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Editor's Foreword

Dear Members,

Welcome to the 2020 issue of the HKSS Bulletin.

It is an extraordinary year. Most of us might work from home since the Chinese New Year. It is the first time in my twenty nine years work in Hong Kong. This is a major excuse for the deferment of the Bulletin from March to May.

In this issue, Dr. WONG Kin-yau of The Polytechnic University tells us something in post-selection inference. Mr James CHENG and Mr MC LUN brief us the Survey on Persons with Disabilities and Chronic Diseases. Mr Matthew WONG and Professor Philip YU, Chairpersons of SPC and SCC respectively, give us reports on both competitions held annually by our society.

I am very sorry to tell you that we lost a long time member, Professor Yeh LAM of CUHK and HKU in April 2020. Alex LAM, son of Professor LAM, wrote a brief biography of Professor LAM. Two memoirs, one from Professor WK LI of Education University of Hong Kong and the other from Professor Howell TONG, shared with us about Professor Yeh LAM.

Ben CHAN

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President's Forum

Professor YUEN Kam-chuen

Since last June, Hong Kong has been going through difficult times due to last year's civil unrest and the current COVID-19 pandemic. Like many other local social activities, a number of our seminars and workshops have been either cancelled or postponed. Despite all the challenges ahead, we shall keep working with you closely to provide best possible delivery for our professional service.

In light of social instability, we have cancelled the public lecture jointly organised with the Education University of Hong Kong (EdUHK). In this public lecture, Professor Paul EMBRECHTS from ETH Zurich, Switzerland, a renowned researcher in risk management, planned to give us a brief historical overview of extreme value theory (EVT) as a statistical theory for the analysis of rare events, and to talk about the sinking of the MV Derbyshire where EVT made an important contribution to a deeper understanding of the possible causes leading to this maritime disaster. The study of extreme events is definitely an important and interesting topic to many statisticians. I hope that Professor EMBRECHTS will come to Hong Kong again and give us the talk in the near future.

After consulting various parties involved, the Council has decided to suspend the Statistics Creative-Writing Competition (SCC) for Secondary School Students which has been run for ten years. In lieu of the SCC, it was planned to organise a series of workshops related to data science for secondary school teachers. The first workshop focuses on exploratory data analysis with statistical graphics and interactive data visualisation. Participants will learn how to display, communicate and analyse data, using a set of R packages. Unfortunately, the workshop originally scheduled for December 2019 has been postponed. It is hoped that we can hold this event in the last quarter of this year.

As for the 34th round of the Statistical Project Competition (SPC) for Secondary School Students, we are still able to receive more than 50 submissions. I would say this is an encouraging number given the adverse situation. I would like to thank members of the organising committee for their hard work to make the event possible, and the two patrons, Ms Marion CHAN Shui-yu, Commissioner for Census and Statistics and Mrs HONG CHAN Tsui-wah, Deputy Secretary for Education, for their generosity. Special thanks go to the two sponsors, Hang Seng Indexes Company Limited and Department of Management Sciences, the City University of Hong Kong, for their continued support of this major annual activity.

Besides the SPC, we have organised the trip to Dragon's Back last December. I do believe all participants indeed had a good time and enjoyed the scenic hike very much. Also, on behalf of the society, Professor May WONG, our Consultation Services Secretary, has given a talk entitled "Interpreting Survey Findings without Falling into Traps" to master students studying Mathematics and Pedagogy at EdUHK in January this year. The seminar was well-received by more than 40 participants. Many thanks to Professor May WONG.

Finally, I would like to express my sincere thanks to all my Council members as well as members of various committees for their valuable contribution and service in the past year. Without your support, we would not have been able to achieve so much under the unusual local circumstances. Great job and well done.

Stay healthy and safe. Wishing Hong Kong a speedy recovery.

A Brief Introduction of the Conditional Approach to Post-selection Inference

Dr WONG Kin-yau
The Hong Kong Polytechnic University

In many scientific studies, investigators are interested in studying the associations between various features and an outcome of interest. For example, in biomedical studies, one is often interested in the relationship between risk factors and disease outcomes. When the number of features is large, it is crucially important to identify a subset of features that are relevant to the outcome. A large body of statistical literature of recent decades is focused on the development of theoretically sound and computationally feasible variable selection methods (Tibshirani 1996; Fan and Li 2001; Zou 2006). By contrast, inferential procedures for the selected model, though being of growing interest in recent years, are less well-studied. In this article, we would like to introduce the conditional approach to post-selection inference for linear models in particular and discuss some related work.

Consider a standard linear regression setting with an n-vector of outcome variables $\boldsymbol{Y}$ and a matrix of (fixed) covariates $\boldsymbol{X} \in \mathbb{R}^{n\times p}$, where n is the sample size, and p is the number of covariates. Suppose that

$$\boldsymbol{Y} = \boldsymbol{X}\boldsymbol{\beta} + \boldsymbol{\epsilon}, \tag{1}$$

where $\boldsymbol{\beta}$ is a vector of regression parameters, $\boldsymbol{\epsilon} \sim \mathrm{N}(\boldsymbol{0}, \sigma^2\boldsymbol{I})$, and σ^2 is the error variance. Assume that there is no intercept term. Suppose that some model selection approach is employed to select a subset of covariates. Let $\widehat{M}$ denote the (random) set of indices of the selected covariates, M denote the observed value of $\widehat{M}$, and $\boldsymbol{X}_M$ denote the matrix consisting of the selected columns of $\boldsymbol{X}$. The target of post-selection inference is the model

$$\boldsymbol{Y} = \boldsymbol{X}_M\boldsymbol{\beta}_M + \widetilde{\boldsymbol{\epsilon}},$$

where $\boldsymbol{\beta}_M$ is a vector of regression parameters, and $\widetilde{\boldsymbol{\epsilon}}$ is a vector of error terms. For any given M, the true value of the regression parameter is $\boldsymbol{\beta}_{M0} \equiv \arg\min_{\beta_M} \mathrm{E}(\|\boldsymbol{Y} - \boldsymbol{X}_M\boldsymbol{\beta}_M\|^2)$, which is the linear combination of the selected covariates that minimizes the expected error.

