

**PROCEDURES FOR CONDUCTING GOVERNMENT-SPONSORED ESTABLISHMENT SURVEYS:
COMPARISONS OF THE *TOTAL DESIGN METHOD* (TDM), A TRADITIONAL COST-
COMPENSATION MODEL, AND *TAILORED DESIGN***

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ABSTRACT

The difficulties of using a set of common mail survey design procedures known as the *Total Design Method* (TDM) (Dillman 1978) for conducting government-sponsored establishment mail surveys is described. A Cost-Compensation Model that has guided the design of most government establishment surveys during the late 20th Century is also described, along with its limitations. The *Tailored Design* of establishment surveys, whereby somewhat different procedures are selected for use in different survey situations, is then presented as a preferred alternative to both the TDM and Cost-Compensation Model for conducting establishment surveys.

Key Words: Questionnaire, Survey, The *Total Design Method*, *Tailored Design*

Procedures for conducting most surveys in the United States changed dramatically during the 1980s and 1990s, but procedures for conducting most government establishment surveys have remained strikingly the same. Whereas government household and individual-person surveys shifted largely to the use of computer-assisted telephone methods (e.g., Atostic and Burt 1999) establishment surveys continued to rely heavily on mail methods (Kydonieffs and Stanley 1999). Now, as electronic surveys methods are beginning to see increased research and use (e.g., Clayton et al. 2000; Sedevi et al. 2000) it remains to be seen whether most government establishment surveys will adopt these new methods in the early 21st Century or will continue to rely predominantly on a traditional mail methodology. If reliance on mail procedures continues, it is also unclear what the nature of that mail methodology might be.

It's my expectation that mail-out, mail-back procedures will continue to be used extensively, sometimes alone, but usually in combination with other survey modes. In this paper I consider three perspectives that might be applied to the conduct of such surveys, the *Total Design Method* (TDM), a traditional Cost-Compensation Model that has guided the conduct of most government-establishment surveys during the last two decades and a *Tailored Design* perspective which I believe offers considerable promise for improving the effectiveness of government mail survey methods.

THE *TOTAL DESIGN METHOD* AS A MODEL FOR CONDUCTING ESTABLISHMENT SURVEYS

The *Total Design Method*, which I developed nearly 25 years ago (Dillman 1978), was intended to be a set of detailed procedures that would improve response to most mail surveys. Many people have tried to apply the TDM to the conduct of establishment surveys (Paxson et al. 1995). However, others have described the TDM as not really applying to the conduct of such surveys, and particularly those conducted by government. It has been argued that surveys of individuals and households differ so much from surveys of establishments that other means need to be used as a means of improving response to self-administered establishment surveys. (Kydonieffs and Stanley 1998). It is an argument that I believe has some merit.

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However, in many cases the argument against use of TDM procedures has been used more as a defense of poor business survey methods than as the basis for developing precise implementation methods aimed at improving respondent cooperation and the quality of data produced by business surveys.

In 1978, I described the TDM as a procedure whereby each aspect of the survey process that might affect either the quality or quantity of response was identified. It was then shaped in a way that, when taken together with all other aspects of the questionnaire and implementation procedures, was likely to improve response.

Response improvement efforts were guided by an assumption about why people respond to questionnaires. I argued that people are most likely to respond when they expect and trust that rewards of responding to a questionnaire outweighed the costs associated with responding (Dillman 1978, Chapter 1). I went on to describe a rather specific set of procedures that included the creation of booklet questionnaires that were photo-reduced, a precise schedule of four contacts (1st week, questionnaire sent, second week, thank-you/reminder postcard sent 4th week, a replacement questionnaire sent, and 7th week a replacement questionnaire sent to nonrespondents by certified mail). All mailings were personalized with stationery and signatures and sent by first-class mail. It could be argued on several grounds that these precise procedures were not particularly helpful for people who wanted to conduct surveys of establishments, and particularly if hundreds of thousands or even millions of establishments were being contacted.

First, the methods I advocated had a one-size fits all nature. For the most part I presented only one set of alternatives and linked them together to form a prescribed system. This approach was motivated by the technological limitations and general culture of the times. The mass society orientation of that era was characterized by the production of standard products and processes which one then attempted to apply widely.

The efforts required for inserting names and addresses onto letters, printing questionnaires, and orchestrating mailings were substantial and labor intensive. In the 1970s, decent copy machines were not widely available and desktop publishing was a concept only in the minds of innovators. Many people still used manual typewriters and the personal computer was not yet available.

Business surveys, and particularly large-scale surveys conducted by government, were only one of many situations in which the lock-step seven week implementation schedule did not work well. Also, when questionnaires were mailed by the thousands or, in some cases, hundreds of thousands, personalization was simply not feasible. The word processing and printing technologies of the 1970s did not allow application of a TDM approach without extraordinary and costly efforts.

Second, only three of the 48 surveys I reported as providing evidence for the capabilities of the TDM could loosely be described as establishment surveys. Even these surveys were of simple organizations, i.e., farmers and truckers. I had not surveyed any complex establishments. As a consequence, virtually none of the examples I provided in support of the procedural details of the TDM even referred to establishment surveys.

For these reasons, it certainly is a stretch to suggest that the detailed procedures of the TDM applied to the conduct of business surveys. More generally, however, the philosophy of attempting to shape all details of a survey to increase rewards and lower costs associated with responding, rather than attending to some and ignoring others, could in my view be reasonably applied. Questionnaires that were designed for easier comprehension, and correspondence that was built around arguments of survey usefulness and respondent importance, could certainly be constructed.

Perhaps the most persistent critique of applying any of the details, or even the philosophy of TDM, stemmed from the often stated litany of the many ways in which business surveys differ from surveys of individuals. A few of these differences are as follows:

- Usually, the respondent must answer for the business and not for him or herself.
- Questionnaires are usually mailed to a business and not to a person in that business.
- It may not be known who the specific respondent should be.
- Respondents often need to consult records in order to determine what answers should be provided for

- specific questions.
- Multiple people may need to provide information for answering a single questionnaire.
- Surveys of businesses often entail a greater response burden than do household surveys.
- Detailed definitions and rules for how to arrive at an answer are often necessary.

As recently as last year, arguments have been made to suggest that there is no useful model available for conducting business surveys that takes into account these differences between business surveys on the one hand, and surveys of individuals and households on the other (Kydonieffs and Stanley 1999). It is further argued that support for a TDM kind of approach to surveying really rests with research done for household and individual person surveys, which by its very nature does not apply to business surveys. And, that a useful prescribed set of procedures for conducting government mail surveys of establishments did not yet exist.

THE MINIMUM COST MODEL FOR CONDUCTING GOVERNMENT ESTABLISHMENT SURVEYS

Discussion of common survey practices with many people involved in the conduct of government established surveys throughout the 1990s has led me to conclude that an implicit model for conducting government establishment surveys does exist. It is quite different than the model encompassed by the TDM. Since at least the 1970s, it has guided the design of many and perhaps most establishment surveys.

It can be described as a Cost-Compensation Model for which the primary criterion for determining questionnaire design and implementation practices is to minimize monetary costs. This is achieved through adherence to the kinds of procedures outlined below, and by maintaining as much consistency as possible across surveys. The influence of government authority in general (which by itself is a factor likely to increase survey response) (Heberlein and Baumgartner 1978; Cialdini 1984; Groves, et al. 1992) and mandatory authority in particular, are then relied on to compensate for survey design features which, individually, are likely to delay and/or decrease response. These practices and assumptions, listed here in no particular order, tend to characterize application of the minimum cost model.

1. Questionnaires should have as few pages as possible; otherwise response rates will go down.

There can be little doubt that generally shorter questionnaires with fewer questions usually obtain higher response rates than do longer questionnaires. And, the shorter the questionnaire, the lower cost of mailing and retrieving it. However, putting more questions onto fewer pages, decreasing the font size, and rearranging questions so that order gets determined in part on where questions will fit in order to best fill every page, may counteract the otherwise positive influence of fewer pages..

Business questionnaires often use tabular formats with multiple row and column headings and subheadings. When matrices of this nature are constructed it is often necessary to make those headings quite brief. The cryptic exposition of questions often results in questions being difficult, or even impossible, to understand without referring to a separate set of instructions. From a response standpoint, such questionnaires end up without a clear sense of information organization and they lack clear navigational guides (Dillman 2000, p. 214). In some instances questionnaires are printed on legal size pages with page length being given precedence over avoiding the use of unconventional paper sizes. The frequent consequence of adhering to such a format is to increase the burden to respondents. Such questionnaires seem difficult for many people to complete.

2. A strong preference is assumed to exist among respondents to business questionnaires for matrices or row/column question formats.

Matrices require a higher level of literacy than an individual question format, but the requisite skills are often not taught in high school. However, it is often argued that establishment surveys are filled out by people who are trained in accounting practices, and that matrices are their preferred format.

This argument is integrally related to the desire to make questionnaires as short as possible, inasmuch as it facilitates requesting more information per page. It is also closely related to the preferred method for providing instructions.

3. Detailed instructions for answering establishment surveys should be provided in separate instruction books.

One consequence of a matrix format is the need to keep questions as brief as possible (e.g., Dillman, Figure 10.3, p. 344). As a consequence, the meaning of each question must be explained to respondents (Figure 10.5, p. 346). Therefore, detailed instructions must be provided in separate booklets, and it is unlikely that many questionnaires can be filled out accurately without consulting the instruction book for most questions.

