# Do Postal Stamps (Still) Lead to a Higher Response Rate? An Empirical test in Belgium

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# Abstract

When conducting a postal survey, a traditional recommendation is to use paper postage stamps instead of an automated postage system, to make sure that invitations have a more personal and attractive appearance. In this research note, we investigate whether this traditional recommendation is still valid in the current era. In the autumn of 2020, a postal survey was conducted among high school teachers in Belgium strictly adhering to the Dillman protocol. The overall response rate was 43.4%. Invitations with a real paper postage stamp had a three percentage points higher response rate (44.9% vs. 41.8%), but this difference proved not to be significant. There are no significant gender or age differences between the groups. In addition, the presence or absence of a paper stamp did not influence the respondents' choice for answering the questionnaire online or on paper, as those who received a stamped envelope were equally likely to choose the online answering tool.

#### Introduction

Response rates are a crucial concern in the field of survey research (Sun et al., 2020). Selfevidently, one should not equate a response rate with the quality or the representativeness of a survey. But in general, it does remain important that researchers are committed to achieve a high response rate in order to certify the representativeness of their survey effort, and to yield a sample size that is sufficiently powered to answer their research questions (Hendra & Hill, 2019). For most survey researchers, the Dillman method remains an absolute reference, as this regularly updated volume is routinely regarded as a standard handbook on how to achieve survey quality (Dillman, Smyth & Christian, 2014). Postal surveys, too, are regarded as a standard procedure to reach out to a representative sample of the general population (Ernst et al., 2018). A general recommendation in survey research is that invitations to participate in a survey should be as personal as possible in order to make a more convincing appeal to potential respondents (Brick & Tourangeau, 2017). The general recommendation is to make the invitation to participate "easy, attractive, social and timely" for potential respondents (Gooden et al., forthcoming), and researchers have various instruments at their disposal to induce potential respondents to reply. In the literature, examples have been cited about the use of attractive stationery, including pens, handwritten addresses and handwritten signatures. While previous research has discussed many ways of increasing response rates like personalization and offering incentives (Church, 1993), in this research note, we focus on just one of these potential tools, that did not receive all that much attention in the most recent research literature: the use of postage stamps. In accordance with the Dillman approach, postage stamps are considered as an important element in this strategy as they provide a more personal touch to the invitation to participate in the survey (Dillman et al., 2014, 371). Since postage stamps are clearly visible for the recipient, the standard assumption is that those who receive the invitation letter will consider the stamp as a more targeted invitation to participate (Limor & Tamir, forthcoming). The rapid transformation of the postal sector, however, has made this traditional format obsolete for a large part of the population as the recorded volumes of traditional mail are rapidly dwindling (Crew, Parky & Brennan, 2017). In practice, postal surveys tend to be less often used in the current digital era, although traditionally it was assumed that they still are quite effective (Dillman et al. 2014, 351-397). Given the rapid transformation of communication modes, self-evidently researchers are left with the question whether these more traditional methods to render messages more personal, are still valid in the current era.

In this research note, we report on the response rate for a postal survey in Belgium, that was conducted during the autumn of 2020. The survey was conducted among a random sample of teachers in secondary education (data provided by the Ministry of Education), and it followed the standard Dillman design with an original invitation, a reminder letter after four weeks, and a second reminder with the full questionnaire after another four weeks. The research design however, included in a purely random manner a test on the importance of postage stamps in the current era: half of the potential respondents received an invitation (and up to two reminders) with a traditional postage stamp, while the other half received the invitations with an automatized and stamped postage system. Apart from this, exactly the same procedure was followed for all invitations. Following a Dillman approach, it could be assumed that the invitations with a postage stamp would look more personal than the ones with an automatic system (Figure 1).<sup>1</sup> We used standard class 1 postage stamps in Belgium, in this case showing a drawing of summer fruit. More specifically, the stamps included depictions of peach, cherry, strawberry, plum, pear, blackberry, blueberry, raspberry and gooseberry. It also should be noted that for budgetary reasons, all envelopes contained a standard automatic reply envelope, without any stamps (Harrison, Holt & Elton, 2002; Lavelle, Todd & Campbell, 2008; Schmitt et al., 2016).



