

REPRODUCIBLE RESEARCH WITH R

STATISTICAL ANALYSIS WITH R USING RSTUDIO, GITHUB, KNITR AND SHINY

Maja Založnik



The Oxford Institute of
Population Ageing

OXFORD – 19th March 2015

OUTLINE

- Introduction
- Reproducibility
- RStudio
- GitHub
- knitr
- Shiny

OUTLINE

- **Introduction**
- Reproducibility
- RStudio
- GitHub
- knitr
- Shiny

OUTLINE

- Introduction
- **Reproducibility**
- RStudio
- GitHub
- knitr
- Shiny

OUTLINE

- Introduction
- Reproducibility
- **RStudio**
- GitHub
- knitr
- Shiny

OUTLINE

- Introduction
- Reproducibility
- RStudio
- **GitHub**
- knitr
- Shiny

OUTLINE

- Introduction
- Reproducibility
- RStudio
- GitHub
- **knitr**
- Shiny

OUTLINE

- Introduction
- Reproducibility
- RStudio
- GitHub
- knitr
- **Shiny**

REPRODUCIBILITY OF RESEARCH

- **Reproducibility vs Replicability of research?**

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- “*The confirmation of results and conclusions from one study obtained independently in another*” (Jasny et al. 2011)

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- **Levels of Replication**

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- **Levels of Replication**
 1. Re-ask the question

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- **Levels of Replication**
 1. Re-ask the question
 2. Re-do the experiment

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- **Levels of Replication**
 1. Re-ask the question
 2. Re-do the experiment
 3. Re-analyse the data

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- **Levels of Replication**
 1. Re-ask the question
 2. Re-do the experiment
 3. Re-analyse the data
 4. Reproduce the analysis

REPRODUCIBILITY OF RESEARCH

- Reproducibility vs Replicability of research?
- *“The confirmation of results and conclusions from one study obtained independently in another”* (Jasny et al. 2011)
- *“[T]he independent verification of prior findings”* (Santer et al. 2011)
- Levels of Replication
 1. Re-ask the question
 2. Re-do the experiment
 3. Re-analyse the data
 4. **Reproduce the analysis**

REPRODUCIBILITY: SHOW YOUR WORK!

imgur user TVsJeff:

"A math teacher took points off for not showing all of my work. The next homework assignment i turned in looked like this. It was 45 pages long."