Each component of $\boldsymbol{\beta}_{M0}$ is the effect of a covariate, adjusted for the other covariates in the selected model.

One may be concerned that the true parameter value $\boldsymbol{\beta}_{M0}$ seems to depend on the model selection procedure and thus is random. It is important to note, however, that the randomness does not lie in the parameters themselves but in the choice of which parameters to estimate. The set of all parameters consists of $p2^{p-1}$ elements, one for each regression parameter in each of the 2^p possible models; each parameter is well-defined and fixed prior to model selection. The (random) model selection procedure determines which subset of parameters to estimate and draw inference on in a single analysis.

Note that the selected model is not necessarily a "true" model; components of $\boldsymbol{\beta}_{M0}$ are generally different from the corresponding components of the true value of $\boldsymbol{\beta}$ in model (1). Once a model is selected, one is limited to the estimation and inference of the selected model. Without further assumptions, it is generally not possible to estimate or draw inference on $\boldsymbol{\beta}$ using the selected model.

In post-selection analyses, a given parameter may not be considered, so what frequency properties should, for example, a valid confidence region possess? Suppose that we are interested in drawing inference about a linear combination of the regression parameters $\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M$. Obviously, one cannot require that a $(1-\alpha)$ confidence region $\widehat{C}$ for $\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M$ satisfies $P(\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_{M0} \in \widehat{C}) \geq 1-\alpha$, as the model M may not be selected. To resolve the problem, the conditional approach requires that the confidence region satisfies $P(\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_{M0} \in \widehat{C} \mid \widehat{M} = M) \geq 1-\alpha$ instead. Inference on a parameter is carried out conditionally given the event that the corresponding model is selected.

The key to construct a valid confidence region is to find a pivotal quantity of $\boldsymbol{Y}$ under the conditional distribution given the model selection event (and possibly some other statistics). For example, suppose that we can find a function of $\boldsymbol{Y}$ and $\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M$, denoted by q, such that

$$q(\boldsymbol{Y}; \boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M) \mid (\widehat{M} = M, \boldsymbol{Z} = \boldsymbol{z}) \sim \mathrm{Uniform}(0,1),$$

where $\boldsymbol{Z}$ is some statistic, and $\boldsymbol{z}$ is the observed value of $\boldsymbol{Z}$. The introduction of $\boldsymbol{Z}$ is to allow for a simpler choice of q. A conditional $(1-\alpha)$ confidence region for $\boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M$ can then be constructed as

$$\widehat{C} \equiv \left\{ \boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M : \frac{\alpha}{2} < q(\boldsymbol{Y}; \boldsymbol{c}^{\mathrm{T}}\boldsymbol{\beta}_M) < 1 - \frac{\alpha}{2} \right\}.$$

The major challenge of this approach is the evaluation of the conditional distribution of the observed data given the model selection event. Some important breakthroughs in this area have been made in recent years. Lee and Taylor (2014), Tibshirani et al. (2016), Lee et al. (2016), and Tian et al. (2018) derived that under some popular model selection procedures, including marginal screening, lasso, and forward stepwise selection, the model selection event is equivalent to a constraint of $\boldsymbol{Y}$ onto a union of polyhedra. The authors showed that for a fixed vector $\boldsymbol{\eta}$, $\boldsymbol{\eta}^{\mathrm{T}}\boldsymbol{Y}$ follows a truncated normal distribution with mean parameter $\boldsymbol{\eta}^{\mathrm{T}}\mathrm{E}(\boldsymbol{Y})$ given the model selection event and some other observed variables. Exact post-selection inference for linear functions of $\boldsymbol{\beta}_M$ can then be carried out by choosing an appropriate $\boldsymbol{\eta}$ and inverting the truncated normal distribution.

Extensions to more general settings have been considered. For example, Tian and Taylor (2017) considered the asymptotic properties of the above conditional inference procedures when normality assumptions on $\boldsymbol{Y}$ do not hold. Taylor and Tibshirani (2018) considered post-selection inference for more general regression models, including generalized linear models and the Cox proportional hazards model, after lasso selection. Heller et al. (2018) and Heller et al. (2019) considered inference of individual parameters that have been selected using aggregate association tests; the study framework is relevant in many genetics and genomics studies.

The conditional approach is versatile and can in principle be further applied to various model selection problems. For example, one may consider more complex model selection procedures, such as the selection of random effects (Bondell et al. 2010), the selection of pairwise associations between features (Friedman et al. 2008), and variable selection in the presence of missing data (Garcia et al. 2010). Another direction of extension is to consider different penalization methods, such as the elastic net (Zou and Hastie 2005) and various group penalties (Yuan and Lin 2006; Huang et al. 2009). Although the principles of conditional inference are applicable to these complex settings, such extensions may face enormous computational challenges especially when the selection event is not equivalent to constraints of the outcome variable onto unions of polyhedra or other tractable sets.

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2019/20 Survey on Persons with Disabilities and Chronic Diseases

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Census and Statistics Department

Introduction

A territory-wide survey on persons with disabilities and chronic diseases (PwD and PwCD) is being conducted in 2019/20 by the Census and Statistics Department (C&SD) to throw light on the latest profile of PwD and PwCD and provide information to study the poverty situation of PwD.

