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How to Communicate the Content of Quality Indicators of a Statistical Business Register

Paul-André Salamin, Fabio Tomasini
Tokyo, 2016



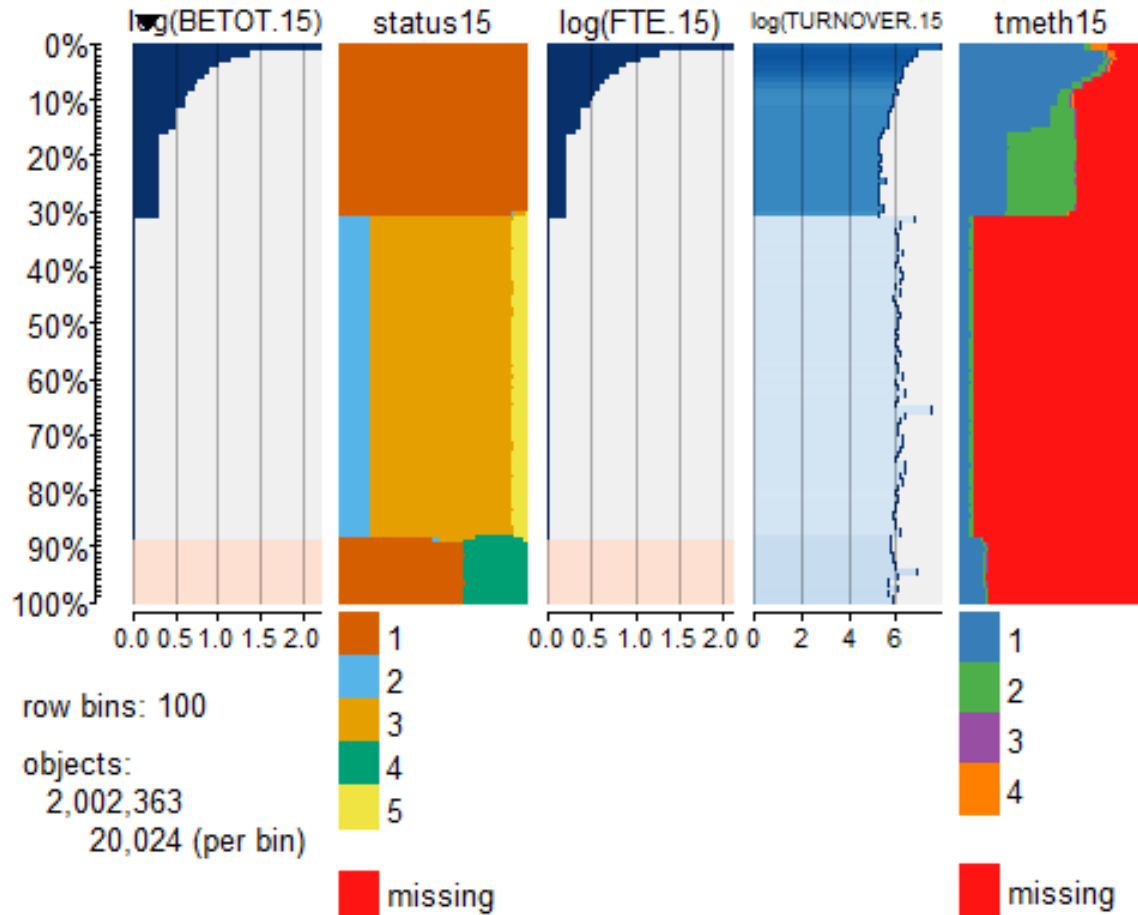
Introduction

- Large number of quality indicators
- Long lists, large tables
- Visualization
 - Assess and communicate the quality of a SBR
 - Make quality indicators more useful and more easily usable
- Packages `tabplot` and `treemap` in R



