ECONOMICS OF PATENT

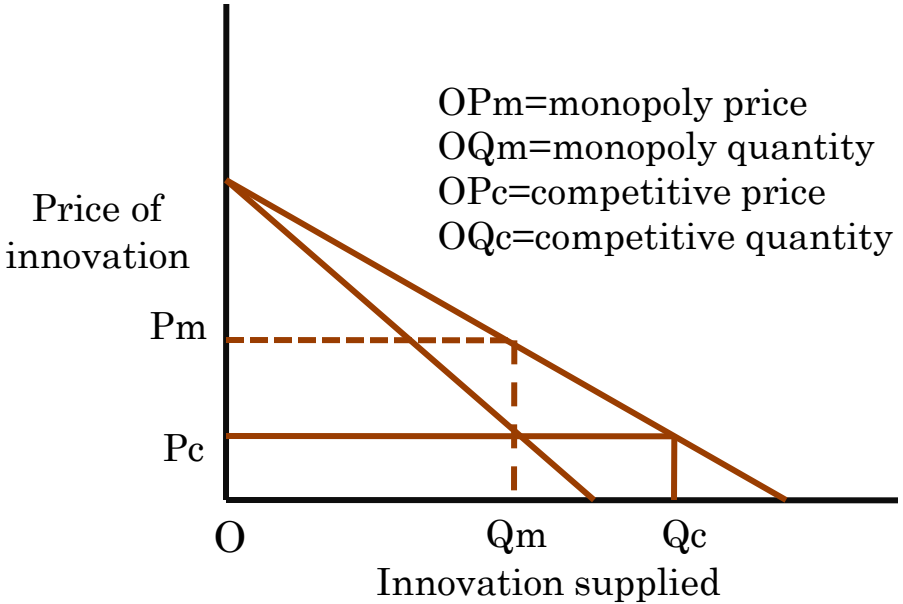
Introduction

- Patent is an exclusive right approved to a discoverer/inventor to have power over the use of an invention for a specific period.
- Such rights authorizes a temporary monopoly to the inventor which is one of the way of rewarding inventive activity.
- Monopoly is a market structure in which a product is supplied by a single firm.

ECONOMICS OF PATENTS

- Patent is a source of monopoly
- Patent grants the owner monopoly power to set the price above the cost of production
- The more the difference between the cost of production and price, the more monopoly profit incurs
- Under monopoly, the price and quantity of innovation is determined as shown in figure 1

Figure 1: Determination of price & quantity



Source: Moschini (2004)

INVENTIONS & NATURAL MONOPOLY

- Some inventions create natural monopoly (fall in average costs with increase in scale of production) as shown in fig. 2

- Microsoft Corporation is the best example of natural monopoly enjoying huge monopoly profits.

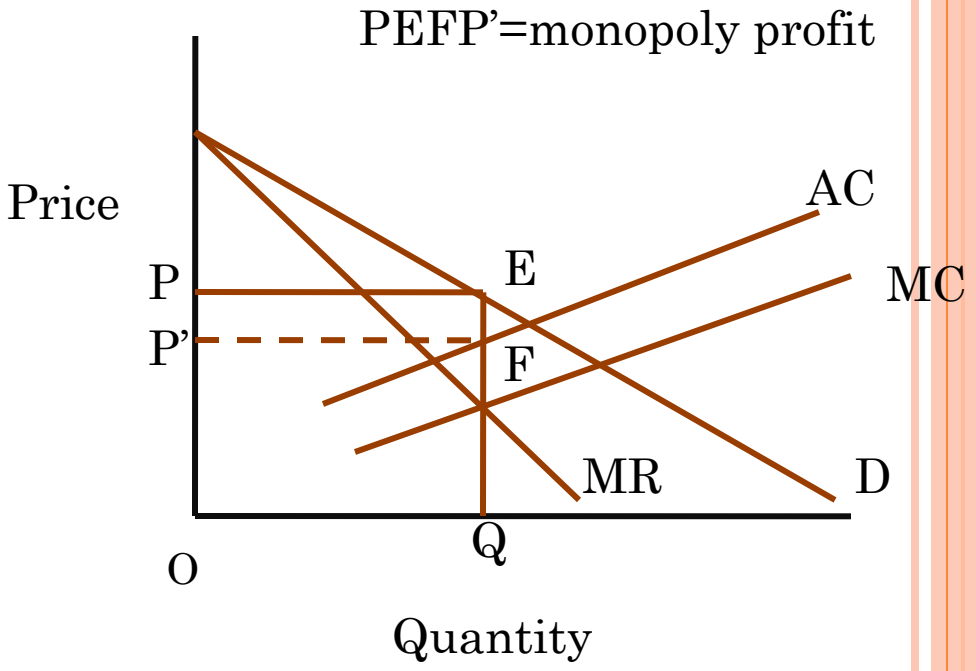
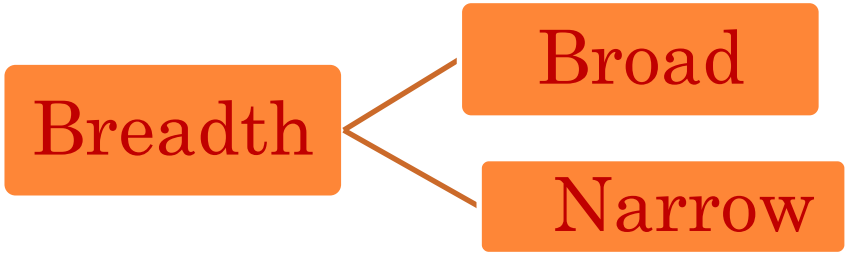


