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# Reducing Refusal Rates in the Case of Threatening Questions: The 'Door-in-the-Face' Technique

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**Abstract:** In this article we examine the conditions under which personally threatening questions produce sufficient response rates. The income question serves as an example to demonstrate that question format may increase the threatening impact of the question topic. Based on the compliance-gaining mechanisms operating in the 'door-in-the-face' technique, an income question sequence was designed. Tested in two nationwide German surveys this question sequence achieved extremely low refusal rates.

**Key words:** Refusal rates; threatening questions; income data; door-in-the-face technique.

## 1. Introduction

Nearly every handbook concerned with social and behavioral research methods includes some remarks on the treatment of 'threatening' questions in surveys. "Threatening questions are, almost by definition," as Bradburn and Sudman (1979, p. 164) noted, "questions that are more susceptible than non-threatening ones to response effects." Such questions concern a variety of topics. In Germany questions about income and party preference seem to have almost the same threat potential as questions about delinquency, sex, and drug use. They produce average refusal rates of 15–30 percent.

With regard to income questions, survey researchers have made numerous efforts to diminish the probability of refusals by using different techniques or by varying question wordings and presentations. For example, 'Planung und Analyse' (1983), a German journal for marketing research, reported a rather dubious method for gathering income data which was performed by several German media analysts. In this study, household net income was sought by means of a closed question with eleven categories ranging from low (up to DM 500/month) to high (DM 5 000 and more/month) income. For those interviewees (33 percent of the total sample) who refused to divulge this information, inter-

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viewers were instructed to estimate the respondents' household income. In that way, the investigators replaced original refusals with rough interviewer estimates.

Survey researchers who prefer to rely on their own experience and intuition rather than on the judgement of their interviewers continuously try to create less threatening income question forms. Before yet another version is invented, one should first evaluate whether the currently existing forms result in different refusal rates; one should then investigate whether specific question forms tend to be perceived as more or less personally threatening. For example, Locander and Burton (1976) who tested (experimentally) the effect of question form on gathering income data by telephone, reported that respondents are in fact sensitive to question form when answering these questions. Their results suggest that nuances in question form may either reduce or increase the threatening impact of the question topic. Finally, the problems of respondent self-perception in personally threatening situations should be taken into account as well as behavioral induction techniques that might increase a person's willingness to respond to a certain request.

## 2. The Influence of Question Form on the Response Process

Our first step is to determine whether or not currently used question forms (closed/open-ended) produce different refusal rates. Recent literature dealing with questionnaire construction recommends that survey researchers give preference to open-ended income questions. Krupp (1979) gives two reasons for this: first, the information derived from open-ended questions seems much more precise than that from category lists (see also Sudman and Bradburn (1982, p. 115)); second, the range of response categories might bias the process of reporting as well as limit the range of appropriate statistical analysis tools (Schwarz et al. (1985)). Systematic examination of several nationwide surveys conducted in Germany (ALLBUS, ZUMABUS), however, indicates that open-ended questions tend to have higher levels of refusals than closed versions. If, in addition, the open-ended question version presents a higher threat potential than the closed version, respondents' negative feelings might be interlaced with the reactions described above: the more precisely respondents have to recall information the more difficult the task facing them, and the more uncomfortable they feel. The absence of any criterion (e.g., category lists) to guide the information retrieval makes the task harder, and thus may well increase discomfort.

In a second step, we tried to determine whether or not question form (closed/open-ended) evokes varying degrees of threat. We therefore compiled 27 questions with varying format about threatening topics, among them one open-ended and one closed income question, and asked several experts in questionnaire design to rate each question according to how threatening they thought most people would feel the particular question was. Whereas the closed version of the income question reached a mean value of 4.3 on a 10-point scale ranging from non-threatening (1) to very threatening (10), the open-ended version reached a mean value of 5.8 ($t$ (22) = 2.7, $p < .03$).

