The Patentee's Gains from Royalty Differentiation Under Exclusive Territorial Licensing

William G. Snead
University of Michigan Law School

Recommended Citation

THE PATENTEE'S GAINS FROM ROYALTY DIFFERENTIATION UNDER EXCLUSIVE TERRITORIAL LICENSING

Royalty differentiation[1] under exclusive territorial grants is a device which a patent owner, given proper conditions, can use to maximize his profits from licensing the patent rights to an invention.[2] The patentee creates exclusive territories by granting only one license per territory,[3] and then sets different royalties for each territory in accordance with the differing price elasticities of demand for the patented end product.[4]

Commentators have taken various stands on how the interests of the patentee and the public should be balanced in determining the desirability of permitting such exclusive territorial grants.[5] One analysis purports to show that permitting a patentee to grant more than one exclusive territorial license is unjustifiable because it cannot benefit the patentee.[6] If the patentee reaps no reward, the practice should be *per se* unlawful because the socially harmful effects of the patent monopoly can be justified only when they are balanced by some benefit to the patentee.[7] Since the state of the law is unsettled, and the policy of permitting royalty differentiation

---

[1] For the purposes of this note, the terms "royalty differentiation" and "price discrimination" are used interchangeably. Professor Baxter, however, suggests that "price discrimination" may be an inappropriate label for patent royalty differentiation because in economic theory it is defined in terms of price to marginal cost ratios, and the marginal cost of patent rights sold to the most favored buyer approaches zero. Baxter, *Legal Restrictions on Exploitation of the Patent Monopoly: An Economic Analysis,* 76 YALE L.J. 267, 280 & n.44, 284-85 (1966). Professor Wheeler, following Baxter's cautious lead, uses "differentiation" instead of "discrimination." Wheeler, *A Reexamination of Antitrust Law and Exclusive Territorial Grants by Patentees,* 119 U. PA. L. REV. 642, 651 & n.49 (1971). The "royalty" is, of course, the price of the patent right. Hence, "royalty differentiation."

[2] *See* notes 29-31 and accompanying text *infra. But see* Wheeler, *supra* note 1, at 650-56.

[3] A license may be "exclusive" in the sense that the patentee promises to grant no further licenses in the given territory. For purposes of this article, an exclusive license is assumed to be the sole license in a given territory. *See* Wheeler, *supra* note 1, at 642 & n.1.

[4] *See* notes 29-31 and accompanying text *infra.*

[5] For example, Professor Turner believes that the relationship between inventive activity and reward to the patentee from exclusive territorial licensing is insignificant. He would permit the practice only when "necessary to anyone's undertaking exploitation of the patent in that territory." Turner, *The Patent System and Competitive Policy,* 44 N.Y.U.L. REV. 450, 474, 476 (1969). Professor Bowman supports a permissive approach to the practice as a way of allowing the patentee to reap the just rewards of the monopoly grant. W. BOWMAN, PATENT AND ANTITRUST LAW 100-05 (1973).

[6] Wheeler, *supra* note 1, at 651. *See* notes 26-27 and accompanying text *infra.* Wheeler would permit one, and only one, exclusive territorial license in order to encourage developmental and promotional risk-taking. Wheeler, *supra* note 1, at 657-62.

[7] *See* P. AREEDA, ANTITRUST ANALYSIS 424-29 (2d ed. 1974). The usual assumption is that even in a competitive system innovative activity will be less than optimum unless subsidized. *See* Baxter, *supra* note 1, at 267-68.

under exclusive territorial licensing is questionable,[8] it is necessary, in anticipation of future judicial decisions or statutory changes, to correctly state and properly consider the interests of the patentee. This note will show that the patentee can derive a substantial benefit from royalty differentiation under exclusive territorial licensing. The patent owner's interest must therefore be taken into account when judging the merits of the practice.

I. STATUTORY AND JUDICIAL AUTHORITY FOR EXCLUSIVE TERRITORIAL GRANTS AND ROYALTY DIFFERENTIATION

The patentee has apparent statutory authority to make exclusive territorial grants. Congress has the power to secure to inventors, for limited times, the exclusive right to their discoveries.[9] Section 261 of the Patent Act states that any interest in patents shall be assignable in law by an instrument in writing, and that the patentee may grant "in like manner" an exclusive right under his patent to the whole or any specified part of the United States.[10] While agreements to divide a market generally constitute antitrust violations,[11] section 261 is regarded as permitting exclusive territorial grants by patentees.[12] The right to prescribe territorial limitations has been described as a "fundamental rule of patent law."[13] Exclusive territorial licenses granted under patents are "old in the law," and are legal unless they violate the antitrust laws for other reasons.[14]

Despite the apparent legality of these arrangements, some recent commentators have questioned the extent to which section 261 is, or ought to

---

[8] *See* part I *B infra.*

[9] The Constitution gives Congress the exclusive power
> [t]o promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.

U.S. CONST. art. I, § 8, clause 8.

[10] 35 U.S.C. § 261 (1970). This section provides that
> Applications for patents, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States.