It seems likely that many respondents “guess” at the meaning of particular questions and consult instruction booklets only as a matter of last resort. It also seems likely that instructions, which are most likely to be followed, are ones that appear in the questionnaire on the same (or an opposite) page from the questions. However, including instructions in the questionnaire would result in a longer questionnaire and perceived loss of response.

Another reason suggested to me for putting definitions and rules for reporting into a separate book is that they are sometimes quite long, difficult to understand, and respondents are unlikely to pay attention to them. Placing such definitions into the questionnaire might therefore have the effect of producing confusion and frustration that would result in a refusal to respond.

4. Changing questionnaire formats, even modestly, should be avoided because the same people fill them out year after year.

One of the factors that has slowed down consideration of alternative formats for constructing questionnaires is the fact that many business surveys are conducted year after year and frequently the same person fills out the questionnaire. It is argued, correctly I think, that any changes would frustrate respondents who have completed the questionnaire previously, and perhaps organized their data files to accommodate the questionnaire needs. The perceived needs of previous respondents are given precedence over making the response task easier for people who see it for the first time. Thus, any negative effects on new respondents is in effect, except to be compensated for by positive effects for old respondents.

To the extent this strategy is deliberate, the rationale appears not to be based in the survey literature, at least as it applies to individuals. Past research has suggested that one of the main predictors of response rates is whether people have responded previously to surveys, and typically it is more difficult to persuade newly sampled individuals to respond than it is to get past respondents to respond again.

5. A long data collection period designed on the basis of distant deadline dates and widely separated mailing dates will achieve better cooperation and presumably higher response rates.

Many establishment surveys are conducted with several weeks or even months between contacts. A generous deadline date is provided and follow-ups are made only after that date has passed. The generous deadline date is given in recognition of the fact that data often have to be compiled and/or analyzed by the respondent before results can be provided. Avoiding the use of more closely spaced contacts is seen as desirable because it avoids the perception of harassing respondents, particularly those in large organizations with many subunits who require considerable time for compiling the needed information. A potential down-side from widely spaced contacts is that the first request is long forgotten by the time the second one arrives.

6. Standardized envelope designs and questionnaire mailing procedures are desirable from an agency perspective and will lower costs without having a negative effect on response rates.

Agencies that conduct many business surveys have a vested interest in attempting to do them in similar ways using the same envelopes, questionnaire design procedures, and mailing protocols. In a large agency many different divisions get involved in designing and implementing surveys, and it can be argued that by keeping procedures virtually the same, costs and errors in implementation can be avoided. An example of an effort to minimize differences among surveys was the Bureau of Census Mailer’s Manual: Standards and Guidelines for Preparation of Survey Mail (July 1995, Version 1.0), a purpose of which was to “stabilize and standardize the physical process of preparing survey mailing packages.”

It was expected that commonness in design would lower costs for most surveys conducted by the agency.

7. Unpersonalized correspondence (e.g., salutation "A Letter from the Director" in place of the normal inside address) copied without mailing dates will be effective in achieving a timely response.

It is common to use a somewhat generic, unpersonalized letter format that can be sent to all businesses. Not inserting names and addresses into the cover letter avoids the problem of merging cover letters and questionnaires effectively in mail-out packages. Avoiding use of dated correspondence makes it possible to mail questionnaires over a period of several days or weeks without having any of the letters appear out of date. This approach is in sharp contrast to one favored by the TDM that emphasized a timely mailing is going to a specific person who is expected to respond. This feature may give government business surveys the general appearance of an unimportant mass mailing, but is also much less costly than personalized correspondence.

8. Mail-out packages should be addressed only to the company, rather than making a prior effort to identify individuals to whom they should be sent.

Sending a sequence of letters addressed to only a business name runs the risk of each letter being sent to a different person or simply discarded because its unclear to whom it should go, particularly in large organizations. Thus, the use of repeated contacts with an individual, traditionally the most powerful inducer of response to mail surveys, has less of an opportunity to impact response.

Prior identification of respondents would require the prior step of contacting businesses ahead of time to identify an appropriate respondent, a step that for some businesses would be difficult to achieve. In addition, to capitalize on this prior contact effectively (e.g., its use as a prenotice) would require acting quickly to mail the questionnaire. It would also involve sending somewhat different letters to businesses for whom a respondent has been identified compared to those for whom respondents have not been identified.

9. Use of an alternative mode for responding, such as the telephone, should be limited to being a final effort, and focused on conversion of the largest establishments.

Shifting from a mail operation to a telephone operation requires a major effort in large survey organizations. As a result, changing to the latter is often done only as a last ditch effort and when used, appears oriented mostly to large corporations whose activities constitute a substantial portion of industry activity. Once, when I suggested calling of establishments at the beginning of a survey period in order to determine to whom a questionnaire should be addressed, it was pointed out to me by a Census manager that it would require sending the address list to the telephone field operation, getting it back, and then sending it to the mail operation in a different city. Finally, after retrieving the address files and sending it to the telephone facility, the project manager said he was willing to transfer it in this way once, but not twice. No attempt was made to target mailings to individuals.

In many industries relatively few establishments account for the majority of the business conducted in that industry. These businesses are typically identified and followed up intensively, even to the point of having a high level official personally visit the offices of a large business. Smaller businesses may be ignored completely during the telephone or personal follow-up phase.

10. Batch processing is more effective than flow processing.

If one finds the name of a person to whom a questionnaire should be addressed, that contact might double as a prenotice. The effectiveness of prenotices are greatest when they are implemented just slightly ahead of the actual mail-out of the questionnaire. This strategy is avoided because it demands greater coordination and planning. Batch mailings can be sent to a mail-out office, and one does not have to worry as much about whether they are sent out in a particular sequence or on particular days.

Is the Minimal Cost Model Effective?

I find it somewhat difficult to evaluate the effectiveness or desirability of using the 10 procedures outlined above. If one is conducting a census of manufacturing or farming, in which several million questionnaires are being sent to recipients, many if not most of the procedures discussed above seem necessary. And, the result of their use will not be a poor response rate. Government establishment surveys have traditionally received high response rates (Paxson et al. 1995; Dillman 2000). One reason is that a number of such surveys are mandatory. Organizations are required by U.S. laws to complete them and may be threatened with fines if they do not. Even if a survey is not mandatory, response to surveys in general are higher if the survey is government-sponsored. Thus, there has been very little incentive to change business survey methods over the last quarter of a century in an effort to boost response rates. The basic design strategy is one that tends not to be based upon experimentally tested principles for how to improve response quality and quantity, but most likely persists because response has not been considered a large problem to government-sponsored establishment surveys; eventually most businesses respond. Paxson et al. reported an average response rate of 79% for 20 U.S. Census Bureau surveys, with mandatory surveys achieving a 84 percent response compared to 69% for nonmandatory surveys. These response rates may be decreasing somewhat at present (Kydonieffs and Stanley, 1999).

However, the essence of the model seems to be that compensation strategies are required to overcome the negative effects of individual components of this system. One example of the compensation strategy in operation is sending a questionnaire by third class or bulk rate mail which increases the likelihood of it being ignored or thrown away, but printing on the envelope, "U.S. Census Form Enclosed: Your Response is Required by U.S. Law," to keep that from happening. A likely effect of this statement, shown to improve response rates significantly for business surveys (Tulp, Hoy, Kusch and Cole, 1991), is to keep the envelope from being thrown away when it arrives.

Another example is the use of widely spaced mailings with deadline dates that are addressed to business names (and not individual people). Mailing to business names only, with mass letters addressed to no one in particular (but rather inserting a statement like, "A Letter from the Director"), increases the likelihood that the same person does not receive follow-up mailings or remember receiving earlier ones. The overall strategy appears to compensate for these potential problems with repeated contacts about the firms responsibility under law to respond and by threats of fines.

I am reluctant to criticize the basic government model of establishment survey design and implementation; certainly it is designed to save money and produce within agency efficiency. It is therefore understandable to me why the general model persists, and why changing it meets with such strong opposition. Efforts to change one survey are likely to be met with opposition from many divisions of an agency who have a vested interest in keeping operations the same for all surveys in order to simplify their task and, as one manager explained to me, keep mailing errors from being made.

The problems inherent in the Cost-Compensation Model for Government Establishment Survey, are similar to those manifested by the *Total Design Method*—it has a one size fits all character. One of its major shortcomings is with regard to how agencies apply it. A mentality seems to have developed whereby attempts are made to keep the same procedures as those used for large censuses in use for all other establishment surveys, including those that are new, or are voluntary, and/or are done on a one-time basis. Many of the questionnaire construction practices and survey implementation practices seem outdated and appear strangely quaint in today's society, with its strong emphasis on customer satisfaction.

In addition the implementation, the overall response strategy strikes me as less respectful and less respondent- friendly to respondents than can now be achieved. Communications with respondents often seem confrontational, rather than being a straight-forward request for help. As a consequence it seems plausible that respondent's who are conscious of their company's response obligation are left to take out any suppressed anger by simply delaying or delegating the task of responding, rather than complying in a timely way. Also, use of a cost-compensation strategy may lead to reporting data that are less accurate than they might be if a more respondent-oriented approach to encouraging people to answer questionnaires were to be used. Certainly it is important to recognize that a difference between establishment and individual person surveys is that for the former type people answer for the establishment and not for themselves. Nonetheless, the questionnaires are in both cases completed by people with the normal range of emotions and strategies for avoiding unpleasant tasks.

