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Americas Conference on Information Systems (AMCIS)

2-25-2010

Tutorial on Latent Growth Models for Longitudinal Data Analysis

Bin Gu
University of Texas at Austin, bin.gu@mccombs.utexas.edu

Paul A. Pavlou
Temple University, pavlou@temple.edu

Tutorial and Workshop Proposal for AMCIS 2010

Submission Date:	February, 25, 2010
Workshop/tutorial Title:	Tutorial on Latent Growth Models for Longitudinal Data Analysis
Duration:	( ) Full Day (X) Half Day
Classification:	(X) Tutorial ( ) Workshop

Abstract

This tutorial introduces Latent Growth Modeling (LGM) as a promising new method for analyzing longitudinal data when interested in understanding the process of change over time. Given the need to go beyond cross-sectional models in IS research, explore complex longitudinal IS phenomena, and test Information Systems (IS) theories over time, LGM is proposed as a complementary method to help IS researchers propose time-dependent hypotheses and make longitudinal inferences about IS theories. The tutorial leader will explain the importance of theorizing patterns of change over time, how to propose longitudinal hypotheses, and how LGM can help test such hypotheses. All three tutorial facilitators will describe the tenets of LGM and offer guidelines for applying LGM in IS research including framing time-dependent hypotheses that can be readily tested with LGM. The three tutorial facilitators will also explain how to use LGM in SAS 9.2 with a hands-on application that will attempt to model the complex longitudinal relationship between IT and firm performance using longitudinal data from Fortune 1000 firms. The tutorial facilitators will also draw comparisons with other existing methods for modeling longitudinal data and they will also discuss the advantages and disadvantages of LGM for identifying longitudinal patterns in data.

Workshop Leader Information (Please attach a copy of your resume in your email submission)

Name:	Paul A. Pavlou
Affiliation:	Temple University
Postal Address:	1801 N. 13th Street, SP201D, Philadelphia, PA, 19122
Telephone:	951-204-3583
Cell:	213-268-2259
Fax:	951-204-3583
Email:	pavlou@temple.edu

Additional Workshop Presenters (copy for each one)

Name:	Eric Zheng
Affiliation:	University of Texas at Dallas
Postal Address:	SM33, 800 W. Campbell Dr., Richardson, TX 75080
Telephone:	972-883-5914

Cell:	972-992-2158
Fax:	972-883-6910
Email:	ericz@utdallas.edu

Additional Workshop Presenters (copy for each one)

Name:	Bin Gu
Affiliation:	University of Texas at Austin
Postal Address:	2100 Speedway, B6500, Austin, TX 78712
Telephone:	512-471-1582
Cell:	210-464-4649
Fax:	512-471-0587
Email:	bin.gu@mccombs.utexas.edu

Speakers' background, description of workshop, and envisioned activities during the workshop (please provide information for each speaker)

Speakers' Background

Paul A. Pavlou is an Associate Professor of Management Information Systems, Marketing, and Management and a Stauffer Senior Research Fellow at the Fox School of Business and Management at Temple University. He received his Ph.D. from the University of Southern California in 2004. His research focuses on electronic commerce, information economics, online auctions, IT strategy, and research methods.

His research has appeared in *MISQ*, *ISR*, *JMIS, JAIS*, *JAMS*, *CACM,* and *Decision Sciences*, among others. His work has been cited over 1,000 times by the Social Science Citation Index of the Institute of Scientific Information, and over 3,000 times by Google Scholar.

Paul won several Best Paper awards for his research, including the *ISR Best Paper* award in 2007, the 2006 *IS Publication of the Year* award, the *Top 5 Papers* award in *Decision Sciences* in 2006, the *Runner-Up to the Best Paper* award of the 2005 Academy of Management Conference, the *Best Doctoral Dissertation* award of the 2004 International Conference on Information Systems (*ICIS*), the *Best Interactive Paper* award of the 2002 Academy of Management Conference, and the *Best Student Paper* award of the 2001 Academy of Management Conference (OCIS Division).

