DETAILED CONFERENCE PROGRAMME (DRAFT as of 3 April 2023)

Contents

Day 1: Tuesday 4 April 2023

Time: 9.00 – 11.00

Plenary – Opening ceremony.
Opening remarks: Mr. Mulenga JJ Musepa, Statistician General, Zambia Statistics Agency **Chair**: Mr. Misha Belkindas, President, International Association for Official Statistics (IAOS) 1. Mr. Stephen Penneck, Director, International Statistical Institute (ISI) /Mr. John Pullinger, Former President, International Association for Official Statistics (IAOS) 2. Ms. Amina J. Mohammed, United Nations Deputy Secretary General 3. Minister of Finance and National Planning of Zambia 4. Keynote speaker: Prof Ben Kiregyera, Founding Director, African Centre for Statistics, United Nations Economic Commission for Africa

Time: 11.30 – 13.00

Parallel Sessions #1
Time: 11:30-13:00:

Room 1: Giraffe
Session R1.1 (Contributed Paper Session)
Chair: Mr. Oliver Chinganya, Director, African Centre for Statistics, United Nations Economic Commission for Africa

C1.2. The 2022 Population and Housing Census (PHC) conducted in Tanzania, what Lessons and challenges can be learned and addressed?
Titus Mwisomba
Abstract: On the assumption of achieving the objectives of Agenda 2063 as well as the SDGs 7, the objective of universal access to electricity by 2030. This assumption requires greater coordination between the institutions involved in its materialization. With the implementation of the Impact of Access to Sustainable Energy Survey (IASES), to be carried out by the National Institute of Statistics of Mozambique (INE), the Statistics Services of Tanzania (NBS) and the Statistics of Norway (SSB), an opportunity opens up to understand the scope of the intervention of the institutions, as well as understanding how to maximize their articulation. In order for it to be a facilitated process, the institutions responsible for the expansion of the electricity grid must outline strategies for materializing the project by 2030 according to the SDGs. For this, financial resources must be mobilized with cooperation partners or with funders as well as non-governmental organizations.
Through the results of the survey on sustainable energy, stakeholders will have information available on the level of access to electricity of households, the capacity to consume electricity, for lighting and for cooking, as well as energy sources for lighting and cooking, the quality of services provided, among other indicators. This exercise requires a large financial effort and strong coordination between the entities involved in the project. With this range of information, decision makers will be in a better position to make a more concerted assessment of the investments to be made, being able to maximize the allocation of funding, bringing benefits to the country in order to reduce the tax burden. The IASES results can also help to identify training gaps and develop projects in the face of new technologies and for the improvement of technologies that the market offers to successfully reach the objectives.

C1.4. CSPro Android Implementations in African Population and Housing Censuses: Observed Opportunities and Challenges
Oliver Fischer
By Mr. Oliver Fischer, Chief, International Programs Center United States Census Bureau Suitland, MD – USA oliver.p.fischer@census.gov

Abstract: Recent expansion in mobile connectivity and progress in technological innovations (such as cloud computing, smart mobile devices, global positioning systems (GPS), and use of satellite imagery) have provided new opportunities for National Statistical Offices (NSOs) in conducting Population and Housing Censuses. Many African NSOs are at the forefront of adopting these new technologies in the 2020 round of Population and Housing Censuses, replacing paper questionnaires with electronic ones. Observed benefits include reduced data collection and processing time, enhanced and prompt feedback between enumerators and the central backstop team, and improved data quality. However, this transition also carries with it some unique challenges, such as equipment cost and care, device-specific user training, and data security.

The US Census Bureau's International Programs Center has developed a number of public domain tools and provided capacity-strengthening training to NSOs around the world in the implementation of Computer-Assisted Personal Interviewing (CAPI) Population and Housing Censuses. The group's flagship product, CSPro Android, has been used to enumerate nearly half a billion people in censuses since its release in 2016. Drawing on IPC's extensive experience working with African NSOs in implementing CAPI censuses, this paper examines African NSO experiences with the use of new data capture technologies during the 2020 round of Population and Housing Censuses, discusses the institutional and national challenges encountered, and proposes innovative solutions to overcome
them.

C2.1. More efficient use of Household Consumption and Expenditure Surveys (HCES) to inform Food Security.

By Mr. Owen Siyoto, *Statistics Norway (Dr A Mathiassen, EC Kiøsterud) and COMESA Secretariat*

Abstract: THousehold Consumption and Expenditure Surveys (HCES) collect comprehensive information on a household's food consumption. There is a range of analysis of consumption patterns and deprivation analysis these data can provide. In particular, it is key to estimating poverty (SDG 1.2.1) and Prevalence of Undernourishment (SDG 2.1.1).

Before the food data are meaningful for analysis it needs comprehensive preparation and processing including checking, cross checking and imputations. While NSOs are responsible for the welfare and poverty statistics, it is often organizations or researchers that use the data for food security statistics. And although the preparation for these two purposes have a lot in common they rely on different traditions and guidelines. As a result, the welfare and food security statistics do not benefit from a joint preparation and cleaning of the microdata, which would be more efficient; could provide better quality data and ensure more timely production of important food security statistics.

This presentation explains results from an ongoing project that aims to bridge the gap between these two processes. The project's goal is that NSOs take the driver seat for also preparing the HCES food data for food security, and an expected result is that the food statistics will be

immediately available and used for more purposes. The project referred to includes; preparing a guideline for NSOs and others; build capacity in NSOs and use results in a regional context. The guideline is relying on existing guides and material which is refined and put together by a group of experts from various stakeholders. The guideline is prepared under the aegis of the UN Committee of Experts on Food Security, Agricultural and Rural Statistics (UNCEAG) and the aim are that these guidelines will be endorsed by the United Nations' Statistical Commission (UNSC). Further, the presentation discusses approaches for anchoring and integrating the processing of the food data for food security in an NSO based on experience in several African countries. Finally, it will show concrete examples on use of this data in a regional food context analysis by combining it with statistics on food production, import and export.

Zambia's perspective on 2022 E-Census
Mubita Sikufele

Abstract:

Room 2: Zebra
Session R2.1 (Panel session)
Chair: Emily Poskett, Head of International Development Team, Office for National Statistics (UK)

S2.1 Early experiences of delivering statistical leadership training within an African National Statistical Office

Abstract: Modernisation within the African National Statistical System is necessary: to harness the growth in new data sources, methods and technology; to deliver improved statistics to respond to the vast interdisciplinary needs; and to satisfy the demands of National and Regional Development Plans, Agenda 2063 and Agenda 2030 for Sustainable Development. To achieve this, individuals need to be motivated through a conscious effort of leaders and organisations. Without the proper leadership capabilities, staff with the most up-to-date technical skills and the best infrastructure will not be able to provide the timely data needed by policymakers and citizens. Therefore, the African Centre for Statistic (ACS)s at ECA, in partnership with the Office for National Statistics UK (ONS), has embarked on a programme to deliver leadership training to National Statistical Systems in Africa. This programme aims to equip national statistical organisations/systems with the skills required to lead them through programmes of statistical modernisation.
We would like to propose a session under strand 2, during which we would aim to stimulate a discussion and sharing of experiences in developing leadership capability within Statistical Organisations. To achieve this the session will outline key aspects of the ACS/ONS Programme, some of the challenges it seeks to address; and share some of the early experiences of delivering pilot training in a number of African NSOs.

Organizers: ONS-UK & UNECA

Panellists
1. Anjana Dube
2. Angela Kiconco
3. Maria Isabella
4. Dominique Francoz
5. Lean Wambugu/Sarah Omache

Discussant: Denise Lievesley

Room 3: Hippo
Session R3.1: Panel session
Chair: Lukasz Augustyniak

S3.1. The importance of good communication of official statistics for informing modern societies

Abstract: Objective and trustworthy statistical information is, more than ever before, indispensable for the functioning of today's democratic societies. The technological transformation, which has changed the world in the past decades, has had a direct influence on the production and accessibility of statistics, influencing both the expectations and behaviour of data users.

Today, users want and need to find relevant statistics faster than ever, often preferring them in a concise and attractive format. The private sector has reacted to this new reality by providing a seemingly endless range of statistics based on alternative, non-official data sources. Although such data may often be available more quickly and may offer more detail, their quality can vary considerably.

Against this background, it is important to remember that official statistics' providers have a particular responsibility to support and empower policymakers, businesses and citizens, so that they can make informed decisions in their professional and private lives. For this reason, it is crucial for official statistics' producers to maintain their reputation and master the art of clear and understandable communication of their products and services.

This session will examine the communication experience from the perspectives of two National Statistical Institutes (from two different continents), the Bank for International Settlements, and the UNECA. It will be moderated by the Head of Communication and External Relations at Eurostat, the Statistical Office of the European Union. Four 15-minute presentations will be followed by a Q&A session with all the panelists.

Organizers: Eurostat

Panellists
1. Julieta Brambila
2. Dominik Rozkrut
3. Bruno Tissot

4. Leandre Foster Ngogang Wandji
Discussant: Lukasz Augustyniak

Room 4: Lion
Session R4.1
Chair: Gabriella Vukovich

C2.1. From data to actions: new skills for deciding in a fluid world

Fabrice Bloch - France - Institut National de la Statistique et des Etudes Economiques (INSEE) - fabrice.bloch@insee.fr

Abstract: In the beginning of humanity, information was scarce and therefore precious. Many wars, symbolic or real, have been made to get more datas or to spy on others' technology. Moreover, our brain is wired to make decisions with incomplete knowledge, making suppositions, and taking risks. In recent years, the situation has changed drastically : we produce 29.000 Go of information each second. In many cases, this information is easy to get, easy to use and cheap if not free. Data is the new goldmine for sure, but are we ready to change our way of coping with these constant flows of fluid information? If we zoom-out our subject, *we do not gather data for fun, but for officials taking actions*. The traditional way of deciding has been explained by the French philosopher Descartes (1596-1650) : gathering all available data, exploring each possibility, evaluating risks and then choosing the optimal solution. Unluckily, this is no longer possible in a constant flow of information, which I call fluidity, even though Big Data produces meta-datas (which is *more* data). We have to deal with a different -fluid- world and we have to shift up our mind by accepting a new way of making actions. **What is the use of official statistics and data if the decision makers are not wired to use them ?** The tools already exist in industry or software development and we have to bring them in our professional world where the basic items are data and statistics. These are the new skills we have to teach and learn :

- design, which help us to clarify the purpose of our decisions ;
- lean start-up, to probe the world making hypothesis, models and prototype ; -
  agility, to build an iterative approach ;
- cooperative, colocalized and multiprofiled teams to explore the main dimensions and propose better decisions.

The tools are easy to be taught in schools, and we should therefore begin to train our young generations to use them. We also have to begin the mindsets' evolution of our decision to take actions in a fluid world. It can be made by teaching advanced skills, building workshops and organizing communities of practice.

C2.3. Understanding the Underlying Problems or Challenges
Okello Francis

Abstract:

C4.3. The importance of using new visualizing tools to keep up big data era

Abdullah Mohamed Nagib, Mahmoud Mohamed ElSarawy, ESLSCA University, Cairo, Egypt

Abstract:The data visualization tools promote the best use of evidence in decision making, transparency of data and information and people comprehend data better through pictures than by reading numbers in columns and rows. The main goal of data visualization tools is to communicate information clearly and effectively through graphical means, so all users have to do is authenticate and click a button to create infographic or data visualization and shared with their friends online in social media. It offers the ability to create different views of your data and change them as your needs. So, you don't have to wait on an IT change request or data producers to understand your data. This paper will study the importance of using data visualization in our statistical world due to the large amount of data and needs to be analysed quickly so it will get useful impact on data users and decision makers. And analyse the relation between data visualization and future statistical challenges like big data and statistical awareness.

Key words: Huge data, Infographic, Decision makers.

C3.15. Case Study: GCC-STAT Experience in Developing Dissemination Strategy

Yaqoob Khamis Al Hadhrami

Abstract: GCC-Stat is the regional statistics office for the GCC. This paper discusses the GCC-STAT experience in developing its dissemination strategy, which aims to deliver relevant GCC statistics to the different range of users, including the public.

While regional official statistics have a key role in helping to support the development of regional strategies and policies, they also complement country level statistics. The dissemination of regional statistics needs to balance these needs. The paper reviews the key elements of the GCC-Stat dissemination strategy, before highlighting some of the techniques and tools, including communication channels, used to disseminate regional statistics. Improving and maintaining trust in official statistics requires GCC-Stat to reach out to the GCC public (citizens and residents), using different dissemination channels and media, and communicate with them using the power of storytelling.

Finally, the paper will set out the future vision for dissemination of GCC level official statistics, including moving to a demand responsive model to user needs and dissemination strategy that serves policy and supports decision-making, and so ensures that GCC-Stat also provides statistics that are relevant to citizens and residents in GCC countries.

Key words: Dissemination Strategy, Official Statistics, Responsive

Room 5: Elephant

Session R5.1: Panel Session
Chair: Matthew Shearing

S5.2. Statistics in the scientific landscape of data science and machine learning
Abstract:

Organizers: Arnoldo Frigessi
Panellists
1. Arnoldo Frigessi
2. Kerrie Mengersen
3. TBC
4. TBC
Discussant: TBC

Room 6: Tiger
Session R6.1- Panel session
Chair: Linda Peters

S2.2. Modernizing Census with Geographic information system (GIS)

Organizer: ESRI
Panellists
1. Richard Estephan
2. Kate Hess
3. TBC
4. TBC
Discussant: Linda Peters

Room 7: Gorilla
Session R7.1 -
Chair: Lizzie Chikoti

C2.4. Factors affecting students' achievement in Mathematics and statistics in secondary schools and its influence on studying statistics at University in Uganda

Lillian Ayebale, PhD student, School of Statistics and Planning, Department of Population Studies, Makerere University, Kampala, Uganda

Abstract:

Introduction: The teaching of statistics in Ugandan schools in done as a component of the mathematics curriculum. This is similar to most of the African countries like Benin, Nigeria, Kenya and Lesotho. The conceptions, attitudes, and expectations of students regarding Mathematics and Mathematics teaching have been considered to be very significant factors underlying their school experience and achievement. We reviewed literature to establish the factors that affect student achievement in mathematics.

Methods: This is a systematic review of factors affecting students' achievement in mathematics. We searched literature on student achievement in mathematics and statistics at secondary school or high school level. Studies conducted in sub Saharan Africa and were published in peer reviewed journals between 2000 and 2019 were included in the search. We used Google Scholar, Popline, Pubmed and random Google search. Twenty seven articles met the selection criteria and were reviewed.

Results: The teaching methods, teacher' attribution, classroom environment, students' attitude towards mathematics were noted as key factors in almost all articles reviewed. There seemed to be consistency too that parents can exert a positive influence on their children's mathematical performance. Other factors were students' previous mathematics achievement, age especially for adolescents and anxiety about mathematics.

Conclusions: Student achievement at secondary level determines whether they will opt or qualify to study statistics at university. From this review, it is imperative that these factors be addressed early in the students' career so as to have more student enrollment for statistics at tertiary institutions.

C2.5. Employability among Statistics Graduates

Ashenafi Abate Woya
Bahir Dar University, college of since statistics department
Email : ashu.abate@gmail.com
Phone : +251912389679

An aspect of quality in higher education is the quality of the outcomes achieved. Higher education adds value by developing job-related skills and competencies. It is also not known to what extent, graduates' competence goes in line with the demands of the employers. This study was to assess the employability and competency of statistics graduates. Data were collected using a structured questionnaire and analysis the using SPSS version 23. This study employed a Kaplan–Meier estimate to compare the duration of unemployed times from two or more groups. To assess whether there is a real difference between groups, we used a Log-rank test. From a total of 303 statistics graduates, 17.7% were unemployed and 82.3% were employed. Of employed graduates, 65.8% had a permanent worker and the rest 16.5% of graduates had a temporary worker. The mean duration of unemployed statistics graduates at Bahir Dar University was 12.9 months (95% CI, (9.9, 15.9)). This study revealed that there is a percentage

of graduates who are not yet employed and never been employed. Therefore, the department must be a linkage with the different government organizations and NGO. This may improve the employability of statistics graduates.

