increase in parts prices as compared to service prices. This likely would lead to an inefficiently low use of parts relative to service and, thus, a reduction in manufacturer profit.

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ment. However, inter-consumer intensity of use is unlikely to be primarily related to differing product quality perceptions and pre-purchase consumer quality uncertainty would appear to be solved more easily with a warranty.

<sup>16</sup> Benjamin Klein, *Market Power in Antitrust: Economic Analysis After Kodak*, 3 SUP. CT. ECON. REV. 43, 63–71 (1993).



In addition, and perhaps more importantly, Kodak's and Xerox's refusal to deal with ISOs permitted the two firms to meter value across customers based on the *type* of service demanded, as well as on the *quantity* of service demanded. Specifically, buyers demanding faster service (for example, shorter response time, the availability of weekend and evening service, etc.) probably have a higher reservation value on the equipment and service package than those willing to wait. By supplying aftermarket service directly, equipment manufacturers can charge buyers demanding faster service a higher service price relative to marginal cost than other buyers. Additionally, equipment manufacturers also may want to discriminate in favor of relatively more knowledgeable high-intensity customers that service their machines themselves. Both Kodak and Xerox sold replacement parts directly to these customers, which likely were relatively more sensitive to package prices. Simply placing a metering upcharge on replacement parts would have resulted in package prices for these high-volume users that were too high and that drove away this sophisticated and brand-elastic class of customers.<sup>17</sup>

In offering this economic analysis, we must allay a potential objection from careful students of the *Kodak* case. The Supreme Court explicitly noted that "Kodak never has asserted that it prices its equipment or parts subcompetitively and recoups its profits through service. Instead, it claims that it prices its equipment comparably to its competitors and intends that both its equipment sales and service divisions be profitable."<sup>18</sup> This statement superficially may seem to conflict with our price discrimination account of Kodak's conduct. However, in truth it does not. The fact that Kodak (and Xerox) priced their equipment similarly to their competitors and expected to earn profits on both equipment and service sales does not contradict their use of a metering price discrimination strategy. Prices were comparable because it is likely that all firms in the industry found it profitable to adopt this same strategy. This strategy does lead to lower equipment prices than otherwise. It certainly does not mean, however, that maximization of overall profitability required Kodak and Xerox to price equipment below cost.

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<sup>17</sup> In some cases, such as *Data General v. Grumman Systems Support*, 36 F.3d 1147 (1st Cir. 1994), where Data General was held to have legally refused to license its copyrighted diagnostic software to ISOs that used the software to repair Data General computer hardware, there may be no alternative way to use the intellectual property to price discriminate. If Data General had been legally required to license its diagnostic software to ISOs, such as Grumman, it would have been difficult for Data General to engage in aftermarket metering of demand by charging different licensing fees. In addition, it likely would have led to unauthorized copying of the software. "Foreclosing" competing ISOs from the service of Data General products by the refusal to license its diagnostic software likely was the most efficient way for Data General to collect the value of its intellectual property.

<sup>18</sup> *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 472 (1992).

#### D. A HOLD-UP EXPLANATION IS IMPLAUSIBLE

Our price discrimination explanation for Kodak's and Xerox's conduct fits the facts. The Supreme Court's opinion suggested the possibility of an alternative, but less plausible, explanation for Kodak's behavior. The Court maintained that Kodak may have refused to sell replacement parts to ISOs as a way to hold up its locked-in customers. The logic is that of bait-and-switch. The seller of an expensive durable good sells to customers that expect—but fail contractually to guarantee—that service and repair costs for the durable item will be reasonable. After the sale, the seller surprises the buyers by jacking up the service and repair costs to unexpectedly high levels. The surprise price hike, this theory goes, would exploit the high cost of switching from a sunk capital investment.

This explanation does not fit the facts. It is reasonably clear that Kodak and Xerox did not attempt to hold up their existing locked-in customers. Kodak sought to make its parts policy change prospective, applying it only to purchases of its new models and continuing to make replacement parts available to ISOs servicing old models.<sup>19</sup> Xerox also eventually made its parts availability policy prospective, initially applying its restrictions only to new models and extending the restrictions to existing products only after five years.<sup>20</sup> These are the opposite of actions one would expect of firms holding up their locked-in customers. Rather than a holdup of locked-in customers, price discrimination is a more convincing explanation of the conduct in *Kodak* and *Xerox*.

### III. PRICE DISCRIMINATION SHOULD BE A LEGITIMATE BUSINESS JUSTIFICATION

#### A. PRICE DISCRIMINATION IS COMMON IN COMPETITIVE MARKETS

The price discrimination practiced by Kodak and Xerox cannot exist in the textbook model of perfect competition, but in real-world competitive markets it is a common and often desirable business practice. In the perfectly competitive model each firm by definition faces a perfectly elastic demand. By assumption, even the slightest price increase over marginal cost will drive the firm's sales not just down by some amount, but absolutely to zero. In this hypothetical world, buyers are sensitive to the slightest deviation from marginal-cost pricing.

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<sup>19</sup> Kodak's prospective policy change applied to its new micrographic equipment; Kodak's policy for copier equipment was never to make parts available to ISOs. As a consequence there were only one or two copier ISOs in the country at the time of the announced micrographic policy change, presumably that were obtaining parts from self-servicing customers in violation of Kodak's established policy. See *Kodak*, Pet. for Cert. at 28 (Feb. 5, 1998).

<sup>20</sup> *Xerox*, 531 U.S. at 1324.

The standard example of such a perfectly competitive market is wheat sold on the Chicago Board of Trade. The wheat within a particular grade is absolutely undifferentiated. Within each grade, each wheat seller faces demand that is perfectly elastic. Each seller will sell no wheat at all if it asks even a penny more than that grade's unique going market price. No wheat seller can price discriminate because each seller faces a demand curve that is absolutely horizontal.

If firms in an industry are selling absolutely undifferentiated products, these firms cannot price discriminate. If Kodak, Xerox, and other firms were selling identical copiers, for example, they would not be able to use aftermarket metering arrangements to charge high demand intensity customers a higher package price. These customers would merely switch their purchases to an equipment manufacturer that was charging less for service. This competitive process would drive the package price for high-intensity customers down to the same level as the price for low-intensity customers.

Real markets, however, hardly ever conform to this assumption about perfectly homogeneous products made in the perfectly competitive economic model. In nearly every real-world competitive market, products are differentiated to some degree. Each firm's product has some unique characteristics that distinguish it from the products of competitors. One unique characteristic is the product's trademark. Federal trademark law guarantees this uniqueness because the Lanham Act gives each trademark owner the right to exclude others from using marks that might be confusingly similar. Unique characteristics also may consist of particular product features valuable to particular consumers, which are almost always present when intellectual property is involved.<sup>21</sup> Product differentiation is the norm not just for complex machines like photocopiers; it is also present for the most mundane and apparently simple products, such as soft drinks, breakfast cereals, or athletic shoes. Consumers place different values on inherently subjective characteristics, such as taste, packaging, or product image of these goods. In addition, consumers will differ in their perceptions of product or service quality based on their past experience and particular relationship with a supplier, the locational convenience for individual customers of the supplier's retailers, and other customer-specific factors. Apart from wheat and other bulk commodities, it is difficult to find many markets with truly fungible products along all dimensions of demand.

Once products are differentiated rather than fungible, the theoretical model of perfect competition no longer applies. Each seller then faces

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<sup>21</sup> For example, when Kodak entered the market in 1975 its product possessed a superior patented document feed device. See Timothy F. Bresnahan, *Post-Entry Competition in the*

a demand curve that is downward sloping rather than completely flat. If the seller raises its price a small amount, its demand will fall. But it will not fall absolutely to zero. If a firm raises its price by a penny, for instance, it is not true that every single consumer will switch to a competing seller, as would be true for wheat buyers at the Chicago Board of Trade. Instead, the consumers that most value the particular unique characteristics of the seller's product will not consider competing products to be perfect substitutes. Hence, they will not switch. This fact means that each seller in a typical real market has the potential ability to price discriminate, because inter-seller competition will not eliminate price differences.

Because product differentiation is normal and pervasive in real-world markets, price discrimination can be expected to be normal and pervasive as well. This fact will be true even in markets that include highly competitive firms possessing very small market shares. In short, price discrimination often exists in extremely competitive markets.

For example, consider discount coupons for grocery products. Because it is costly for customers to collect and redeem coupons, grocery coupons may be a way for companies to separate groups of customers and to charge lower prices to customers with lower time values, who are presumably more price-sensitive. There are many other commonly recognized examples of price discrimination in everyday competitive markets: movie pricing that discounts tickets for children, students, and seniors; airline pricing (by even the smallest new entrants, like Jet Blue) that discounts advance purchase fares to separate business from vacation travelers; fast food restaurant pricing that discounts some menu items relative to others (such as drinks), and so on. Some price differences simply may reflect subtle differences in opportunity cost. Nevertheless, one must expect many examples of price discrimination to exist in a world of differentiated products where firms can separate consumers on the basis of price sensitivity.

The economics literature recognizes price discrimination as a normal feature of the competitive process. This literature acknowledges that price discrimination commonly exists in highly competitive markets. For instance, a major new survey of the topic begins with this description: "Price discrimination is a common practice by firms in virtually all markets lacking the textbook criteria of perfect competition."<sup>22</sup>

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*Plain Paper Copier Market*, 75 AM. ECON. REV. 15, 17-18 (1985). The Court in *Kodak* recognized that Kodak's equipment was unique. *Kodak*, 504 U.S. at 456.

<sup>22</sup> Lars A. Stole, Price Discrimination in Competitive Environments (Univ. of Chicago GSB Working Paper, Nov. 7, 2001) (forthcoming in the new HANDBOOK OF INDUSTRIAL

The law also has begun to recognize the ubiquitousness of price discrimination, including the likelihood of its existence in competitive markets. Judge Richard Posner, in a perceptive recent decision, explicitly recognizes the existence of competitive price discrimination.<sup>23</sup> The examples he uses are the pricing of books and scholarly journals. Hardback and paperback versions of the same book, Judge Posner notes, are sold at prices that differ by far more than the difference in costs. Similarly, publishers of minor scholarly journals commonly charge a much higher price to libraries than to individuals. Judge Posner describes these examples of price discrimination in competitive industries as “paradoxical,” but fully explained by the fact that firms do not face competitors supplying perfect substitutes.<sup>24</sup> Once a firm is selling a somewhat differentiated product and thus faces a negatively sloped demand, it can, and frequently does, engage in price discrimination. Therefore, Judge Posner correctly concludes, it would be inappropriate to infer the existence of a conspiracy from the fact that all the firms in an industry price discriminate. Specifically, because individual manufacturers of brand-name drugs do not face competition from perfect substitutes, each manufacturer independently has the ability and incentive to price discriminate. The manufacturers need not engage in a conspiracy to do so. Price discrimination is a common practice in highly competitive, differentiated products markets and, as Judge Posner correctly concludes, not evidence—indirect or otherwise—of collusion.