One of the unfortunate legacies of this general cost-compensation model is that when data collection shifts to nongovernment-sponsored surveys, where government authority cannot be invoked, the response rate effects are enormous. As a consequence, a belief persists, unnecessarily I think, that high response rates cannot be obtained for business surveys. For example Paxson reports a review of 183 business surveys reported in a sample of business journals published since 1990 that revealed an average response rate of 21% (Paxson 1992), far lower than would be tolerated for individual person or household surveys. I believe it is possible to do much better than that using the *Tailored Design* strategy outlined below.

Tailored Design as an Alternative to the Cost-Compensation Model and Shortcomings of the Total Design Method

By *Tailored Design* of self-administered surveys, I mean the development of as many of the survey attributes as possible in ways that individually, as well as, collectively create respondent trust and perceptions of increased rewards and reduced costs for being a respondent, which take into account features of the survey situation and have as their goal the overall reduction of survey error. (*Mail and Internet Surveys: The Tailored Design Method*, Dillman 2000, p. 27). It is based upon a social exchange model in much the same way as the *Total Design Method*, but goes somewhat further by trying to use knowledge of the survey population, sponsorship, and survey content, to develop the most effective means for increasing rewards, reducing costs and establishing trust. Tailoring to business or establishment surveys is only one type of tailoring described in this revision of the *Total Design Method*.

The concept of tailoring outlined here is somewhat different than that outlined by Groves and Couper (1998). Their emphasis is on interviews, in which the interviewer attempts to tailor his or her appeals to specific concerns expressed by a specific respondent. My use of the term tailoring is at a somewhat higher level, i.e. shaping a total implementation system based upon characteristics that differentiate that survey population from others.

In brief, these practices are central to the development of a *Tailored Design* strategy for improving response to mail surveys, from the standpoints of lowering nonresponse, reducing item nonresponse, and improving the accuracy of people's answers.

1. Visual design and layout that gives careful attention to establishing the most desirable "information organization" and a visually apparent "navigational path" using such visual tools as figure/ground composition, size of font variations, brightness and color, selection of symbols, spacing of text and other symbols, regularity and symmetry) to encourage all respondents to process and interpret information in the same way.
2. Four to five carefully-timed contacts that support one another through their wording and timing.
3. At least one mail contact that is special, for example, being sent in a different size of envelope with overnight delivery.
4. Personalized correspondence that includes real letterhead stationery, dates, is addressed to individuals, and viewed as respectful by the recipient. Being addressed in this way may require that a prior telephone contact be made to determine the name of the person to whom it should be addressed.
5. Inclusion of a return envelope that contains real stamps (not a business reply) as a means of keeping the questionnaire from being thrown away inadvertently.
6. A token cash incentive sent with the questionnaire request for certain establishment surveys that are predominantly individual person firms (e.g., farmers, doctors, architects), and an appropriate material incentive sent in advance for certain others (perhaps a CD containing useful reference information).
7. Switching to another mode, e.g., telephone or e-mail for nonrespondents and using multiple additional attempts by the new method to obtain a response, being careful to avoid mode effects.

It may come as a surprise to some that these seven techniques for improving response differ very little from those that I would recommend for use in conducting individual person or household surveys. This should not be surprising, despite

the frequency with which it is argued that “business surveys are different”! It is necessary in business surveys to get individual people to undertake the task of responding, just as it is for all other surveys.

The difference for business surveys comes with the necessary additional steps of tailoring to the sometimes dramatic differences in specific survey situations. In the chapter on tailoring to business, I describe ten principles that I have found useful in designing specific business survey strategies. They include the following details for which details are provided on pages 339-350 of *Mail and Internet Surveys*:

1. Identify the most appropriate respondent for a business survey and develop multiple ways for contacting that person.
2. Plan from the beginning for a mixed-mode design.
3. Develop respondent-friendly business questionnaires.
4. Provide instructions in the questionnaire rather than in a separate instruction booklet.
5. Conduct on-site cognitive interviews to help tailor the questionnaire to people’s ability to respond and to gather intelligence information for targeting its delivery and retrieval.
6. Target communications to gatekeepers where appropriate.
7. For repeated surveys of the same businesses and individuals, consider the use of follow-up communications after a response is received.
8. Be cautious with regard to the use of incentives and fit them carefully to sponsorship as well as the recipient.
9. Consider different tailoring of correspondence and questionnaires to subgroups of a population.

Based on these principles, quite different strategies are formulated for surveying specific establishments that are reflective of different sponsors, different populations, and different survey constraints (topic, speed, etc.). For example, a voluntary government-sponsored survey of manufacturers, conducted by a university research center, tried to call all businesses in order to identify respondents, sent a letter announcing the survey, then called to interview the sampled businesses. After making up to 20 calls over a period of months, a mail questionnaire was sent, with follow-ups, to the nonrespondents (Dillman 2000, 334-335). A 68% response rate was obtained.

In contrast, a survey of university officials from the largest 238 U.S. universities, which faced a difficult respondent selection problem that required a decision by the presidents or chancellors, started with a mail contact of the president’s office with appropriate telephone follow-up as needed, and a subsequent mail and telephone follow-up with the individual designated as the respondent. (Dillman 2000, 336-337).

A third organizational survey, this one of doctors, began by mailing questionnaires to the doctors in order to get past office gatekeepers who might prevent phone calls from getting through to the designated respondent. This was followed by telephone reminders, including attempts to take the information by phone interview rather than the self-administered questionnaire. This procedure proved much more effective than calling first by telephone and saving the mail contacts until later (Dillman 2000, 338).

Each of these surveys had a common a commitment to the use of the base-procedures outlined for the *Tailored Design* strategy, but the exact procedures that were used differed significantly across surveys. The time is past, if it ever existed, when one could apply without negative consequences the lock-step strategies fostered by either a literal interpretation of the *Total Design Method* of the Agency Cost-Compensation model to the conduct of establishment surveys and expect good results.

Conclusion

The *Total Design Method*, as a model for conducting establishment surveys, had significant shortcomings. Its reliance on one set of procedures for all survey situations gave it a one-size-fits-all character that lacked appropriateness for establishment surveys. Its major use was as a set of procedures designed to improve respondent cooperation through reducing perceptions of cost and increasing perceptions of rewards and trust.

The approach favored for conduct of establishment surveys, particularly by government agencies in the United States, also had a one-size-fits-all character. It was described here as a Cost-Compensation Model, in which specific procedures were designed more as a way of reducing each aspect of doing a survey to the lowest possible costs, regardless of how the procedures might be viewed by people in sampled businesses. To achieve high response these procedures had to be compensated for by placing an emphasis on the authority of government to collect the data and in some cases the exercise of mandatory authority.

The *Tailored Design* strategy I have advocated in this paper is an attempt to move beyond these one-size-fits all strategies and extend the general perspective of the original *Total Design Method*. Its extension recognizes not only the differences between establishment and individual person or household surveys, but the great need to use different specific strategies to obtain response to varied types of establishments. The base-line of specific procedures advocated for use are strikingly similar to those used for individual-person and household surveys, but they are combined in different ways to increase the likelihood of obtaining respondent cooperation.

We are now in transition to an era of additional survey possibilities, including Interactive Voice Response and Web methods. Each of them holds tremendous promise for use in certain kinds of establishment surveys, and I expect their use to increase dramatically. An additional reason for getting past the Cost-Compensation Model outlined above is that commitment to its features might foster an avoidance strategy to the use of these methods.

At the same time, I doubt that many establishment surveys will find success from completely adopting either of these new methods as a substitute for use of mail and telephone methods. Rather, under a *Tailored Design* strategy, I expect the most effective use of the Web and IVR will be as additional survey modes that expand the possibilities for tailoring the best possible modes and procedures to different survey situations, rather than a complete replacement.

It would be most unfortunate if surveying of businesses and other establishments stays the same as it has in the last decades of the 20th Century. It would be equally unfortunate if we were to declare a new era for use of only the new Web and IVR methods, and forget the knowledge we already have for obtaining response using traditional mail and telephone methods. The obvious implication is that designing and implementing establishment surveys is going to become more complex, requiring a wider range of methodological skills and knowledge than at any time in our past.

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**THE NEW KONTIV DESIGN:
A TOTAL SURVEY DESIGN FOR SURVEYS ON MOBILITY BEHAVIOUR**

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ABSTRACT

The New KONTIV Design aims to provide reliable data on mobility behaviour. It is an mail-out / mail-back self-administered approach using a diary technique. There is a phased survey procedure using written-postal and verbal-telephone elements, but the telephone is used mainly for motivating.

The New KONTIV Design combines several forms, instruments and techniques to obtain an complete and valid picture of mobility behaviour: there are checks and telephone follow-up calls as well as additional validation explorations (non-response, non-reported-trip). "Satellite surveys" can be integrated to collect information on special themes. The New KONTIV design is ensured by a Client Guarantee and its broad application on more than two 200 travel surveys.

