

Intellectual Property Rights: a Grant of Monopoly or an Aid to Competition?*

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1. Introduction

The question of whether the legal recognition of rights to intellectual property involves the creation of monopoly rights is the subject of some dispute. Some commentators treat this as an issue merely of semantics with no policy import. Other commentators regard the issue of classification as important. Lessig, who notes that these rights are ‘also known as monopoly rights, acknowledges that the classification matters; it can shift the burden of proof:

There is a resistance to calling these “exclusive rights” “monopolies”. Frank Easterbrook, “Intellectual Property Is Still Property”, *Harvard Journal of Law & Public Policy* 13 (1991): 108-09. But technically, of course, they are. That, however, does not entail that a given exclusive right has any monopoly power. There is a purpose, however, in calling these rights “monopolies” – to shift the burden of defending the rights to those who claim they do some good. This was the strategy of McCauley in the mid-nineteenth century as well.¹

Developments in the literature of economics over the last twenty years have done much to clarify the types of monopoly problems that may be associated with legal recognition of rights to intellectual property. We do not have to settle for a binary choice: are they monopolies or are they not? Rather, we can now say with some assurance when intellectual property rights are likely to lead to monopoly problems and when they will not. This paper attempts to summarise the principal results of this literature.

The paper outlines the key characteristics of intellectual property rights, and the particular problems they pose for market processes. Whereas disclosure of intellectual property presents a fundamental problem for obtaining reward from intellectual endeavour, the main problem confronting copyright protection is in the effective enforcement of these rights.

Property rights are defined as the power to exclude others. The implication is that if someone wants access to the property held by others, then these rights must be purchased in a voluntary transaction in which the value of the rights is agreed between the buyer and seller (Calabrese and Melamed, 1972).

In general, the holder of property rights on physical items can readily exclude others from use of those items. In contrast, holders of rights over intellectual property have more limited exclusionary provisions. For example, patents confer a right to prohibit ‘producing’ while copyright

¹ Lessig (2001) p 58n.

confers a right to prohibit 'copying'. Trade secrecy and non-compete clauses confer rights to keep intellectual property (and their implications) secret. These limits reflect the special characteristics of intellectual property and the formulation of intellectual property as distinct from physical products.

One aspect of intellectual property which distinguishes these rights from physical assets is the difficulty in confining use. For example, it is difficult to 'unlearn' information received when you exchange it with others. Contrast this ability to 'retain' information and knowledge after exchange with the loss of control over a physical asset when it is traded. As a corollary, the ease of transfer of intellectual property makes commercial exchange difficult, as the act of revealing the nature of the intellectual property which is for sale has the effect of transferring the idea to potential purchasers, without any transaction necessarily taking place.

To address the particular limitations of enforcement, intellectual property rights are generally directed at their *potential* commercial use of intellectual property rather than their *actual* use.

It is with this in mind that we wish to analyse the interaction between the system of intellectual property rights and potential competitive concerns. On one level, having a system of intellectual property rights is no more exclusionary or monopolistic than having a system of property rights *per se*. When one owns a piece of land, it might be said that one has a monopoly right over the use of that land in that, to a large extent, one can restrict its use by others. The same is true of an idea. However, a key difference between physical assets and intellectual property lies in the fact that the former is *rival* while the latter is *non-rival*. That is, one person's use of information does not preclude the use of the same information by others, either at the same time, or in the future.² In contrast, the consumption by an individual of a rival good means that it is unavailable for consumption by another potential consumer.

If the problem of the socially-optimal distribution of information were separable from other resource-allocation problems (such as the socially optimal production of information) the best solution to that problem would be for the information embodied in intellectual property to be freely distributed. This conclusion is based on the argument that the socially 'efficient' price for a non-rival good is the marginal cost of provision. If the cost of *distribution* of intellectual property, once produced, is zero, then

² A television broadcast is non-rival. Both my neighbour and I can 'consume' a television broadcast at the same time, without detracting from the quality or quantity of the service available to each of us, or any other consumers. In contrast, apples are rival goods. My neighbours' consumption of an apple prevents me from consuming that apple.

from a social perspective it is desirable that information be available at zero price.