#### B. PRICE DISCRIMINATION OFTEN HAS DESIRABLE ECONOMIC EFFECTS

Any kind of “discrimination” can tend to sound bad, and “price discrimination” is no exception. However, price discrimination is far from the kind of uniformly bad conduct that an antitrust policy should condemn. In fact, price discrimination often has socially beneficial effects. This is especially so for cases of metering price discrimination involving goods

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ORGANIZATION, available at <http://gsbls.uchicago.edu/papers/hio-disrib.pdf>). See also Severin Borenstein, *Price Discrimination in Free-Entry Markets*, 16 RAND J. ECON. 380 (1985) (price discrimination may exist in competitive markets because of consumer information costs or brand-specific preferences); Christopher Bliss, *A Theory of Retail Pricing*, 36 J. INDUS. ECON. 375 (1988); Armstrong & Vickers, *supra* note 11 (purchases of different products from the same seller are bundled in a discriminatory way that maximizes individual consumer utility); Andrea Shepard, *Price Discrimination and Retail Configuration*, 99 J. POL. ECON. 30 (1991) (presence of price discrimination in competitive markets is empirically documented). Einer Elhauge, in *Why Above-Cost Price Cuts to Drive Out Entrants Are Not Predatory—And the Implications for Defining Costs and Market Power*, 112 YALE L.J. 681 (2003), also provides a useful summary of theories of competitive price discrimination.

<sup>23</sup> *In re Brand Name Prescription Drugs Antitrust Litig.*, 186 F.3d 781, 787 (7th Cir. 1999).

<sup>24</sup> *Id.* at 186 F.3d at 786–87.

produced with intellectual property. We first consider the static and then the dynamic economic efficiency effects of such price discrimination.<sup>25</sup>

1. *Static Efficiency Effects of Metering Price Discrimination  
Are Likely to Be Positive*

The usual economic analysis concludes that the effect of price discrimination on total welfare is ambiguous. Some (low-intensity) buyers will face lower overall package prices and purchase increased quantities while other (high-intensity) buyers will face higher overall package prices and purchase decreased quantities. The well-known result is that the overall impact on total output from price discrimination is indeterminate. Moreover, even when total output is unchanged, this standard analysis runs, there still is a social inefficiency from output that is misallocated among consumers. Total consumer welfare could be increased if the output that is produced could be reallocated from low-valuing consumers to high-valuing consumers.<sup>26</sup>

This standard analysis applies to what Pigou called third-degree price discrimination, where buyers are broken into distinct groups (e.g., high- and low-intensity demanders) and a single profit-maximizing price is set for each group.<sup>27</sup> Because the prices charged will be higher for some groups and lower for other groups, the effect on overall output is ambiguous.<sup>28</sup>

However, aftermarket metering is closer to what Pigou in his classic taxonomy referred to as second-degree price discrimination, where output is likely to increase. Second-degree price discrimination is an approximate form of first-degree or perfect price discrimination, where the manufacturer varies price by unit and by consumer to collect the full consumer surplus. In this situation, the seller would increase output to

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<sup>25</sup> An insightful discussion of some of these issues can be found in Mark A. Glick & Duncan J. Cameron, *When Do Proprietary Aftermarkets Benefit Consumers?*, 67 ANTITRUST L.J. 357 (1999).

<sup>26</sup> In addition, there may be costs of implementing the price discrimination arrangement in terms of separating consumers and preventing arbitrage. See RICHARD A. POSNER, ANTITRUST LAW 83 (2d ed. 2001). However, excluding the costs that may be associated with ISO litigation, the costs of implementing an aftermarket metering price discrimination arrangement with a refusal to deal policy are likely to be small.

<sup>27</sup> A.C. PIGOU, THE ECONOMICS OF WELFARE (1920).

<sup>28</sup> With linear demand and constant marginal costs there will be no change in total output. Third-degree price discrimination will have unambiguous output enhancing effects when the aggregate demand curve is "kinked" so that the group of relatively low-valuing demanders would not buy anything at all in the absence of price discrimination. Under such circumstances, there will be no price increase to high-valuing demanders under price discrimination. See Jerry A. Hausman & Jeffrey K. MacKie-Mason, *Price Discrimination and Patent Policy*, 19 RAND J. ECON. 253 (1988).

the efficient point where price equals marginal cost. Rather than a single price being set in each consumer market segment, with aftermarket metering the manufacturer is similarly varying the price across each unit sold to each buyer in an attempt to collect the maximum amount for each unit. The essential economic determinant of how closely a manufacturer using an aftermarket metering arrangement can approximate the output increases of perfect price discrimination is the accuracy of the meter in measuring intensity of package demand above the non-discriminating price. If the meter is highly accurate in this regard, the price increase to high-intensity users will not result in the loss of many sales to high-intensity users. The meter will merely increase the package price across high-intensity users in a way that collects varying levels of consumer surplus. On the other hand, sales to low-intensity users that face a lower package price will expand.<sup>29</sup>

However one labels this form of price discrimination, the incentive of a firm to engage in the type of metering that produces these static efficiency improving output increases will be higher when the marginal cost of the product is lower. This condition often accompanies situations involving intellectual property. Intellectual property can be expensive to create due to high fixed R&D costs, but cheap to produce once created due to low marginal costs of production. Under such conditions, manufacturers have a large profit incentive to move down their demand curve by making incremental sales without losing the profit from existing sales. One technique to accomplish this is to reduce equipment price and transfer some of the return on their intellectual property to the service aftermarket. Manufacturer profit will increase if the service aftermarket indeed serves as a reasonable measure of product value, both across consumers and across units purchased by any individual consumer—that is, if relatively low-valued units of the product truly do use less aftermarket service. (An example would be a small firm or a home user that rarely uses its photocopier. These customers would have a lower initial willingness to pay for the machine, but also would have

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<sup>29</sup> Unfortunately, economists concentrate most of their analyses of price discrimination on third-degree price discrimination. This may be due to Pigou's incorrect assessment that first- and second-degree price discrimination are scarcely ever practicable so that "in real life the third degree only is found." PIGOU, *supra* note 27, at 244. Further confusing is that modern usage misleadingly labels second-degree price discrimination as a particular form of third-degree price discrimination where, instead of the firm setting different prices to different consumers on the basis of particular consumer characteristics, such as age or location, consumers are permitted to self-select into different price categories. *See, e.g.,* Varian, *supra* note 10. Although we present our analysis in terms of Pigou's terminology for ease of communication, we remain unconvinced about its usefulness. The key economic factors common to all forms of price discrimination are the number of implicit prices and how precise prices are across sales relative to consumer value.

fewer aftermarket service needs because of the lower rate of use.) With this technique, the manufacturer increases the user base for its product by cutting the package price on low-intensity units for consumers that otherwise would find the product to be unaffordable in the absence of price discrimination without losing sales of now higher-priced, higher-intensity units. This may be the reason why so many of the earliest tying cases were patent ties where the tie was used as part of an aftermarket metering arrangement.<sup>30</sup>

Not only is the profit incentive to engage in this form of price discrimination very large with an intellectual property good that has high fixed costs and low marginal costs, but the increase in the quantity sold, and therefore the social efficiency of price discrimination, also may be large. An excessively high equipment price and low service price prevents low-intensity consumers, who would be willing to pay the relatively low marginal cost of the equipment, from using the equipment. Aftermarket metering is an efficient way for intellectual property holders to collect the value of their property because it effectively lowers the price of the product to low valuing consumers.

An additional beneficial consequence of aftermarket metering is that it reduces the relative price distortion that would otherwise exist between equipment and service prices. If the full value of the intellectual property were collected entirely on equipment, equipment would be relatively “overpriced” in the sense that the gap between equipment price and equipment marginal cost would be substantially greater than the gap between service price and service marginal cost. This is because the price of both equipment and service can be expected to equal average cost in the long run and the production of equipment has higher average costs relative to marginal costs than the production of service because of significant R&D and other fixed costs of equipment manufacture. Therefore, without aftermarket metering, there is an allocative equipment inefficiency because consumers replace their equipment less frequently than is optimal. By shifting collection of the intellectual property value partially to another margin, this relative price distortion is reduced.

Professor Jeffrey MacKie-Mason has argued the exact opposite—that aftermarket metering of demand leads to “overpricing” of aftermarket service and the “underpricing” of equipment and, therefore, to the more

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<sup>30</sup> POSNER, *supra* note 26, at 203. See, e.g., *IBM v. U.S.*, 298 U.S. 131 (1936); *United Shoe Mach. Corp. v. U.S.*, 258 U.S. 451 (1922); *Motion Picture Patents Co. v. Universal Films Mfg. Co.*, 243 U.S. 502 (1917); *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912).



frequent replacement of equipment than is optimal.<sup>31</sup> This supposed distortion in MacKie-Mason's model, however, is based on the arbitrary and unrealistic assumption that equipment is manufactured under constant returns to scale so that in the absence of aftermarket metering the average costs of equipment manufacture are covered at a price equal to marginal cost. More realistically, if service is priced at marginal cost, as advocated by MacKie-Mason, the price of equipment would have to be set significantly above the marginal cost of equipment manufacture to cover average equipment costs. Consequently, without aftermarket metering, prices of equipment relative to service would be too high and replacement of equipment would be too infrequent. Therefore, contrary to MacKie-Mason, aftermarket metering does not create a new distortion, but ameliorates a distortion that exists in the first place.<sup>32</sup>

In sum, static analysis shows that aftermarket metering price discrimination is likely to be economically efficient in the sense of increasing total consumer and producer surplus. The net static effect on consumer surplus alone may be positive or negative, as high-intensity users pay higher prices and lose consumer surplus while low-intensity users pay lower prices, increase their demand and gain consumer surplus (because the price discrimination is less than perfect). However, if the meter is an accurate measure of intensity of package demand above the non-discriminating price, total output will increase. The effect on producer surplus is unambiguously positive. And, as we next shall see, this increase in producer surplus will result in a dynamic increase in consumer surplus as profit is competed away by firms in creating new unique and innovative products for consumers.

## *2. Dynamic Efficiency Effects of Metering Price Discrimination Are Likely to Be Positive*

Dynamic efficiency analysis strengthens the case for price discrimination. A number of commentators have argued, on the contrary, that

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<sup>31</sup> Jeffrey K. MacKie-Mason, What to Do About Unilateral Refusals to License? Prepared for FTC-DOJ Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy (May 1, 2002), available at <http://www.ftc.gov/opp/intellect/detailsandparticipants.htm#May%201>. This argument is formally presented in Severin Borenstein, Jeffrey MacKie-Mason & Janet Netz, *Antitrust Policy in Aftermarkets*, 63 ANTITRUST L.J. 455 (1995), where the relatively high aftermarket service price is assumed to occur not because of wealth-maximizing price discrimination but because the equipment manufacturer cannot credibly commit (e.g., via contract) not to increase service prices after purchase and, therefore, must lower initial equipment prices to knowledgeable consumers that anticipate the higher service prices.

