

## Editorial

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### 1. Charting the Course for the Next Biennium

This is for me the first issue as Editor-in-Chief of the Statistical Journal of the IAOS (SJIAOS). This big responsibility was handed over to me during the recent ISI World Statistics Conference in Ottawa by the outgoing president of the International Association for Official Statistics, Misha Belkindas. I am really grateful to him and to the members of the Executive Committee of the IAOS for the trust they have bestowed upon me. I would also like to thank Pieter Everaers, the outgoing Editor-in-Chief, not only for the exceptional and inspirational work done for the Journal, but also for his guidance and efforts in helping me become familiar with the SJIAOS community, the editorial procedures and the new submission system. I am very committed to maintaining the high-quality standards of the SJIAOS contributions as well as to expanding further its authorship, audience and visibility. Of course, the key to the success of my endeavor relies in the willingness of the community of official statisticians around the world in providing high-quality articles for publication in the Journal and in the collaboration of the emphasis editors in organizing a rigorous peer review process of the manuscripts.

In this editorial, my aim is to outline the strategic directions that I am committed to implement in the next biennium in order to support the IAOS mission, by publishing articles that “promote the understanding and advancement of official statistics and foster the development of effective and efficient official statistical services on a global basis”. In this regard, a strong alignment will be sought with the IAOS strategy, particularly with the directions of the new President and Executive Committee members of the IAOS elected for the term 2023–2025. An interview with Dominik Rozkrut, with his proposals for the IAOS Strategic Plan is published in this issue of the Journal.

In embarking on this journey, it is crucial to recognize the transformative landscape in which official statistics operate and the challenges and opportunities that lie ahead. With the relentless evolution of technological advancements, changing data ecosystems, and new global challenges, it is essential that we chart a far-

sighted course to maintain the relevance and credibility of the SJIAOS. The Journal should be used more and more as a reference and a voice for official statisticians throughout the world. At the same time, the Journal should reach out to non-official statisticians and become a source of knowledge for non-experts.

These objectives will be pursued, first, by promoting the debate on emerging crosscutting topics of general interest in official statistics, such as data stewardship and the new role of National Statistical Offices; data governance and new data providers; data ethics and trust. In addition, interdisciplinary cross-fertilization will be fostered by actively encouraging discussions on issues that bridge statistical methodologies with other fields, such as history, sociology and economy, and facilitate a deeper understanding of complex societal challenges.

Concurrently, the journal will promote methodological advancements in official statistics striving to remain at the forefront of statistical methodology. Submissions that present innovative approaches, techniques, and tools that can enhance the quality and efficiency of official statistics will be actively sought. Statisticians and researchers will be encouraged to contribute articles on cutting-edge topics such as big data analytics; the use of data science, artificial intelligence and machine learning; new data visualization techniques; integration of different data sources.

Various initiatives will be undertaken to maintain and, if possible, further strengthen the quality of the Journal. The list of Emphasis and General Editors will be updated trying to better cover new disciplines and achieve a greater geographic and gender balance. On the other side, efforts will be made to further expand the pool of contributors, reaching out to authors from developing countries. Nonetheless, the scientific level of the contributions will be ensured by organizing a rigorous peer review process. Within this context, the IOS Press has recently initiated a process for getting the scientific rating of the Journal that should make publishing in it more attractive for authoritative contributors.

A strong emphasis will be dedicated to further expanding the audience and visibility of the Journal. The

SJIAOS website, which was launched in 2019 and is currently attracting many viewers, will be regularly updated and enriched with discussion forums and social media campaigns. Special issues of the Journal will continue to be organized to draw the attention of expert communities in specific statistical fields. More generally, a stronger engagement of the community of official statisticians at national and international levels will be ensured by inviting all the heads of national and international statistical organizations to promote the use of the Journal within their Institutions.

Finally, yet importantly, open access and reusability will be promoted, embracing FAIR and Open Science Principles. This issue was recently discussed at a Special Invited Paper Session on “New Developments in Science Publishing in Official Statistics (Open Data, FAIR Publishing, and the Challenges for Science Publishing to Stay Relevant)” during the ISI WSC in Ottawa. How can the SJIAOS become more FAIR?