[11] Addyston Pipe & Steel Co. v. United States, 175 U.S. 211, 241 (1899). The Court, in discussing the illegality of an agreement among pipe manufacturers to make compensating bonus payments for sales in competitors' reserved territories, pointed out that it would be an unlawful restraint of interstate trade if dealers in any commodity agreed among themselves that any particular territory would be supplied by certain dealers and that the others would abstain from business in that territory. This has become a fixed rule of antitrust law.

[12] *See, e.g.,* Brownell v. Ketcham Wire & Mfg. Co., 211 F.2d 121, 128 (9th Cir. 1954). *See also* Wheeler, *supra* note 1, at 642.

[13] Brownell v. Ketcham Wire & Mfg. Co., 211 F.2d 121, 128 (9th Cir. 1954) (citing section 261 of the Patent Act).

[14] *Id.* at 129. *See also* United States v. Crown Zellerbach Corp., 141 F. Supp. 118, 127 (N.D. Ill. 1956), in which the court states that "territorial licenses, without more are a reasonable means for the patentee to secure the reward granted to him." However, this language was followed by the statement that "geographical limits may be imposed to protect the patentee's profits derived from his *own exercise* of the patent rights." *Id.* (emphasis added).

be, authority for granting exclusive territorial licenses. Professor Gibbons believes that while the language of the statute expressly authorizes the practice, the purposes of the authorization were merely to provide for registration of assignments in order to resolve questions of priority among assignees, and to clarify the issue of who has the right to maintain an infringement suit.[15] He suggests that the statute should be limited to these purposes and not read as governing the validity of exclusive territorial licenses when they are challenged as antitrust violations. Professor Baxter has stated much more emphatically his view that, "only by amateurish literalism or cynical distortion can it be argued that section 261 places a general imprimatur of legality on territorial restrictions."[16] He believes that section 261 is irrelevant to the issue of territorial restrictions, and that it only authorizes assignment as a means of transferring legal title to a statutory rather than a common law interest.[17] Baxter would not allow the Patent Act to provide a statutory basis for exclusive territorial restrictions, and would have the antitrust laws govern the substantive propriety and economic consequences of these restrictions. Professor Wheeler, on the other hand, argues that section 261 permits exclusive territorial licenses.[18] He believes that congressional authorization is implicit in the section, and that the Sherman Act's broad language should not be read as an interdiction of the practice. Otherwise, he argues, there would have been no reason to define precisely the territorial patent interests which could be assigned. Furthermore, post-Sherman Act amendments to section 261 clarify rather than invalidate the authorization.[19] The fact that strong arguments have been offered for both viewpoints emphasizes the main point that because future amendments to the Patent Act restricting territorial licenses may be enacted, a clear statement of the patentee's interest must be available for consideration.

Royalty differentiation has also been held lawful. In *La Salle Street Press, Inc. v. McCormick & Henderson, Inc.*,[20] the court held that a patentee's alleged discrimination in charging different license fees for use of its patent did not violate the Robinson-Patman Price Discrimination Act[21] because the sale of the right to the process covered by the patent licensing agreement was not a sale of a "commodity." The court said:

> The sale of a patent license is the sale of the right or privilege
> of using a particular method or process. . . . As such, it does
> not fall within that substantial, but decidedly limited, family

---

[15] Gibbons, *Domestic Territorial Restrictions in Patent Transactions and the Antitrust Laws,* 34 GEO. WASH. L. REV. 893, 896 (1966).

[16] Baxter, *supra* note 1, at 349.

[17] *Id.* at 351.

[18] Wheeler, *supra* note 1, at 649-50.

[19] *Id.* at 644-50 & n.10. Wheeler explains that Congress modified section 261 three times following enactment of the Sherman Act (in 1897, 1941, and 1952) without changing the language concerning exclusive territorial assignments. *But see* Baxter, *supra* note 1, at 351, for the view that section 261 only divides interests sufficiently extensive to be transferred by assignment from those which may be transferred by license.

[20] 293 F. Supp. 1004 (N.D. Ill. 1968), *aff'd in part and rev'd in part,* 445 F.2d 84 (7th Cir. 1971).

[21] 15 U.S.C. § 13(a) (1970).

of tangible and movable chattels which is covered by the term "commodity." . . . Nor does such a result conflict with the Congressional purpose of the statute in question, for the legislative history of what is now section 13(a) [of the Robinson-Patman Act] clearly indicates that the coverage of the law was limited to tangible articles and products, and was not meant to include all elements of commerce such as intangibles or services.[22]

However, the rationales for permitting royalty differentiation or exclusive territorial licensing might not be persuasive in cases involving profit maximization through combinations of the two practices,[23] especially if the profits are regarded as excessive. For example, the recommendation of the 1969 White House Task Force on Antitrust Policy—that a patentee who chooses to license others rather than exploit the patent himself should grant nondiscriminatory licenses to all qualified applicants—was based on the conclusion that a patent owner ordinarily does not need to grant exclusive licenses to obtain the "full reward" for the patent.[24]

Statutory and judicial authority for exclusive territorial licensing and for royalty differentiation is substantial, at least when the two are not used together. Leading commentators and a White House Task Force, however, have taken stands against the practices. Therefore, the future of the law on royalty differentiation under exclusive territorial licensing remains unsettled, making a clear statement of the interests of the patentee important for future consideration.