Figure 1. Difference in appearance between postage stamps, and no postage stamps

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<sup>&</sup>lt;sup>1</sup> Note that the left envelope is blank because the automated value is added later on by the postal services. These envelopes hence included a standard stamped black notice of value when the respondents received them.

### Data

The data we use in this note stem from a survey conducted among high-school teachers. The survey was part of a larger research project on environmental education in Belgian schools. More specifically, we were interested to know how important sustainable development goals are in secondary education. Therefore, we requested, and received from the Ministry of Education a random sample of all teachers that are active in Dutch-language secondary schools consisting of 2000 addresses. The sample included *all* teachers, so it is important to note that we did not just reach out to teachers that are most likely to pay attention to sustainable development in their classes. We can be confident that we reached out to the full population as all teachers in Belgium (including those active in private schools) are paid directly by the Ministry of Education, and these records were used to draw the sample for the survey. All respondents were then assigned a number ranging from 1 to 2000, and respondents with a number between 500 and 1000 or 1500 and 2000, received a stamp on their envelope, while the other respondents did not.

In order to calculate a correct response rate, it is important to note that some respondents were excluded from the analyses. More specifically, while the sample was drawn from a register of active teachers, unavoidably, there were some mistakes in this register. Some respondents had moved and hence the letter arrived at a wrong address; other respondents were no longer active as teachers. Out of the total number of 2,000 envelopes sent out, 1,942 proved to be a valid address, and this is the number we will use to calculate response rates. There was no variation in the return envelope that was included, as all these were the same free business reply format (Schmitt et al., 2016). The reason for doing so is budgetary: when using return stamps one has to address stamps to all invitations and return envelopes being sent out, while in the business reply formula the survey researcher is only being charged for the envelopes actually returning.

# Methods

Given the experimental design, we will use bivariate tests to investigate whether there is an effect of including postage stamps on survey envelopes. More specifically, we will conduct chi<sup>2</sup>-tests to examine differences in distributions between the two treatment groups. Besides differences in overall response rates, we also look at differences in subgroups. First, we test whether there are any gender- or age-related differences, as postage stamps could be considered as a more traditional format, appealing to an older audience. Unfortunately, we do not have data about the gender and age of all contacted respondents (including those who did not reply) and we can therefore not investigate the response rates for these groups separately. However, we can analyse the relative distribution between the groups receiving a letter with a stamp and those without a stamp. Given that the allocation of stamps was purely random, it can be expected that the gender- and age-distribution would be equal between the two groups. Hence, if we find any differences in the distribution of the respondents who answered, we can infer that the stamps had a group-specific effect. We use chi<sup>2</sup>-tests to test for differences in the distribution of gender (as there we have two categories) and t-tests for differences in the distribution of age (as this is a continuous variable). Second, we will use t-tests to look at differences in self-placement on the general ideological left-right continuum, to test for differences in political stances. Finally, we look at the mode of response. Respondents were offered a choice between two different ways to take part in the survey: they could either send back the completed paper questionnaire using a pre-paid return envelope which was included in the invitation, or they could complete the questionnaire online. Given the trend to online polling, it is relevant to examine whether the stamps made respondents more likely to prefer one option over another.

## Results

As a first test, we look at the number of responses for the two different subsamples (i.e., those receiving an envelope with stamp and those without). Table 1 shows the number of envelopes sent and number of responses received by group. The overall response rate was 43.4 per cent, which is self-evidently higher than in standard postal survey, but it has to be remembered that this was a survey among teachers, and one would expect higher response rates among higher educated potential respondents.

Table 1. Cross-table response for respondents with and without stamp

	No stamp	Stamp	Total
Did not answer	559	541	1100
	(58.17 %)	(55.15%)	(56.64%)
Answered	402	440	842
	(41.83%)	(44.85%)	(43.36%)
Total	961	981	1942
	(100.00%)	(100.00%)	(100.00%)

Note: entries are absolute numbers, column percentages in parentheses

The results in Table 1 show that the group of respondents who were contacted by envelopes including postage stamps were slightly more likely to take part in the survey, although with a difference of ca. 3 percentage points this difference is substantially small. Whereas the response rate for respondents with a stamp amounted to 44.85%, this was 41.83% for the respondents without a stamp. However, this difference is not statistically significant (Chi<sup>2</sup>=1.804; p=0.179) and can therefore not be taken to reflect any real-world differences.<sup>2</sup>

However, while there does not seem to be a general effect of including a stamp on the response rate, it is possible that there are effects for certain sub-groups. First, we look at genderdifferences between the two groups of respondents. The results are summarized in Table 2.

