Agenda
ABJ80 TRB Statistical Methods Committee
Tuesday, Jan 12, 2016
8:00 AM to 12:00 PM, Marriott Marquis Supreme Court, M4

Chair: Linda Ng Boyle, University of Washington
Secretary: Bob Scopatz

Scope: The ABJ80 Committee is concerned with the appropriate application of statistical methods in the field of transportation. The committee serves as a resource on statistical matters for all TRB committees and related committees for the National Academies; fosters understanding and use of statistics through dissemination of educational activities; and identifies and fosters research needed in statistics within the transportation community.

ATTENDEES:
Members:
Linda Boyle, (Chair), Bob Scopatz, (Secretary), Karin Bauer, Thomas Jonsson, Jonathan Aquero-Valverde, Birsen Donmez, Naveen Eluru, DeoGratias Eustace, Carol Flannagan, Bidisha Ghosh, Feng Guo, Karl Kim, Kara Kockelman, Bo Lan, John Milton, Peter Savolainen, Kun-Feng Wu, Md. Maharul (Shimul) Haque, Yiyi Wang, Danny Xiao

Friends:
Xiao Qin, Mohammad Razaun Shaon, Mehdi Nassirpour, Raha Hamzeie, Ali Behnood, Evita Papazikou, Bahor Dadashova, Hadi Meidani, John Handley, Jiashen You, Minsoo Baek, Christos Gkartzonikes, Kai Wang, Promod Chandhok, Kristin Svenson, Jonathan Wood, Bachir Hamadett, Karim El-Basyouny, Xiao Xiang Ma, Jim Bonneson, Steven Jackson, Srinivas Geedipally, Emira Rista, Bahar Dadashoup, Matthew Volovski, Sal Hernandez, Yiwei Ma

Note: the slides presented at the 2016 ABJ80 meeting are available on the ABJ80 website:
http://trbstats.weebly.com/

Introductions
Linda Ng Boyle opened the meeting at 8:05 AM. The attendees introduced themselves.

Meeting Minutes (*Bob Scopatz*)
Linda circulated the 2015 meeting minutes via email and provided copies for the room. The group reviewed during the meeting: *John Milton* motioned to approve the meeting minutes, *Feng Guo* seconded, and all in favor to approve.

Update on Committee Rotation Requirements and Membership
Linda discussed meeting rotation. We try to strike a balance demographically, geographically, organization type, and interest areas. ABJ80 currently has 28 members, 6 international members, 4 young members, and 2 State DOTs.

Membership consideration: seeking people who are committed to being active in the committee. Attendance and participation is important. Every member should be able to do paper reviews and

be active in other subcommittees. Would also be great if you can help set up special sessions/workshops. *Thomas Jonsson* said we also need people to help other committees with statistical analysis reviews on their papers.

Linda presented the activities of the committee showing who chairs each activity. There are two open positions and volunteers were solicited:
1) Coordination of future sessions/workshops, *Emira Rista* volunteered
2) TRB Circular: *Danny Xiao* volunteered to help with coordinating among all the participants.

Workshops/Sessions Sponsored and Co-Sponsored by ABJ80 for 2016
(*Linda Boyle, Peter Savolainen*)

- *Peter Savolainen* led a workshop of Ph.D. students on Sunday as a workshop with each student having 10 minutes to present (may shorten for next year). We hope to continue this annually. This is separate two-page abstract submission. Individuals should let us know if they are also submitting under the normal TRB call for papers. *Kara* volunteered to help in the coming year.
- Big Data Analytics session was held on Sunday as a workshop. Three people said that they had attended the workshop. Linda said that perhaps our committee could bring a "methods" focus to it in future years.
- The Transportation Statistics Interest Group (TSIG), affiliated with the American Statistical Association also had a meeting that we co-sponsored.
- ABJ80 held a podium session on *Innovations in Statistical Methods for Transportation Researchers and Practitioners* yesterday that was well attended.
- Today (Tuesday): there is a poster session on research methods (2:00–3:45 PM), and a panel on using naturalistic driving study data: connecting crashes to safety-critical 3:45–5:30 PM)

TRB Data Contest for 2017 *(Linda Boyle, Naveen Eluru)*
- We did not have a TRB data contest this year. Linda showed a slide of what is needed to successful set up a TRB data contest.
- *Naveen* indicated that there are discussions with other subcommittees.
- We are working toward having a training and separate test data set so we can have an objective measure of successful modeling.
- *Thomas* said that he should be able to provide a dataset from Sweden.
- *John Handley* (from Xerox PARC) said he has instrumented data that could be used.
- *Carol Flannagan* said that she has used this dataset. She said there's also an older dataset from Michigan and Sweden that might be made available and she will check on that.