Tableplot

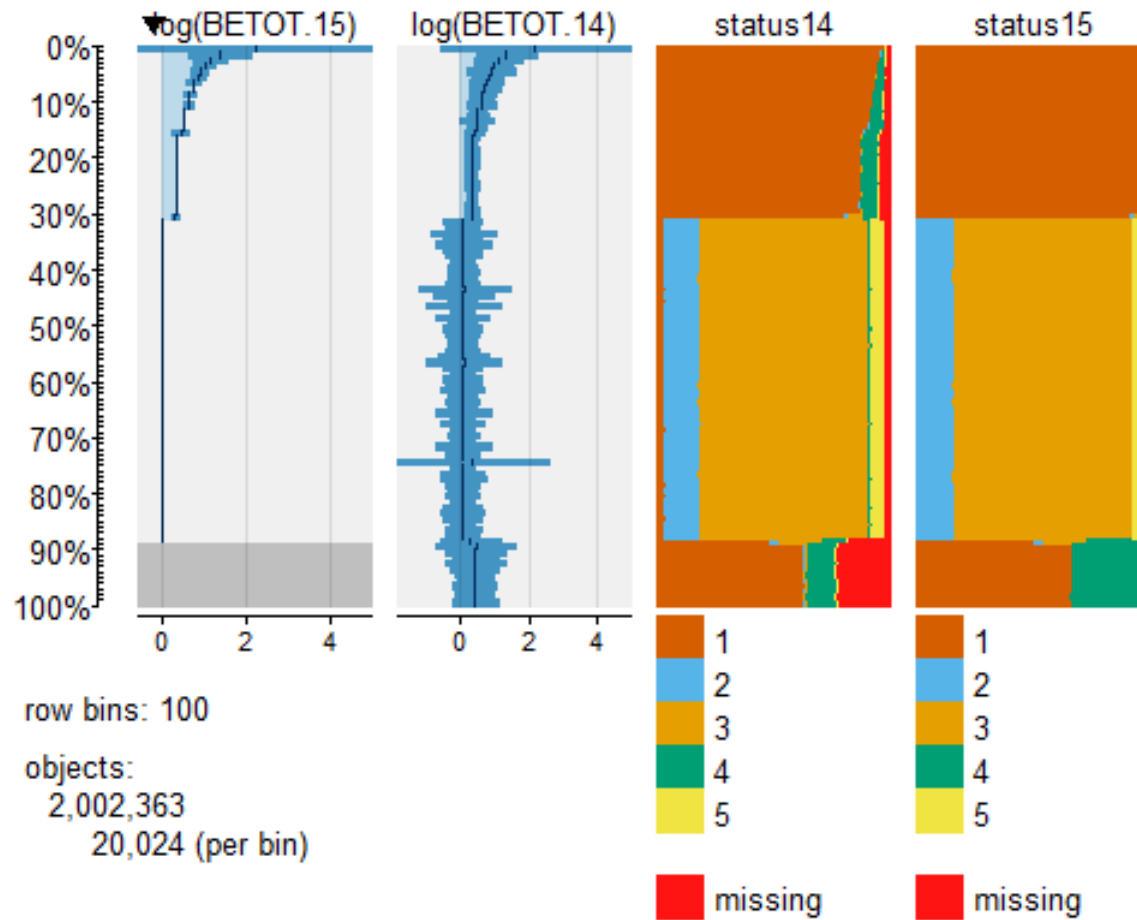
- Data sorted by number of employees (BETOT)
- 100 bins with approximately 20'000 enterprises per bin
- Numeric variables: mean per bin
- Categorical variables: bar chart of categories fractions





