## Incentives in Official Statistics: Effects on response, representativeness and target variables.

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Many CBS person and household surveys employ a mixed mode design, with web as the first mode and a follow up in CATI and/or CAPI. It is obvious that a high web response in mixed mode surveys is of considerable financial importance, as that means that less fieldwork has to be performed by interviewers. Increasingly we also do web only surveys. Without extra measures, web response in CBS social surveys ranges from 15% for burdensome surveys as the Household Budget Survey to 40% for surveys as the Health Survey or the Survey of Social Cohesion.

Because of the importance of web response, CBS implemented a large scale program of (web)response improvement, in which experiments were performed on various topics. One of those topics is the use of incentives. In the past year we have experimented with unconditional incentives (€5 gift certificate included in the advance letter), incentives of €10, €20 and €30 gift certificates conditional on response, and conditional incentives in the form of raffled (large) prizes, like iPads or gift certificates worth €250,=. Although a host of literature exists on the use of these kinds of incentives, relatively little is known on the effect in web and mixed mode surveys, especially in official statistics.

In this paper I discuss the effect of these various incentives on the amount, distribution, and quality of the response, the effect on the (weighted) target variables, and the effect on the fieldwork costs.

### Response rates

#### Unconditional incentives

Literature suggests that monetary incentives work best. Because of Dutch postal legislation, we are not allowed to send real money however, so we opted for the next best solution: widely usable gift certificates. The worth of the gift certificate, which we included in the advance letter, was €5.

In five experiments in various (persons) surveys, we saw that the web response increased with 13 to almost 20 percentage points compared to control groups. In addition: in all but one case we saw that the incentive also increases the response in the follow up CATI and CAPI modes. The overall response of the surveys increased with 10 to 14 percentage points.

Although unconditional incentives proved hugely successful in increasing response rates, they are also very expensive. We therefore looked into possibilities to increase response against lower costs, by either giving or promising incentives to respondents.

#### Conditional incentives: raffles

The literature on raffled incentives shows mixed results (Singer and Ye, 2013). If the raffle is to have any success at all, the price needs to be of considerable worth (Bosnjak and Tuten, 2003), although even that is no guarantee for success. Gajic, Cameron, and Hurley (2010) showed that a raffled incentive with a high value was the most economic choice in a series of options, given the increase in response compared to the costs.

Tuten, Galesic en Bosnjak (2004) showed that the timing of the announcement of winning (either right after filling in the questionnaire, or one month later) had a significant influence on response rates, with the immediate announcement having the higher chance of response.

We concluded that there were enough success stories to try this kind of incentive, in a web only survey among children and young adults. In an experiment we raffled three iPad-minis (the number was not announced, only that there were several), and announced that the winners would be notified at once after filling in the questionnaire. A picture of a number of iPads figured prominently in the advance letter. The raffle increased response with 12 percentage points from 21% in the control group to 33% in the experimental group. Furthermore, the quality of response in the incentive group (see later) was comparable to the control group.

This success made us curious if this could work in other samples as well. In an experiment in the Travel Survey, with a sample from the entire population we raffled iPads. In an experiment in the Survey of Employee Conditions, we raffled (several) iPads and (several) gift certificates worth €250[[1]](#footnote-1). The iPad increased response by 5 percentage points in the Travel Survey and by 7 percentage points in the survey of Employee Conditions. The raffle of €250 gift certificates increased response by 5 percentage points.

#### Conditional incentives: gift certificates for respondents

In certain circumstances, where we ask relatively much from respondents, we would prefer to give something to all respondents. Therefore we experimented in the mixed mode (web-cati) EU-SILC with promised €10 gift certificates for respondents. The web response increased with almost 11 percentage points, but contrary to the findings with the unconditional incentives, the response in the follow up CATI mode did not increase, and even had a tendency to be lower than the response in the control group. In an experiment in the (web only) Household Budget Survey, we compared promised gift certificates of €20 and €30, in half of the cases complemented with an unconditional incentive of €5. Without the unconditional incentive, people were not much inclined to participate in the HBS, neither with the €20 promised incentive (11.3% response), nor with the €30 (14%). The unconditional incentive on top of the promised incentive increased the response to 18.3% and 20.1% respectively.