	No stamp	Stamp	Total
Women	263	297	560
	(65.59 %)	(67.65%)	(66.67 %)
Men	138	142	280
	(34.41%)	(32.35%)	(33.33%)
Total	401	439	840
	(100.00%)	(100.00%)	(100.00%)

Table 2. Cross-table mode of response for respondents with and without stamp

Note: entries are absolute numbers, column percentages in parentheses

The results in Table 2 show that, overall, more women took part in the survey than men, and this indeed reflects the composition of the entire teacher population in the country. Looking at the proportions between the groups, there is not much evidence for any differences. While there is a slightly higher proportion of men in the group without stamp than in that with a stamp, the difference between the groups is not significant (Chi<sup>2</sup>=0.403; p=0.525) and substantially very small, so we cannot draw any conclusion about this difference.

Second, we look at age-differences between the two groups of respondents. The average age in the group without a stamp is 43.94 years old, and in the group with stamp 43.63 years old; this difference is small and not significant (t=0.426; p=0.670). In any case, this means that a preference for stamps certainly is not concentrated among older age groups. As a political

 $<sup>^2</sup>$  Note that, even though there are more than 900 respondents included in the model, the analyses might be underpowered. Power analyses showed that if the difference in response rates would be 3 percentage points in the population, our sample would need to be much larger to find significant effects. Additional tests showed that, with this sample size, we would be able to detect differences of at least 6.5 percentage points. However, it also needs to be noted that we had a clear expectation about the direction of the association, and in that situation a one-tailed test could be preferred, leading to a p-value of 0.09. While this is still below the conventional threshold of statistical significance, given the limited sample size it could be taken as suggestive evidence for a meaningful difference.

variable, we also tested whether there would be any difference between the groups in the respondents' self-placement on the 0-10 ideological self-right continuum. The average position of the respondents without a stamp is 4.75; that of those with a stamp is 4.58. The difference is not significant (t=1.362; p=0.174) and very small in substantive terms as well.

Finally, we look at the mode of response by looking at the distribution of the preferred mode of response among those who took part in the survey. The results are summarized in Table 3.

	No stamp	Stamp	Total
Offline (paper)	274	289	563
participation	(68.16%)	(65.68%)	(66.86 %)
Online	128	151	279
participation	(31.84%)	(34.32%)	(33.14 %)
Total	402	440	842
	(100.00%)	(100.00%)	(100.00%)

Table 3. Cross-table mode of response for respondents with and without stamp

Note: entries are absolute numbers, column percentages in parentheses

The results in Table 3 show that respondents receiving a stamped envelope seem to be somewhat more likely to fill out the survey online rather than sending back the paper copy, as 34.32% of the respondents who received a stamped envelope preferred this method, compared to 31.84% of the respondents receiving an envelope without stamp. Nevertheless also these differences are, again, substantially small and not statistically significant (Chi<sup>2</sup>=0.582: p=0.446). So in any case it seems clear that the 'stamp condition' group does not seem to be more traditional, or more technology-averse than the 'non stamp condition' group.

# Conclusion

In this research note, our goal was to ascertain whether 'traditional' recommendations to improve response rates in postal surveys still hold in the current era. Based on a survey conducted in Belgium in 2020, we find no significant rise in response rates when postage stamps are used on invitations. This is in line with the results from previous studies, indicating that the use of traditional methods to increase response rates in postal survey has, at best, a very limited effect (Park & Tsuchiya, 2021). In this specific survey, we recorded a three percentage points difference in the response rate with or without postage stamps, but this difference was not significant. Future research teams should therefore carefully consider whether they want to

personalize invitations in this manner. Using stamps, first of all, has a limited personnel cost (our experience is that one person does affix ca. 500 postage stamps/hour). Furthermore, postal authorities might grant more preferential tariffs to anonymous mass mailings, so affixing stamps might induce an additional cost, depending on the specific regulations within a country. While it is tempting to also use stamps on the return envelopes, this does involve a substantial extra cost, as in the business reply formula, the research team is only being charged for the envelopes actually returning. When looking at the respondents in both conditions, we did not find any evidence of significant differences between both groups with regard to age, gender, left-right position or the likelihood to opt for an online response. Including a postage stamp or not, therefore, does not seem to be associated with the recruitment of a specific group of the population. What is important, is that the effect of postage stamps was not limited to older age groups, so it can be speculated that this effect will remain present in the foreseeable future.

