

A Special Issue on Statistical Challenges and Opportunities in Electronic Commerce Research

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This special issue is a product of the *First Interdisciplinary Symposium on Statistical Challenges and Opportunities in Electronic Commerce Research*, which took place on May 22–23, 2005, at the Robert H. Smith School of Business, University of Maryland, College Park (www.smith.umd.edu/dit/statschallenges/). The symposium brought together, for the first time, researchers from statistics, information systems, and related fields, all of whom work or are interested in empirical research related to electronic commerce. The goal of the symposium was to cross the borders, discuss joint research opportunities, expose this field and its statistical challenges, and promote collaboration between the different fields.

1. BACKGROUND

Electronic commerce (eCommerce) has experienced an extreme surge of popularity in recent years. It has had a huge impact on the way we live today compared to a decade or so ago: It transformed the economy, eliminated borders, opened the door to many innovations and created new ways in which consumers and businesses interact. Although many predicted the death of eCommerce with the “burst of the Internet bubble” in the late 1990s, today eCommerce is thriving more than ever.

By eCommerce we mean any forms of electronic transactions that are commerce-related: online buying, selling or investing; electronic marketplaces like www.amazon.com or online auctions like www.ebay.com;

clickstream data and cookie-tracking; e-bookstores and e-grocers; web-based reservation systems and ticket purchasing; marketing email and message postings on web-logs; downloads of music, video and other information; user groups and electronic communities; online discussion boards and learning facilities; open source projects; online banking, and many, many more.

The public nature of many Internet transactions created new opportunities for researchers to gather and analyze data in order to learn about individuals, companies and societies. Theoretical results, founded in economic and game-theoretic models, and derived for the offline, brick-and-mortar world, have often proven not to hold in the online environment. Possible reasons are the worldwide reach of the Internet, its unlimited resources, constant availability and continuous change. For this reason, and also due to the availability of massive amounts of publicly available high-quality web-data, empirical research is thriving.

To date, the fast growing empirical eCommerce research has been concentrated almost entirely in the fields of information systems, economics and marketing. However, as we found out in collaborative work with colleagues in these fields, eCommerce data arrive with many new statistical challenges, ranging from data collection to data exploration, and to analysis and modeling—all of which have generally been overlooked in the current literature. The most likely reason for this is the absence of statisticians from this field. The question is then “*Where are the statisticians?*” We believe that the explanation for the current absence lies in (1) the physical disconnect between academic information systems departments (that are usually housed in business schools) and statistics departments (that tend to be in schools of social sciences, engineering or liberal arts and sciences), and (2) the format in which eCommerce data typically arrive. The first question we hear from statisticians who see our work is “Where did you get the data?” eCommerce data are often organized in HTML pages on the web, which is differ-

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