### The influence of incentives on sample composition

#### Subgroup response variation

In all experiments we find that unconditional incentives increase differences between subgroups, as some groups react more strongly to the incentive than other groups, and some groups may actually show decreasing response. Differential reaction to incentives may be an expedient result, if the incentive brings in respondents of difficult groups. Mostly we found that that is not the case, however. In earlier experiments in CAPI (Wetzels, Schmeets, van den Brakel, and Feskens, 2008), we found that an unconditional incentive of postal stamps could increase overall response with almost 8 percentage points, but the incentive did not have any effect on persons of non-western ethnic background. We saw the same phenomenon in the incentive experiments in both mixed mode and unimode web surveys. In the housing survey, persons of first generation non-western background had a (substantially) *lower* response rate with the unconditional incentive than in the control group. In general in can be said that there is a high positive correlation between the response rates of subgroups in the control group, and the response gain in the incentive conditions, for both the unconditional and the conditional promised incentives: the higher the response without incentive, the stronger the reaction to the incentive. In a mixed mode setting with interviewer follow-up, we manage to counterbalance the effect, but in web only, or web-mail surveys, this may be an unwanted result.

The raffled incentives seem to suffer less from differential influence of the incentive. For example, in the Travel Survey, the increase in web response with the unconditional incentive was 21% for native Dutch persons, while the increase for people from non-western background was 6%. The increase as a result of the iPad raffle in the same survey was more homogeneous: 6% increase for native Dutch persons against 3% for persons with non-western background. Likewise, in the survey amongst children and young adults, there was no interaction between ethnic background and incentive condition.

#### Representativeness: variation in weights

Another way to look at the effect of the incentive, is to look at the variation in the adjustment weights for the variables in the weighting model. Change in weight variation is an indication that subgroups react differently to the incentives. For the web-mail mixed mode survey amongst Dutch employees we studied the effect of either an iPad or €250 gift certificate raffle on the adjustment weights variation. In this survey, both incentives succeeded in significantly decreasing the variation: from .32 in the no incentive group to .19 in the iPad group and .18 in the gift certificate group.

### Incentives and data quality

In all experiments we compared data quality of web responses with and without incentive. We looked into the rate of missing items, the time respondents took to fill in the questionnaire, and in some cases to the amount of straightlining. In none of the experiments did we find an effect of the incentive on these measures of data quality, not even in the experiments amongst children and young adults who would learn right after filling in the questionnaire if they had won an iPad. If anything, there were more indications that data quality was higher in the incentive conditions.

### Incentives and target variables

In two studies, we studied whether using incentives had any influence on a number of point estimates. In the web-cati-capi Travel Survey, neither an unconditional incentive, nor a raffle of iPads had any influence on the target variables, compared to the control condition. This means that the choice of incentive in this survey can be made based on efficiency and costs only. In the web-mail survey of Employee Conditions, the incentive did have a significant influence on the weighted point estimates. Together with the increased representativeness of the incentive conditions, this suggests that the incentives succeeded in bringing in ‘other’ respondents in this study.

### Incentives and fieldwork costs

Giving all sample persons a gift certificate of €5 is obviously very costly. However, in a mixed mode data collection where CAPI is one of the modes, the increase in web response is such that more than that amount is saved in fieldwork costs. In addition, the increase in response allows a smaller sample, resulting in substantially *lower* fieldwork costs.

The promised incentive, conditional upon response, is cheaper than the unconditional incentive. However, the gain in response were not high enough to overcome the costs of the incentive in the web-cati design of the experiment. Of course, considerations of quality may still induce one to use this kind of incentive. These analyses have not yet been performed.

Finally, the raffled incentive of either iPads or large gift certificates is very cost effective. Although the increase in response is not so high as with the unconditional incentive, the costs are a mere fraction. Statistics Netherlands has chosen this incentive as the ‘default’ incentive in new surveys.

### References

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1. We use a chance mechanism of one winner (iPad or €250) per 2000 respondents, but the respondents are not aware of this mechanism. In future, the mechanism will be published on the CBS website, but will not be announced in the letter. [↑](#footnote-ref-1)