II. ECONOMIC ANALYSIS OF THE PATENTEE'S GAINS

The merits of restrictions imposed by the patentee must be judged in terms of the interests of both the public and the patentee.[25] Professor Wheeler believes that permitting exclusive territorial grants "is unjustifiable because neither the patentee nor the public benefits from a misallocation of resources favoring the grantee."[26] Specifically with respect to royalty differentiation, he suggests that nonexclusive territorial restrictions are *unlikely* to make price differentiation profitable, and that making the restrictions exclusive "adds little to the patentee's ability to establish a profitable price differentiating system and can often detract from such a system."[27] He concludes that if reasons exist to proscribe the practice, the desire of some patentees to differentiate prices on a territorial basis should not be considered a valid objection to proscription.

In examining these assertions, the two-step analysis of the profitability of royalty differentiation followed by Wheeler[28] is convenient and will be used here. Whether nonexclusive territorially restricted licensing is unlikely

---

[22] La Salle Street Press, Inc. v. McCormick & Henderson, Inc., 293 F. Supp. 1004, 1006 (N.D. Ill. 1968), *aff'd in part and rev'd in part*, 445 F.2d 84 (7th Cir. 1971).

[23] Note the qualification, "without more" in United States v. Crown Zellerbach, 141 F. Supp. 118, 127 (N.D. Ill. 1956), *quoted in* note 14 *supra*.

[24] WHITE HOUSE TASK FORCE, REPORT ON ANTITRUST POLICY 10 (1969).

[25] *See* P. AREEDA, *supra* note 7, at 424-29.

[26] Wheeler, *supra* note 1, at 651.

[27] *Id.* at 654-56.

[28] *Id.* at 652.

to effect profitable royalty differentiation is considered first. This is followed by an analysis of whether adding exclusivity can contribute substantially to the patentee's ability to differentiate royalties profitably.

## A. Nonexclusive Territorial Licensing

Any analysis of price discrimination properly begins with a consideration of the basic preconditions which make the practice possible. The standard formulation of these preconditions is well-established. For example, in 1934 Joan Robinson explained that price discrimination by a monopolist can occur (1) when he is selling in several markets which are divided so that goods sold in the cheaper one cannot be resold in the dearer, and (2) when customers in the dearer market cannot travel to the cheaper to get the benefit of the cheaper price.[29] This separation of markets is the essence of the practice.[30] In technical language, there must be no significant "seepage" between the markets.[31]

---

[29] J. ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION 179 (1934).

[30] G. STIGLER, THE THEORY OF PRICE 209 (3d ed. 1966).

[31] A. STONIER & D. HAGUE, A TEXTBOOK OF ECONOMIC THEORY 202-03 (4th ed. 1973).
  The standard model is best illustrated by a two-part diagram showing two markets which are assumed to be separable. Short run marginal costs of production (SMC) in Market A and Market B are assumed to be constant and equal. MR represents the marginal revenue curve in each market. At any given price level, demand in Market A is more elastic than in Market B, as shown by the flatter demand curve for Market A. The monopolist maximizes overall profits by producing up to the quantity where marginal revenue (MR) in each market is equal to short run marginal cost (SMC) and selling each quantity for as much as it will bring, according to that market's demand curve. Thus, price PB in Market B will be higher than price PA in Market A. *See* R. LEFTWICH, THE PRICE SYSTEM AND RESOURCE ALLOCATION 221-22 (4th ed. 1970); Wheeler, *supra* note 1, at 652 & n.50.
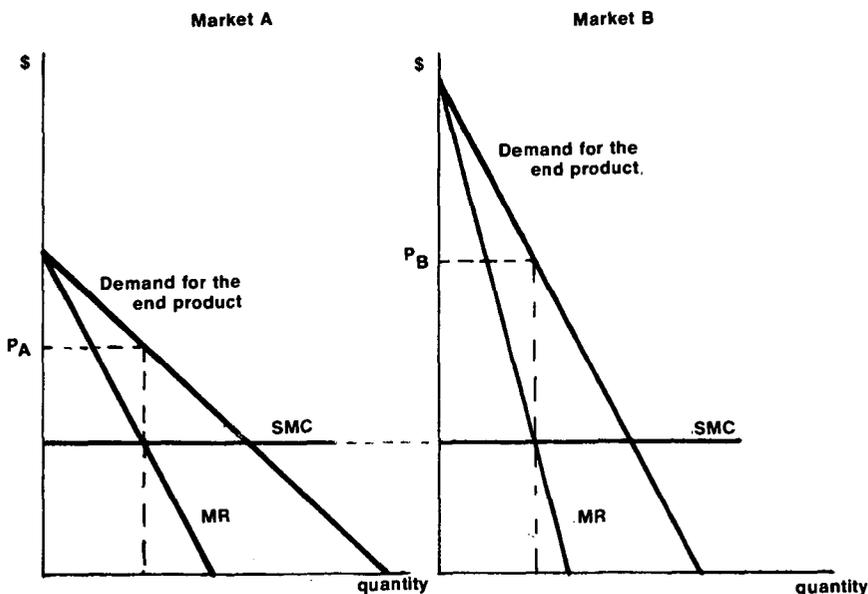
Wheeler argues that three classes of persons cause enforcement problems which impair the patentee's ability to differentiate through territorially restricted licensing: independent arbitrageurs, who buy in the cheap market and resell in the dear; "foreign customers," who travel from their residences in the dear market to buy in the cheap; and cheating licensees, who breach the licensing agreements by selling in clandestine fashion outside their own territories.[32] These are all real possibilities, of course, but they are only examples of the two types of seepage described by Robinson. However, to describe specific examples of seepage is merely to show that the conditions for successful royalty differentiation sometimes may be absent, not to show that the conditions are unlikely to occur or that the practice is unlikely to be profitable when favorable conditions are present.