Paul also won several Reviewer awards, including the 2009 *Management Science* Meritorious service award, the 'Best Reviewer' award of the 2005 Academy of Management Conference, and the 2003 *MIS Quarterly* 'Reviewer of the Year' award.

Paul sits on the Editorial Boards of *MISQ*, *ECRA*, and *DATABASE*. He is currently a guest Senior Editor of a Special Issue of *MISQ* on "Digital Business Strategy." Earlier he served as a guest Senior Editor of a Special Issue of *MISQ* on "Novel Perspectives of Trust in Information Systems" published in 2010, and as a guest Senior Editor of a Special Issue of *JMIS* on 'Trust in Online Environments' published in 2008.

Eric Zheng is an associate professor in Information Systems at University of Texas at Dallas. He received his Ph.D from the Wharton School in 2003. His research interest includes business intelligence, data mining, economics of information and IT innovation. He has published papers in *Management Science*, *MISQ*, *ISR*, *JOC*, among others. Eric has been an active reviewer for almost all major journals in IS and has been AE for major conferences such as ICIS, CIST and WITS. He co-developed the SAS certificate program in business intelligence at UT Dallas and has been teaching classes on SAS and advanced modeling recently. Currently he is serving as external consultants for

Yahoo!, Nielsen Netratings and Palydom on various projects including understanding users' search behavior with sponsored search and diffusion of online games through facebook.

Bin Gu is an Assistant Professor at the Mccombs School of Business, University of Texas at Austin. He received his Ph.D. from the Wharton School, University of Pennsylvania. His research focuses on electronic commerce, online social networks, information economics and IT strategy. His work has appeared in *MIS Quarterly, Information Systems Research, Journal of Management Information Systems, Journal of Retailing, Decision Support Systems* and others. Bin's research won the ISR Best Paper award in 2008 and the Best Paper-in-Track Award of the 2007 International Conference on Information Systems (ICIS).

Tutorial Description

The tutorial will explain the importance of theorizing patterns of change in longitudinal data over time, how IS researchers can propose longitudinal hypotheses, and how LGM can help test such hypotheses. The tutorial will also describe the tenets of LGM and offer guidelines for applying LGM in IS research including framing time-dependent hypotheses that can be readily tested with LGM. Moreover, the tutorial will also explain how to use LGM in SAS 9.2 with a hands-on application that will attempt to model the complex longitudinal relationship between IT and firm performance using longitudinal data from Fortune 1000 firms. The tutorial will also draw comparisons with other existing methods for modeling longitudinal data and discuss the advantages and disadvantages of LGM for identifying longitudinal patterns in data.

Envisioned Activities During the Tutorial

1. Present and discuss the method of latent growth modeling for IS research
2. Demonstrate how to model common IS phenomena over time, such as understanding the longitudinal relationship between IT and firm performance
3. Demonstrate how to implement it in SAS Proc CALIS and TCALIS and other software
4. Discuss the advantages and disadvantages of LGM relative to existing tools for modeling longitudinal data.
5. Discuss and exchange ideas on the potential of LGM

Special Requirements

Note: Regular equipment includes a computer, projector and screen.

( ) Computers

( ) Internet Access

(X) Others, Please specify: _While the tutorial does not require the participants to have a computer to actually use LGM, if the participants will have their own laptop with SAS 9.2, the tutorial facilitators will help them actually run LGM on their own computer.

Audience

Insert a description of likely participants:

Likely participants will be IS researchers who are interested in modeling longitudinal IS phenomena, develop hypotheses for longitudinal relationships, and model patterns of change in longitudinal data.

Maximum number of participants:_____**30**_____

Specify the requirements for the audience such as computer, special software, and Internet access etc., in the following:

We will need a projector and we will bring our own computer with SAS 9.2