C.2.6. Using Nesstar Publisher Tools and Generic Statistical Business Process Model (GSBPM) to Develop and Retain Junior Statistician At National Statistical Offices

Waleed Ameen Abdelkhalik Mohammed
By: Dr. Waleed Ameen Abdelkhalik
Senior Statistician, NSO (CAPMAS), Cairo, Egypt. Email: walid_a@capmas.gov.eg

Abstract: The national statistical offices (NSOs) in all over the world is played a very important role in the production and dissemination of statistical data, depending on its human resources, sophisticated equipment and good infrastructure, in line with technical developments and international recommendations, In this context there are some NSOs in Africa are suffered from the problem of retirement of a large number of statistical expertise's which will lead to a gap in statistical performance as a result of hiring junior statistician who do not have enough experience and skills that qualify them to fill the gap.

So there are many internatational organization do ther best to support of using a new technology in statistical administration such as The World Bank Data Group and International Household Survey Network (IHSN) was developed some tools called Nesstar Tools which used to deal with process of preservation, documentation and Dissemination metadata for census and statistical surveys, as well as to improve management and use of micro data and Training junior researchers and statistical employees to get experiences.

This besides using The Generic Statistical Business Process Model (GSBPM) as framework in the statistical process administration, which was first developed by Statistics New Zealand, and was revised at the Joint UNECE / Eurostat / OECD Work Session on Statistical Metadata (METIS) in 2007, 2008 and 2009. This Model (GSBPM) also can help NSOs to get high level of quality for Documentation and dissemination metadata and build skills of junior statistician that related to statistical process of any statistical survey.

So, this paper discusses **how to use Nesstar Publisher Tools and GSBPM in developing and give experiences to junior statistician at national statistical offices (experiences of NSO – Egypt in this field)** also how to benfite from that in **fostering statistical literacy** for all, also in writting better, more compelling (and accurate) stories about numbers, this besides how this reflects **in Monitoring the sustainable development goals (SDG2030) in egypt**.

Key words: Dissemination; Documentation; Metadata; Training; young statistician; SDG2030; Statistical Literacy.

C7.5 What Explains the Duration of the School-to-First-Job Transition in the Republic of Congo? An analysis based on the Poisson Regression Model

Bello Fika Henri

African Center for International, Diplomatic, Economic and Strategic Studies (CEIDES), Yaoundé, Cameroon,
Email: bellofikah@gmail.com,
Tel: (00237) 695 91 12 28 / 654 72 98 86
Abstract: The aim of this paper is to identify the determinants of the duration of unemployment among the educated first job seekers in the Republic of Congo. To achieve this goal, we make use of data which have been constructed from the database of the School-to-Work Transition Survey (SWTS) carried out in Congo in 2015 by Iinternational Labor Organization (ILO) among people who are between 15 and 29 years old. The sample formed for our study is made up of people who have at least a primary educational level, who have been employed at least once in their life and who have stopped study or training before getting their first job. The sample is made up of 1,171 individuals including 565 males and 606 females. Using these data, we perform a descriptive statistical analysis supplemented by an explanatory analysis based on the Poisson regression model. The explanatory variables we choose are: the educational and qualification level, the area of training, gender, age and the type of employment. Our main finding is that the training area and level are important factors of the school-to-first-job transition. This transition is shorter for people who have a background in the fields of applied sciences (Production and Process Engineering, Maths and Computer Science, Medicine, Agriculture, Management Business,...). Hence, the point is not only to increase the human capital stock, but also to form a human capital structure that corresponds to the real needs of the economy, so that the duration of the transition between the cessation of studies or training and access to the first job is considerably reduced.

Time: 14.00 – 15.30

Parallel Sessions #2
Time: 14:00-15:30

Room 1: Giraffe
Session R1.2-Panel session
Chair: Dominique Francoz

S2.1. Innovative solutions using administrative and alternative data to support and monitor 2063 and 2030 agendas

Abstract: The United Nations Agenda 2030 for sustainable development points out the critical importance of data quality and use for monitoring the sustainable development goals (SDGs), while putting national data ownership at the core of the Agenda. It also emphasizes the role of

big data and the opportunities created by innovative technologies to achieve the SDGs. At the continental level, the African Union Agenda 2063 stresses the urgent need for a *data revolution* in Africa, indicating this way the immense and rapid change requested, focusing on statistical capacity development to improve the quality and timeliness of statistics and information available to citizen and governments for policymaking purposes.

The proposed session will present 4 ongoing initiatives to build capacity on the use of administrative and alternative data in Africa and globally. Paris21 will present an experience of operationalizing gender-specific data produced by civil society organizations in support of the SDG reporting in Kenya, Philippines and Ecuador. The African Capacity Building Foundation (ACBF) will detail the statistical capacity needs and some of the initiatives developed by the organization in Africa to address the challenges. As part of the Agenda 2063 Reporting Technical Working Group, ACBF will share the experience and efforts being done through a collaboration among AU organs to improve the quality of reporting on Agenda 2063 and Agenda 2030.

UN Statistics Division will share their experience working with countries and national statistical systems, under the *Data For Now* initiative, in strengthening countries' ability to use innovative sources, methods, and tools to deliver more timely and disaggregated data needed by policy and decision makers, also providing concrete examples from African countries.

The proposed session will also report on two examples from the ongoing EU-funded Pan-African Statistics (PAS) 2, aimed at strengthening social and economic official statistics across the African continent. The first example focuses on the use of administrative data (for statistical business registers) in the African contexts, while the second describes how hackathons can be used to explore alternative data and the plan to carry out a hackathon as part of the PAS 2 project. The Hackathon will be open to African national statistical institutes (NSIs) and offered with training and technical support during and after the event. The UN African hub for big data, hosted in Kigali, Rwanda will help run the hackathon.

These efforts sustain statistical harmonization in line with the Strategy for the Harmonization of Statistics in Africa (SHaSA 2) and facilitate regional integration, a cornerstone of the Agenda 2063. By showcasing the many regional projects, the session wishes to emphasize the advantages of pan-African and global initiatives to meet the growing demand for data. Different approached and efforts allow for more learning, development of best practices and sharing experiences across borders and organizations.

Organizer: INSEE

Panellists

1. Faryal Ahmed

2. Janne Utkilen

3. Liliana Suchodolska

Discussant: Timo Koskimäki

Room 2: Zebra
Session R2.2 -
Chair: Stephen Penneck

C3.3. Bridging the Gap between Official Statistics and Theoretical Statistics

Nelson Ndifwa

Abstract: Statistics can be defined in two senses. Statistics in plural sense refers to numerical facts/figures while in the singular it refers to principles and methods that are used to collect data, analyze, and interpret them and make decisions accordingly in the face of uncertainty. Some view statistics as branch of mathematics while others view statistics as information. Nobody is arguing on the importance of mathematics in studying statistics.

Professional statisticians must be well equipped with Mathematics, Statistical Theory and Methods, Applied Statistics and Official Statistics (Msokwa, 2014). Official statistics are statistics published by the government and its agencies to make decisions about society and the economy while theoretical statistics is the application of mathematical knowledge in studying different statistical theories and methods.

As we know that the importance of official statistics cannot be over-emphasized yet, the graduates from many universities in developing countries are graduated with theoretical statistics with no or little knowledge in official statistics. These graduates need to be first oriented with official statistics within National Statistics Offices (NSOs); the situation leading to some
challenges to the employers.

This paper aims to address how to bridge the gap between official statistics and theoretical statistics to the statisticians, and hence to *ensure that we leave no statistician behind* because *official statistics matter to all statisticians*.

C3.4. Positioning African National Statistical Systems for Data Revolution and Inclusive Development

Olusanya E. Olubusoye

Abstract : The need to implement the African Data Revolution Programme (ADRP) has been a subject of intense interest to various bodies, including the African Development Bank (AfDB),

the United Nations Economic Commission for Africa (UNECA), and the Africa Union Commission (AUC). As part of the efforts to strengthen statistical associations in Africa towards implementing the ARDP, the rebirth of the African Statistical Association (AfSA) became expedient. Consequently, the resuscitation of the hitherto dormant AfSA occurred during the 1st international statistical conference of the Ethiopian Statistical Association (ESA) held in Addis Ababa, Ethiopia, between 20 – 22 May 2017. The participation of the Nigerian Statistical Association (NSA) and Department of Statistics, University of Ibadan (as the representative of the training institutions) was a needed impetus to drive the process of implementing ADRP not only in Nigeria but throughout the continent. To consolidate and build on the success of the first international statistical conference held on September 6 – 8, 2017, at the University of Lagos, Lagos, Nigeria, it is important to continue to engage the African statistical community on ADRP. Thus, this paper aims at how to strategically position the African National Statistical Systems (NSSs) for the data revolution. More specifically, the paper will reflect on the following:

- How should the NSSs be coordinated and integrated toward the main goal of implementing ADRP?
- What are the roles and contributions of sub-national data producers in the ADRP implementation?
- What are the essential infrastructures needed by the NSSs to enhance or support the implementation of ADRP?
- How can NSSs have access to sustainable funding considering the global economic downturn?
- How can ADRP lead to inclusive development rather than growth without development?

C2.7. Ensuring the development of competences and skills to meet the needs for statistics now and in the future

Dag Roll-Hansen and Stella Zulu

Abstract: The greatest asset of an organization are its people. National Statistical Offices (NSOs) and other agencies working on agriculture statistics production are not the exception. At the heart of any statistical system are the statistical personnel working to provide users with quality statistics for better governance, sound business decisions, and community participation. Effective human resources management is key to establishing the necessary infrastructure and expertise to address statistical needs and requirements in the agricultural sector at national level. Without the right personnel with the knowledge and training on statistics, any attempts to develop the national statistical system and the statistics they produce will not progress.

Statistical producers across the world are facing challenges in finding qualified staff, in training them to be able to produce the statistics required, and in retaining them within the organisation

to ensure sustainability and long-term development. This is nowhere more apparent than in the agricultural sector where modern and different skills are needed to be able to make use of new and emerging types of data, alternative data sources and modern technologies.

During 2022, PARIS21 has partnered with the Food and Agriculture Organisation and Statistics Norway to investigate the current challenges and development needs in human resource management in NSOs and agriculture statistics units across Africa, and to design support tailored to these needs.

This paper will present some of the key findings, good practice and experiences from this work, with the objective of further developing the current debate on capacity development for agriculture statistics moving forward.

C2.8. Data Science Skills: A Necessary Requirement for Effective Curriculum Delivery in African Tertiary Institution

Adeboye Olawale and Popoola Peter

Abstract: Data science is a concept to unify statistics, data analysis, machine learning and their related methods in order to understand and analyze actual phenomena with data. This article focused its investigation on acquisition of data science skills in building partnership for efficient school curriculum delivery in Africa. Integrating the basic skills into African school curriculum was addressed in this paper, especially in the area of teaching statistics courses at the beginners' level in tertiary institutions. Illustrations were made using Big data of selected 18 African countries sourced from United Nations Educational, Scientific and Cultural Organization (UNESCO) with special focus on some macro-economic variables that drives economic policy. Data description techniques were adopted in the analysis of the sourced open data with the aid of R analytics software for data science, as improvement on the traditional methods of data description for learning and thus open a new charter of education curriculum delivery in African schools.
Though, the collaboration is not without its own challenges, but its prospects in creating self-a driven learning culture among students of tertiary institutions has greatly enhance the quality of teaching, advancing students skills in understanding the role of data in global perspective and being able to critique claims based on data.
Keywords: Big Data, Curriculum, Data Science, Data Description, Statistics

Room 3: Hippo
Session R3.2 -Panel session
Chair: Misha Belkindas

S4.3 Data Governance, Data Stewardship, and Official Statistics: European Perspective

Abstract:

Background: The issues of data governance systems at the national and supranational levels are currently the subject of great interest and in-depth debate in the European Union countries. Undoubtedly, these matters will not only determine the prospects of the EU countries but are also of fundamental importance for the functioning of official statistics systems. Topics such as data governance, data stewardship, data sharing, data spaces, data collaboratives, and data brokers are almost always on the lips of politicians and experts. The Member States and the European Commission carry out several works to introduce legislative solutions enabling and facilitating the exchange and use of data to create conditions for the dynamic development of the data-based economy and, consequently, the economy as a whole. Undoubtedly, these issues are the core of strategic planning processes of socio-economic development. In Europe's case, these activities aim to develop detailed regulations regarding the functioning of domain-specific data spaces, along with defining general principles shaping the functioning of the data market. The proposed legislative solutions go far beyond the scope of the first globally known solution called GDPR.

The proposed legal solutions are not without potential impact on the future functioning of official statistics systems in Europe. These systems have so far functioned in specific, relatively stable data ecosystems, which are now significantly expanding and complicating. Their functioning is becoming the subject of more and more far-reaching legal regulations. On the one hand, this presents official statistics with new challenges; on the other hand, it is an opportunity to strengthen the role of official statistics in the functioning of modern democratic societies. We are dealing with a potential opportunity to extend the scope of activities and competencies of national statistical offices. This aligns well with the concept of the so-called data stewardship, which emphasizes providing services related to data processing in addition to the more traditional offer of statistical indicators resulting from the implementation of statistical surveys. The surveys themself are becoming increasingly complex through the use of conventional and new data sources, tools, methods, and techniques for their acquisition and processing, including big data and privately-held sources.

National statistical systems must find their place in this unique environment, maintaining their current position. They also make efforts to make more profound use of their resources and competencies in shaping new data governance at the national and EU community level. From this perspective, the European Data Strategy and, in its context, the European Statistical System are exciting and attractive examples of developing a far-reaching strategy and practical legislative solutions to implement them.

Objectives: This panel discussion, with representatives of the European Statistical System, aims to offer a picture of the changes taking place, challenges and opportunities for the national statistical offices in the European Union, and the functioning of the European Statistical System.

Panelists will present European and national initiatives, their current implementation and progress, and further planned activities. In this context, there will be a discussion on the opportunities and threats related to the present and further development of the situation, the vision of the role of official statistics in the new changing environment, and previous experiences, lessons, and conclusions. The panel aims to offer a unique opportunity to get acquainted with the European experience by obtaining in-depth information on the development of European data ecosystems, ways of regulating them, and the resulting experiences for official statistics. These experiences may also be helpful in other regions.

Organizers: Domini A. Rozkrut

1. Lidija Brković
2. Jūratė Petrauskienė
3. Dominik A. Rozkrut
4. Athanasios C. Thanopoulos
5. Gabriella Vukovich

Room 4: Lion
Session R4.2
Chair: Beye Babacar

C7.11 Social Media Analysis for Financial Market Monitoring: Lessons from the Central Bank of Nigeria

Babatunde Omotosho

Abstract: Social media provides a useful source of data for improved financial market monitoring as it offers policymakers the opportunity to receive useful feedback on their policies and programmes directly from consumers. The paper discusses the social media analytics tool developed by the Central Bank of Nigeria for improving its consumer protection, risk management, and corporate communication functions. The tool utilized textual data collected from various social media platforms, including 500,000 user reviews on Google Playstore; 100,000 tweets with mentions of CBN; 90, 000 tweets with mentions of financial service providers in Nigeria; and 3,245 social media posts pertaining to CBN policies/interventions. These datasets were analysed using appropriate text mining techniques to identify the inherent sentiments and themes in the social media posts. To make the results accessible for prompt policy and regulatory interventions, the results are presented in a tool named the CBN "Social Media Analytics Dashboard (SMAD)". The SMAD is interactive, dynamic, and equipped for daily, monthly, and annual analyses. It tracks thirteen metrics useful for addressing customer complaints, detecting fraud, identifying emerging reputational risks, and designing policies. It is hoped that the paper will help promote the adoption of big data and data analytics among central banks, especially in African countries.

C5.34 Bayesian Approaches for Using Historical controls to evaluate public health intervention effectiveness

Isaac Fwemba and Chigozie Kelechi Acha

Fwemba, Isaac and Acha, Chigozie Kelechi
[1]University of Zambia and Vanderbilt Medical Center. [2]Department of Statistics, Michael Okpara University of Agriculture Umudike, Abia State, Nigeria.