Wheeler also argues that added administrative costs and the difficulty of identifying distinct markets help make territorial restrictions alone unlikely to make royalty differentiation profitable.[33] He states that the patentee's incentive to implement price differentiation depends upon whether his returns will exceed the administrative costs of the system, and that "his incentive increases as his returns rise above his costs."[34] However, this is merely a restatement of the basic principle that activities are not economically feasible unless added returns cover added costs.[35] The same criticism applies to his claim that, "In every case . . . the first impediment is the difficulty of determining when and where identifiable, distinct markets exist that are conducive to price differentiation."[36] While estimating demand functions may not be a simple matter, the relative difficulty of some techniques of business administration cannot serve as proof that they are unlikely to be used.[37]

Wheeler's conclusion that territorial restrictions alone are unlikely to effect profitable royalty differentiation is untenable. Enforcement problems, administrative costs, and difficulties of gathering data are only factors which indicate that royalty differentiation under territorial restrictions is not always feasible.[38] Their existence does not show that the practice is

---

[32] Wheeler, *supra* note 1, at 653.

[33] *Id.* at 652, 654.

[34] *Id.* at 652.

[35] *See, e.g.,* P. SAMUELSON, ECONOMICS 453-55 (9th ed. 1973).

[36] Wheeler, *supra* note 1, at 654.

[37] The use of marketing techniques is spreading rapidly from giant corporations to many types of organizations, even though forecasting demand "is like trying to drive a car blindfolded and following directions given by a person who is looking out of the backwindow." P. KOTLER, MARKETING MANAGEMENT 3, 192 (2d ed. 1972).

[38] Wheeler also argues that territorial restrictions are unlikely to effect profitable royalty differentiation because:

A . . . problem arises if the patented invention is valuable primarily because it reduces the cost of producing an old product. The producers must be induced to switch from their old production methods if the patentee is to establish a profitable price-differentiation scheme through territorially restricted licensing. This problem constitutes a substantial deterrent to effective price-differentiation through territorially restricted licensing because an existing competitive end-product market imposes a ceiling on the price licensees can charge, and an existing monopolistic

unlikely to be successful. The interests of the patentee in practicing royalty differentiation may not be ignored simply because the practice is sometimes infeasible.

B. Exclusive Territorial Licensing

If the patentee grants exclusive territorial licenses, he gains more control over each licensee, but he must also deal with each as a local monopolist in the retail market.[39] The first effect is clearly a benefit to the patentee. Because he will have fewer licensees to supervise, "he may more successfully and cheaply solve one aspect of his enforcement problems—preventing licensees from engaging in clandestine interterritorial competition."[40] This is important for two reasons. Control over licensee arbitrage, of course, ranks first. Compared to independent arbitrageurs, licensees have access to supplies in greater volume and, because they are already established in one market, are likely to be more familiar with market conditions and to require fewer additional overhead expenses to carry on arbitrage. These factors make licensee arbitrage profitable at smaller interterritorial price differentials than for independents,[41] and therefore make licensee

---

> end-product market, unless destroyed, will prevent production of the
> quantity of goods yielding maximum royalties.

Wheeler, *supra* note 1, at 654. Just what relationship between the ceiling price and the resistance to adoption of new technology Wheeler is relying upon is unclear from the above passage. Under competitive conditions, successful royalty differentiation *is* feasible. In a competitive end-product market, each producer is encouraged to introduce cost-saving innovations in the interest of maximizing profits. When a significant number of firms do so, the price of the end-product will fall and all producers will be forced to adopt the invention to survive. Derived demand for the invention could easily differ between territories if the innovation reduces costs of one factor of the production process which differs in availability between territories. Why Wheeler discusses this case at all is not entirely clear. The patentee of a cost-saving invention would normally maximize royalties by licensing all producers in a given territory, as explained by Figure 1 and accompanying text *infra,* and by Wheeler, *supra* note 1, at 654-55. Thus, the example makes no sense in a preliminary consideration of exclusive licensing. It is, at most, another example of unfavorable conditions. *See* part I *supra.* As for situations where there is a monopolistic end-product market, if this means only one seller anywhere, then there is no possibility of royalty differentiation at all. If it means one seller in each territory, then the situation seems tailor-made for the practice.

[39] In technical language, the exclusive licensee is a monopolist in the local market and also a monopsonist (a single buyer) when facing the patentee as a single buyer of his patent. Thus, dealings between them may be seen as a bilateral monopoly problem. *See* E. MANSFIELD, MICROECONOMICS 367, 270-72 (1970).