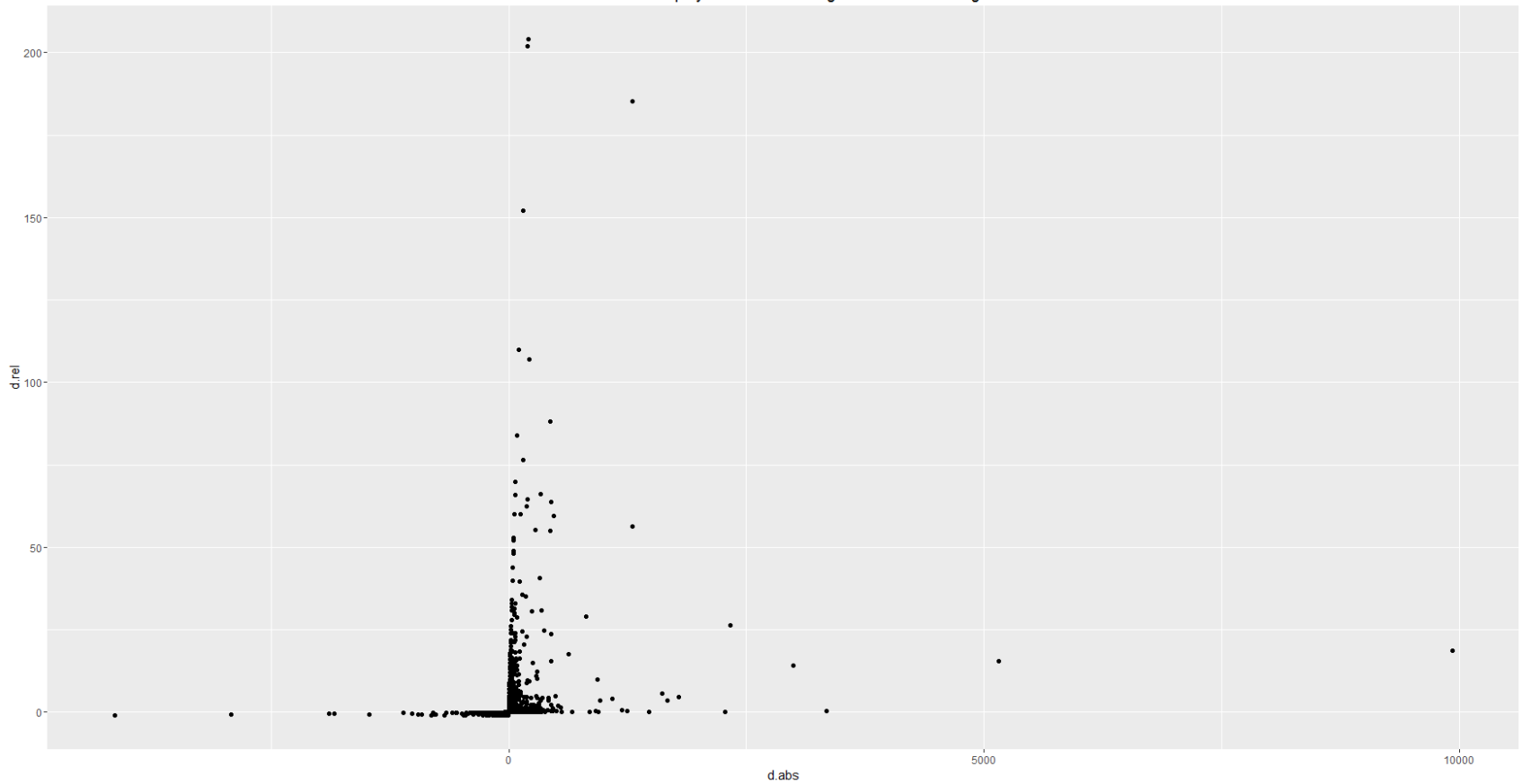
Evolution of the SBR

- 2014: Start of the integration of employment data from Social Security
- Enterprises with employment in the SBR but none according to Social Security
- Automatic and clerical check of 60'000 record
- Successful integration of the new administrative source





Number of employees: relative change vs. absolute change



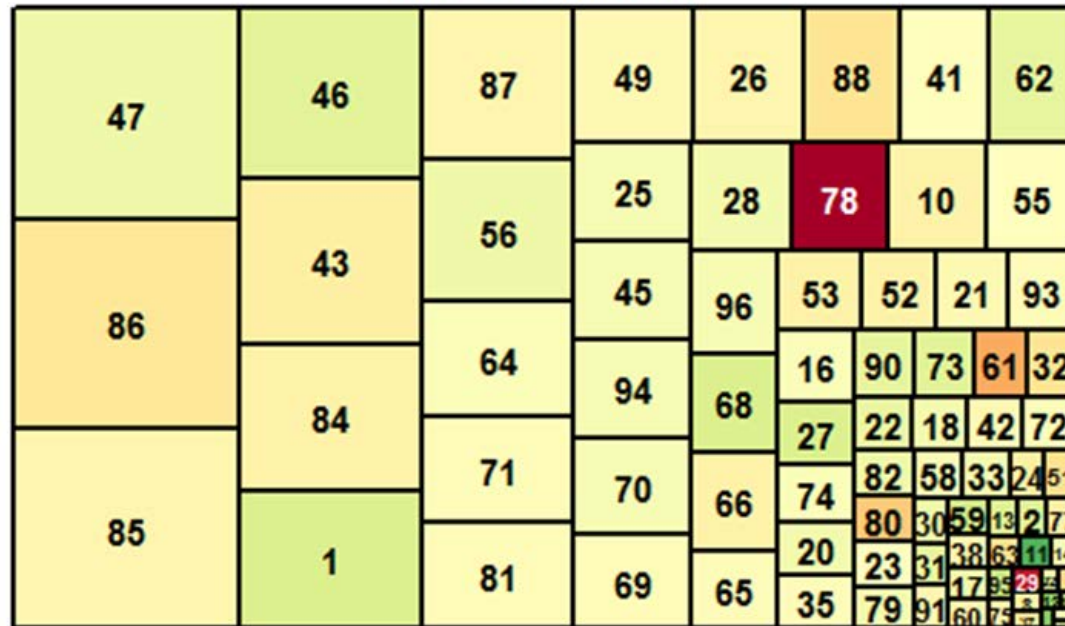


Treemap

- Size of rectangles: number of employees in 2014 by NACE2
- Color: relative change in the number of employees with respect to 2015
- Relatively stable number of employees by NACE2
- Data collection problems for NACE2 = 78



