

## Study questions: Innovation

### References

**Theory:** Sutton (1998), Reinganum (1989), Tirole (1988, ch. 10)

**Empirical (valuation of new goods):** Trajtenberg (1989), Hausman (1996), Petrin (1998)

Plan: Class discussion of theory (Sutton (1998), Reinganum (1989)). Lecture if necessary on Hausman (1996).

### I. R&D and Market Structure: Sutton (1998)

a. In what ways is Sutton's conception of R&D expenditure different than his earlier conception of advertising? What is new to this analysis?

b. Sutton makes various distinctions early on. Compare and contrast:

- standard paradigm vs. bounds approach
- stage-game vs. dynamic game
- Nash equilibrium vs. equilibrium configurations (viability and stability principles)
- trajectories vs. submarkets

c. What is  $\alpha$ ? What is different between a low- and high- $\alpha$  industry? Where does/would endogenous sunk costs fit in?

d. Describe the links between the following:  $\alpha$ ,  $h$ , R&D/sales ratio,  $C_1$

e. How does the size distribution material fit in?

### II. Strategic aspects to innovation (Reinganum (1989), Tirole (1988))

In reading these extracts, focus on the *empirical implications*. This literature has by and large not been subject to much empirical work, so there is definitely room for research.

a. What are the differences between the models considered here and those considered by Sutton?

b. What are the questions addressed by the models surveyed by Reinganum and Tirole? What are the market structure implications of these models? Do the firms in these models have "high" or "low"  $\alpha$ 's?

### III. Valuation of new goods (Hausman (1996))

A recent empirical question related to innovation which has received a lot of attention is the question of how to quantify the benefits from new products. One application of the results is the accurate computation of price indices (see Trajtenberg (1990), Berndt, Cockburn, and Griliches (1996)).

a. What is the importance of perfect vs. imperfect competition?

b. Compare Hausman's approach to modelling demand, versus the discrete choice approach.

## References

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