

## Selective Response to Questions on Delinquency\*

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**Abstract.** In the German General Survey 2000 (ALLBUS), the so-called ‘Sealed Envelope Technique’ (SET), was utilized to obtain data on an individuals’ self-admitted delinquency. The focus of this article is to discover, particularly, the reason respondents refused to fill in this confidential questionnaire in spite of the guaranteed anonymity. From a theoretical perspective of subjective expected utility, the assumption is that respondents are interested in maximizing benefits and avoiding social costs in the interview situation. Consequently, responses provided are optimal realizations of the respondents’ interest. Furthermore, the respondents’ intellectual capacity in understanding the questions, the SET applied, the interviewer characteristics, and aspects of the interview situation, were presumably responsible for refusals on sensitive questions. The ALLBUS 2000 data confirm these hypotheses. The selectivity of self-reported delinquency on matters concerning fare avoidance and tax evasion also resulted in biased model estimators of determinants regarding anticipated future delinquency. Mail survey is one supported view on improving data quality in self-admitted acts of delinquency. However, before firm conclusions can be drawn, more empirical data is needed on the processes and mechanisms involved in a respondents refusal to answer questions on delinquency.

**Key words:** delinquency, non-response, rational action theory, sealed envelope technique

### 1. Introduction

An existing dilemma of surveys similar to the general German social survey (ALLBUS) is the gathering of valid and reliable data on a respondents’ delinquency. In particular, for the self-report of the respondents’ delinquency, cautionary measures are necessary to avoid a seriously biased response or a non-response (Paternoster et al., 1982). In the case of face-to-face interview, the application of the so-called ‘Sealed Envelope Technique’ (SET) seems to be an appropriate procedure (De Leeuw, 2001; Sudman and Bradburn, 1974, 1982). This technique was administered at the special module ‘Sanctions and Deviate Behavior’ of the ALLBUS, conducted in 2000.

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\* An empirical assessment on the effectiveness of the ‘Sealed Envelope Technique’ for self-admitted delinquency through the utilization of the German General Social Survey 2000 data.

Respondents' anonymity were assured by requesting all answers on self admitted delinquency to be written on a separate questionnaire, after which it was handed to the interviewer in a sealed envelope.<sup>1</sup> Although measures were taken to ensure maximum confidentiality, some refused to answer. The general refusal quota amounted to 12.5%, but when compared to the disproportional sampling of East German respondents, the refusal quota amounted 13.2%.

In this article, we will examine the rationale behind some of the respondents' refusal to admit to their deviated behavior, in spite of the anonymity guaranteed by the sealed envelope technique. When a systematic non-response occurs, it has to be proven that the selective non-response culminates in biased statistical results regarding the determinants of delinquent behavior (Hindelang et al., 1979).

## 2. Theory and Hypotheses

### 2.1. EXPLAINING RESPONSE PATTERNS ON QUESTIONS REGARDING DELINQUENT BEHAVIOR

Obviously, we need a coherent system of assumptions to derivate a testable hypothesis about responses to compromising, uncomfortable or threatening questions on deviant behavior. An approach by Esser (1974), suggests that, honest and biased responses due to social desirability, could be explained as a result of the respondents' motives, needs and evaluation (e.g. stable need for social acknowledgement, conformity to social roles), as well as their expectations about the consequences of responses (Esser, 1986: 319). These theoretical propositions could be integrated into a general theory of social action oriented towards social situations; for instance, the theory of Subjectively Expected Utility (SEU). According to this rational action theory, respondents select such alternatives corresponding to their subjective perception of the interview situation (content of question, answer categories, presence of third persons, and perceived characteristics of the interviewer), as well as being appropriate to realize certain aims (non-conflicting dealing with the interview). From the theoretical view of the SEU theory, the respondents' response pattern are modeled as the result of subjectively assessing the costs and benefits of each alternative action, such as an honest answer with the 'true value', a socially desired answer, random answer or refusal of an answer (Esser, 1986: 320). A respondents' decision is rooted in personal preferences, purposes and normative integration, as well as on their subjective perception and cognition of the interview situation, and the ambiguities, risks and unknown possibilities related to the interview situation. Therefore, compromising,

uncomfortable or threatening questions are a *special case of the problem of social desirability*. From the respondents view, their response patterns depend on both the subjectively assumed testability of the interviewers' declarations, as well as on the subjectively assumed confidentiality of the interview situation and the treatment of the data.

