

# Intellectual Property Rights

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# Intellectual Property Rights (IPRs)

Intellectual Property Rights are

- Property Rights over intellectual creations; drug discovery, computer program, book, song, etc.
- the right to use and benefit from own intellectual creations
- the right to exclude others from un-consented/un-authorized usage of intellectual creations
- the right to sell intellectual creations to others for use
- IPRs are created mainly in the form of
  - Patents over inventions and innovations
  - Copyrights over books, poems, plays, music
  - Trade-marks

# Intellectual Property as Public Good I

On Intellectual/philosophical foundations of IPRs, read

'A Philosophy of Intellectual Property', Dartmouth, by Peter Drahos ( 1996 )

- Intellectual Property is a form of 'information/knowledge'
- Information/knowledge is a 'public good'.
- As a result, an Intellectual Property is a public good.

IP has the following attributes:

- Non-rivalrous consumption
  - A (drug) discovery can be used by many manufacturers simultaneously
  - A composed-song/written play can be listened to/enjoyed by many simultaneously

# Intellectual Property as Public Good II

- Non-excludability
  - Once a scientist sells his discovery, the buyer can further sell it
  - all the subsequent buyers can become sellers simultaneously
  - Once a singer/composer performs, the song can be recorded and sold in the market by many
  - Books can be photocopied

# IPRs: Justifications I

## Economic Benefits of IPRs

In the absence of IPRs, there will be market failure:

- First of all
  - the buyer would want the seller-inventor to disclose the invention before paying for it
  - however, if the seller disclose the idea, the buyer need not buy it; the latter can use it without owning it
- So, discoveries will not be sold/disclosed
- Moreover, due to Non-excludability
  - Once a scientist sells his discovery, the buyer can further sell it and all the subsequent buyers can become sellers simultaneously

## IPRs: Justifications II

- Once a singer/composer perform, the song can be recorded and sold in the market by many
- This also means that the inventors cannot fully recover their costs of producing IP.

To sum up,

- there will be less investment in creation of useful information/ideas/IPRs
- Moreover, whatever little information/ideas/IPRs are created, they will be closely protected, depriving the society of benefits

# IPRs: Benefits I

IPRs induce creation and dissemination of useful information/ideas

- IPRs create legal entitlements. This means
  - Even if somebody gets to know an idea, cannot use it without the inventor/owners permission
- So, the inventors/singers/writers can disclose their creation without fearing the loss of control
- This gives incentive to the interested buyers to enter in voluntary exchanges to buy IPs - they cannot use it otherwise
- So, IPRs enable the inventors/artists to benefits from their creations bought/consumed by the person who values it the most - *Coase Theorem*
- Therefore, IPRs imply *dynamic efficiency* by encouraging creation and dissemination of useful information/ideas

# IPRs: Costs I

## Costs of IPRs:

### Question

For a public good or service,

- what is the marginal cost of providing it to another individual
- what price should be charged?

For a public good or service,

- the marginal cost of providing it to another individual is generally very low
- so, the price charged should be low - equal to marginal cost

However, IPRs lead to Static Inefficiency:

- IPRs create monopoly of the owner
- The monopolist-owner will charge a (high) price,



## IPRs: Costs II

- so there will be less than optimum supply of the IPs, leading to inefficiently low use/consumption
- Moreover, inventions feed into each other, so a reduced dissemination of IPs can lead to creation of lesser number of new ideas/inventions

# Patents I

Patents are granted over inventions/innovations, if the underlying idea is

- Non-obvious - that is, an inventive (marginal) step is involved
- Useful - economic benefits will follow from its use
- Not known publicly ( for more than a year) - to people engaged in the relevant profession

Patent is characterized by two aspects

- Duration - the period for which the monopoly rights are granted, generally 20 years
- Breadth - the degree to which other discoveries have to be different from the patented one
  - Broad patent means - the new drugs have to be substantially different/better than the existing one
  - So Broad patent grants greater monopoly to the patent holder

# Patents II

- Narrow patent means - the new drugs have to be only marginally different/better than the existing one
- Therefore, the close substitutes can be marketed without fearing violation of patent rights
- So Narrow grants lower monopoly to the patent holder

## Example

- Product patent is broad - the inventor has to discover a new drug
- Process patent is narrow - the inventor can make the same drug with new technique

# Copyrights I

## Copyrights

- are granted over artistic expression -poems, songs, novels, textbooks
- if the creation has a *unique* expression - idea need not be unique.

