

International Program in Survey and Data Science

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(University of Mannheim)

INTERNATIONAL PROGRAM IN SURVEY AND DATA SCIENCE

offered through the University of Mannheim and the Joint Program in Survey Methodology

(Universities of Maryland and Michigan, Westat)

BE PART OF IT



We are pleased to announce the launch of the International Program in Survey and Data Science (IPSDS). Fundamental changes in the nature of data, their availability, the way in which they are collected, integrated, and disseminated are a big challenge for all those working with designed data from surveys as well as organic data. IPSDS was developed in response to the increasing demand from researchers and practitioners for the appropriate methods and right tools to face these changes. We offer a multidisciplinary curriculum, world-class faculty, and a web-based learning environment that allows you to take courses from anywhere in the world.

Coordination & Funding



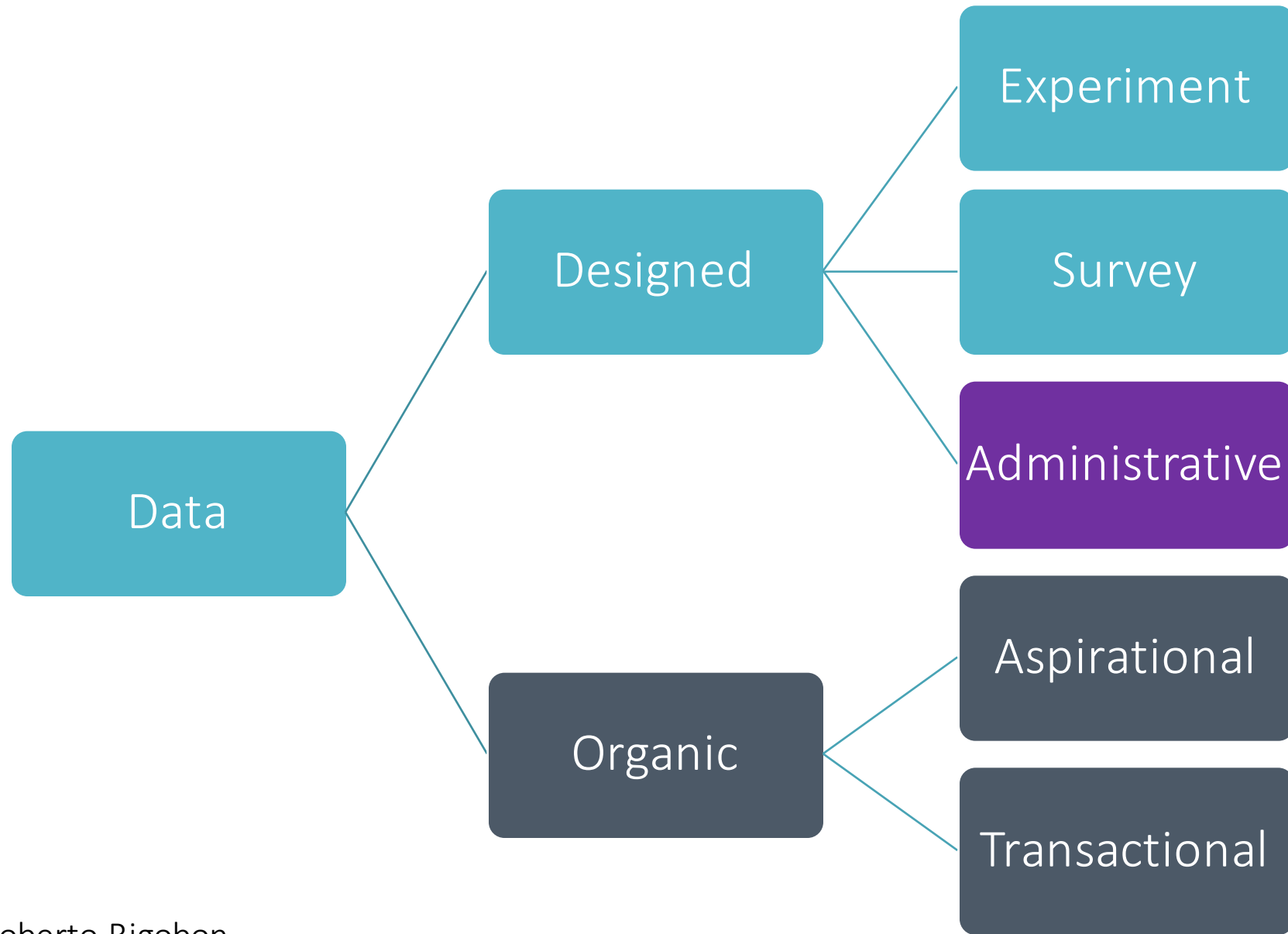
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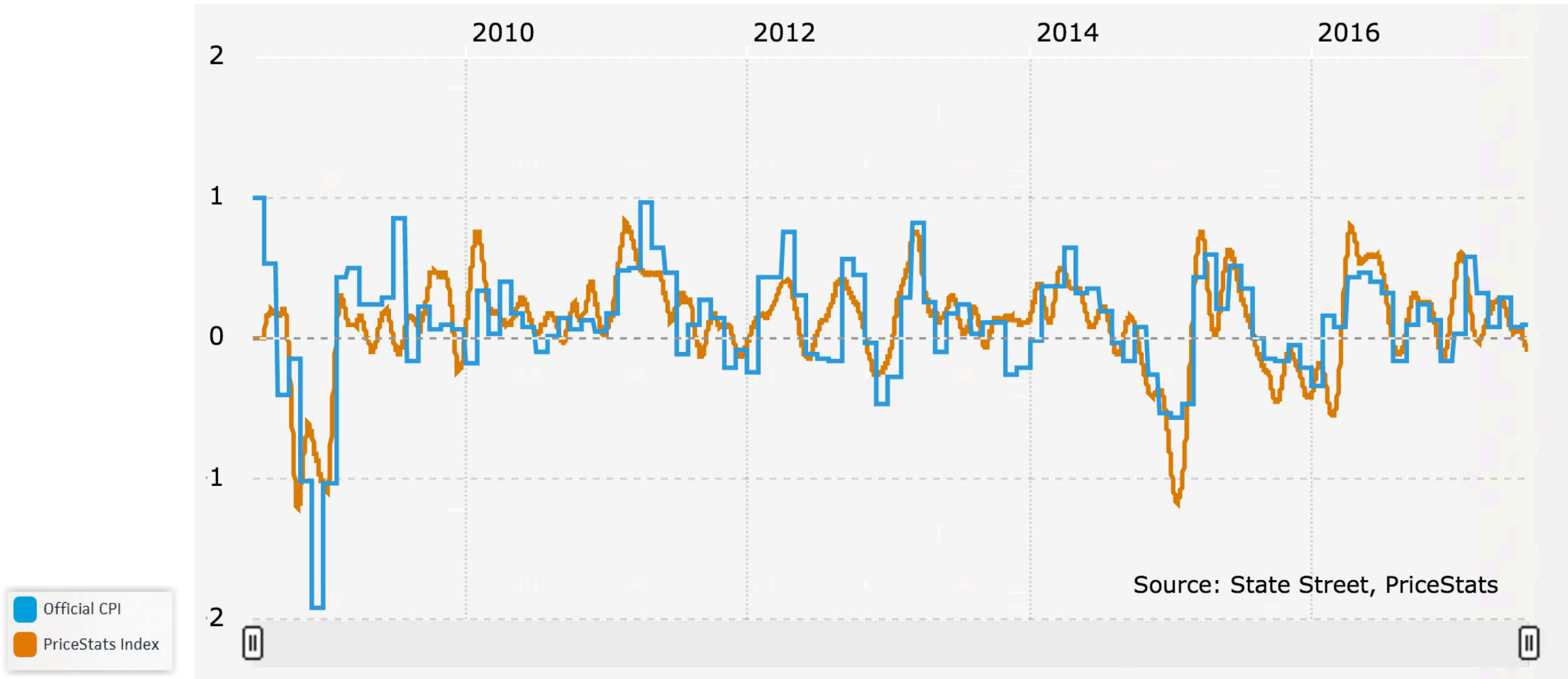


