

Patent Pools & Product Development: Perfect Complements Revisited

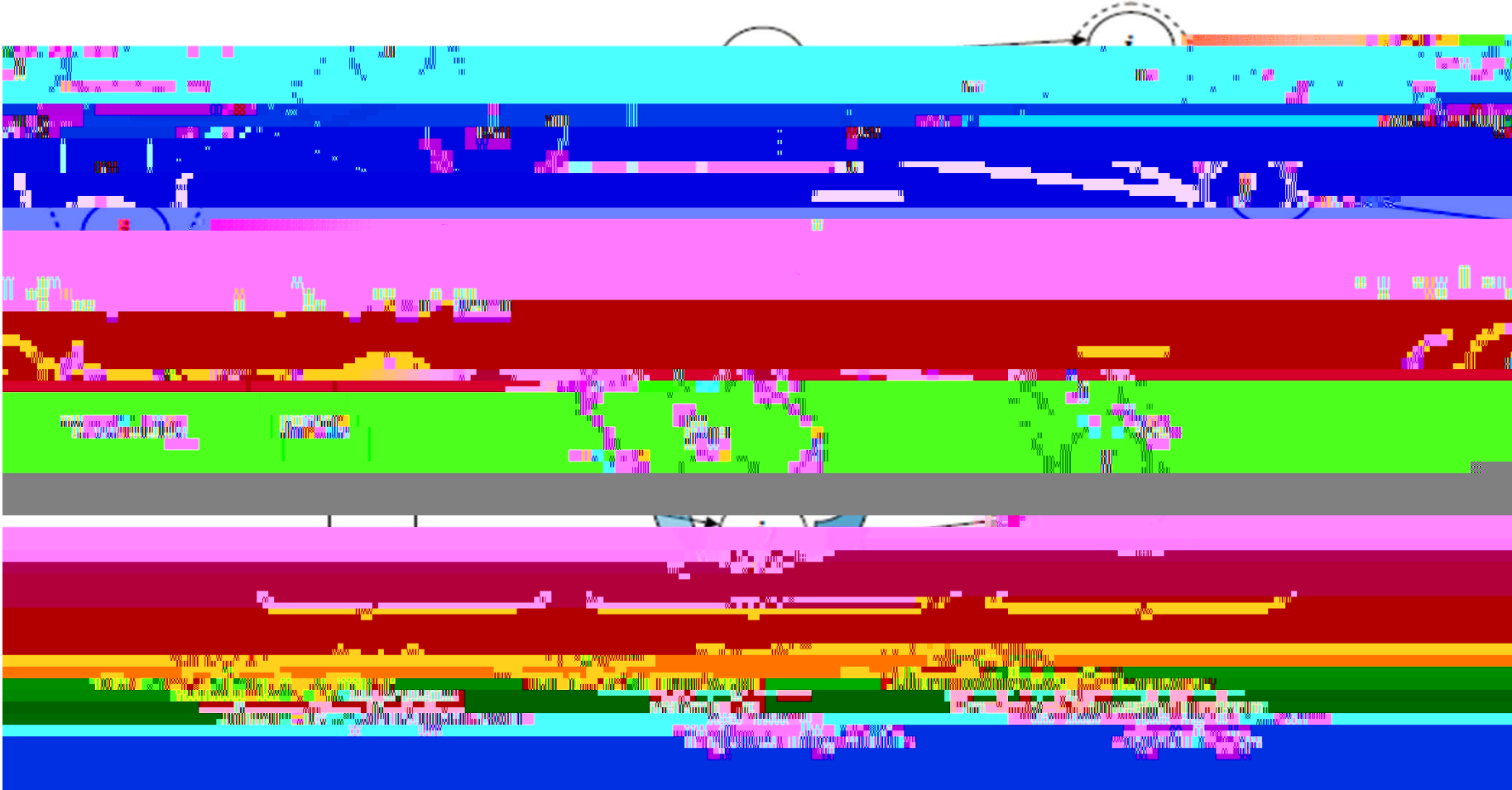
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Patent Pools



Model Specifications

Fundamental Assumptions

Patent pools increase the **spillover rate** at the **downstream** stage.

Patent pools decrease **product differentiation**.

What is the underlying mechanism for these changes?

Patent Pool as a “Conduit for Knowledge Transfer” (p. 7)

How important empirically to be relevant for policy implications?

Fixed Fee vs. Royalty Rate

Analyze the effects of patent pools for fixed fee and royalty rate cases

All proposed pools are efficient with royalty rates.

The choice of fixed fee vs. royalty rate is **endogenous**, reflecting **informational constraints** and market competition conditions.

The model implicitly assumes **tacit knowledge** in licensing **Moral Hazard** with fixed fee

Royalty rate is needed to mitigate **moral hazard** in technology transfer (Choi, 2001)

Cheap Comments

What if N patents?

How about innovation incentives at the upstream stage?

Cournot Competition vs. Bertrand Competition?

Another Channel to Consider: Litigation with Probabilistic Patents

- Patent pools as a mechanism to harbor weak patents and deter patent litigation Patent pools may induce higher royalty rates than would be paid if licensing were done separately.
- Consider two complementary patents A and B
- An independent firm C that uses A and B.
- α and β : the probabilities that the court will uphold the validity of patents A and B, respectively, if they are challenged.

Litigation Incentives with Independent Licensing

- Suppose that firms A and B charge licensing fees of f_A and f_B , respectively.
- L : the cost of litigation for each patent (no economies of scale in litigation)
- Firm C will challenge patent A if $(1 - \alpha) f_A > L$ and similarly for patent B if $(1 - \alpha) f_B > L$.
- Define the highest **limit licensing fees** that would deter any challenge from firm C for each firm:

$$\hat{f}_A = \frac{L}{1 - \alpha}, \hat{f}_B = \frac{L}{1 - \alpha}$$

Joint Defense with Patent Pools

- Assume that both α and β are small and it is in the best of the both patentees' interest to set r_0

Summary Evaluation

A new perspective on patent pools (with a more complete picture)

Very clean and elegant characterization of the equilibrium and social optimum with policy implications

Endogeneity of contractual form (fixed fee vs. royalty rate) seems to be an important factor to consider.