It is tempting to conclude from these findings that the closed income question has an advantage over the open-ended version since the closed form is not only regarded as less threatening, but also shows a tendency towards lower refusal rates. Unfortunately, the 'relatively higher' response rates produced by asking the income question in closed form are by *no* means sufficient. Too many interviewees (on the average, between 15 and 30 percent of each sample) short-circuit the

response process by refusing to answer, even when the income question is a closed one. A pre-established set of response categories provided by closed income questions facilitates the respondents' task of retrieving the relevant facts. In addition, the easiness of the required task may distract – to a certain extent – respondents' attention away from the threatening nature of the question topic. Still, these arguments do fail to explain why a sizeable number of respondents still refuse to answer the questions.

In the next section, we will discuss the underlying processes that may result in a refusal to answer a threatening question, as well as compliance-gaining tactics that may increase the respondents' willingness to divulge information about such topics.

## 3. Applying Persuasion Techniques to Reduce Refusal Rates

Following Bradburn and Sudman (1979), we suggest that the decision *not* to respond to threatening topics is influenced either by the circumstances of the situation (e.g., the respondents actually do not remember their income) or by negative feelings about divulging personal information. We will concentrate on interviewees possessing the information but refusing to talk about it. Their reaction seems to be primarily determined by personal dispositions or beliefs in social norms. For example, some respondents may consider the question topic inappropriate in a communication setting like an interview. To them, the income question may violate certain communication rules such as status congruence between interviewee and interviewer, or formal personal interaction standards. Other interviewees may refuse to cooperate because they feel their responses deviate from social norms or social desirability. As such underlying considerations may result in the refusal to answer a threatening question, it is of paramount importance to determine the conditions under which a reversal of the initial decision could be attained. While cognitive or attitudinal change is viewed as necessary in the persuasive approach to behavioral change (Bass et al. (1972), Ginter (1974), Sheth and Talarzyk (1972)), marketing researchers have recently begun to investigate behavioral induction techniques that influence behavior directly (Tybout (1978)).

The influence strategy that receives the most attention in marketing literature is labeled the 'foot-in-the-door' technique. It has been investigated by Freedman and Fraser (1966), who demonstrated that once a target person's compliance with a small demand is obtained, his or her willingness to perform a larger request – actually the one desired from the outset – increases. The authors assume that the effect is caused by a shift in the self-perception of the target person. After having agreed to perform the initial (small) favor, a person "may become, in his own eyes, the kind of person who does this sort of thing, who agrees to requests made by strangers, who takes action on things he believes in, who cooperates with good causes ...." (Freedman and Fraser (1966, p. 201)). Thus, compliance is gained without pressure, because "change in attitude need not be toward any particular person or activity but may be toward activity or compliance in general" (Freedman and Fraser (1966, p. 201)).

Although the reported applications in a number of non-business and business contexts have proved successful, the 'foot' technique is *not* applicable to a communication setting of limited duration like the face-to-face interview, because its effectiveness seems to depend on a distance of time (a minimum of two days) between the first (minimal) and the second (larger) request, and on a change of the person making the request.

A second behavioral influence strategy, derived from the one described above,

appears to be more adequate for face-to-face interviews, even though it involves exactly the opposite procedure for obtaining a favor. This strategy is labeled the 'door-in-the-face' technique. In this approach, the requester begins with an extreme first demand (which is very likely refused) and then asks for a more moderate second favor (the one desired from the outset). The underlying idea is that a norm of reciprocation exists in all societies, that "you should make concessions to those who make concessions to you" (Mowen and Cialdini (1980, p. 253–254)). A target person who rejects the first extreme demand is inclined to interpret a subsequent smaller one, made by the same person, as a retreat from the latter's initial position. "To reciprocate this concession the target person must move from his or her initial position of noncompliance with the large request to a position of compliance with the smaller request" (Mowen and Cialdini (1980, p. 254)).

In order to minimize the high number of refusals that threatening questions generate, an adaption of this rejection-then-moderation technique to the interview situation requires, at first glance, a rather counter-intuitive mode of procedure: beginning with the more threatening (open-ended) question form at the risk of a high refusal rate makes a simulated retreat from our initial demand possible by proceeding with a subsequent less threatening question version. If our assumption is correct, that interviewees who refuse to answer the first income question will perceive a concession in our shift from the highly threatening to the more moderate (closed) version, we should finally obtain their agreement to respond to the second question.