Survey & Data Science-

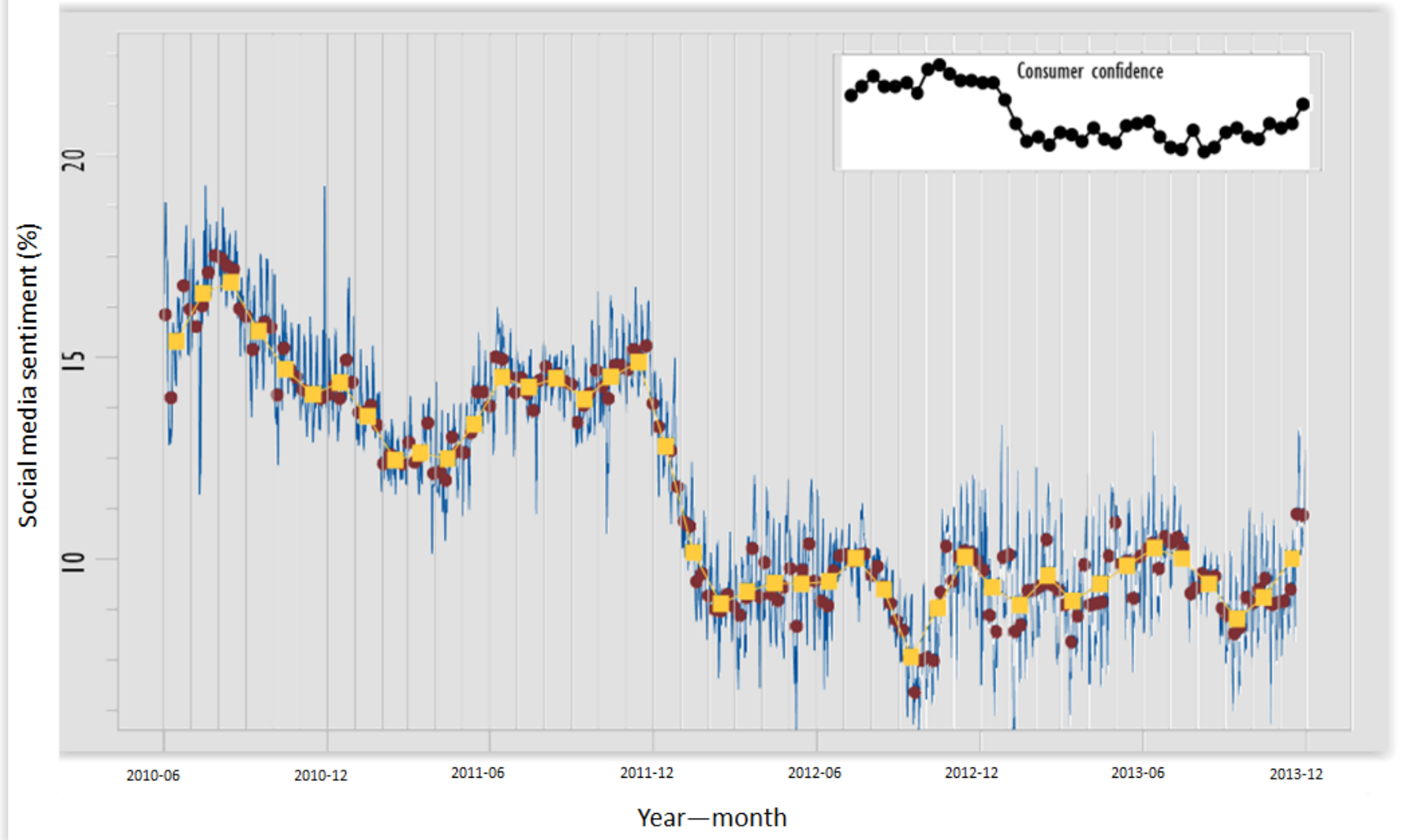
Why?