Figure 2: Monopoly profit

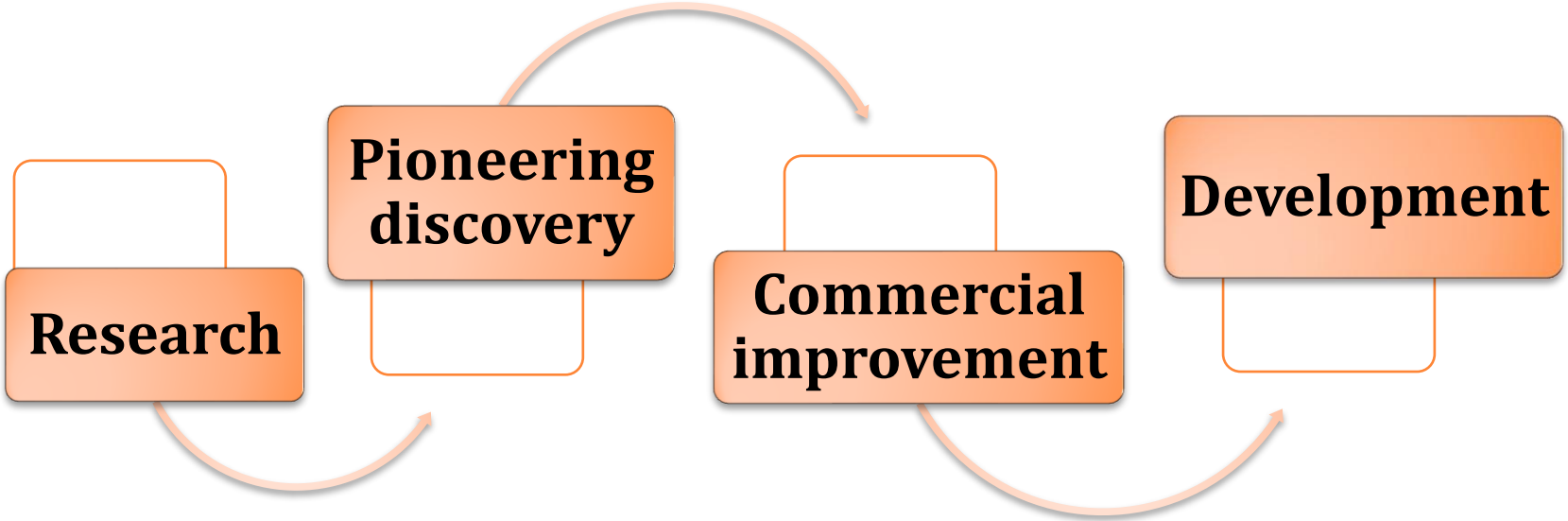
BREADTH OF PATENT

- Patent Breadth refers to a condition in which an awarded patent covers the field to which it pertains.



- Broad Patent: Provides widest scope of protection but also present biggest target for validity challenges.
- Narrow patent: It usually refers to precisely one exceptional invention
- Broad patent facilitates original research and narrow patent encourages development.

