Editorial

1. 2020, a remarkable year

The year 2020 is for many reasons a remarkable year; COVID-19 pandemic, Brexit, US presidential elections to name a few. For many of us it also has been a difficult year, with lock-downs and home office work, economic downturns and social activities substantially reduced. High quality statistical information on all these issues have become more important than ever. From that perspective I am very honored to welcome you to this fourth and very rich issue of Volume 36 of the Statistical Journal of the IAOS. This issue contains some 35 high quality contributions from authors from all over the world that will be introduced in the second part of this editorial. Beyond the four regular issues a supplement to this Volume will be published on 'Official Statistics in Africa'. The aim of this extra issue is also described in this editorial. Volume 36 (2020) also marks a record in the number of submitted manuscripts and authors involved, however, and that is even more welcomed, is characterized by an impressive number of contributions from authors from outside the core traditional regions of this journal. With the end of this remarkable year approaching I would like to start this editorial with expressing my thanks to all the authors, emphasis, guest and general editors and all the reviewers for the high commitment and dedication to the Journal and Official Statistics in general.

Again this issue of the Statistical Journal starts with articles on COVID-19. The huge impact of the pandemic on almost all economic and social achievements of the last decennia in developed and developing countries is becoming more and more visible. The pandemic blows up some issues to disproportionate size as other issues are taken back in their development for years. These are challenging times, where official statistics play an important role to inform policy makers, researchers and society in general. With in mind that sharing information and new insights between official statisticians will be most important for society in general and specifically within the group of those working in our profession, I invite authors to submit manuscripts that describe these current developments, from theoretical and empirical perspective and with emphasis not only on analytical results and their policy relevance but also on the quality of the data and the governance of the production processes. To support the exchange of experiences and knowledge, I repeat the invite to authors all over the globe to submit articles that statistically describe the differentiated effects of the pandemic and the effect on producing and disseminating statistics.

For submission of manuscripts the following link brings you into the submission system: https://www.iospress.nl/journal/statistical-journal-of-the-iaos/?tab=submission-of-manuscripts.

2. The impact of the COVID-19 pandemic on official statistics

In this issue three manuscripts deal with how COVID-19 is impacting the systems as for example the economic, social and health system. The article by Haishan Fu, Mark Hereward, Steve MacFeely and John Wilmoth '*How COVID-19 is changing the world: a statistical perspective from the Committee for the Coordination of Statistical activities*' details some of the key findings and reactions as described by the response to COVID-19 by the Chief Statisticians of the International Statistical System.

In the second article '*Censuses of agriculture and COVID-19: global situation and lessons*' Jairo Castano reviews the status of censuses of agriculture in 150 countries and territories and concludes that the impact of COVID-19 has not discriminated between developed and developing countries. However, it shows also how as a result of earlier improvements in ICT and use of new data sources in National Statistical Systems some countries have fared better than others when faced with the challenges posed by the pandemic.

The third article in this COVID-19 section by Edward Kissam, '*The Impact of the COVID-19 Pandemic on California Farmworkers: Better Local Data Collection And Reporting Will Improve Strategic Response*' shows how relevant and reliable statistical information about the impact of COVID-19 on vulnerable popu-

lations is a crucial weapon in effective public health system response. Kissam examines the reporting challenges confronted by local public health agencies based on a case study of farmworker communities of the San Joaquin Valley, Eastern Coachella Valley, and Salinas Valley. The analysis includes a quantitative estimate of the impact COVID-19 has on farmworker households and highlights how socioeconomic factors and housing conditions give rise to health disparities. The manuscript is an example of how the pandemic impacts on socio-politically marginalized populations and by emphasizing the challenges faced and lessons learned in the San Joaquin Valley region this analysis can be an example for similar studies for specific population groups in a wide range of countries.