BACKGROUND: There is uncertainty over the use of historical framework to control modelling precision structure especially in biomedical research and implementation research strategies. We performed a Bayesian meta-analysis to evaluate the effect of historical information on improving estimates obtained using sparsely generated data. Power prior technique was used to evaluate estimate. This analysis synthesizes evidence from different sources, taking into account varying views on the issue.

METHODS: Systematic review of articles was done. Elicited information using expert opinions and constructed probability distributions. We varied our views on this matter by exploring constructing clinical priors, skeptical priors, enthusiastic priors, and reference priors. WINBUGS and R statistical soft wares were used. Posterior summaries such as posterior means and associated standard deviation were reported. Odds ratios were reported as measure of effects. Probability of exceedance was computed by obtaining posterior probability using step function.

RESULTS: The results were synthesized using a hierarchical random effects Bayesian meta-analysis. The pooled results from 20 studies (10 retentions and 10 viral suppression), showed significantly superior retention effects in adolescent specialized interventions compared to the standard of care settings; OR=3.87 (95% Crl: 0.94,10.82). When 100% of data from 8 observational studies covering adolescent treatment outcome were added to the analysis, the resultant OR was; OR=3.02 (95%Crl: 1.01, 6.92). However, when 100% of the historical data from adult RCTs used, the retention effect reduced to OR 1.24 (95% Crl:1.03, 1.48). Whether adolescent historical data was used or adult, the associated posterior probability of benefiting from the intervention remained almost 1. There was no difference between the standard of care and specialized adolescent care in terms of virological suppression effect; OR=1.27 (95% Crl: 0.57, 2.32). However, the adolescent intervention recorded superior overall retention rate of 59.7% compared to 52.1% in the standard of care.

CONCLUSIONS: The synthesis of data using Bayesian random effect meta-analysis, power prior, and use of different prior beliefs is key in evaluating intervention effectiveness in public health and implementation research domain. Using statistical framework to construct prior information probability distribution will help to formalize the application of prior framework in biomedical space.

C5.50 Evaluation of Some Methods of Detecting Outliers

Obikee Adaku Caroline1, Ebuh G.U2, Obiora-Ilouno H.O.

1Department of Mathematics, Faculty of Physical Sciences, University of Agriculture and Environmental Science Umuagwo, Nigeria. Email: caroline.obikee@uaes.edu.ng,

2Monetary & Policy Department, Central Bank of Nigeria, Abuja, Nigeria Email: president@nsang.org

Department of Statistics, Faculty of Physical Sciences, Nnamdi Azikiwe University, Awka, Nigeria. Email: ho.obiorailouno@unizik.edu.ng. Correspondence* caroline.obikee@uaes.edu.ng

Abstract: This research work employed both Real life Data Application and a Simulated Data to evaluate some outlier detection techniques such as t-statistic, Modified Z-Statistic, Cancer Outlier Profile Analysis (COPA), Outlier Sum-Statistic (OS), Outlier Robust T-Statistic (ORT), and the Truncated Outlier Robust T-Statistic (TORT) to verify which technique has the highest power of detecting and handling outliers on the bases of their rank values, P-values, true positives, false positives, False Discovery Rate (FDR) and their corresponding Area Under the Receiver Operating Characteristic (ROC) curves (AUC) respectively. Using the real life data, we observed that among the first three outlier methods Z, COPA and OS, the performance of OS is outstanding with a smaller FDR, better FP and TP followed by COPA with a better FDR, better FP and TP while Z has no FP and a poor FDR. Among the last three outlier methods, T, ORT and TORT, the performance of T is better with a better FDR and FP followed by ORT with a better FP while TORT has no FP and poor FDR. Then for the simulated data, we observe that among the first three outlier methods Z, COPA and OS, OS performed better with the highest rank value followed by Z and COPA. We observed using the p-values that OS has the least number of True Positive and the highest number of False Positive followed by COPA and Modified Z. We also observed that OS has the smallest FDR followed by COPA and Z. From the ROC curves, we observed that COPA has the highest AUC which indicate better sensitivity and specificity followed by Z with AUC that is on the reference line while OS has AUC that is under the reference line. Among the last three outlier methods, T-statistic, ORT and TORT, the T-statistic performed better with a better rank value followed by ORT and TORT. We observed using the p-values that T has a better number of True Positive and False Positive followed by ORT and TORT. T has a smaller FDR followed by TORT and ORT in that order. From the ROC curves, we observed that ORT and TORT has better significant AUC which indicate better sensitivity and specificity while T has AUC that is under the reference line.

Keywords: ***Area under the ROC Curve (AUC), Sensitivity, Specificity, P-Value, Rank Value, False Discovery Rate (FDR), Real life Data Application, Simulation.***

C7.4 Social Networks Application for official statistics: case study in Iran.

Saeed Fayyaz, Arash Fazeli

Room 5: Elephant
Session R5.2 -
Chair: Reija Helenius

S2.6. Statistics shapes society
Abstract:

Statistical literacy is crucial for people beyond professions that explicitly deal with statistics. Different projects, such as the International Statistical Literacy Project, aim to support improving statistical literacy in the world. However, there is a need to do more, and opportunities to do so through co-operation.

By promoting the use of reliable information and its applications we are simultaneously building a more aware community, that is ready to think for themselves and to critically evaluate, for example, the news in the media. In addition to statistical literacy, we can talk about knowledge literacy, in which many kinds of know-how are needed: from interpreting data to the different methods of producing information. One must also understand the society that surrounds them, its phenomena and the terms that describe it.

Statisticians around the world are trying to advance statistical literacy from the grassroots level in multiple different ways. The data era brings new educational challenges that require new kinds of strategic planning to overcome. Statistics are increasingly becoming a civic skill that is required to fully understand the society and its functions, to interpret and explicate data. This is equally relevant for children, citizens, decision-makers, as well as the media. Statistical offices have a key role to co-operate with different stakeholders across the whole society.

The session aims to better understand the different statistical literacy initiatives around the world, especially in Africa. The session will also include a vignette about the International Statistical Literacy Project. The International Statistical Literacy Project has been operational in the field of advancing statistical literacy since 1994. The project maintains a number of activities, for example, a network of 150 country coordinators, presentations and workshops in different statistical conferences, and organizational co-operation worldwide. This is used to showcase how international networks can be formed, maintained and made operational. The session will also present the results of the survey that the ISLP project has conducted, about how different countries promote statistical literacy, and what kind of challenges have been encountered in this work.

Organizer: Statistics Finland
Panellists

Elisa Falck, Project Coordinator, International Statistical Literacy Project. *'Challenges and opportunities to promote statistical literacy'.*

Karen Bett, Policy Manager, Global Partnership for Sustainable Development Data.

'Democratizing data skills in the continent'.

Delia North, Professor, University of KwaZulu-Natal. *'Capacity Building for the Data Era: The story of UKZN (South Africa)'*

Chikoloma Nakazwe, Program Project Manager, National Public Health Institute. '*Zambia's experience in the ISLP school competition*'

Discussant

David Stern, Dr., Mathematical Scientist, Founding Director of IDEMS International.

Room 6: Tiger
Session R6.2 -
Chair: John Pullinger

C4.1. The importance of data governance to address the new challenges faced by official statistics

Bruno Tissot & Irena Krizman

Abstract: The future of the statistical world is likely to be characterized by a complete digitalization of public and private services, as suggested for instance with the ongoing rapid development of e-government activities. This calls for a **careful review of the implications of digitalisation in terms of data governance, risk management and the role of official statistics**. In particular, the NSOs and their counterparts in the NSSs have to remain relevant producers of statistics and at the same time support the effective use of this information for public policy purposes and provide guidance for dealing with other data sources – playing a so-called "curator" role.

Two important points deserve to be underlined from this perspective. **First, adequate data governance frameworks** should be in place at the national level to ensure that NSOs can be proactively involved in the preparation of state development plans and the related legislation to support implementation monitoring. This requires close cooperation with policy makers as well as with academia, the private sector and the civil society. At the same time, the role of each stakeholder in the information society should be clearly defined– for instance in national statistical programmes so as to document who is doing what in the areas of official and sectoral statistics. This clarity is particularly needed in the field of government, since administrative records are crucial for assessing the coverage and quality of services it provides. **A second point is the need to further develop internationally agreed statistical standards** (e.g., classifications), ethical norms, quality frameworks, etc to accompany national developments.

Looking forward, recent global challenges (e.g., Covid-19 pandemic, impact of climate change, geopolitical tensions, economic crises) **have emphasised the importance of proper data governance to deal with unexpected events**. One consideration is that the set-up of an adequate

digital public infrastructure (DPI) can be instrumental to provide the necessary information flexibly and support resilience to current and future crises. Another is that the provision of good quality and timely statistics is even more important as before as new shocks call for developing alternative data collections based on secondary sources; for instance, big databases as well as administrative records and registers are complex and need adequate processes to be dealt with. Lastly, data sharing is essential to ensure the usability of the information collected, not least to support policy making in case of unforeseen events. One example relates to disaster-risk management at the national levels, which is usually a task of specialised agencies that depend on data produced by the NSS, such as statistics on population, economy, agriculture, etc; this means that good collaboration is needed to ensure that the information available is used as much as it could be and is fit for purpose (e.g. in terms of timeliness and granularity for supporting small scale analysis).

C4.4. The value of official statistics: experiences in Mexico

Mauricio Marquez-Corona & Marina Gonzalez-Samano

Abstract: In today's Information Age, official statistics inherently try to provide relevant and timely information, occupying a greater scope in society. Thus, official statistics provide the information system of any democratic society with essential elements, supplying the government, the economy and the general public with the data about economic, demographic, social and environmental situations. This document presents strategies and success cases in Mexico that exemplify the participation of the National Statistics and Geography Institute's (INEGI, for its Spanish acronym) and reaffirm its compromise with the generation of official statistics of value. In this regard, it pursues three main objectives: i) briefly describe some of the strategic actions that INEGI carries out to ensure that statistical information is available to all members of society and creates value for them; ii) present evidence of the impact of two of INEGI's projects, namely those related to the use of the National Statistic Economic Units Directory (DENUE, for its Spanish acronym)[1], and more recently, the positive impact that the 2022 Census of Agriculture[2] will have, both on government institutions and the private sector; iii) enunciate INEGI's future actions aimed at strengthening the access, dissemination and generation of statistics of value for the society as a whole, and, lastly, final considerations.

Key words: Mexico, value of official statistics; strategies; statistical education; informed decisions; society.

C4.4. The future state of data ecosystem in Africa

Leandre Ngogang Wandji

Abstract: Abstract:
At this time, where several evaluations and reports underline the limits of the current national statistical systems and data ecosystem to respond to users' needs adequately, including producing high disaggregated quality data and statistics to leave no one behind and to monitor progress in implementing the SDGs and Agenda 2063, the African statistical community is

justified in considering what will happen to statistics in Africa in the coming decades. In that direction, the Statistical Commission for Africa approved the creation of the African Group on Transformation and Modernization of official statistics at its seventh meeting in 2020. The mission of the Group is to strategically guide and coordinate work on the transformation and modernization in Africa.

Transformation is a means of moving from a current state to a fundamentally different desired state, while *Modernisation* refers to adapting, enhancing, and in some cases, moving away from traditional approaches to official statistics in the transformation process [Draft Roadmap for the transformation and modernization of national statistical systems in Africa, ECA 2022].

What is Africa's future desired state of national statistical systems and data ecosystems? This paper aims to reflect on the desired future state of statistics in Africa, to which the transformation and modernization will lead. The article will stocktake the challenges of the current state of national statistical systems, discuss the future challenges and opportunities of the statistical community in Africa, and derive the future state of data ecosystems and appropriate institutional statistical environment.

C3.1. Enhancing the Global Data Ecosystem Through Machine Learning for Official Statistics

Nicola Shearman

Abstract: With a growing demand for more timely, accurate, relevant, and trustworthy statistics to inform society and decision makers, National Statistics Organisations (NSOs) have been investigating innovative ways to produce official statistics more efficiently and enhance their data ecosystems. The Machine Learning (ML) Group is led by the Office for National Statistics (ONS) in partnership with the UN Economic Commission for Europe High-Level Group for the Modernisation of Official Statistics. It provides a platform for the global statistical community to develop joint research, build capability and share knowledge on ML developments in official statistics. As a community-led Group with 380 members from 40+ countries and international organisations, it has delivered 18 research projects across 5 workstreams, demonstrating the added value of ML in coding and classification, editing and imputation, and integration of ML solutions into production. Workstream 1: From idea to valid solution – explores applications on coding and classification, modelling for estimation and route optimisation. Workstream 2: From valid solution to production - explores the operationalisation of ML solutions, development of user-friendly interface and building a data lake. It produces reports outlining typical steps that NSOs take from ML experimentation to deployment. Workstream 3: Ethics – Production of guidance on ethical considerations that arise in ML projects to support analysts. It has been published by the UK Statistics Authority. Workstream 4: Model retraining - Explores how to identify the circumstances where an ML model should be retrained to maintain its predictive power and quality. Workstream 5: Quality framework for statistical algorithms - Explores the development of a quality framework to compare different ML methods based on a standard set of five criteria: i) explainability; ii) accuracy; iii)

reproducibility; iv) timeliness and v) cost effectiveness. The Group has advanced on new areas: acquisition of high-quality training data sets; model monitoring and user interfaces development. As privacy and ethical concerns grow and public awareness of artificial intelligence (AI) increases, NSOs will need to establish robust ecosystems to address them. This session will showcase the ML Group impact through methods, guidance, and knowledge exchange initiatives, encouraging new global partnerships for the modernisation of official statistics.

Room 7: Gorilla
Session R7.2 - Panel session
Chair: Christine Wirtz

S5.1 Health statistics: how individual records shape the understanding of the health systems

Organizer: Eurostat
Panellists
1. Ilze Burkevica
2. Mika Gissler
3. Ciarán Nicholl
4. Ronald Ncube

Discussant: Ebba Barany

Time: 16.00 – 17.30

Parallel Sessions #3
Time: 16:00-17:30

Room 1: Giraffe
Session R1.3 - Panel Session
Chair: Christine Wirtz

S4.1. Use of new data sources for statistics - the potential for international collaboration and new statistical products

Abstract:
Background: At the turn of the last century, a number of technological innovations initiated a global process of digitalisation of society, economy and environment. The breakthrough of the

internet as global medium as sink and exchanging information, the spreading of mobile phones and other devices and sensors in the so-called internet of things led to a pervasive collection of data on events and processes as well as on measurements of the physical environment. Statisticians initiated activities and programs to enable using these new data sources, also known as Big Data, for official statistics. The embedding of the utilisation of Big Data into the frameworks of official statistics led to the development of the concept of trusted smart statistics. The new data sources could help to provide information on demand and supply of services in different statistical domains, such as labour market, prices, tourism or business statistics.

Rationale: The internet is used to create market platforms that bring together supply and demand for services of all kinds. Internet platforms are created for managing delivery of services to businesses as well as to consumers. Sensors in (smart) devices produce data, which is often very fine grained in terms of temporal or spatial resolutions. Satellite, airplanes or drones equipped with sensors are able to measure physical conditions of features on the surface of the earth and covering the complete territory of a region, country or continent. These new data sources have the potential to enhance existing statistics on population, environment, labour, prices, tourism, businesses or agriculture with higher spatial and temporal granularity when presenting features in a spatial context or even produce new statistics related to digitalisation and datafication of processes and relationships. These technologies and data sources are available worldwide and do not necessarily depend on the state of technological development of a country.

Goals: The session should demonstrate the potential of new data sources to create new types or enhance existing statistics with higher granularity in space and time and point to key challenges associated with the use of new data sources. Focus will be put on those data sources that are available in developing countries, such as online data, mobile network data or remotely sensed data. The session should also give examples and explain the potential of using methods developed by statisticians in an international context. The session should as well discuss conditions of integrating and using these new data sources in statistical production and opportunities for new statistical products and their dissemination. Finally, the session should also help to identify key risks arising from the changeover to non-traditional data sources and options to pool, manage and mitigate the risks through collaboration and partnerships.