Source: Roberto Rigobon

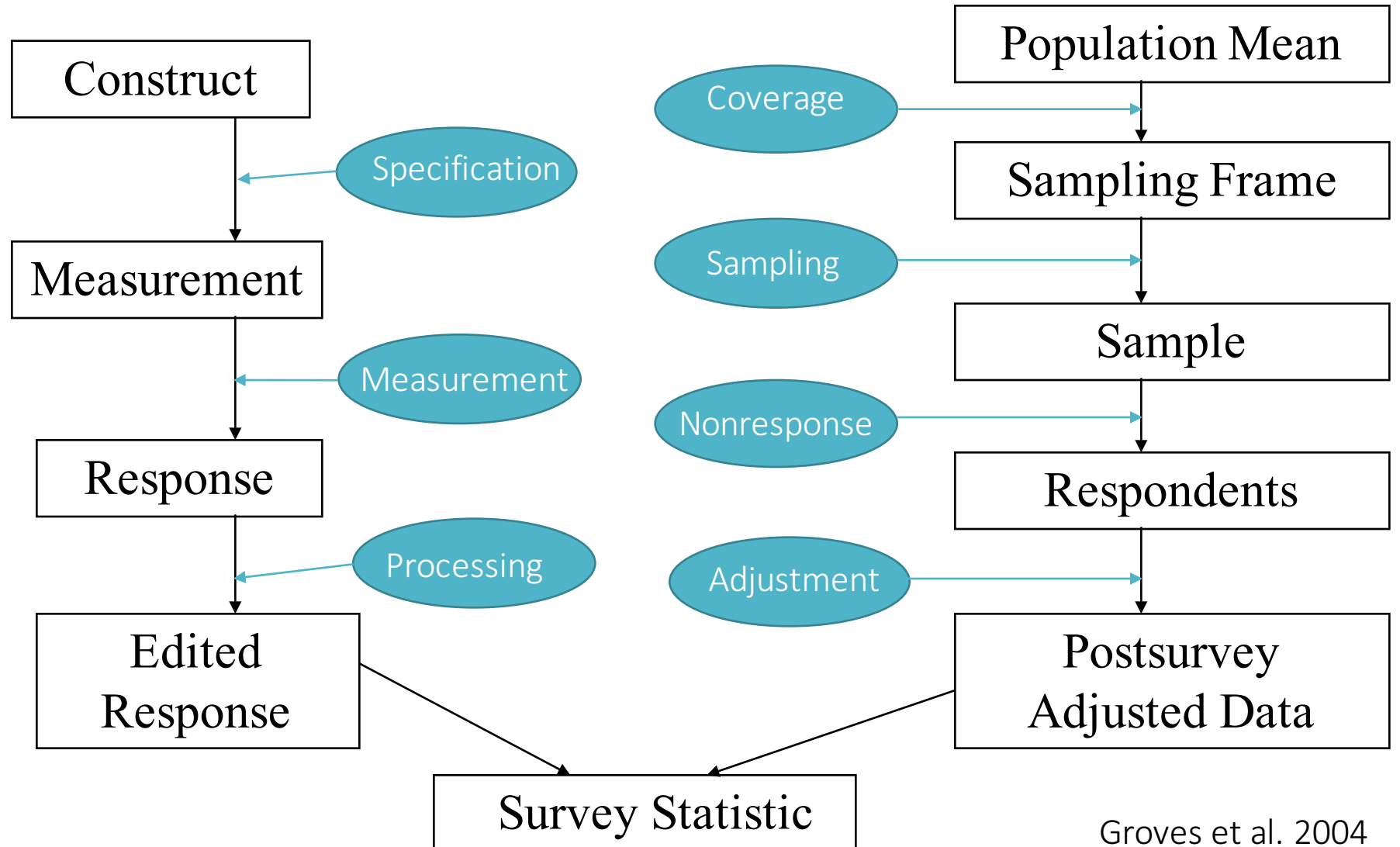
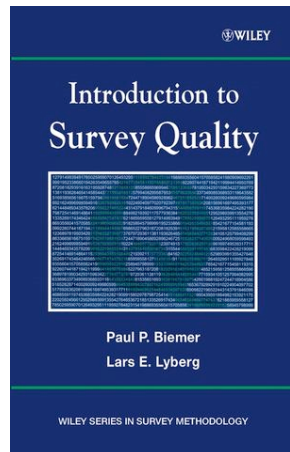
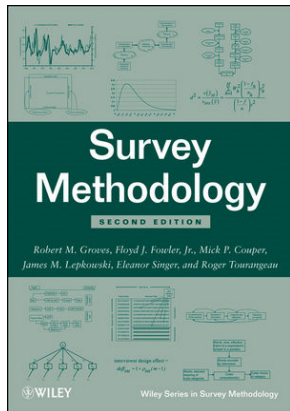


US Aggregated Inflation Series, Monthly Rate, PriceStats Index vs. Official CPI.
Accessed September 10, 2017 from the PriceStats website.