<sup>32</sup> See Benjamin Klein, *Market Power in Aftermarkets*, 17 MANAGERIAL & DECISION ECON. 143, 158–60 (1996). The relative price distortion that would exist with open ISO service supply is what Kenneth G. Elzinga and David E. Mills, in *Independent Service Organizations*

adding dynamic considerations to the standard static efficiency analysis of price discrimination illuminates additional economic inefficiencies. The logic of these arguments is that, in contrast to the static analysis, which assumes a pre-existing monopolist that is deciding whether or not to price discriminate, in the dynamic context resources will be wasted by firms in seeking to obtain a monopoly position if attaining the monopoly permits the firm not only to charge a monopoly price but also to price discriminate. The logic is that firms vying for a valuable monopoly status will waste even more resources in their quest for a prize magnified by a new right to price discriminate.<sup>33</sup>

To take a standard example, suppose a taxi company is weighing how much to invest in winning a local government franchise that will permit the company to operate as a taxi monopolist in some new jurisdiction. Assume that a local politician or group of politicians will award the franchise. Assume also that one must lobby the politicians to win the franchise, and that lobbying is expensive. If the company that is ultimately granted the monopoly taxi franchise is permitted to price discriminate, the argument goes, the franchise will be more valuable. Therefore, the ability to price discriminate will lead monopoly contenders to invest more real resources in their lobbying efforts to win the franchise. Spending more resources on competition for the enhanced monopoly is wasteful because the added spending creates nothing of social value. From this perspective, to permit price discrimination is to compound the inefficiency of monopoly.

This monopoly franchise analysis does not apply to the usual competition for the ability to price discriminate that occurs in the marketplace. In particular, this analysis assumes competition is for an artificially created monopoly asset and is taking place through socially wasteful lobbying. In contrast, competition in the usual marketplace context is for assets (such as intellectual property) that permit a firm to produce differentiated (but not necessarily monopoly) goods that give it the ability to price above marginal cost and to price discriminate. Competition for these assets proceeds via investments that are socially productive, not socially useless. Moreover, this investment process occurs in a competitive context, where any increased profit from price discrimination is passed on

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and *Economic Efficiency*, 39 *ECON. INQUIRY* 549 (2001), argue may be the primary rationale for manufacturer refusals to deal. This seems unlikely. Carl Shapiro, in *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 *ANTITRUST L.J.* 483 (1995), presents a model where the MacKie-Mason "distortion" is shown to be relatively small. Therefore, the efficiency of increased frequency of replacement is also likely to be relatively small.

<sup>33</sup> POSNER, *supra* note 26, at 202–03. This argument was presented by Professor Posner in *The Social Costs of Monopoly and Regulation*, 83 *J. POL. ECON.* 807 (1975), and originally by Gordon Tullock in *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 *W. ECON. J.* 224 (1967).

to consumers in the form of additional investments along whatever dimensions give the firm the ability to price above marginal cost and price discriminate. For example, firms might spend more to create a greater variety of products, to improve their brand names, to multiply their retail outlets, or to undertake R&D for product improvement. The range of potential investments is limited only by the imagination of smart people who would like to make more money, which they only can do by creating things for which consumers are willing to pay. Under typical circumstances, therefore, competition for the ability to price discriminate is not necessarily wasteful at all but is very likely to be socially efficient.

In the case of the creation of intellectual property assets, price discrimination is a tool that allows intellectual property holders to collect more of the economic value of their property. This added return increases the rewards to innovation and thereby prompts more innovation. In fact, some have argued that innovation would not occur at all in competitive high-technology industries without price discrimination.<sup>34</sup> In any event, one must account for the positive consumer benefits of increased investments in innovation when considering the effects of price discrimination.<sup>35</sup>

In some circumstances it is possible that increasing the return to intellectual property holders may result in a net social cost. This occurs when the private value of marginal investments in innovation exceeds the social value, because one individual's investment imposes an externality on other individuals' investments. For example, assume that one individual's investment in innovation lowers the probability that others will win a "patent race." This "duplicative" competition for the intellectual property right may lead to over-investment, in the sense that the costs of the increased investments on the margin outweigh the increased social

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<sup>34</sup> William J. Baumol and Daniel G. Swanson, in *The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power*, 70 ANTITRUST L. J. 661 (2003), build on the analysis in Michael E. Levine, *Price Discrimination Without Market Power*, 19 YALE J. ON REG. 1 (2002), to argue that in industries where intellectual property is important and marginal production costs are relatively low, competitive firms (in the sense of firms facing perfectly elastic demands) must price discriminate to cover their fixed R&D costs. More realistically, in such industries firms will face negatively sloped demands for their unique products (and may also face rising marginal costs when one includes marketing, administrative, and other costs in addition to narrow production costs) so that an equilibrium is likely to exist without price discrimination.

<sup>35</sup> In some models price discrimination intensifies competition, leading to lower prices and industry profit and, as a consequence, a reduced incentive to innovate. These potential effects are additional benefits from price discrimination. See Kenneth S. Corts, *Third-Degree Price Discrimination in Oligopoly: All-Out Competition and Strategic Commitment*, 29 RAND J. ECON. 306 (1998); Thomas J. Holmes, *The Effects of Third-Degree Price Discrimination in Oligopoly*, 79 AM. ECON. REV. 244 (1989).

value of the investments.<sup>36</sup> When the reward to the winner of the race involves a pre-existing asset (as in our taxi cab franchise) or an asset that inevitably soon will exist, the over-investment is obvious because there is absolutely no increase in social value from the investments.

We encounter a different and more typical situation when a firm invests in R&D to create new assets that otherwise would not exist. The inability of investors to appropriate the full value of such innovations (because of incomplete property rights, free riding, and the inability of prices to capture the full surplus) then is likely to make the private value of the research investment smaller than the social value.<sup>37</sup> This situation implies a general underinvestment in innovations. The fact that the new asset created by the R&D investment permits the firm to sell differentiated products that can be priced in a discriminatory way then permits the firm to collect a return closer to the full social value of its innovation. Therefore, price discrimination, because it efficiently encourages increased investments in innovation, is efficiency-enhancing.

One might doubt whether it is good to increase the incentive to innovate. The basis for this doubt might be the usual economic analysis of intellectual property rights, which concludes that it is socially efficient to *decrease* the expected return to (and hence the incentive to invest in) innovation projects by limiting the term of intellectual property rights. This result holds, however, because a static inefficiency is assumed to be associated with the grant of the intellectual property rights. The issue is not whether the private value of the investments is greater than the social value. In particular, it is efficient in the usual analysis for firms to receive less than the full social value of their investments in order to offset the distortion of price being set by the intellectual property holder at a level greater than marginal cost. That is, the usual analysis involves a trade-off of the dynamic efficiency gains from increasing the incentives to invest with the associated static inefficiency costs of consumption at less than optimal levels.<sup>38</sup>

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<sup>36</sup> Yoram Barzel, in *Optimal Timing of Innovations*, 50 REV. ECON. & STAT. 348 (1968), provides an early statement of how the innovation process may lead to such over-investment. See also Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561 (1971); Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 AM. ECON. REV. 691 (1983).

<sup>37</sup> See Charles J. Jones & John C. Williams, *Measuring the Social Return to R&D*, 113 Q. J. ECON. 1119 (1998); Edwin Mansfield et al., *Social and Private Rates of Return from Industrial Innovations*, 91 Q. J. ECON. 221 (1977) (estimating that the private return to innovation is significantly less than the social return).

<sup>38</sup> This classic trade-off is formalized, for example, by WILLIAM NORDHAUS in *INVENTION, GROWTH AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE* (1969).

In contrast, price discrimination creates the dynamic efficiency gains of increasing R&D investment returns without any associated cost from an increase in the consumption distortion. With price discrimination, there is no necessary increase in the consumption distortion that must be balanced against the positive dynamic effects of an increased return on investments. The reason is that the effect of discriminatory metering arrangements on total quantity supplied is generally positive, especially for cases of goods produced with intellectual property.

In sum, price discrimination allows producers to recoup more of the social value of their innovations and thereby leads to more innovation. Because this added innovation is likely to benefit consumers and society, dynamic considerations strengthen the case in favor of price discrimination.

#### C. ANTITRUST LAW SHOULD NOT TRY TO DETERMINE THE WELFARE EFFECTS OF PRICE DISCRIMINATION IN SPECIFIC CASES

Both the static and dynamic perspectives suggest that aftermarket metering price discrimination arrangements are likely to have efficiency-enhancing effects. These conclusions argue in favor of excluding price discrimination from the type of conduct subject to antitrust suppression. After all, why devote expensive resources to attacking something that is likely to be good for society? Some may wonder, however, whether it might be wise for courts to go beyond this general analysis. In particular, should courts try to evaluate the effects of price discrimination in the specific factual case at bar—to find and weed out those cases where the welfare effects may be negative? We think this course would be a serious error. Efforts to conduct more detailed welfare analyses of price discrimination in individual cases would be expensive follies that would disserve and distort proper antitrust goals.

As described above, the assets that permit a firm to price discriminate are often very different from the monopoly assets that imply the existence of market power. They typically are assets associated with a firm's effort to differentiate its product. These assets often have a strong component of intellectual property: a trademark and associated reputation that springs from the firm's past performance; a particular image; a patent over particular unique product characteristics; and so on. It is now widely recognized that the mere possession of such intellectual property rights does not imply the existence of market power.<sup>39</sup> It is not the proper

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<sup>39</sup> IP Guidelines, *supra* note 8, § 2.2. See also *Xerox*, 203 F.3d at 1325–26 (Fed. Cir. 2000); *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1364 (Fed. Cir. 1998); *Abbott Labs. v. Brennan*, 952 F.2d 1346, 1354–55 (Fed. Cir. 1991); *Jefferson Parish Hosp. Dist. No. 2 v.*

concern of the antitrust laws to control the supposed inefficiencies of excess variety or over-investment in product innovations that may result as a consequence of the free and open competitive process for the creation of these assets. These actions are usually undertaken by firms without any market power with the goal of producing the most desirable products that can then be sold most profitably to consumers. The actions do not involve an artificial restriction of market output—the sort of thing that the antitrust laws properly are designed to protect against. Instead, these actions are part of the normal competitive process.<sup>40</sup>

In the same vein, the possible static and dynamic inefficiency effects of price discrimination are not the type of economic effects about which the antitrust laws should be concerned. The effects are products of the normal competitive process. Antitrust law would err if it undertook to calculate the efficiency/inefficiency trade-offs for a discriminatory marketing arrangement in any particular case. Most assuredly, in any given case a manufacturer's attempt to use price discrimination to reap increased returns can help some buyers and hurt others, as compared to a situation where a seller earns the same margin from all sales. Antitrust law should not, however, involve a determination of which consumers gain and which lose when a firm enforces a discriminatory pricing arrangement with a refusal to deal. It is also not the role of antitrust to determine, for example, that there are too many restaurants in the economy or that restaurants are of too diverse a variety because of price discrimination. We look to the unsupervised competitive market process and not to antitrust law to settle such issues.

Moreover, even if one thought it would be desirable to weigh all such "efficiency" trade-offs, it would be flatly impossible for courts to do so.

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Hyde, 466 U.S. 2, 37 n.7 (1984) (O'Connor, J., concurring); HERBERT HOVENKAMP, MARK D. JANIS & MARK A. LEMLEY, *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* § 4.2 (2002).