On the one hand, from the respondents' perspective, the subjectively expected benefit of honest and socially desired answers could be reasoned by the social acknowledgement as cooperative respondent, normative execution of politeness, loyalty to official institutions, or support of science. On the other hand, the refusal of an answer could be useful when conformity with norms of particular (delinquent) reference groups or fundamental aversion against scientific surveys is expected from the respondent. Costs appear with the subjectively expected disapproval of certain answers by the interviewer. Furthermore, transaction cost arising from the respondent's uncertainty in dealing with the unknown could be further aggravated due to communication problems during the interview. Additional costs inter-related with threatening questions depend on the respondents' expectation that the anonymous data could be decoded. In such circumstances, confidential precautions similar to the SET, becomes a necessity in guaranteeing anonymity to the respondents' answers (Esser, 1986: 321). Two factors guarantee the anonymity and confidentiality of the interview situation. Firstly, the modus operandi of SET prevents interviewers from acquiring and detecting respondents' answers. Secondly, SET constructs a neutral interview situation that neither supports nor disapproves of the responses. However, when the respondents lack credence in the guaranteed anonymity, because of the presence of an interviewer or other persons, they will refuse to respond.

Uncomfortable questions pertaining to a respondent's delinquency and insufficient guarantee of anonymity are not the only reasons for a biased response or a non-response. When the intended actions resulting from a "true" answer combine with the intended actions for socially desired answers, four types of interview situation emerge. In spite of guaranteed anonymity, non-response could occur in three of the four interview situations.<sup>2</sup> These types are *indifference*, *situation effect* and *inconsistency* (Esser, 1986: 327–330). In both cases of indifference and inconsistency, the respondents' responses to compromising or uncomfortable questions on delinquency are definitively unpredictable. However, when situation effects dominate the interview, socially desired answers are very plausible.

(1) *Indifference*: If there are *no* 'situative' incentives for certain responses and the respondents expect *no* consequences for one of the alternative responses, random responses can be traced to a respondents attitude of indifference, arising from an inability to develop an attitude or an opinion on an issue and when not knowing an answer to a question. One of the alternative reactions would be 'item non-response'. In cases of absent

interview or interviewer effects, item non-response is very likely when; apart from the rare cases that the respondents have never reflected about delinquency or that this issue seems to be irrelevant to them, the questions are incomprehensive to most of the respondents.

Alternatively, we should consider that the questions on delinquency in the ALLBUS 2000 are pursuable, as observed in the pretest.<sup>3</sup> However, on the other hand, it can not be neglected that both the *migrant with a low awareness of the German language* and the *respondent with a low educational level* had serious problems in understanding the whole interview situations or the questions on delinquency, inclusive of the SET explication (Esser, 1974: 124).

Furthermore, it might be problematic for the elderly respondents' to vividly remember prior breaches of law committed years ago. When elderly respondents have a pronounced tendency to reply honestly, non-response or biased answers to questions on the frequent acts of former delinquencies are a possibility. This might be true when the answer category "I do not know" is provided, as in the ALLBUS 2000 survey (De Leeuw, 2001).<sup>4</sup> Moreover, the possible answers for the retrospective questions presented in footnote 4 demonstrate that missing cognitive anchors (cues) hinders remembrance (Sudman et al., 1996; Schwarz et al., 1994: 191–192).