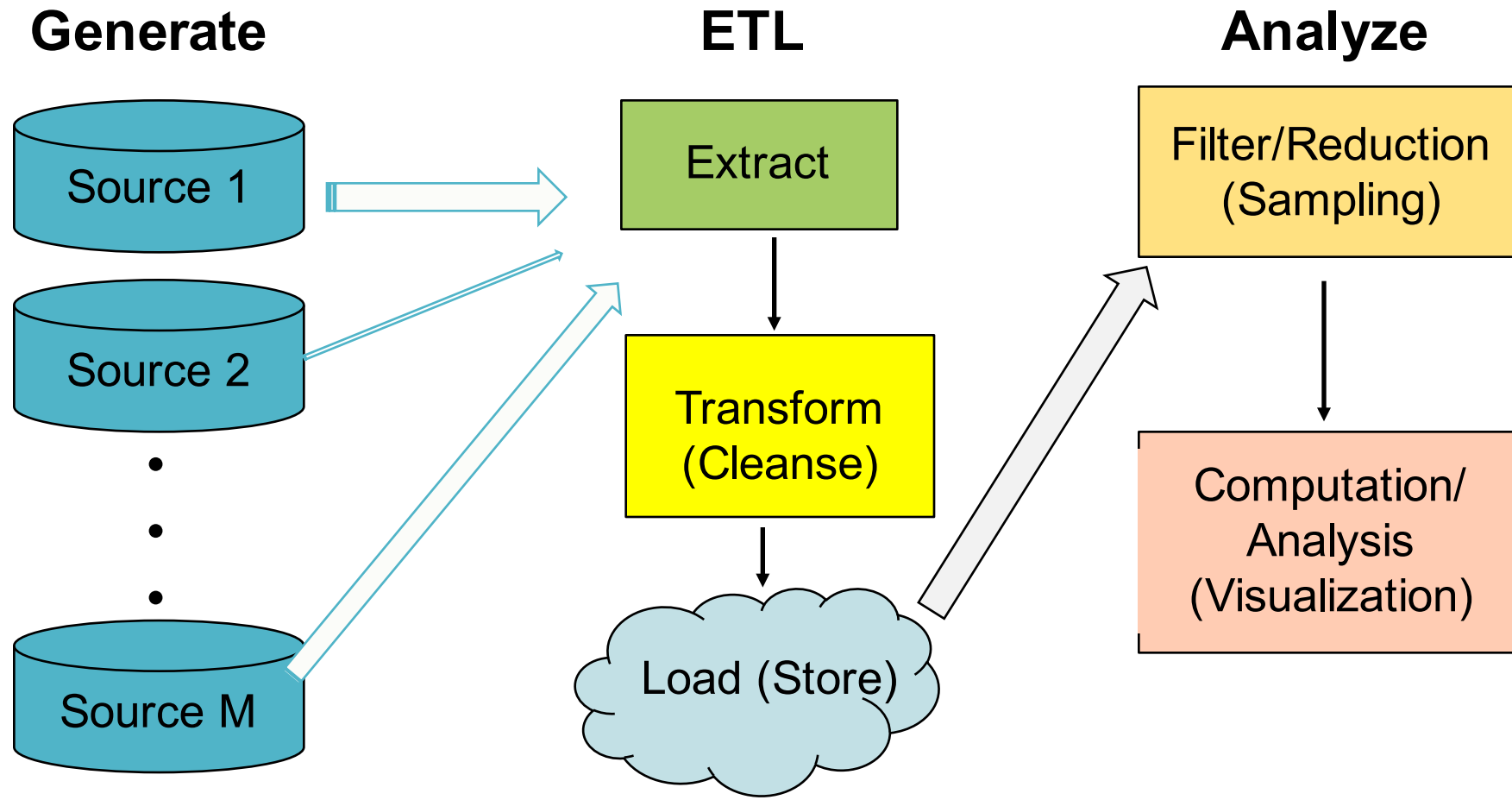


Social media sentiment (daily, weekly and monthly) in the Netherlands, June 2010 - November 2013. Consumer confidence for the same period is shown in the insert (Daas and Puts 2014).

Data Generating Process



Big Data Process Map





AAPOR Report on Big Data

AAPOR Big Data Task Force
February 12, 2015

Prepared for AAPOR Council by the Task Force, with Task Force members including:

Lilli Japac, Co-Chair, Statistics Sweden
Frauke Kreuter, Co-Chair, JPSM at the U. of Maryland, U. of Mannheim & IAB
Marcus Berg, Stockholm University
Paul Biemer, RTI International
Paul Decker, Mathematica Policy Research
Cliff Lampe, School of Information at the University of Michigan
Julia Lane, American Institutes for Research
Cathy O'Neil, Johnson Research Labs
Abe Usher, HumanGeo Group

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The National Academies of
SCIENCES • ENGINEERING • MEDICINE

REPORT

INNOVATIONS IN FEDERAL STATISTICS

Combining Data Sources While
Protecting Privacy



Edited by
**Ian Foster, Rayid Ghani,
Ron S. Jarmin, Frauke Kreuter,
and Julia Lane**

 CRC Press
Taylor & Francis Group
A CHAPMAN & HALL BOOK

Chapman & Hall/CRC
Statistics in the Social and Behavioral Sciences Series

BIG DATA AND SOCIAL SCIENCE

A Practical Guide to Methods and Tools

about IPSDS

Modules

Data Output/Access

Learn how to communicate results and distribute and store your data

Data Analysis

Learn a variety of analysis methods suited for different data types

Data Curation/Storage

Learn how to curate and manage data

Data Generating
Process

Understand how to collect data yourself, and how data are generated through administrative and other processes.

Research Question

Learn how to formulate your research goal and which data are best suited to achieve this goal.

Data
Output/Access

min.
6 ECTS

Ethics
1 credit/2 ECTS

Data
Confidentiality and
Statistical
Disclosure Control
2 credits/4 ECTS

Visualization
2 credits/4 ECTS

Data Analysis

min.
10 ECTS

Generalized Linear
Models
2 credits/3 ECTS

Analysis of
Complex Data I-III
1 credits/2 ECTS
each

Propensity
Score/Statistical
Matching
2 credits/4 ECTS

Machine Learning
I-III
1 credit/2 ECTS
each

Data
Curation/
Storage

min.
6 ECTS

Database
Management I-III
1 credits/2 ECTS
each

Data Munging I-III
1 credit/2 ECTS
each

Data Generating
Process

min.
10 ECTS

Data Collection
Courses
1 credits/2 ECTS
each

Record Linkage
1 credit/2 ECTS

Practical Tools for
Sampling and
Weighting
3 credits/6 ECTS

Applied Sampling
I-III
1 credits/2 ECTS
each

Experimental
Design
2 credits/4 ECTS

Research
Question

min.
6 ECTS

Fundamentals of
Survey and Data
Science
3 credits/6 ECTS

Total: 75 ECTS
Master Thesis: 15 ECTS

Master Thesis

Partners

University Partners

- University of Maryland
- University of Mannheim

- Catholic University of Santiago de Chile
- Australian National University
- Beijing University
- Ashoka University (expressed interest)
- U. of Capetown (planned)

Other Partners

- SRO - Michigan
- PEW
- German Record Linkage Center
- GESIS
- Bureau of Labour Statistics
- U.S. Census Bureau
- Statistics Netherlands

IPSDS Target Groups

IPSDS targets:

- Working professionals:
 - market and social research organizations
 - statistical agencies
 - other organizations that work with survey and organic data
- People with family responsibilities and those re-entering the workforce

Admission requirements:

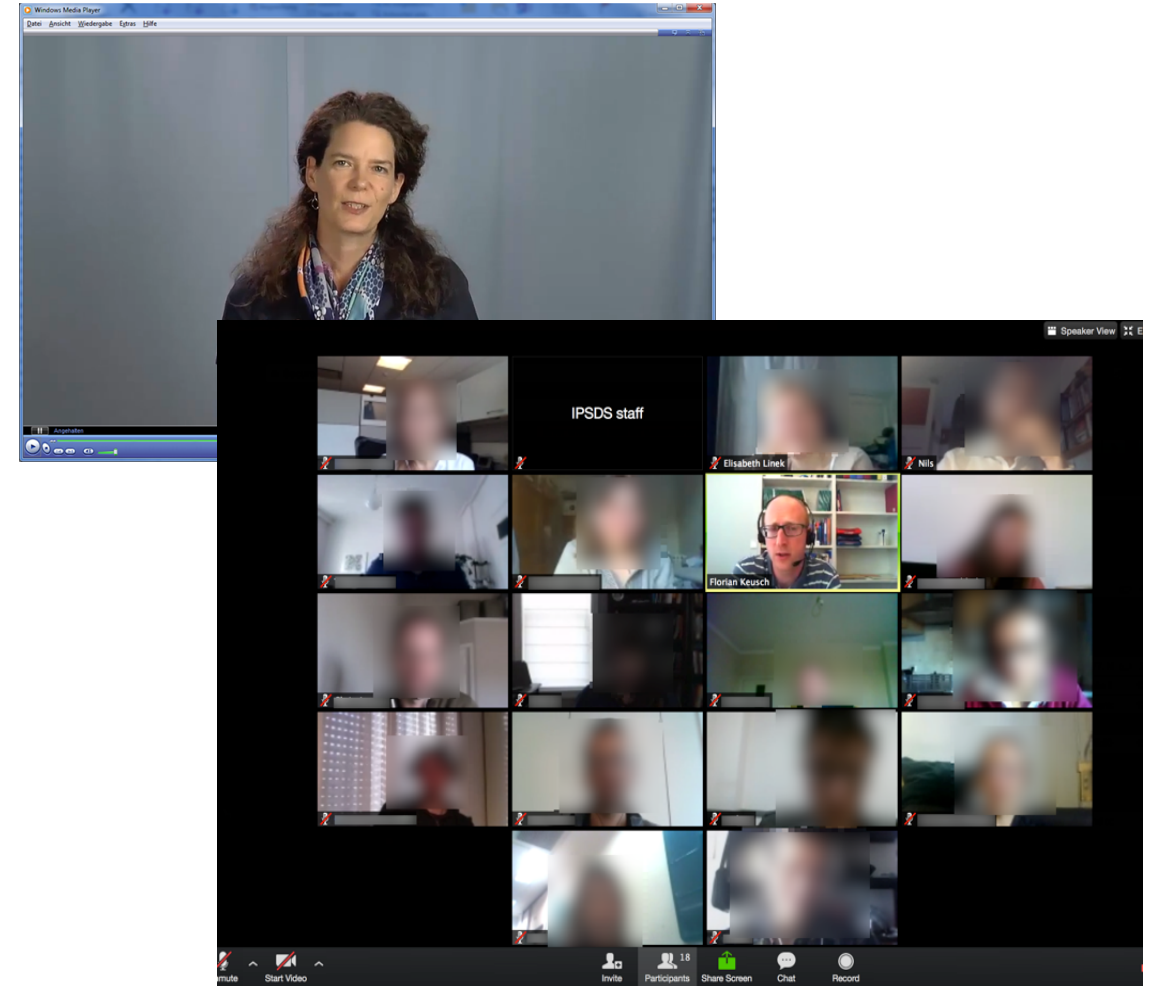
- Academic degree (min. Bachelor's degree)
- At least 12 ECTS/6 credits in mathematical/applied statistics
- At least one year of work experience in a position dealing with data generation, collection, or analysis.
- English proficiency

IPSDS Structure

Onsite (Connect@IPSDS)



Online



Format

Asynchronous

Synchronous

Unit 1: Introduction – How to do survey research and data science

In this unit, we will introduce key terminology of survey research and data science and discuss the steps of a data research project.

Unit 1 Learning Objectives

By the end of this unit, you will...

- be able to define the terms survey science.
- know about skills necessary to do projects.
- be able to identify the key steps in a project.
- know how to define different types of projects.

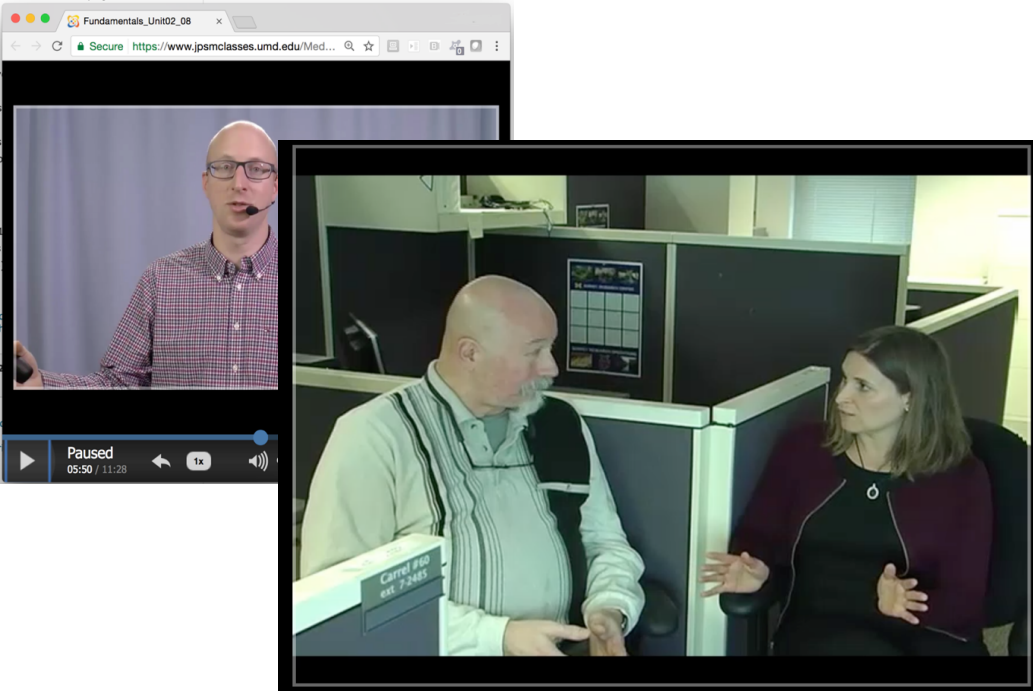
Unit 1 Required Readings

- Groves et al. (2009), Chapters 1-3
- Peng & Matsui (2015), Chapters 1-3
- Leek, J.T. and Peng, R.D. (2015) 1314-1315. (see below)