3. Articles from the Asia-Pacific Statistics week

The second section in this issue with 13 articles, prepared by authors from the Asia-Pacifc region and stemming from papers presented at the Asia-Pacific Statistics week,[1] gives a glance on the progress in the UN ESCAP member countries in producing and disseminating official statistics. It also is a successful response to the 2019–2021 strategy for the Statistical Journal to gradually expand the number and origin of contributors from the currently non-core regions (non English speaking and developing countries). In the Guest editorial to this section Gemma Van Halderen introduces the aim and structure of the Asia-Pacific Statistics week, the work by regional organizations like UN ESCAP in supporting the development of official statistics in the countries in its region as well as the contributions by the individual authors. The sixth discussion at the SJIAOS discussion platform (www.officialstatistics.com) on '*Successes and challenges of regional cooperation and capacity building in Statistics: the example of the Asia-Pacific region*' , centers around innovations and transformations in official statistics production and dissemination in developing countries. The four statements are based on experiences from Asia-Pacific countries as reflected in this special section.

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[1] Asia-Pacific Statistics week is organized by UN Economic and Social Commission for Asia and the Pacific (UN ESCAP). The 2020 Asia Pacific Statistics week virtually gathered nearly 900 experts, development partners, academicians, official statisticians and various public and private stakeholders from 63 countries and territories around the world under the theme "*decade of action for the 2030 Agenda: Statistics that leave no one and nowhere behind.*"

4. Governing by the numbers: Data4Policy

A series of manuscripts in the Journal on the '*The future role of Official Statistics in the informational ecosystem*' was introduced in the December 2019 issue (Vol 35/4) with the opening article '*Governing by the numbers; Statistical Governance Reflections on the future of official statistics in a digital and globalized society*' (Radermacher, Vol 35/4, pp. 519–538). This opening article was accompanied by two articles and followed by five articles in the June 2020 issue (Vol 36/2) as well as a number of comments in the corresponding discussion on the discussion platform. In this issue this series on 'Data4Policy' will be continued with two more articles. This third block of articles will be introduced by a guest editorial by Walter Radermacher.

5. Manuscripts from IAOS Young Statisticians Prize 2020 (YSP 2020)

The IAOS YSP is an international prize, which is designed to encourage more young statisticians to take an active interest in official statistics, and is awarded for the best paper in the field of official statistics written by a young statistician. In the YSP 2020 competition the first place was awarded to Ms. Kenza Sallier (Statistics Canada) with her article "*Toward More User-Centric Data Access Solutions: Producing Synthetic Data of High Analytical Value by Data Synthesis*". In this article Ms Sallier describes how as part of the Modernization programme Statistics Canada has recently put forward data access solutions that present greater analytical value to Canadians while maintaining its core values of protecting confidentiality of respondents' information. The avenue explored for this is Data Synthesis as a means of delivering synthetic data with high analytical value to users. The synthetic data were generated using the R package synthpop. In the manuscript the methodology underlying Data Synthesis is presented.

The second place was awarded to Mr. Johannes Gussenbauer and Mr. Gregor de Cillia (Statistik Austria) with' *The R-Package surveysd: Estimating standard errors for Complex Surveys with a Rotating Panel Design*. The manuscript by Gussenbauer and de Cillia will be presented in the March 2021 (Vol 37/1) issue of the Journal.

The third place was awarded to "*Big Data, Differential Privacy and National Statistical Organisations*" by Mr. James Bailie (Australian Bureau of Statistics). In his paper Mr Bailie provides an introduction to Dif-

ferential Privacy for official statistics and discusses its relevance, benefits and challenges from a National Statistical Organisation (NSO) perspective. Differential Privacy (DP) has emerged in the computer science literature as a measure of the impact on an individual's privacy resulting from the publication of a statistical output such as a frequency table. He shows how DP, which are applied from a perspective encompassing the totality of the outputs generated from a given dataset. has advantages – like delivering an important interplay between the holistic privacy risk measures – but also poses a major challenge for NSOs in implementing it. This paper addresses two key DP research areas for NSOs: DP's application to survey data and its incorporation within the Five Safes framework.

A special YSP commendation for a paper from a developing nation went to: "*Household Consumption Allocation and the Collective Household Model: Children Share of Household Resources in The Gambia*" by Mr. Madi Mangan (The Gambia Bureau of Statistics). This article is also planned for the March 2021 (Vol 37/1) issue of the Journal.