#### Discussion

The limitations of the current study should be addressed too. First of all, the survey was conducted among high school teachers, so it remains to investigated whether a similar effect could be observed for a general population sample, including potential respondents without any higher education credentials. Second, the current study was conducted during a rather massive COVID-19 health crisis in Belgium. This meant that potential respondents were forced to spend more time at home, and this could have implied they paid more attention to incoming mail, and they had more time available to complete a written survey. We therefore hope that we can repeat the same survey design, in a non-COVID 19 context. Finally, there are other measures that could be taken to increase response rates, such as hand-written addresses and personalized letters. In this study, the focus was on the use of stamps, and later research could update the results regarding additional procedures.

In general, however, our recommendation does remain that researchers should do every effort possible to maintain high response rates. Structurally, there is a global trend toward declining response rates in population surveys, no matter what precise instrument is being used (Conn, Mo & Sellers, 2019). This trend inevitably threatens the external validity, and hence the main reason to conduct survey research in the first place. Even if postage stamps only have a very limited effect on response, this is a step research teams could consider.

## References

- Brick, J., & Tourangeau, R. (2017). Responsive Survey Designs for Reducing Nonresponse Bias. *Journal of Official Statistics*, 33(3), 735-752.
- Church, A. H. (1993). Estimating the Effect of Incentives on Mail Survey Response Rates: A Meta-Analysis. *Public Opinion Quarterly*, *57*(1), 62-79.
- Conn, K., Mo, C., & Sellers, L. (2019). When Less Is More in Boosting Survey Response Rates. *Social Science Quarterly*, 100(4), 1445-1458.
- Crew, M, Parku, P. & Brennan, T. (eds., 2017). *The Changing Postal and Delivery Sector*. Cham: Springer.
- Dillman, R., Smyth, J., & Christian, L. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method.* (4<sup>th</sup> ed.) Hoboken: Wiley.
- Ernst, C., Brand, T., Llachimi, S., & Zeeb, H. (2018). Combining Internet-Based and Postal Survey Methods in a Survey among Gynecologists: Results of a Randomized Trial. *Health Services Review*, 53(2), 879-895.
- Gooden, T., Wright, A., Swinn, E., & Sizmur, S. (forthcoming) Optimising response rates in a national postal survey evaluating community mental health care: four interventions trialled, *Journal of Mental Health*, DOI: 10.1080/09638237.2021.1922646, in press.
- Harrison, R., Holt, D., & Elton, P. (2002). Do Postage-Stamps Increase Response Rates to Postal Surveys? A randomized controlled trial. *International Journal of Epidemiology*, 31, 872-874.
- Hendra, R., & Hill, A. (2019). Rethinking Response Rates: New Evidence of Little Relationship Between Survey Response Rates and Nonresponse Bias. *Evaluation Review*, 43(5), 307-330.
- Lavelle, K., Todd, C., & Campbell, M. (2008). Do postage stamps versus pre-paid envelopes increase responses to patient mail surveys? A randomised controlled trial. *BMC Health Services Research*, 8, art. 113.
- Limor, Y., & Tamir, I. (forthcoming). The Neglected Medium: Postage Stamps as Mass Media. *Communication Theory*, in press.
- Park, Y., & Tsuchiya, T. (2021). Improving mail survey response rates in Japan: empirical tests for envelopes, request letters, questionnaires, and schedules. *International Journal of Social Research Methodology*, 24(1), 15-29.

- Schmitt, M., Homuth, C., Lorenz, C., & Karwath, C. (2016). Erhöht eine Briefmarke den Rücklauf bei postalischen Befragungen? *Journal für Bildungsforschung Online*, 8(3), 142–158.
- Sun, H., Newsome, J., McNulty, J., et al. (2020). What Works, What Doesn't? Three Studies Designed to Improve Survey Response. *Field Methods*, 32(3):235-252.