Currently, the SJIAOS provides free access to about 30% of the published articles. Otherwise, articles can only be accessed by paying an annual subscription or a fee for each paper. In the coming biennium, we will strive for greater adoption of open-access principles, ensuring that research findings and data are accessible to all. This, however, implies a change in the business model of the Journal, transitioning from a model where users pay to a model where authors pay, which is the approach followed nowadays by the majority of scientific journals. In this case, in fact, the IOS Press will have to recover the lost resources from authors or their Institutions. Charging authors, however, is likely to reduce their number, even if the Journal gets and maintains a high impact factor. Especially young statisticians and authors from developing countries are likely to be more affected by this business model, as these contributors, not having sufficient monetary means, may not have the same opportunity to publish. An alternative is to raise the necessary resources from national and international statistical organizations that “sponsor” the publication of the Journal and, in this way, promote research publishing by official statisticians in their institution and beyond. This is an issue that will require further discussion and testing of different business models in order to find a solution that can contribute to ensuring greater access to research findings and, at the same time, unchanged revenue for the publisher.

Regarding the implementation of the other FAIR principles, the Journal should improve, together with its accessibility, its findability, interoperability and reusability. Coding each manuscript according to a set

of keywords should allow classifying the articles, easily finding them and comparing the results with similar studies. In addition, ensuring virtual access not only to papers but also to referenced data sets, graphs and tables through hyperlinks will have many benefits. On one side, it will promote reproducibility and therefore bolster the credibility and verifiability of research published in the SJIAOS; on the other side, it will facilitate reusability, promoting collaboration and interdisciplinary research, scientific advancement, data-driven decision-making, transparency and accountability.

## 2. The content of this issue

### 2.1. Interviews

This issue of the SJIAOS starts with two interviews.

The first interview, carried out by Pieter Everaers, is with Dominik Rozkrut, the new President of the IAOS for the biennium 2023–2025. In this interview, we learn more about Dominik’s professional background, his experience as an official statistician and the initiatives undertaken as President of Statistics Poland during the COVID-19 pandemic and the war in Ukraine. We also get to know in more detail his plans as President of the IAOS, supporting its mission to build and maintain trust in official statistics.

The second interview, conducted by Ivo Havinga, is with Reimund Mink, a former employee of the European Central Bank. Dr. Mink recently published the book “*Official Statistics – A Plaything of Politics?: On the interaction of Politics, Official Statistics, and Ethical Principles*” which provides a detailed account of the cases of unacceptable and unethical political interference in the production of official statistics he experienced in his professional career as a government finance statistician, not only in the European context but also in some non-European countries. The book is also a rich source for dedicated reflections and lessons on the relationship between human rights and the implementation of the UN Fundamental Principles of Official Statistics.

### 2.2. The Impact of COVID-19 on Official Statistics

The second section of the Journal is dedicated to “The Impact of COVID-19 on Official Statistics”, a topic featured in every issue since 2020. The article contained in this issue “*The post-pandemic new normal for central bank statistics*” by Saira Jahangir-Abdoelrahmana (Central Bank of Suriname) and Bruno Tissot (Bank

for International Settlement- BIS), shows how central banks' are fundamentally rethinking the way data should be produced and used in the "new normal" state after the pandemic. Drawing on the various presentations made on the occasion of the 11th Biennial Conference of the Irving Fischer Committee on Central Bank Statistics (IFC) on "Post-pandemic landscape for central bank statistics", hosted at the BIS in Basel in 2022, the article underlines the need for central bank's statisticians to rely more heavily on data science, make a better use of the large amount of micro-level information available in today's modern societies, adapt statistical frameworks to meet evolving policy objectives and user needs, and continue to closely cooperate with other relevant stakeholders.

### 2.3. Domain-specific

The third section collects six articles on different Specific Statistical Domains. In "*Beyond the binary: Sex and gender diversity in population projections*", Peta Darby and Rachel Jeffreson (both from the Australian Bureau of Statistics) discuss the implications for population projections of using categories that go beyond the woman/man distinction and that can change over time. In doing so, they consider implications for base population estimates, births, deaths and migration. After describing existing Australian and international approaches to data collection they conclude by outlining possible future directions for producing population projections that consider sex and gender beyond the binary.

