Chapter V

Economic Effects of Electronic Reverse Auctions: A Procurement Process Perspective

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ABSTRACT

This chapter describes the economic effects caused by the use of electronic reverse auctions along the procurement process. It argues that an analysis of these economic effects requires the consideration of the whole transaction process. The approaches of the new institutional economics provide a theoretical foundation for the analysis. The second part of the chapter deals with the single steps of an auction-integrated procurement process. Through this holistic view of the procurement process the authors emphasize the additional benefits and the danger caused by auctions. A better awareness of the procurement process enables better decisions concerning the choice of benefits which are worth pursuing.

INTRODUCTION

The efficiency and effectiveness of traditional procurement processes can be improved by using electronic sourcing tools. New concepts and software solutions can support the procurement process in different phases of the market transaction. The electronic reverse auction (eRA) is one of these new tools which can be used in the negotiation phase. It seems to be a common idea that eRA influences the item price. Both practitioners and academia concentrate on analyzing the real price savings and they look at eRA only because of this benefit (see also Emiliani, 2004, p. 66). However, there are other economically relevant effects of using eRA: there are impacts
on transaction costs, cycle time of transaction and eventually item quality (see also Carter et al., 2004). In order to obtain a better understanding of the complex economic effects, it is necessary to extend the focus of analysis from a single transaction view to a dynamic process (Arnold et al., 2005). This chapter concentrates on the economic effects stimulated by an eRA-integrated procurement process.

To explain the different economic effects, a substantial theoretical basis is necessary. We begin the chapter by discussing the theoretical basis for auction. We follow with the differences between forward and reverse (procurement) auctions. These differences explain the necessity of considering the whole transaction process in our analysis. Then, we take a closer look at the different approaches of the new institutional economics. Transaction cost theory, in the next section, refers to a transaction as the basic unit of analysis. Transaction cost theory explains that electronic applications are an enabler for using reverse auctions in procurement processes. It is through this theoretical foundation that the origin of savings and the process-related effects can be demonstrated. Adding information economics theory to our analysis illustrates that an eRA is more than an information seeking tool, while agency theory allows us to analyze the resulting shifts in information asymmetry. The fact that some of these shifts take place outside the negotiation phase emphasizes the necessity of analyzing the whole eRA-integrated procurement process in detail. It is there that we look at the different procurement phases in detail to identify the economic effects described previously. As we evaluate and explain the various economic theories, we follow the perspective of a buying company.

THEORETICAL APPROACHES EXPLAINING ECONOMIC EFFECTS OF ELECTRONIC REVERSE AUCTIONS

Modern IT-tools and infrastructure have created a “new” business world. The idea of a “perfect market model” became - maybe for the first time ever—realistic and revitalized neoclassical economic theory. There the price is the dominant instrument to coordinate supply and demand. Auction theory and new institutional economics are influenced by neoclassical theory but go beyond this.

Auction Theory

“An auction is a market institution with an explicit set of rules determining resource allocation and prices on the basis of bids from the market participants” (McAfee & McMillan, 1987, p. 701). Market institutions are mechanisms which compensate market failures. An auction helps to allocate resources more efficiently than other allocation mechanisms such as fixed price or bilateral negotiations. The auction theory investigates the characteristics of this allocation mechanism such as auction rules, auction types, but also the context in which the auction takes place. The standard setting therefore is a monopoly - a situation where one seller sells a product to a group of potential buyers (forward auction). Correspondingly the standard case for procurement auctions (reverse auction) is a monopsony—a situation with one buyer and a group of sellers. Experts of experimental oriented economics literature analyzed forward auctions, consisting of many buyers and one seller, and some of them suggested transferring the results to reverse auctions (e.g. Kräkel, 1992). However,
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