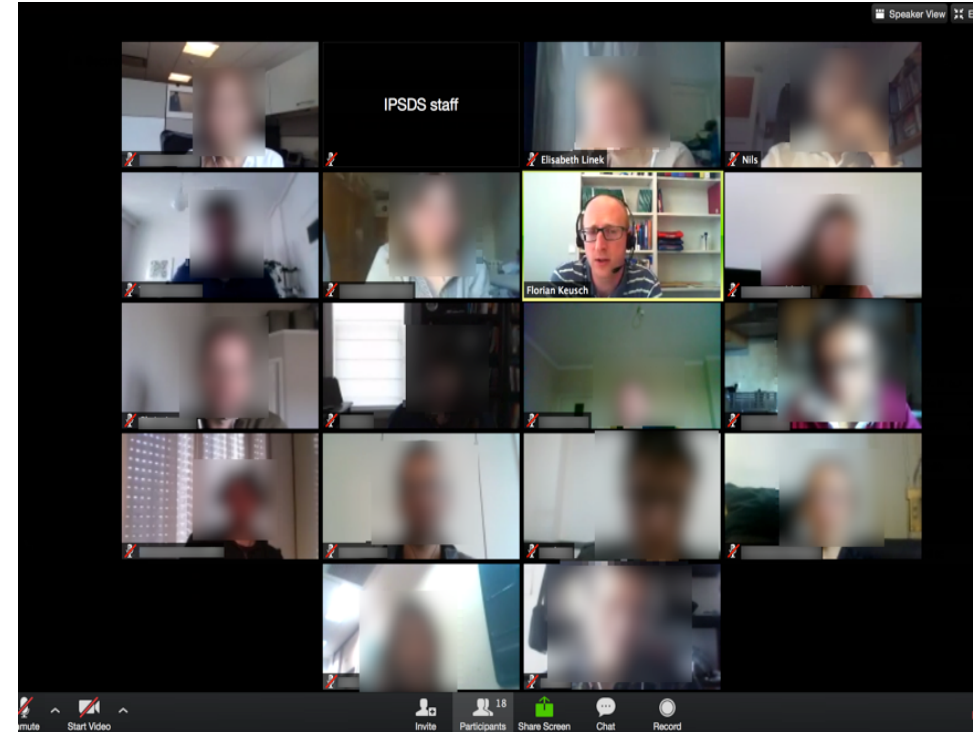
After reading the assigned texts and joining the online meeting to discuss them with your fellow students.

Join Meeting [Thursday, 03/03/2023 0-18:50 (CET)]

At the end of this unit, you will find an assignment to evaluate your understanding of the material. Please submit the assignment by Friday, 03/03/2023 18:50 (CET).



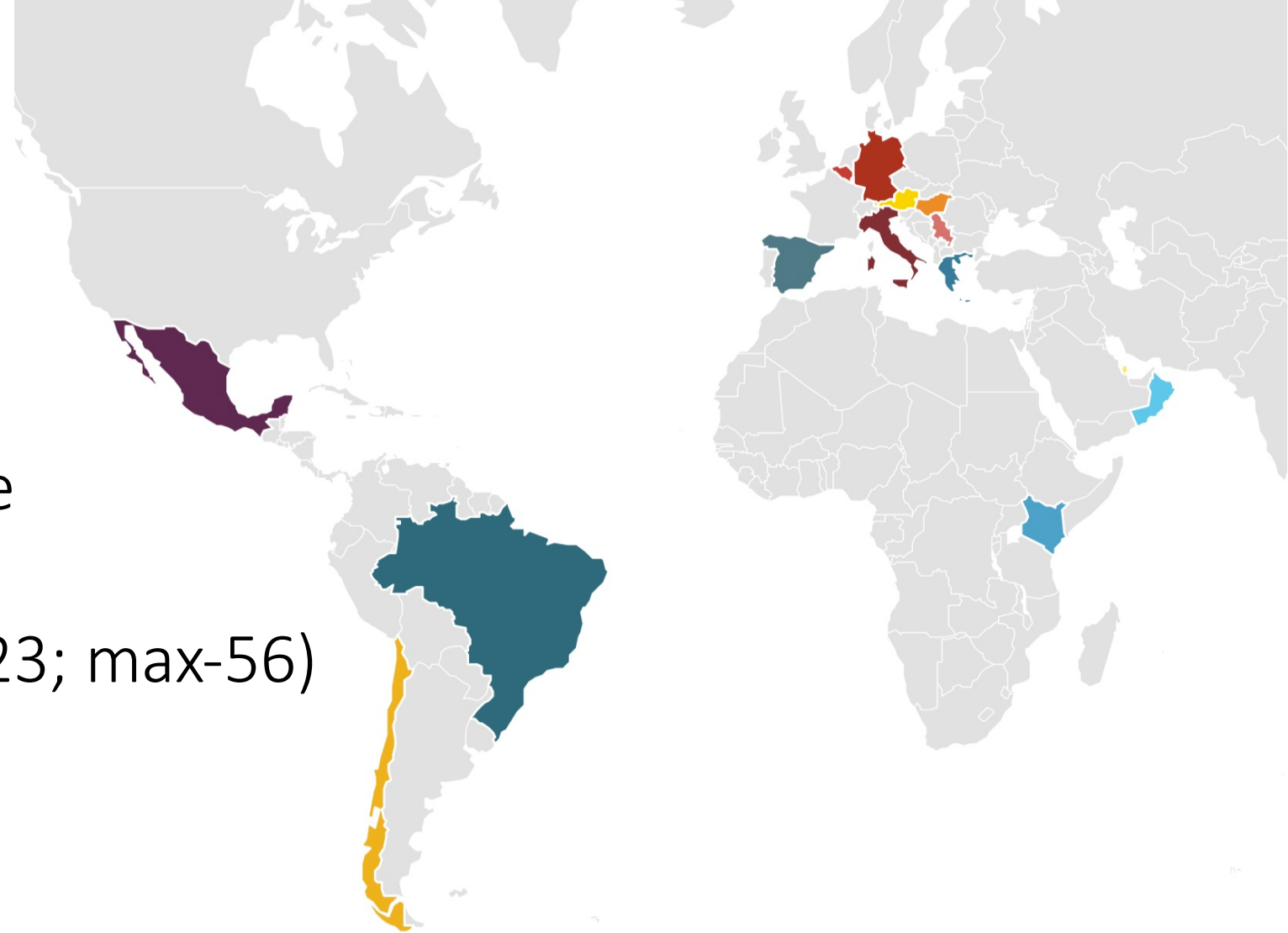
- Pre-recorded lectures (split into smaller video units)
- (Bi)weekly assignments
- Discussion forums