<sup>40</sup> We could be said to be describing the "monopolistic competition" economic model, which recognizes that all firms produce differentiated products and face negatively sloped demand curves but operate under conditions of free entry and earn zero profits. However, standard monopolistic competition analysis uses the perfect competition benchmark for defining so-called "inefficiencies," namely a greater than optimal number of firms each producing at less than an optimal output rate. Moreover, the model's use of the unfortunate adjective "monopolistic" to refer to this normal competitive market structure improperly suggests a role for antitrust regulation. For example, Jonathan B. Baker, in *Product Differentiation Through Space and Time: Some Antitrust Policy Issues*, 42 ANTITRUST BULL. 177, 179 (1997), argues in this context that while product differentiation benefits consumers by increasing the variety of product offerings that serve differing consumer preferences, it also may "facilitate the exercise of market power" by leading to higher prices. This supposed detrimental effect of product differentiation mistakenly labels any deviation from the perfectly competitive benchmark of price equal to marginal cost as an "exercise of market power."

The relevant data necessary to make such a judgment are highly specific to the particular case, extremely difficult to obtain, and continuously changing. To attempt such an analysis for the myriad price discrimination arrangements that pervade the economy would require extremely detailed and widespread judicial regulation of the marketplace that would certainly not be in consumers' best interests. It would be wrong-headed, for example, to try to prohibit every supermarket's use of "cents off" coupons or to regulate each restaurant that earns a lower return on its entrees than its drinks, or to second-guess the endless other examples of inter-consumer price discrimination in our economy. It would be undesirable for courts to try to microregulate the multitude of discriminatory arrangements that competitive firms adopt in the ordinary competitive process.<sup>41</sup> Instead, antitrust law should accept competitive price discrimination as a legitimate business justification.

#### IV. PRICE DISCRIMINATION DOES NOT IMPLY MARKET POWER

##### A. THE CASE LAW THAT TAKES PRICE DISCRIMINATION AS EVIDENCE OF MARKET POWER DETERS DEFENDANTS FROM ADVANCING A PRICE DISCRIMINATION JUSTIFICATION

Sensible antitrust doctrine would accept price discrimination as a legitimate business justification for Xerox's and Kodak's conduct. Yet, neither Xerox nor Kodak offered this aftermarket metering price discrimination justification to the courts for their refusal to sell replacement parts to ISOs. Why not? There is a ready explanation for Xerox, which won on summary judgment as a matter of law and thus found it unneces-

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<sup>41</sup> One prominent and highly capable antitrust judge threw up his hands at the suggestion that he should attempt the detailed regulation that would be needed to control price discrimination in even a single industry. In the course of the famous monopoly suit against United Shoe Machinery Corp., Judge Charles Wyzanski found the company reaped different margins from different kinds of shoe-making machines it leased to shoe manufacturers. Although Judge Wyzanski considered this an unfortunate consequence of United's market power, when the government urged the judge to enjoin the price discrimination and to force the company to equalize its return on every kind of machine, he rightly refused:

To try to extirpate such discrimination would require either an order directing a uniform rate of markup, or an order subjecting each price term and each price change to judicial supervision. Neither course would be sound. . . . [E]radication [of the price discrimination] cannot be accomplished without turning United into a public utility, and the Court into a public utility commission, or requiring United to observe a general injunction of non-discrimination between different products—an injunction which would be contrary to sound theory, which would require the use of practices not followed in any business known to the Court, and which could not be enforced.

United States v. United Shoe Mach. Corp., 110 F. Supp. 295, 349 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954).

sary to provide any business justification. Kodak, on the other hand, considered and rejected the possibility of arguing that efficient aftermarket metering was the business rationale for its refusal to deal.<sup>42</sup> Instead, Kodak presented three alternative business rationales to the Supreme Court for its refusal to deal, all of which were rejected as pretextual.<sup>43</sup>

It is not surprising that Kodak decided against presenting a metering rationale for its refusal to deal. Kodak faced a dilemma at trial. The failure to explain its conduct with a legitimate procompetitive business justification would make its refusal to deal with ISOs appear to be merely exclusionary. A primary focus at trial, however, was whether Kodak possessed market power. Price discrimination has been commonly accepted as proof of market power. To present a metering price discrimination business justification then would have played right into the plaintiff ISOs' hands.

The source of this dilemma is the antitrust thinking that incorrectly considers price discrimination as evidence of market power. Some of this mistaken antitrust thinking can be found in the highest places. The Supreme Court's *Fortner II* decision contains perhaps the most extreme statement that price discrimination demonstrates market power. The Court stated in *Fortner II* that "if, as some economists have suggested, the purpose of a tie-in is often to facilitate price discrimination, *such evidence would imply the existence of power that a free market would not tolerate.*"<sup>44</sup> There is more. Contrary to our economic conclusion that it is simply wrong to suggest that price discrimination is generally or predictably harmful to consumers, the Supreme Court in *Jefferson Parish* wrote that tying to enforce price discrimination "can increase the social costs of market power [by] . . . increasing monopoly profits over what they would be absent the tie."<sup>45</sup> Moreover, Justice Scalia in his *Kodak* dissent inferred market power from price discrimination, asserting that the "opportunity to engage in price discrimination is unavailable to a manufacturer—like

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<sup>42</sup> Personal correspondence with Dan Wall, counsel for Kodak (on file with authors).

<sup>43</sup> Kodak's rationales for its refusal to deal were: (1) the control of inventory costs; (2) the prevention of ISO "free riding" on Kodak's capital and R&D investments; and (3) the ability to assure high quality service. All of these rationales make little economic sense. There is no obvious economic reason why parts inventory costs cannot be collected in the parts prices charged ISOs, why capital and R&D costs associated with equipment manufacture cannot be collected in equipment prices charged consumers, or why quality control decisions (including the avoidance of a "finger-pointing problem" when the equipment manufacturer and service provider are the same firm) cannot be left up to consumers, who Kodak claimed were highly knowledgeable.

<sup>44</sup> *U.S. Steel Corp. v. Fortner Enters., Inc.*, 429 U.S. 610, 617 (1977) (emphasis added). This statement is a raw dictum, totally unnecessary to resolve any disputed issue in *Fortner II*.

<sup>45</sup> *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 14–15 (1984).



Kodak—that lacks power at the interbrand level.”<sup>46</sup> These Supreme Court dicta are a fact of life for litigants in district court. There also exist a number of lower court decisions that explicitly have counted the ability to price discriminate as a factor in determining whether a firm possesses market power.<sup>47</sup>

When case law considers price discrimination to be evidence of market power, it would seem extremely dangerous for a defendant sued for refusing to deal to answer: “The reason we refused to deal with plaintiffs was to enforce our practice of price discrimination.” This justification *should* be legally valid as a matter of sound economics. Yet a plaintiff today would chortle to hear such a defense. The plaintiff’s response might well be, “See, Your Honor, they have admitted it. They have practiced price discrimination. They admit they have market power.”

Indeed, the trial situation in *Kodak* confirms this scenario. Kodak’s refusal to deal with ISOs stemmed from its efforts to enforce a price discrimination marketing arrangement that, we believe, properly should have been a legitimate business justification to be weighed against any anticompetitive effects under the Sherman Act. Instead, the economic expert for the ISO plaintiffs used the fact that Kodak had engaged in price discrimination (not in the sense of metering demand, but by selling packages of equipment and service at different prices) in an attempt to demonstrate that Kodak possessed market power.<sup>48</sup> With a legal landscape

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<sup>46</sup> *Kodak*, 504 U.S. at 499 (Scalia, J., dissenting).

<sup>47</sup> See, e.g., *Boise Cascade Corp. v. FTC*, 837 F.2d 1127, 1151–52 (D.C. Cir. 1988) (“The economists’ definition of price discrimination requires, to be sure, that the seller have market power (i.e., a power to raise the price above competitive levels without loss of all sales): otherwise the discriminatees would simply buy from alternative sources.”); *Will v. Comprehensive Accounting Corp.*, 776 F.2d 665, 671 (7th Cir. 1985) (“Both the extension of power and the practice of price discrimination are impossible unless the seller has substantial market power.”); *Coal Exporters Ass’n of the U.S. v. United States*, 745 F.2d 76, 91 (D.C. Cir. 1984) (“it is well established that the ability of a firm to price discriminate is an indicator of significant monopoly power.”); *USM Corp. v. SPS Technologies, Inc.*, 694 F.2d 505, 511 (7th Cir. 1982) (“But if a patentee has no market power (and, of course, not every patentee confers market power), . . . he cannot use a tie-in to practice price discrimination, which presupposes market power.”); *Copper Liquor, Inc. v. Adolph Coors Co.*, 506 F.2d 934, 943 (5th Cir. 1975) (“Moreover, the increased revenues possible through price discrimination are really available only to manufacturers already enjoying an ‘entrenched market position’, and they tend to enhance monopoly power with no countervailing benefit to the consuming public.”); *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 349 (D. Mass. 1953) (“price discrimination has been an evidence of United’s monopoly power, a buttress to it, and a cause of its perpetuation. . .”).

<sup>48</sup> Kodak attempted to refute this inference of market power from price discrimination by presenting the example of presumably competitive movie theaters charging different admission prices to different types of buyers (children, adults, seniors). Trial Record, Defendant exhibit 3767, *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 1996 WL 101173 (N.D. Cal. 1996).

so utterly contrary to sound economic analysis, it is vital to look to fundamentals to keep one's bearings straight. The problem, we submit, is the basic logical error of inferring antitrust market power from the fact of price discrimination.

B. THE INFERENCE OF MARKET POWER FROM PRICE DISCRIMINATION  
IS BASED ON THE MISTAKEN VIEW THAT MARKET POWER IN  
ECONOMICS IS THE SAME AS MARKET POWER IN ANTITRUST LAW

Unfortunately, a significant amount of antitrust scholarship wrongly infers the presence of market power from price discrimination. For example, the D.C. Court of Appeals in the *Coal Exporters Association* case stated that "it is well established that the ability of a firm to price discriminate is an indicator of significant monopoly power."<sup>49</sup> The court cited a host of antitrust luminaries for this proposition, including Phillip Areeda and Donald Turner,<sup>50</sup> Robert Bork,<sup>51</sup> Richard Posner,<sup>52</sup> and Lawrence Sullivan.<sup>53</sup> There are few conclusions in antitrust that would garner the unanimous support of such a truly impressive list of scholars. Sadly, they are wrong. This error has caused some serious mischief in rational antitrust policy.

The economic intuition behind this "well-established" but incorrect proposition might seem obvious. How could a competitive firm increase the price of its product to some customers without causing those customers to switch to an alternative supplier? It seems like this circumstance could exist only if the price-discriminating firm did not face effective competition. Even if a firm possessed a dominant (say, 70 percent) market share, it could not discriminate if the remaining firms (supplying 30 percent) would concentrate their sales to customers that the dominant firm was attempting to soak with its high prices.

This reasoning, however, implicitly assumes all firms in the market are producing homogeneous products. If a firm engaging in price dis-

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<sup>49</sup> *Coal Exporters Ass'n*, 745 F.2d at 91.