Results of the survey are important inputs for the Government to understand the living conditions, difficulties and needs of PwD, PwCD and their carers; and improve policies and measures in respect of rehabilitation, medical services and welfare support as appropriate. The concern groups of PwD and PwCD are also attentive to the survey findings, which are highly relevant to their advocacy on government policy and allocation of public resources.

The last round of the survey was conducted in 2013 and the 2019/20 survey is the fourth round of this kind. This article gives a brief account of the enhancements introduced in the 2019/20 survey.

Survey methodology

The survey commenced in August 2019 and will last for about one year in order to obtain a sufficiently large sample of persons with different types of disability for detailed statistical analysis. Survey on persons with disabilities and chronic diseases in 2019/20 is divided into three parts as shown below:

Part	Survey	Survey period
1	Household survey on persons with chronic diseases (PwCD)	August – September 2019
2	Household survey on persons with disabilities and selected health conditions (PwD)	November 2019 – August 2020
3	Institutions survey on persons with disabilities and chronic diseases (PwCD and PwD)	May – September 2020

Part 1 and Part 2 of the survey are conducted as a special topic enquiry (STE) via the General Household Survey (GHS)[1], targeting at PwD and PwCD residing in households. Part 3 of the survey is conducted to collect data from inmates residing in institutions, such as social welfare institutions, private elderly homes, long-stay care hospitals and rehabilitation centres. Random samples are drawn for both the STE via GHS and enumeration of inmates in institutions. Screening questions are asked to identify whether the enumerated individuals are PwD and/or PwCD. Target persons are asked further questions such as their difficulties faced in daily living, services being received/awaited and characteristics of their carers.

Currently, GHS respondents can choose to complete the survey on their own via online questionnaire system (OQS). Respondents can refer to the URL and other login information provided in the notification letter[2] to access the OQS website, which conforms to Level AA of Web Content Accessibility Guidelines (WCAG) 2.0 to make content accessible to persons with disabilities. During the period with STE on PwD/ PwCD, an additional module for the STE concerned is available at OQS. However, having considered the complexity of questions targeted to PwD/PwCD, only the screening questions of the STE are available at OQS. For those target respondents identified via OQS, follow-up interview (by field visit or telephone) is made by field officers of C&SD to complete the remaining part of the STE. For those sampled quarters without activating the online questionnaire, field officers of C&SD make field visits to complete the STE along with GHS by face-to-face interviews.

Definition

Under the framework in the 2019/20 round of survey, PwD is defined as one who (i) has perceived oneself as having one or more of the following four conditions which have lasted, or are likely to last, for a period of six months or more:

(a) restriction in body movement;

(b) seeing difficulty;

(c) hearing difficulty; and

(d) communication difficulty;

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[1] General Household Survey (GHS) has been conducted by C&SD since August 1981 to collect information on the labour force, employment, unemployment and underemployment, as well as the demographic and socio-economic characteristics of the land-based non-institutional population of Hong Kong.

[2] A notification letter is sent to each of the addresses sampled for GHS before the commencement of each survey month.

Or (ii) has been diagnosed by qualified health personnel as having one or more of the following five conditions:

(e) mental illness/mood disorder;

(f) Autism Spectrum Disorder;

(g) Specific Learning Difficulties;

(h) Attention Deficit/Hyperactivity Disorder; and

(i) intellectual disability.

Besides, PwCD refer to those who require long-term (i.e. lasting at least 6 months) medical treatment, consultation or medication for certain type(s) of diseases which have been confirmed by medical practitioners.

Enhancement of definition of disability

In recent years, there has been growing demand from the local as well as international community for identifying PwD based on the framework of the latest international recommendations and practices. To meet the data needs of users, the operational definition of selected types of disability is enhanced in the 2019/20 round of survey based on the framework of the International Classification of Functioning, Disability and Health[3] (ICF) with a view to improving data quality. Under the framework of ICF, disability is conceptualised as the outcome of the interaction between a person with a functional limitation and an unaccommodating environment resulting in the inability to fully participate in society, which is an integration of medical and social model of disability.

Some questions from the Extended Question Set on Functioning (ES-F) developed by the Washington Group on Disability Statistics[4] (WG) based on the ICF framework, with suitable adaptation to the local circumstances, have first been included in the 2013 round of survey as a trial, and proved to be feasible. Therefore, in the 2019/20 round of survey, features of the WG ES-F has been incorporated in enhancing the operational definitions for four selected types of disability, viz. restriction in body movement, seeing difficulty, hearing difficulty and communication difficulty.

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[3] For details, please refer to the website of WHO on ICF (https://www.who.int/classifications/icf/en/)

[4] For details, please refer to the website of WG (https://www.washingtongroup-disability.com/)

Questions targeting at respondents' level of difficulty in performing specific tasks in daily life is adopted such that respondents can provide answers more concretely. Take "restriction in body movement" as an example. Respondents in the 2013 round were asked generally whether they had any long-term mobility difficulties with extremities/body movement, using dichotomous response options (i.e. "yes" or "no"). In the 2019/20 round, respondents are asked the level of difficulty in performing four specific tasks (without using any assistive device or assistance from other persons) [5]. A scale of four answer options ("no difficulty", "some difficulty", "a lot of difficulty" and "cannot do at all") is used. A person is regarded as having restriction in body movement if he/she perceives him-/herself as having a lot of long-term difficulty or cannot do one or more prescribed tasks.

Under the enhanced operational definition of PwD, the survey coverage and results of PwD in the 2019/20 round will not be directly comparable to the 2013 round. As some data users have a need to grasp the changes in the results about PwD over time on a consistent basis, the questionnaire is designed in such a way statistics based on the original definition will still be made available in the 2019/20 round. In this connection, supplementary information (such as whether a respondent is using aids/tools for extremities/body movement) for identification of PwD under the original definition is collected in the 2019/20 round.