Finally, *sub-cultural norms* might have an impact on the response patterns regarding the respondents' delinquency. In accordance with their "cultural identity", respondents might not report on former misdemeanors to correspond with both the sub-cultural norms of their delinquent reference group and their own cultural identity. However, it is also plausible that *citizens with a tainted past* intend to conceal their wrongs or to refuse any answer on their delinquency, because of cognitive dissonance or apprehensions (Diekmann, 1980: 47–49). In contrast to the former case, absolute non-response is plausible.

Overall, it is assumed that in this interview situation, *foreigners, less educated respondents, the elderly, former felons, and respondents with internalized sub-cultural norms of delinquent reference groups*, are more likely to item non-response (Sudman and Bradburn, 1974).

(2) *Situation effects*: Provided that the respondents' inclination to valid answers is low and there is a dominance of situational effects, item non-response is very likely in spite of guaranteed anonymity. For example, when the *presence of a third person* seems threatening, then it is likely that respondents will refuse to answer questions on their delinquent behavior. In particular, the presence of third persons accomplishes the conditions of non-response: Greater the subjectively evaluated threat by questions and the expected probability of socially undesired or unexpected consequences of answers, the more probable is the non-response to questions on respondents' delinquency.

Additionally, (*visible*) *interviewer's characteristics* have an impact on the respondents' inclination to react to question about their delinquency. Stereotyping is one reason for non-response. Common assumptions such as delinquency is mainly a male trait are reasons that respondents answer in a socially desired way when the interviewer is male. According to Esser (1986: 326), the tendency to provide socially desired answers because of an interviewer's visible characteristics and stereotyping, manifest when respondents expect their replies to compromising or threatening questions to be publicized to the interviewer, the persons present or the populace. However, when there are guarantees of data confidentiality and anonymity of answers through the utilization of SET, socially desired answers are unlikely. Then we assume that the interviewer's gender has no impact on the respondent's response pattern.

Systematically biased responses often correlate to the *age of the interviewer*. The interviewer's higher age might be associated with the respondents' expectation that older interviewers are more likely to disapprove of deviate behavior than younger interviewers. The older the interviewer, the more likely is the non-response. An interviewer's age corresponds with his or her phenotype, which influence the respondent's biased answers.

The *performance of the interviewer* might contribute (in a planned or unintended way) to the non-response of the confidential questionnaire. The *communications of interviewer's attitudes on delinquency, as well as his or her expectations of the respondent*, are examples that declaration through the utilization of SET could result in methodologically undesired responses. The *interviewers' lack of experience conducting interviews* might further escalate biased responses or non-response.

Overall, we assume that this type of interview constellation situational effects; *chiefly the presence of other persons at the interview, the higher age of interviewers and the interviewer effects correlating with the interviewers' experience*, contribute to refusals on self-admitted delinquency. However, through the utilization of SET, a respondents reaction is immune to stereotyping, a trait consistent to male interviewers.

(3) *Inconsistency*: In the special case in which there is a tendency to provide valid, as well as socially desired answers, *minor changes in the external interview situation* (e.g. clear and comprehensive questions, visible characteristics of the interviewer or the presence of third persons) can lead to inconsistent responses (Esser, 1986: 329). Valid answers on delinquency are expected when, apart from the fact that the questionnaire is sophisticated and the respondents have an attitude regarding deviant behavior and crime, the respondent believes to have an adequate answer to the questions. However, when the respondent is convinced that a certain answer results in socially desired consequences, then socially desired or biased responses are likely.

In situations in which the response pattern depends on such subjective expectations, it is rational with respect to compromising questions to deactivate external effects during the interview, with the intention of gathering valid and reliable answers. However, the guarantee of anonymity is only rational when the respondents have an inclination towards “true” answers (Esser, 1986: 329). Therefore, the utilization of SET would not always lead to the desired outcome. To sum, the prediction of a non-response is rendered arduous due to an interview situation riddled with inconsistency.