6. Articles on diverse topics

6.1. Developments in the world of official statistics

In his article '*In search of the data revolution: Has the official statistics paradigm shifted?*' Steve MacFeely reflects on how to distinguish revolution from evolution in the chain of events or movements in the world of official statistics. Have they been sufficiently disruptive or transformational to deserve being called revolutionary? Taking the definitions of data revolution put forward by the Independent Expert Advisory Group on a Data Revolution for Sustainable Development (or data revolutionaries) in their report 'A World that Counts' and deriving a framework to identify and assess those definitions from Thomas Kuhn's work on the structure of scientific revolution, this paper investigates whether there has been a data revolution or not.

The manuscript by Onno Hoffmeister '*Development Status as a Measure of Development*' analyses in detail to which extent the classification of countries as 'developing' corresponds with their actual development level. By focussing on three broad concepts of a developing country, based on a review of the social sciences literature and an analyses of the degree of correspondence between those classifications and concepts, it tracks the emergence of the different development status classifi-

cation schemes (DSCSs) of international organizations and their evolution over time during the last 50 years. The results reveal that development status can be regarded as a fairly accurate measure of development.

6.2. Sustainable development goals, population census and income and wealth statistics

Pietro Gennari and Marcello D'Orazio describe in '*A statistical approach for assessing progress towards the SDG targets*' how five years into the implementation of the 2030 Agenda, still different methods are being used by leading international organizations for establishing the likelihood that the SDG targets will be achieved or not. They show how this leads to contradictory results and confusion among users and policy-makers, causing a missed opportunity for basing their policy measures on solid and coherent assessments. They focus on some of the different solutions proposed by leading international organizations, to address respectively the objectives of monitoring the current status of achievement of a specific SDG target, and assessing whether the SDG targets can be achieved by 2030. Gennari and D'Orazio propose a new generalized method for progress and status assessments, highlighting its advantages over the alternative approaches proposed, and demonstrate its application to a specific FAO indicator.

Vikas Kumar examines in '*Census laws and the quality of census data: The limits of punitive legislation*' India's Census Act from 1948 that provides the legal and administrative framework for conducting population censuses in the second most populous country and the largest democracy of the world. This article examines and identifies the structural flaws of the law vis-à-vis manipulation. His very interesting conclusion is that confidence-building measures, engagement with communities and transparency in operations seem to be more effective than legal punitive measures in addressing the trust deficit that drives competitive manipulation of government statistics.

Policymakers and healthcare service managers demand reliable, accurate and disaggregated information about child deaths at the sub-national level to plan and monitor healthcare service delivery and health outcomes. In support of this demand, the research as reported by Yegnanew Shiferaw '*Analysis of the spatial distribution of under-5 mortality rate in small areas of South Africa*' aims at providing reliable local municipality estimates of the under-5 mortality rate in South Africa. The paper used a small area estimation approach to improve the precision of local municipality estimates.

Pierre Lamarche, Friderike Oehler and Irene Rioboo in '*European household's income, consumption and wealth indicators*' are building on the argument that poverty indicators purely based on income statistics do not reflect the full picture of household's economic well-being. Consumption and wealth are two additional key dimensions that determine the economic opportunities of people or material inequalities. In their analysis they join consumption data from the Household Budget Survey to micro data from the European Union Statistics on Income and Living Conditions, using non-parametric statistical matching methods and, in a second step, with micro data from the Household Finance and Consumption Survey. Based on this data set, containing a common distribution of income, consumption and wealth variables, they produce a variety of indicators and in particular household saving rates. They argue, that even when there are some flaws in the data matching, these indicators have the potential to contribute to the analysis of inequality patterns and enhance the possibilities of social, and possibly fiscal, policy impact analysis.