The comparison of definition adopted in two rounds of survey is summarised in the following table:

Type of disability	**Operational definition for the 2013 round**	**Operational definition for the 2019/20 round**
(A) Restriction in body movement	"**Persons with restriction in body movement**" were defined as those who had perceived themselves as having long-term mobility difficulties with extremities/ body movement *or* using specialised aids/tools for extremities/body movement at the time of enumeration.	"**Persons with restriction in body movement**" are defined as those who perceive themselves as having "a lot of (long-term) difficulty" in doing or who cannot do one or more of the tasks namely walking, climbing steps, using hands and fingers to grasp a small object and carrying a heavy object without assistance of others or aids/tools (if necessary) at the time of enumeration.

[5] The four tasks include (i) walking on level ground (100 metres for persons aged 5 or above; and no such requirement on distance for persons aged 2-4); (ii) using hands and fingers to grasp a small object (applicable to persons aged 2 or above); (iii) walking up or down a flight of stairs with 12 steps safely (applicable to persons aged 5 or above); and (iv) carrying a heavy object such as 2 litres of water (applicable to persons aged 12 or above).

Type of disability	Operational definition for the 2013 round	Operational definition for the 2019/20 round
(B) Seeing difficulty	"**Persons with seeing difficulty**" referred to those who had perceived themselves as having long-term difficulty in seeing with one eye or both eyes whether with or without correcting glasses/contact lenses *or* using specialised visual aids/ tools at the time of enumeration. Nevertheless, nearsightedness, farsightedness, astigmatism and presbyopia were not included.	"**Persons with seeing difficulty**" refer to those who perceive themselves as having "a lot of (long-term) difficulty" in seeing with one eye or both eyes or who cannot see at all even when wearing correcting glasses/contact lenses (if necessary) at the time of enumeration.
(C) Hearing difficulty	"**Persons with hearing difficulty**" were defined as those who had perceived themselves as having long-term difficulty in hearing *or* using specialised hearing aids/tools at the time of enumeration.	"**Persons with hearing difficulty**" are defined as those who perceive themselves as having "a lot of (long-term) difficulty" in hearing with one ear or both ears or who cannot hear at all even when using a hearing aid (if necessary) at the time of enumeration.
(D) Communication difficulty (in place of "speech difficulty" in the 2013 round)	"**Persons with speech difficulty**" referred to those who had perceived themselves as having long-term difficulty in speaking and being understood by others with verbal communication *or* using specialised speech aids/ tools at the time of enumeration.	"**Persons with communication difficulty**" refer to those who perceive themselves as having "a lot of (long-term) difficulty" in speaking and understanding speech or who cannot speak or understand speech at all such that it contributes to difficulty in making themselves understood to others or understanding others at the time of enumeration.

Type of disability	Operational definition for the 2013 round	Operational definition for the 2019/20 round
(E) Mental illness / mood disorder	"**Persons with mental illness/mood disorder**" were defined as those who had been diagnosed as being mentally ill / having mood disorder under medical assessment tests (including ex-mentally ill) *or* had been/were being treated by psychiatrists *or* had received/were receiving some form of rehabilitation services provided for ex-mentally ill persons (such as psychiatric clinics, private psychiatrists, halfway houses and community psychiatric nursing services) at the time of enumeration.	"**Persons with mental illness/ mood disorder**" are defined as those who have been diagnosed as being mentally ill / having mood disorder under clinical assessment tests (including ex-mentally ill) *or* have been/are being treated by psychiatrists *or* have received/are receiving some form of rehabilitation services provided for ex-mentally ill persons (such as psychiatric clinics, private psychiatrists, halfway houses and community psychiatric nursing services) at the time of enumeration.
(F) Autism Spectrum Disorder (ASD)	"**Autistic persons**" referred to those who had been diagnosed as being autistic under medical assessment tests.	"**Persons with ASD**" refer to those who have been diagnosed as having ASD under clinical assessment tests.
(G) Specific Learning Difficulties (SpLD)	"**Persons with SpLD**" referred to those who had been diagnosed as having SpLD under medical assessment tests.	"**Persons with SpLD**" refer to those who have been diagnosed as having SpLD under clinical assessment tests.
(H) Attention Deficit / Hyperactivity Disorder (AD/HD)	"**Persons with AD/HD**" referred to those who had been diagnosed as having AD/HD under medical assessment tests.	"**Persons with AD/HD**" refer to those who have been diagnosed as having AD/HD under clinical assessment tests.
(I) Intellectual disability	"**Persons with intellectual disability**" referred to those who had been diagnosed as having intellectual disability under medical assessment tests.	"**Persons with intellectual disability**" refer to those who have been diagnosed as having intellectual disability under clinical assessment tests.

A consultation covering the enhanced operational definition of PwD and the associated arrangement in data collection was held in early 2019, involving stakeholders including Labour and Welfare Bureau, the Working Group on Rehabilitation Programme Plan Review under the Rehabilitation Advisory Committee, non-government organisations (NGOs) and related concern groups. Feedback of the stakeholders was supportive in general.