## 2.2. CONSEQUENCES OF SELECTIVE RESPONSE FOR STATISTICAL ANALYSES

If the systematic non-response discussed above develops into biased results of multivariate estimations have to be proven by the economic theory of criminality suggested by Becker (1968). According to Becker (1968), the benefits of a crime  $B$ , the expected punishments  $C$  (costs) and the probability  $p$  to be detected and punished, are the essential factors whether an individual do a criminal act  $S$ :  $P[S] = B - p \cdot C$ . Criminal acts are more likely if greater are the expected gains and lower are the negative sanctions and the probability of detection. This might be valid when:  $B > p \cdot C$ .

In accordance with the statistical procedure for the correction of sample selection bias suggested by Heckman (1979), the model by Becker (1968) will be completed with an explaining instrumental variable, namely the so called *probability of inclusion*  $\lambda$ :  $P[S] = B - p \cdot C + \lambda$ . This term is the conditioned probability that an individual has filled out the confidential questionnaire about own delinquent behavior while the discussed individual characteristics and both the interview and interviewer effects has to be considered. Therefore, the instrumental variable is an indicator of the respondents' selective and biased responses to questions on delinquencies. When selectivity biasness occurs, it is rational to assume a breach of quality on the statistical findings on self-admitted delinquencies.

## 3. Data Base, Variables and Statistical Procedure

### 3.1. DATA BASE

The empirical analyses are from the cross-sectional data of the “German general social Survey 2000” (ALLBUS). 3,138 Germans living in private households and from 17 years above were interviewed. Due to a division in the questionnaire, only 1,605 respondents were asked about their delinquency. Considering the disproportional weighting of sampling, the sample for statistical analyses consisted of 1,613 persons.

### 3.2. DEPENDENT VARIABLE AND STATISTICAL PROCEDURE

The *dependent variable* is the refusal of interviewees to fill in the confidential questionnaire. In view of estimating the distributional likelihood on item non-response, we will utilize the binary logistic regression method (Long, 1997). The correlation between the conditioned likelihood of filling in the confidential questionnaire and the explaining variables, will be modeled on the following equation:

$$\ln\left(\frac{p(\text{response})}{p(\text{nonresponse})}\right) = \beta_0 + \sum \beta_i \cdot x_i \text{ resp.}$$

$$p(\text{response}) = \frac{e^{\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k}}{1 + e^{\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k}}.$$

The term  $\beta_0$  represents the constant term, and the term  $\beta_i$  is the unknown regression weights of the predictors  $x_i$ .

### 3.3. METHODOLOGICAL PROBLEMS

A significant advantage of the theoretical approach by Esser (1974, 1986) explaining the response patterns of interviewees is the integration of reasons and conditions of systematically biased answers and non-response into a coherent theory. However, for the concrete application, Diekmann (1995: 380) stresses a methodological problem of this approach. It is difficult to identify the evaluation of benefits and costs; yet, it might also be difficult to administer the subjective expectations of the interviewees.

The ALLBUS 2000 data falls silent on identifying respondents' evaluation of costs and benefits, as well as their subjective expectations. Therefore, 'bridge hypotheses' and empirical correlates are means to measure the respondents' evaluation and expectation indirectly. Such analysis with circumstantial evidence remains incomplete because the significant mechanisms on the evaluation of costs and benefits will be, de facto, unmeasured. We arrive to this surmise through theoretical assumptions and empirically measured correlations between variables (Hedström and Swedberg, 1998). This restriction has been implicitly considered upon interpretation of the empirical findings.

## 4. Empirical Findings

### 4.1. DETERMINANTS OF RESPONSE PATTERN FOR QUESTIONS ON DELINQUENCY

The results on the response of the confidential questionnaire are documented in Table I. As theoretically expected, there are *effects of nationality on the likelihood of respondents' self-report on their delinquency*. Germans

are more likely to answer questions on criminal behavior than foreigners (model 1 or model 3). In addition to fearing the stigmatization of the foreigner status, communication problems further lead to non-response, while the respondents' educational level has been controlled for.<sup>5</sup>

In contrast to the assumption that the less educated have difficulties in understanding the interview situation, or SET in particular, there are *no effects of education on the self-report on delinquency in the confidential questionnaire*. Respondents with higher secondary school qualifications are particularly more likely to answer these questions than the lower educated respondents with no school certificate or the better respondents with either a lower secondary school certificate or an intermediate secondary school certificate. However, this finding is only significant on the level of 10%.

