Meeting Report

STAT-HAWKERS at the JSM-2015, Seattle, USA

In this foreword, we recall memories and share photographs of the STAT-HAWKERS booth at the Joint Statistical Meeting (JSM)-2015 held in Seattle, USA, August 7–13, 2015.

Fig. 1. Cheon-Sig Lee, Sarjinder Singh and Augustus Jayaraj at the booth on August 13, 2015.

Figure 1 shows the front side of the booth on the very last day, August 13, 2015, when Augustus Jayaraj joined Cheon-Sig Lee and Sarjinder Singh with 40 elephants. There were already 100 monkeys of different colors, 100 female giraffes, 100 male giraffes, and 100 spidermen. There were also three dozen flashing balls and 100 tiny bears. For the first three days, these toys were given freely to the children who visited the booth, and on the last day the remaining toys were given freely to anyone who visited the booth and asked for the toys.

Almost 400 pens marked with the logo "MASA: An International Journal" were distributed among the attendees to advertise the journal, "Model Assisted Statistics and Applications" (IOS Press, The Netherlands), as well as sample copies of the journal, flyers, and CDs that included sample journals from IOS Press. One-year open access to the journal MASA was given to one student, the "JSM Student Door Prize Winner." Additionally, a few more journals and books by IOS Press were displayed and distributed freely among the attendees.

There were 45 calendars (4 feet x 3 feet) advertising a new MS program, "Master's Program in Statistical Analytics, Computing and Modeling", which began in Fall 2015 at the Department of Mathematics, Texas A&M University-Kingsville, that were distributed among the conference attendees. A few attendees had trouble carrying them due to their size. Almost 100 calendars, each 17 inches x 11 inches, were also distributed. There were 50 (8 GB) USB drives that were given to the attendees. Of these, 15 were give as door-prizes during the student mixture.

Almost 300 flyers advertising the textbook "Thinking Statistically: Elephants Go to School", Kendall/Hunt Publishing Company, Iowa, were distributed among the attendees. A long 8 foot x 2 foot banner was used to advertise this textbook, which can be seen in Figure 3 on the left side of the booth. The monograph by Sarjinder Singh,

"Advanced Sampling Theory with Applications: How Michael Selected Amy" (Kluwer Academic Publisher, The Netherlands), was also displayed on a 12 inch x 24 inch standing table at the left corner of the booth.

The booth was decorated by blinking LED lights on the front and left side, as seen in Fig. 2.

Fig. 2. Booth appearance from the left side corner.

You can see in Fig. 2 that there was a pumpkin man and a seven foot tall pumpkin vine with lights. The main purpose of the pumpkins was not to keep ghouls away from the booth. Instead, they advertised a new monograph, entitled "*A New Concept for Tuning Design Weights in Survey Sampling: Jackknifing in Theory and Practice*" (2015), by Academic Press, whose five authors (Sarjinder Singh, Stephen A. Sedory, Maria del Mar Rueda, Antonio Arcos and Ragunath Arnab) are "*Jackknifing a Jumbo Pumpkin.*" One big banner of size 4 feet x 3 feet and another banner of size 4 feet x 2 feet with cover-page of the new monograph were displayed. Over 200 flyers with the cover page of the new monograph were distributed among the attendees. To keep their memories sweet, visitors of the STAT-HAWKERS booth were offered special pumpkin candies, corn candies, chocolate, soft puffs, and fruit candies. In addition, 100 tiny bears were also distributed among the attendees.

Dr. Stan Lipovetsky and Dr. Wenyaw Chan also visited the booth and are seen in Fig. 3.

Fig. 3. Sarjinder Singh, Stan Lipovetsky and Wenyaw Chan.

Sarjinder's college classmates (1980–1986) Gurmit and Mohan, currently living in Seattle and Vancouver, also visited the booth with their families (Fig. 4).

Fig. 4. Gurmit and Mohan from Seattle and Vancouver along with their families.

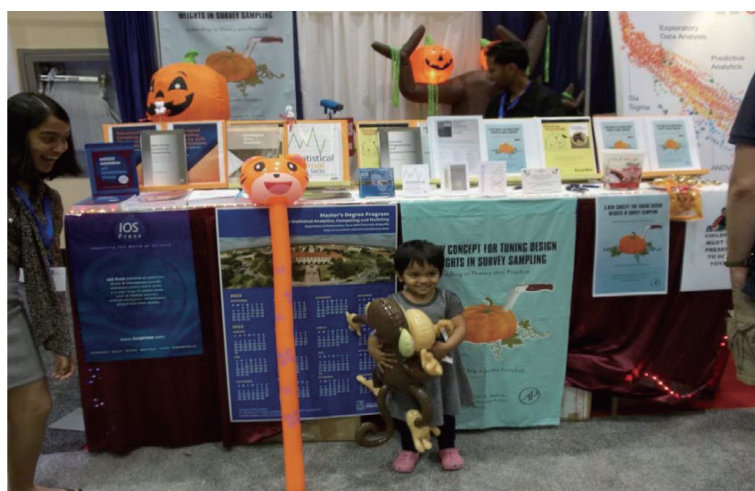
Fig. 5. Children with toys.

Fig. 6. A child with a brown Monkey and a Tiger.

Figures 5 and 6 show that the children who visited the booth enjoyed the toys. The purpose of giving toys to children is to build a memory in their minds of a statistics conference where they can get inflatable toys. During their college days, they might recall that they used to go a statistics conference where they had fun!

Figure 7 shows that Dr. Fritz Scheuren, the 100th ASA President, and his wife Elizabeth also visited the booth together. It was pleasure to see both of them. They are nice, charming people.

Fig. 7. Dr. Fritz Scheuren and Elizabeth.