<sup>50</sup> 2 PHILLIP AREEDA & DONALD TURNER, ANTITRUST LAW ¶ 514a at 342 (1978) ("Thus, persistent price discrimination . . . clearly indicates . . . that there is a lack of effective competition in the market where the higher net returns are made. In other words, it shows that the seller has market power.").

<sup>51</sup> ROBERT BORK, THE ANTITRUST PARADOX 395 (1978) (it is "essential" to "persistent or stable price discrimination in favor of specific customers" that a "seller possess[ ] . . . a substantial degree of market power or monopoly").

<sup>52</sup> RICHARD POSNER, ANTITRUST LAW 63 (1976) ("persistent discrimination is very good evidence of monopoly because it is inconsistent with a competitive market").

<sup>53</sup> LAWRENCE SULLIVAN, HANDBOOK OF THE LAW OF ANTITRUST 89 (1977) ("A firm will not discriminate unless it has market power.").

crimination supplied a differentiated product, then other firms could not easily defeat its price discrimination. The presence of price discrimination in a differentiated products context, therefore, would not imply the existence of market power.

A more sophisticated recent line of reasoning accepts the existence of differentiated products and reaches the same mistaken result that market power must be present if a firm, even one with a small market share, is price discriminating. This reasoning relies on the economic definition of market power as price above marginal cost and uses the fact of price discrimination as evidence that some sales must be occurring at prices above marginal cost. Because relatively low-priced sales must cover marginal cost, the logic goes, relatively high-priced sales must be at prices above marginal cost. Therefore, if one defines market power in terms of price greater than marginal cost, then this appealing but unreliable syllogism creates an inference of some market power from the fact of price discrimination.<sup>54</sup> In fact, Judge Posner describes this inference of market power from price discrimination as something that “everyone knows.”<sup>55</sup>

This line of reasoning errs by defining market power in terms of a firm’s own elasticity of demand. The economic model of perfect competition implies that all firms face perfectly elastic demands. However, this result is based on the assumption that all firms in the market are producing identical, homogeneous products. No one will buy a product from a seller at even a one-cent higher price when they can obtain an identical product from an alternative seller at a one-cent lower price. While this may be a useful simplifying assumption for economic modeling, it is unrealistic in describing most real-world markets. Beyond the markets for wheat and similar commodities, the world is filled with markets in which competing substitutes are imperfect.

Substitutes are imperfect because firms commonly produce goods that are somewhat unique. This situation is the norm, not the exception. In this situation, each firm faces a downward-sloping demand curve, which is to say the demand for each firm’s product is less than perfectly elastic. Each firm then will set price above marginal cost and will possess some market power in the economic sense.<sup>56</sup> In addition, such firms will have

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<sup>54</sup> *Brand Name Drugs*, 186 F.3d at 783.

<sup>55</sup> *Id.* at 786.

<sup>56</sup> This definition of market power in terms of the relationship between price and marginal cost or, equivalently, a firm’s elasticity of demand, can be traced most immediately to Abba Lerner, *The Concept of Monopoly and the Measurement of Monopoly Power*, 1 REV. ECON. STUD. 157 (1934). The Lerner Index is defined as the difference between a firm’s

the potential to practice profitable price discrimination. All that is necessary for a firm to be able to charge persistently different prices to different buyers or to be able to charge a price above its marginal cost is the absence of perfect substitutes. The key question is whether firms that deviate from the assumptions of the perfectly competitive model by producing differentiated products, and thereby face an own-price elasticity of demand that is less than perfectly elastic, properly can be said to possess antitrust market power.

A number of influential antitrust scholars now correctly answer this question in the negative. These scholars, including some of the luminaries earlier cited in *Coal Exporters Association* for the mistaken proposition that price discrimination is “an indication of significant monopoly power,” now recognize that the existence of price discrimination does not imply antitrust market power.

The evolution of thinking on this issue can be usefully gauged by considering the treatment of price discrimination in the leading treatise by Areeda and his co-authors. In 1978, Areeda and Turner wrote that “persistent price discrimination in the sale of the same products to different customers . . . shows that the seller has market power.”<sup>57</sup> Areeda and Hovenkamp maintained this proposition until at least 1995, when their revised work stated that “[p]roving price discrimination in selling or leasing identical (or nearly identical) products can usefully show the existence and degree of market power if cost differences (or their absence) are readily determinable.”<sup>58</sup> However, the 2002 edition removed the phrase “and degree” and added the following two sentences: “But price discrimination seldom shows the amount of power, and many instances of price discrimination are quite consistent with robust but imperfect competition. As a result, price discrimination evidence has very limited utility for proving power.”<sup>59</sup>

This revision is a major improvement over previous assertions that price discrimination is evidence of market power. It is, unfortunately, the right answer for the wrong reason. The analysis accepts that price discrimination implies the existence of some market power, but argues that the mere presence of price discrimination does not reveal whether

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price and marginal cost divided by its price, which, at the firm’s profit-maximizing output, is inversely related to the firm’s own elasticity of demand.

<sup>57</sup> 2 PHILLIP E. AREEDA & DONALD F. TURNER, ANTITRUST LAW ¶ 513, at 342 (1978).

<sup>58</sup> 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, ANTITRUST LAW ¶ 522, at 125 (1995).

<sup>59</sup> 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, ANTITRUST LAW ¶ 517, at 128 (2d ed. 2002); see also *id.*, vol. 3, ¶ 721.

the market power is significant enough to be of antitrust concern. The analysis seeks to distinguish the existence of *antitrust* market power from the market power possessed by every firm in the economy (except possibly the wheat sellers on the Chicago Board of Trade). Market power is said to be of antitrust concern only if price is sufficiently above marginal cost. Professor Landes and Judge Posner made this distinction between the existence and the amount of market power in their now classic article: "A simple economic meaning of the term 'market power' is the ability to set price above marginal cost. . . . But the fact of market power must be distinguished from the amount of market power."<sup>60</sup>

This more sophisticated position regarding antitrust market power is vastly superior to the earlier conventional wisdom about the implications that can be drawn from price discrimination. But it is likely to be of little use to firms that employ aftermarket price discrimination metering arrangements. If these firms face the charge that they possess market power, this more sophisticated analysis will tend to support this charge in the sense of agreeing that firms engaging in price discrimination must possess *some* market power. These firms then would have the difficult burden of demonstrating they did not possess sufficient market power to be of antitrust concern. This restatement, therefore, is unlikely to lead firms facing a monopolization claim to assert a price discrimination justification for their practices.

More fundamentally, this framework errs by continuing to measure the extent of a firm's antitrust market power by its elasticity of demand, or the degree to which a firm can price profitably above marginal cost. This approach does not correspond to current antitrust law or to reasonable antitrust policy. Specifically, it does not explain why there is, and should be, a lack of antitrust concern in many cases where firms face significantly downward-sloped demands. This problem can be illustrated with the examples of downward-sloping demands offered by Judge Posner of firms producing books and scholarly journals.<sup>61</sup> Judge Posner rightly argues that "to infer that every seller who faces a downward sloping demand curve has monopoly power in a sense interesting to antitrust law would be a profound mistake."<sup>62</sup> We praise his conclusion that the many firms selling differentiated products and price discriminating do not possess the degree of market power to be of concern to the antitrust laws. But we disagree with the basis for this conclusion, which is the

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<sup>60</sup> William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 939 (1981).

<sup>61</sup> *Brand Name Drugs*, 186 F.3d at 786–87.

<sup>62</sup> POSNER, *supra* note 26, at 22 (citing Landes & Posner, *supra* note 60, at 952–60).

unsupported empirical assertion that these firms face “almost horizontal” demand curves so that the monopoly power involved is “too slight to worry about.”<sup>63</sup> There is no reason to believe that a price-discriminating firm with a small market share, such as a small book publisher, must face an “almost horizontal” demand curve. The firm could well be selling a product with unique characteristics that strongly appeal to a small segment of the population. Therefore, that firm might well set its price significantly above marginal cost, even though it operates in a highly competitive market.

Professor Hay’s example of a restaurant in a large city is illuminating.<sup>64</sup> In general, the distinct characteristics and brand names of restaurants imply that they are not perfect substitutes for one another. Consider the Los Angeles “celebrity” restaurant Spago. Clearly, Spago faces a significantly downward-sloping demand curve and maximizes profits by charging prices that exceed its relevant marginal costs. It also may engage in price discrimination, for example, by having a higher markup on desserts and alcoholic beverages than on entrees.<sup>65</sup> However, it would be an economic fallacy to conclude that Spago and every other restaurant charging a higher markup on some menu items possesses market power that should be measured by its own-price elasticity of demand.

The problem here is a failure to distinguish between a firm’s own-price elasticity of demand and a firm’s ability to influence market prices.<sup>66</sup> While every restaurant has some power to control its *own* prices, virtually no restaurant has power to control *market* prices. The fact that every restaurant faces a less than perfectly elastic demand and, therefore, has the ability to charge a price above marginal cost and to engage in price discrimination does not mean that it has any market power in the relevant antitrust sense of the ability to affect the market price for, say, “meals

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<sup>63</sup> *Id.*

<sup>64</sup> George H. Hay, *Market Power in Antitrust*, 60 ANTITRUST L.J. 807 (1992).

<sup>65</sup> This is a common feature of restaurant pricing. John R. Lott, Jr. and Russell D. Roberts, in *A Guide to the Pitfalls of Identifying Price Discrimination*, 29 ECON. INQUIRY 14 (1991), argue that the higher markup may reflect the fact that diners ordering desserts and drinks spend proportionately more time consuming their meal. Therefore, the markup represents the increased opportunity cost of the restaurant table. However, even McDonald’s charges substantially more over marginal costs for its soft drinks than for its hamburgers. While Lott and Roberts believe that price discrimination cannot exist without monopoly, all that is necessary is that more elastic consumers purchase a hamburger without a drink or a restaurant meal without wine. Obviously, competing drink sellers cannot arbitrage this pricing by separately selling drinks at low prices to consumers in McDonald’s or Spago (as ISOs are, in a sense, attempting to do) and competing restaurants also cannot fully arbitrage the arrangement because some consumers have a preference for McDonald’s or Spago.

<sup>66</sup> See Klein, *supra* note 16, at 71–85.

consumed outside the home.” Blurring this distinction between own-price elasticity of demand and the ability to influence market prices can lead to serious errors. It would imply, for example, that when IBM was competing against Microsoft (with its old OS2 operating system software), it had more market power in the desktop operating system market than Microsoft’s Windows because OS2 was sold at higher prices relative to marginal cost. Once firms produce unique products, an individual firm’s own-price elasticity of demand and profit-maximizing price relative to marginal cost does not tell us the extent of its antitrust market power, that is, its ability to restrict market output and raise market prices above the competitive level.

### C. ANTITRUST CASE LAW DOES NOT ADOPT AN OWN-PRICE ELASTICITY DEFINITION OF MARKET POWER

Our analysis is contrary to that of Professor Landes and Judge Posner in their now-classic article.<sup>67</sup> Landes and Posner argued that reigning case law can be interpreted to define market power in terms of a firm’s own-price elasticity of demand. They focus on “the authoritative judicial definition of market power”:<sup>68</sup> the renowned *Cellophane* case definition of market power as a firm’s “power to control prices or exclude competition.”<sup>69</sup> Professor Landes and Judge Posner submit that “[t]he first part of this definition seems equivalent to the economic definition of market power.”<sup>70</sup> If this interpretation were correct, then antitrust law indeed would have embraced a definition of market power that can be established by proof of price discrimination.