Enhancement on data topics covered

Taking into account the suggestions raised by stakeholders during consultation and various operational considerations (such as willingness and ability of respondents in providing reliable data, respondents' burden in relation to the length of interview, etc.), the data items have also been enhanced for the 2019/20 round as compared to the 2013 round as outlined below:

(a) New data items:

  (i) Carer - duration of taking up the role of carer; demographic information of non-live-in carers; and mental health status of carers

  (ii) Expenditure of assistive aids/tools during last 6 months

  (iii) Transport - Whether modal changes are needed

  (iv) Employment - nature and terms of employment for those target persons with employment; willingness and considerations for economically inactive target persons aged 15-64 to work

(b) To make room for various new data topics, some data topics have been removed or streamlined:

  (i) Cause of disability (removed)

  (ii) Usage of information technology (streamlined)

  (iii) Transportation arrangement (streamlined)

Measures to minimise under–reporting

Past experience reveals that the survey is a challenging one as the topic of disability is complicated and sensitive. Under-reporting of PwD, particularly persons with intellectual disability, mental illness and mood disorder, poses a great challenge to the survey. A host of measures has been put in place to secure co-operation from the respondents.

Similar to the practice in previous rounds, appeal letters has been sent to the Hong Kong Council of Social Service and relevant NGOs to publicise the survey among their members. Assistance from institutions and consent from the parents/guardians/ guarantors of the respondents concerned are being sought for enumeration of inmates residing in institutions. Field officers for this survey have been trained on special skills and tips to communicate with certain types of PwD, through sharing sessions by social workers of rehabilitation sectors/mental health related services, doctor specialised in child development and a professor of rehabilitation sciences.

Several additional measures have been implemented in the 2019/20 round of the survey. For Part 1 and Part 2 of the survey, a specially designed leaflet containing a brief introduction of the survey and highlighting the usefulness and relevance of the survey results for formulating policies and planning services is sent along with the notification letter to the sampled households of GHS. Information of the survey is added in the page of GHS in C&SD website during the corresponding survey period of the STE. WhatsApp messages are also sent via relevant NGOs to publicise the survey among their members to encourage their participation if they are selected in the survey. Respondents can also seek assistance to facilitate their participation in the survey. For example, mute respondents may request C&SD to arrange sign language interpreters to join the interviews.

References

Major results of the 2019/20 round of survey and the poverty situation of PwD will be released to the public around end 2021. For major findings and poverty situation of PwD in the 2013 round, readers may refer to the reports available on the website of the C&SD (https://www.censtatd.gov.hk/hkstat/sub/sp140.jsp?productCode=B1130121) and (https://www.censtatd.gov.hk/hkstat/sub/sp461.jsp?productCode=B9XX0001) respectively.

2018/19 Statistical Project Competition for Secondary School Students

Matthew WONG
Chairperson, Organising Committee of the Competition

The Hong Kong Statistical Society (HKSS) has been organising the Statistical Project Competition (SPC) for Secondary School Students annually since 1986/87 with the primary objective of encouraging secondary school students to understand the local community in a scientific and objective manner through the proper use of statistics, thereby promoting their social awareness and sense of civic responsibilities.

The 2018/19 SPC, jointly organised by the Hong Kong Statistical Society and the Education Bureau and sponsored by the Hang Seng Indexes Company Limited, is the 33rd round. To help interested participants better prepare for the Competition, a briefing seminar and an exhibition of past winning projects was held on 27 October 2018 at the City University of Hong Kong. The winners of the last round were also invited to share their experiences.

The Competition is divided into two Sections, namely Junior Section for Secondary 1 to 3 students and Senior Section for Secondary 4 to 6 students. Junior Section participants are required to submit their projects in the form of a poster on one of the following themes: population, economic development or education, while Senior Section participants in the form of a report with their own choices of themes. In addition to the First, Second, Third and Distinguished Prizes, each Section of the Competition also offers the Hang Seng Indexes Company Limited Prize for the Best Index Application and the Department of Management Sciences, the City University of Hong Kong Prize for the Best Graphical Presentation of Statistics.

The 2018/19 SPC received very fabulous responses. A total of 185 statistical projects from 718 students of 48 secondary schools were received. Of the 185 entries received, 128 entries were for the Junior Section and 57 for the Senior Section.

An adjudication panel, led by Dr. Geoffrey TSO of the City University of Hong Kong and comprised some 30 academics from local tertiary institutions and statisticians working in the Government, was set up for the Competition. Panel members scrutinised all the received projects stringently, shortlisted the more outstanding entries, and interviewed students of the shortlisted projects before determining the winning teams of the various awards.

A prize presentation ceremony was held on 22 June 2019, jointly with the Statistical Creative-Writing Competition (SCC) for Secondary School Students, at the Christian Family Service Centre. The guests invited to officiate at the ceremony were Mr Leslie TANG, Former Commissioner of the Census and Statistics Department, and Mrs HONG CHAN Tsui-wah, Deputy Secretary for Education.

Regarding the results of the Competition, students of Stewards Pooi Kei College, who used official statistics to study Hong Kong's film industry, won the First Prize of the Junior Section. Students of Hoi Ping Chamber of Commerce Secondary School won the Second Prize, while students of S.T.F.A. Lee Shau Kee College won the Third Prize. Students of HKUGA College won the Prize for the Best Index Application, while a student of Wai Kiu College won the Prize for the Best Graphical Presentation of Statistics.

As for the Senior Section, the statistical report from students of C.C.C. Ming Yin College was appraised as the best amongst all the projects. They applied statistics from multiple facets to study the mental health condition of Hong Kong citizens. Students of King's College won the Second Prize, while students of Wa Ying College won the Third Prize. Students of Good Hope School won the Prize for the Best Index Application, while students of Stewards Pooi Kei College won the Prize for the Best Graphical Presentation of Statistics.

I would like to take this opportunity to express my gratitude to all the members of the Organising Committee and the adjudicators of the 2018/19 SPC for their kind support. I would also like to thank the patrons of the Competition, Mr Leslie TANG, Former Commissioner of the Census and Statistics Department, and Mrs HONG CHAN Tsui-wah, Deputy Secretary for Education; the sponsor of the Competition, the Hang Seng Indexes Company Limited; as well as the Department of Management Sciences of the City University of Hong Kong which had also rendered financial support to the event.