6.3. Health statistics

According to the World Health Organization, 12 million deaths occur annually due to heart-related diseases. Thus, its early detection and treatment are of interest. In the article '*An overview of cardiovascular disease infection: a comparative analysis of boosting algorithms and some single based classifiers*', Nureni Olawole Adeboye and Olawale Victor Adeboya apply machine learning techniques to improve the timely prediction of cardiovascular diseases in suspected patients by comparing the efficiency of two boosting algorithms with four other single based classifiers on cardiovascular official data.

Jennifer Parker, Katherine Irimate, Van Parsons, Hee-Choon Sun, Bill Cai, Paul Scanton, Yuelei He and Kristen Miller (National Center for Health Statistics) report in '*Overview and Initial Results of the National Center for Health Statistics' Research and Development Survey*', that recruited web panels, with their lower cost and faster production cycle, in combination with established population health surveys, may be useful for some purposes for statistical agencies. Based on, among others, the examination of results of the use of close-ended probe questions and split-panel experiments for evaluating question-response patterns, their initial results indicate that web survey data from a recruited panel can be used for question evaluation studies without af-

fecting other survey content. They warn however, that understanding design features of the recruited panel (e.g. coverage and mode effects), the statistical methods and covariates used to obtain the original and adjusted weights and the health outcomes of interest, will impact the success of these data to provide estimates that align with those from large national surveys.

Statistical classifications are essential for collecting consistent data that can be compared over space and time. In the article '*Building a statistical classification: a new tool for classification development and testing*', Nicola Fortune, Richard Madden and Stephanie Short argue that a publicly documented body of practice concerning how to undertake the development and testing of a statistical classification is currently lacking. To answer on this demand they outline the development of a framework and model of an analytic structure for use in the development and testing of statistical classifications. It consists of two components: (1) a statistical classification development and testing framework reflecting the required features of a statistical classification; and (2) a 4-tier model representing the main elements that make up a statistical classification, to use as a heuristic structure within which to locate issues identified and consider how they can be addressed. They apply their model in testing a draft classification of health interventions.

6.4. Financial accounts

Bruno Tissot, Burçu Tunç, Cansu Gökçe Zeybek and Burcu Çakmak, describe in there article '*Using financial accounts – a central banking perspective*' how financial accounts have become an essential element of the System of National Accounts (SNA) drawing from the traditional description of real economic aggregates augmented to present information on financial flows and positions. They describe the important steps taken in recent years to refine this framework, with the goal of building 'integrated sectoral financial accounts'. They describe two areas in more detail. First to "fill" standard economic accounts with better-quality, more comprehensive and flexible data sets large data collections have been undertaken since the 2007–09 Great Financial Crisis. The second issue is to highlight how these statistics can be useful and support public policy.

6.5. Statistical techniques and methodology

Traditionally, producing an overview of innovative companies in a country is done by sending a question-

naire to a sample of companies. Piet Daas and Suzanne van der Does show in their manuscript '*Detecting Innovative Companies via their Website*', an alternative approach; determining if a company is innovative by studying the text on its website. Based on the texts of the websites of companies included in the Community Innovation Survey of the Netherlands, they report that their text-based model was able to reproduce the result from the Community Innovation Survey and was also able to detect innovative companies with less than 10 employees. Issues like model stability, model bias, the minimal number of words extracted from a website and companies without a website were found to be important in producing high quality results. The manuscript discusses how these issues were dealt with.

In '*The estimated Parameter of Logistic Regression Model by Markov Chain Monte Carlo Method with multicollinearity*', the authors Autcha Araveeporn and Yuwadee Klomvises, compare the results of applying the Markov Chain Monte Carlo (MCMC) method and the maximum likelihood method to estimate the parameter on the logistic regression model by differential the log-likelihood function on the estimator. The simulation study aims to compare the maximum of predictive accuracy and shows that MCMC satisfies all simulated situations.

