

An NTU Game Approach to Patent Licensing: Stable Bargaining Outcomes under Two Licensing Policies

Shin Kishimoto*

Abstract

By formulating negotiations about licensing payments as cooperative games without side payments, we investigate stable bargaining outcomes in licensing a cost-reducing technology of an external patent holder to oligopolistic firms producing a homogeneous product under two licensing policies: fee and royalty. The final bargaining outcome in fee licensing is uniquely determined, because the NTU bargaining set for a coalition structure in which the patent holder can gain the maximum profit is a singleton. Under the royalty policy, the nonempty NTU core for a coalition structure suggests that the patent holder licenses his patented technology to all firms. Moreover, royalty licensing may be superior to fee licensing for the patent holder, when licensing is carried out through bargaining.

Keywords: games without side payments (NTU games), the fee policy, the royalty policy, core, bargaining set

JEL Classification: C71, D43, D45

*Corresponding Author: JSPS Research Fellow, Department of Mathematical and Computing Sciences, Graduate School of Information Science and Engineering, Tokyo Institute of Technology, Mail box W9-97, 2-12-1 Oh-Okayama, Meguro-ku, Tokyo 152-8552 Japan, Tel: +81-3-5734-3622, Fax: +81-3-5734-3622, E-mail: kishimoto.s.aa@m.titech.ac.jp