Organizer: Eurostat
Panellists
1. Monika Wozowzyk
2. John Dunne
3. Patrick Lusyne
4. TBD
Discussant: Christine Wirtz

Room 2: Zebra
Session R2.3 -
Chair: Arnoldo Frigessi

C5.37 Dynamic predictions from longitudinal CD4 count measures and time to death of HIV/AIDS patients using a Bayesian joint model
Feysal Kemal Muhammed

Abstract: A Bayesian joint modelling approach to dynamic prediction of HIV progression and mortality allows individualised predictions to be made for HIV patients, based on monitoring of their CD4 counts. This study aims to provide predictions of patient specific trajectories of HIV disease progression and survival. Longitudinal data on 254 HIV/AIDS patients who received ART between 2009 and 2014, and who had at least one CD4 count observed, were employed in a Bayesian joint model of disease progression. Different forms of association structure that relate the longitudinal CD4 biomarker and time to death were assessed; and predictions were averaged over the different models using Bayesian model averaging. The individual follow up times ranged from 1 to 120 months, with a median of 22 months and IQR 7-39 months. The estimates of the association structure parameters from two of the three models considered indicated that the HIV mortality hazard at any time point is associated with the rate of change in the underlying value of the CD4 count. Model averaging the dynamic predictions resulted in only one of the hypothesised association structures having non-zero weight in almost all time points for each individual, with the exception of twelve patients, for whom other association structures were preferred at a few time points. The predictions were found to be different when we averaged them over models than when we derived them from the highest posterior weight model alone. The model with highest posterior weight for almost all time points for each individual gave an estimate of the association parameter-0.02 implying that for a unit increase in the CD4 count, the hazard of HIV mortality decreases by a factor (hazard ratio) of 0.98: however this estimate was not substantial. Functional status and alcohol intake are important contributing factors that affect the mean square root of CD4 measurements.

C5.38 The effect of long-term Tenofovir disoproxil fumarate (TDF) treatment on renal outcomes in patients with hepatitis B
Gezahegn Mekonnen Woldemedihn

Abstract: Results on renal safety of Tenofovir disoproxil fumarate (TDF) treatment among individuals with chronic hepatitis B (CHB) are inconsistent. The current study aimed to assess the effect of long-term TDF treatment on renal outcomes in adult patients with CHB. We randomly sampled 393 participants from a cohort of 1303 CHB patients in Ethiopia of whom 265 were on TDF treatment and 128 were not. Creatinine was measured every 3 months with follow-up up to 7 years for individual participants. We described levels of creatinine and creatinine clearance and proportion of participants with renal impairment over time. We used

linear mixed effects models to investigate the effect of TDF on creatinine and creatinine clearance in treated patients only and logistic regression models to investigate the effect of TDF treatment on renal impairment in all participants. We observed a slight increase in creatinine (0.00057 μmol/L per month, 95% confidence interval (CI) 0.000093-0.0011, p=0.02) and decrease in creatinine clearance (-0.13 ml/min per month, 95% CI -0.18-(-0.07), p<0.001) over time for patients treated with TDF. Patients on TDF treatment had an OR of 5.9 (95% CI 3.0-11.7, p<0.001) to develop renal impairment compared to patients not on TDF. We found a significant effect of long-term TDF treatment on renal toxicity in patients with CHB. Our study underscores the need for creatinine monitoring in CHB patients on TDF therapy.

Keywords: Antiviral treatment, Ethiopia, chronic hepatitis B, renal toxicity

C5.39 A Response Surface Approach to Factors Affecting Amplitude of Accommodation

Hope Ifeyinwa Mbachu

Abstract: This study examines the effect age, quantity of caffeine intake and weight of an individual have, on amplitude of accommodation. The purpose is to model the relationship age, quantity of caffeine intake and weight have on amplitude of accommodation among normal healthy adults in Imo State University, Owerri. A response surface methodology approach was employed using the Face centre cube central composite design and Analysis of Variance (ANOVA). The results show that the relationship is of quadratic model and it is significant. From the model, the variables (Age, Amount of Caffeine intake) in the linear and squared terms of the model were significant while all the variables in interaction terms were not significant.

Keywords: Amplitude of Accommodation, Response Surface Methodology, Centre, Approach, Analysis of variance, Model, Variables, Significant.

C5.40 Technical Efficiency of Primary Health Care services in Zambia-A Stochastic Frontier Approach

Isaac Kabunda Bwacha

Abstract: The provision of health-care services is dependent on the effective and efficient functioning of various components of a health-care system. It is therefore important to evaluate the functioning of these various components. In addition, Primary Health Care (PHC) is an efficient strategy to improve health outcomes in populations. Nevertheless, studies of technical efficiency in health care have focused on hospitals, with very little on primary health care centers. The objective of the present study is to use the *Stochastic Frontier Analysis* to estimate the technical efficiency of Primary Health Care services, facilities and the source of inefficiencies in Zambia.

The performance of the Zambia health services and systems are found to be heterogeneous. Adjusting for context and health care quality variables has significant effect on the technical efficiency scores and ranking. The results of this study can serve as a guide to strengthen

management and organizational and planning processes related to local primary care services operating within a market-based model such as the one in Zambia.

The less than optimal performance of the Zambian Health sector implies that a need exists for studies to examine efficiency of health delivery and services in Zambia particularly the Primary Health sector since it involves the majority of Zambian population and the poor. Efficiency concerns relative performance of the processes used in transforming given input into output (Otieno et al., 2012).

For the investigation of the technical efficiency and factors affecting efficiency of primary health care services in Zambia, a Cobb-Douglas production function will be adopted. Despite its well-known limitations, the Cobb-Douglas functional form will be used to estimate the stochastic production frontier for the health services being offered at facilities in Zambia. It is argued by Binam et al. (2004) and Musaba and Bwacha, 2014 that as long as interest rest on efficiency measurement and not on the analysis of the general structure of the production technology, the Cobb-Douglas production function provides an adequate representation of the production technology. For this study the Cobb-Douglas stochastic frontier production function will be specified. The maximum likelihood estimates of the Cobb-Douglas stochastic frontier function will be estimated using the STATA software version 16. This software has the advantage of allowing simultaneous estimation of the production function coefficients and those of the technical inefficiency model. The parameter estimates and related statistical tests obtained from the stochastic frontier production function analysis.

Room 3: Hippo
Session R3.3 -
Chair: Lamine Diop

C5.17 What Explains Differences in Early Child Development Between Urban and Rural Areas in Cameroon?
Henri Bello Fika
Abstract: The aim of this paper is to identify the determinants of the duration of unemployment among the educated first job seekers in the Republic of Congo. To achieve this goal, we make use of data which have been constructed from the database of the School-to-Work Transition Survey (SWTS) carried out in Congo in 2015 by Iinternational Labor Organization (ILO) among people who are between 15 and 29 years old. The sample formed for our study is made up of people who have at least a primary educational level, who have been employed at least once in their life and who have stopped study or training before getting their first job. The sample is made up of 1,171 individuals including 565 males and 606 females. Using these data, we perform a descriptive statistical analysis supplemented by an explanatory analysis based on the Poisson regression model. The explanatory variables we choose are: the educational and qualification level, the area of training, gender, age and the type of employment. Our main

finding is that the trainig area and level are important factors of the school-to-first-job transition. This transition is shorter for people who have a background in the fields of applied sciences (Production and Process Engineering, Maths and Computer Science, Medicine, Agriculture, Managementbusiness,...). Hence, the point is not only to increase the human capital stock, but also to form a human capital structure that corresponds to the real needs of the economy, so that the duration of the transition between the cessation of studies or training and access to the first job is considerably reduced.

C5.9 Influence of education on fertility level in Zambia - Case study of Namwianga Ward
Carlos Muleya
Abstract

BACKGROUND: Literature has shown that as education levels increases, fertility is expected to reduce as a function of contraceptive use and desired family size. It has been postulated that education provides greater autonomy in reproductive health decision making processes. Despite an improvement in the education sector, fertility levels are still high in Zambia. This paper therefore aimed at determining the magnitude of the effect that education has on fertility (measured by the number of children ever born alive).

METHODS: This was a non-intervention cross-section study using quantitative research design. Women in the reproductive age (15-49) were targeted. Multistage-cluster sampling design was used to select the required sample of 150 respondents. Data was collected through household interview using semi-structured questionnaires with both closed and open ended questions. Data was entered in EpiData version 3.1 and analyzed in SPSS version 16. Cross-tabulations, correlations-matrix and logistic-regression modelling strategies were used to analyze the data.

RESULTS: The study modelled; education, age, marital-status and economic status (asset index) of respondents to determine the effect on fertility. Results showed that respondents with lower education (primary education or under) had higher number of children ever born when compared to respondents with higher education (above primary education) with OR=4.86 (CI=2.34-10.08). The study further found a significant ($P<0.05$) correlation of education to; preferred family size (r=-.39), age at first marriage (r=.28), duration of breast-feeding (r=-.08) and contraceptive use (r=0.05) as intermediate variables on the pathway to fertility.

CONCLUSION: The study concluded that education has an inverse relationship with fertility. This confirms findings from other studies that increase in education levels leads to the reduction in fertility rate.

C5.20 Parent child sexual communication and its influence on adolescent sexual reproduction health. A systematic review
Lillian Ayebale

Introduction: Sexual and reproductive health problems are considered as the main causes of death, disability and disease among young people in the world, particularly in Africa. The systematic review aimed at identifying gaps for future research to improve adolescent sexual reproductive health.

Methods: We searched literature on parent child communication and parent adolescent communication on sexual reproductive health issues (including, sex, pregnancy, abortion, contraception and STIs). Studies conducted in sub Saharan Africa and were published in peer reviewed journals between 2005 and 2018 were included in the search. We used Google Scholar, Popline, Pubmed and random google search. Seventeen articles met the selection criteria and were reviewed. Review was based on topics of sexual reproductive health issues i) sex, ii) Pregnancy, iii) abortion and contraception, iv) STIs.

Results: The results show that there many variations in cultures regarding parent child talks on sexual reproductive health issues. Discussions on sexual related matters are delivered as warnings and sometimes-open discussions. There were several barriers identified in different studies to affect parent child communication including taboos, busy parent schedules, lack of skills and at times lack of child appropriate information. Also young people in most studies expressed fear of their parents and preference to get information from peers and teachers. Although most studies suggest that information from parents is strongly taken and acted upon by young people.

Conclusions: There is a need for further research on parent child communication employing both qualitative and quantitative methods as a way of exploring ways to improve adolescent sexual reproductive health. There is a need to explore further the cultural contexts and the further implications on adolescent sexual reproductive health.

C5.29 Prediction of number of Anemia patients by using a specified machine learning model.
Sara Adel Abbas

Room 4: Lion
Session R4.3 - Panel Session
Chair: Dag Roll-Hansen

S2.3. How can we help ensure statistical training in Africa is sustainable?

Abstract: The range and depth of data demands emerging out of the 2030 Agenda and the Sustainable Development Goals (SDGs) are unprecedented and present a substantial challenge for national statistical systems in all countries. Significant efforts are required to strengthen national statistical capacities to provide the necessary data and statistics for the full

implementation of the 2030 agenda, as recognized by the UN General Assembly, in its resolution 71/313. The Cape Town Global Action Plan for Sustainable Data also highlights statistical training as an essential action area.

Statistical training is key in strengthening countries' statistical capacities. Many international and regional institutions work in this area, but due to limited coordination, there is still overlap in training provided and use of diverse approaches. The Global Network of Institutions for Statistical Training (GIST) was established in 2018 with the aim of building sustainable statistical capacities through more harmonized development and delivery of training. Since the establishment, GIST members have jointly considered how to best meet the needs of users within the official statistics community and how to increase the relevant statistical literacy overall.

One key area identified is the need for a more strategic and systematic approach to training of staff in the National Statistical Systems (NSS), both in terms of ensuring that there are trainings available in the areas that are most important for the efficient functioning of the NSS and that staff are given sufficient time to build the skills to do their jobs. To do this in a proper way, there needs to be proper processes around it, a dedicated team as well as relevant tools and guidance materials. On the latter, GIST has been working on developing a tool to assess the training needs both from an institutional and staff perspective. In parallel, a guide is also developed on how to use the input from the training needs/gaps assessment tool to prioritize trainings to be provided within a given year based on what can be covered using own resources and based on what is and can be offered by partners. Elements of the work is also being piloted in a selection of African countries.

This session will discuss some of the challenges in statistical training and present the tools and guidance document that GIST members are working on with the aim to help make training programs at national level more needs based and sustainable. It will also present the approaches that some African countries currently are taking to ensure needs based and sustainable training opportunities for their staff.

Organizer: Dag Roll-Hansen
Panellists
1. Vibeke O Nielsen
2. Samir Issara
3. Shailja Sharma
4. Samuel Annim
Discussant: Mamadou Cisse

Room 5: Elephant
Session R5.3 - Panel Session
Chair: Anjana Dube

S1.5. Governance and Institutional Mechanisms Sustaining Resilient and Agile National Statistical Systems: How national regulatory frameworks may contribute to the transformation of official statistics

Abstract: The 75th session of the UN General Assembly recognized that the COVID-19 pandemic was one of the most significant global challenges in the United Nations' history and asked for the development of interoperable data tools and platforms to monitor the impact of the pandemic and inform mitigation and response actions.

In this context, the General Assembly call for building resilient, inclusive and integrated data and statistical systems under the leadership of national statistical offices (NSOs) to embrace the data revolution and innovative technologies to address emerging data needs in times of disaster and ensure a path towards the achievement of the 2030 Agenda for Sustainable Development and the 2063 African Agenda.

At the same time, a survey conducted by UNSD and partner organizations among national statistical offices underscored the need for more decisive investments in digital technology to support remote work, training, data collection, and data storage. However, the survey results emphasized the necessity, particularly in developing countries, to improve the governance and coordination of the national statistical system to effectively respond to future disruptive events and emerging data needs in times of crisis. It was noted that a well-coordinated national statistical system was crucial for grasping innovation in data collection, processing and communication and thus to remain relevant and meet all users' needs. Eventually, it was reported that robust institutional and legal frameworks for national statistical systems were needed to strengthen the governance and coordination mandate and stewardship role of National Statistical Offices.

In the pan-African context, this session intends to address and discuss the call of the 75th session of the UN General Assembly and the outcome of the survey conducted among national statistical offices during the COVI-19 pandemic. Thus, the session will consider the institutional environment in which the national statistical system operates, particularly the legislative framework, and how it can enable the transformation of official statistics for more resilience and agility in maintaining operations during significant disruptions while addressing emerging needs for data and statistics. A presentation of the outline of a summary paper on sound regulatory frameworks for official statistics prepared by the African Center for Statistics (ECA) and UNSD will launch the interventions by a group of 6-8 panellists composed of chief national statisticians from Africa, senior statisticians of international organizations and possibly one or two additional stakeholders. The Panel, facilitated by a moderator and some questions from the audience, will identify good practices and challenges in developing and maintaining legal and institutional arrangements upholding governance and coordination mechanisms within the NSS, fostering harmonious relationships with national policymakers, reinforcing the partnership with data providers, stimulating open data practices, and enabling data stewardship of the national statistical office over the national data ecosystem. The interventions by the Panelists will be

followed by an open discussion focusing on the resilience and agility of NSS through appropriate legal and institutional modalities supporting fitness for purpose and trust in official statistics in the context of the acquisition of new data sources and methodology as well as modernization of the underlying statistical production architecture and technology.
The panellists and the audience may also consider aspects beyond legislation and regulatory framework that may fuel the transformation and modernization of national statistical systems, keeping in mind the UN Fundamental Principles of Official Statistics and the African Charter on Statistics. The deliberations will be reflected in the draft paper presented at the session's opening and re-submitted to the IAOS as a final contribution.