◄ Teacher and Students from Stewards Pooi Kei College, First Prize winner of the Junior Section of the 2018/19 SPC, shared the memorable moment with the Patrons and Honorable guests.

► Teachers and students from C.C.C. Ming Yin College, First Prize winner of the Senior Section of the 2018/19 SPC, shared the memorable moment with the Patrons and Honorable guests.

Report on the Statistics Creative-Writing Competition for 2018/19

Dr Philip L.H. YU
Chairperson, Organising Committee of the Competition

The Hong Kong Statistical Society and Education Bureau jointly organised the Statistics Creative-Writing Competition (SCC) for Secondary School Students for the first time in 2009. The key objectives of the Competition are to raise the interest of students in statistics and its application; and to encourage students to creatively express in words the daily application of statistical concepts or incorporate statistical concepts into a story in a scientific and objective manner.

The 2018/19 SCC is the 10th round of the Competition. A briefing seminar was held on 27 October 2018 to give an introduction of the Competition for interested schools and students. The rules of the competition and our adjudication criteria were introduced during the seminar. Also, Mr CHAN Sau-tang of Education Bureau was invited to give an introduction on the theme topic "Statistics in Sports".

The 10th round of the SCC was completed with a total of 33 entries of Junior Section and 35 entries of Senior Section received. Altogether, 172 students from 22 schools participated in the Competition. An adjudication panel, which was led by Dr. CHEUNG Ka-chun of Department of Statistics and Actuarial Science, The University of Hong Kong and comprised colleagues from Mathematics Education Section of the Education Bureau, university teaching staff and professional statisticians, was set up for the Competition. Having undergone stringent scrutiny by the adjudicators, outstanding entries were selected for receiving the awards finally.

▲ Mr. CHAN Sau-tang introduced the theme topic "Statistics in Sports" in the briefing session of the 2018/19 SCC.

A prize presentation ceremony was held on 22 June 2019, jointly with the Statistical Project Competition (SPC) for Secondary School Students, at Auditorium, Christian Family Service Centre. The guests invited to officiate at the ceremony were Mr Leslie TANG, Commissioner for Census and Statistics and Mrs HONG CHAN Tsui-wah, Deputy Secretary for Education.

Apart from the champion, runner-ups, distinguished prizes and entry prizes, a thematic prize, named as "Department of Statistics & Actuarial Science, The University of Hong Kong Prize for the Best Thematic Writing", has been introduced since the 2011/12 round. The theme topics set so far are "Correlation", "Outlier", "Missing Data", "Linear Regression", "Survey Sampling", "Discrete Probability Distribution" and "Dispersion". In addition to this, the PolyU Hong Kong Community College has been sponsoring a new thematic prize since the 2014/15 round, namely the "PolyU Hong Kong Community College Prize for the Best Article Presentation" and the award will be given to the entry with the best presentation skills.

In line with the development of mathematics education in Hong Kong, and providing teachers with more references, booklets of winning entries in the SCC had been published. To enhance the overall quality of the booklets, the booklets also included several invited articles written by university professors, school teachers and statisticians from the Census and Statistics Department. We believe that through reading a series of interesting articles and creative stories in the booklet, many students will be able to gain knowledge of statistics and recognised how important the proper use of statistical concepts in analysing problems. The booklets are issued for free distribution to secondary schools and are available in the HKSS website for free download.

I would like to take this opportunity to express my gratitude to all the members of the Organising Committee and the adjudicators in the 2018/19 SCC for their help and support. Their strenuous efforts have undoubtedly contributed to enhancing students' statistical literacy and raising their interest in statistics. I would also like to thank the Department of Statistics and Actuarial Science of The University of Hong Kong and the PolyU Hong Kong Community College for sponsoring the prizes in the Competition.

◄ The winning team of the "PolyU Hong Kong Community College Prize for the Best Article Presentation" presented their project during the ceremony.

▲ Photo of the officiating guests with the Organising Committees of SPC and SCC for 2018/19.

關於父親的點滴

By Alex LAM, Son of Professor LAM

爸爸 1937 年生於福建福清縣，抗日戰爭期間曾與家人到處逃難，居無定所。爸爸也曾經有讀書不努力的時候，小學三年級時就曾經留級，在爺爺嚴厲教訓後，發奮開竅，終於連跳兩級，其後成績一直名列前茅，並於 17 歲考入北京大學數學力學系。不幸地，畢業那一年被打成右派，繼而被派到內蒙古鄂爾多斯伊盟師範學校任教，一教十五年，期間生活艱苦，但由於為人樂觀，經常和其他老師和同學天南地北，苦中作樂，游泳，滑冰，打橋牌，打乒乓球，書法，等都是那時候學會的。爸爸經常提起有關鄂爾多斯的兩件事：(1)他為了節約金錢，經常都用菜煮粥，煮一次吃一天，別人都叫他「林菜粥」。(2) 他將鮑里斯.帕夫洛維奇.吉米多維奇 (Boris P. Demidovich) 的數學分析裡的大部份問題集都做完了。在內蒙古的日子過得需然苦，但爸爸依然為了繼續深造的夢想，努力裝備自己。

1974 年，爸爸申請到香港陪伴病重的奶奶，跟隨爺爺在香港牆紙公司工作，一家住在倉庫裏。爸爸負責送貨，倉務，清潔，包裝，儘管工作辛苦，為了繼續深造的理想，一方面買了錄音帶學習自己一竅不通的英文，另一方面就在晚上到香港理工學院進修統計學高級證書課程，最後以全 A 成績畢業。後來在爺爺的支持下到英國帝國理工修讀統計系碩士學位 - 以下是父親親自描述的英國留學生活：