Key Words: Survey method, Travel behaviour, Transport planning, Mail survey

1. RESPONDENT ORIENTATION

In spite of the great importance of mobility data for the broad areas of planning and administration, there are no commonly recognized standards for its empirical collection. The result is a proliferation of survey methods which differ considerably from one another in terms of quality and are often difficult to compare. At present, this situation seems to have become even more aggravated. For this reason, the "New KONTIV Design" was developed, which:

- Integrates knowledge of relevant methodological research that has become available
- Takes account of the users' requirements
- Considers modifications of the technical-organizational preconditions
- Offers a basis for in-depth and special studies

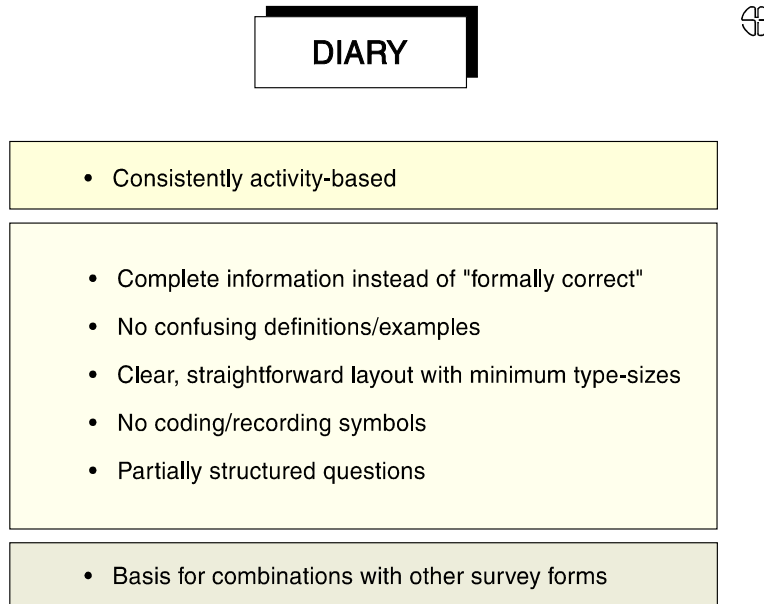
As before, the starting premise is:

*THE RESEARCHERS MUST
ADJUST TO THE RESPONDENTS,
NOT THE RESPONDENTS
TO THE RESEARCHERS*

Although self-evident, this view is often simply forgotten in the current discussion of survey techniques.

2. REQUIREMENTS

In this connection, the diary technique is still by far the most reliable method for the collection of data concerning mobility behaviour. It best meets the requirement that the determination of mobility behaviour be as realistic as possible.



The diary is designed in such a way that the respective trip is defined by the individual activity performed at an out-of-home destination. The basic idea behind the diary design is to obtain all information concerning the out-of-home activities performed on the (prespecified) date, not simply those which reflect the researcher's a priori views on what are "formally correct" answers.

Correspondingly, the possibility that respondents can report in their own words is regarded as more important than the provision of unclear and therefore confusing concept explanations.

The consistent respondent-orientation also results in certain graphic design requirements (e.g. concerning comprehensibility and readability) and dispensing with among other things code symbols in the questionnaire.

The technique of using partially structured questions also represents a concession to respondents: all clearly understandable answers can be directly ticked, but the others can be openly stated by respondents in their own words.

Since diaries are best filled out by the respondents themselves, the carrying out of self-administered surveys is recommended. However, this methodology places the highest demands on the design and manner of carrying out the survey. Because these demands are often not met, it is unjustly discriminated against. In this connection, relevant basic research clearly demonstrates that this survey form is distinctly preferred by the respondents and - when professionally carried out - yields excellent response rates. For all of the mobility surveys on which these studies are based, the survey form preferred by the respondents was determined. This resulted in a clear preference for the mail-back method.

"METHOD PREFERENCE" (OF RESPONDENTS)

• MAIL-BACK	60 % - 75 %
• BY TELEPHONE	5 % - 15 %
• PERSONAL	up to 5 %
• RESPONSE RATE TOTAL	65 % - 95 %

Simultaneously, the response rates achieved - by consistently taking respondent wishes into account - were on average about 80%.

However, even for mobility surveys with high response rates, data validation is required (even though this happens in only very few mobility studies). This validation should always check two (non-response) effects: the effect resulting from the fact that not all persons in a sample participate in the survey, and that resulting from the fact that the persons responding don't give complete answers (e.g. they don't record all of their activities/trips in the diary). Both effects are taken account of and successfully dealt with within the framework of the New KONTIV Design.

3. PROCEDURE

The New KONTIV Design provides for a phased survey procedure. New is the integration of written-postal and verbal-telephone elements.

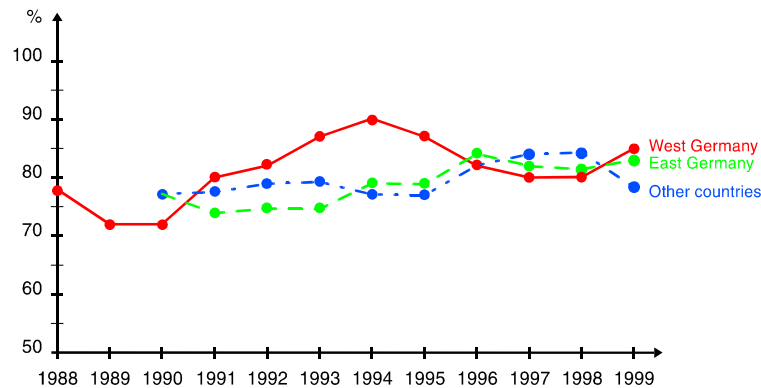
ACTIONS

• ADVANCE NOTICE	(post)
• MAILING	(post)
• MOTIVATION	(telephone)
• REMINDER	(post)
• MOTIVATION	(telephone)
• REMINDER	(post)
• MOTIVATION	(telephone)
• RESPONDENT TELEPHONE • NEW MAILING ON REQUEST	

Here, the telephone is not used for questioning, rather for motivation. Only if information cannot be obtained any other way is questioning carried out by telephone.

This combination ensures not only high response rates, but it has also resulted in a constancy of response rates over the course of recent years. Even the "survey weariness" in the new German states which is often complained about is not observed.

RESPONSE



In general, the response rate is at least 70%. Both in the general scientific literature and when carrying out empirical research in other areas, attaining this level is regarded as a necessary quality criterion. However, in (traditional) transport research, even response rates half as high as this are considered to be normal and acceptable.

4. METHOD MIXTURE

The New KONTIV Design combines several survey forms, instruments, and investigatory techniques to obtain a complete portrayal of mobility behaviour.

In this connection, the following points are of particular importance (see following diagram):

- All detailed self-administered diaries are checked to see if they are complete and correctly filled out. For questionnaires that were incompletely, poorly, or incorrectly filled out, or contain implausible statements, telephone calls (T) are made to obtain the lacking/correct information.
- During the course of follow-up telephone explorations, the reported activity patterns are always verified. The chains, therefore the complete information concerning all destinations visited or trips made during the course of an excursion. When compared with the trips that have actually been reported by the respondents, this permits the non-reported trips to be quantified and corrected.
- Special studies are carried out with a combination of written (W), telephone (T), and possibly verbal (V) surveys and lead to inclusion of between 90 and 95% of the respondents sampled and permit the introduction of non-response corrections depending on the obtained response rate.
- The mobility behaviour of all children under the age of 6 is also determined by telephone (from parents) and directly added to the data base.

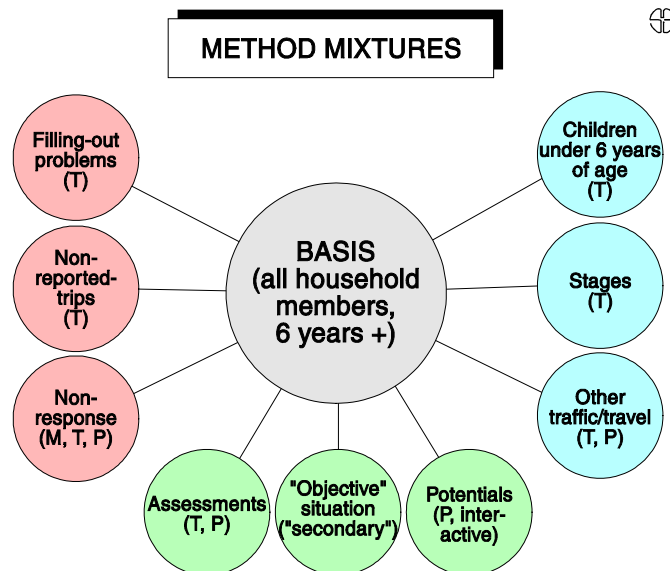
- All stages with all modes of transport used during a trip are - in the telephone follow-up explorations - separately determined (e.g. to/from the stop, to/from the car-park). For these stages, the duration and distance are established; and so too are the sequence of public means of transport and waiting/change times.
- The exploratory telephone calls are always made on the day of arrival of the written questionnaire.
- From case to case, any special information required concerning, for example, business-related transport, long-distance transport, parking behaviour, ticket usage, or shopping particularly in the city/town-centre (e.g. trip sequence, transport requirement, shopping expenditures, type of purchases) is obtained by telephone and/or personally.

Finally, in-depth personal interviews are also 'attached' as separate studies in order to determine reasons for mobility behaviour, to assess potentials for its change and to evaluate adequate measures in a qualitative and quantitative way:

- Assessments (e.g. attitudes, preferences, judgements) related to the topic area of mobility and town/city traffic.
- The subjective reasons which determine the mode choice of transport and possible change potentials (that are always determined in a trip-related way); here, it is also established whether the reasons are "individual" or very common ("customary").
- The "objective" circumstances and prevailing conditions; here it is also necessary to investigate the "objective" options "secondarily" (by means of schedules, street maps) for the concrete, obtained trip relationships with the used modes as well as with alternative modes and to include these in the data base.