Organizers: UNSD & UNECA
Panellists
1. Albina Chuwa
2. Oliver Chinganya
3. Gabrielle Vukovich
4. Macdonald G. Obudho
5. John Pullinger

Discussant: Gabriel Gamez

Room 6: Tiger
Session R6.3 -
Chair: Semiu Adeyemi Adeniran

C4.6. Challenges, Opportunities, and Building Partnerships for Official Statistics in the Era of Big Data
Popoola Peter and Adeboye Olawale
Abstract
Official Statistics are produced, collated, and disseminated by national governments, their agencies, and the international bodies which link them. These data are almost invariably nationally representative, because they are obtained from complete censuses or very large-scale national sample surveys, and they usually seek to present definitive information conforming to international definitions and classifications or other well-established conventions. The impersonal character of official statistics, and their resistance to innovation, stand in sharp contrast to statistics and data-sets from other sources such as academic research, market research, independent research institutes, commercial organizations, local, regional, and state body. Also, the rise of Big Data changes the context in which national government producing official statistics operate. Big Data provides opportunities, but in order to make optimal use of Big Data, a number of challenges have to be addressed. This research work addresses various opportunities that open in obtaining official statistics in the era of big data using the rapid development in information and communications technology (ICT) such as cellular phones,

satellites, Global Positioning Systems (GPS), and scanning devices, and fora like social media and e-commerce which create volumes of data on a daily basis; it examines various challenges of obtaining official statistics in the Era of Big Data; presents how to build a Public Private partnership model in obtaining official statistics and provide possible solutions to these challenges.

C7.40. National Multidimensional Poverty Index for Zambia

Miselo Bwalya

Abstract: The measurement and understanding of poverty in Zambia rely significantly more on monetary approaches which focus on monetary deprivation to classify the poor and non-poor. Monetary approaches focus on individual or household's wealth or command over monetary resources relative to a pre-defined monetary (income or expenditure) poverty line. In this regard the poor are those who cannot spend or earn a predefined monetary threshold. In reality however, poverty is about more than just money, incomes or expenditures. It has many facets or dimensions to it such that merely setting a poverty line may not sufficiently capture the experiences of the poor. Usually, the poor do not only lack money, but other important basic needs and services whose absence may impact negatively on well-being.

This paper aims to understand the multidimensional nature of poverty in Zambia. To do this, the paper uses the Alkire-Foster (AF) method which was developed by Oxford Poverty and Human Development Initiative (OPHI). The MPI was first published in the 2010 Human Development Report. It was jointly developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Program (UNDP).

Many countries have since then developed National MPIs, which have been adapted to reflect their own specific poverty priorities and national contexts. The methodology for measuring multidimensional poverty is the Alkire-Foster (AF) method developed by OPHI. The estimation procedure involves a selection of dimensions and indicators that are considered key in driving human progress and are then used to measure the level of deprivation by the population based on the identified dimensions and indicators

The paper uses the latest available household dataset for the Demographic Health Survey (ZDHS) to construct the multidimensional poverty index (MPI). The ZDHS is an internationally standardized survey designed to provide data to monitor population and health in Zambia. It includes information on education attainment and living conditions; making it appropriate for measuring multidimensional poverty.

The results presented in this paper provide useful insights into the different forms of deprivations and the progress that has been made towards reducing poverty in Zambia. Tracking progress is critical as the country continues to implement the Eight National Development Plan (8NDP) and Sustainable Development Goals (SDGs). The Multidimensional Poverty Index (MPI) presents an opportunity for the Government and other stakeholders to understand poverty from a multidimensional perspective in its efforts to lift as many Zambians out of poverty as possible.

The key results from the MPI reveal that Poverty headcount at both national and regional levels declined during the period under review. This implies levels of deprivation in three dimensions

(education, health and living conditions) included in the MPI declined on average. However, the MPI also shows that for households that are considered poor, deprivations were driven by the lack of secondary education by the head of the household.

C7.6 Job Quality and Poverty in developing countries : evidence from Côte d'Ivoire
Franck Migone

Abstract: This paper analyzes the influence of household members job quality on household poverty status in Côte d'Ivoire using data from the 2018 Harmonized Survey of Household Living Conditions. Using simple probit regressions, the paper highlights the significant negative effect of the job quality of the household head on household poverty risk. It also shows that improving the job quality of other household members, especially the spouse of the household head, who is mostly female, also reduces the risk of household poverty. In addition to promoting improved employment conditions for workers, policymakers should promote women's access to quality jobs. This could involve investing in social facilities to relieve them of the burden of caring for household children.

C1.9. Zambia National Statistical System and Considerations for Enhancing data Availability
Chola Nakazwe Daka

Room 7: Gorilla
Session R7.3 -
Chair: Biyi Fafunmi

C7.7 The role of career visits on the performance of students in Mathematics Subject in Selected schools of Kampala City, Uganda
Gilbert Habaasa

Abstract:

Introduction: Mathematics subject and numeracy is very essential globally in the day to today livelihood of individuals. Among children, the studying and passing of mathematics in schools have been associated with the perceptions surrounding what mathematics is and how useful it is in day-to-day living. To avert negative perceptions toward mathematics, the Uganda Young Statisticians Association (UYSA) which is a national association promoting lifelong learning among young statisticians in Uganda introduced career visits to schools in 2021. UYSA leaders visited 3 schools (Ahmadiyya Moslem Secondary School, Kololo Secondary School and Makerere University Primary School) to promote and motivate students to like and study mathematics between 2021 and 2022. The activities included workshops on the importance of mathematics, how to study, revise and pass mathematics, as well as the formation of mathematics clubs. Each student who attended the workshop was issued with a

new mathematical set. The current study aims at establishing the contribution of career visits to the performance of students in mathematics subject.

Methods: The researcher collected secondary data from the 3 schools that benefited from the UYSA career visit programme in August 2022. Data on the particulars of 672 students including age, gender, and mathematics scores at end of Term 1 before career visit and the end of Term 2 after career visit. Data was entered in SPSS software and descriptive and inferential statistics were generated. Paired Sample T-tests were performed to establish if there were any statistically significant differences in the mean scores of students in mathematics before and after the career visit.

Results: The students scored on average 51.7% in mathematics before the career visits to their schools. After participation in the career visit programme, the average mathematics score rose to 56.2%. The mathematics scores for terms 1 and 2 were strongly and positively correlated (r=0.785, $p<0.01$). There was a significant mean difference in mathematics scores among students before and after the career visits(t671=13.210, $p<0.001$). Lastly, mathematics scores were 4.5% higher in term 2 exams than in term 1 exams (95%CI[3.82-5.16]). This is attributed to the UYSA mathematics career visit programme in schools.

Conclusion: Career visit programmes in schools pray a significant role in promoting the studying and passing of mathematics in schools. There is a need to expand such programmes in all schools especially in primary schools so that children can appreciate mathematics and develop a positive attitude towards it at a tender age.

Key Words: Mathematics, Schools, Career, perceptions and performance.

C7.8 Determinants of Maize Yield Differences among Smallholder Farmers in Zambia-A Panel Quantile Regression Approach.

Isaac Kabunda Bwacha

Abstract: This study utilized two waves of Zambia's nationally representative farming household-level panel data from 7248 households interviewed in 2012 and 2015. The study estimated characteristics of most productive farmers- What makes some farmers achieve higher yields than others across the maize production distribution curve of smallholder farm households? Despite the dismal performance of the majority of maize producers stagnating yields at 2 ton/ha, there are a number of highly productive farmers achieving more than 6 ton/ha. The Study considered the following specific objectives: Firstly, examining yield differences by Gender, Age, Education Level and Extension services among small holder maize farmers in Zambia. Secondly, identifying the characteristics of the most productive farmers in the 90% quantile of the Zambian smallholder maize yield distribution curve. Lastly, determining the

profitability of fertilizer and seed rate using the Value-Cost Ratio across quantiles of the Zambian smallholder maize yield distribution curve.

Quantile regression and Correlated random effects estimator were used to deal with potential endogeneity. Quantile regression approach allows parameters to vary across maize productivity groups. Results showed that estimates for conditional mean regression with OLS could be misleading. Although most of the parameters estimated through OLS maintained their signs, the magnitudes of contribution varied depending on the quantile being considered. Using OLS and quantile regressions the results show that fertilizer and seed application rates have a positive and significant impact on maize yields. In addition, profitability analysis using the value-cost ratio of the response rates of fertilizer and seed rates revealed that the Zambian response rates were not profitable for both seed and fertilizer in the 25^{th} and 50^{th} quantiles and only 10% of farmers are profitable those in the 90^{th} quantile. Recommendations on closing the existing yield gaps require interventions by policy makers and other stakeholders to address the following factors: First, increasing the fertilizer and seed application rates under the Farmer Input support program. Providing Agriculture Extension Services and Conservation agriculture advice and lastly, Enhance the rate of adoption of improved technologies such as use of hybrid seed, and use of fertilizers among smallholder farmers both male and female.

Key Words: Maize Production Distribution Curve, Maize Yield, Quantile Regression, Correlated Random Effects Estimator.

C.6.41. Impacts of agricultural expansion into forest reserves .

Justin Munyaka

Abstract: Forest reserves play an important role in climate change mitigation and the provision of various ecosystem services. However, due to increasing demand for land, these reserves have faced increasing anthropogenic impacts such as deforestation and degradation, primarily because of agricultural activities. Most studies in sub-Saharan African countries such as Zambia have focused on deforestation and its drivers; however, studies on understanding the extent and impacts of agricultural expansion into forest reserves are lacking. This study aimed to assess the extent of agricultural expansion into forest reserves in Zambia on a national scale between 2000 and 2018 and explore the drivers. We used a remote sensing approach by employing Google Earth Engine (GEE) and random forests to map land cover changes at five-time steps: 2000, 2005, 2010, 2015 and 2018. Landsat and Sentinel-2 images were used to map six land cover classes (forests, cropland, wetland, grasslands, settlements, and others) determined by the Intergovernmental Panel on Climate Change (IPCC). A social survey was used to understand the drivers of agricultural expansion into forest reserves by targeting communities at two study sites. Land cover maps were produced with high overall accuracies ranging from 82% to 94%, with land cover maps based on Sentinel-2 images having higher accuracy. The results indicated a general decline of 10% in forest area and an increase of 25% in cropland. Almost 50% of the forest reserves in Zambia are experiencing some form of encroachment, and 10% of these are

heavily encroached (>90% forest loss). During the survey, communities indicated that the ever-increasing demand for land drives agricultural expansion due to population increase. Other drivers include loss of soil fertility, market demand for crops, land tenure system, and lack of law enforcement. This study highlights the need for consideration of trade-offs in agricultural expansion, especially by focusing on forest reserves. Thus, policymakers need to take urgent steps to address the ever-increasing agricultural expansion into forest reserves. Enhancing sustainable agricultural practices such as agroforestry and strengthening the implementation of different legislation is key in addressing this challenge.

C7.10 Hierarchical Bayesian Spatial Small Area Model for Binary Data Under Spatial Misalignment

Kindie Fentahun Muchie

Abstract: Small area model has become a popular method for producing reliable estimates for small areas. Small area modeling may be carried out via model assisted approaches within the design-based paradigm or model-based approaches. A model assisted design-based inference may be reliable in situations when there are large or medium samples in areas, while if data are sparse, model based approach may be a necessity. Model based Bayesian analysis methods are becoming popular for their ability to combine information from several sources as well as taking account of uncertainties in the analysis and spatial prediction of spatial data. However, things become more complex when the geographic boundaries of interest are misaligned. Some authors have addressed the problem of misalignment under hierarchical Bayesian approach. In this study, we developed and assessed the performance of non-trivial extension of existing hierarchical Bayesian model for binary data under spatial misalignment. In this study, we developed a spatial hierarchical Bayesian small area model for a binary response variable under spatial misalignment. The developed model is fusion model, considering both areal level and unit level latent processes. The process models generated from the predictors were used to construct the basis so as to alleviate the well-known problem of collinearity between the true predictor variables and the spatial random process. A simulation study demonstrated that the model has good performance.

Keywords: Small Area Estimation; Hierarchical Bayesian; Spatial Misalignment; Fusion Process

Day 2: Wednesday 5 April 2023

Time: 9.00 – 10.00

Plenary Session.
Room 1: Giraffe

Chair: Mr. Oliver Chinganya

Invited speakers:

1. Statistics production in Africa: From Tragedy to Strategy? Felicien Donat Accrombessy
2. Sassire Napo, Chairperson, Takwimu Young African Statisticians Programme
3. IAOS Young Statisticians Prize, Misha Belkindas
4. Kenza Sallier, 2020 Young Statistician Prize Winner
5. Elham Sirag and Gautier Gissler, 2021 Young Statistician Prize Winners

Time: 10.30 – 12.00

Parallel Sessions #4
Time: 10:30-12:00:

Room 1: Giraffe
Session R1.4 (Contributed Paper Session)
Chair: Gabriella Vukovich

C3.2 Measuring Interlinkages Between Sustainable Development Goals
By Clément Delecourt

Abstract: The monitoring framework of the 17 Sustainable Development Goals is composed of 231 indicators. Using these indicators, we measure interlinkages between SDGs, applying linear dimensionality reduction techniques on a dataset derived from the UN Global SDG Database, which is the official source for all SDGs indicators (gathering data for 193 UN member-countries). This is the first study of this kind on this topic at the world level.

The Multiple Factor Analysis (MFA) used to synthesize the correlations between indicators shows that SDGs related to human development alone contribute to 30 % of the observed variance of all the indicators at the world level, and that country performances in this field are strongly correlated to their income level (GNI per capita). SDGs related to the environment and governance also contribute to a lesser but significant extent to the variance of the dataset. We observe synergies (positive correlations) only and no than trade-offs (negative correlations) between SDGs and their monitoring indicators.

The Hierarchical Cluster Analysis (HCA) distinguishes three country clusters according to their performance in terms of SDG indicators. The differentiation between countries, and hence

the composition of these clusters, mainly reflects their economic development as measured by their GNI per capita. The first cluster, which is mostly composed of African countries, lags behind in terms of sustainable (especially economic and social) development. The second and third clusters are mostly composed of respectively middle-income and high-income countries (according to the World Bank classification).
Data is still lacking on many dimensions of sustainable development, especially on SDGs covering new domains such as the environment and governance. Overall, Africa is the continent where missing data is the highest for SDG indicators. Some progress will have to be made to address these shortcomings before the deadline of the Agenda 2030, so that increased data availability will help to keep improving knowledge for monitoring SDGs and their interlinkages.

C3.5 SDG Progress assessment: Successes, challenges and lessons learnt from Africa

***By Mr. Edem Kludza**, Associate Statistician, UN Statistics Division; email: edem.kludza@un.org*
***Ms. Eman Elsayed**, Associate Statistician, UN Economic Commission for Africa, email: eman.aboaldahab@un.org*

Abstract: This paper is based on the work and the methodology of the United Nations Economic Commisssion for Africa on SDG Progress monitoring in Africa:

Only eight years separate us from the deadline of the SDGs (2030). Countries have been implementing this development agenda for the last seven years. The paper found that Africa has recorded progress on many SDG Indicators, however the pace of progress has been insufficient to achieve the promises of the 2030 Agenda.

This paper describes the main successes and challenges of implementation of the SDGs in Africa. It highlighted the indicators that can be achieved based on the current trend of progress. These include mainly health indicators (under-five mortality, HIV infections and National vaccination coverage) and technology (mobile network coverage) where the continent has made big progress over the last two decades.

The challenges faced on the continent relate to the impact of disaster, food insecurity, ecosystem management and human trafficking where Africa has regressed and needs to reverse its trend to deliver on the promises of the agenda by 2030. It is noteworthy that the COVID-19 pandemic has negatively impacted the implementation of the 2030 Agenda and deviated furthermore from the goals.

The paper also found that there was a positive development in terms of data availability and disaggregation in African countries but there were 52 SDG indicators with no data for any countries on the continent. Improving capacity if African countries for more data production and dissemination is top priority for the coming years. The paper ends by sharing lessons learnt in implementing the SGDs in Africa.

Keywords: SDG, Progress, Africa.