「倫敦一年：那是 1978 年 10 月初，我踏上英國土地的第一天，也是我到帝國理工學院學習的第一天。我剛剛離開了家，又遇上倫敦灰濛濛的陰天，心情更加不好受。但我已沒空去多想了，由於簽證的耽誤，學院已開課三天了，於是在匆匆報道之後，連和接機的朋友多說幾句感謝的話也沒有，放下行李，就直奔教室去上課了。

半個月後的一個晚上，夜已經很深了，我還是輾轉反側睡不着，困難啊！首先是英語關，聽力跟不上；其次是電腦，面對着終端機，一開始連 LOG ON 也不會，另外，一些人還以懷疑的眼光看着我，到底行不行？我想到，到 78 年為止，解放後中國的大學生到西方留學的還不多，我是其中幸運的一個。要為中國人爭氣，不能給北大丟臉。自己呢？固然有短處，也有優勢，北大幾年的學習已經打下了良好的數學和統計基礎。於是決心大了，信心足了。

想當年，北大同學把星期天當做星期七，今天，為什麼不能呢？於是，外國同學一星期是五個工作天，我是七個工作天。聖誕節人家開舞會通宵達旦，我參加電腦學習班；復活節不少人去歐洲或蘇格蘭旅遊，我用來復習準備考試。

子日：「三人行，必有我師」。學問學問，一學二問，向老師、同學、向周圍的人虛心請教，得益匪淺。再問的過程中，既學了知識，又學了英文，真是一舉兩得。

皇天不負有心人，第二年五月，我終於順利通過了考試，而且名列全班第一，接着又完成了碩士論文，這論文後來還發表在著名的雜誌 Journal of the American Statistical Association 上。

一年之後，1979 年 9 月底，我得到了獎學金到曼徹斯特大學攻讀博士學位，我坐在北上的火車上，回憶了在倫敦的一年，自己深深地意識到：新的更艱巨的歲月又開始了。」

爸爸在 1981 年獲得的博士學位，1982 年得到新加坡國立大學的聘書，終於開始了他夢寐以求的教學和科研生涯，當時他已經是 44 歲了。

爸爸的前半生可謂一波三折，他用了無比的毅力和意志的改變了後半生。爸爸在中文大學統計系教書的時候，經常會帶我回學校，往返學校時無論是在巴士上或火車上，他都會拿出教案或書本認真觀看，他說這樣可以每天節約兩小時，追回之前那些年失去的光陰。為了與時間競賽，他訂下了一年要發表兩篇論文的目標，為了這個目標，他經常和挑燈夜讀，偶然，他會與我分享他在晚上解決了學術問題的喜悅。

我很懷念我爸爸，印象中的他總是穿著整齊的襯衣，西褲，腳踏黑色功夫鞋，當他在百萬大道上行走的時候，總是低著頭，好像是在思考問題。我懷念他帶著我由辦公室走路到范克廉樓的飯堂吃飯，他會直接走到廚師的面前點最便宜的飯：「時菜肉片飯多時菜，唔該。」廚房的師父都認得他。

爸爸於 1999 年在中文大學退休後，曾經到過不同的大學做訪問學人，我知道他是快樂的，因為每一張他在教書的時候所拍的照片和在每一所大學所拍的照片，他都是那個笑容滿面的林教授。

爸爸於 2013 年不幸身患危疾，經歷了一個一個有生命危險的手術，爸爸期間認識了天主，天主一次又一次的讓他奇蹟地康復，讓我們一家能多點的陪伴爸爸。這段日子有很多昔日中文大學的學生和同事都有常常探望爸爸，每次他都會感到非常的開心，有時候更會邀請我一起參加聚會。

在此，非常感謝香港中文大學統計系與我爸爸工作過的同事，幫助過我爸爸的朋友，還有感謝我爸爸的所有的學生。感謝你們與我們一起陪伴了爸爸。

爸爸於 2020 年 4 月 18 日主懷安息，享年 84 歲。我們永遠懷念你。

In memory of Professor LAM Yeh

By Professor LI Wai-keung of Education University of Hong Kong

I have known Professor LAM Yeh around 1982 when he arrived at the National University of Singapore with his family. In those days the four of us, Y K TSE, LAM Yeh, Fred LEUNG and myself used to play on Saturdays at the NUS Faculty Club. LAM Yeh would team up with Y K TSE while Fred and I would form the opposing team. It so happened that usually Yeh's team would be the winner at the end of the day.

Incidentally both Yeh and I left NUS after a short period of time. LAM Yeh left for CUHK and I for HKU. Yeh's career really kicked off after his return to Hong Kong. His research work on the geometric processes is really a useful and impactful breakthrough in the field which was recognised by the Natural Science Award from the Ministry of Education, China.

Shortly after his retirement from CUHK, LAM Yeh was appointed as an honorary professor at the Department of Statistics and Actuarial Science, HKU. He helped out at the HKU department by teaching (usually) two courses per year for almost 15 years. As Dr Simon KWOK has testified LAM Yeh's lectures were always clear, succinct and full of insights. The department could always count on Professor LAM Yeh in delivering high quality learning and teaching experiences to the students.

It is in fact all the more remarkable that LAM Yeh published 32 refereed papers since 2000, 44% of all his papers after retirement. Yet with all his achievements Professor LAM Yeh remained always friendly, humble and generous with his colleagues as well as his students. He will be very much missed and his legacy will be remembered by all of us.