We respectfully disagree. The more plausible interpretation of *Cellophane* is to the contrary. The issue here is whether “the power to control prices” in *Cellophane* refers to a firm’s ability to control its *own* prices (which is the Landes and Posner view) or refers to the power to control *market* prices (which is our view). This ambiguity is resolved when one considers the entire *Cellophane* opinion. The Court did not refer to DuPont’s own elasticity of demand, i.e., the power of DuPont to control its *own* prices. In fact, the Court explicitly rejected the notion that a firm’s ability to control its own product prices determines whether a firm has market power. The Court stated:

[O]ne can theorize that we have monopolistic competition in every nonstandardized commodity with each manufacturer having power over

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<sup>67</sup> Landes & Posner, *supra* note 60.

<sup>68</sup> *Id.* at 977.

<sup>69</sup> United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 391 (1956).

<sup>70</sup> Landes & Posner, *supra* note 60, at 977.

the price and production of his own product. However, this power that, let us say, automobile or soft-drink manufacturers have over their trademarked products is not the power that makes an illegal monopoly. Illegal power must be appraised in terms of the competitive market for the product.<sup>71</sup>

The *Cellophane* Court thus was clear that deviations from the perfectly competitive benchmark should not be used to define market power. Rather than focusing on a firm's *own* elasticity of demand, antitrust market power must be defined in terms of the ability of a firm to influence *market* conditions.<sup>72</sup>

More recent case law is somewhat ambiguous, but also fully consistent with a definition of antitrust market power as the ability of a firm to influence market conditions. Case law often defines market power as "the ability to raise prices above those that would be charged in a competitive market."<sup>73</sup> To understand the meaning of this general definition of market power, one must further define the "competitive market" price benchmark. The general definition of market power found in case law can be interpreted as referring to the economic definition of market power, namely an individual firm's own-price elasticity of demand, only if the competitive market price benchmark is assumed to be the perfectly competitive equilibrium of price equal to marginal cost.<sup>74</sup> However, it is

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<sup>71</sup> *du Pont*, 351 U.S. at 393 (citation omitted). We are not necessarily agreeing with the conclusion reached in the *Cellophane* case, that is, that Du Pont did not possess market power, but only elucidating the logic of the Court's definition of market power. We do not take up the issue of the "*Cellophane* error" in defining relevant market, which is peripheral to our point here. Cf. Gregory J. Werden, *Demand Elasticities in Antitrust Analysis*, 66 ANTITRUST L.J. 363, 377 (1998).

<sup>72</sup> The second element of the *Cellophane* market power definition, the power to exclude competition, does not imply that Kodak's and Xerox's "exclusion" of ISOs by their refusals to deal implies market power. The Kodak and Xerox type of "exclusion" is not an exercise of market power because it is not exclusion of competition from the market. It is the type of "exclusion" that occurs, for example, whenever a small firm without any market power whatsoever chooses a particular exclusive distributor of its product or vertically integrates into distribution.

<sup>73</sup> *NCAA v. Bd. of Regents of the Univ. of Okla.*, 468 U.S. 85, 109 n.38 (1984). Similar definitions of market power can be found in *Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2, 27 n.46 (1984) ("As an economic matter, market power exists whenever prices can be raised above levels that would be charged in a competitive market."). See also *Wilk v. American Med. Ass'n*, 895 F.2d 352, 359 (7th Cir. 1990); *Coastal Fuels of P.R., Inc. v. Caribbean Petroleum Corp.*, 79 F.3d 182, 196 (1st Cir. 1996); *Orson, Inc. v. Miramax Film Corp.*, 79 F.3d 1358, 1367 (3d Cir. 1996); *United States v. Brown Univ.*, 5 F.3d 658, 668 (3d Cir. 1993); *Murrow Furniture Galleries, Inc. v. Thomasville Furniture Indus., Inc.*, 889 F.2d 524, 528 n.8 (4th Cir. 1989); *Grappone, Inc. v. Subaru of New England, Inc.*, 858 F.2d 792, 794 (1st Cir. 1988); *Drinkwine v. Federated Publ'ns, Inc.*, 780 F.2d 735, 738 n.3 (9th Cir. 1986); *Westman Comm'n Co. v. Hobart Int'l, Inc.*, 796 F.2d 1216, 1225 (10th Cir. 1986).

<sup>74</sup> Werden, *supra* note 71, at 370 makes this assumption in interpreting case law, permitting him to claim that market power and a firm's own-price elasticity of demand are



unlikely the courts meant to suggest that market power existed when a small firm happened to face a downward-sloping demand curve because of some unique characteristics of its products and price above its marginal cost. More likely, what is meant by a firm setting prices “above those that would be charged in a competitive market” refers to market power in the sense of a firm’s ability to influence overall market conditions.<sup>75</sup>

In the more realistic case of differentiated products, where firms face downward-sloping demand curves, it is analytically useful to think of a firm’s output as consisting of two distinct elements. One element is the firm-specific characteristics that account for why the firm’s demand curve may be downward sloping, such as the firm’s unique product features, its image, its packaging, or any other unique characteristics that appeal to a subset of consumers. The other element can be considered the generic output characteristics, where the firm’s output is part of a broader, homogeneous market. It is only when a firm can have a significant impact on output and prices in this latter generic or overall market that the firm can be said to have antitrust market power.<sup>76</sup>

This analytical perspective clarifies several important matters. It implies that it is appropriate for antitrust law to use, as it traditionally has, “indirect” structural measures of market power: a firm’s market share, the presence of barriers to entry, and the inability of competitors to expand sales easily.<sup>77</sup> The alternative of using supposedly superior “direct” own-price elasticity of demand measures of market power often does not, in fact, measure the ability of a firm to increase market price. Rather, own-price elasticity of demand may be determined largely by the particular firm-specific factors that give individual competitive firms their negative-sloped demands and have nothing to do with a firm’s ability to influence market output and price. Surely we would not claim,

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“essentially equivalent.” However, we have found only two cases that explicitly define the competitive level in terms of this perfectly competitive, infinitely elastic demand benchmark. *See* *Consul, Ltd. v. Transco Energy Co.*, 805 F.2d 490, 495 (4th Cir. 1986) (market power is “the ability to raise prices above levels that would exist in a perfectly competitive market”); *Muenster Butane, Inc. v. The Steward Co.*, 651 F.2d 292, 298 (5th Cir. 1981) (“[I]f a firm lacks market power, it cannot affect the price of its product.”).

<sup>75</sup> In contrast to the many ambiguous definitions of market power in the law, Judge Easterbrook explicitly defines market power in *Ball Memorial Hospital, Inc. v. Mutual Hospital Insurance, Inc.*, 784 F.2d 1325, 1335 (7th Cir. 1986), in terms of a firm’s potential to affect the market, namely “the ability to cut back the *market’s* total output and so raise price.” (emphasis added).

<sup>76</sup> Klein, *supra* note 16, at 78.

<sup>77</sup> *See, e.g., Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1434 (9th Cir.), where the court emphasized that market power must be demonstrated by the fact that “the defendant owns a dominant share of the market, and . . . that there are significant barriers

for example, that Apple Computer's own-price elasticity of demand, as measured by its price-marginal cost ratio, indicates significant market power, rather than merely the presence of firm-specific factors, such as its brand name, product design, and other valuable intellectual property.<sup>78</sup>

We thus would never assert, as Professor Landes and Judge Posner do, that "market definition is important in determining whether a firm has market power (and how much it has) only because of the difficulty of measuring elasticities of demand and supply reliably. If we knew the elasticity of demand facing [a] firm . . . , we could measure its market power directly . . . without troubling ourselves about what its market share was."<sup>79</sup> Market share (along with barriers to entry and the ability of competitors to expand) are not indirect measures of a firm's own-price elasticity of demand. These structural measures are indirect measures of a firm's ability (and incentive) to restrict market output—what we mean by market power.

Our analytical distinction between a firm's own-price elasticity of demand and a firm's ability to influence market output and price does not mean that comparisons of elasticities or of price-cost margins across markets or over time do not provide valuable evidence for proving market power. The most obvious example is the use of price elasticities in merger analysis. Current horizontal merger analysis emphasizes estimating the change in the merged firm's own-price elasticity of demand. Nothing in our approach conflicts with this accepted analysis. Merger analysis

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to entry and . . . that existing competitors lack the capacity to increase their output in the short run."

<sup>78</sup> The problems in attempting to use own-price elasticities to measure single firm market power are vividly illustrated in Gregory Werden's description, *supra* note 71, at 382–84, of one of the few cases where this was done, *United States v. Eastman Kodak Co.*, 853 F. Supp. 1454 (W.D.N.Y. 1994), *aff'd*, 63 F.3d 95 (2d Cir. 1995). This case dealt with termination of consent decrees entered into by Kodak in 1921 and 1954 that restricted Kodak's freedom to engage in various competitive practices with regard to marketing of its color print film. Unfortunately, in determining whether Kodak continued to possess market power, the court held that "Price elasticities are better measures of market power than market shares" (*id.* at 1472) and concluded that an estimated own-price elasticity of demand of  $-2$  indicated the lack of market power. On appeal, the government argued that Kodak was selling a differentiated product that consumers had a preference for and that, judging from the own-elasticity of demand estimate of  $-2$ , permitted Kodak to charge an alleged supracompetitive price of twice marginal cost. Rather than concluding that product differentiation does not imply market power (which would have required abandoning the own-price elasticity of demand measure of market power), the appeals court instead rejected that Kodak was selling a differentiated product. The court then ignored the question of the economic relevance of Kodak's pricing above marginal cost and concluded there was an absence of market power because Kodak was not earning a greater than competitive return on its fixed costs.

<sup>79</sup> Landes & Posner, *supra* note 60, at 962. Werden, *supra* note 71, also advocates elasticity of demand as a superior measure of market power than market share.

implicitly uses the current prevailing price as the “competitive” benchmark and is concerned solely with whether the merger will cause a significant price increase. The analysis does not distinguish between the reasons prices may increase. The prospect that a merger of firms producing differentiated products will permit the merged firm to increase its price unilaterally and, therefore, increase (for at least some transitional period) the rents it earns on its unique firm-specific assets that give it a negatively sloped demand may be just as troubling as a merger that increases the incentive to cut industry quantity due to coordinated interaction or explicit collusion.<sup>80</sup>

Similarly, differences in price-cost margins or demand elasticity estimates over time or across markets may explain the existence of a conspiracy or the presence of individual firm market power.<sup>81</sup> In all these cases, as well as merger analysis, we are not using the level of a firm’s own-price elasticity or its price-cost margin as a measure of the firm’s market power, but *changes* in price or price elasticity relative to an appropriate “competitive” benchmark. This is fully consistent with our conclusion that the *level* of a firm’s own-price elasticity or a firm’s price-marginal cost margin, by itself, is not an appropriate economic measure of market power in a differentiated products world where firms with absolutely no antitrust market power at all may price significantly above marginal cost.