Paper review process, statistics, and identification of issues
(**Linda Boyle**)
- *Panagiotis Anastasopoulos* could not be at TRB this year, but he submitted a report that was presented to the committee. The committee received 29 papers this year, 17 were accepted for presentation, and 4 papers for publication.
- TRB states that no more than 50% of reviewed papers should be accepted for presentation. For publications, we do our best to recommend papers that are likely to be accepted. However, if the authors do not sufficiently address the reviewers' comments they will be

rejected. The committee tries to limit our review requests to the needed number and seek active member and friend participation with a high turn-in rate.

- Linda noted that plagiarism was no different from previous years. Often, she does a Google search on the paper title as a quick way to find out if the work has already been published elsewhere. She will then include the link to the noted publication in her review.
- The group discussed the publication restriction on papers that have already been presented at TRB, already in the TRB conference proceedings, and whether it is still reasonable to submit to another journal. You can submit for presentation only, but if you wish to publish elsewhere you should make sure that the paper is not also in the TRB proceedings.
- Linda asked that people inform the paper review chair (Panos) asap if they are unable to review a paper within the time allotted. Please also let us know if you see problems with papers that are poorly written, commercial conflicts of interest, plagiarism, etc.
- It is okay to reject a paper. Please use the comments to the chair. They are very helpful. But in your comments to the authors, be polite but clearly state what the problems are that you want to see addressed. It is best if your comments are related to the ranking.

Discussion of Best Paper Award Process and Qualifications (*Peter Savolainen*)
- *Peter Savolainen* led the paper award committee. He presented the criteria for selection.
- This year, the winners are: *Emanuele Saccchi, Tarek Sayed, and Karim El-Basyouny*. Linda and Peter presented the award to the authors.

Getting hip with Social Media (Mazharul Haque [Shimul])
The TRB website is: http://trbstats.weebly.com. *Shimul* gave a presentation about the website. Linda said that we do not use our Linked-in website or Twitter feed, even though we have one. *Bidisha* suggested that we consider posts from members and friends with "hot papers" recently published (within the past month). We can add link from our webpage to LinkedIn and Twitter.

TRB Circular on Analytical Tools for Transportation Researchers and Practitioners (*Linda Boyle*)
- Linda said that the TRB Circular has been a challenge to kickstart, and presented a new idea of including all educational workshops sponsored by ABJ80 at TRB.
- Linda showed an initial list of workshops and the committee felt that this was a good idea. The group then brainstormed gaps in the circular.
- Linda asked for a lead for each chapter section and she marked it on the slide (photo below).
- Linda suggested that we have a draft by the mid-year meeting. Linda asked *Danny Xiao* to set up a conference call with all the chapter leaders.

***TRB initiatives and Data Section News** (Bernardo Kleiner, Joe Schofer)*
Joe Schofer talked about the committee's Action Plan. He is the outgoing section head. Jack Stickel from Alaska is the incoming section head. Linda said that the Action Plan included some of the challenges that we deal with; including gaining traction with the research needs statements, and getting buy-in from state and local agencies. Statistical issues are not obviously linked to practical application. Joe suggested that that the committee speak with Ed Christopher, Rebecca Anderson, and Jack Stickel to identify a state champion for ideas.

Research needs statements *(Karin Bauer, Thomas Jonsson)*
- They need to be timely and innovative. We may want to consider submitting/working with a higher TRB section level or connecting with other committees that are more applied.
- *Nanda Srinivasan* suggested integrating Transportation Energy, and more specifically emissions. There is the Transnet project (*John Handley*), and the potential to link to ABJ70 to consider analysis for reducing energy consumption for different modes of transportation.
- There are spatial temporal analysis issues that our committee could also focus on.
- *John Milton* said that he would be willing to look at our committee's RNSs from the state agency perspective. If you can make the translation explicit and clear, it has a better chance in the AASHTO process.
- *Mehdi Nassirpour* said that we need to look at the original purpose of this committee: to serve other committees with knowledge and expertise on valid statistical methodology. Linda said that this was a good point and we can also consider statistical issues that have yet to be addressed. *Mehdi* said we should look at identifying whether the data exists, then what are the needs, and then what techniques to apply.
- *Karin Bauer* said that she attended a session on connected vehicles and efficiency, and there could be research topics related to quantifying the impact of ride sharing and car sharing on parking needs, emissions, etc, and incentivizing ways to change modes of transportation.
- *Karl Kim* said he's on the task force for new directions in the National Household Travel Survey. He suggested that we look at that survey as a rich source of data for demonstrations, workshops, and maybe the data analysis contest in the future.

Future Committee Activities and Sessions (*Linda Boyle, TBD*)
Feng Guo gas volunteered to lead this task in the future. The following ideas have been proposed:
- Small samples: non-parametric, Full Bayesian, bootstrapping may be topics to cover.
- Quantifying risks with increasing vehicle automation: co-sponsor with Safety Section.
- Big Data methods: co-sponsor with ABJ70 [AI]— follow-up session in 2017?
- Text mining
- Crowd Source data (e.bg., Uber, Lyft, Waze), activity and location analysis. Committee members noted that Uber had a project with World Bank; Florida DOT with Waze.
- Data fusion/Data Integration: how to work with disparate datasets (linking and matching) – proposed for 2017. Coordinate with *Feng Guo* to identify speakers and session topics.
- Session on non-parametric analysis. *Roya* noted it may be handy for small samples.
- *John Milton* said that the TRB data groups is another resource (contact: Reg Souylerette).

