Can We Buy Good Answers?
The Influence of Respondent Incentives on Item Nonresponse and Measurement Error in a Web Survey

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Respondents incentives (token of appreciation) in social surveys are often given to raise response rates.

Literature shows that incentives can effectively be applied to decrease nonresponse (see for instance James and Bolstein (1990) and Church (1993)).

- Prepaid incentives show higher effect than promised incentives.
- Monetary incentives show higher effect than nonmonetary.
- Effect increases with the amount of the incentive.

Response rate $\neq$ survey quality.

What is the impact of incentives on response quality?
The Effect of Incentive on Data Quality

Theoretical effects:
- Increase in motivation due to incentives (Leverage-Saliency Theory, Groves et al. 2000).
- Reduction in intrinsic motivation due to external incentives (Self-Perception Theory, Hansen 1980).

Empirical findings and gaps:
- Ambiguous findings for the effect of initial incentives on survey quality (Singer and Ye, 2013).
- Studies show that an intervention during the interview and the request to think hard can improve the quality of later questions (Cannell 1981).
- No prior studies about the effect of additional incentives as intervention during the interview.
What are Good Answers?

Answers that are equal to a person’s "true" value:

- No missing answer or "don’t know" or "no answer".
- Precise answer, not rounded or heaped.
- Correct answer.

→ Violations can lead to seriously biased estimates.
Data

- Web Survey “Work and Consumption in Germany” conducted by the Federal Employment Agency, funded by the University of Munich.
- Sample drawn from administrative data.
- $N = 11,838; n = 1,092$ (5 cases deleted for analyses).
- Interviews from February 2012 till April 2012.
- Sampled cases received invitation letter with URL of web survey and individual username and password.
- Every respondent received a 3 € incentive (Amazon voucher) for participation.
- Additional incentive experiment during the interview.
Incentive Experiment

- Experimental intervention towards the end of the interview: some respondents are asked to think hard about the next set of questions and be as precise as possible.

- 11 experimental groups:
  - All but one are asked to think hard about next questions and be as precise as possible.
  - Additional unconditional incentives given to 9 groups ranging from 0.5 € to 4.50 €.
  - Two control groups: "no incentive, no request" and "request only".
Sample Sizes Within Experimental Groups

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<th>n</th>
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<tr>
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</table>
Intervention

At the end of the interview we would like to ask questions about "Health and Standard of Living." In these questions we are interested in very precise descriptions of your current situation and future and past events.

**Text shown for all groups but "no incentive, no request":**
We know that these questions are hard to answer and we would like to ask you to take your time to think hard to give as precise answers as possible.

**Text shown for all groups but "no incentive, no request" and "request only":**
As a thank-you in advance we now add X Euro to the incentive you already received for participating in the survey.
Question Within Incentive Experiment

1. "What do you think is the recommended daily number of calories for an average adult of your sex?"

2. "How many times did you visit a doctor in 2011"?

3. "How likely do you think it is that you will live until age x?" (x depending on a person's age)

4. "What was your last monthly income?"

5. "Did your household receive unemployment benefit (UB II) during the last 12 months?"

6. "How likely do you think it is that your living standard will decrease in the next five years?"

For every question response options "no answer" and "don’t know" possible.
Research Questions

- Do respondents who receive an additional incentive take *more time to answer* the question?
- Are respondents who receive an additional incentive *less likely to give "no answer" or "don’t know" responses*?
- Are respondents who receive an additional incentive *less likely to give rounded and heaped responses*?
- Are respondents who receive an additional incentive *less likely to give incorrect answers* in the UB II and calories question?
- Are effects *stronger the higher* the additional incentive is?
Time to Answer

- **Calories**
- **Doctor Visits**
- **Life Expectancy**
- **Income**
- **UB II**
- **Standard of Living**

**EUR 4.50**

**EUR 4.00**

**EUR 3.50**

**EUR 3.00**

**EUR 2.50**

**EUR 2.00**

**EUR 1.50**

**EUR 1.00**

**EUR 0.50**

* Request only
* No incentive, no request

Time to Answer

0 10 20 30 40
"No Answer" and "Don’t Know"

![Graph showing the percent missing for different incentives.](image)

- **EUR 4.50**
- **EUR 4.00**
- **EUR 3.50**
- **EUR 3.00**
- **EUR 2.50**
- **EUR 2.00**
- **EUR 1.50**
- **EUR 1.00**
- **EUR 0.50**

- **Request only**
- **No incentive, no request**

**Categories:**
- Calories
- Doctor Visits
- Life Expectancy
- Income
- UB II
- Standard of Living

**Y-axis:** Percent Missing
**X-axis:** 0 - 35
Rounding and Heaping and Incorrect Answer

Rounding and Heaping:

■ Doctor visits: rounding to 52, 24, 12, 6, 4, 2.
■ Life expectancy and expected standard of living: rounding to 50% as equivalent to "don’t know".
■ Monthly income: rounding to multiples of 500 €.

Correct answer:

■ Calories question: 2000 kcal for everybody.
■ Unemployment benefit: correct answer according to administrative records (only for respondents who consented to linkage (n=662)).
Rounding and Heaping and Incorrect Answer

Percent Rounding/Heaping/Incorrect Answer

0 20 40 60 80

no incentive,
no request

request only

EUR 4.50
EUR 4.00
EUR 3.50
EUR 3.00
EUR 2.50
EUR 2.00
EUR 1.50
EUR 1.00
EUR 0.50

Calories
Doctor Visits
Life Expectancy
Income
UB II
Standard of Living

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Institute for Employment Research
The Research Institute of the Federal Employment Agency
Conclusions

- No systematic effect of incentives on time to answer, measurement error and item nonresponse ("don’t know", "no answer") for experimental groups compared to control group (Cannell 1981).

- No systematic differential effects by incentive amounts.

- Adding controls for socio-demographics and respondents’ performance prior to the intervention does not change the results.
  - Strong correlation between "don’t know" and "no answer" before and after intervention but no interaction.
  - Differential effect of age and gender on data quality depending on question after intervention but no interaction.
Thank you for your attention!

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