## V. SENSIBLE ANTITRUST ANALYSIS OF REFUSALS TO DEAL REQUIRES AN APPROPRIATE MARKET DEFINITION

### A. THE APPROPRIATE MARKET DEFINITION DEPENDS UPON THE CLAIMED ANTICOMPETITIVE EFFECT

In the very common case of differentiated products, the amount that a firm may be pricing above marginal cost is no guide to its true market power. Instead, the proper measurement of a firm’s market power requires an assessment of that firm’s ability to influence market price. As a practical matter, however, this requires answering the difficult and often tricky empirical question of how to define the relevant product market. Only then can we ascertain the firm’s market share and the

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<sup>80</sup> See, e.g., Jonathan B. Baker & Timothy E. Bresnahan, *The Gains from Merger or Collusion in Product-Differentiated Industries*, 33 J. INDUS. ECON. 427 (1985); Baker, *supra* note 40.

<sup>81</sup> See, e.g., *American Tobacco Co. v. United States*, 328 U.S. 781 (1946) (where prices rose in the face of declining costs), *United States v. Addyston Pipe & Steel Co.*, 85 F. 271 (6th Cir. 1898), *aff’d*, 175 U.S. 211 (1899) (where prices were higher in cities subject to the alleged market division agreement); *FTC v. Staples, Inc.*, 970 F. Supp. 1066 (D.D.C. 1997) (where prices were higher in cities and during time periods in which Staples was the only office superstore chain).

presence of barriers to entry and expansion—the factors that fundamentally determine a firm's ability to influence market prices.

Professor Steven Salop has correctly emphasized that determining a relevant product market depends on the particular anticompetitive effect that is claimed to be at work.<sup>82</sup> The logical question is whether the defendant possesses the market power to accomplish the specific anticompetitive result the plaintiff alleges. In ISO cases like *Xerox* and *Kodak*, the allegedly monopolized product market is the aftermarket service of the individual company's products. However, by itself, this claim does not tell us in which market we should measure the manufacturer's power. In particular, it does not answer the essential question of whether the manufacturer's market power should be measured in the pre-purchase interbrand equipment market or in the post-equipment purchase, single-brand aftermarket service market.

In what follows, we examine the three major theories of how a refusal to deal that drives ISOs out of business and monopolizes the aftermarket service market for an equipment manufacturer's own products may be anticompetitive. The implications of each anticompetitive theory for the appropriate relevant market definition are presented. What we mean by anticompetitive throughout this discussion is not higher service prices, but, as clearly stated by the Court in *Kodak*,<sup>83</sup> higher package prices of equipment plus replacement parts plus aftermarket service taken together. As we shall see, the first two anticompetitive theories imply that market power should be measured in the interbrand equipment market. Only the third anticompetitive theory—the holdup theory—implies that market power should be measured in the post-equipment purchase, single-brand aftermarket service market. We show that none of these three anticompetitive theories generally applies to refusals to deal with ISOs.

### 1. *The Maintenance of Equipment Manufacturer Market Power*

The first type of potential anticompetitive theory involves the attempt by an equipment manufacturer to maintain its equipment market power by making entry into equipment manufacturing more difficult. If the manufacturer's refusal to deal drives all independent service-supply firms out of business, these firms will not be available to service equipment of a new manufacturing entrant. Entrants into manufacturing then would have to enter into service supply as well as manufacturing, or otherwise

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<sup>82</sup> See Steven C. Salop, *The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millennium*, 68 ANTITRUST L.J. 187 (2000).

<sup>83</sup> *Kodak*, 504 U.S. at 486.

assure that service is available from new independent service firms. This has an anticompetitive effect if it creates a cost disadvantage for entrants (or small existing firms that were previously sharing ISO capacity) in servicing their equipment. If the cost disadvantage makes entry (or the continued existence) of competing equipment manufacturers more difficult, the manufacturer has strengthened and maintained its market power.<sup>84</sup>

This anticompetitive mechanism can work only if two special and uncommon conditions are present. First, the equipment manufacturer that refuses to deal with its ISOs must possess market power in the pre-purchase equipment market. Without a large share of this market, the manufacturer's decision to refuse to deal with ISOs servicing its products would not drive out a significant share of the independent service firms. Consequently, most ISOs would remain available to new entrants. Monopolization of the service for one's own product as a way to increase barriers to entry makes no economic sense in refusal to deal ISO cases where each firm controls a small fraction of the actual and potential supply of service inputs.

Second, the anticompetitive mechanism requires large economies of scale in service supply. To see why, suppose a manufacturer refuses to supply replacement parts to ISOs, thereby adopting a de facto exclusive dealing servicing arrangement for its machines. For there to be any anticompetitive effect requires that this action cuts off enough business opportunities so as to plunge the remaining demand for other service suppliers to service competing equipment to below the minimum efficient scale of service sales. Specifically, an anticompetitive effect requires substantially larger economies of scale in service supply than in equipment supply. Only in this way will new entrants and existing competitors in equipment manufacturing face a cost disadvantage.

Relatively large economies of scale in service supply are clearly not present in the ISO-copier cases. In fact, it was the easy entry of many small service firms that led Xerox and Kodak to institute their refusal to deal policies in the first place. As a result, a new equipment manufacturer

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<sup>84</sup> Dennis W. Carlton and Michael Waldman, in *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries* (Working Paper No. 145, George J. Stigler Center for the Study of the Economy and the State, Univ. of Chicago, Mar. 2000), show that there may be a direct monopoly maintenance effect if the competing suppliers of the "tied good" that are driven out of business (or reduced to a small scale) are potential future competitors for the manufacturer's "tying good," a condition they claim may fit the facts of the *Microsoft* litigation. See also Dennis W. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak Are Misguided*, 68 ANTITRUST L.J. 659 (2001).

could easily obtain the employees necessary to provide its own service or, if it wished, contract with new ISOs that would enter if such an opportunity arose. The highly elastic supply of service suppliers makes it extremely unlikely that the absence of ISOs for Kodak or Xerox machines, or the absence of ISOs more generally, would deter the entry of new equipment manufacturers.

2. *The Extension of Equipment Manufacturer Market Power to the Service of Other Companies' Products*

The second anticompetitive theory is a variant of the first. Instead of preventing entry by competitors into the equipment market, in this second case an equipment manufacturer with market power extends its market power to the overall service market by collecting a monopoly price on the service of other companies' products. Once again, if the refusal to deal not only eliminates competing service suppliers for the manufacturer's own products but also drives out of business all competing suppliers of service as well, then this tactic would give the manufacturer monopoly control over the service of other equipment brands.<sup>85</sup>

As in the first case, this second anticompetitive mechanism requires both the manufacturer to possess market power in the interbrand equipment market and the existence of significant economies of scale in the servicing market. Absent these two prerequisites, an individual manufacturer's refusal to deal with ISOs will not drive out all other service providers (including service provided by competing manufacturers). Therefore, a company like Kodak or Xerox will not be able to charge owners of other brand machines (like Canon or Sharp) a monopoly price for photocopier service.

These first two anticompetitive theories of refusal to deal—involving maintenance of equipment market power and the extension of equipment market power to the sale of service to customers of other companies' equipment—both imply that manufacturer market power should be measured in the interbrand equipment relevant market. The theories, therefore, suggest that a significant minimum market share in the interbrand equipment market could serve as a useful screen in determining if there could be any anticompetitive effects from the refusals to license intellectual property.<sup>86</sup>

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<sup>85</sup> See Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837 (1990).

<sup>86</sup> These anticompetitive theories also require, consistent with Justice O'Connor's concurring opinion in *Jefferson Parish* and much recent tying law, an anticompetitive effect in the "tied good" or interbrand aftermarket service market.

These theories do not apply if the interbrand equipment market power is measured narrowly. In contrast, plaintiff ISOs frequently emphasize particular specialized equipment characteristics and uses when defining the interbrand equipment market in order to claim that the individual defendant manufacturer has equipment market power. For example, the Kodak ISO plaintiffs dropped their assumption (made in argument before the Supreme Court) of competition in the equipment market and argued that particular Kodak product features gave Kodak equipment market power.<sup>87</sup> However, narrowly defining a relevant equipment product market in this way logically undercuts the applicability of anticompetitive theories one and two. Both anticompetitive theories require that driving Kodak ISOs out of business has the effect of monopolizing service supply to other actual or potential competitors. These theories, therefore, do not apply if the equipment market is narrowly defined to include only the individual manufacturer's products.

### 3. *The Aftermarket Holdup of Existing Locked-In Customers*

ISO exclusion cases more correctly define a relevant market consisting solely of the aftermarket service of the individual defendant company's

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<sup>87</sup> Such narrow relevant product market definitions are unlikely to be appropriate once we recognize that defining a relevant market in monopolization cases entails increased emphasis on supply substitution factors than is employed under the Merger Guidelines. Under the Guidelines, relevant markets are defined solely by demand-side substitution (i.e., whether a hypothetical monopolist can profitably raise the price a "small but significant and nontransitory" amount) and supply-side factors (the entry of new firms and the shifting production and expansion of existing firms) are considered solely in terms of whether they will quickly (within one year) defeat this exercise of market power. In addition, under the Guidelines, these supply-side factors must not involve the expenditure of significant sunk costs of entry or exit. U.S. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines § 1.32 (1992, rev. 1997), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104. These conditions often make economic sense because a merger represents a shock to the market. Consequently, the possible acquisition of market power by the merged firm occurs substantially faster than usual market supply responses could neutralize it. Moreover, it makes sense to consider only non-sunk investments in new capacity because any supply response by competitors to a reduction in market output by the merged firm is likely to have to be at least partially reversed as the firm loses its market power over time. These factors are less likely to hold in monopolization cases. In contrast to mergers (or Section 1 conspiracies), sudden market shocks are less likely and investments by competitors need not be reversed. Supply-side factors, therefore, can operate over a longer period of time with competitors making specialized capital investments. For example, one might ignore supply-side factors in defining a separate SUV automobile market for merger analysis, but this is less likely to make economic sense in a Section 2 monopolization case. Even if a company had a large share of SUV sales (as Jeep did 20 years ago), it is unlikely to have possessed any market power because of supply-side adjustments made over time to changes in demand. The large, unexpected increase in demand for this type of vehicle a number of years ago created short-term rents on Jeep's specific assets. But Jeep had no monopoly power, in the sense of an incentive to restrict its output. On the contrary, Jeep expanded output, as other companies also made the necessary specific investments and entered the segment over time.

products by focusing on a third type of potential anticompetitive theory. The logic is that of a holdup. The fundamental anticompetitive claim is that, after consumers have purchased a particular company's products, the company takes advantage of its locked-in consumers by arbitrarily increasing the aftermarket prices of servicing its own products. The company can do so because there is no alternative supplier of replacement parts, either because the company's parts are patented or, as a practical matter, because it does not pay another firm to provide substitute parts. Consequently, the argument goes, the refusal to deal with ISOs permits a company to hold up its locked-in customers. The Court in *Kodak* described this holdup possibility in detail. The conclusion was that a firm with no market power in the interbrand equipment market may nevertheless possess post-equipment purchase market power in the service aftermarket for its own products that permits it to increase service prices and thereby package prices above the competitive level.