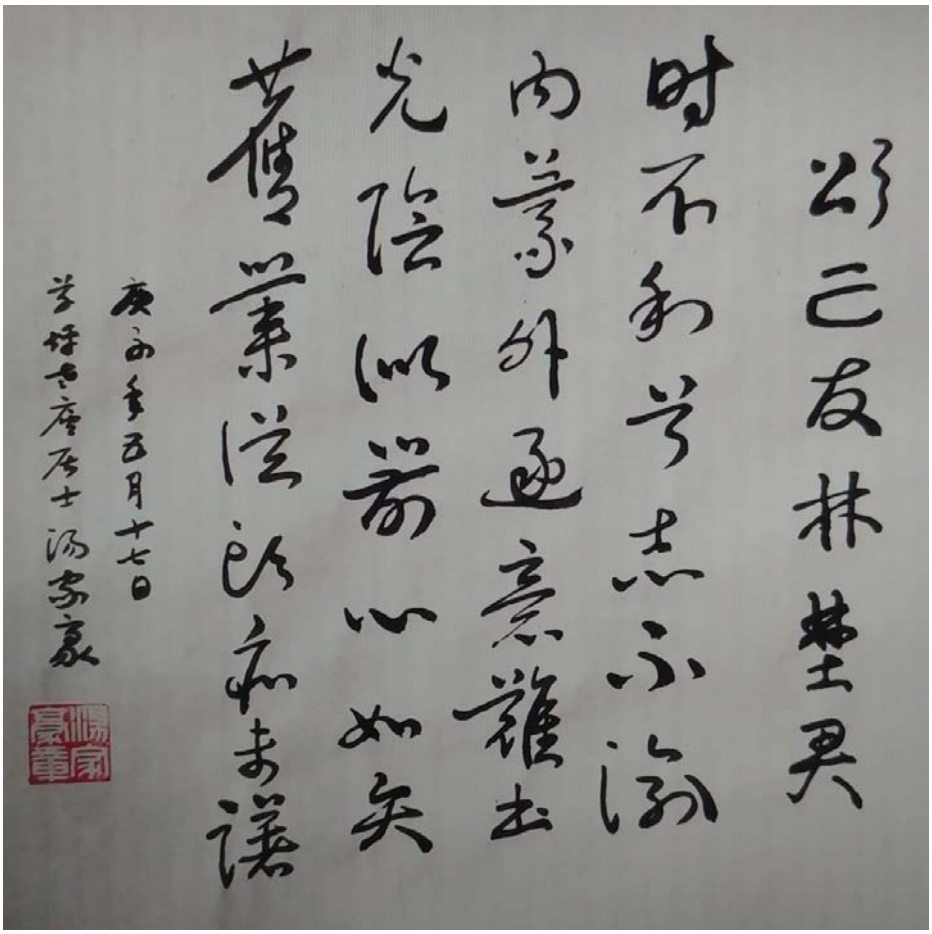
In Memory of Prof LAM Yeh

In memory of Professor LAM Yeh

By Professor Howell TONG

Distinguished Professor-at-large, University of Electronic Science and Technology of China; Distinguished Visiting Professor, Tsinghua University, China; Emeritus Professor, London School of Economics, UK

四十年老朋友不幸病逝。其一生多災多難：北大數學系高材生，恰畢業不逢時，因為出身問題，被點為右派，外逐內蒙多年。後轉輾來到香港，但鄉音過重，又不諳英語，故難找到合適工作，於是一邊在其父親的國畫、書法裱框工作坊工作，以積蓄金錢，另外一邊學習英語及其他。若干年後，中年隻身遠渡重洋，于上世紀七十年代末抵英，入曼徹斯特大學進修博士課程。林君曾修我當年開的隨機控制論課程，遂成朋友，凡四十年矣。今晨回憶老友一生為人，感慨萬千，情至筆到，遂成拙作，聊以記之。



時不利兮志不渝

內蒙外逐意難書

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舊業從頭亦未躇

NEWS

◆ Personnel Changes (New Appointments, Promotions and Retirements)

- Professor ZHANG Yan Dora joined the Department of Statistics and Actuarial Science of The University of Hong Kong (HKU) as Assistant Professor in July 2019.

- Professor ZHOU Zhixin joined the Department of Management Science of The City University of Hong Kong as Assistant Professor in July 2019.

- Professor LEE Yim-hong Lawrence joined the Department of Mathematics, Statistics and Insurance of The Hang Seng University of Hong Kong (HSUHK) as Professor (Practice) in August 2019. Professors LIU Kin-yat Kent and NG Wai-leong Tom joined the Department as Assistant Professors in August 2019.

- Professor LI Wai-keung joined the Department of Mathematics and Information Technology as Research Chair Professor and was appointed as Dean of Faculty of Liberal Art and Social Sciences of The Education University of Hong Kong (EdUHK) in August 2019.

- Dr. LO Man-fung joined the Department of Mathematics and Information Technology of EdUHK as Lecturer in August 2019.

- Dr. OUYANG Ming joined the Department of Statistics of The Chinese University of Hong Kong (CUHK) as Lecturer in August 2019.

- Professor WONG Tsun-yu Jeff joined the Department of Statistics and Actuarial Science of HKU as Research Assistant Professor in September 2019.

- Dr. CHAN Chun-man joined the Department of Statistics of CUHK as Lecturer in January 2020.

- Professor LI Chung-kwan joined the Department of Mathematics and Information Technology of EdUHK as Assistant Professor in January 2020.

◆ Public Seminar

The Hong Kong Statistical Society (HKSS) originally planned to organise a public seminar "The Statistical Analysis of Extreme Events" on 25 November 2019 but it was eventually cancelled due to unforeseen circumstances.

NEWS

◆ Social Activity

A hiking to Dragon's Back (龍脊) was jointly organised by the Society and the Association of Government Statisticians on 8 December 2019. A total of 24 members and their friends participated. All participants enjoyed the activity. Some snapshots are given here to highlight the enjoyable social activity.