There is *no significant linear and curvilinear age effect*. The theoretically expected problems to recall past crimes, as well as the tendency to provide socially desired response on future misdemeanors, do not exist significantly to result in systematic non-response.

The *impact of sub-cultural norms on interesting responses*, are measured by the evaluation of four types of crimes (shoplifting, tax evasion, fare-avoidance, and driving while intoxicated) represented in the confidential questionnaire.<sup>6</sup> Non-response is very likely for respondents who accept fare-avoidance without any restrictions (model 1 response 3). Respondents who are morally comfortable with tax evasion are more likely to fill in the confidential questionnaire than respondents who disagree with tax evasion. However, this is only true when additional interview and interviewer effects are controlled. Due to the income benefits, the well-educated, as well as respondents of higher social standings are more likely to espouse tax evasion. They do create social groups generally ready to attend to social surveys, and to elaborate on their delinquent behavior (Mehlkop and Becker, 2003). Moral evaluation of mass crimes without any direct victims, such as fare-avoidance or driving while intoxicated, has no impact on the response patterns.

There are *interview and interviewer effects* influencing the respondents' reaction in the theoretically expected way. When *persons not of the respondent's household* are present, then non-response is more likely, than when the respondent's spouse or partner, other members of the respondent's family or no third persons are present during the interview (models 2 and 3).

The *(male) gender of the interviewer* has no significant impact on the respondents' self-report. In former phases of explorative data analysis, different constellations of respondents' and interviewer's gender were considered. They have no impact on the response behavior. However, the older the interviewer, the less inclined are the respondents' in answering, in spite of the anonymity guaranteed by SET.

Table I. Determinants of the likelihood of response to the confidential questionnaire ('sealed envelope technique') – binary logistic regression (odds ratio)

	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Characteristics of respondent</i>					
German citizenship	2.16**		2.07*		1.97***
Education <sup>a</sup>					
Intermediate secondary school	1.14		1.07		1.11
Higher secondary school	1.42		1.42		1.41
Age in years	1.00		1.00		1.00
<i>High acceptance of ...</i>					
Shoplifting	0.64*		0.61*		
Tax evasion	2.13*		2.15*		
Fare-dodging	0.60		0.60		
Driving while intoxicated	1.22		1.24		
<i>Interview and Interviewer effects</i>					
Presence of unfamiliar persons		0.29*	0.29*		0.32*
Male interviewer		1.026	1.025		1.031
Age of interviewer		0.98*	0.97**		0.98*
<i>Experience of interviewer<sup>b</sup></i>					
Experience of interviewer: ≤ 2 years		0.78	0.67		0.76
Experience of interviewer: 2 until 5 years		0.68*	0.62*		0.67*
Experience of interviewer: 5 to 10 years		2.92***	3.16***		2.80***
<i>Assessment of interview</i>					
Low willingness for interview				0.74	
High inclination for answering				1.63**	
Frequency of the revision of answers				0.92**	
Pseudo-R <sup>2</sup> (Cox & Snell)	0.015	0.027	0.044	0.014	0.034

Table I. Continued

	Model 1	Model 2	Model 3	Model 4	Model 5
Pseudo-R <sup>2</sup> (Nagelkerke)	0.029	0.050	0.083	0.026	0.062
N (refusal)	179	214	179	214	210
N (interviewee)	1437	1605	1437	1613	1587

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$

<sup>a</sup> Reference category.: no certificate or lower secondary school certificate

<sup>b</sup> Reference category: more than 10 years

Data base: ALLBUS 2000 – own calculations

Furthermore, there are effects of *interviewers' experience* on the response pattern. An indication of an interviewers' experience is by the duration employed in the institute entrusted to conduct the collection of the ALLBUS 2000 data. It has to be stressed that the measurement of experience is limited because the interviewers' previous employment in other institutes could not to be controlled due to a scarcity of information. Obviously, interviewers employed at the same firm between 2 and 5 years more often than not experienced non-response, compared to seniors active in this institute for more than 5 to 10 years or youngsters who were active for less than 2 years. There are no linear but curvilinear effects of the interviewers' experience with interviewing found in the response to the confidential questionnaire.