## 4. Question Design and Method

Based on these reflections, we designed the following income question sequence (see Appendix A). We first asked an open-ended version that is used frequently in German survey research to gather data on the monthly net income of households. Respondents who refused to answer the first question were asked again about household income, but now in a closed version, which turned out to be less threatening in the rating procedure. In this 'smaller request' condition, the interviewers were instructed to submit a list of 22 categories ranging from low (up to DM 400/month) to high (DM 15 000 and more/month) income. They then asked for the category which included the monthly net income of the household.

### 4.1. *Study I*

We first implemented the above version of our income question sequence in a representative nationwide German survey of 2 057 employed adults (over 18 years of age) conducted by INFRATEST (a commercial opinion research institute) in October 1980. This survey mainly dealt with problems of employment and related topics. The question on *the monthly net income of the household* was therefore embedded in several other related questions, such as questions on source of income, additional income, and just distributions of income.

*Table 1. Response and Refusal Rates of Income Question Sequence in Study I*
Sample of employed persons (monthly net income of household)

| | Response rate % | Refusal rate % | *N* |
|---|---|---|---|
| Open-ended question form | 75.8 | 24.2 | 2 057 |
| Closed question form (Initial refusers only) | 86.7 | 13.3 | 497 |
| Total | 96.8 | 3.2 | 2 057 |

As Table 1 shows, a relatively high number of respondents (24.2 %) refused to answer the

open-ended (highly threatening) question. When confronted with the less threatening (closed) version, 86.7 % of the original refusers – i.e., 21 % of the total sample – agreed to respond. Thus, 96.8 % of the total sample provided information about household net income.

### 4.2. *Study II*

In order to verify these results, the question sequence was tested again in another representative nationwide German survey (ZUMABUS 6) of 1 993 adults under somewhat different conditions: the sample was not restricted to the German working population alone. The survey was concerned with a variety of topics such as the environmental situation, work conditions, and current problems of political and social life in Germany. The income question sequence was administered as part of a standard set of sociodemographic questions placed at the end of the questionnaire. Furthermore, we now asked the respondents for their *own monthly net income*, not that of the entire household. An informal filter for the interviewers was designed to exclude respondents with no personal income from further questioning.

In this second study, 18.7 % of the respondents refused to answer the open-ended question. Asked again in the less threatening version, 68.4 % of this group – or 12.7 % of the total sample – agreed to respond. Thus, in this study, 94.1 % of the total sample (subjects with no personal income excluded) gave information about their monthly net income.

*Table 2. Response and Refusal Rates of Income Question Sequence in Study II*
General population, excluding respondents without own income (personal monthly net income)

| | Response rate % | Refusal rate % | *N* |
|---|---|---|---|
| Open-ended question form | 81.3 | 18.7 | 1 618 |
| Closed question form (Initial refusers only) | 68.4 | 31.6 | 302 |
| Total | 94.1 | 5.9 | 1 618 |

Although the 'door-in-the-face' technique as applied in the present studies proved highly successful, it is possible that the income question sequence might produce response effects such as underreporting or overreporting (Bradburn and Sudman (1979)), since the questioning procedure is not identical for all respondents. Furthermore, numerous studies lead us to believe that the refusal to answer income questions is highly correlated with the social position, sex, and age of the respondents, no matter which question form or wording is used. As Krupp (1979) noted, "the higher the monthly income, the higher the probability of refusal to answer the income question."[2]

To determine whether this effect holds in our data from Study II, we compared persons answering the open-ended version spontaneously with those who first refused to respond but then – in the second step – answered the closed version. Table 3 on page 30 presents the results of this comparison.

There are indeed significant differences between the two groups of respondents in regard to all three sociodemographic characteristics. As expected, people who respond to the 'door-in-the-face' technique here are not only slightly older but also have a higher status occupation and are more likely to be male. Finally, these respondents reported a significantly higher level of income than those who replied spontaneously to the open-ended version.