Here especially developed techniques (interactive measurement methods) are applied as well as a behavioural model (situational approach) which is "tailor-made" for mobility matters.

The validation of the data comprises corrections of the non-response effect and non-reported trips, a sociodemographic weighting and correction of seasonal effects.



This provides all information required to explain behaviour and therefore be able to assess the prospects for changing it - depending on the measures. To do this, the so-called "situational approach" is used whose essential features and application possibilities have been summarized elsewhere.

5. CLIENT GUARANTEE

For the New KONTIV Design, the following client guarantee is provided which ensures the quality of the mobility data. (This list can also be used as a check-list for assessing the comparability of household surveys).

CLIENT - GUARANTEE



- SOCIALDATA Mobility Surveys with the New KONTIV-design -

<p>Response rate At least 70 %</p> <p>Follow-up explorations: At least 10 %</p> <p>Minimization of the no entry percentages</p> <p>Only random samples (no quotas etc.; and absolutely no proxies)</p>	<p>Only fully tested questionnaires</p> <p>Box size at least 4x4 mm; corresponding type size</p> <p>All questionnaires are "personally" inspected before data entry</p> <p>Strict observance of all data protection regulations</p> <p>Respondent-oriented designs (method mixture, differentiation according to sampling and analytic variables etc.)</p>
<p>Control and minimization of the non reported trips (NRT)</p> <p>Standardized correction of NRT, non-response, and season</p>	<p>(For verbal interviews) Strict separation according to scheduling and surveying</p>
<p>At least one call (for every home with a telephone)</p> <p>Direct explanation of all unclear points in the questionnaires</p> <p>Respondents can choose method</p> <p>All comments of the respondents are recorded and taken account of</p> <p>No telephone interview without advance notice</p>	<p>(For verbal interviews) At least 50 % field control</p>
	<p>"Open door" for our clients (as far as possible given legal data protection regulations)</p> <p>Provision of an electronical database (if agreed upon)</p> <p>Continual updating and utilization of a data bank concerning behaviour, attitudes, potentials</p>

6. PRACTICAL APPLICATION

Since the end of the eighties, 159 surveys (with over 265,000 respondents) have been carried out using the New KONTIV Design. These surveys meet the previously outlined requirements, achieved an average response rate of 80% in Germany, and were supplemented and validated by means of 29,000 follow-up telephone calls response rate: 96%).

MOBILITY BEHAVIOUR SURVEYS



	Number	BS Persons	Response rate %	Explo- rations	Response rates %	IS Persons	Response rates %
1988	4	9894	78	1006	87	1644	81
1989	9	20766	72	2443	90	3724	80
1990	19	33140	70	3901	96	3959	76
1991	19	31941	77	3631	94	2572	79
1992	30	54980	85	6700	97	8358	84
1993	7	10955	86	998	94	2042	79
1994	15	17347	86	2104	98	3057	81
1995	20	22851	86	2614	98	3280	79
1996	23	25088	83	3108	95	3817	81
1997	13	29503	81	2850	95	2234	87
1998	38	55497	79	3917	95	3488	83
1999	32	41132	82	3020	95	1293	81
Total	229	353094	80	36292	95	39468	81

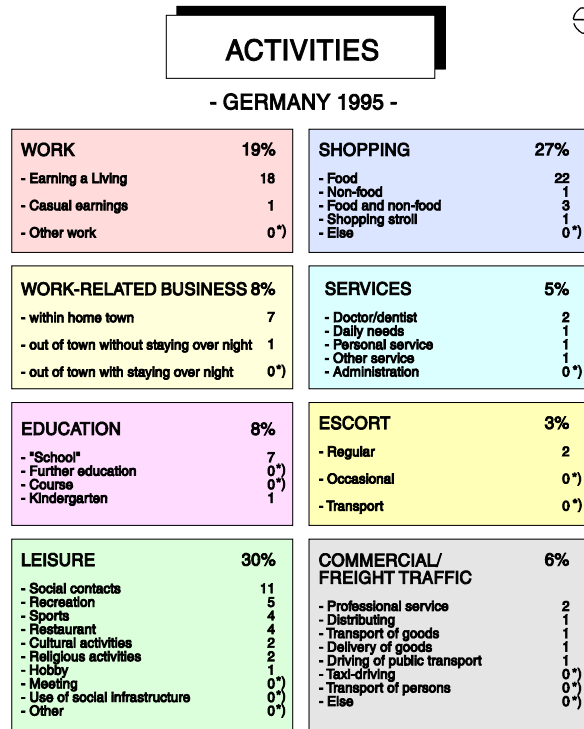
BS: behavioural survey

IS: in-depth survey

7. TWO EXAMPLES (RELEVANT FOR THIS CASE)

- Example (1): Activities

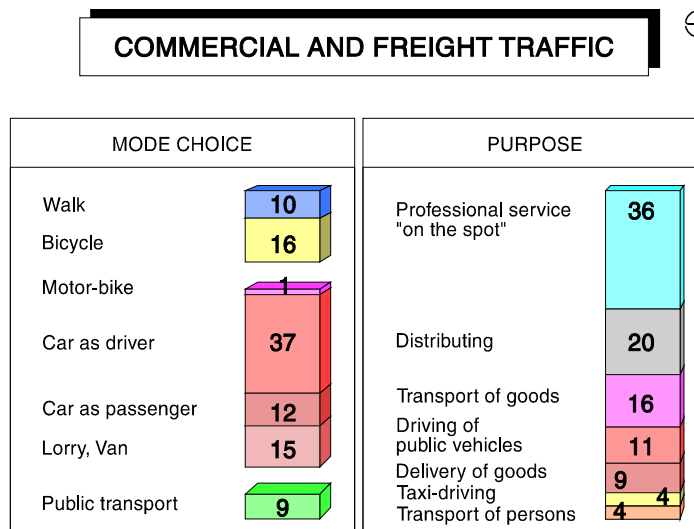
The graph illustrates the degree of detail that results of collecting information on activities via semi-structured questioning.



*) less than 0.5 %

- Example (2): Commercial and freight traffic

This example shows how incomplete information on commercial and freight traffic - usually a result of normal household surveys - can be completed via explorations.



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THE BEST OF TWO WORLDS: TOTAL DESIGN METHOD AND NEW KONTIV DESIGN AN OPERATIONAL MODEL TO IMPROVE RESPONDENT CO-OPERATION

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ABSTRACT

In 1999 a program was started at Statistics Netherlands to increase response rates for self-administered business surveys by improving the communication with the respondent. The traditional approaches based on simple communication strategies (one stimulus for all units at the same moment, classical reminder approaches using authority principles) do have serious problems with response time, net response and response quality. The goal of this program is to develop measures that change the traditional, formal and passive contact strategies into active, respondent-driven and motivational approaches.

In the past several measures have already been implemented, like a cognitive laboratory to improve the wording of advance letters and questionnaires, and a guide for forms design standards to improve the layout of letters and questionnaires.

This program is based on the philosophies of Dillman (Total Design Method) and Brög (New Kontiv Design). Where the NKD design allows for undefined respondent behaviour, the TDM approach is based on the more general standardised survey approach of well-defined respondent behaviour. In fact, both TDM and NKD are quite similar in their (respondent driven) paradigms, but quite different in their operational approach. And both have proven their benefits. Therefore the challenge is to create strategies and tactics that incorporate the best of both perspectives.

Key Words: response burden, business surveys, communication strategy

1. INTRODUCTION

Statistics Netherlands has carried out several projects on improving different parts of the communication strategies in self-administered establishment surveys¹. These projects are aimed at improving the quality of advance letters, the effects of active strategies on response time, reduction of reminder calls. The success of the New Kontiv Design in the Dutch Mobility Survey (see subsection 3.2), which is a household survey using an active, respondent-oriented communication strategy to raise the low response rates², triggered the idea of using similar approaches and tactics within establishment surveys.

Communication with respondents includes many closely interrelated aspects. One could put a lot of effort in the planning of the survey process, the sampling and the standardisation of the questionnaires, but if not enough attention is given to the position of the respondent, the form and design of the measurement instruments to be used and most of all what is needed to motivate the respondent, this could result in low response rates and a relatively high number of time-consuming reminder calls (Dillman, 1978; Brög, 1997; Moritz and Brög, 1999).

All these aspects should be incorporated in a sound communication strategy resulting in a consistent set of recommendations, procedures and instruments. The goal of an active respondent communication is twofold. First of all, seen from the respondent's point of view costs, time, effort and number of people involved have to be minimised. But seen from the point of view of our stakeholders and customers statistical information should be adequate, accurate, and delivered in time. It is clear that there is a tension between the customer demand and respondent's willingness. Therefore we have developed a respondent-oriented approach in which both interests are represented and balanced, based on the Total Design Method (Dillman, 1978) and the New Kontiv Design (Brög, 1997).

In this paper we present the outline of this respondent-oriented communication strategy for business surveys. This strategy is based upon the insights acquired from several projects in the area of establishment surveys in the past years, as well as the work done in the area of social surveys. In section 2 we give a short review on the assumptions of the traditional and modern respondent approaches in surveys. In section 3 we present some results of case studies on respondent-oriented communication. Based on these results, as well as the TDM and the NKD approach, in section 4 we give an outline of measures to be taken to improve survey participation in business surveys. In section 5 we present conclusions and some issues for further discussion.

* The views expressed in this paper are those of the authors and do not reflect the policies of Statistics Netherlands.