Copyright is characterized by three aspects

- Duration - the period for which the monopoly rights are granted, generally life of the creator plus 70 years
- Breadth - the degree to which other works have to be different from the copyrighted work
  - Broad Copyright means greater monopoly to the Copyright holder
  - Narrow Copyright grants lower monopoly to the patent holder
- Right to reproduce/print/record

# Patents and Copyrights: Benefits Vs Costs I

So, Broader/Longer patent/copyright

- Increase dynamic efficiency
  - is good for its owner, as it enables the owner to enjoy greater profits
  - so encourages greater investment in intellectual creations
- but increases static Inefficiency
  - it reduces competition in the market
  - so is bad for the users/consumers of the patented idea

# Patents and Copyrights: Benefits Vs Costs II

## Narrower/Shorter patent

- Decreases dynamic efficiency
  - is bad for its owner, as it enables the owner to enjoy lower profits
  - so encourages lower/fewer investments in intellectual creations
- but Decreases static Inefficiency
  - it increases competition in the market
  - good for the users/consumers of the patented idea

## To sum up

- Broad/longer-duration patent/copyright has greater benefits as well as higher social costs
- Narrower/Shorter-patent/copyright has lower benefits as well as lower social costs

# Patents and Copyrights: Economic Analysis I

Let,

- $r$  denote the range/breadth of the patent
- $t$  denote the duration of the patent rights
- $\theta$  denote the type of idea invented
- $B(r, t, \theta)$  denote the social benefits of patent
- $C(r, t, \theta)$  denote the social cost of patent
- assumptions:

$$\frac{\partial B(r, t, \theta)}{\partial r} > 0, \quad \frac{\partial B(r, t, \theta)}{\partial t} > 0$$

$$\frac{\partial C(r, t, \theta)}{\partial r} > 0, \quad \frac{\partial C(r, t, \theta)}{\partial t} > 0$$

# Patents and Copyrights: Economic Analysis II

However, it seems plausible to assume that

$$\frac{\partial^2 B(r, t, \theta)}{\partial r^2} < 0, \quad \frac{\partial^2 B(r, t, \theta)}{\partial t^2} < 0$$

but

$$\frac{\partial^2 C(r, t, \theta)}{\partial r^2} > 0, \quad \frac{\partial^2 C(r, t, \theta)}{\partial t^2} > 0$$

that is

- while the marginal social benefits from patent/copyright will decrease with time
- the marginal social costs from patent/copyright will increase with time



# Patents and Copyrights: Economic Analysis III

$r$  and  $t$  should be chosen to maximize/solve

$$\max_{r,t} \{B(r, t, \theta) - C(r, t, \theta)\} \quad (0.1)$$

that is,  $r^*(\theta)$  should solve

$$\frac{\partial B(r, t, \theta)}{\partial r} - \frac{\partial C(r, t, \theta)}{\partial r} = 0 \quad (0.2)$$

and  $t^*(\theta)$  should solve

$$\frac{\partial B(r, t, \theta)}{\partial t} - \frac{\partial C(r, t, \theta)}{\partial t} = 0. \quad (0.3)$$

# Shorting of the TRIPS Regime

## *TRIPS*

- ( Trade Related Aspects of IPRs) is the international regime on IPRs
- Closely follow the US, IPRs regime

## *TRIPS*

- provides broad (product) patent for drug discoveries - for other areas the patent is narrow
- provides uniform patent duration -20 years- for all types of inventions, significant or not.
- However, from (0.3) we know that the optimum duration will be different for different types of IPs
- provides uniform copyright duration -life of the creator plus 70 years- for all types of creations, significant or not
- as a result, there is race for getting non-significant ideas patented
- excessive patenting leads to disputes between companies and nations

# Trade-marks

A Trademark is

- is a distinguishing mark used by a company for its products/services
- helps consumers to identify the products/services of companies
- companies want to have brand loyalty from consumers, so they have incentive to provide quality
- trademark help in the process
  - otherwise, other producers may use the TM of a leading brand and consumers may not be able distinguish
  - this will reduce incentive of the genuine company to invest in quality

# Geographical Indication

## A Geographical Indicator of a Product/Good

- Refers to the geographical indication that is the country or the place of origin of that product - French wines, Basmati rice (Indian).
- Typically, such a name conveys an assurance of quality and/or distinctiveness
- The quality and/or distinctiveness is essentially attributable to the fact of its origin in that defined geographical locality, region or country.
- GI helps the consumers to identify the right product
  - otherwise, other producers may use misleading names and consumers may not be able distinguish