C3.6 Africa Agenda 2063 And SDGs: Prospects and Challenges

By Chigozie kelechi Acha, *Department of Statistics, Michael Okpara University of Agriculture Umudike, Abia State, Nigeria.*

Abstract: The African Agenda 2063 is to harness the continental endowments embodied in its people, history, cultures and natural resources, geo-political position to effect equitable and people-centered growth and development. Whereas, the 17 Sustainable Development Goals are the blueprint to transform our world, achieve a better and more sustainable future for all.
These objectives cannot be achieved without dealing with their challenges. The challenge for the Agenda 2063 vision is for ordinary citizens to imagine a more positive future while reconciling with past misdeeds and atrocities and simultaneously coping with the hardship realities of the present. On the hand, challenges of the Sustainable Development Goals (SDG) are equality, globalization, environmental degradation, and population diversity, to mention but a few. This paper focuses on these issues, challenges, probabilities and chances for future success in achieving the agenda come 2030 and 2063.

Keywords: Africa, Goals, Challenges, Agenda, Predictions.

C1.5 Measuring welfare index for North Africa countries.

By Mahmoud Mohamed Elsarawy, *Statistician at the Central Agency for Public Mobilization And Statistics, email: m_sarawy@yahoo.com.*

Abstract: GDP has become the standard measure of economic progress in many countries, even though it was only intended as a macroeconomic accounting tool. In fact increasing GDP does not mean that increasing wellbeing, it depends on whether the social costs of such an increase outweigh the benefits. GDP does not include non-economic determinants of wellfare such as social relationships, or the distribution of income and wealth, also GDP is a good measure of size, but at some point bigger is worse, not better, wellbeing is multidimensional encompassing all aspects of human life.
Measuring welfare level involves identifying the key components of a better life and then selecting a set of indicators and variables which provide data and information about the progress of society in this area with respect to these outcomes.

The objectives of the study: Building an indicator to measure the well-being in some of Africa countries (AC), using some economic and social variables and use this indicator to make comparison between AC. The importance of the study: stands on the extent to which the improvement and development of the variables used in and through make a time series of the variables and the indicator over a number of years when we compile the wellbeing indicator for

each country, and also use this indicator in international comparisons.This study use the most recent available data for this variables, including the level of poverty in urban and rural areas, the unemployment rate , the rate of education enrolment , the percentage of medical care services and the proportion of access to safe drinking water in different regions.
Keywords: Quality of Life - International comparisons - Community satisfaction.

Room 2: Zebra
Session R2.4 (Contributed Paper Session)
Chair: Irena Križman

C3.7 The French National Council for Statistical Information: Lessons from a Formal Dialogue between Producers and Users on Sustainable Development.
By Cristina D'Alessandro, *General Secretariat of the National Council for Statistical Information; email: cristina.dalessandro@insee.fr*

Abstract: Focusing on the French National Council for Statistical Information (Cnis), this paper offers an overview on the value and strength of the dialogue between producers and users of official statistics in France. Highlighting its specific contribution to shape official statistics in relation to sustainable development, it presents its role and original value added in the French context on a critical issue for the post-Covid era. If this case study proposes lessons to learn from this experience, its history, and transformation over time, it wants also to point out promising evolutions and paths for the future. In a context of crisis and pandemic, the need to produce quality and timely statistics adapted to the situation has showed its capacity to adapt and to confirm its critical role.

Keywords: official statistics; producers; users; consultation; sustainable development; post-Covid 19 changes; governance of official statistics; innovation.

C3.8 User engagement: a critical mechanism to increase the value and use of official statistics in the society.
By Mr. Leandre Ngogang Wandji*, Statistician, UN Economic Commission for Africa, email: ngogangwandji@un.org*

Abstract: Managing relationships with data users, data providers, and other stakeholders is essential for the quality and relevance of data and statistics produced by the National Statistical Systems. Therefore, the National Statistical Systems actors should build and sustain good relationships with all their key stakeholders, including users, data providers, funding agencies, senior government officials, relevant community organizations, academia and the media (UN NQAF). This is an essential component of the quality and relevance of data and statistics.

However, promoting a culture of a permanent dialogue between users and producers of official statistics is a somewhat neglected aspect in countries. The assessment of the institutional statistical environments and production processes conducted by the United Nations Economic Commission (ECA) for Africa in 2019 highlighted the absence of such dialogue in several African countries, which is key to promoting trust and maximizing public value and quality of official statistics. The ECA, therefore, prepared user engagement guidelines to assist countries in developing and implementing such engagements. This paper aims to share ECA's experience in helping national statistical systems engage users in official statistics and how it has increased the value and use of official statistics.

C7.9 Dealing with Sensitive Data.

By Kerrie Mengersen, *QUT, Australia.*

The power of data can often be increased substantially by combining data from different sources. Indeed, this is usually essential to gain essential insights and make fully informed decisions.
However, often the data are unable to be aggregated easily. For example, necessary data may be held by different data custodians who may be unwilling to share it for reasons of personal or commercial confidentiality. In other cases, the datasets may be too large, too diverse or too variable in quality to combine into a single database.
In these cases, it is useful to consider federated learning (FL) approaches. In FL, the data remain in situ and the analysis is undertaken by accessing only summaries of the data. Thus the original data never leave the data custodian and are not seen by anyone else, even the analyst.
In this presentation, I will present some examples of FL and describe some case studies in which FL is being used in our Centre for Data Science at QUT Australia. One such case study is the construction of an online, interactive Australian Cancer Atlas. I will focus in particular on the ways in which the statistical models need to change to allow for FL, and the opportunities for researchers, practitioners and managers in this space.
FL has the potential to increase the power of data and improve the translation from data to progress. However, in addition to creating the methods, we also need to create opportunities for training in these methods. In this presentation, I will also describe a personalised learning approach that was developed for the United Nations Global Working Group on Big Data, to help further progress on delivering the SDGs. This approach harnesses the large number of online, free courses to form individualised training programs.

C3.10 Addressing the data priorities of local stakeholders when tackling youth migration in the Danube Region: Experiences from the YOUMIG project.

By Zoltán Csányi, *Hungarian Central Statistical Office, Population Census and Demographic Statistical Department, email: zoltan.csanyi@ksh.hu.*

Abstract: Both migration policymaking, which aims at managing the developmental challenges and opportunities associated with human mobility, and the migration-and-development data, on

which these policies are based, are generally conducted at the national level. Nonetheless, the YOUMIG project was born from the conviction that such challenges and opportunities appear at the local, rather than at the country level. A clear objective of YOUMIG – in which 19 partner institutions from eight Central and Eastern European countries worked together – was to support local policymakers when dealing with diverging forms of youth migration. The project provided important insights into the possible ways of improving local level data production to better serve the needs of local governance. First, local level data gaps and the data needs of local stakeholders were identified and prioritized. Second, a common set of indicators was defined as a minimum requirement for a proper contextualization of local migration and development processes. Third, missing indicators were developed on the basis of a) an enhanced use of already existing data sources and b) local surveys. The exercise was completed with the creation of a Data Toolkit that contains data, graphical illustrations, data interpretations and meta information. Based on the lessons learnt, I reflect upon how data producers and local stakeholders might cooperate to strengthen institutional capacities of municipalities when tackling youth migration.

Room 3: Hippo
Session R3.4 (Panel session)
Chair: Mulenga JJ Musepa

S3.2. Quality reports for statistical products - towards relevant and trustworthy official statistics in Kenya and Zambia

Abstract: The term "official statistics" indicates some statistics should have an important position compared to other statistics within the national statistical system. Official statistics should be of high quality, objective, impartial and accessible to all users. However, there must be deliberate effort to promote the use of official Statistics. Official Statistics are the basis of evidence-based planning, decision making and monitoring of policies and interventions. To promote the status of official statistics the national statistics offices in Kenya and Zambia have started to produce quality reports for statistical products classified as official statistics. A quality report is a documentation describing the quality of a product in relation to all relevant quality dimensions and enables users to understand if the statistics are fit for purpose.

During the past couple of years, Kenya National Bureau of Statistics (KNBS) and Zambia Statistics Agency (ZamStats) have worked in cooperation with Statistics Sweden to achieve this outcome. In this presentation, KNBS and ZamStats will share their insights and experiences on the work undertaken to develop quality reports and templates and how these can be implemented among all producers of official statistics.

Through these efforts, the expectation is that official statistics in Kenya and Zambia should improve its status as high quality and relevant statistics for decision makers to use but also to increase the possibilities to hold them to account.

Organizers: ZamStats

Panellists
1. TBC
2. TBC
3. TBC
4. TBC

Discussant: TBC

Room 4: Lion

Session R4.4 (Panel session)

Chair: Silke Stapel-Weber

S3.3. Ethics, fundamental principles and governance of official statistics

Description: Trustworthy information for (economic) decision making is more valuable than ever. Statistics must be fit for purpose in an environment with a myriad of information sources, not all of which are well intended.

In order to keep its independence from direct political influence, the statistical function of the society must adhere to best practices and carefully chosen principles. A solid institutional framework safeguard the willingness and ability of statistical stakeholders to adhere to these principles.

The session will address the organisation of the statistical function from an ethical perspective, focusing on the issues of quality principles, governance and independence. Quality management of the European statistical authorities will be outlined in detail. Representatives of official statistics, associations and academia are welcome shall participate in the panel discussion.

While the discussion would mainly be focused on ethics, principles and governance, the session would also link to a new, tailor-made edition of the EMOS course.

Organizers: European Central Bank (ECB)

Panellists
1. Jean-Louis Bodin
2. Misha Belkindas
3. Albina Chuwa
4. Christine Wirtz
5. John Pullinger
6. Björn Fischer

Room 5: Elephant

Session R5.4 (Panel session)

Chair: Samuel Kobina Annim

S1.1. Innovation in digital population and housing census taking in Africa

Abstract: Population and housing censuses provide vital information for monitoring the 2030 Agenda for Sustainable Development and Agenda 2063 on a wide range of statistical areas and allowing disaggregation by small geographic areas and small population groups. As population and housing censuses are a fundamental source for producing small area statistics, timely dissemination of good quality census data is crucial for monitoring the SDG indicators. Censuses are complex and cost African countries considerable amount of money due to the involvement of a vast number of field workers, requiring a long time for preparation, post-enumeration activities and partnership with national and international stakeholders. In the 2020 round, the majority of African countries are planning to introduce digital censuses using tablets. Such a shift in the way of undertaking censuses requires replanning and redesigning from the 'tradtional' census, staff retraining, mobilising resources, partnerships within national stakeholders including private companies such as telecom operators for data transfer, and international organisations for leveraging the high one-time cost of tablets through sharing arrangements and bringing innovative tools and best practices and cooperation.

The use of mobile devices for statistical production is not new in the continent; several countries have, over the years, used mobile devices for household surveys, prices, and other types of surveys. In 2016, the United Nations Economic Commission for Africa (ECA) also implemented pilot projects in 11 countries in the use of mobile technology for data collection in a framework of developing local capacity in the continent. However, the complexity in terms of data transmission and data storage, preparation of tablets, logistical challenges cannot be compared to that of Population and Housing Census taking. With the behest of the Ethiopian Central Statistical Agency, the ECA developed a set of tools to support the preparation of the Ethiopian Census. The tools developed are used to calibrate the 180 thousand tablets with a necessary and unique collection of documents, maps, applications and other files that would be extremely difficult to undertake manually. The ECA set of tools helped to minimize time taken to calibrate the mobile devices and reduce human errors that arise through manual operations. ECA continued developing innovatiave tools for census taking such as field monitoring dashboard and census issues trackers to facilitate census taking and improve the quality of enumeration. These tools in one way or another have been used in Kenya, Sierra Leone, Rwanda, Zambia, Zimbabwe, Nambibia, Seychelles, Mauritus, Liberia and Nigeria so far in one way or another. ECA is not alone in this regard, other organisations have also attempted to support African member states to remedy the new set of challenges brought in through CAPI, UNFPA and the Italian Statistical Institute are worth mentioning. As over 30 countries plan to undertake Population and Housing Censuses before the end of the 2020 Round and many of them through CAPI, there needs a concerted and coordinated effort to facilitate Census taking in Africa.

Organizers: UNECA

Panellists

1. Rob Bumpstead

2. Molla Hunegnaw Asmare
3. Nahom Tamerat
4. William Muhwava

Discussant: TBC

Room 6: Tiger
Session R6.4 (Contributed Paper Session)
Chair: Jūratė Petrauskienė

C5.2 Spatial Frailty Survival Model for Multidrug-Resistant Tuberculosis Mortality in Amhara Region, Ethiopia.
By Ashenafi Abate Woya, *Bahir Dar University, college of since statistics department; email: ashu.abate@gmail.com*

Abstract:

C5.7 Impact of free health care on mortality reduction modelling its effect on under-five children in Moyamba district, southern province Sierra Leone.
By Brima Gegbe

Abstract:

C5.16 Determinants of stunting among under-five years children in Ethiopia from the 2016 Ethiopia demographic and Health Survey: Application of ordinal logistic regression model using complex sampling designs.
By Haile Mekonnen Fenta

Abstract:

C3.47. Effect of cash transfer on school dropout rates using longitudinal data modelling: a randomized trial of research initiative to support the empowerment of girls (rise) in Zambia

Mutale Sampa

Room 7
Session R7.4 (Contributed Paper Session)
Chair: Peter Diggle

C5.49 Decomposing Rural-Urban Post-Natal Check Differentials among Newborns in Tanzania.

By Nelson Jerry Ndifwa

Abstract: The Government of Tanzania has advanced several measures/efforts directly and indirectly, all intending to achieve newborns' health goals as it is in 2030 Agenda (Strategic Development Goals, SDGs) as well as to increase access to and use of MNCH services. They include use of community health workers (CHW), use of mothers as peer educators, mobile health clinics and outreach programs (regularly using mobile vans or buses under the rubric, clinic on wheels) and occasionally conducting home-based health services (UNICEF, 2018).
Despite the said efforts, newborns' postnatal care services remain one of the health problems in Tanzania. According to 2015/16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS), only 42 percent of newborns are checked for PNC within 48 hours after birth as recommended, regardless of an increase in facility deliveries and availability of crucial related services. In addition, there was high regional disparity and urban-rural inequity in access to available maternal and newborns' services across the country.

Postnatal care services in urban areas are higher by 27 percent than rural area that account for 16 percent, according to the 2015–16 TDHS-MIS in both mainland Tanzania and Zanzibar. Thus, there is notable difference in postnatal care service usage between newborns who reside in rural compared to their counterparts in urban areas. This implies that there is no substantial utilization of newborns' postnatal care in rural settings compared to urban settings. Therefore, this study sought to determine factors associated with such differences between rural areas and urban areas pertaining to postnatal care services.

Keywords: Rural-Urban, Oaxaca' Blinder Decomposition, and PNC.

C5.33 Estimating District HIV Prevalence in Zambia using Small Area Estimation Methods (SAE).

***By Chris Mweemba**, Department of Health Policy, Systems and Management, School of Public Health, University of Zambia, Lusaka, Zambia, email:chris.muna@gmail.com*

Abstract: The HIV/AIDS pandemic has had a very devastating impact at a global level, with the Eastern and Southern African region being the hardest hit. The considerable geographical variation in the pandemic means varying impact of the disease in different settings, requiring differentiated interventions. While information on the prevalence of HIV at regional and national levels is readily available, the burden of the disease at smaller area levels, where health services are organized and delivered, is not well documented. This affects the targeting of HIV resources. There is need, therefore, for studies to estimate HIV prevalence at appropriate levels to improve HIV related planning and resource allocation.

We estimated the district level prevalence of HIV using Small-Area Estimation (SAE) technique by utilizing the 2016 Zambia Population-Based HIV Impact Assessment Survey (ZAMPHIA) data and auxiliary data from the 2010 Zambian Census of Population and Housing and the HIV sentinel surveillance data from selected antenatal care clinics (ANC). SAE Models were fitted in R Programming to ascertain the best HIV predicting model. We then used the Fay-Herriot (FH) model to obtain weighted, more precise and reliable HIV prevalence for all the districts.

The results revealed variations in the district HIV prevalence in Zambia, with the prevalence ranging from as low as 4.2% to as high as 23.5%. Approximately 32% of the districts (n=24) had HIV prevalence above the national average, with one district having almost twice as much prevalence as the national level. Some rural districts have very high HIV prevalence rates.

HIV prevalence in Zambian is highest in districts located near international borders, along the main transit routes and adjacent to other districts with very high prevalence. The variations in the burden of HIV across districts in Zambia points to the need for a differentiated approaches in HIV programming within the country. HIV resources need to be prioritized towards districts with high population mobility.