To determine whether these differences are produced by specific response effects (e.g., the open-ended version might produce under-

[2] Our translation.

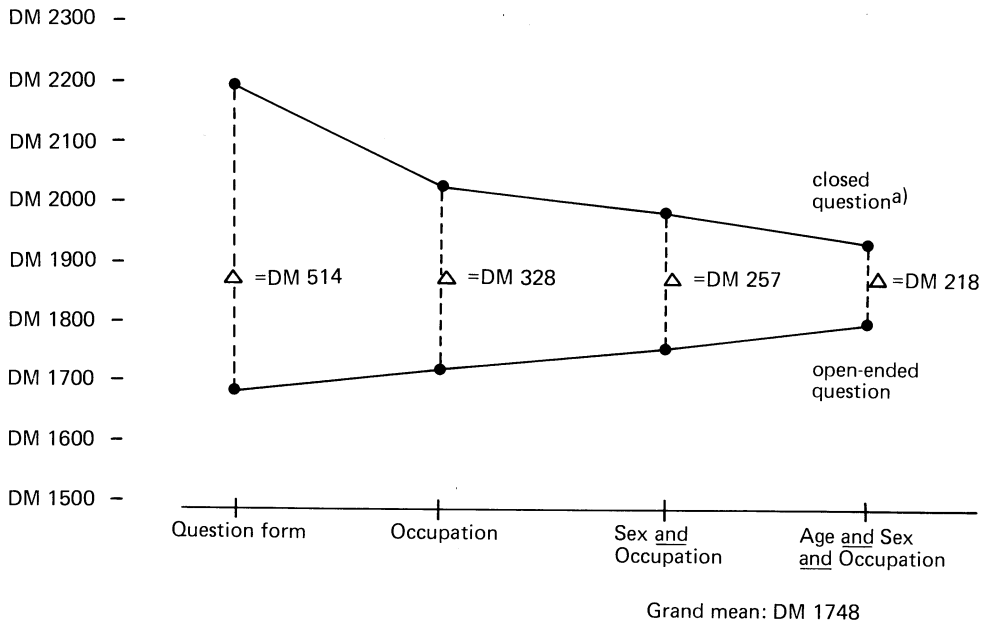
*Table 3. Sociodemographic Characteristics of Respondents to Different Question Versions* (Study II, general population, excluding respondents without own income)

| | All respondents | | Responded to open-ended question | Responded to closed question only |
|---|---|---|---|---|
| *Occupational Status* | | | | |
| Self-employed | 5.0 % | (76) | 71.1 % | 28.9 % |
| Higher level employees | 25.0 % | (380) | 81.1 % | 18.9 % |
| Lower level employees/ skilled and unskilled workers | 28.8 % | (438) | 92.2 % | 7.8 % |
| Retired | 25.2 % | (384) | 86.5 % | 13.5 % |
| Students/in military service (drafted) | 16.0 % | (244) | 90.2 % | 9.8 % |
| | 100.0 % | (1 522) | $\chi^2(4) = 40.7, p < .001$ | |
| *Sex* | | | | |
| male | 56.4 % | (859) | 84.2 % | 15.8 % |
| female | 43.6 % | (663) | 89.7 % | 10.3 % |
| | 100.0 % | (1 522) | $\chi^2(1) = 10.0, p < .003$ | |
| *Mean age* | 47 | (1 522) | 47 (1 318) | 51 (204) |
| | | | $t(287) = 3.0, p < .004$ | |
| *Mean income*[1] | | | | |
| DM/month | 1 748 | (1 522) | 1 680 (1 318) | 2 193 (204) |
| | | | $t(254) = 6.1, p < .001$ | |

[1] For the calculation of the means in the closed version, each category was replaced by an actual DM amount. The values were taken from the means of the open ended responses which fell into the respective category range.

reporting of income) or, alternatively, result from the sociodemographic composition of the two groups, we used a multiple classification analysis (MCA).