2. THE ASSUMPTIONS OF SURVEY DESIGN REVIEWED

Traditionally, survey design follows the 'one-size-fits-all' strategy, which means that one design is used with one instrument for the whole sample. This approach is based on the idea that in order to get comparable response over the units, the units should receive a standardised stimulus, i.e. a stimulus in which environmental factors are controlled for. Standardisation is central in the approach, not the respondent, and by the same token the orientation is on the process. The respondent in fact is a 'standard' respondent (who all can be approached in similar standardised ways without taking into account specific situations of the respondent) and who is sensitive towards authority. Elements of this passive approach are: mandatory participation, based on authority and tradition, one (usually) paper questionnaire for all providers, sent out at the same time, and no contact with the provider until the deadline has passed.

The 'one-size-fits-all' survey approach has been improved by the Total Design Method introduced by Dillman in 1978. The TDM approach is based on the premises of social exchange theory in which the compliance principle of reciprocity is used, and not the principle of authority (Groves, Cialdini and Couper, 1992). According to TDM, maximum response was believed to be generated by rewarding the respondent, reducing the costs for the respondent, and by establishing a relationship built on trust. This could be achieved by a coherent system using standardised, well-tested questionnaires, using an appropriate and user friendly design (including the design of the advance letters, brochures and other enclosures), based on carefully worded and respectful formulated requests and instructions. This approach was applied to both mail and telephone interviews. Although this approach is respondent driven, the basic assumption still was the 'one-size-fits-all' strategy.

In the modern situation, the survey organisation no longer is in the position to set the standards, but has to adapt to the requirements set by the environment. As a consequence for the survey organisation the focal point shifts from the survey process to the position and circumstances in which respondents respond, regardless in business or household surveys. Nowadays the general policy is on reducing response burden, actual and perceived as well, by minimising costs, time, effort and number of people involved. At the same time the behaviour of the respondent should be influenced in such a way to get an accurate response, i.e. to get all relevant data correctly in time. This means that the respondent becomes the focal point in the survey strategy, and especially the conditions under which the respondent has to provide information.

The respondent-oriented survey design has been developed by Brög in his New Kontiv Design (see e.g. Moritz and Brög, 1999). In his latest adjustment of the Total Design Method Dillman also focuses on the respondent in this way, still using 'TDM', but now referring to it as Tailored Design Method (Dillman, 2000). These approaches fit in nowadays generally accepted ideas about Total Quality Management (TQM). The basic principle of TQM is that the quality of the product or service is not only based on internal process control, but on control of all aspects that influence the outcome of a production process.

In order to get the best results, i.e. minimum respondent burden and maximum customer satisfaction, it is necessary to include different aspects of the survey organisation in the communication strategies. In the specific situation of communication strategies in business surveys, this means:

- Establish a relationship with providers on the basis of mutual respect and trust.
- Motivate them to participate by telling why their response is important and by rewarding their co-operation (using incentives). Also show that you, as a survey organisation, feel that their participation is important.
- Make partnerships with intermediate organisations like umbrella organisations, branch organisations and so on, whose interest in accurate statistical information in their field makes them receptive for motivating their members to provide information.
- Identify subgroups of providers. Use relevant information on conditions and circumstances of the respondent in order to tailor the survey design: customise questionnaires, ask questions that can be answered, pick the right moment of survey, offer the appropriate mode of collection.
- Ask only relevant information, i.e. information that is actually requested by customers, and ask this information only once for the specific time base of the survey³.

- At the same time invest in the use of registers instead of primary surveys.
- Give relevant feedback on the performance of the organisation (many users of statistical information in establishments are also providers of statistical information).

As for the output of the statistical process, quality of statistical information (survey estimates, figures, and so on) traditionally was defined in methodological terms, like reliability, validity, measurement error, sampling bias, and so on, in accordance with the 'one-size-fits-all' approach. Less attention was given to aspects like timeliness of information, consistency of data sources, comparability with other types of information, accessibility, and so on. The call for reduction of response burden comes together with questioning the necessity of certain types of information and requesting new sorts of information (primarily based on integration of existing information, using the high-end functionality of ICT). This change of perspective resulted in a more balanced set of quality indicators. Overlooking the general discussions in past years three at Statistics Netherlands, quality indicators can be distinguished which determine the overall quality of statistical information:

- Accuracy of the information; which means minimal mean square error in the statistical information. Or to put in a non-technical way: is the information plausible, valid and reliable?
- Timeliness of the statistical information, which means that information has to be available in time over the most recent events.
- Relevance of the statistical information, which simply means that information has to be of any value for customers or users.

With respect to the accuracy of the information, the existing standard statistical procedures, methods and models, such as random sampling and multivariate estimation procedures are applied to ensure minimal mean square error. Nevertheless, some assumptions underpinning the general practices are being questioned here. The basic question in surveys is whether stimuli, varying according to specific circumstances of a respondent can generate the desired same response? Or to put it in another way: Is it necessary to treat every respondent with the same procedure(s) and instruments, in order to minimise response error? Or is response error a consequence of neglecting the specific circumstances in which respondents have to answer questions? During the 1970's research was initiated to increase the validity of survey data, resulting in the CASM movement (Cognitive Aspects of Survey Methodology; Jabine, et al., 1984; Hippler, et al., 1987). Nowadays insight has grown that adapting questionnaires (wording of questions, instructions) and interview strategies (clear description of interviewer and/or respondent roles) to specific circumstances in which respondents have to answer questions will lead to better survey results (Tanur, 1992; Morton-Williams, 1993; Sudman, et al., 1996; Groves and Couper, 1998; Dillman, 1999; Sirken, et al., 1999).

Plausibility of statistical information refers to the external validity of the information. Especially the consistency of time-series is of great importance. Macro-economic figures may vary substantially over time. Whenever a major change in these figures occurs, there has to be a plausible explanation. If the researcher fails to find an explanation, this might be an indication for errors or failures in data-collection, -entry or -analysis. Non-response, in particular non-response that varies over time and over subgroups (resulting in selective response), complicates assessing the plausibility of statistical information.

Timeliness of information is very important. Practically every customer satisfaction survey on the quality of statistical information refers to timeliness as one of the most important dimensions. Statistics Netherlands uses the so-called one-to-one rule, which means that statistical information has to be published within the time period following the time period in which the survey took place. For example, figures from a monthly survey in month T have to be published in month T+1, figures from a quarterly survey in quarter T have to be published in quarter T+1, and so on. Questionnaires that are received after closing dates of surveys are processed in a later stage (publication of definite figures), or not processed at all. Sending in questionnaires too late cannot be considered as refusal or as non-response because the respondent did neither refuse nor not respond. Nevertheless, their response behaviour has a negative effect on the quality of statistical information.

It is merely stating the obvious that statistical information has to be of any relevance for customers or users. In many countries at least the national statistical institutes (NSI) have some form of programming, which prevents collection and dissemination of irrelevant information. For purposes of fine tuning, ongoing customer satisfaction surveys, focus groups with stakeholders and shareholders, and last but not least analysis of general trends and developments generate the necessary specifications for concepts, definitions and variables (Kavaliunas & Luppés, 1998).

High response rates have a positive effect on these quality indicators. Accuracy of information is improved by smaller variances and, given valid instruments and procedures, minimal bias. Timeliness of information is improved because more response is received within the same units of time. The basis of high response rates in establishment surveys is an efficient and active communication with providers of information⁴, which takes in account the specific circumstances of the provider and its organisation.

3. CASE STUDIES OF RESPONDENT-ORIENTED COMMUNICATION

3.1. Introduction

Respondent-oriented communication targets three dimensions of response, as we have pointed out in section 2. First of all, the response rate. This is influenced by the way requests to participate are made. Furthermore, in order to be of any use for users, it is necessary to get information in time, which means the communication strategy also should optimise, or to be more precise, reduce the response time (time between sending out the questionnaire and receiving it back). This aspect is related to the timeliness of information. The third dimension is the accuracy of information, in which non-sampling error plays an important role (validity, and selectivity of response). All aspects of the means and ways of communication with the respondent are reflected in the communication strategy and there is just one moment in time where the respondent decides whether or not to participate. Given the fact that non-response varies over subgroups of the population, mixed modes of contact strategies and questionnaires are ways of minimising non-response in subgroups. However, costs of data collection will rise. As pointed out by Groves (1989) it will help if we know which arguments respondents use whether or not to participate. These arguments can help the survey organisation not only to redefine data-collection procedures for subsequent surveys, but will also help to adjust the non-response error: "...realistic models for statistical adjustment and survey administration require theories of survey participation." (ibid. p. 237).

In several projects carried out at Statistics Netherlands different theories or ideas with respect to human behaviour related to survey participation were addressed. Business surveys differ from household survey with respect to sampling error due to substantial coverage problems, very skewed distributions within the target populations and volatile units as well as to non-sampling error, e.g. as a result of accessibility to relevant archives (Cox and Chinnappa, 1995). However, we believe that the non-response problem in business surveys can be described and analysed with the very same theories on survey participation as used in household surveys. In business surveys, like in household surveys (Snijkers, et al., 1999), it is people that have to be persuaded to participate in the survey, and it is people that read the advance letter and have to fill out the questionnaire. When these parts of the communication are not optimised (e.g. refusal conversion by addressing the right person, personalisation of the letter, and overcoming cognitive difficulties with questionnaires), a refusal to participate or to complete the questionnaire is more likely to occur (Luppés, 1998).