This 'optimal' price is generally contrasted with the traditional view of a restrictive monopolist. Nonetheless, there is an important sense in which a monopolist owner of intellectual property wishes to promote access in the same way as is socially optimal. That is, a monopolist holding intellectual property has strong incentives to offer the rights to users who are willing to pay more than the costs associated with the providing the rights. A monopolist will seek to maximise profits from the sale of intellectual property by segmenting the market according to willingness to pay, and offering rights to individual users to the point where price of the last bundle of rights just exceeds the costs of supply of that bundle.

However, the monopolist may face limitations on the extent it can price flexibly and this would conflict with a socially desirable outcome.

2. Role of property rights

A system of property rights is a key ingredient in providing individuals in a market economy with a means of appropriating some return from productive activity.³ This ability to appropriate a return provides much of the incentive for productive effort. Indeed, without enforceable property rights, the fear of expropriation would deter much productive activity.

An effective system of property rights requires several key elements:

- *Establishment*: a legal framework that can establish the identity of the holder of rights of ownership of an asset;
- *Enforcement*: a system for enforcing those property rights.
- *Exchange*: a means by which those rights can be exchanged without great cost.

Each of these elements is essential if property rights are to translate into an assurance that an agent may realise a return or value from assets they have created. Establishment ensures that creators have the ability to control or sell those assets, while enforcement ensures that those rights will be protected and those that violate them will be punished. Finally, the ability to exchange or otherwise contract for the asset's use ensures that a full range of market options is open to an asset's owner.

³ A seminal paper on the importance of property rights is that by Furubotn and Pejovich (1972).

3. The value of property rights

There are two ways in which having a well-functioning system of property rights is socially valuable. First, it ensures that trade takes place in a way that maximises social value. Second, it provides incentives to encourage the creation of socially valuable assets. These two outcomes can be classified as the allocative and dynamic efficiency aspects of property rights.

To see why property rights are valuable consider a hypothetical producer of widgets. That producer must expend costs in the production of each widget in the hope of being able to sell them later on. Of course, market conditions (e.g., low demand) may thwart this, but that is a normal market process. It would be of greater concern if there were a flaw in the system of property rights that had the effect of undermining the ability to be rewarded for producing widgets. Such a problem may arise if upon producing a widget, it were not clear who owned it or, alternatively, if other people could simply take the widget for themselves. Without clear and secure property rights, the seller may be unable to exchange the widget for any price.

Coase (1960) taught us that property rights were essential for markets to operate effectively. Coase also pointed out that the allocation of these rights, under certain conditions, does not affect economic efficiency. Notice that there is a sense here in which the system matters more than the individual. Widget producers may possess capabilities to produce widgets but, for an efficient outcome, we need not require that they own the widgets they produce. For instance, a potential customer might own these. It may appear that no production would take place under this regime. However, so long as the exchange element of the property rights system is functioning properly, this is not necessarily the case. The customer still values the widget and could write a contract with the producer to pay them a price if they produce the widget. The customer is effectively paying for the service of widget *production* rather than the widget itself. From an economic efficiency perspective, there is little difference between the two forms of exchange – for service or physical commodity. Either way, if the system of property rights is functioning effectively, widgets get produced for customers who value them. This idea – that the assignment of property rights does not matter (so long as a given assignment is clear) – is a central insight of the Coase Theorem.

In the real world, no system of property rights functions perfectly. There are many rights that are not established, for example, the right to clean air. There are others that are imperfectly enforced, for example the limits to the protection of physical property. Furthermore, there are many impediments to free and low cost contracting, for example, costs of third

party verification, imprecise language and asymmetric information. As a result, each element of a property rights system is challenged by institutional and practical difficulties in ensuring that it is functioning properly.

In summary, when there is a well-functioning property rights system, assets will be exchanged to the point where those who value them the most will use them and assets will be created so long as their social value exceeds the costs of producing them. In this discussion we have looked at assets generically: they may be physical or informational. However, for informational assets there are specific difficulties that arise in ensuring the intellectual property rights system functions properly. We now turn to discuss those difficulties.

4. Imperfections in the rights system for intellectual property

Creating a well-functioning system of property rights for intellectual property has specific difficulties associated with the establishment, enforcement and exchange of those rights.

