



From Personal to Impersonal Exchange in Ideas

Experimental Study of Trade in Organized Markets for Patents

Eskil Ullberg

Abstract

The patent system has developed over a period of over 500 years. The initial motivation was a desire to import privately held technology to advance economic development, offering excluding and transferrable rights through licensing to “inventors” for the disclosure and perfection of their “contrivance” (invention). These rights have gradually developed to internationally accepted private property rights on technology and are today in many ways similar to physical assets, establishing, since 1883, the basis for an international system for trade in technology in its own rights.

The thesis is a dual study of contract and mechanism design for experimental trading with patents. Experimental economics is used as a method to gather data on behavior, varying environmental and institutional parameters. An informal price theory is developed and tested.

The experimental research adds to the static analysis literature by using a dynamic analysis in a behaviorally rich experimental system of specialized agents and competitive demand-side bidding on a linear contract, the “patent product.” The microeconomic system has primary and secondary markets, traders, and a linear contract on patents with limited validity and uncertain values.

The main results show that risks are shifted away from invention to innovation through demand-side bidding, including traders, creating incentives for increased technology competition and economic growth. When a linear contract – fixed fee plus royalty – is used to trade the patents, the fixed fee approaches the blocking value of the patent, in support of the proposed price theory (blocking formally similar to insurance). Such shift in risk bearing may be beneficial for developing nations in leveraging their human capital through education and increasing global market access through the patent system. The competitive bidding increases the dynamic market efficiency considerably, clearly indicating the dynamic value of the patent system. Market efficiency is however still low compared to other typical auction markets, suggesting further experiments to increase efficiency before it will be possible to provide helpful advice about what to do in the field. Dynamic gains increase with increased demand-side bidding and high patent validity. Tentative policy proposals are made for patent, development and innovation policy.

The experiments have been carried out at the Interdisciplinary Center for Economic Science, George Mason University, USA.

Key words: experimental economics, patent markets, patents, mechanism design, linear contracts, institutional design, patent system design, economic system design, development policy

© Eskil Ullberg, 2009

Eskil Ullberg, Interdisciplinary Center for Economic Science, George Mason University, 3330 Washington Blvd, Suite 400, Arlington, VA 22201, USA, and Department of Transport and Economics, The Royal Institute of Technology, Drottning Kristinas v. 30, 100 44 Stockholm, Sweden,

eskil.ullberg@gmail.com, www.ices-gmu.org

ISBN 978-91-85539-46-8

ISSN 1653-4468

TRITA-TEC-PHD 09-006