C6.17 Using Interview for Food Crops Data Collection in Pandemic Covid-19: Is It a Reliable Method?

By Ratna Rizki Amalia, *BPS-Statistics Indonesia.*

BPS carried out the crop-cutting survey to collect food crop productivity data. However, the Covid-19 pandemic since 2020 has led to new challenges in collecting food crops data, which were previously collected using a conventional method, crop-cutting survey. Therefore, BPS uses other data collection alternatives to try through farmer interviews with questionnaires. This paper aims to examine the reliability of productivity data collection through the interview method. We conducted an in-depth study in 3 provinces in Java, namely DKI Jakarta, Banten, and the Special Region of Yogyakarta. We analyzed the data using paired sample t-test. The result shows that the interview method can be used as an alternative to the crop-cutting survey, although the estimation results tend to underestimate the crop-cutting survey with a difference of less than 20 percent. This finding implies that by using the interview method, we need to justify estimating food crop productivity ranging from 1 to 20 percent. We expect that the study can provide an overview of the reliability of the interview method for collecting food crop productivity data.

C6.40. Distributional effects of the COVID-19 pandemic in Zambia.

By Mbewe Kalieka, *Research Fellow at the Zambia Institute for Policy Analysis and Research (ZIPAR).*

Abstract: This paper will aim to quantify the impacts of government action in the light of the COVID-19 pandemic. The analysis will focus on the first nine months of 2020, this period was selected because it is the period in which most Government interventions were implemented in Zambia. Zambia recorded its first COVID 19 cases in March 2020 after which the Government imposed an array of containment measures which included the closure of schools, closure of bars, cinemas and casino, restriction on public gatherings to at most 50 people and partial lockdown of selected towns in Zambia

To alleviate the detrimental effects on vulnerable households the government introduced the COVID-19 Emergency Cash Transfer starting in July 2020 for six months, supplementing the existing Social Cash Transfer programme. Zambia furthermore paused its Home-Grown School Feeding programme during the lockdown, leaving it to the households to afford the extra meals for their children who would usually have received them at school.

To understand the distributional effects of these measures we conducted an assessment using the MicroZAMOD to simulate these effects. The MicroZAMOD tax-benefit microsimulation model is used to estimate the impact of the pandemic on incomes, poverty and inequality and the role of the general tax-benefit system, as well as discretionary government policy interventions in mitigating the adverse effects of the crisis in Zambia. The microsimulation model for Zambia, underpinned by the 2015 Living Conditions Monitoring Survey (LCMS) while supplementary data was also collected from World Development Indicators, Labour Force Survey and ZamStats monthly bulletins. The study found that the general tax-benefit system contributed very little to stabilize incomes and only provided some relief for some of the most well-off households. In general, poverty and inequality increased but the emergency cash transfer offered some protection to the most vulnerable households.

Time: 13.30 – 15.00

Plenary Session. **Room 1: Giraffe**
Chair: Mr. John Pullinger A. Keynote speaker: Prof Peter Diggle, Modernising the design and analysis of prevalence of neglected tropical diseases B. Postgraduate training in Africa: experiences in the training of PhD students and opportunities for the future **Panellists:** 1. Arnoldo Frigessi 2. Zeytu Asfaw 3. Denekew Bitew 4. Peter Diggle

Time: 15.30 – 17.00

Parallel Sessions #4 **Time: 15:30-17:00:**
Room 1: Giraffe **Session R1.5 (Panel session)** **Chair: Karen Bett**
S4.2. Administrative data sources - a gold chest to catalyze achievement of the Leave No One Behind Agenda. **Abstract:** Administrative data collected by governments and service providers in the course of their day-to-day activities are currently only utilized to a limited extent for statistics production in many countries. At the same time, these data sources have a large potential to help fill gaps in the data available to policy and decision makers to monitor progress and implement the 2030 Agenda, including in increasing timeliness and disaggregation of the SDG indicators and thus better be able to measure who is left behind. How to proceed to get access to administrative data sources and how to assess and assure the quality of these data for statistics production are, however, challenges that many countries are facing and seek guidance and experience from others on. To respond to these and other related needs, the UN Statistics Division and the Global Partnership for Sustainable Development Data established the Collaborative on Administrative Data for Statistical Purposes in 2020. From

early on it was agreed with the various members, representing national statistical offices, regional and international agencies, to have a practically oriented focus. This included sharing of resources, tools, best practices and experiences, and contributing to raising awareness among all members of national statistical systems about the benefits of sharing and combining administrative sources to enhance the quality, timeliness, coverage and level of disaggregation of statistical data.
Members of the Collaborative on administrative data have since then jointly developed various tools, training and guidance materials and work has progressed in countries in engaging with administrative data holders, formalizing agreements, assessing data quality and actual sharing of data to increase availability of SDG indicators. In Africa, better use of administrative data in official statistics has been set as a key priority in transforming and modernizing national statistical systems to respond to users' needs adequately. In that direction, several initiatives led by partners supporting statistical development, including ECA, UN Women and Statistics Norway, have been initiated to support the modernization of administrative data. This session will present some of these ongoing efforts at national, regional and international levels, as well as concrete progress being made in selected African countries.

Organizers: UNSD
Panellists
. Gabriel Gamez
2. Otja Tjipetekera
3. Isabella Schmidt
4. Leandre Ngogang Wandji
5. John Bore

Discussant: Janne Utkilen

Room 2
Session R2.5 (Panel session)
Chair: Misha Belkindas

S2.4. Skills Development within the National Statistical System.
Abstract:

Organizers: World Bank
Panellists
1. Partha Lahiri
2. Francis Lavoe
3. Anjana Dube
4. Andrés Gutiérrez

Discussant: Misha Belkindas

Room 3
Session R3.5 (Contributed Paper Session)
Chair: Conchita Kleijweg

C6.12 Modelling Extreme Rainfall in Lesotho by applying Extreme Value Theory.
By Kabeli Mefane

Abstract: A changing climate leads to changes in the frequency, intensity, spatial extent, duration, and timing of weather and climate extremes, and can result in unprecedented disasters, forecasting future weather patterns or climate is a key to prepare for such disasters. Although we have reason to believe
that the large degree of uncertainty surrounds predictions of what will happen decades or even centuries in the future, it must be emphasized that climate change has the potential to be extremely harmful to living things.

Accurate rainfall prediction is now more difficult than before due to the extreme climate variations. The classical statistical approach usually assumes the extreme events as outliers, hence resulting in a loss of information on rare events in the distribution tails, which are precisely the most important to catch in risk analysis. In order to better assess extreme rare events, we resort to an extreme value theory, which is a powerful method that is known to provide statistical models for events rarely observed.

"SDG target 13.1 specifically aims to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters. Such events represent the leading edge of climate change. Their frequency and intensity are increasing. Rainfall patterns are changing and are less predictable, increasing the risk of droughts and floods."

The analysis of rainfall data is extremely important for strategic planning and decision-making for policy makers and a nation as a whole, also in risk management such as planning and preparing for a drought or extreme rainfall periods.

This study will analyze the best-fit probability distribution of Lesotho mean annual rainfall for the period 1901 to 2015 using four probability distributions namely Normal, Log-normal, Gamma and Pearson type-III. In order to capture the extreme occurrences, the Generalized Extreme Value (GEV) and Generalized Pareto (GP) models will be fitted to the upper and lower tails of data to estimate the intensity of extreme rainfall or droughts and their occurrence probability.

C5.52 Statistical review on the pandemic's effect on water consumption.

By Saeed Fayyaz*, Group leader on sustainable development statistics*

Abstract: Comprehensively understanding water consumption behavior is necessary to design efficient and effective water use strategies. Clean water and sanitation for all in the goal 6 of the SDGs has been emphasized. Water demand is the amount of water required to fulfill the demand of the consumers and it can be influenced in special situations like the natural disasters, pandemic, mass migration etc. Among these factors the pandemic factor has been less considered. In this study the latest pandemic, COVID-19, will be considered. Increasing the precautions and hygiene maters in this pandemic, the are many reasons have been resulting the water consumption. Iran as many other countries has been faced with different defies due to the Covid-19 and precautions and hygiene instructions that includes in simplest way from washing hands at least 20 seconds each time during the day to washing the places, staffs, taking more showers. In manufacturing parts, production of disinfectants, alcohol, Anti-bacterial liquids etc. Has been dramatically increased.

In this study the Covid-19 pandemic is the main point for analyzing the water statistic. Also different changes in water consumptions and time series trends will be discussed. The result can be effective for decision maker to manage better the water supply and demand in pandemic time.

Keywords: water consumption, pandemic, Covid-19, household behavior, changing patterns,

hygiene.

C6.14 Air quality data and air pollution management: A case of Kampala Capital City Authority

By Margaret Napolo, *research officer at Population and Development Consult, email: margaretnapolo81@gmail.com.*

Abstract: According to the World Health Organisation (WHO), 7 million people die prematurely annually due to air pollution. In 2021, Uganda's capital city Kampala was ranked as the fifth most air polluted city in Africa and the twenty-sixth in the world. Moreover, the air pollution estimates were 5.3 times more than the recommended WHO cut-offs. Like any other developing country, Uganda lacks reliable, consistent, comprehensive air quality data. However, Kampala Capital City Authority (KCCA) with support from the United Nations Environment Programme, has been compiling, analysing and sharing monthly statistics on the air quality in Kampala based on data from an air quality monitoring system. This study, therefore, aims at assessing the role of the publication of air quality statistics in air pollution management at Kampala Capital City Authority.

The study findings were based on data from 85 staff including officers and directors from the Public Health and Environment Directorate of Kampala Capital City Authority. The data was collected using questionnaires, interviews and a documents review checklist. The quantitative data was entered into the Statistical Package for Social Scientists (SPSS 26.0), coded, cleaned and analysed. While the qualitative data was transcribed verbatim and analysed using thematic and content analysis. The results were presented using descriptive and inferential statistics.

The study findings showed that there was a strong positive correlation (r=0.629) between the publication of air quality statistics and air pollution management at Kampala Capital City Authority and the correlation was statistically significant (p=0.000<0.01). Indeed most (92.7%) of the respondents affirmed that air quality statistics enabled them to make better-informed decisions by assessing the trends of air pollution in Kampala city. In addition, the compiled air quality statistics were used by KCCA in raising public awareness about air quality in Uganda, compelled KCCA to form partnerships for addressing air pollution and facilitated the development of the Kampala Clean Air Action Plan. Also, KCCA received numerous requests for air quality data from other government agencies. In fact, respondents mentioned that National Environment Management Authority was using air quality data from KCCA to develop the national air quality regulations for Uganda.

Publishing air quality statistics plays a key role in air pollution management. The study recommends empowering other agencies in Uganda especially NEMA to publish air quality statistics as a strategy for combating air pollution in Uganda.

Keywords: Kampala, air quality, pollution and KCCAs.

C6.11 Challenges in energy development – How can statistical information contribute to efficient resource allocation?

By Samwel Kawa,
Frode Berglund

Abstract:

Room 4
Session R4.5 (Panel session)
Chair: Emily Poskett

S2.5. Empowering African Statisticians and Data Scientists to Modernize African Statistical System

Abstract:

Organizer: ONS-UK
Panellists
1. Samuel Nahimana
2. Karen Bett
3. Issoufou Seidou Sanda

Discussant: Matthew Shearing

Room 5
Session R5.5
Chair : Jean Louis Bodin

C3.9. Monitoring the completeness of civil registration: challenges and new approaches
David Nzeyimana

C3.11. Birth registration for special population groups: case of children in residential institutions in Kenya
Violet Nyambura Kinuthia

C3.12. The use of road traffic accident death records in the Civil Registration and Vital Statistics system in Rwanda
Patrick Nshimiyimana

C3.13. Assessing the status of implementation of administrative population registers among selected African countries.
Gloria Mathenge and William Muhwava

Room 6
Session R6.5 – Panel session
Chair: Oliver Chinganya

S4.4. The role of Data and Statistics in the Digital Transformation of State Services
Organizers: Irena Krizman (ISI), Bruno Tissot (IFC)

Abstract: To ensure the wellbeing of its citizens, a state needs to provide a strong institutional set up and a good administrative, information and technical infrastructure supporting official statistics. An important part of this infrastructure comprises administrative registers and business and citizens records. Experience shows that countries with a less developed

institutional and information infrastructure lack good official statistics, implying that statisticians have a keen interest in being actively involved in their promotion. They need to work in partnership with country authorities to improve the planning and monitoring of their related development plans, for instance as regards the legislation process and its implementation, the introduction of international data and statistical standards and the spreading of good practices such as registers, data identifiers, records with uniform ID numbers, and classifications. These data governance aspects have to be addressed across all public institutions and in coordination with the rest of society where possible. From this perspective, the ongoing digital transformation as well as the statistical initiatives undertaken in response to recent crises present many opportunities that official statistics should not miss. The NSOs and other NSS members such as NCBs need to be proactive, innovative and open to engage in partnerships with the other public units and private sector, even though important challenges exist. The aim of the session is therefore to discuss the contribution of official statisticians in the process of public services' digital transformation.

Panellists

1. Yakubu Aminu Bello
2. Albina Chuwa
3. Samuel Kobina Annim
4. Aboubabcar Sédikh Beye
5. Barend DeBeer

Discussant: TBC

Room 7

Session R7.5 – Contributed Paper Session

Chair : Jean Louis Bodin

C1.1. Demographic and socioeconomic profile of severely ill and disabled children in South Africa

Nwabisa Mona

C1.3. A machine learning classifier approach for identifying the determinants of under-five child undernutrition in Ethiopian administrative zones

Haile Mekonnen Fenta

C1.6. Do Women and Youth at Household level are left behind on energy Access struggle in Rural area? A case study of Tanzania and Mozambique.

Domingos Malate and Dag Roll-Hansen

C1.7. Contribution of socio-demographic and economic determinants to the gendered division of unpaid work and trade-off between unpaid work and employment: the case of Senegal.

Khady BA

Day 3: Thursday 6 April 2023

Time: 9.00 – 10.00

Plenary session **Room 1: Giraffe**
IPS3 - Mutual benefits of collaboration between official statisticians and academics **Chair: Stephen Penneck** **Invited speakers:** 1. Denise Lievesley 2. Lamine Diop 3. Kerrie Mengersen 4. Ben Kiregyera 5. Conchita Kleijweg 6. Oliver Chinganya

Time: 10.30 – 12.00

Parallel Sessions #6
Time 10:30-12:00

Room 1: Giraffe
Session R1.6 - Panel session
Chair: Sassire Napo

S1.2. Young African Statisticians' contribution to modernizing statistical systems in Africa

Abstract

Background

The Takwimu Young African Statisticians Programme is a flagship programme launched by the UN Economic Commission for Africa in July 2021 with the aim of promoting the participation of Africa's youth in statistical development, by leveraging their problem-solving abilities in responding to the challenges faced by the African Statistical System.

Statistical development in Africa requires sound training of young statisticians and their involvement in statistical affairs on the continent. Meeting the data needs from National Development Plans, the Continental Agenda 2063 and the global Agenda 2030, demands a special focus on African young statisticians as they remain the future of the continent and they already play an important role in the current statistical landscape.

Objective:

The goal of this session is to provide an overview of the Programme's strategic plan 2023 – 2025 and showcase of the contribution of Young Statisticians in supporting the modernization and transformation happening on the continent:

1. Experience from Rwanda: Data Matching techniques

Matching refers to a process to establish if two records from two different datasets relate to the same entity. This project, led by Young Statisticians from the National Institute of Statistics of Rwanda (NISR) consists of comparing Census records to Post Enumeration Survey (PES) records. PES is a survey that came one month after census aiming at measuring the coverage of Census and to verify the accuracy of responses for some key Census questions using an algorithm developed in Python with the support of UK/ONS.

2. Experience from Senegal: Predicting the main indicators of the 2023 PHC using Data science techniques

This is an ongoing project in Senegal, involving the National Agency for Statistics and Demography, main telco company (SONATEL) and the Polytechnic Institute of Paris, France. The goal of the project, led by Young Statisticians, is to study the possibility of predicting the indicators of the next Population and Housing Census the general census of the population of Senegal (which will be conducted in 2023) in from phone data and mobile money.

