

Bargaining Outcomes in Patent Licensing: Asymptotic Results in a General Cournot Market

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Abstract

We study asymptotic bargaining outcomes in licensing a patented technology of an external patent holder to firms in a Cournot market. Our results are as follows: Under each permissible coalition structure including the grand coalition, the patent holder can extract the entire profits of all licensees in the bargaining set for a coalition structure when the number of firms is large, so the optimal number of licensees is completely determined. Moreover, the bargaining outcome, where the patent holder can gain the maximum profit by licensing to K firms, exactly coincides with the non-cooperative outcome, and cannot be improved upon by any objecting coalitions even if coalition formation for objections entails almost zero cost. Thus, it is strongly stable.

Keywords: licensing, asymptotic result, coalition structure, bargaining set, least core, Aumann-Drèze value

JEL Classification: C71, D43, D45

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References

- [1] Kamien, M.I., Oren S.S., Tauman, Y. (1992). Optimal licensing of cost-reducing innovation. *Journal of Mathematical Economics*, 21, 483-508.
- [2] Watanabe, N., Muto, S. (2008). Stable profit sharing in patent licensing: general bargaining outcomes. *International Journal of Game Theory*, 37, 505-523.

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