The article by Paulina Pankowska, Daniel L. Oberski, Bart Bakker and Dimitris Pavlopoulos, '*Reconciliation of inconsistent data sources using hidden Markov models*', discusses how National Statistical Institutes (NSI's) can use hidden Markov models (HMMs) to produce consistent official statistics for categorical, longitudinal variables using inconsistent sources. They argue that there are two main challenges in applying this technology. First challenge relates to linking the sources on the micro level needed for the reconciliation of inconsistent sources with multi-indicator HMMs, though, the analysis shows that this does only lead to (substantial) bias linkage errors bias in very extreme scenarios. The second challenge relates to the complicated and expensive procedure in estimating HMMs regularly and solving this via using the error parameter estimates as a correction factor for a number of years as this might result in biased structural estimates if measurement error changes over time or if the data collection process changes. The analysis shows that the measurement error parameters are largely stable over time if no major changes in the data collection process occur. Based on this they conclude that the results are highly encouraging and imply that the suggested method is appropriate for NSI's, with as a warning that when the data col-

lection process changes, such as a switch from dependent (DI) to independent (INDI) interviewing, re-using measurement error estimates is not advisable.

6.6. *Statistical disclosure control*

Secure remote research facilities to provide access to sensitive data for research and analysis depend on human intervention. Some agencies are concerned that the operational requirements of these interventions are too onerous for practical implementation, despite having statistical advantages. In the article '*Runners, repeaters, strangers and aliens: operationalising efficient output disclosure control*', the authors Kyle Alves and Felix Ritchie argue that the choice of the output checking procedure to ensure that research outputs do not breach statistical disclosure control (SDC) rules, should be seen through an operational lens, rather than a statistical one. Starting from the conceptualization of customer demand from the operations management literature, they demonstrate that principles-based output SDC addresses user and agency requirements more effectively than other approaches, and in a way which encourages user buy-in to the process. They also show how the principles-based approach, as it improves both confidentiality protection and utility of outputs, aligns better with the statistical and staffing needs of the agency.

7. SJIAOS discussion platform

In August 2019 the Statistical Journal of the IAOS launched the on-line platform for discussion on topics of significant relevance for official statistics (www.officialstatistics.com) as part of the SJIAOS website. The discussion platform invites to contribute to important discussions at a time of own choosing. With each release of an issue of the Statistical Journal, a new discussion topic is launched via a leading article or based on a section in the Journal. Each discussion runs for a year and is closed with a concluding commentary by the article author(s).

The fist discussion was launched with a special session at the ISI World Congress in Kuala Lumpur, Malaysia, and centered around statements taken from the article '*You say you want a [data] Revolution: A proposal to use unofficial statistics for the SDG Global Indicator Framework*' by Steve MacFeely and Bojan Nastav, published in the September 2019 issue (Vol 35/3). In this issue you will find the closing discussion follow-up paper '*You say you want a [data] Revolu-*

tion': Reflections one year on', where the authors Steve MacFeely and Bojan Nastav look back over the year since the launch, summarize the online debate, highlight some other relevant papers, and reflect on where the discussion rests today.

The third discussion on the SJIAOS discussion platform was launched in March 2020, and focussed on the Population and Housing Censuses: *'Population censuses; are statistical dinosaurs able to adapt?* The statements were based on the special issue of the Statistical Journal on Population and Housing Census round 2020 (March 2020, Volume 36/1). The discussion invited to react on questions like if the census should be defined by its unique methodology or are the outputs the main element of its definition? If the criteria of individual enumeration, universality, simultaneity, defined periodicity, and capacity to produce small-area statistics, are still that relevant as essential features of a census? On the necessity of a census methodology the theoretical soundness of the register based census is questioned. The readers were also invited to give an opinion on to what extent the limited use of census results, in particular for evidence-based policy making, is still worth the huge cost? The second article in this issue '*Of science and statistics: the scientific basis of the census*' (SJIAOS, Vol 36/1, pp. 17–34) by Alphonse MacDonald resulted in a rich discussion on the platform on the theoretical base of a census based on administrative sources and registers. Anders Wallgren and Britt Wallgren contributed in a comments to this discussion. Considering the importance of contribution it is also printed in this issue '*Comments on the scientific basis of the register-based census'*.

