EMOS Webinar programme 2017

90 min webinars run on **Wednesdays** roughly every two weeks during the period of February- June 2017 from **16.30-18.00 CET**

Tool: Adobe Connect

Please register at **http://ec.europa.eu/eurostat/cros/content/emos_en**

Date – Wednesday	Topic	Speaker	Registration cut off dates Friday
15 February	**Response burden I: What is burden and why should we care?**	Mojca Bavdaž, Asst. Prof. Dr University of Ljubljana Academic Unit for Mathematics, Statistics, and Operations Research	10 Feb
1 March	**Response burden II: How to reduce and manage burden?**	Mojca Bavdaž, Asst. Prof. Dr University of Ljubljana Academic Unit for Mathematics, Statistics, and Operations Research	24 Feb
29 March	**Innovation in official statistics and multi source statistical production**	Emanuele Baldacci, Dr. Director Eurostat - Methodology; corporate statistical and IT services	24 March
19 April	**Introduction to Big Data in Official Statistics**	Markus Zwick, Prof. Dr. Institute for Research and Development in Official Statistics Federal Statistical Office Germany (Destatis)	15 April
26 April	**Seasonal Adjustment with JDEMETRA+ (Intro)**	Dario Buono, Dr., Team Leader Eurostat - Methodology in Official Statistics	21 April
3 May	**Sampling I - Introduction to survey sampling**	Ralf Münnich, Prof. Dr. University of Trier – Full Professor for Economic and Social Statistics	28 April
17 May	**Visualisation**	Mojca Bavdaž ,Asst. Prof. Dr University of Ljubljana Academic Unit for Mathematics, Statistics, and Operations Research	12 May
31 May	**National Accounts – what are they good for?**	John Verrinder, Head of Unit Eurostat - National accounts methodology. Indicators	26 May
14 June	**Big Data II: Examples from National Statistical Institutes**	Markus Zwick, Prof. Dr. Institute for Research and Development in Official Statistics Federal Statistical Office Germany (Destatis)	9 June
28 June	**Sampling II: Advanced topics in survey sampling incl. variance estimation**	Ralf Münnich, Prof. Dr. University of Trier – Full Professor for Economic and Social Statistics	23 June

Please see more detailed session description on the next pages.

Response burden I:
What is burden and why should we care?

Lecturer:	**Mojca BAVDAŽ**
Organisation:	**University of Ljubljana**
e-mail:	**mojca.bavdaz@ef.uni-lj.si**
Date:	**15 February 2017**

Aims

To provide an introduction to the response burden concepts, its relevance and measurement.

Learning outcomes

To understand different concepts of burden, origins of the burden and relevance for official statistics.

To be aware of the differences between household and business surveys.

To be familiar with current practices of burden measurement.

Lecture programme – module contents

Why do businesses complain about official surveys?

What is response burden?

Why do business surveys cause burden and complaints?

Why should we care about response burden?

How to measure response burden?

The lecture will feature a live interview with Gustav Haraldsen, Senior Methodological Advisor at Statistics Norway and expert in response burden.

Exercise – questions – assessment

For those wishing to gain further knowledge through self-study, exercises and solutions will be provided.

Reading list

- Dale, T., Haraldsen, G. (2007). *Handbook for Monitoring and Evaluating Business Survey Response Burdens.* European Commission, Eurostat. Available at: http://ec.europa.eu/eurostat/documents/64157/4374310/12-HANDBOOK-FOR-MONITORING-AND-EVALUATING-BUSINESS-SURVEY-RESONSE-BURDEN.pdf
- Haraldsen, G., Jones, J., Giesen, D. and Zhang, L.-C. (2013). Understanding and Coping with Response Burden. In G. Snijkers et al. (Eds.), *Designing and Conducting Business Surveys* (219-252). John Wiley & Sons, Inc.
- Bavdaž, M., Giesen, D., et al. (2015). Response Burden in Official Business Surveys: Measurement and Reduction Practices of National Statistical Institutes, *Journal of Official Statistics*, 31(4), 559–588.
- Bavdaž, M. (2010). The multidimensional integral business survey response model. *Survey methodology*, 36(1), pp. 81-93.