Organizers: Young African Statisticians (Takwimu)
Panellists
1. Edem Kludza
2. Uwamahoro Sandrine
3. Assana Richard Ayizou
4. Fransina Amutenya
Discussant: Kerrie Anderson

Room 2: Zebra
Session R2.6 - Panel Session
Chair: Themba Munalula

S1.3. Importance of Subregional statistical organizations
Abstract:
Work of the subregional organizations is very important as they are “closer” to the country's statistical services than international organizations. Sub-regional organizations as usual are doing a lot of technical assistance, publications of country and comparative statistics, providing data on SDG indicators, poverty estimates, etc.
The panel will have presentations from two sub-regional organizations; the CIS Statistical Committee which covers countries of the former USSR and AFRISTAT supporting countries of Francophone Africa. The presentations will be followed by a discussant. The panel is chaired by the IAOS President.

Organizers: Misha Belkindas
Panellists
1. Konstattin Laykam
2. Paul-Henri Nguema Meye
3. Misha Belkindas
Discussant: Jean Louis Bodin

Room 3: Hippo
Session R3.6 -
Chair: Arnoldo Frigessi

C5.12 Joint Bayesian modeling of time to malaria and mosquito abundance in Ethiopia
Denekew Bitew
Abstract:

C5.22 Trends of Respiratory rate change among Under-five pneumonia Admitted patients Follow-Up in Felege-Hiwot General and referral Hospital: A Multivariate Decomposition Analysis
Muluwerk Ayele Derebe
Abstract:

C5.10 Zero Human Rabies Deaths: A One Health approach to rabies elimination in Zambia
Chikoloma Nakazwe
Abstract:

C3.16. Individual and Contextual-level factors associated with Well-being among older Adults in Rural Zambia: A multilevel analysis.
Andrew Banda
Abstract:

Room 4: Lion
Session R4.6 -Panel session
Chair: Albina Chuwa

S7.2 Data & Measurements, Policy Making, AI and Machine Learning in Data Analytics
Abstract: The increasing volume of data in the developing world on human health, education, movement, communication, environment, and financial transactions has provided new opportunities for doing exciting work at the intersection of Machine Learning (ML) and Economic Development. Geo-spatial data, collected via satellite imagery or by drone-assisted targeted aerial imagery, are using Artificial Intelligence (AI) and ML in data analytics, and in monitoring and evaluation of policy initiatives/interventions of governments.
As an example, geo-coded, high-resolution aerial images of desert terrain were used to identify man-made features (such as roads, tracks and trails) in a desert, to identify and track disturbances in the desert ecosystem, caused by human activities (e.g., dirt-biking, poaching, etc.) that are prohibited in certain parts of the deserts, due to conservation concerns. These and similar other AI techniques can be extended to satellite data to assist with the prediction of agricultural yields; and in identifying land cover (water, tree and vegetation type, urban areas, plains, etc.) for environment preservation and/or land use.

A growing number analytical applications using big data are also being developed One example is the use of cellphone record data to better understand individual travel patterns and help improve urban transport.

Having said that, a word of caution: Expecting machines to predict and solve problems, once fed with enough data, can be misleading in some cases and could neglect the role of theory in policy analysis and impact evaluation. In policy analysis, where one often deals with a small set of data (not millions of records), causal analysis and classical AI techniques such as logic and reasoning can help solve problems and predict the impact of various interventions and policies.

Finally, the availability of large volume of data has also brought to the fore the issues such as data quality, data cleanup, using data from various sources, and the fundamental question of what needs to be collected and measured.

Organizers: Vilas Mandlekar

Panellists

1. Massoud Moussavi
2. Sonali Nimkar
3. Vilas Mandlekar

Discussant: TBC

Room 5: Elephant

Session R5.6 -

Chair: Lidija Brković

C5.46 Mortality indicators in international health monitoring – room for improvement from Nordic, European and global perspective?

Mika Gissler

Abstract: Background

Good health information is essential to good governance and thus, national health information systems have a central function in the health systems. Decision makers and health professionals need a systematic way of increasing their capacity to access and synthesise the growing volume of information as a part of public health, clinical medicine and management of health care services. The availability of representative population-based health data is a prerequisite for identifying public health problems, for improving clinical outcomes and for building up a sustainable and equitable health care system[1, 2].

A well-functioning health information system includes statistical information on health care services, but also detailed information from health surveys[3]. Health interview and examination surveys are necessary to gather information on population health and its determinants as well as other health-related issues not covered by health care services[4, 5]. The management, organisation, planning, evaluation, control and protection of individuals as well as the identification, selection and enumeration of cases have been listed as relevant reasons to collect administrative health

and welfare data[6]. However, the basic health statistics is based on mortality statistics, including widely used indicators on life expectancy, crude death rate and standardised mortality rate in various causes-of-death categories.

Record keeping has a long tradition in the Nordic countries. These five countries – Denmark, Iceland, Finland, Norway and Sweden – have based their health information systems on registers, which cover the total population. Examples of computerised health registers include national cancer registers (from the 1940s), registers on infectious diseases (from the 1950s), hospital discharge registers (from the 1960s), cause-of-death registers (from the 1960s), birth and birth defect registers (from the 1960s) and health care quality registers (from the 1990s).[6, 7, 8]

Death statistics in Finland

The first national death statistics was collected in 1749, when the oldest national population information system was initiated in Sweden. The Lutheran church was in charge of collecting the data by using a short list, which was updated several times, e.g. in 1774, 1802 and 1812. Examples of the used short list are executed (dömde och aflifvade), child murder (barnemord), cholera, diarrhea (diarrhé), all kind of fever (febrar af alla slag), cancer (kräfta), pest (pästen) and suicide (sjelf-mördare).

Statistics Finland has produced cause-of-death statistics since the year 1936. These statistics describe the causes of death of the persons permanently resident in Finland. The source material of the statistics is the death certificates written by the physicians. The local coding is controlled by regional medical officers at THL Finnish Institute for Health and Welfare and by medical experts at Statistics Finland. The data are supplemented with and verified against data on deaths from the Population Information System at the Digital and Population Data Services Agency (previously Population Register Centre). The cause-of-death classification has followed the national versions of ICD-classifications since ICD-4.

Investigating the cause of death and the related procedures including the production of statistics and archiving of death certificates is based on the act (1973/459) and decree (1973/948) on the investigation of the cause of death. In April 2011, Commission Regulation (EC) No 1338/2008 was passed, and it confirmed the variables, specifications and metadata which the EU Member States and EES (European Economic Space) countries have to supply as statistics on causes of death.

Data on causes of death are seen as highly significant for general information systems describing the population's state of health. Cause of death data are used in various medical surveys, and by combining the data with other Statistics Finland's data files, it is possible to study, for instance, differences in mortality between different population groups.

C5.26 Social determinants of maternal mortality in South Africa: evidence from the Community Survey 2016
Thembelihle Luthuli
Abstract:

C5.28 The root-Gaussian Cox Process for Spatio-Temporal Diseases Mapping with Aggregated Data
Zeytu Asfaw
Abstract:

C3.14. Beyond stocks and flows: Quantifying migration patterns of recent global developments in official statistics
Anna Sára Ligeti
Abstract: International migration is inherent to globalization, so much so that the history of migration statistics can be traced back to the colonial expansion of Europe at the early stages of globalization. While global processes of technological, socio-economic and political transformations have been gathering speed in recent decades resulting in substantially new migration patterns, migration statistics in its core remained basically the same as it was centuries ago: attached to administrative sources in search of making estimations of migrant stocks and flows. These data types however do not capture today's rather complex migration dynamics that are at the centre of policymakers' attention seeking for appropriate tools to maximize the developmental outcomes of migration. As a result, official migration statisticians introduced a series of new concepts and practices to meet the increasing demands of policymakers. However, the innovative and experimental intentions of migration statisticians often remain isolated and reflect the country-specific needs and challenges of their affiliation. With the aim of stimulating discussion on such intentions among statisticians, this paper sheds light on newer approaches in official migration statistics (1) to differentiate short- and long-term migrations; (2) to measure the direction of movements (and other spatial patterns); and (3) longitudinal approaches that open up new possibilities for measuring return or circular migration as well as migrant integration. To illustrate the practical use and potential of new approaches, the recent experiment of creating a longitudinally structured migration database at the Hungarian Central Statistical Office will be discussed in details.

Room 6: Tiger
Session R6.6 -
Chair: Denise Lievesley

The Impact of COVID-19 on Transport and Logistics Operations in Zambia: A Perspective from Firms and Customs Authorities and Agencies.
John Mututwa

Abstract: Abstract.
Like many developing countries, Zambia was severely hit by the COVID-19 pandemic, resulting in the gross domestic product (GDP) shrinking by almost 3 percent in 2020. Among the sectors which were severely affected include transport and logistics. According to statistics from relevant transport agencies, air passenger volumes fell by a staggering 70.6 percent to 544,830 in 2020 compared to 1,850,715 in 2019; with the rail sub-sector registering almost a similar trend. In the same vein, freight volumes decreased by 30 percent to 29.8 million metric tonnes and 18.5 percent to 17,907 metric tonnes, for road and air transport, respectively, in 2020 compared to 2019. In general, transport and logistics operations in Zambia were significantly impacted, exacerbating existing transport and logistics challenges that the country was facing before the pandemic, partly because of its infrastructure deficit problems as well as effects of being a landlocked developing country.

With a special focus on transport and logistics firms and customs authorities and agencies, the study aimed to understand major changes in the transport and logistics sector in Zambia arising from the effects of the COVID-19 pandemic. A mixed method approach was employed to conduct the study. This included a primary survey of transport and logistics firms mainly in Lusaka and Ndola, as well as key informant interviews and focus group discussions with relevant sector players, expertise personnel, decision-makers, and other stakeholders.

The results of the study showed that despite being a high turnover sector, most transport and logistics firms recorded reductions in employment levels, with firms reducing hours of work and laying off workers at least temporarily. Firms also registered about 11 to 20 percent revenue reductions during this period. Further, customs operations were also negatively affected with processing times for inspection and clearance of goods increasing, and the duration of goods reaching their final destination extended by at least a week. Finally, the findings of the study also indicated that the performance of the sector is still severely affected by high operational costs such as the high costs of fuel and toll fees, as well as poor transport and logistics infrastructure (e.g., roads) which increase travel times and ultimately increase operator costs.

C5.31 A Cohort Study of COVID-19 Patients: Hawassa University Referral Hospital, Ethiopia

Anteneh Bezabih

Abstract: The COVID-19 pandemic is caused by the global spread of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and has resulted from 622,119,701 confirmed cases and 6,546,118 deaths to date. Most studies of the clinical features of hospitalized COVID-19 patients are from high-income countries, with little information available for developing countries such as Ethiopia. This study aimed to assess the clinical characteristics of hospitalized COVID-19 patients and risk factors for in-hospital mortality in Hawassa, Ethiopia. This cohort included 804 consecutive laboratory-confirmed hospitalized COVID-19 patients from 24, September 2020 - 26, November 2021 at Hawassa University

Comprehensive Specialized Hospital. The patient characteristics at hospital admission were characterized. In-hospital mortality was modeled using Cox regression. The median age was 45[min 0.006, max 100] years and 64.1% were male. Severe cases accounted for 16.0% of the study population. The most common symptoms were general pain (68.9%), cough (68.7%), shortness of breath (65.7%), and fever (57.6%). Comorbidities were common, with 49.1% having at least one comorbidity, and 12.6% having two or more comorbidities. The most prevalent comorbidity was diabetes (15.9%), followed by hypertension (15.2%). More than half of patients (53.0%) had received treatment before being admitted to the hospital, for example, antibiotics. In univariable Cox regression analysis, sex, age, source of referral, severity status, various symptoms, and comorbidities were associated with an increased risk of death in covid-19 patients. This study characterized a large cohort of hospitalized COVID-19 patients in Ethiopia and showed that similar to high-income countries, age, sex, co-morbidities, and symptoms upon admission were associated with an increased risk of in-hospital death. The average age was remarkably low.

Keywords: COVID-19, Clinical characteristics, date of admission, Univariate cox-ph,

C5.32 The Impact of COVID-19 on Household Food Insecurity: The Case of Household Dietary Diversity and Food Expenditure Share in Zambia

Chitalu Miriam Chama-Chiliba

Abstract: Even though there is a general consensus that COVID-19 and the associated containment measures resulted in increased household food insecurity in Zambia, there is insufficient information on how households from different socio-economic groupings are affected as well as the different pathways through which the pandemic and associated containment measures affect the food security status of these socio-economic groupings. This is because majority of the available studies on the impact of COVID-19 on household food security are not generalizable on account of small sample sizes as well as limited geographical coverage. This study aims to address this information gap by assessing the impact of COVID-19 on household dietary diversity and food expenditure share using the 2021 Socio economic Impact Assessment of COVID-19 Survey, which is a nationally representative dataset.

Room 7: Gorilla
Session R7.6 -
Chair: Macdonald G. Obudho

C5.43 Small area estimation of zone level malnutrition among under five children in Ethiopia

Kindie Fentahun Muchie

Abstract: Child undernutrition is one among the world's ten most important public health problems. Its effect could be either immediate through increased child morbidity and mortality or later in adult life by affecting health and labor market outcomes. Improving the national nutritional status is a priority area that might affect the focus of nutrition policy of countries.

The national demographic and health surveys are the main source of official statistics in developing countries, and generate a range of invaluable data at the administrative level and national levels. However, there is a rapidly growing demand to produce reliable estimates at the micro administrative level due to small sample sizes. Though there is one study at woreda level in Ethiopia, it has limitations. Therefore, we employed hierarchical Bayesian spatial small area estimation techniques to estimate the prevalence of malnutrition at zonal levels among under five children in Ethiopia. The small area estimation concept were sought by linking the most recent possible survey data and census data in Ethiopia. In order to protect against possible model misspecification as well as possible over shrinkage, the model-based hierarchical Bayesian estimates were bench marked. The result shows that there is spatial variation of stunting, wasting and underweight across zone level, showing different locations face different challenges and/or different extent.

Keywords: Small area estimation; Hierarchical Bayesian; Spatial; Under 32 nutrition; Stunting; Wasting; Underweight; Under 5; Ethiopia

C5.44 Understanding suicidal tendencies among Namibian adolescents: A structural Equation Model

Lillian Pazvakawambwa

Abstract:

C5.45 The Effect of Delayed Treatment on Survival of Breast Cancer Patients at Cancer Diseases Hospital, Lusaka, Zambia: A Retrospective Cohort Study

Masaku Sheila

Abstract:

C4.5. Operating large-scale micro databases with public and private data sources.

Johannes Micheler

Abstract: Over the past years, large-scale micro databases with multiple overlapping public and private data sources have become increasingly relevant for producing official statistics in the new data ecosystem. However, so far there is no common framework for the operation and data quality management (DQM) of such large multi-source micro databases. In this paper, we make a concrete contribution to address that gap. The paper describes the operation and the DQM framework of the European System of Central Banks' Centralised Securities Database (CSDB), the largest security-by-security micro database in the central banking world. Using the CSDB case, it identifies several challenges in the automatic compilation of micro data and official statistics using high frequency information from multiple overlapping and potentially inconsistent data sources. To address these challenges, the paper presents a set of robust data science methods that allow producing high quality consolidated information in a fully automatic manner. Further, it derives a set of principles for the efficient and effective operation and DQM

of large-scale multi-source micro data systems. These principles underscore the importance of an agile, iterative development approach; of the integration of DQM workflows supported by data science and artificial intelligence; and of providing the infrastructure for effective collaboration of multiple actors in a network-based partnership.

Time: 13:00-14:00

Plenary - Closing Session & Key outcomes.
Room 1

Remarks, Mulenga JJ Musepa, Statistician General, Zambia Statistics Agency
Chair : Misha Belkindas

1. Dominik Rozkrut
2. Graciela Márquez Colín
3. Oliver Chinganya
4. Promotional video, 64th World Statistics Congress
5. Closing remarks: Felix Nkulukusa, Secretary to Tresury