[40] Wheeler, *supra* note 1, at 654.

[41] The following diagram is helpful in visualizing the relationship between cost factors and profitable arbitrage. Dollars per unit of output are measured on the vertical axis and some index of cost factors (such as risk, transaction costs, overhead, distance, topographical difficulties, and an average rate of return) are measured on the horizontal. Line C portrays arbitrage costs rising with these cost factors. Royalty differentials may rise as markets are separated by greater distances, but are assumed to be constant and are represented by line D. (This assumption simplifies the analysis without fundamentally changing the result.) When royalty differentials exceed arbitrage costs, arbitrage will occur. When royalty differentials equal costs, arbitrageurs will be indifferent between arbitrage and other activities which yield an average rate of return. When costs exceed differentials, arbitrage will not occur. If line C rises, less arbitrage will occur. Line C is probably higher for independents

arbitrage a more likely source of difficulty for the patentee in keeping markets separate. But if there is only one licensee in each territory, the patentee can more easily police arbitrage behavior. Sales in significant volume by a cheating licensee outside his own territory will be readily discovered and eagerly reported by the local exclusive licensee whose territory is invaded. The products sold by the outsider will be traceable to him by use of identifying marks or style differences. The cheating licensee would be under pressure to stop such sales because renewal of his license would be at stake. Moreover, the availability of such control measures might be sufficient to maintain territorial integrity without any agreements that would violate the Sherman Act.[42]

Control over each licensee might also give the patent owner some indirect control over independent arbitrageurs. A significant volume of sales by an independent would be readily discovered and reported by the local exclusive licensee. The patent owner might then search for a licensee more inclined to help make the system function smoothly when the time came

---

because licensees have access to the product in greater volume, are more familiar with market conditions, and require fewer additional overhead expenses. Thus, arbitrage problems are more likely to originate with licensees.
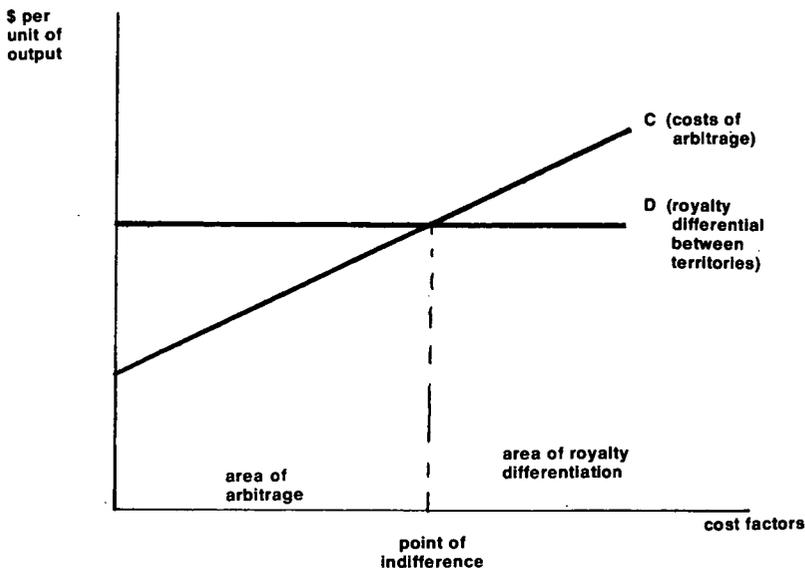
[42] 15 U.S.C. § 1 (1970). In Interstate Circuit, Inc. v. United States, 306 U.S. 208 (1939), the Supreme Court upheld the inference of an illegal agreement from the conduct of a group of film distributors who had imposed restrictions on subsequent-run licensees. The Court said, "It was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it." Id. at 226. However, in Theatre Enterprises, Inc. v. Paramount Film Distributing Corp., 346 U.S. 537 (1954), uniform action in denying first-run pictures to a suburban theatre was attributed to "individual business judgment motivated by the desire for maximum revenue." Id. at 542. The Court said, "This Court has never held that proof of parallel business behavior conclusively establishes agreement" and concluded that, " 'conscious parallelism' has not yet read conspiracy out of the Sherman Act entirely." Id. at 541.

to renew the license of the offending licensee. The possibility of non-renewal might encourage licensees to avoid sales to independents in quantities sufficient to make arbitrage attractive.[43]

Thus, making territorial licenses exclusive helps to solve the two main enforcement problems of the patentee and significantly increases his ability to differentiate royalties profitably. While natural barriers such as distance and topography make transportation costs the main deterrent to foreign customer buying, patentee control over licensee and independent arbitrage can facilitate market separation beyond the limits imposed by natural barriers.

The second result of granting an exclusive territorial license is that the licensee obtains a monopoly in the market for the end product.[44] The consequences of this monopoly position can best be understood by referring first to the way in which the patentee extracts monopoly profits when he is able to grant licenses to a large number of competitive licensees. Figure 1 illustrates this. Average variable cost of production is here assumed to equal short run marginal cost of production (SMC) without royalty payments.[45] A royalty of CP dollars per unit of output adds CP to the cost of each unit, causing the competitive firms to view their marginal cost curves as PA.[46] They will produce quantity OQ at market price OP.[47] Total royal-

---

[43] Wheeler does not discuss indirect control over independent arbitrageurs through licensees. He states that licensees are more successfully and cheaply controlled, but that "none of the other impediments to effective price differentiation would be affected." Wheeler, *supra* note 1, at 654. Admittedly, the control effect would have to be so indirect as to avoid the well-established rule that "The first vending of any article manufactured under a patent puts the article beyond the reach of the monopoly which that patent confers." United States v. Univis Lens Co., 316 U.S. 241, 252 (1942).