Response burden II: How to reduce and manage burden?

Lecturer:	**Mojca BAVDAŽ**
Organisation:	**University of Ljubljana**
e-mail:	**mojca.bavdaz@ef.uni-lj.si**
Date:	**1 March 2017**

Aims

To provide an overview of the most common burden reduction actions and burden management issues.

Learning outcomes

To be familiar with common burden reduction actions.

To understand issues of burden management.

Lecture programme – module contents

What actions are commonly used to reduce response burden?

What parts of the GSBPM deal with response burden?

What indicators are available for burden management?

What issues does burden management face?

The lecture will feature a case of response burden management prepared by Deirdre Giesen, methodologist at Statistics Netherlands and expert in response burden.

Exercise – questions – assessment

For those wishing to gain further knowledge through self-study, exercises and solutions will be provided.

Reading list

- Haraldsen, G., Jones, J., Giesen, D. and Zhang, L.-C. (2013). Understanding and Coping with Response Burden. In G. Snijkers et al. (Eds.), *Designing and Conducting Business Surveys* (219-252). John Wiley & Sons, Inc.
- Bavdaž, M., Giesen, D., et al. (2015). Response Burden in Official Business Surveys: Measurement and Reduction Practices of National Statistical Institutes, *Journal of Official Statistics*, 31(4), 559–588.

Innovation in official statistics and multi source statistical production

Lecturer:	**Emanuele BALDACCI**
Organisation:	**Eurostat**
e-mail:	**Emanuele.BALDACCI@ec.europa.eu**
Date:	**29 March 2017**

Aims

The lecture will provide a 360 degrees view on the current innovation and modernisation programs and initiatives of the European Statistical System. The changes in our data eco system require continuous adaptation of statistical production system, moving towards a multi-source environment, integrating not only administrative and survey but also unstructured and big data.

Learning outcomes

Provide an overview of key ESS innovation and modernisation activities

Lecture programme – module contents

Data Revolution

Innovation in official statistical production

Key challenges and research areas

Exercise – questions - assessment

Identify at least 3 methodological challenges that the ESS/your NSI is currently facing.

How is the communication revolution changing the official statistic?

Reading list

Efron and Hastie, 2016, Computer Age Statistical Inference. Algorithms, evidence and data science. Cambridge University Press

Jos Special Issue: Systems and Architectures for High Quality Statistics and Production ; Mar. 2013.

Big Data I:
Introduction to Big Data in Official Statistics

Lecturer:	**Markus ZWICK**
Organisation:	**Federal Statistical Office of Germany**
e-mail:	**markus.zwick@destatis.de**
Date:	**19 April 2017**

Aims

This session provides an introduction to the use of Big Data for the production of official statistics as well as to recent developments in national statistical institutes and in inter- and supranational networks.

Learning outcomes

- To get an overview of Big Data definitions and its meaning for official statistics
- To understand recent developments in the field of Big Data and data science
- To know the most important initiatives and key actors in this context

Lecture programme – module contents

- Big Data: definition and classification
- Privacy
- Statistical Education in times of Big Data
- The Big Data Action Plan and Roadmap of the European Statistical System
- Big Data activities in Germany and at the international level

Exercise – questions – assessment

For those wishing to gain further knowledge through self-study, there will be empirical exercises and solutions provided.

Reading list

Hackl, P. (2016): "Big Data: What can official statistics expect?." *Statistical Journal of the IAOS* 32.1: 43-52.

European Statistical System: Big Data Action Plan and Roadmap 1.0. https://ec.europa.eu/eurostat/cros/content/ess-big-data-action-plan-and-roadmap-10_en

Braaksma, B. and Zeelenberg, K. (2015): "``Re-make/Re-model": Should big data change the modelling paradigm in official statistics?." *Statistical Journal of the IAOS* 31.2: 193-202.