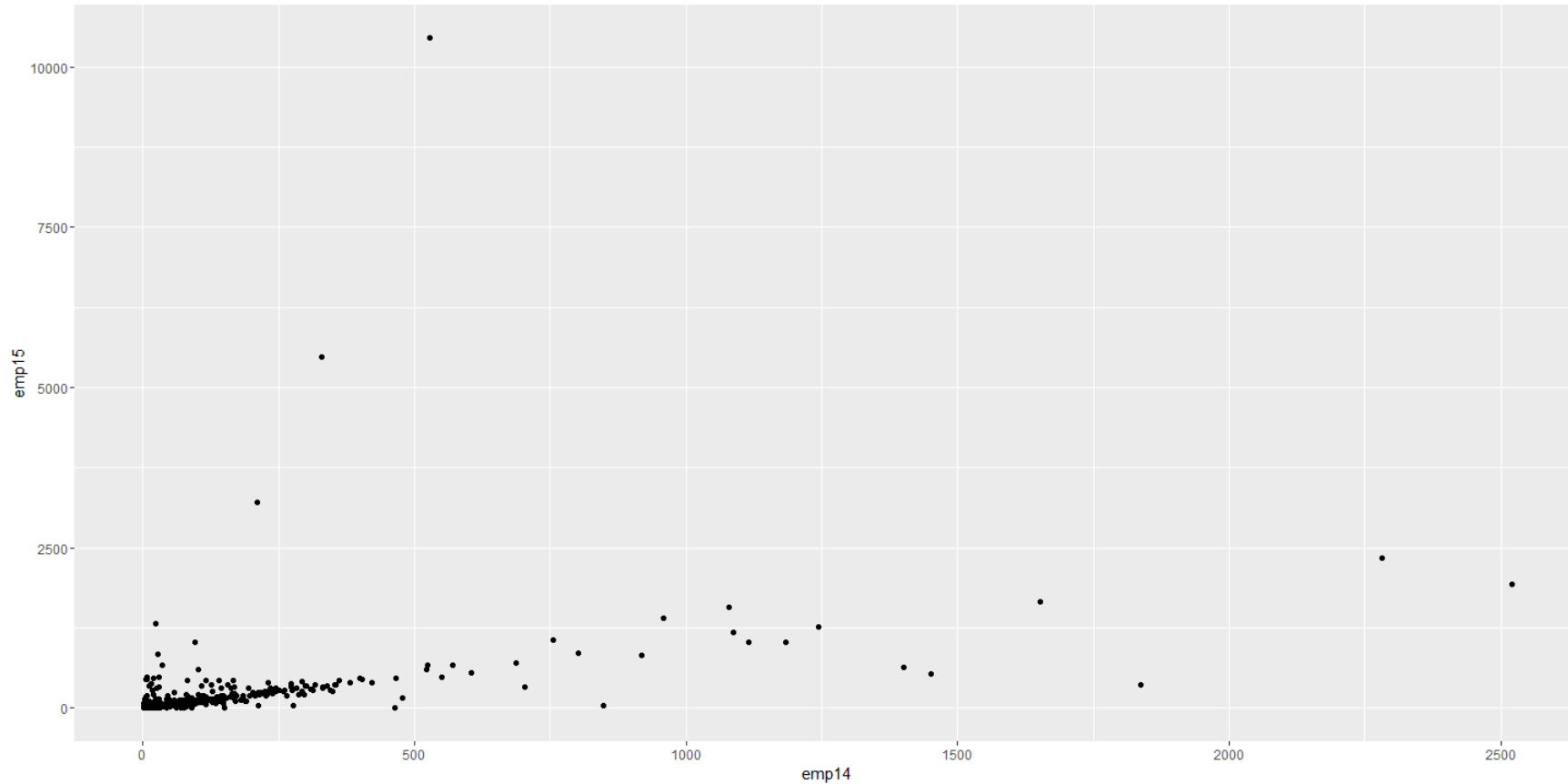
BETOT.14.sum



BETOT.15.sum



NACE 78





Conclusions

- 10^7 observations in under 5s on commodity hardware
- Visualization techniques
 - Synthetic and easily understandable view of the SBR and quality indicators
 - Help in identifying important events
- Reporting tool for the SBR based on standard views
 - Communicate quality and stability of the SBR
 - Tool for the management of the SBR
 - Bridge between the SBR production and maintenance team and the users



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Links

- Martijn Tennekes and Edwin de Jonge (2016).
tabplot: Tableplot, a Visualization of Large
Datasets. R package version 1.3.
<https://CRAN.R-project.org/package=tabplot>
- R Core Team (2016). R: A language and
environment for statistical computing. R Foundation
for Statistical Computing, Vienna, Austria.
<https://www.R-project.org/>



Links

- Swiss Statistical Business Register (SBR) (French)
<http://www.bfs.admin.ch/bfs/portal/fr/index/themen/00/05/blank/02.html>
- Guidelines on Statistical Business Registers -
UNECE
<http://www.unece.org:8080/index.php?id=40574&L=0>
- University of Applied Sciences and Arts Western
Switzerland HES-SO
<http://www.hevs.ch/en/>