The second article of this section is "*How to improve mortality statistics nationally and internationally?*" by Mika Gissler (THL – Finnish Institute for Health and Welfare). Cause-of-death statistics are a core element of official statistics that provide essential information for policy actions in the field of public health. Nonetheless in many countries data collection on the causes of death is still voluntary. The author describes the register-based information system for mortality statistics long adopted by Nordic countries, its evolution towards increased inter-country comparability and its advantages in providing high-quality and timely health statistics.

In "*What holds us together? Measuring dimensions of social cohesion in Canada*", Samuel MacIsaac, David Wavrock and Grant Schellenberg (all from Statistics Canada) discuss the multi-dimensional latent concept of social cohesion and its key measurement issues. Using factor analysis and data from Statistics Canada's 2020 General Social Survey on Social Identity, this

study identifies nine key constituents of social cohesion. The probabilistic classification of individuals in classes using latent class modelling provides valuable insights into social sorting mechanisms and how this extends to cohesiveness within Canadian society.

In "*Investigating the effect of inflation on the consumption pattern of Iranian households*" Abbas Moradi, Mina Mansouri, Ayoub Faramarzi and Kaveh Kiani (all from the Statistical Research and Training Center of Iran), combine big data on prices and data from the household income and expenditure survey to study the impact of inflation on households' consumption patterns at different geographical level in Iran. Soft clustering (fuzzy clustering) techniques are employed to classify Iranian household types and data mining techniques are employed to discover and extract consumption patterns for each cluster. The results obtained for the period 2011–2021 show a significant and increasingly higher gap in the purchasing power between the households with the lowest and highest income.

In "*War and Peace: Structural changes in the U.S. industries 1939–1958*" Kazusuke Tsujimura (Keio University) and Masako Tsujimura (Rissho University) revisit the early development of structural analysis and apply it to 1939, 1947 and 1958 U.S. input-output tables, using triangulation and dispersion indices as fundamental tools. The degree of economic integration represented in the Leontief inverse matrix significantly increased as the division of labour progressed in the time of war to achieve maximum productivity. The structural changes ensured a smooth transition of the American economy from peacetime to wartime and later, as well as the fast rebuilding of European economies that had been completely devastated during the war.

The last article of this section is "*Complementary approach to the analysis of countries' participation in global production networks*" by Aleksandr Osaulenko, Andriy Krysovaty, Iryna Zvarych Nataliia Reznikova, Oksana Brodovska and Ihor Krysovaty (all from various Ukrainian Institutions). In order to study the participation of countries in global production networks in the EU context the authors analyze the complementarity index as an indicator that reflects the trade structure of partner countries, or how far the goods exported by one country complement the imported goods of another country. The index is applied first to the trade relations between Ukraine and the group of EU-27 countries and then between Ukraine and single EU countries. The results for the year 2021 show that the index of complementarity between Ukraine and EU-27 is still relatively low and that there is potential for further increases of the

trade flows. Within this context, the EU countries which show the highest complementary structure of trade relations with Ukraine are mainly East European countries, such as Hungary, Latvia, Poland and Romania.

#### 2.4. *Data Sources, Statistical Methodologies and Techniques*

The fourth section of the Journal addresses topics related to “Data Sources, Statistical Methodologies and Techniques” covering various challenges faced by official statisticians in the various stages of the statistical production process.

The first article “*The perils of pre-filling: lessons from the UK’s Annual Survey of Hours and Earning microdata*” is by Damian Whittard (University of the West of England), Felix Ritchie (University of the West of England), Van Phan (University of the West of England), Alex Bryson (University College London), John Forth (University of London), Lucy Stokes (NIESR) and Carl Singleton (University of Reading). They use the microdata from the UK’s ASHE to test whether the use of prefilled forms may create inaccurate values in one of the key fields, i.e. workplace location, despite there being no direct evidence of it in the data supplied to researchers. Results obtained demonstrate that a high proportion of employees working for multi-site employers who participate in the ASHE survey (having their work location) are more likely to have their work location incorrectly recorded (being this information prefilled) than electronic submissions from employers. More generally, the article advocates for a greater use by national statistical institutions of microdata to verify the quality of survey data and ultimately change the data collection process itself, especially now that statistical budgets are under increasing pressure.

