

FALSE NEGATIVES IN SENSITIVE EMPLOYMENT SCREENING

By Rachel Kuller and Theo Downes-Le Guin, Doxus, Inc.

A web survey of 31,487 consumers was used to compare the efficacy of two different approaches to sensitive employment screening. Contrary to hypothesis, results show that the proportion of respondents saying that they or a household member works for one of two sensitive industries is equal or higher with a 3-item response list as with a 10-item response list. This article discusses the methods and results of the study and concludes with recommendations for survey screening.

Screening for “sensitive employment”

Companies often wish to exclude certain types of individuals from participating in survey research. Those with direct connections to competitors (through their own and/or family members’ employment) are often excluded, as are members of the public relations and advertising industries who could be employed by a competitor of the survey sponsor. Individuals who work in marketing research also are generally excluded, since those who are intimately familiar with questionnaire design are assumed to be prone to various types of (mostly undefined) response error.

An example of a question designed to eliminate those working in competitive industries and other undesirable fields is shown to the right. This example might be used in an online survey about new computer hardware products.

Example:

S1. Are you, or is anyone in your household, employed in any of the following?

Please select all that apply.

- _1 A company that makes, sells or distributes computer hardware
- _2 Advertising, public relations or market research
- _3 None of these

Figure 1: Screening question used to exclude those in undesirable industries

Researchers implementing this type of question must assume that responses accurately reflect the respondent’s industry associations. Some respondents may, however, be motivated to misreport in order to qualify for the study, especially in panels that offer predictable opportunities to earn incentives for survey-taking.

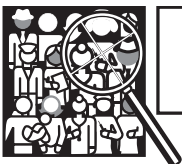
These individuals may answer screening questions in such a way that they believe will minimize their chance of exclusion from the survey-taking opportunity. Additionally, otherwise well-intentioned respondents may fall subject to internal pressure to provide an answer they feel is socially desirable; a subconscious wish to please the researcher or define themselves as a “desirable” respondent prompts them to misreport.

The possibility that some respondents may provide inaccurate answers to a standard industry exclusion question led Doxus to conduct an experiment on how best to word such questions. Presuming that the percentage of all types of errors is small, most companies conducting survey research would prefer to have false positives (eliminating respondents who don’t actually work in excluded industries) than false negatives (including respondents who do work in excluded industries). Therefore, the goal of this experiment is to identify which of two forms of industry exclusion questions results in a larger proportion of respondents being excluded.

Experimental Design

Industry exclusion questions like the ones described above are a standard part of most screening instruments. If a sensitive employment question has few options, experienced respondents may guess that qualified respondents should not fall into the categories shown. Put simply, the shorter the list of response options, the greater the probability that a respondent will choose “none of these” in hopes of qualifying. In contrast, a sensitive employment question with a large list of options may suggest to respondents that qualified respondents will fall into one of the categories shown. This may encourage those working in industries of concern to correctly identify

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themselves as such. Therefore, we hypothesized that the proportion of respondents choosing sensitive employment categories from a short list would be lower than the proportion of respondents picking the same categories from a long list.

To test the hypothesis, *Doxus* administered two versions of industry exclusion questions in an online survey targeting US consumers, 18 years of age and older. One version presented 2 sensitive employment categories—Computer Hardware and Advertising/Public Relations/Marketing Research—in addition to one other category (see Figure 2), while the other version included the same categories in a 10 item list (see Figure 3). The category “banking or financial services company” was added to avoid revealing the survey topic to respondents prematurely.

S2. Are you, or is anyone in your household, employed in any of the following?

Please select all that apply.

- _1 A company that makes, sells or distributes computer hardware
- _2 A banking or financial services company
- _3 Advertising, public relations or marketing research
- _4 None of these

Figure 2: 3 category industry list

S3. Are you, or is anyone in your household, employed in any of the following?

Please select all that apply.

- _1 A construction company
- _2 A banking or financial services company
- _3 Advertising, public relations or market research
- _4 Business/professional services
- _5 Real estate
- _6 A company that makes, sells or distributes computer hardware
- _7 Education
- _8 Military
- _9 A nonprofit or religious organization
- _10 A company that makes, sells or distributes pharmaceuticals
- _11 None of these

Figure 3: 10 category industry list

A total of 31,487 people responded to the survey, and were randomly placed into one of two experimental cells that determined which of the two questions were shown. Ultimately, 15,695 consumers saw the three item question (S2) and 15,792 saw the 10 item question (S3). Participants are part of an opt-in web panel and so do not represent a probabilistic sample of the US population. However, random cell assignment ensures that the proportion of participants choosing each response should be equal across questions.

Results

Contrary to the hypothesis, the proportion of respondents choosing the two sensitive employment categories from the 3 item list (S2) is not lower than the proportion of respondents choosing those categories from the 10 item list (S3).

Industry category	S2	S3
A company that makes, sells or distributes computer hardware	1.5%* (n=243)	1.2% (n=190)
Advertising, public relations or market research	0.5% (n=74)	0.5% (n=79)
A banking or financial services company	3.1% (n=481)	3.0% (n=477)

* Significantly greater than the S3 result at a 95% confidence level.
Table 1: Survey results

Additionally, the proportion saying they work in companies in the computer industry is higher for S2. This difference is 95% significant in a two sided test, suggesting that differences are not due to random error.

One possible post hoc explanation is that the majority of individuals assume that questions such as those shown are designed to select potential respondents who are connected to the listed industry. Thus, social desirability bias and/or misreporting behavior compels respondents to pick at least one of the options shown. The more options that are shown, the smaller the proportion of respondents who will pick each of the given options, because respondents seeking to maximize their chance of qualifying and/or are choosing an available category arbitrarily.

Conclusion and next steps

Experimental results suggest that adding irrelevant categories to an industry exclusion question does not lead to an increased proportion of respondents self identifying as members of undesirable industries. On the contrary, a shorter response list results in a slightly larger number of excluded respondents. As an added benefit, a short response list is also less likely to cause respondent fatigue. *Doxus* thus recommends using a short response list for industry exclusion.

This experiment was conducted using an online survey. Further research should investigate the effects of question wording in other research modalities such as phone and mail in surveys. Future studies might also explore demographic differences and perhaps include a follow-up validation interview to assess the accuracy of results. □