- Small virtual classrooms
- Weekly 50-minute discussions led by the instructor
- Obligatory component

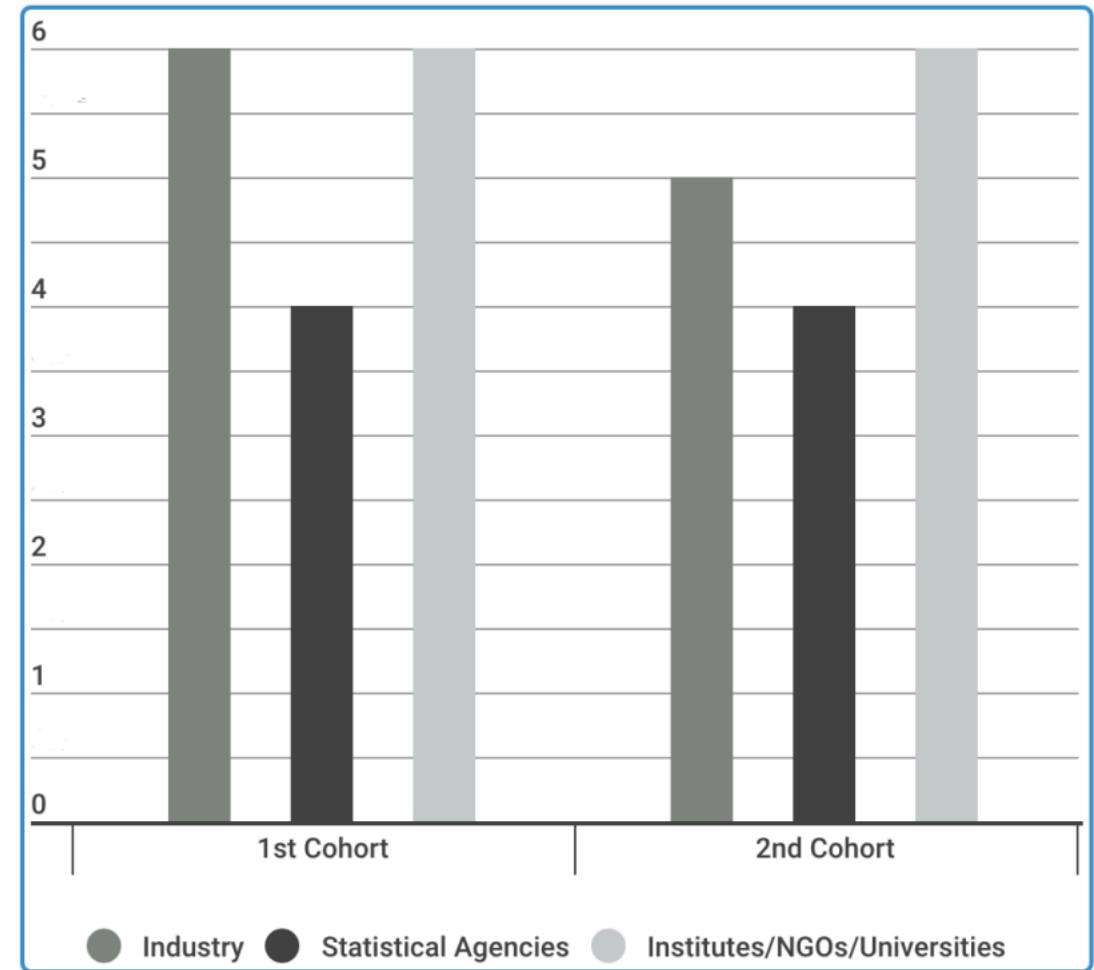
IPSDS 2 (Test) Cohorts

- 31 Participants
(18 f + 13 m)
- 15 countries of residence
- Age: median=30,5 (min-23; max-56)



IPSDS 2 (Test) Cohorts

- 7 participants with Bachelor's.; 22 with Master's; 2 with PhD
- Areas of education: (social sciences, economics/business, statistics, computer science)
- Working hours: 41 hours/week (16 participants work more than 40 hours a week)



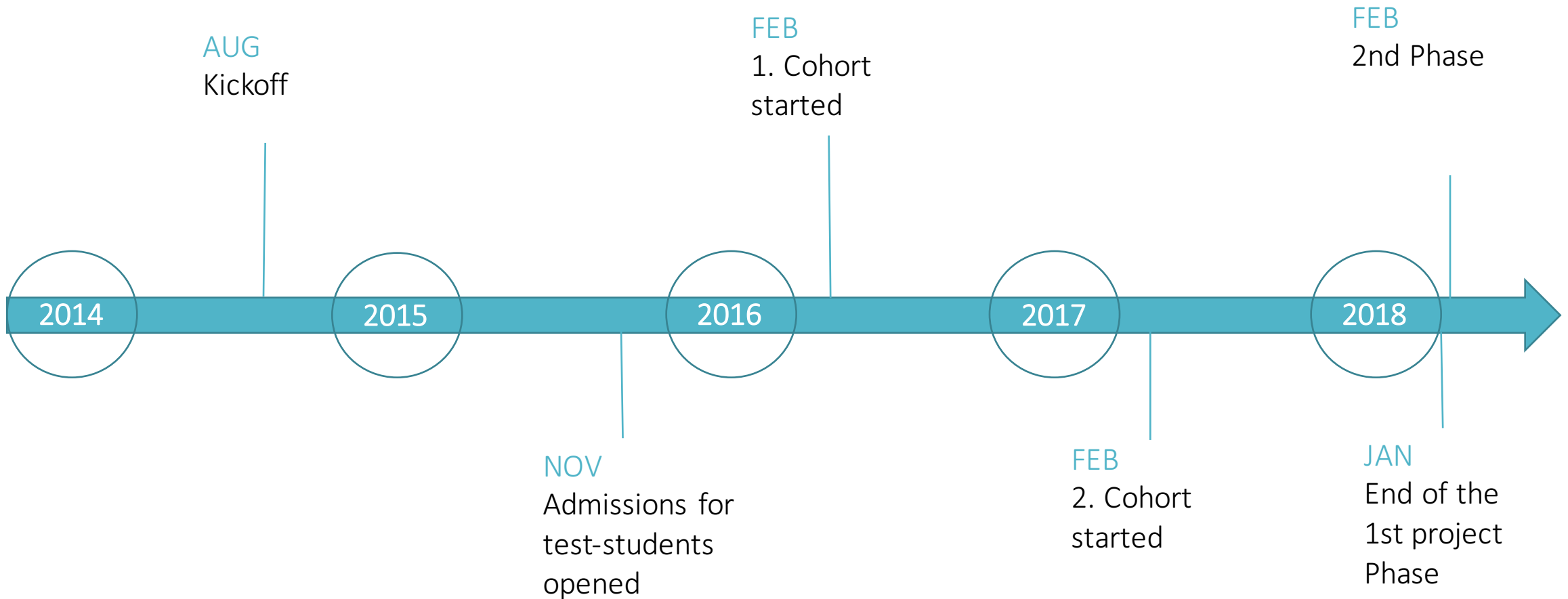
IPSDS Student (2nd cohort)