Finally, we investigate the impact of the *subjective assessment of the interview* provided by the interviewers. These subjective assessments stand in for many unobserved processes in the course of the interview. Theoretical assumptions, as well as former results have been confirmed (model 4). Firstly, the *general readiness to participate in the interview* does not correlate with the self-report about delinquency by filling out the confidential questionnaire. Without regard to the respondents' individual motivation and capacities, questions about delinquent behavior are answered when methodical preconditions are provided to promote the respondents' general readiness for response. It is unascertainable whether the response of the confidential questionnaire is correlated with the interviewer's assessment of the respondents' readiness for response. If this would be true, then its contribution to the total assessment of the respondents' response pattern might be minor, because of the great number of questions about other issues than delinquent behavior. There are indications that the *conditions resulting in indifferent and inconsistent interview situations* are responsible for the non-response of the confidential questionnaire. For example, *frequent corrections of answers during the interview* correspond with the non-response to questions about the respondents' delinquent behavior. The more often the

Table II. Determinants of self-reported delinquency by control of selectivity bias – binary logistic regression (odds ratio)

	Tax evasion		Shoplifting		Fare-Avoidance		Drunkenness	
	1	2	1	2	1	2	1	2
Benefit $B$	3.39***	3.40***	2.72***	2.70**	4.16***	3.97***	5.11***	5.35***
Risk $p$	0.98***	0.98***	0.99*	0.99*	0.98***	0.99***	0.98***	0.98***
Punishment $C$	0.43***	0.73***	0.66	0.69	0.37***	0.37***	0.61*	0.62*
Inclusion $\lambda$		1.25**		0.96		1.37***		1.00
Pseudo- $R^2$	0.084	0.089	0.011	0.010	0.083	0.093	0.088	0.076
N	1187	1187	1251	1251	1269	1269	1222	1222

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$

1 estimation without control of selectivity

2 estimation with control of selectivity

Data base: ALLBUS 2000 – own calculation

respondents revise their answers the more likely of them not to fill in the confidential questionnaire.

## 5. Consequences of the Selective Response to Estimations of Multivariate Models

The previous analyses confirm that the non-responses are not random but selective with regard to the individual characteristics of the respondents and the interviewers, as well as the interview effects.<sup>7</sup> We do not know how the non-responding persons would answer when filling in the confidential questionnaire. Therefore, we shall investigate whether the systematic non-response result in biased analyses about the respondents' delinquent behavior.

We limit our analyses to offences issued in the confidential questionnaire such as tax evasion, shoplifting, fare avoidance, and driving while intoxicated, and consider the results for the standardized probability of inclusion (Table II).<sup>8</sup> The 'operationalization' of this instrumental variable is from model 5 in Table I.

The probability of inclusion is insignificant for both acts of shoplifting and driving while intoxicated. It is obvious that these estimates for both the acts need no correction because of a sample selection bias by non-response. However, we have detected *positive selectivity bias for criminal acts such as tax evasion and fare avoidance*. That means that respondents who answered the confidential questionnaire intended to participate in tax-fraud or fare avoidance. Accordingly, respondents who will commit such criminal acts (again) are over represented in the sample.