8. The Extra issue "official statistics in Africa' (Vol 36/supplement)

The bi-annual IAOS Conference planned for 19–21 May 2020 to be held in Livingstone, Zambia, has been postponed (new date not yet available at time of preparing this issue) due to the Covid-19 pandemic. As African official statistics have gone (and are going) through a process of change and fast development the conference was expected to specifically result in contributions from African Statistics and would mark a milestone in Official Statistics for Africa. To not loose the momentum it was decided to go ahead with an extra issue of the Journal celebrating this special event. Fifteen manuscripts from some 35 authors from the African region have been submitted for this extra issue.

A team of guest-editors (Gary Dunnet, New Zealand; Badia Ettaki, Morocco; Ben Kyregera, Uganda; Hugues Kouadio, Ivory Coast; James Whitworth, UK/Greece) together with the editor in Chief have worked in preparing and editing this extra issue. The extra articles will be pre-published (on-line) on the Journal's website and it is expected that the paper issue of the Journal will also be available in December 2020.

I wish you pleasant readings of the interesting articles.

9. Some words about the next issue (Volume 37 (2021), Issue 1). The next two issues of the journal are already in full preparation

The March 2021 issue (Vol. 37 (2021), Nr. 1) will be an issue with several sections, each containing 4 to 8 articles. The issue will again start with manuscripts that describe statistical elements of Covid-19. It will contain a section with papers from the UN Chief Statisticians network on Nowcasting edited by Steve McFeely; a first set of manuscripts prepared for the (canceled) Quality in Statistics conference 2020 (Q2020); a section on Agricultural statistics with manuscripts based on papers from the 2019 International Conference on Agricultural Statistics (ICAS) conference in New Delhi, edited by Linda Young (NASS); a fourth block of articles on "The future role of Official Statistics in the informational ecosystem", selected and edited by Walter Radermacher. Further there will be in this issue two remaining award winning manuscripts from the 2020 IAOS Young Statisticians Prize (2020 YSP). The issue will contain further a range of other manuscripts dealing with a diversity of other topics. The march 2020 issue will also have the closing manuscript of the second SJIAOS discussion: *Why should there still be a need for elaborate official statistics in the future*? See www.officialstatistics.com.

Of course there are always slots for other manuscripts; authors are kindly invited to submit their manuscript to https://www.iospress.nl/journal/statistical-journal-of-the-iaos/?tab=submission-of-manuscripts.

10. Guest editorial teams working on two Special Issues for 2021

Beyond the regular issues with a diversity of manuscripts, there are for the coming one and a halve year two Special Issues planned. A guest editorial team

has started preparing a Special Issue on 'New developments in statistical training and Data Science' and another team on 'New developments in Statistical Capacity Building'. The teams are still in search for additional authors and manuscripts, so, do not hesitate to inform me when you have a manuscript or idea for a manuscript for these specials. (pevssjiaos@gmail.com).

11. The Covid-19 pandemic and new ways of soliciting manuscripts

The Covid-19 pandemic has substantially changed the international conference agenda. Conferences are canceled or postponed (or organized virtually. As for many other research fields the cancelation or change of format of the international conferences has an important impact. Many Journals (also SJIAOS) are partly based on the active soliciting by the editors of articles on important and relevant new developments via the participation in conferences, networking and observing presentations listening to peers etc.

Virtual conferences are more and more seen as a good alternative. In general it is easier to participate in a virtual conference (from home, no traveling costs, etc.). However the oversight and flexibility for the editor in chief will be substantially restricted compared to walking around and switching sessions in physical conferences, and this risk that Journals will – to a lesser extent than before – be able to catch at an early stage important developments. New ways to solicit manuscripts are experienced. The editorial board of SJIAOS is inviting all readers, the editors and reviewers and other interested not to hesitate to send important papers and manuscripts for review. The editor in chief and editorial boards members will also, more than before, try to be involved at an early stage in discussing contributions from the virtual conferences.

https://www.iospress.nl/journal/statistical-journal-of-the-iaos/?tab=submission-of-manuscripts.

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Editor in Chief
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