In this section we will give an outline of the first approaches in this field. The outline starts with a description of a project on the Dutch Mobility Survey, which is a household survey. The results of that project triggered the rethinking of the communication procedures in business surveys, although before this project already some initiatives were undertaken in business surveys. In this context it should be mentioned that in 1992 the Questionnaire Lab was founded for cognitive testing of questionnaires (Snijkers, 1997).

3.2. Project 'Improving response rate in the Mobility Survey' (1997)

Respondent-oriented communication attracts more and more attention. At Statistics Netherlands a major impulse came from the redesign of the Dutch Mobility Survey on the basis of the New Kontiv Design (NKD), developed by Socialdata from Munich, Germany (Brög, 1997). The Mobility Survey is a survey amongst 60.000 households. The redesign was necessary because response rates dropped from a little over 50% in 1985 to about 35% in 1998 (Moritz

and Brög, 1999). The basic philosophy in the NKD is that the respondent has to be regarded as a customer, to which interviewers have to adapt all their communication in stead of the other way round. In 1997 a controlled field experiment based on the NKD design was conducted in order to establish whether a significant response improvement could be achieved. This was the case, in the experiment the response rate in the NKD sample (n=1000) was 74%, while in the control sample based on the standard Mobility design the response was 44% (n=1032).

The NKD is set up as a PAPI survey (self-completion diaries), with a telephone motivation of respondents and (possible) subsequent follow-up surveys for more detailed data in subgroups. An important advantage of this PAPI approach is that this mode of collection imposes low burden upon on the respondent. The respondents are called shortly after they have received the survey material and are motivated to fill out the questionnaire and diaries. One important feature of the strategy is this motivation call. The telephone is not used to carry out the survey, but merely as an instrument to motivate the respondents.

The questionnaire itself is kept as user friendly as possible, which means as simple as possible. Basically, respondents may answer the questions in their own words, and only clearly defined and understandable categories for mode and purpose of trips are given. Pre-coded answers, explanations or definitions in the questionnaire may lead to confusion, so the design aims to put the burden of investigation on the survey organisation itself, rather than on the respondent. If the data from questionnaires are incomplete or require some clarification, additional data and information is collected by telephone. The same considerations, partially structured questions and graphically well designed (i.e. comprehensible and readable), apply to the diaries used. The basic idea behind the diary design is to obtain all information concerning the out-of-home activities, and not only those activities predefined by the researcher. This leads to a quite open structure.

3.3. Project ‘Improving Advance Letters of 41 Business Surveys on Annual Production’ (1996)

Advance letters are a quite common feature of surveys and as such Statistics Netherlands uses the standard policy of always sending an advance letters in order to alert the provider or respondent of the upcoming call, questionnaire or interview. The quality of advance letters is often discussed, but the lack of an appropriate theory and models lead to subjective decisions, merely based on what is considered to be appropriate. Based on the work of Cialdini (1990) and Groves, Cialdini and Couper (1992) on the compliance principles⁵ underpinning requests to participate in a survey, an analytical tool was developed for content analysis of advance letters (Luppés, 1995). This tool makes it possible to describe the information content of an advance letter in relation with the psychological principles, used to convince the respondent.

This tool was applied in a (not published) internal study on the quality of 41 different advance letters used in Annual Establishment Production Surveys. The content analysis on these letters, performed by three independent coders, gave the following results and recommendations:

1. The enormous difference in length of the advance letters is not explained by the necessity to provide additional information that could help the provider to make a better decision. On the contrary, the great amount of information, addressing definitions and detailed explanations about the survey in the longer letters probably causes confusion in stead of clarity. Extra information should be given in enclosures, not in the letter. Especially, subtle differences in dealing with anonymity and confidentiality may cause diffusion (Luppés, 1994).
2. In most letters a telephone number is given to get more information about the survey, but only in 22 out of 41 letters a name of a contact person is given. Personalised contacts are more effective in case of providing extra information about the survey.
3. In 31 of the 41 letters no information is given about the survey-organisation (Statistics Netherlands). In 11 of the 41 letters anonymity and confidentiality is not mentioned, i.e. addressing any guarantee or responsibility on the side of the survey organisation? Information on the benefits of the survey is given in only 9 of the 41 letters. In only 17 of the 41 letters some general information is given about the influence which survey results might have on government policy. Practically all letters address the costs of the survey in terms of information requested, the deadlines to be met and other direct costs (free mail back envelopes and so on). No letter fully

informed the respondent on basic issues such as the goal of the survey, the survey organisation, the costs and benefits and the issue of anonymity and confidentiality (including informed consent issues).

3.4. Project ‘Provider-Oriented Communication in Survey on Finances of Enterprises’ (1998)

In the Survey on Finances of Non-financial Enterprises (SFE) the traditional field strategy was subject of a study on more effective ways of communication with the providers. The SFE is an annual survey on a stratified sample of enterprises with a balance sheet total of more than 25 million Dutch guilders⁶. Although response rates in the SFE are quite high (it is a compulsory survey), response time periods are quite long, many reminder calls have to be made, as well as a substantial number of calls for clarification (accuracy problems). It was hypothesised that the traditional, passive strategy of communication caused the high number of reminder calls and the long response time periods. A qualitative study was set up to investigate the following hypothesis (Oppeneer and Luppés, 1998):

Positive attention towards the provider, as expressed in (1) the advance letter based on the principle of reciprocity, (2) the moment of sending out the questionnaire depending on availability of information (annual reports of the enterprises), combined with (3) an active reminder strategy, will lead to shorter response time periods and a drop in the number of reminder calls.

A combined research strategy was used in which information of several sources was analysed:

1. quantitative description of response rates and response time per stratum;
2. content analysis of advance letters based on an adaptation of the model described in Luppés (1995);
3. focus groups with internal staff and field staff on issues of participation (especially their perception of reasons why providers would participate or not);
4. telephone interview with providers based on the results of the focus groups (their information was used to construct a topic list with respect to reasons of participation and non-participation).

Although a definite correlation between response times, number of reminder calls and the communication strategy not could be established, the qualitative data in the study point out that changing the passive communication strategy into an active one will lead to reduction of response times and the number of reminder calls. In short, the active strategy should at least consist of:

- Well formulated advance letters, in which relevant information is given on the survey (purpose, costs, benefits and time to fill out the questionnaire) and which gives the provider the feeling that he or she is important for the survey. Also thoughtful use of compliance principles is helpful in motivating the provider.
- The moment of sending out the questionnaire should be related with the availability of information. In many cases providers do not have information available from the annual accounts when they receive the questionnaire. This means that the survey organisation has to keep track of the dates when enterprises have the information available, and that the questionnaire should be sent at that moment.
- Given the fact that many enterprises are in a panel, it is helpful to use a provider’s profile in which relevant dates and information is registered which helps to customise the complete communication strategy. In fact, use databased communication approaches to optimise the communication (Luppés, 1998).

3.5. Project ‘An efficient Reminder Strategy in Business Surveys on Commercial Services’ (1998)

In a qualitative study (Cörvers, 1998) on improving the reminder strategy in the Surveys on Commercial Services, concepts as developed in the New Kontiv Design (see project 1) and the Total Design Method were used to formulate some standards and rules for improving response rates. The reasons for this study were the relatively low response rates in these surveys, which only could be raised to an acceptable level by an extensive number of costly and time-consuming reminder calls, letters and duplicates of the questionnaires. The study came with the following recommendations for improving the efficiency of reminder strategy:

1. Start with questionnaires which are simple to fill out, look attractive and use concepts and questions which are recognised and used by the providers.
2. Reduce the number of written reminders and using more reminders by telephone. High costs of more frequent use of the telephone can outweigh the strategy of reminder letters. On the other hand reminder letters are less effective.
3. Personalise the contacts between the provider and the staff of the survey organisation as much as possible. Reducing the psychological distance (i.e. establishing a relation of trust) is also possible by collecting data in a joint venture with the branch organisations. The benefits from this joint venture make the survey more important for the providers.
4. Use an active reminder strategy in which a frequent and regular contact with providers is established. Also the quality of the contact should be high, which implies continuous training of field staff.
5. Make it clear that in the case of compulsory surveys filling out the questionnaire and sending it back in time is a legal requirement. In itself, using this statement in the communication leads to higher response rates (Paxson, Dillman and Tarnai, 1995). However, the effectiveness of this authority principle is questioned in Oppeneer and Luppés (1998).

3.6. Project 'Redesign of the Annual Establishment Production Survey' (1999-2000)

Statistics Netherlands started late 1998 with a major redesign of the Annual Establishment Production Surveys. In this redesign of over 130 surveys the input, the throughput and the output process are integrated into one survey, using standardised and harmonised questionnaires, consistent data collection strategies and macro-editing procedures. The redesign was triggered by the growing dissatisfaction with the relatively low response rates, the accuracy and the coherence of statistical information. Early 1999 an extensive inventory was made of customer demands, using focus groups amongst stakeholders and regular customers, as well as desk research. Based on these findings, early 2000 the questionnaire has been redesigned and cognitively tested in 5 focus groups with providers.