Difficulties in establishment

Establishing rights over intellectual property is difficult because of its non-rival nature. If one person has used an idea it is impossible to remove that idea from further use, even if that idea is passed on to other users. Therefore, there is a sense in which all past users may 'own' intellectual property. This difficulty is not present for physical assets that are rival in nature.

Persons can be forced to pay for physical assets by excluding those persons from the use of the assets unless they first pay: the ice cream shop will not hand the ice cream over to the customer unless the customer first hands over the money to the shop. It is much more difficult to enforce rights over intellectual property because it is much more difficult to exclude those who have not paid. This difficulty has increased markedly in recent years with the widespread use of technologies such as e-mail and the internet that facilitate the transfer of intellectual property.

Copyright laws have traditionally overcome the problems associated with establishment, not by protecting the idea, but by restricting the rights to reproduction. Controls over unauthorised use also tend to be easier to administer since property rights to intellectual property are frequently associated with physical property (for example, books or CDs).

Difficulties in enforcement

Because of the ability for intellectual property to be replicated and easily transferred, tracking the use of these non-physical assets creates substantial enforcement problems for owners. Owners may not observe when intellectual property is being used in an unauthorised manner because this illegal use does not directly affect their own use of the asset. Sometimes the market can assist in such detection. For example, the copyright owner of a piece of software may notice demand fall in the face of widespread pirating. However, such signals are unlikely to be observed for all but the most blatant and widespread breaches of copyright. Basically, the costs of enforcement – present for all assets – are higher for intellectual property. In some circumstances the costs to the owner of monitoring and preventing unauthorised use are insuperable, thwarting the efforts of individuals to realise rewards for their creative activity.

The solution to this problem is to put in place institutional arrangements to economise on enforcement costs. For physical assets, the police force, private security and self-provided vigilance can prevent expropriation. For informational goods, those means are available but often more specialised monitoring and enforcement is required. Hence, stronger legal and judicial protection for patents and collecting societies can assist in lowering the costs of enforcement.

The role of collection societies, or other copyright enforcement agencies, is to manage the process of enforcement on behalf of creators, thus providing a mechanism for ensuring that rights can be cost-effectively enforced. The arrangements established by collection societies are designed to minimise the costs associated with detection of unauthorised use of intellectual property. For example, the blanket licensing system operated by many copyright collecting agencies allow copyrights users to have access to the complete range of works of the particular type that is represented by the agency. It is easier to detect a breach of a blanket licence than to detect breach of licence that is restricted to a limited number of works.

Difficulties in exchange

There are several problems that make it difficult for owners of intellectual property to exchange it. Each of these raises the transaction costs in the markets for intellectual property and is a reason why socially beneficial trades and the creation of information may not be forthcoming.

- *The disclosure problem*: establishing the appropriate “price” for intellectual property requires information to be exchanged that intrinsically reduces its value.

- *The contingency problem*: value of intellectual property depends on factors such as market demand and the existence of other technologies so it is difficult to make contracts stick.
- *The perception problem*: different individuals will perceive the value of intellectual property differently, making it difficult to come to agreements over price.

The latter two problems are present in many exchange environments. They are mentioned here because they become particularly salient when the trade is in intellectual property. The disclosure problem is more fundamental, however, and worthy of elaboration.

The best description of the disclosure problem was provided by Arrow.⁴

In the absence of special legal protection, the owner cannot, however, simply sell information on the open market. Any one purchaser can destroy the monopoly, since he can reproduce the information at little or no cost. Thus the only effective monopoly would be the use of the information by the original possessor.

... there is a fundamental paradox in the determination of demand for information; its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost. Of course, if the seller can retain property rights in the use of the information, this would be no problem, but given incomplete appropriability, the potential buyer will base his decision to purchase information on less than optimal criteria. He may act, for example, on the average value of information in that class as revealed by past experience. If any particular item of information has differing values for different economic agents, this procedure will lead both to a non-optimal purchase of information at any given price and also to a non-optimal allocation of the information purchased.

At one level, this is just a problem of imperfect property rights. Intellectual property is an asset that is not easy to own and control. It is not easy to exclude users and, moreover, secrecy as a means of exclusion is given up whenever there is an *attempt* to trade the information. The seller of intellectual property is faced with low prices regardless of whether the idea is revealed prior to trade or not. This is a problem because of necessary private information. In particular:

- *Idea value*: the buyer does not know the true value of the idea (lowering price prior to revelation)

⁴ Arrow (1962) p 615.