[44] Wheeler, *supra* note 1, at 655.

[45] The firm incurs variable costs for those inputs, such as labor and raw materials, which can vary in quantity in the short run. Average variable cost is variable cost divided by output. Marginal cost is the addition to cost which results from producing an additional unit of output. In the short run, marginal cost is a mathematical function of variable cost because additional units of output can only come from additional variable inputs. *See* E. MANSFIELD, *supra* note 39, at 117, 159-68. The average variable cost and marginal cost curves are usually portrayed as falling, then rising, functions of output, with the marginal cost curve cutting the average cost curve from below. *See id.* at 191. However, to portray the average cost curve as a horizontal line is sometimes more convenient for expository purposes when the analysis is otherwise unaffected. In this case, since average variable cost does not change with output, marginal cost and average variable cost are necessarily equal. Thus, they are shown by the same line (SMC in Figure 1). This is consistent with the method used by Wheeler. Wheeler, *supra* note 1, at 655.

[46] The licensee makes no additional use of the patent license when he produces an additional unit of output, but when the royalty is calculated on each unit of output, the effect is to add a constant amount to variable cost with each unit produced. This shifts the marginal and average variable cost curves upward vertically by the amount of the royalty.

[47] The competitive market supply curve is a horizontal summation of the supply curves of the individual firms. The supply curve for each firm is a horizontal line at the level of OP, which represents the additional costs of supplying additional units of output. A horizontal summation yields a horizontal market supply curve at the same level, which is the line PA. The intersection between PA and the

ties are PABC, the same as the monopoly profits the patentee could make by producing himself, if his costs were represented by SMC.[48]
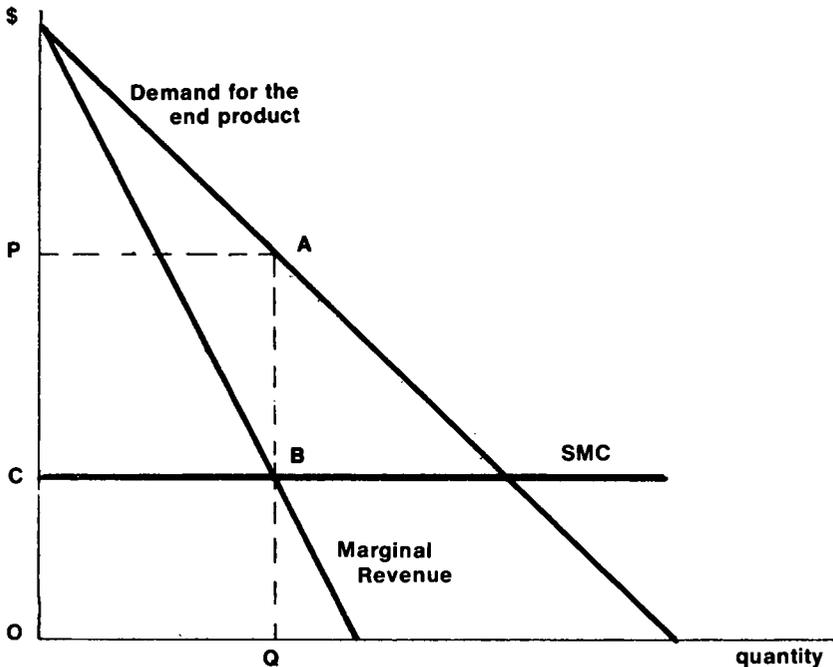

FIGURE 1

Under certain conditions, however, a patentee may prefer an exclusive licensee in each territory. He may be unable to find a sufficient number of licensees to ensure pure competition.[49] A large number of producer-retailers in each territory might involve excessive administration expenses and sacrifice economies of scale in production and distribution.[50] If a competitive structure is not feasible, the patentee may want to avoid creat-

---

demand curve at point A determines equilibrium price OP and quantity OQ. *See* E. MANSFIELD, *supra* note 39, at 226-29.

[48] If he produces the product himself, the monopolist maximizes profit by producing up to the quantity where marginal cost equals marginal revenue. These curves intersect at point B, determining quantity OQ which can be sold at price OP. Costs per unit are OC dollars. Profits per unit are CP dollars. Total profits are PC dollars per unit times the number of units, OQ. Hence the rectangle PABC represents the monopoly profits. *See* E. MANSFIELD, *supra* note 39, at 258-61; Wheeler, *supra* note 1, at 654-55.

[49] There have to be so many that each will regard his own behavior as having no effect on the market. *See* P. SAMUELSON, *supra* note 35, at 43.