## 6. Conclusion

It was the objective of this article to investigate the effectiveness of the SET. The general assumption is of SET as an appropriate procedure guaranteeing anonymity and confidentiality to respondents interviewed regarding compromising acts like their own delinquency. The application of SET is to minimize the likelihood of biased responses or non-response. Firstly, we have considered the question *why* particular groups of individuals do not fill out the confidential questionnaire in spite of guaranteed anonymity. Which conditions in the interview situation promote tendencies to non-response? For the derivation of hypotheses, we applied Esser's (1986) theory of SEU to explain the response patterns of respondents. Secondly, we investigated the *consequences of selective responses for the empirical analyses*. The 'economic theory of criminality' by Becker (1968) was chosen to detect selectivity bias by the statistical procedure suggested by Heckman (1979).

The empirical analyses stem from the 'German general social survey 2000' (ALLBUS) data. Due to information scarcity, we were unable to measure the respondents' subjective assessments and expectations directly. Therefore, the empirical application of the model by Esser (1974, 1986) remains incomplete. This fact is insufficient, but occurs regularly in secondary analyses. In future, we need direct measurement of respondents' preferences, evaluation and expectations, as well as extensive documentation of the course of interview in an experimental design.

In addition to individual characteristics of respondents (their competence in the German language or their attitudes to criminal acts), the characteristics of both the interviewer and the interview situation affect the respondents' inclination for non-response or for the self-report of (past or future) delinquency, in spite of SET. In particular, the presence of third persons from the respondent's household, as well as the interviewers' age and their experience in interviewing, are factors with negative impacts on the effectiveness of SET. All in all, both the interview and the interviewer effects dominate the impact of the respondents' characteristics and they are mainly responsible for the selective response to question about respondents' delinquent behavior. However, it is undeniable that unobserved interviewer and interview effects (the interviewer's manner of explaining SET, the interviewers' behavior during the SET procedure, interviewers' deviation from conventional SET instructions, or interviewers' attitude towards respondents' delinquency) are factors influencing non-response. However, due to a scarcity of information in the ALLBUS data we are unable to prove this assumption.

The selective response, in spite of SET, resulted in biased estimations in two cases. On the one hand, after the control of the respondents' expected

benefits from criminal acts, the expected costs for violating the law and the subjectively expected probability of detection, the respondents; who were over represented in the sample, reported that they would participate in tax evasion and fare avoidance again. In contrast to a general assumption, these findings indicate that the (honest) respondents are more likely to participate in such criminal acts than, individuals refusing to answer questions on previous delinquent behavior. However, we need additional research for further insight into the origin of such phenomenon.

In future, the successful procedure of SET should keep in practice, but more efforts are obviously needed to neutralize the situation effects when respondents have to answer to compromising, uncomfortable or threatening questions (e.g. self-report about their delinquent behavior). In particular, in interview situations characterized by individuals' inconsistent response patterns, both the interview and interviewer effects have to be avoided. Therefore, the mail survey might be more appropriate than the en face interview (Sudman and Bradburn, 1982). In the mail survey, the guarantee of anonymity is definitive, and the interviewer effect excluded. The negative consequences of the response behavior, correlated with the presence of third persons not from the respondents' household, could be minimized.

In spite of all these methodological efforts, non-response to questions about respondents' delinquent behavior, constituted by the respondents' motivation (Schnell, 1997), is prevalent. However, on the one hand, we have to avoid systematic non-response. On the other hand, we have to further develop sophisticated statistical procedures, which are effective in compensating results, biased because of selective response patterns (Pötter and Rendtel, 1993). Therefore, it is necessary to collect more detailed information on the interview process and the process of non-response, inclusive of reasons. Otherwise, it has to be feared that the statistical procedures to correct selectivity bias remain arbitrary, due to lack of theoretical foundation (Heckman, 1979).

## Notes

1. The ALLBUS 2000 data were collected with the utilization of computer assisted personal interviews (CAPI). However, for the questions about respondents' delinquency, the SET has been utilized. In accordance to the instructions, the interviewers should ask the interviewees to fill out a separate questionnaire themselves. Then the respondents have to put the questionnaire into an envelope, to close it then and to hand it to the interviewer. Therefore, the interviewers could not detect the respondents' answers. If the respondents hesitate or has doubts to answer, the interviewers should stress that the answers will be treated confidentially and that the statistical calculations will be conducted in accordance with the law of data protection.