Seasonal Adjustment with JDEMETRA+ (Intro)

Lecturer:	**Dario BUONO**
Organisation:	**Eurostat**
e-mail:	**Dario.Buono@ec.europa.eu**
Date:	**26 April 2017**

Aims

To provide the participants with a basic understanding of the main concepts of seasonal and calendar adjustment, trend cycle, irregular components and related time-series issues

To introduce the participants to the use of software JDEMETRA+

Learning outcomes

Trained people will be able to identify outliers, decompose time series, adjust series for the seasonal and calendar effects. They will be able to recognise series which need calendar and/or seasonal adjustment and be aquatinted with the related procedures available in JDEMETRA+ tool

Lecture programme – module contents

- **Brief review of time series analysis, seasonality and its determinants**
- **Why seasonal and calendar adjustment?**
- **Identification of type of outliers**
- **Use of additive and multiplicative decomposition**
- **Introductory sessions with JDEMETRA+**

Exercise – questions - assessment

Questions on specific issues can be provided before and after the webinar

Reading list

ESS guidelines on seasonal adjustment (2015 edition,Eurostat)

JDemetra+ download and documentation

Sampling I - Introduction to survey sampling

Lecturer:	**Ralf MÜNNICH**
Organisation:	**University of Trier**
e-mail:	**muennich@uni-trier.de**
Date:	**3 May 2017**

Aims

To provide students with an understanding of the motivation and issues involved in modern survey sampling. Students get to know the basic stages of the sampling process, central concepts and sample selection mechanisms as well as point and direct variance estimators. In the lecture, both theory and practice of survey sampling are considered.

Learning outcomes

The aim of the module is that students understand the basic concepts of sampling methods. The sampling designs of interest are based on different multistage designs Major emphasis is put on the difference between efficient estimation, practicability and costs. This involves adequate use of auxiliary information, i.e. regression estimation.

Lecture programme – module contents

The lecture is 90 minutes including 10 minutes discussion.

- ✓ Welcome and Introductions
- ✓ Simple random sampling
- ✓ Stratified random sampling including allocation and stratification problems
- ✓ Single stage cluster sampling
- ✓ Two stage sampling
- ✓ Regression estimation in survey sampling

Reading list

Cochran, W. G. (1977): Sampling techniques. John Wiley and Sons.

Fuller, W. A. (2009): Sampling Statistics. John Wiley and Sons.

Levy, P. S.; Lemeshow, S. (1999): Sampling of Populations: Methods and Applications. Wiley Series in Probability and Statistics, John Wiley and Sons.

Lohr, S. L. (2010): Sampling: design and analysis. Pacific Grove: Duxbury Press. 2nd edition.

Lumley, T. (2010): Complex Surveys: A Guide to Analysis Using R. John Wiley and Sons.

Särndal, C.-E., Swensson, B., Wretman, J. (2003): Model Assisted Survey Sampling. 2nd edition. New York: Springer.

Thompson, S. K. (2002): Sampling. Wiley Series in Probability and Statistics, John Wiley and Sons

Visualization

Lecturer:	**Mojca BAVDAŽ**
Organisation:	**University of Ljubljana**
e-mail	**mojca.bavdaz@ef.uni-lj.si**
Date:	**17 May 2017**

Aims

To provide an overview of scientific foundations, practices and challenges of good visualization.

Learning outcomes

To understand importance of (good) visualization and become familiar with the basics of visual processing. To understand implications of visual perception for visualization design, especially in widespread graphs.

Lecture programme – module contents

Classic examples of visualization.

Basics of visual processing.

Visual representation of statistical data.

Visual perception in widespread graphs.

Challenges of visualization in official statistics.

Exercise – questions – assessment

For those wishing to gain further knowledge through self-study, exercises and solutions will be provided..

Reading list

Further reading: publications by Edward R. Tufte, William S. Cleveland, Stephen Few.

National accounts – what are they good for?

Lecturer:	**John VERRINDER**
Organisation:	**Eurostat**
e-mail:	**John.Verrinder@ec.europa.eu**
Date:	**31 May 201**

Aims

To provide an overview of national accounts statistics and related key aggregates (GDP, GNI, government deficit etc). To understand how best to use these statistics.