"Model Assisted Statistics and Applications" published a special issue celebrating the Golden Jubilee Year of the pioneering randomized response technique, which was initiated by Stanley L. Warner in his paper, "Randomized response: a survey technique for eliminating evasive answer bias" published in Journal of the American Statistical Association, (1965), 60, 63–69. The Guest Editor for the special issue in MASA was Prof. Arijit Chaudhuri, Applied Statistics Unit, Indian Statistical Institute, 203 B.T. Road, Kolkata, 700108 West Bengal, India, a renowned statistician who has published three monographs on this topic. His first monograph was published jointly with Rahul Mukherjee in 1988 by Marcel Dekker, his second monograph was published in 2011 by Taylor & Francis, and his third monograph was published in 2013 jointly with TC Christofides by Springer. Prof. Chaudhuri also co-authored the Handbook of Statistics, Vol. 34, Data Gathering Analysis and Protection of Privacy through Randomized Response Techniques-Qualitative and Quantitative Human Traits, which will be published in 2016 by Elsevier Ltd. During 2015, Prof. James Fox gave a valuable gift to the randomized response technique lovers, his second edition "Randomized Response and Related Methods: Surveying Sensitive Data" (Sage).

STAT-HAWKERS continued their effort to demonstrate the use of randomized response to the statisticians at the Joint Statistical Meetings. Their aim is to encourage the usage of the randomized response techniques by social scientists. Figure 8 shows an attendee drawing a card from a deck to respond to a sensitive question using the randomized response technique.

At the fifth booth, we applied the 'crossed model' developed by Lee et al. [1] to the problem of estimation of proportions of the smokers, drinkers, and both. We made two decks of cards: Deck-I, a green deck, and Deck-II, a pink deck. Two types of cards bearing two different statements comprised the green deck: 21 cards with the statement, "I consider myself a smoker", and 9 cards with the statement, "I do not consider myself a drinker." Obviously, $P = 0.70$. Two types of cards bearing two different statements comprised the pink deck: 21 cards with the statement, "I consider myself a drinker", and 9 cards with the statement, "I do not consider myself a smoker." Obviously $T = 0.70$. Due to limited resources, during the three day period, a total of 31 conference attendees participated in the survey. The respondents took interest after learning that two decks of cards can be used to maintain their privacy while estimating sensitive characteristics. The respondents were observed to be cooperative, and smiled while they drew their cards. A two-way classification based on the 31 responses is given below:

Table 1
Responses from the survey

Green Deck-I	Pink Deck-II	
	Yes	No
Yes	1	4
No	12	14

Fig. 8. Randomized response survey.

Unfortunately for these responses the crossed model did not work, which allowed us to make an improvement to the crossed model proposed by Lee et al. [1]. We applied a square root transformation on the observed proportions $\hat{\theta}_{ij}$, $i, j = 1, 2$, because under such transformation, one may easily write:

$$\sqrt{\hat{\theta}_{ij}} = \theta_{ij} + \frac{1}{2}(\hat{\theta}_{ij} - \theta_{ij}) - \frac{1}{8}(\hat{\theta}_{ij} - \theta_{ij})^2 + ...$$

where θ_{ij} are the true probabilities as provided in Lee et al. [1]. After the square root transformation, by the crossed model estimators, the estimated proportion of smokers is $\hat{\pi}_s^* = 0.092$, that of drinkers is $\hat{\pi}_d^* = 0.236$, and that of smokers-drinkers is $\hat{\pi}_{s \cap d}^* = 0.065$. It seems that a smoker is likely to be a drinker, but a drinker may not be a smoker. The estimate of correlation between smoking and drinking is $\hat{\rho}_{sd}^* = 0.348847$. The positive value of the estimate of correlation coefficient clearly indicates that smoking and drinking are associated. The estimate of the relative risk of a drinker to be a smoker is $\hat{RR}^*(s|d) = 7.554$, which means a smoker is 7.554 times more likely to be a drinker than a non-user of both; whereas the estimate of the relative risk of a smoker to be a drinker is $\hat{RR}^*(d|s) = 3.710$, which means a drinker is 3.710 times more likely to be a smoker than a non-user of both. An interpretation of the relative risk can also be had from Rosner [3]. Also, the estimates of the conditional probabilities are $\hat{\pi}_{s|d}^* = 0.2743$ and $\hat{\pi}_{d|s}^* = 0.6999$, where the subscripts s and d stand for smoking and drinking. We also collected data from the same participants using a black-box technique. Every respondent was requested to give their true status by responding to either the statement (a) I consider myself a smoker, or (b) I consider myself a drinker. Out of 31 responses, only one responded as a smoker and four responded as drinker. Thus the direct question responses show that the proportion of smokers is 0.0323 and that of drinkers be 0.1290. The proportion of only smokers using the randomized response technique is 0.028 and that of only drinkers is 0.171. Based on the randomized response technique, this study shows that 73.6% of the conference attendees neither have drinking nor have smoking habits. In other words, it is also a guide line to our future generation that majority of educated statisticians neither smoke nor drink. One could also refer to Singh and Lipovetsky [5], Singh [4], and Lee, Sedory and Singh [4] for similar studies of randomized response techniques. Thanks are due to the IRB Chair Dr. Stephen D. Oller, Research Compliance Liaison Donna

J. Pulkrabek, and other committee members for their timely IRB approvals for data collection at the conferences. Perri et al. [2] also used the same crossed model proposed by Lee et al. [1] during a pilot survey to investigate the prevalence of for two sensitive characteristics, namely induced abortion among foreign women residing in Calabria, a region in the south of Italy.

The help from Paul and Rasjel, IOS Press, in promoting the journal, "**Model Assisted Statistics and Applications**: **An International Journal",** has also been duly acknowledged.

Thank you for reading.

References

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