Optimization of data collection from enterprises by use of nudging initiatives

Carsten Zornig
czo@dst.dk
This presentation

• This is *not* a study based on exact science

• This is experiments with data collection from compulsory business surveys based on the nudging theory and inspired by the work of:
  - iNudgeyou
  - The Nudging Company
  - Copenhagen Economics
Approach

• Digitalisation in Denmark
  ▪ Enterprises are obliged to report digitally
  ▪ 98 of all reports from enterprises are digital

• Digitalisation provides improvement opportunities
  ▪ Digital data collection is faster and more efficient
  ▪ We can communicate faster and more precise

• The data collection follows a predictable pattern
  ▪ We wants to influence this pattern by use of nudging effects
  ▪ The goal is to speed up the data collection, increase response rates and reduce data collection costs
Nudging

- A 'nudge' is an attempt to influence people's choices and behaviors in predictable directions without
  - limiting their choices, or
  - changing the cost of action options
The brain works with two systems

- **System 1**
  - Fast
  - Automatic
  - Intuitive
  - Emotional

- **System 2**
  - Slowly
  - Reflected
  - Controlled
  - Logical

- *The non-exact science says 95/5 in system 1's favor...*
System 1 may be mistaken ...

**Example 1**: A ball and a bat cost $110 in total. The bat costs $100 more than the ball.
- Think fast: How much does the bat cost?
- Correct answer: The price of the bat is $105 (the ball 5 $)

**Example 2**: Optical illusion
- Which arrow is the longest?
- Correct answer: They are the same length
Systematic biases affects our choices

• Systematic biases used in data collection experiments – used in these experiments
  ▪ Attentional Bias
  ▪ Anchoring
  ▪ Time inconsistent preferences
  ▪ Loss aversion

• Other relevant biases, e.g.:
  ▪ Social norms
  ▪ Perceived progress
  ▪ Choosing vs. rejecting
  ▪ Goal visibility
Attentional Bias and Anchoring

• The decision is influenced by an *emotionally dominant stimuli* in one's environment
  ▪ What draws and holds your attention?
  ▪ A specific piece of information influence your decision

• Data Collection – what information is needed?
  ▪ It must be easy to start and complete the report

• Pictograms may influence your focus
  ▪ May seem like a guide
  ▪ It is easy to see how to continue
Attentional Bias and Anchoring
Time inconsistent preferences

• The decision is influenced by your future preferences
  ▪ What do you think today that you prefer tomorrow?
  ▪ That decision may change

• Data collection – why not report immediately?
  ▪ People think that they will prefer to report at a later time

• An SMS reminder just before deadline may influence
  ▪ It is still possible to report in due time
  ▪ A message on your phone is more personal than an e-mail
  ▪ This will influence people who occasionally forget to report

DON'T MISS THE DEADLINE!
Time inconsistent preferences

Job vacancies 1st quarter 2017

Initial request
SMS reminder
Deadline
1st reminder
2nd reminder
3rd reminder
Final reminder
Time inconsistent preferences

Pig survey 3rd quarter 2016 - 2nd quarter 2017

3rd reminder
2nd reminder
1st reminder
Deadline
SMS reminder
Final reminder
Reminder by phone

3rd Q 2016
4th Q 2016
1st Q 2017
2nd Q 2017

STATISTICS DENMARK
**Loss aversion**

- Your decision is influenced by *what gives you the least loss*
  - How do you optimize your personal utility?

- Data collection – the best order of reminders?
  - Info about a potential police report influence your decision

- Registered letter – Phone call – Police report
  - A registered letter before a phone call is very efficient
  - A phone call just before the police report becomes a friendly reminder instead of an unpleasant threat
Loss aversion

Harvest 2015-2017

- Initial request
- 1st reminder
- 2nd reminder
- 3rd reminder
- Deadline
- SMS reminder
- Reminder by phone
- Registered letter
Results and future aspects

- Nudging helps us to
  - Speed up data collection
  - Increase response rates
  - Makes the timing of the data collection more flexible
  - Lets us fit the data collection to the enterprises schedules
  - Reduces the costs of the data collection
Thank you for your attention

Contact information:
1. Carsten Zornig
2. CZO@dst.dk