- *Idea source*: the source of the idea is not *ex ante* or *ex post* verifiable (lowering price after revelation)

Strong intellectual property rights can assist in alleviating the disclosure problems by preventing expropriation. However, there is a sense in which such concerns will always surround the trade in intellectual property.

Problems of disclosure do not arise to the same extent in the case of copyright, where intellectual property is expressed in the more tangible forms, for example in the arrangement of words or notes in a song. As previously discussed, the problems associated with copyright concentrates around the difficulties of enforcement of these rights.

It should be noted that the rapid emergence of the digital age, and the ease of transmission of works via the Internet has the effect of increasing the ease with which intellectual property is transferred; and this compounds the problems of detecting unauthorised use. In view of the growth of this medium, the regulatory and institutional arrangements will need to respond to these changes, to maintain an effective mechanism for enforcement of rights.

5. Competition and pricing

There is a general concern about intellectual property rights that they confer monopoly rights on an owner in the sense of restricting competitors from selling substitute products based on that idea or information. The notion here is that the idea or information is a critical input into the production of a certain type of good or service. Hence, having a monopoly over the idea allows the intellectual property rights holder to have a monopoly over the market for the good or service.

At one level, the good or service could be the idea itself; for example, a news service on the Internet or a performed song on a CD. In this case, the practice of charging a price above marginal cost (which can be close to zero) is a necessary evil. As an idea can normally be produced at a constant per unit cost, in order to achieve any return at all, price must necessarily be inefficiently high. This results in the use of less intellectual property and a consequent reduction in consumer and producer surplus – the so-called ‘deadweight loss’. Simply put, when an idea seller is constrained to offer the market a simple per unit price, this means that there are units of output not being supplied for which the (opportunity) cost of supply is *less than* a user’s willingness to pay for that unit.

This pricing behaviour also restricts the intellectual property-owner’s return. It would be desirable for some form of price discrimination to be used to allow the intellectual property rights holder to sell intellectual

property. Price discrimination would allow the rights to be sold more widely while preserving their returns. Specifically, some way of identifying and charging more to those users with greatest willingness-to-pay will lead to a greater quantity of intellectual property being used and hence, a reduction in the deadweight loss.

Legal rules have long facilitated price discrimination in the selling of intellectual property. For example, the legal recognition of copyright may confer such rights as:

- ❑ the right to reproduce the working material form;
- ❑ the right to publish the work;
- ❑ the right to perform the work;
- ❑ the right to make an adaptation of the work; and so on.

These rights correspond to various stages in the process of production and the avenues the owners of these rights have to capture value from the works. If the production stage generates value by utilising intellectual property, the relevant right gives the creator of the idea an opportunity to share in the value that the intellectual property has created. In effect, by recognising a right for the creator to extract some value at each stage in the production process, the creator is better able to engage in price discrimination. That is, recognition of a range of rights enables the creator better to capture value without restricting access to intellectual property that has been created.

The establishment of these various rights therefore creates an incentive for creation, and encourages broad dissemination. For copyright, the ability to segment the market and to charge different users different prices according to the value they place on use overcomes the problems associated with restricting access to intellectual property. In short, the incentives of the owner of the rights leads to the same level of provision of intellectual property in the market as would be socially optimal.

Recent strategic discussions of information selling on the Internet also show the extent to which price discrimination is used.⁵ In effect, it is in the interests of a monopoly holder of intellectual property rights to find a pricing mechanism that ensures that intellectual property are widely disseminated. While this incentive may not result in the socially desirable level of distribution, it does suggest that concerns over the inefficiencies of

⁵ For an excellent overview, see Shapiro and Varian (1997).

monopoly pricing of information conferred by intellectual property rights are overstated.

6. Leverage of monopoly power

Although recognition of intellectual property rights is unlikely, by itself, to create monopoly problems, the economics literature does alert us to a possible problem if an idea is an input into the production of a *distinct* good or service. There are two important assumptions underlying the argument. First, there is a sense in which demand-side substitution is implicitly ruled out. For example, while one may hold the monopoly right to produce a certain type of widget this does not mean that another person could come up with an idea for another product that performed a similar function. The scope of the patent would not protect against that and hence, there may be substitute products limiting the ability of the patent holder to set a monopoly price.