“It [IPSDS] is once a life opportunity. A lot of my colleagues keep telling me that they got stuck in the routine and have a feeling they are no longer up to date.

For working people, it is difficult these days. You go to the university, then you start working and that is it. Doing the same every time for many years without anybody coming from outside with new knowledge. It makes you die inside, even if you have a lot of work to do.

We have a lot of universities, a lot of opportunities. But once you enter work-life, that is it, you don't have it anymore. I was looking for possibilities, but I could not find anything.”

Test phase time outline



Milestones (students)

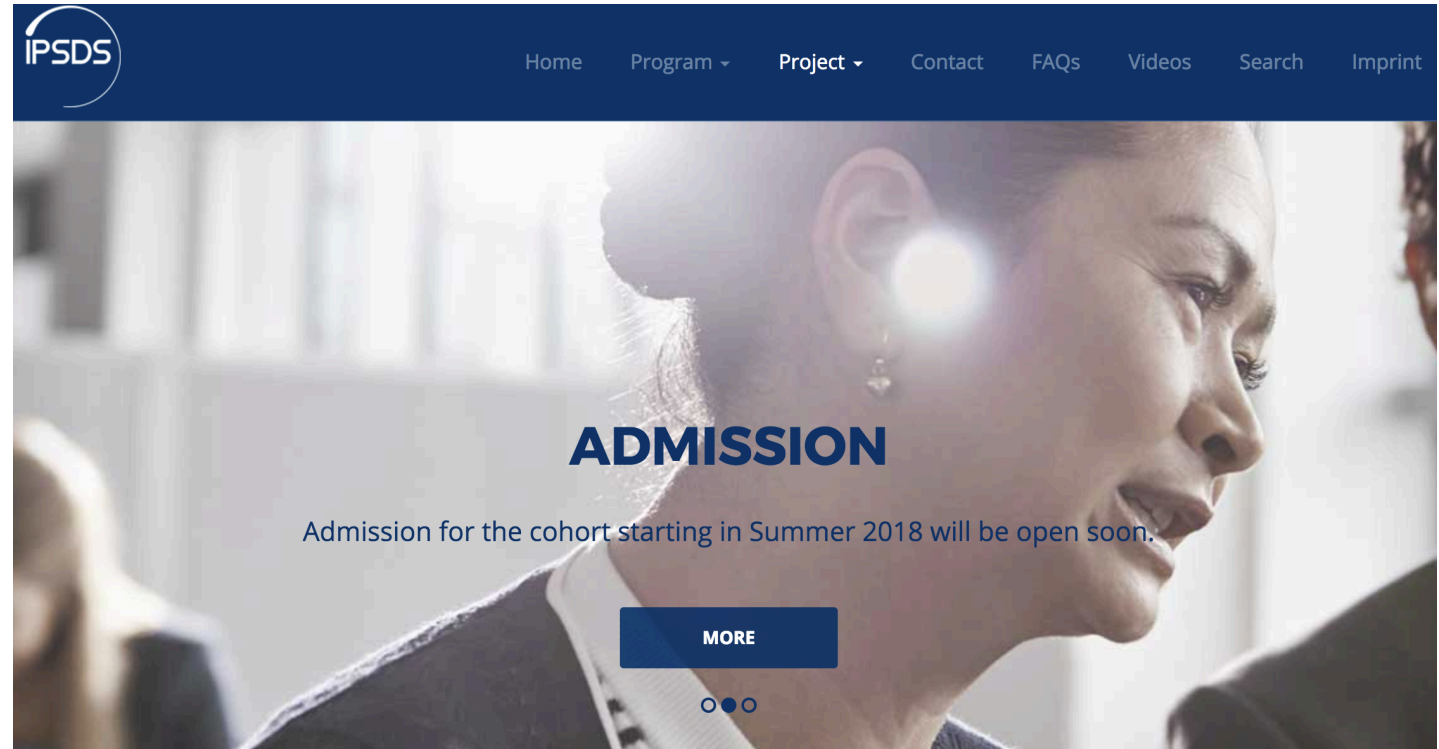
- Program is feasible for those with family responsibilities (7 participants with child care responsibilities)
- On average students need 3 years and 3 months to finish (part-time studying)
- Positive feedback (course and program evaluations)
- 3 Drop-outs (out of 31, after 1 year)



Next Steps

- Recruiting 3rd cohort of students
- Incorporating more project-based course work
- High quality bridge courses
- Further internationalization
- Ongoing evaluation

survey-data-science.net



CONNECT@IPSDS

Connect@IPSDS/IPSDS Talks will take place in Mannheim on June 8 and 9, 2018

[MORE](#)



Literature

- Biemer, P. (2016). Errors and Inference. In I. Foster, R. Ghani, R. S. Jarmin, F. Kreuter & J. Lane (Hrsg.), *Big Data and Social Science: A Practical Guide to Methods and Tools*. Chapman and Hall/CRC.
- Daas, Piet J.H. and Marco J.H. Puts. (2014) “Social Media Sentiment and Consumer Confidence.” *European Central Bank Statistics Paper Series No. 5*. Frankfurt, Germany.
- Japec, L., Kreuter, F., Berg, M., Biemer, P., Decker, P., Lampe, C., Lane, J., O’Neil, C., & Usher, A. (2015). *American Association for Public Opinion Research: Task Force Report on Big Data. Report*. Retrieved from from <http://www.aapor.org/Education-Resources/Reports/Big-Data.aspx>
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