MCA calculates deviations from the overall mean for each category of the independent variables (simple analysis of variance). When control variables are introduced, the program calculates the 'adjusted' deviations by successively holding the distribution of the control variables constant for each category of every independent variable. When additional variables are introduced step by step, the reduction of the adjusted differences between the open and closed question versions indicates how much of the initial income difference was due to the differential composition of the two groups who responded to the open vs. the closed version of the question sequence. As Fig. 1 shows, the initial income difference of DM 514 is reduced significantly at each step when occupation, sex, and age are introduced. In the end, a difference of only DM 218 persists, less than half of the initial gap and less than one step on the category list of the closed version of the income question. The reduction of the residual effect of the question version can also be documented with the decline of the (bivariate) eta of .17 to the multivariate beta of .07 when the three demographic variables are introduced. In other words, only two-fifths of the initial difference remain attributable to question form. As there are no comparable official statistics on personal financial data in West Germany, it is not quite certain whether the persisting gap of DM 218 is due to underreporting or overreporting in the different question versions.




a) The means are the raw and the adjusted means as described in the text (see Footnote Table 3)

*Fig. 1. Reducing Income Differences Between Question Versions: The Effect of Sociodemographic Characteristics*

But, there is a fair amount of evidence that the initial refusers constitute a specific population characterized by a higher level of occupation, advanced age, and male sex. Thus, it seems that many interviewees belonging to higher income groups are more likely to divulge personal financial data if compliance-gaining tactics are introduced into the response process.

## 5. Summary and Conclusions

Our primary goal in this paper has been to examine the conditions under which personally threatening questions produce sufficient response rates. Using the income question we demonstrated that question form may strengthen the threatening impact of *the question topic.* An income question sequence was designed with regard to respondent self-perception in personally threatening situations. The compliance-gaining mechanisms operating in the 'door-in-the-face' technique have proved highly successful: in the *first* study (requesting monthly net income of the household) and in the *second* (requesting personal monthly net income), the question sequence achieved final refusal rates of 3.2 and 5.9 percent, respectively. A comparison between respondents who gave spontaneous answers to the open-ended part of the question sequence and those who initially refused but answered in the second step, showed significant differences between the two groups: the initial refusers were not only older but also had higher status occupations and were more likely to be male. Additionally, they reported a higher level of income. To test whether the question sequence might produce response effects, a multiple classification analysis

(MCA) was conducted. The results indicate that the effect of the question version declines significantly at each step when occupation, sex, and age are introduced. Thus far, no dramatic response distortion (over-reporting/ under-reporting) for the two types of questions is visible in our data.

In conclusion, a word of caution. Several areas remain to be explored in future research. First, the generality of the 'door-in-the-face' technique needs to be demonstrated for various question topics (e.g., vote participation, sexual behavior, drug use) which tend to be perceived as personally threatening by respondents.

Yet, there is no reason for assuming that each threatening question topic produces different threatening potentials regarding question form. Therefore, one could imagine that a sequence of questions with diverse topics and different threatening potentials will lead to similar low refusal rates on the second question following the compliance-gaining mechanisms, as occurred in the second step of our income question sequence. In this respect, a second area for future research is whether it is necessary that the initial 'door-in-the-face' question and the second 'compromise' question concern the same topic. Third, further research should focus upon interviewer behavior during the questioning procedure. Perhaps the effectiveness of our income question sequence is strengthened by the interviewers' strain in the special situation: respondents who refused to answer in the first step might perceive that the interviewer dislikes their reaction. In order to avoid disappointing him or her again, they agree to divulge information in the second step.

Finally, the ethical aspects of the 'door-in-the-face' technique should be discussed. The investigators (Freedman and Fraser (1966), Mowen and Cialdini (1980)) assure us that the target person is not adversely affected by the technique used, since compliance is gained without pressure. Concerning our question sequence, the respondent is put in the position that he or she can withdraw or refuse the answer at any stage of the procedure. Nevertheless, the technique practiced implies a subtle manipulation into which the respondent has no insight.

*Appendix A. Income question sequence*

Would you please tell me how much your total household net income is, I mean the amount that is left after taxes, social security, and medical insurance?