Process of Product Development



BREADTH OF PATENT....

Broader Patent

- If social value of investment on research > the social value of investment on developing applications, patent should be *broadened.*
- Patent protection should be *broader* for original inventions having little stand alone value.

Narrow Patent

- If social value of investment on research < the social value of investment on developing applications, patent should be *narrowed.*
- Patent protection should be *narrower* for original inventions having large stand alone value.

DURATION OF PATENT

- It refers to numbers of years the patent has been granted to the owner.
- Ideally there would be different patent duration for each invention.
- It is obvious that with increase in duration, the inventor enjoys benefit of more innovation

DURATION OF PATENT

- Duration of patent protection should be determined where marginal social benefits=marginal social costs (Nordhaus, 1969) as shown in fig. 3

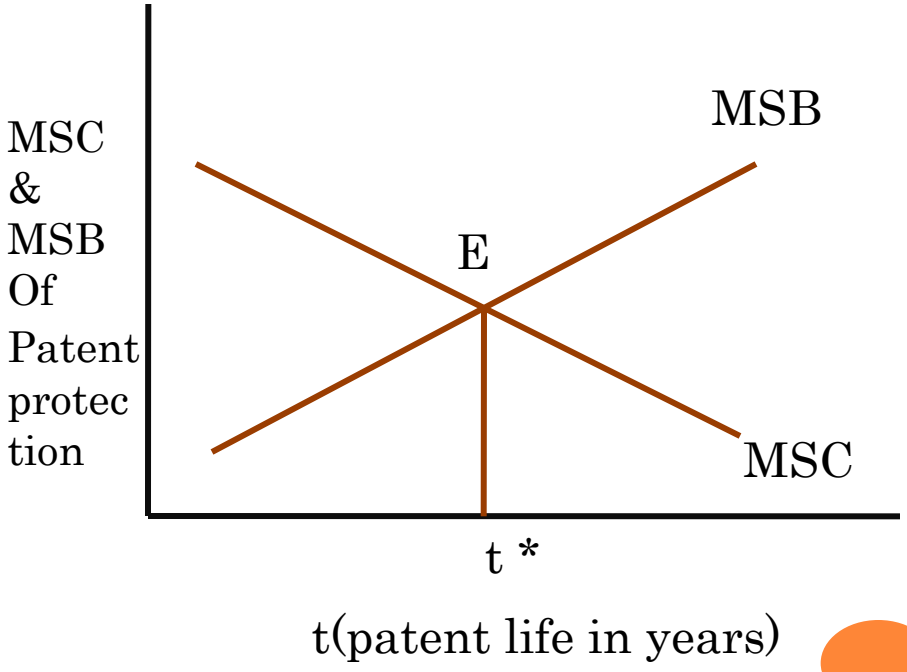


Figure 3: Optimum Patent Life

ECONOMICS OF PATENT….

- Patent rights deal with information related to inventions, innovations and technological improvement.
- Public goods characteristics of information like non excludability and non rivalry leads to under supply of inventions or less than optimum level of invention which refers to market failure.

ECONOMICS OF PATENT....

- **Economics of innovation:**

- Patent protects and stimulates innovations and inventions.

A. by giving return on the innovator's investment,
B. by disclosing knowledge and information.

It can be shown with the help of fig. 4.1

- **Patent impedes innovation :**

A. by restricting use of knowledge,
B. by generating monopoly power,
C. by imposing short run costs,
D. by creating difficulties in the determination of boundaries

Thus patent may possibly discourage innovations and therefore reducing knowledge spillovers as shown in fig. 4.2