[50] Policing the behavior of licensees would be more expensive as the number of licensees the patentee has to watch increases. Furthermore, a system of exclusive licensing would be mainly self-policing, since each licensee would be eager to protect his monopoly in his own territory. *See* notes 41-43 and accompanying text *supra*.

ing an oligopoly which would cause numerous problems of inter-firm rivalry.[51]

Wheeler attempts to show that granting an exclusive license, which puts the licensee in a monopoly position in his geographical segment of the retail market, enables the licensee to follow his own profit-maximizing goals to the detriment of the patentee. Figure 2 illustrates Wheeler's analysis. The patentee would like to squeeze royalty PABC from the licensee by charging royalty rate PC on each unit of output. This would work well if the exclusive licensee behaved as if he were in a competitive situation, as described in the analysis accompanying Figure 1. The licensee, however, sees his own marginal cost as increased by the royalty he pays to the patentee for each unit of production. Thus, PA becomes the licensee's marginal cost curve. When he finds the output at which his increased marginal cost equals marginal revenue (point F), he will decide to sell a lesser quantity OQ' at a higher price OP'. The licensee thereby gains P'DFP in retail monopoly profits and the patentee loses FABE of royalty income.[52] Wheeler concludes that making territorial licenses exclusive "adds little to the patentee's ability to establish a profitable price differentiating system and can often detract from such a system."[53] He uses this result to support his more general conclusion that the patentee's interest in differentiating royalties on a territorial basis should not be considered as a valid objection to proscribing exclusive licensing.

Wheeler's analysis and conclusion are unsound for two reasons. First, he fails to consider the simplest device of all which allows the patentee full control over his total royalties. The patentee is not limited to the use of a per-unit-of-output royalty. If he charges the licensee a lump-sum royalty per unit of time, then the marginal cost of production curve as perceived by the licensee in Figure 2 will not change from SMC, because marginal cost of production is a function of variable costs, and a lump-sum charge adds to fixed costs only.[54] This device, which is clearly legal,[55] enables the

---

[51] In an oligopolistic market structure, each firm's actions are dependent upon the assumptions made about its rivals' decisions and reactions. The alternative assumptions and combinations of actions are numerous, as are economic theories to explain oligopoly behavior. Cost and market-share disparities are commonly recognized as engendering conflicting price and output preferences among industry members, which contribute to the difficulty of coordinating behavior to maximize joint profits. See F. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 131, 157 (1970).

[52] Wheeler, supra note 1, at 655.

[53] Id. at 656.

[54] See E. MANSFIELD, supra note 39, at 167-68.

[55] In Automatic Radio Mfg. Co. v. Hazeltine Research, Inc., 339 U.S. 827 (1950), the Court, in explaining that a royalty can be for the privilege of using a patent rather than for actual use, said

> The Court of Appeals reasoned that since it would not be unlawful to agree to pay a fixed sum for the privilege to use patents, it was not unlawful to provide a variable consideration measured by a percentage of the licensee's sales for the same privilege. Numerous District Courts which have had occasion to pass on the question have reached the same result on similar grounds, and we are of like opinion.

Id. at 833 (emphasis added) (footnote omitted).

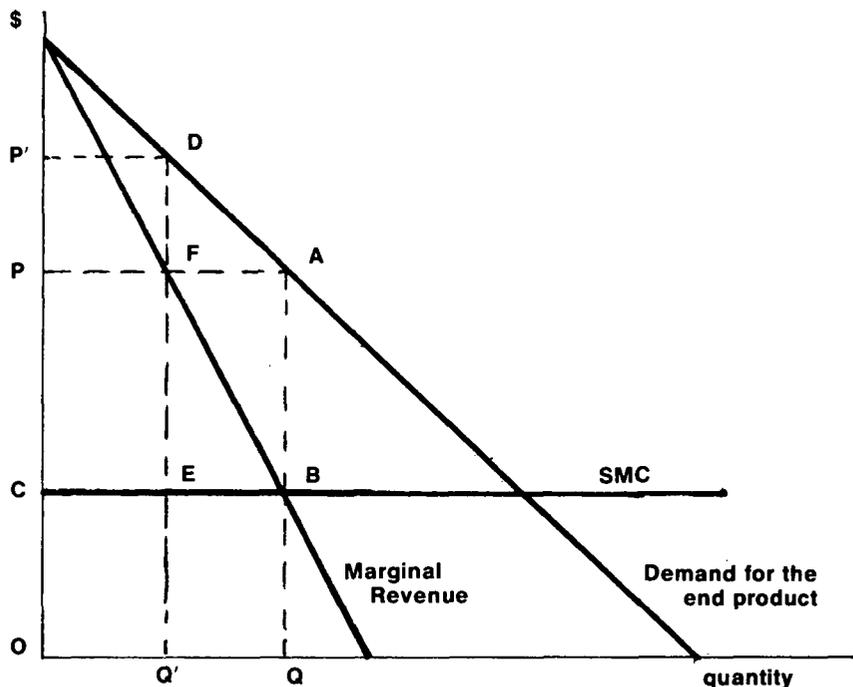patentee to extract the full monopoly profit PABS from an exclusive licensee in a given territory.