For purposes of rejecting summary judgment, the Supreme Court in *Kodak* concluded that it was reasonable to infer that Kodak had market power in a relevant market consisting of the aftermarket service of its own products. The Court cited "direct evidence" that Kodak exercised market power in such a market. This direct evidence of aftermarket market power was Kodak's high prices for service and Kodak's exclusion of competing service suppliers.<sup>88</sup> This evidence failed to demonstrate anticompetitive effect in the sense of a high package price. Yet the Court in *Kodak* ruled that this proof was sufficient for plaintiff ISOs to survive summary judgment.

Antitrust case law developments since the Court's decision in *Kodak* have narrowed considerably the conditions under which it is proper to deploy a post-equipment purchase, single brand aftermarket service analysis of market power.<sup>89</sup> To demonstrate a holdup of a firm's existing customers, one must show a *change* in the aftermarket arrangement that was not disclosed or reasonably anticipated by the firm's locked-in customers. Absent such an unexpected or undisclosed change in

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<sup>88</sup> Kodak was able to "raise prices and drive out competition in the aftermarkets . . . ." *Kodak*, 504 U.S. at 477. The Supreme Court also used as evidence of the profitability of a holdup the fact that Kodak experienced no change in equipment sales resulting from its replacement parts availability policy change. However, the lack of *any* reduction in sales is an indication that the change was prospective. A holdup of locked-in buyers would have been expected to reduce Kodak's reputation and demand at least somewhat.

<sup>89</sup> See, e.g., *PSI Repair Servs., Inc. v. Honeywell Inc.*, 104 F.3d 811 (6th Cir. 1997); *United Farmers Agents Ass'n, Inc. v. Farmers Ins. Exch.*, 89 F.3d 233 (5th Cir. 1996); *Digital Equip. Corp. v. Uniq Digital Technologies, Inc.*, 73 F.3d 756, 762 (7th Cir. 1996); *Lee v. Life Ins. Co. of N. Am.*, 23 F.3d 14 (1st Cir. 1994).



aftermarket arrangements, market power should be measured in the interbrand equipment market, before any customer lock-in. These legal restrictions on the holdup theory are sensible elaborations of *Kodak's* core logic.<sup>90</sup>

At trial on remand the Kodak plaintiff ISOs did not attempt to demonstrate a holdup in this sense of showing that Kodak had surprised its customers with an undisclosed change in its replacement parts availability policy. As we have already noted, Kodak's (and Xerox's) conduct did not meet this test of an unanticipated change in aftermarket arrangements. Instead, their refusals to supply replacement parts to ISOs were largely prospective. The plaintiff ISOs did not demonstrate the contrary. Rather, the plaintiffs at trial enlarged their monopolization claim to make it broader than the holdup theory. The enlarged logic was that Kodak used its market power over replacement parts to monopolize the aftermarket service of its own products. We have seen that a single brand aftermarket service market definition generally makes sense, however, only in the context of a true holdup. The jury instructions on this issue were confusing. Rather than asking jurors to determine if a holdup had, in fact, actually occurred, the instructions instead asked jurors to determine "[w]hether, in fact, competition in the sale of equipment will significantly restrain Kodak's service pricing and practices . . . ."<sup>91</sup> Given that Kodak service prices were acknowledged to be relatively high compared to ISO prices, jurors who were provided with no explanation of how aftermarket metering works would be extremely unlikely to find that equipment competition prevented the exertion by Kodak of market power over "Kodak service." Consequently, the jury's determination that Kodak possessed monopoly power over the aftermarket supply of "Kodak service" that it achieved by its exclusionary conduct makes perfect sense in this context, in spite of the absence of proof that Kodak had held up its customers.

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<sup>90</sup> This reasoning is also consistent with much established franchise tying law. For example, in *Mozart Co. v. Mercedes-Benz of North America, Inc.*, 833 F.2d 1342, 1346-47 (9th Cir. 1987), where dealers were required to purchase replacement parts from Mercedes at relatively high prices, the court correctly emphasized that Mercedes had no market power at the point when individuals were deciding whether to become Mercedes dealers and accepted the parts requirement as an element of a freely negotiated, competitive contractual package. See Benjamin Klein, *Market Power in Franchise Cases in the Wake of Kodak: Applying Post-Contract Hold-Up Analysis to Vertical Relationships*, 67 ANTITRUST L.J. 283 (1999) (discussing numerous post-*Kodak* franchise cases that remain fully consistent with the *Mozart* analysis).

<sup>91</sup> Daniel M. Wall, *Aftermarket Monopoly Five Years After Kodak*, ANTITRUST, Summer 1997, at 32 n.14.

B. ACCEPTING PRICE DISCRIMINATION AS A LEGITIMATE BUSINESS JUSTIFICATION WILL FACILITATE SENSIBLE ANTITRUST ANALYSIS

*Kodak* vividly illustrates the importance to a defendant of having a legitimate business justification. The absence of a legitimate business justification often will tempt the trier of fact to “go backwards”: to define a relevant market narrowly, in order to categorize unexplained conduct that looks “bad” as the action undertaken by a firm with market power. Behavior looks bad when it appears to harm competitors without either an apparent efficiency justification or any benefit to consumers. Forcing ISOs that are supplying service at lower prices to satisfied customers out of business is very likely to be labeled as such an exercise of market power. How could a firm without market power do such a thing? Alternatively, if the fact finder believes that conduct serves a procompetitive purpose, it is likely to define the market in a way that there is no anticompetitive impact.<sup>92</sup>

A valid business explanation can make all the difference here. If the *Kodak* court had recognized that the refusal to deal was merely a way for Kodak to enforce a competitive price discrimination marketing arrangement, it is possible that Kodak’s market power and the perceived anticompetitive effects of Kodak’s conduct would have vanished.<sup>93</sup> The Court’s “direct evidence” of Kodak’s exercise of an aftermarket holdup, high Kodak service prices, and Kodak’s exclusion of ISOs, would have changed the complexion. These facts are exactly what one would expect from a competitive price discrimination aftermarket metering arrangement. Kodak’s “exclusionary” refusal to deal with ISOs takes on an entirely different cast. Now we can see that the refusal to deal was a reaction to the attempt by ISOs to arbitrage Kodak’s efficient and competitive pricing arrangement. Customers arbitraging this arrangement with the assistance of ISOs were acting opportunistically in the sense that they were taking advantage of low initial equipment prices that Kodak had set in anticipation of receiving high aftermarket service prices. Therefore, far from a *holdup by Kodak of customers*, this ISO arbi-

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<sup>92</sup> See *SMS Sys. Maint. Serv. v. Digital Equip. Corp.*, 11 F. Supp. 2d 166 (D. Mass. 1998), *aff’d*, 188 F.3d 11 (1st Cir. 1999), a case that involved the claim by SMS, an ISO, that DEC had attempted to monopolize the market for repair and maintenance of its own computers by offering a mandatory three-year warranty. The court accepted DEC’s procompetitive business justification for its policy that the extended warranty on its new product line was instituted to overcome consumer perceptions of poor DEC quality, and also rejected the plaintiff’s argument that DEC had market power in a relevant market consisting solely of the servicing of DEC mid-range servers in concluding there was no adverse effect on competition from DEC’s actions.

<sup>93</sup> “Kodak’s conduct may not be actionable if supported by a legitimate business justification.” *Kodak*, 125 F.3d at 1212.

trage, if permitted, would have implied a *reverse holdup by customers of Kodak*. There is no cause for moral condemnation, for Kodak's customers were breaking no contract with Kodak. They were just doing what buyers always do, which was looking for a better deal. But this perspective allows us to see that Kodak's refusal to deal with ISOs was not anticompetitive exclusion at all. Rather, it was the procompetitive enforcement of a reasonable business arrangement.

This same perspective can clarify other antitrust cases. Once courts recognize the procompetitive motivation and effects of aftermarket metering arrangements, much behavior that superficially appears to be an exclusionary extension of intellectual property rights will more correctly be understood as an efficient way for a competitive firm to collect a greater fraction of the value of its intellectual property and to protect against free riding. Aftermarket metering provides a procompetitive justification for conduct beyond unilateral refusals to deal that otherwise may appear to be anticompetitive, such as conditional refusals to deal, tying, or predatory innovation.

For example, consider the predatory innovation case, *C.R. Bard v. M3 Systems*.<sup>94</sup> Bard, the manufacturer of a biopsy gun, was found to have redesigned its product to make competitors' replacement biopsy needles incompatible with its product. The court concluded that this was an antitrust violation because it "raise[d] the cost of entry for potential sellers of replacement needles."<sup>95</sup> In spite of the absence of a holdup claim, Bard was only found to have market power in the narrow market for replacement needles for its own biopsy gun. While Bard's product modification may not have lowered its cost or improved product quality, our analysis suggests that there may be a legitimate business justification for the design change. The design change prevented competing suppliers of replacement needles (along with consumers) from free riding on Bard's efficient competitive pricing arrangement, which likely consisted of a lower biopsy gun price and higher replacement needle prices. Once again, a price discrimination justification can lead to improved antitrust analysis.

## VI. CONCLUSION

It is often profitable and efficient for an intellectual property holder to collect part of the value of its property on sales of goods not covered by its intellectual property grant. The court in *Xerox* recognized "that,

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<sup>94</sup> 157 F.3d 1340 (1998).

<sup>95</sup> *Id.* at 1382.

absent exceptional circumstances, a patent may confer the right to exclude competition altogether in more than one antitrust market.”<sup>96</sup> Our analysis provides insight into when such competitor exclusion is likely to be an unreasonable restraint on competition. We summarize the limited conditions when such conduct is likely to have anticompetitive effects. In addition, we demonstrate that conduct that may seem simply exclusionary is often likely to have procompetitive effects. In particular, the exclusionary conduct may be the way a competitive business enforces an aftermarket metering arrangement that has short-run and long-run procompetitive benefits. Specifically, aftermarket metering arrangements permit an intellectual property holder to expand its sales to relatively low-valuing demanders of its product and to encourage investments in innovation.

It is understandable why defendants may be reluctant to present this legitimate business justification for their conduct. A downward-sloping demand is required for a firm to find it profitable to institute an aftermarket metering price discrimination arrangement and economists use the term “market power” to describe downward-sloping demands. This is a misnomer. A small firm selling a differentiated product and therefore facing a negatively sloped demand may have absolutely no ability to control, or even influence, market conditions, the accepted definition of “market power” in antitrust law. This fundamental ambiguity between market power in economics and market power in antitrust law cannot be resolved by claiming that antitrust market power is just an extreme form of economic market power. Instead, the difference between the concepts must be recognized and a clear distinction maintained to avoid the mistaken inference of antitrust market power from the presence of aftermarket metering. Once this is done, these pricing arrangements will be seen as part of the normal welfare-enhancing competitive process.

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<sup>96</sup> *Xerox*, 531 U.S. at 1327 (citing *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1427 n.4 (Fed. Cir. 1997), where a patentee was found to have the right to exclude competition in both the market for patented valves and the market for extension sets incorporating the patented valves).