TSIG update *(Feng Guo)*
- TSIG is part of Transportation Statistics Users Group (TSUG).
- The Joint Statistical Meeting (JSM) is held at the end of July/beginning of August. This year it is July 30-Aug 4, 2016, Chicago, IL. There are opportunities to set up sessions, but it must be submitted (titles only) by Thur: 1/14/2016.
- There is a website for the TSIG of ASA: http://www.amstat.org/sections/tsig/Welcome.html and you can sign up for email updates from the TSIG.

- All committee members are welcome to join ASA and TSIG. ABJ80 usually holds its mid-year meeting at the JSM. TSIG also holds their meeting at JSM. Eight people noted they are interested in attending.
- *Feng* noted that there is funding for students for organizing symposia. The TSIG can bid on this, but we need contributed ideas; it is very competitive.

Picture taking! The group pictures were taken and emailed to Linda.

Call to Audience/relevant activities of other committees, conferences, etc.
- Linda noted that *Roya* (FHWA Turner Fairbanks) has been working to educate Transportation Civil Engineering professionals and statisticians; this was advertised at 2015 JSM. *Feng Guo* noted that he is also involved with this initiative and *Roya* has a grant to ensure that projects go through a statistical review. Linda noted that this initiative can bring transportation engineers and pure statisticians together.
- Bob Scopatz invited attendance at the Traffic Records Forum (August 2-7, 2016) in Baltimore, MD.
- Linda presented the idea of doing a one-minute-madness at the end of each meeting. This will be considered for the agenda for next year.

Linda adjourned the meeting at 10:20 AM
TRB 2016 ABJ80 Sponsored or Co-Sponsored Sessions/Workshops/Meetings

Workshop 146: Doctoral Student Research in Transportation Safe, *Room CC103A*
Peter Savolainen, Iowa State University, presiding
Co-sponsors: ANB00, ABJ80, ANB10, ANB20, ANB70
Sunday Jan 10, 2016, 9:00–12:30, presiding.
There are 14 student presentations this year.

Workshop 109: Big Data Analytics and Applications: Role of Artificial Intelligence and Machine Learning, *Room CC152B*
Linda Ng Boyle, University of Washington, presiding
Co-sponsors: ABJ70, ABJ40, ABJ50, ABJ60, ABJ80, ADB40
Sunday, Jan 10, 2016 9:00–12:00 pm

Event 397: Innovations in Statistical Methods for Transportation Researchers and Practitioners,
Room Supreme Court (M4)
Sponsor: ABJ80, Panagiotis Anastasopoulos, University at Buffalo, presiding,
Monday, Jan 11, 2016, 3:45–5:30pm
- Reliability-Based Design Procedure for Top-Down Fatigue Cracking, *Dinegdae, Birgisson*
- Analysis of Rear-Ending Events on Congested Freeways Using Video-Recorded Shockwaves, *Chatterjee*
- Quantifying Safety Effects of Rural Roadway Features Using Mixed Distribution Generalized Linear Models, *Shaon, Qin*

- Ordered Fractional Split Approach for Aggregate Injury Severity Modeling, *Yasmin, Eluru, Lee, Abdel-Aty*

Session 303: Research in Statistical Methods in Transportation (poster), *Room CC Hall E*
Sponsors: ABJ80, Yiyi Wang, presiding, Tuesday, Jan 12, 2016, 2:00pm–3:45pm
1. Non-Gaussian Interrupted Time Series Regression Analysis for Evaluating the Effect of Smart Motorways on Road Traffic Accidents Investigating Fractal Characteristics in Crash Trends for Potential Traffic Safety Prediction (16-0494)
2. Flexible Modeling Approach Using Dirichlet Process Mixtures: Application to Municipality-Level Railway Grade Crossing Crash Data Determining Contributory Factors Affecting Rear-end Crashes Using Hurdle Count Models (16-1629)
3. Development of Permanent Deformation Models for Granular Materials and Soils (16-2318)
4. Use of Clustering Model and Adjusted Boxplot Model for Identification of Secondary Incidents (16-2882)
5. Comparison of Confidence and Prediction Intervals for Different Mixed-Poisson Regression Models (16-4936)
6. Heterogeneity in Hybrid-Involved Crash Severities: Exploratory Analysis Using Hierarchical Mixed Logit Model with Hierarchical Hybrid Vehicle Attributes (16-5162)
7. Modified Rank-Ordered Logit Model to Analyze Injury Severity of Occupants in Multivehicle Crashes (16-5382)
8. Spatiotemporal Crash Rate Monitoring for Improving Highway Safety (16-5699)