DM _____

refused 99997

Interviewer: In case of refusal, hand flashcard to person and ask for the letter on the card which best represents the total family net income

letter: _____

Categories on the flashcard:

| | | | |
|---|---|---|---|
| B | | bis unter[1] | 400 DM |
| T | 400 | bis unter[2] | 600 DM |
| P | 600 | bis unter | 800 DM |
| F | 800 | bis unter | 1 000 DM |
| E | 1 000 | bis unter | 1 250 DM |
| H | 1 250 | bis unter | 1 500 DM |
| L | 1 500 | bis unter | 1 750 DM |
| N | 1 750 | bis unter | 2 000 DM |
| R | 2 000 | bis unter | 2 250 DM |
| M | 2 250 | bis unter | 2 500 DM |
| S | 2 500 | bis unter | 2 750 DM |
| K | 2 750 | bis unter | 3 000 DM |
| O | 3 000 | bis unter | 3 500 DM |
| C | 3 500 | bis unter | 4 000 DM |
| G | 4 000 | bis unter | 4 500 DM |
| U | 4 500 | bis unter | 5 000 DM |
| J | 5 000 | bis unter | 5 500 DM |
| V | 5 500 | bis unter | 6 000 DM |
| Q | 6 000 | bis unter | 8 000 DM |
| A | 8 000 | bis unter | 10 000 DM |
| D | 10 000 | bis unter | 15 000 DM |
| W | 15 000 | DM und mehr[3] | |

[1] Less than 400 DM.
[2] 400 DM or more but less than 600 DM.
[3] 15 000 DM or more.

Source: INFRATEST Survey 6244
October 1980

## 6. References

Bass, F.M., Pessemier, E.A., and Lehman, D.R. (1972): An Experimental Study of Relationships Between Attitudes, Brand Preference, and Choice. Behavioral Science, Vol. XVII, pp. 532–541.

Bradburn, N.M. and Sudman, S. (1979): Improving Interview Method and Questionnaire Design. The Jossey-Bass Social and Behavioral Science Series, London.

Freedman, J.L. and Fraser, S. (1966): Compliance without Pressure: The "Foot-in-the-Door"-Technique. Journal of Personality and Social Psychology, Vol. IV, pp. 195–202.

Ginter, J.L. (1974): An Experimental Investigation of Attitude Change and Choice of a New Brand. Journal of Marketing Research, Vol. XI, pp. 30–40.

Krupp, H.-J. (1979): Probleme der Messung von Einkommen und Vermögen als Hintergrundsmerkmale für allgemeine Bevölkerungsumfragen. In: Franz Urban Pappi (ed.) Sozialstrukturanalysen mit Umfragedaten, ZUMA Monographien Sozialwissenschaftliche Methoden, Band 2, pp. 207–215.

Locander, W.B. and Burton, J.P. (1976): The Effect of Question Form on Gathering Income Data by Telephone. Journal of Marketing Research, Vol. XIII, pp. 189–192.

Mowen, J.C. and Cialdini, R.B. (1980): On Implementing the "Door-in-the-Face"-Compliance Technique in a Business Context. Journal of Marketing Research, Vol. XVII, pp. 253–258.

Planung und Analyse (1983): Ermittlung des Haushaltsnetto-Einkommens in der MA, Nr. 10, Vol. X, pp. 504–505.

Schwarz, N., Hippler, H.-J., Deutsch, B., and Strack, F. (1985): Response Scales: Effects of Category Range on Reported Behavior and Comparative Judgments. Public Opinion Quarterly, Vol. 49, pp. 388–395.

Sheth, J.N. and Talarzyk, W.W. (1972): Perceived Instrumentality and Value Importance as Determinants of Attitudes. Journal of Marketing Research, Vol. IX, pp. 6–9.

Sudman, S. and Bradburn, N.M. (1982): Asking Questions. Jossey-Bass Publishers, San Fransisco.

Tybout, A. (1978): Relative Effectiveness of Three Behavioral Strategies as Supplements to Persuasion in a Marketing Context. Journal of Marketing Research, Vol. XV, pp. 229–242.

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