Learning outcomes

Overall understanding of the structure and main sources of national accounts, and how they link to other statistics.

Appreciation of how the key aggregates are compiled and how they may best be used

Lecture programme – module contents

- **The history of National Accounts and their development**
- **The compilation of national accounts in Europe**
- **Economic actors and how they are represented in national accounts**
- **Production, Expenditure and Income**
- **Flow accounts and balance sheets**
- **The link to financial accounts and balance of payments**
- **Key macroeconomic aggregates such as GDP; their strengths and weaknesses**

Exercise – questions - assessment

Factual questions could be based on the module contents listed above, or could consist of an overall question about what national accounts statistics are available and how are they used.

Reading list

SNA 2008 chapter 1
http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

Further reading

SNA 2008 chapter 2 (see link above)

Big Data II:
Examples from National Statistical Institutes

Lecturer:	**Markus ZWICK**
Organisation:	**Federal Statistical Office of Germany**
e-mail:	**markus.zwick@destatis.de**
Date:	**14 June 2017**

Aims

This session shows how Big Data can be used for the production of statistical products at National Statistical Institutes and explains the new challenges and opportunities related to this new data source.

Learning outcomes

- To understand which digital data sources can be used for official statistics
- To get an overview of recent Big Data applications at National Statistical Institutes

Lecture programme – module contents

- Commonly used Big Data sources in official statistics
- Big Data applications
- Challenges and opportunities of Big Data
- Future developments

Exercise – questions – assessment

For those wishing to gain further knowledge through self-study, there will be empirical exercises and solutions provided.

Reading list

Brunner, K. (2014): Automated price collection via the internet. Statistisches Bundesamt. www.destatis.de/EN/Publications/WirtschaftStatistik/AutomatedPriceCollection_Brunner_042014.pdf?__blob=publicationFile

Karlberg, M. and Skaliotis, M. (2013): "Big data for official statistics—strategies and some initial European applications." *UN Economic Commission for Europe: Conference on European Statisticians*, September. 2013.

Sampling II: Advanced topics in survey sampling

Lecturer:	**Ralf MÜNNICH**
Organisation:	**University of Trier**
e-mail:	**muennich@uni-trier.de**
Date:	**28 June 2017**

Aims

To provide students with an understanding of advanced topics in modern survey sampling. Students get to know selected advanced sampling methods, their concepts as well as their relevance in practice. Further, an overview of variance estimation methods is given. In the lecture, both theory and practice of survey sampling are considered.

Learning outcomes

The aim of the module is that students understand selected concepts of advanced sampling methods as well as of variance estimation methods. The sampling designs of interest focus on unequal probability methods and their practical implementation. Further, students shall be able to understand and apply calibration methods. Finally, variance estimation methods will be presented. The students shall understand the different variance estimation methods including their peculiarities in practice. Special emphasis will be laid on multi-stage designs (e.g. for household surveys).

Lecture programme – module contents

The lecture is 90 minutes including 10 minutes discussion.

- ✓ Unequal probability sampling
- ✓ Selected advanced methods (e.g. indirect sampling and adaptive methods)
- ✓ Calibration methods
- ✓ Balanced sampling
- ✓ Problems and examples for variance estimation
- ✓ Linearization methods for variance estimation
- ✓ Resampling methods for variance estimation

Reading list

Cochran, W. G. (1977): Sampling techniques. John Wiley and Sons.
Fuller, W. A. (2009): Sampling Statistics. John Wiley and Sons.
Lohr, S. L. (2010): Sampling: design and analysis. Pacific Grove: Duxbury Press. 2nd edition.
Särndal, C.-E., Swensson, B., Wretman, J. (2003): Model Assisted Survey Sampling. 2nd edition. New York: Springer.
Shao, Jun, Tu, Dongsheng (1995):The jackknife and bootstrap. New York: Springer.
Wolter, Kirk M. (2007): Introduction to variance estimation. 2. Edition. New York: Springer.