RELATIONSHIP BETWEEN IPR AND INNOVATION

POSITIVE RELATION

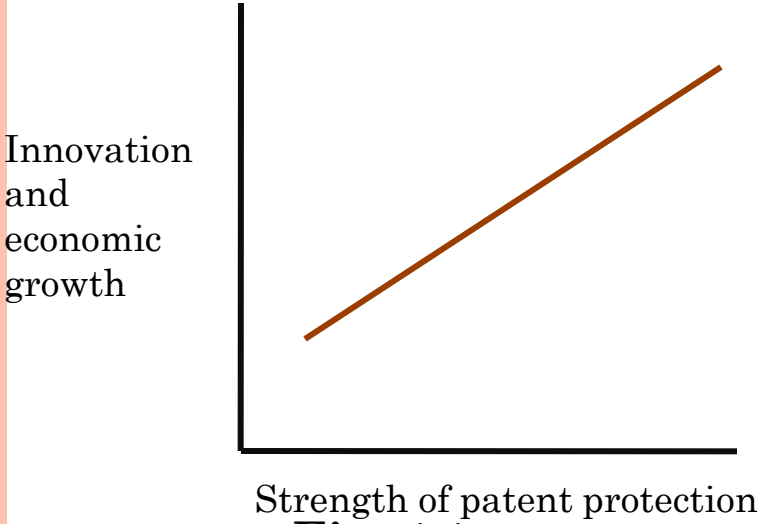


Fig. 4.1

CONCAVE RELATION

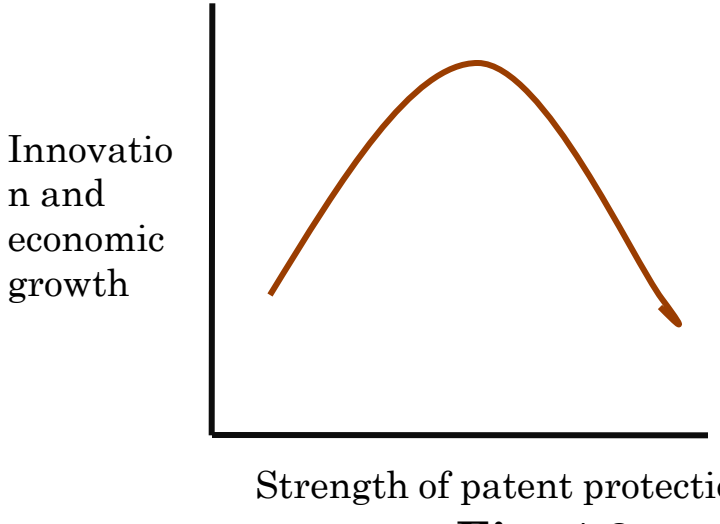


Fig. 4.2

Figure : Relation between IPR and innovation

PATENT AND ECONOMICS OF WELFARE

- Whether stronger patent protection increases economic welfare or not?
- Major aim of providing patent is to maximize welfare and to minimize losses.
- The welfare effect of patent protection can be explained through a partial equilibrium as shown in the figure 5.

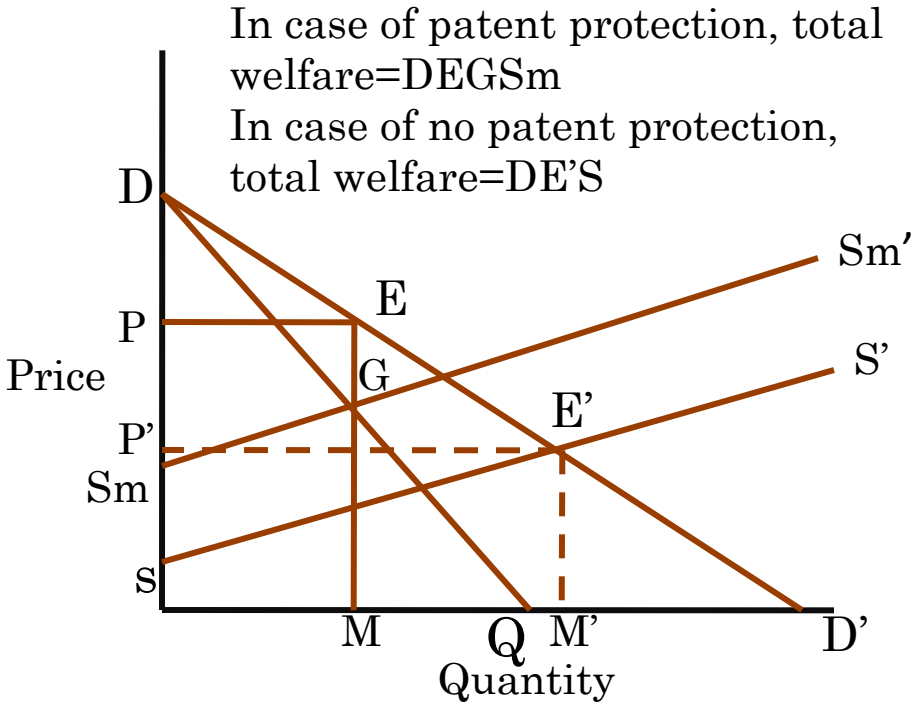


Figure 5: Effect of patent protection on welfare

Source: Mukherjee (2015)

PATENT PROTECTION AND INTERNATIONAL TRADE

- In an open economy, the determination of efficient patent protection is not simple because one country's policy affects others (cross border externalities).
- Grossman & Lai (2002) studied efficient patent protection in non-cooperative regime through model of Nash equilibrium as explained in the figure 6.