The scope to monopolise the market through copyright is even more problematic. Copyright offers only limited protection to creators, with nothing to prevent others producing products that offered a close substitute. For example, although copyright might protect the arrangement of words within a particular economics text, other authors can publish textbooks which essentially cover the same field.

Second, there is also the possibility of supply-side substitution. That is, that particular idea or piece of information may not be a critical input. It may be possible to broadcast a show without a particular piece of music or to publish a book without a particular quote. This reduces the ability of the intellectual property rights holder to extend its monopoly power downstream.

Nonetheless, in some circumstances, it may be possible for the holder of intellectual property rights to leverage their monopoly power into other markets. This occurs when there are network externalities in a market. A network externality arises when the adoption of a technology by one agent is positively influenced by its adoption by another. Combined with switching costs, this can mean that markets may be 'tippy' whereby they can become dominated by a single technological standard. The clear example of this is Windows as an operating system for personal computers. In this environment, intellectual property rights can mean that this standard is owned or controlled by a single firm, creating the potential for the leverage of monopoly power. But it is the interaction between

network externalities and strong intellectual property protection that can give rise to the monopolistic 'closed' standard.⁶

Standing alone, IP rights allow an innovator to exclude other firms from using protected technology, but cannot forestall the introduction of competing products based on alternate technologies. Network externalities, on the other hand, may drive the market to converge on a single technological standard in which several firms can participate. However, when these two sources of market power interact, rather than moving towards a single *technological* standard in which several firms may participate, the market may tip to a single supplier, the owner of the intellectual property underlying the standard.⁷

It is in such cases that potential market power concerns regarding intellectual property become salient. It is when a single firm owns a standard that its ability to leverage market power to other markets becomes important. The end result is a situation akin to the monopoly control of an essential facility; each has a natural monopoly characteristic combined with being a critical input into production of other goods and services. Nonetheless, as we will discuss below, even in this instance the vexing questions of competition in markets for intellectual property and creation incentives becomes critical.

7. Intellectual Property Rights and Vertical Integration

A strong intellectual property rights regime assists in facilitating the exchange of intellectual property. This means that those agents who produce intellectual property do not have to reach final customers directly in order to appropriate returns from creative activity. Instead, they can sell intellectual property rights to intermediaries who can in turn add value to them and efficiently commercialise them.

This would not be as likely if there were weak intellectual property rights. In that case, contracting difficulties and the fear of expropriation would lead to secrecy as those who create intellectual property by-pass trade in intellectual property markets and try to commercialise intellectual property themselves. If they do not hold specialised complementary assets while others do, this is a costly exercise and will diminish the returns they can expect.⁸ Consequently, the holders of complementary assets will be the

⁶ For a more extensive discussion see Fazio and Stern (2000).

⁷ Fazio and Stern (2000) pp.1-2.

⁸ See Teece (1987) for more on the importance of complementary assets.

agents that will create intellectual property; even though they may not be the most productive in so doing (Gans and Stern, 2000) In effect, strong recognition of rights to intellectual property enables people to specialise in the creation of intellectual property.

This has implications for the degree of competition in markets for intellectual property. If property rights are weak, only the existing holders of complementary assets will be able to operate in markets for intellectual property. Specialist information producers will be unable to compete because they cannot expect to appropriate sufficient returns. The end result is higher costs for producing intellectual property and consequently, less creative activity overall.

Nonetheless, there is a sense in which weak property rights – by thwarting intellectual property markets – make it more likely that innovation-based entry could occur directly into product markets. Established firms in those markets hold an important complementary asset – the virtues of incumbency. Given this, with strong property rights, an innovator would have incentives to, and be able to, sell their intellectual property to incumbents and avoid entry. This would reinforce market power in product markets. In contrast, with weak property rights, independent innovators – to the extent they exist – will be able to appropriate more rents by competing with incumbents. Therefore, in that sense weak property rights may facilitate the erosion of monopoly power in product markets (Anton and Yao, 1994; Gans and Stern, 2000)⁹.