However, it is a hard job to organise focus groups with establishments. First of all, it is difficult to find the right person (i.e. the person who has filled out questionnaires before), and secondly it is not easy to make an appointment. We have about 20% response for recruitment; and from those who said that they would come, only about half actually shows up. Although the groups were small (about 4 people per group), the results were clear (and in accordance with earlier results; Snijkers, 1997):

- The advance letter did not give an answer to all questions the providers had about the survey. E.g., the letter did not tell why the survey was conducted and what the data are used for. They would appreciate it, if some results of the survey would be sent back to them (feedback of results).
- In the former survey, the questionnaire was sent out at the wrong moment (March), as the providers pointed out. The requested data are available in June. At that time they also have the time to fill out the questionnaire.
- In the former questionnaire, a lot of detailed information was asked for, which was too time-consuming to provide. These items were left open, making a lot of follow-up phone calls necessary and probably resulting in item non-response. The items on the new questionnaire could be provided more easily.
- The ordering of some items on the new questionnaire was not in accordance with the administration of some businesses. For these businesses, a lot of effort was needed to come up with the requested data. Others had no problems with the ordering. In this way subgroups of providers can be identified.
- Many providers complained that they received a lot of questionnaires every year. And, as they pointed out, they have another job than filling out forms. What is even worse, they had to provide the same kind of information with several surveys. They were not impressed by the mere fact that the surveys are mandatory.
- At the beginning of the discussion, the providers were a little sceptical about the goal of the discussion (improving the questionnaire), but afterwards they felt that it had been very useful both for them and Statistics Netherlands. They got to know Statistics Netherlands a little better.

4. MEASURES TO IMPROVE RESPONDENT CO-OPERATION

Given the results of the case studies described in section 3, and taking into account the features of the Total Design Method and the New Kontiv Design, we define a number of measures that can be taken in order to improve survey participation in business surveys. We present this list of measures (that may not be complete) within the design phase of the survey and data collection phase.

Design phase:

- *Contact person:*

Make a strong effort to find the right contact person within each business, i.e. the person who has access to the requested information and is authorised to provide that information. Use all information available on past response behaviour and availability of information within the establishment to customise and personalise the communication. Databases with provider profiles form the basis for effective communication. It goes without saying that properly defining the target population and picking the sample is the first step.

- *Advance letter:*

- Always use a personalised advance letter, well formulated and using the right tone (give the respondent the feeling that he/she is important).
- Make it: clear and short; attractive to look at and well designed, without typing errors; the tone should be stimulating and motivating to participate; and the usage of language should be neutral and non-directive without official jargon.
- The letter should contain information on: the survey organisation; the survey (what is it about, who is requested to participate and the actual request to participate, including liability); why it is important to participate, the costs and benefits of participation; the issue of anonymity and confidentiality (including informed consent issues); who to contact in case of questions, like name and telephone number (personalisation of contact).
- Put additional information on the survey in extra enclosures: more information on what the survey is about and what the data are used for.

- *The questionnaire:*

- Only ask for relevant information that is requested by customers and that cannot be collected in another way, like primary data collection using Electronic Data Interchange (EDI) within the business administration and secondary data collection using registers.
- Only use tested and well-designed questionnaires (Dillman, 1999; Jenkins and Dillman, 1997) that are user-friendly, simple to fill out, without complex routing, easy to understand regarding wording of questions and instructions, and that look attractive.
- Use questionnaires that are tailored to subgroups. Ask each subgroup only for the information that they are able to provide. If necessary use follow-up questionnaires.

- *Mixed mode design:*

- Use a mixed mode design, in which the provider can choose the way he prefers most to send in the information, e.g. EDI, paper forms, by phone, by fax, by the Internet, or in a non-standardised way by allowing respondents to send in reports, etc. containing the requested information.
- Only use well-tested data collection procedures and instructions.

Data collection (fieldwork):

- **Sending out the questionnaires:**

- Send out the advance letter and questionnaire just in time, i.e. at the moment when the requested information is available and the respondent has the time to provide that information. Because many establishments participate in panel surveys information should be available which helps determine the best moment of surveying the unit. As basic rule for every unit, the availability of annual reports should be recorded in the provider profile, together with past response behaviour.

- Motivate the provider to participate by using incentives and by making personal contact at an early stage. Make a phone call to the provider immediately after the form has been sent out in order to motivate him (giving him no chance to say ‘no’ by making an appointment about when the data can be expected), to show the respondent that the survey and his participation is considered important, and to maintain interaction with the respondent (building a relationship). This is essential with regard to providers who are known to send in late, and when their data are essential to the survey (e.g. large enterprises in case of a survey on volume of trade).
- Try to get the data back as soon as possible, after the questionnaire has been sent out. This is especially important for establishments that are essential within the survey. This makes publication of accurate estimates at an early stage possible.
- **Reminding and maintaining interaction (follow up):**
 - Use the phone to collect missing data (reducing item non-response), immediately after the form has been returned. Use e-mail in stead of the phone, if providers prefer to communicate by e-mail. Although there is little known about the real effects of using e-mail on response behaviour, it is generally accepted that e-mail is a very efficient means of information exchange.
 - As for reminding (reducing unit non-response), switch modes: use e.g. the phone, fax or Internet in stead of mail as a first reminder. This will remind late providers more effectively to send in the requested information. Using a tailored communication strategy based upon a provider profile (using all information that is known about the provider in the phone call) will increase effectiveness of the reminder strategy. In general elapsed time between two contacts should not be too long, but the moment of the follow up contact should always be part of the appointments made.
 - In order to maintain interaction and to build up a relation of trust and respect, sending back results from the survey to providers will help, preferably information that is of use to the individual provider (e.g. branch information in his region, or benchmark information). This is especially important in case of panel surveys.

5. CONCLUSIONS

We started with a discussion on the position of providers of information and customers of that information in relation to the survey organisation in past and at present times. We have seen that in the modern society the survey organisation no longer is in a position to impose on providers what to do and on customers what to expect as statistical products. The ‘one-size-fits-all’ approach no longer holds, both for the input and for the output of the statistical process. Dillman’s Total Design Method and Brög’s New Kontiv Design have improved this approach at the input side of the survey process. Nowadays, the organisation has to adapt to input and output demands, making a ‘mixed-mode’ approach necessary. These demands are:

- Input: reduced respondent burden and increased response rates.
- Output: increased timeliness and accuracy of relevant statistical information.

Of course, also internal demands with regard to the throughput can be put forward, such as efficient use of statistical modelling, applying efficient sampling, stratification and weighting, and using other techniques to speed up the production process, e.g. macro-editing and OCR (Optical Character Recognition). As for the input and output goals, we feel that the demands can be achieved by using an active, respondent-driven and tailored communication strategy.

The respondent-oriented approach implies optimisation of the communication by using customised or tailored questionnaires and contact strategies, based on the specific conditions and circumstances of the respondent. Basically this comes down to asking the *right person* (the person who has access to the requested information and is

authorised to provide that information) the *right information* (the data that are really needed, nothing less and nothing more) at the *right moment* (when the data are available and the contact person has the time to fill out the questionnaire) with the *right mode* (the mode that is most appealing to the respondent).

However, implementation of an active, provider-oriented communication is not without consequence for the survey organisation. Apart from rising costs, and without being complete, these consequences are:

- Homogenous subgroups of providers should be identified in advance on the basis of information about what questionnaire to send at what moment, the preferred interviewing mode, their importance within the survey, and so on. This enables specific communication towards specific subgroups and optimises .
- A contact administration at the level of the provider is necessary, keeping track of all contacts with all contact persons.
- A facility for testing questionnaires and data-collection modes should be present in order to optimise for questions, procedures and instructions.
- Mixed mode designs makes the statistical process much more complex since parallel processes have to be developed and thus making a detailed planning of the statistical process and co-ordination of logistics necessary. It also has consequences for the type of statistical models used.
- A call-centre is needed, staffed by enthusiastic employees who are well trained in handling different types of verbal communication strategies.

But above all, we would like to stress that bringing a respondent-oriented approach into practice is more than only adapting tools and procedures. In order to be effective, the internal culture of the survey organisation should reflect the values of the modern society. Staff not only has to be trained in the use of new tools and procedures, but also in the principles of bilateral human (interviewer-respondent) interaction, in which the special relationship between a survey organisation and the respondent is reflected. Therefore, we firmly believe that success will come to that organisation that best determines the perceptions, needs and wants of the sample population and minimises response burden through the design, delivery, and communication of appropriate and comprehensible requests.

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NOTES

- ¹ A communication strategy in general sense is defined as performing activities and using appropriate means, necessary within a survey to get an accurate response from a respondent within a predetermined time.
- ² In the Netherlands, non-response is a major problem in survey research, both in household surveys and business surveys. Although business surveys are compulsory, the response rates of these surveys are considered to be too low. For example, the response rates of Annual Establishment Production Surveys (including number of employees, turnover, revenues and costs) vary between 50 and 85%. Low response rates do not only increase confidence intervals, which could lead to rather meaningless point estimates, but also causes non-response bias in the estimates (Groves, 1989; Groves and Couper, 1998). Furthermore, the response time, i.e. the time between sending out and receiving filled-out questionnaires is quite long which effects the timeliness of the statistical information.
- ³ In establishment surveys double questionnaires and/or overlap in questions do occur. The complaint of many of our providers of information is one of the reasons to reorganise the statistical processes of Statistics Netherlands.
- ⁴ In the case of establishment surveys we prefer to speak of providers of information instead of respondents. The providers are the actual persons providing the information whereas the respondent is the business unit or establishment on which data are collected.
- ⁵ Groves, Cialdini and Couper (1992) describe six compliance principles which can be used in the request to participate in a survey. Of these six principles the compliance principle of authority (compliance based on power difference) and the compliance principle of reciprocity (based on mutual exchange of values) are probably most common to be found in advance letters.
- ⁶ Information on small enterprises is collected on basis of tax registers.