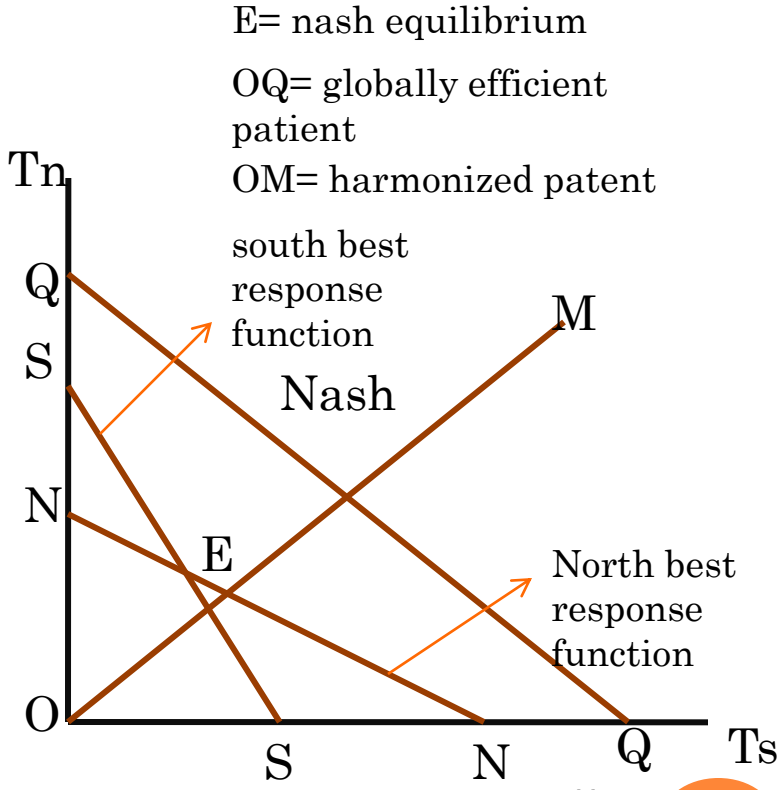


Figure 6 : Non co-operative and efficient patent protection

Empirical Evidence

- Example of east Asian countries like, Japan, South Korea & Hong Kong shows the positive effect of softer patent regime on welfare.

- While, the experience of countries like, India, Brazil & South Africa shows the negative impact of TRIPS (greater protection) on economic well being.

ECONOMICS OF PATENT....

- The trade off between the social benefits of improved innovation and the social costs of restricted uses of innovation determines the optimum level of patent protection.
- Economic justification for patent protection:
  - Prevents free riding
  - It creates incentives for private entrepreneurs
  - Optimum allocation of resources
  - Optimum production of inventions
  - Prevents society to pay additional opportunity cost on the way of production
  - Checks market failure through externalities.

CONCLUSION

- After explaining patent protection from economic point of view, we can say that it is an important tool for innovation and information.
- The economic value of patent protection is to a large extent based on the economics of monopoly, information, innovation, welfare and trade.

FURTHER READINGS

- Cooter, R. & Ulen, T. (2004). *Laws & Economics*. New Delhi: Pearson Education Pte. Ltd.
- https://www.youtube.com/watch?v=DBmzjZ_hTQo&list=PLRkCJvWSrxbt-xBX5cjzTr4pE0SZ-pIOf&index=1
- Nordhaus, W.D. (1969). Invention, Growth and Welfare: A Theoretical Treatment of Technological Change, Cambridge MA, The M.I.T. Press
- Grossman G.M., & Helpman, E. (1991). Quality ladders in the theory of growth, *Review of Economic Studies*, 58, 43-61
- Mukherjee D. (2015). TRIPS and the balance between private rights and public well being: The case of the pharmaceutical sector. *Foreign trade review*, 50(4), 284-297.

THANK YOU