8. Incentives to create

Finally, when evaluating the benefits of intellectual property rights, it is important to consider their impact on incentives to create or innovate. Basically, agents are more likely to expend resources, time and energy in creative endeavours when their private return to doing is higher. At one level, intellectual property rights protect creators of intellectual property from expropriation so they can earn some positive return. At another level, they vest some monopoly power over the idea or information, further enhancing the profits a creator can earn. In either case, the private return is well below the social value of the creative activity, so creation is likely to be socially sub-optimal (Arrow, 1962).

The rationale for effective mechanisms of copyright enforcement derives from establishing incentives to ensure the socially optimal level of creation. The enforcement function is generally characterised by substantial economies of scale, hence we typically observe collecting

⁹ For an empirical analysis of this issue, see Gans, Hsu and Stern (2002).

societies as monopolies. However, as outlined earlier, the existence of a monopoly in enforcement does not necessarily lead to restrictions on the level of creative activity, or on the level of access to works.

There are two important caveats to the general proposition that rights to intellectual property must be strong to prevent the under-provision of creative activity:

- *Cumulative innovation*: Intellectual property builds on past ideas. Information can be combined with more information to create greater value. Such cumulative processes are the hallmark of the creative process. Given this, intellectual property rights for early creators may actually block further creation by later creators. This means that a key question is who, among generations of creators, should be allocated property rights? If second generation creators are important, it may be better to limit the life and scope of intellectual property regimes (Scotchmer, 1991; Green and Scotchmer, 1995).
- *'Winner-Take-All' Competition*: intellectual property rights are awarded to those who are first to develop an idea. Prior to anyone creating, therefore, creators may be motivated by concerns that they may be pre-empted by others. This pre-emption motive for creation is a purely strategic motive and, in some environments, may more than make up for any other shortfalls in creation incentives. The end result may actually be over-investment in creative activity (Gilbert and Newbery, 1982; Reinganum, 1982 and 1989).¹⁰ In particular, this may arise when there are network externalities present.

These caveats provide reasons why creation incentives may be higher than expected. They also interact with the strength of the intellectual property rights regime.

9. Property Rights and Monopoly Returns

Section 5 above explained how, in certain special circumstances, intellectual property rights may cause bottleneck-type problems that economists would normally classify under the heading of monopoly. Although this particular resource allocation problem is a type of monopoly

¹⁰ However, see the important qualifications to this argument in Gans and Stern (2000).

problem, no inference should be drawn that rights to intellectual property create (by themselves) monopoly returns.

Economists have known since the middle of the eighteenth century that an activity will only yield *ex ante* monopoly profits if entry to that activity is protected by some barrier. If entry is free, no matter what the legal regime of property rights is, entry will occur until excess returns are eliminated.

This general proposition applies also to the creation of intellectual property. The creation of intellectual property will only yield *ex ante* excess returns if the activity is protected by barriers to entry. Although it is possible to imagine barriers to particular activities that may be created by patents, it is much more difficult to think of barriers to activities that are protected by means of copyright.

10. Conclusions

The paper presents intellectual property rights as an important instrument of public policy, designed with the objective of promoting efficient production of creative work so as to serve social rather than individual welfare goals.

It is uncontroversial that intellectual property rights are needed if a market economy is to produce intellectual property in an efficient manner. The difficulties in establishing, enforcing and exchanging property rights for intellectual property are outlined in this paper.

As Demsetz (1970) explains, property rights in information represent an institution for allocating resources to the production of information, essentially the private provision of a public good enabled by the creation of a legal exclusion device.

The literature of economics points to certain problems that may arise as a result of a regime of strong property rights. The best known of these problems (the problem of restriction of access) is much exaggerated. As was explained in Section 2.4, the argument concerning restriction of access is based on a generally untrue assumption that price discrimination is not possible.

The creation of intellectual property rights is a response to the scope for free-riding. Copyright laws address this problem by providing the basis for rewarding the creators of copyright material. However, the problems for copyright lie in the effective monitoring and enforcement of unauthorised use. These problems are potentially amplified by technological developments that serve to reduce even further the ability to transmit information. So effective enforcement provisions are an essential element of any intellectual property regime.

Intellectual property rights are critical for the efficient functioning of markets. They do not create monopoly returns. They are essential if the creation, production and distribution of intellectual property are to be undertaken in ways that are in the interests of society as a whole.

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