Christine Oehlert (Internal Revenue Service of the US) in “*Accuracy and Errors in Self-Assigned NAICS Codes in Tax Return Data*” demonstrates that a high proportion of the North American Industry Classification System (NAICS) self-reported codes on two kinds of business tax forms are misspecified and that the errors are not at random as many businesses, especially of the service sector, either do not fit neatly into one production process or do not define themselves by the production process. These findings might prove useful in evaluating results’ sensitivity to sector misspecification or in adjusting error estimates to account for it.

In “*Testing for financial bubbles in the presence of auto-correlated errors*”, Harsha Sa and Ismail Bb (both from Mangalore University, India) propose the adoption

of a new test, the rolling Max Supremum Augmented Dickey-Fuller (MSADF) test, as the best procedure to detect bubbles in financial time series, under the assumptions of auto-correlated innovations. In order to assess its performance, they compare the results of the MSADF test with alternative tests for identifying financial bubbles in the quarterly time series from 1970 to 2018 of house price-rent ratios of four countries. The simulation study and empirical findings provide evidence that the rolling MSADF test outperforms other tests even if the time series is auto-correlated.

The fourth article “*Compiling an inclusive growth index: Methodological challenges, considerations and conclusions*” is by Nour Barnata (Manouba University), Steve MacFeely (WHO), Fernando Cantu (UNIDO), Anu Peltola (UNCTAD), Anastasia Khazhgeriev (UNCTAD), Andrey Panteleev (EEC) and Nikolay Ryabtsev (EEC). The authors developed a first prototype of a composite index measuring inclusive growth and people’s quality of life tailored to the Eurasian region. Building on the ongoing “beyond GDP” debate, this paper summarizes the conceptual objectives and some of key methodological challenges and considerations faced in compiling such an index. A brief outline of results and future work is also provided.

The fifth article “*Small area estimation of household expenditure on insurance programs for minimizing the impact of natural disasters in West Java, Indonesia*” is by Bagaskoro Cahyo Laksonoa, Novia Permatasaria (both from Statistics Indonesia – BPS), and Ika Yuni Wulansari (University of Technology Sydney). The authors focus their attention on West Java, one of Indonesia’s Provinces with the highest disaster risk index, to estimate household participation in insurance programmes by district and city. Applying the Fay-Herriot model with logarithmic transformation to the National Socio-Economic Survey (SUSENAS) data for March 2019 more precise results of household insurance propensity at territorial level are obtained than direct estimates. These results demonstrate that there are ample margins to increase the insurance participation rates in most districts of West Java (with respect to the standard value for developing countries) in order to reduce losses from natural disasters.

The last article of this section is “*First steps towards improving official statistics data accessibility in Mexico: Query expansion with neural networks and ad-hoc space vectors*” by Alejandro Pimentela, Oswaldo Díaz, Elio Villaseñor (all from INEGI) and Jose-Luis Marquez (Universidad Carlos III de Madrid). Mexico’s National Institute of Statistics and Geography (INEGI)

plans to improve its information search service with the aim of increasing the accessibility of official statistics. The upgraded search engine will have the capability to conduct intelligent searches using ad-hoc terms related to the text searched. To achieve this, the system will utilize distributional word representation systems based on neural networks. The evaluation survey carried out on a group of selected users confirmed the higher performance of the new search engine, providing important input for future developments of the dissemination strategy of the institute.

### 3. SJIAOS Discussion Platform

#### 3.1. Launch of the 17th discussion

With the release of this issue of the Journal (September 2023), the 17th discussion “*Artificial intelligence: an opportunity, a challenge or a threat for official statistics?*” will be opened. Readers are invited to

provide their opinion on the impact of AI on the production and, especially, on the use of official statistics. Will AI create new possibilities for official statisticians to generate high-quality data and results and allow users to quickly access the official statistics produced? Will the Official Statistics community establish platforms that will guarantee the independence and quality of these data, as these are known from traditional production processes of official statistics? Or will AI based on the enormous amounts of data available outside the direct oversight of official statistics lead to an uncontrolled avalanche of information, that depending on the user’s intentions can be used properly or on the contrary, be misused?

The readers are invited to react to a series of statements on this issue, but are also free to give their overall opinion on this issue.

The discussion will be opened around mid-September on the SJIAOS discussion platform ([www.officialstatistics.com](http://www.officialstatistics.com)).