In order to avoid non-response, only such misdemeanors has been considered which will be punished with minor fine options, but sanctioned with higher monetary penalty or

imprisonment only in serious cases. The respondents has been asked to report if and how often they have committed shoplifting, tax evasion, free riding (travel without ticket) or driving car with alcoholic intoxication. They have been also asked to tell whether they will do such misdemeanors in future. In the pretest of the ALLBUS 1990, while the sealed enveloped has been applied at the first time, the interviewers report that no serious problems have occurred in gathering responses to questions on delinquency. There were indications that the SET has improved the respondents' self-report in contrast to the face-to-face interview without the application of SET. In particular, this was true for tax evasion. Therefore, the SET has been applied at the main survey (Wasmer et al., 1991: 11–12).

2. The intention for 'true' answer results from the product of both the intensity that a respondent has an opinion or an attitude to the question ('true value') and the subjective expectation that a certain answer corresponds with the 'true value' or the respondent's personal identity. A clearly formulated question understood completely by the respondent is the precondition that the interviewee could develop such a expectation. The intention to socially desired answers is determined by the intensity of situational needs or interests as well as by the subjective expectation that a certain answer will result in social desired consequences (Esser 1986).
3. For example, the original question about the intended delinquency like fare-dodging is formulated as follows: 'Independently that you have made such minor delinquencies already or not: Could you propose that you could maybe do such things (again) or not or would you never do such things (again)? Please sign your answer for all of the four minor violations of law: Fare-dodging, shoplifting, tax evasion, and driving while intoxicated'. The following answers were possible: '1. Yes, I would maybe do it (again). 2. No, I would never do it (again)'.
4. The retrospective question about tax evasion was formulated as following: 'As you know, many citizens do sometimes minor misdemeanors. Please sign at each of the four delinquencies how often you have done such things: Wrong declarations at the income tax return in order to pay fewer taxes'. There are six alternative answers: '1. never – 2. One time – 3. Two to five times – 4. Six to ten times – 5. Eleven to twenty times – 6. More than twenty times'.
5. Furthermore, the interaction between nationality and education has been considered in explorative analyses. There are no significant interactions between education and nationality so that it can not be concluded that foreigners with low education incline to non-response because of their problems with German language.
6. The wording of this question is formulated in the following way: 'I will give you separate cards which describe some manner of action. Please tell me by using this list whether you personally find that the behavior is very bad, rather bad, less bad or not bad'.
7. Additional analysis provide that the interaction between foreigner status and frequency of corrections deliver no significant insights into the response patterns. The comprehension of German language or communication problems do not correspond with increase of frequent corrections of answers.
8. The *subjectively expected benefit of a criminal act B* is measured indirectly by the respondents' assessments of each of these acts because there is no direct measurement of the benefits in the ALLBUS 2000 data set. The moral assessment of delinquent behavior provides to assert whether a certain norm is legitimate or deviant (Wasmer et al., 1991: 25). One can assume that this assessment is correlated with the expected benefit of this criminal act. The violation of the self-obligated and internalized acceptance of law result in *costs C*. The cost factor is a dummy variable indicating the acceptance of norms that citizens have to obey the laws always. The reference category includes persons who disagree

with this statement. Of course it might be true that this indicator for the subjectively expected costs of crime do not cover the total costs. However, because of the limited information in the ALLBUS data set we have no alternative measures. As suggested by Opp (1989: 426), the *subjectively expected likelihood to be detected*  $p$  is measured directly as well as indirectly in the ALLBUS data set. On a scale with five steps reaching from the value 1 for 'extremely likely' to the value 5 for 'very unlikely', the respondents were asked to guess the probability of detection. For the multivariate analyses these nominal indications were transformed into percentages (reaching 0 percent for 'very likely' to 100 percent for 'very unlikely').

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