FIGURE 2

Even if the patentee chooses not to utilize a lump-sum royalty, Wheeler's analysis is still unacceptable. He assumes a patentee who understands how to maximize profits by charging a royalty based on equality between the licensee's marginal costs and marginal revenue, but who does not expect similar profit-maximizing behavior by the licensee to whom he has just granted a monopoly in a local market. This is a simple case of "myopic chain monopoly," when a monopolist in the end-product market buys an input from a monopolistic supplier and myopically views the supplier's price as given.[56] However, mutual recognition of market interdependence in a model with few decision-makers has been a standard part of economic theory for nearly half a century.[57] A much more reasonable assumption is that the patentee and licensee will recognize that both will benefit by maintaining price P and quantity Q in Figure 2, and splitting between them the additional profits (additional to the amounts each could get under the Wheeler solution) equal to FABE less P'DFP.

Exactly how these profits would be divided is indeterminate. When a

---

[56] F. SCHERER, supra note 51, at 243.

[57] This has been the case ever since Chamberlin's work in 1933. See C. FERGUSON, MICROECONOMIC THEORY 312-13 (rev. ed. 1969).

single patentee deals with a single licensee, a bilateral monopoly situation exists, and the outcome depends upon the relative bargaining strengths of the two parties.[58] It is clear, however, that both patentee and licensee will be aware of the profits that can be lost to myopic behavior, because the dollar volume of the potential loss is significant; it can be as much as one-fourth of total monopoly profits.[59] The myopic situation described by Wheeler as the basis of his analysis is therefore unlikely to be generally characteristic of patentee-exclusive-licensee behavior. Mutual recognition of joint profit maximizing opportunities is more reasonably to be expected, thus giving the patentee an important interest in royalty differentiation under exclusive territorial licensing.

---

[58] E. MANSFIELD, *supra* note 39, at 270-72.

[59] The following figure illustrates this. Assuming a linear demand function, then PA = BG, FA = ½PA, and FA = ½BG, because the marginal revenue curve, by construction, lies midway between the dollars axis and the demand curve. FDA and BAG are similar triangles, so DF = ½AB. This means that the height and the base of the rectangle defining the profits taken by the myopic licensee (PP'DF) are each one-half the height and base of the rectangle defining the total monopoly profits available (PABC). Thus, the monopoly profits taken by the myopic licensee are equal to one-half of what the myopic patentee loses, or one-fourth of the total potential monopoly profits. The patentee is left with one-half of what he expected (PFEC instead of PABC), and the remaining one-fourth is lost to both. Thus, fully one-fourth of the total monopoly profit is available to encourage mutual awareness and cooperation. If divided equally between the patentee and licensee, it represents a 50 percent increase to the licensee and a 25 percent increase to the patentee over Wheeler's myopic solution. This is a substantial difference, and suggests that even if a patentee failed to see the situation clearly the first time he licenses a patent, the difference between his actual and expected returns would force him to be more attentive when granting subsequent licenses in other territories.
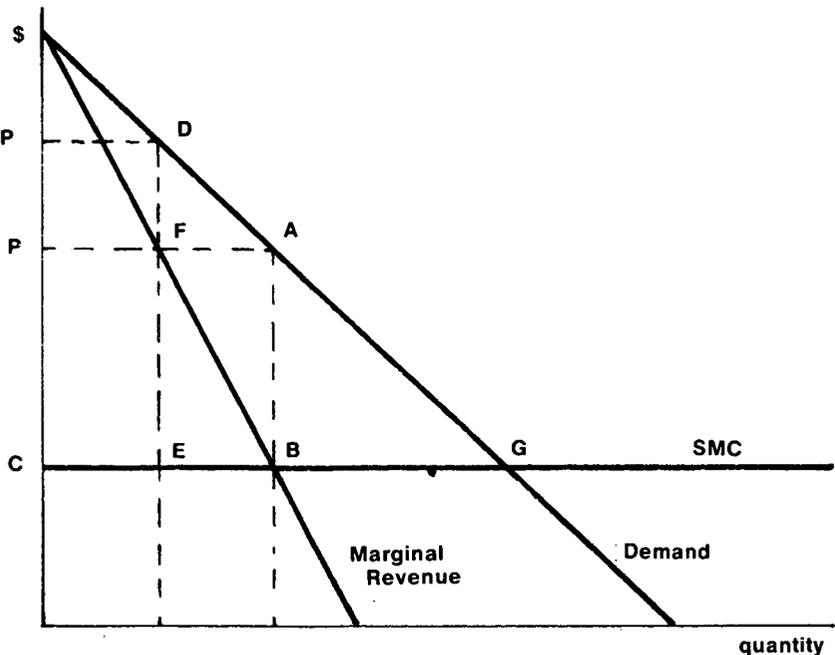
III. CONCLUSION

While nonexclusive territorially restricted licensing is not unlikely to make royalty differentiation profitable, adding exclusivity can contribute substantially to the patentee's ability to differentiate profitably. The availability of the lump-sum method of collecting royalties and the likely mutual recognition of the significant losses to both patentee and licensee from myopic behavior suggest that the exclusive position of the licensee will not detract from the patentee's ability to engage profitably in the practice. The desire of some patentees to differentiate royalties on a territorial basis therefore has a sound economic foundation and should be given full consideration when judging the merits of the practice.

—William G. Snead