Developing Methods for Assessing Perceived Response Burden

Edited by

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Contents

Preface

In recent years increasing attention has been paid to response burden in statistical business surveys. In many countries there is increasing political concern about the costs of response burden to businesses. Methodologists are also concerned with response burden as a survey quality issue under the natural assumption of a negative correlation between burden and quality.

Response burden has generally in the past been equated with response time. However, response burden *as perceived by respondents* is not determined by response time alone. The UK Office for National Statistics (ONS), Statistics Norway and Statistics Sweden have been working together on this project entitled 'Developing methods for assessing perceived response burden', which is part of Leadership Group (LEG) on Quality Implementation. The project has been partly funded by Eurostat (ESTAT 200292501005).

The project aimed to understand what constitutes perceived response burden and produce an evidence-based set of guidelines for assessing and reducing perceived response burden. The focus of the project was on business surveys, where little research has previously been undertaken. Response burden has in the past been discussed mainly in the context of social surveys. Although much of what applies to household surveys can be applied to business surveys, they should not be considered the same and research focusing on business surveys is needed.

This report consists of six parts. Each part starts with an introduction followed by contributions. In addition these contributors many other people have been involved in this project. In every large, multi-site project many people are involved and it would not be possible to mention everybody who has contributed. However, we do want to gratefully acknowledge the contributions of the following persons:

Helena Bäckström, Ing-Mari Boynton, Johan Erikson, Leopold Granquist, Sara Hoff, and Helen Wahlström of Statistics Sweden; Yngve Bergstrøm, Nils Håvard Lund, Elisabeth Gulløy, Øyvin Kleven, Kristian Lønø, and Mari Sandelien of Statistics Norway; Sian Bourne, Catherine Davies, Geoff Hutchings, Steven Marsh, James Rushbrooke, and Amanda Wilmot of the UK Office for National Statistics; and Martin Karlberg, Statistics Sweden up to September 2003, now Eurostat.

Part 1

A Literature Review of

Perceived Response Burden

1.1 Introduction to Part 1

James Rushbrooke, Sian Bourne, Steven Marsh, and Geoff Hutchings, the UK Office for National Statistics

The objectives of this literature review of perceived response burden and related areas are to provide a background to work previously undertaken in this area. The review offers a comprehensive account of the key contributions made to the field. The contents centre on the overall topic of response burden and only a minor amount of the review concerns that of business response burden. This is largely due to the fact that there has only been limited work undertaken for business surveys.

Current practices from National Statistical Institutions (NSIs) are detailed on a range of common themes in section 1.2. This information was partly collected via a direct request to specific NSIs. The common themes, for example, include information on the way various NSIs calculate response burden and the follow up actions for non-response.

Section 1.3 brings together the various models (see Bradburn 1979, Willeboordse 1998a, Haraldsen 2002 and 2004, Fisher and Kydoniefs 2001), which attempt to map the areas and processes involved in perceived response burden.

A key aspect of perceived response burden is that of survey design. Section 1.4 includes a broad range of topics that come under this generic heading. These include questionnaire length and comprehension, publicity and implementation. Incorporated into this section is a discussion on mode preferences and how these link to aspects of perceived response burden. The modes of data collection covered are as follows: self-completion, automated telephone entry, face to face interviews and web based data collection.

An area of response burden which is explored in section 1.5 is respondent burden. This area of response burden focuses on the individual attributes of respondents which may impact on survey completion. Cognitive response models are explored (see Tourangeau 1984; Sudman, Willimack, Nichols, and Mesenbourg 2000; Willimack and Nichols 2001) as part of the literature on respondent burden. The research conducted in this area is especially relevant as more recent contributions to this field have specifically focused on business surveys. The remaining areas covered in this section include, response attitudes, topic saliency and demographic differences in perceived response burden.

Finally, section 1.6 focuses on monetary incentives in surveys. This includes influence on response burden and the use of incentives in government surveys. The research on monetary incentives may be of limited relevance to business surveys. However, the practice of feeding back survey results is highly appreciated by respondents, in particular if the results allow the respondent to compare his own business with, for example the median within the industry. There is little literature on the effects of feedback to business survey respondents.

The extent to which this research is relevant to business surveys is unclear. This is a reflection of the vacuum that exists in this research area. An understanding of the issues in the context of other survey fields provides guidance to future research into perceived response burden and business surveys. This ensures that the project work covers all the relevant areas in this field, is systematic and is grounded by a review of the literature.

1.2 How NSIs Measure Response Burden

1.2.1 Introduction

In section 1.2.2 information that was supplied by National Statistical Institutes (NSIs) to the Office for National Statistics is discussed. This information was provided in response to a letter (Appendix 1.A) from the ONS. The letter requested internal NSI documentation on how response burden is currently researched, measured, and for relevant literature references on response burden. The letter was sent by e-mail to U.S. Bureau of the Census, Australian Bureau of Statistics, Statistics France, and Statistics Finland. Also included is a summary of the information that Statistics Canada and Statistics Sweden sent to the ONS before the ONS request was dispatched. An overview of the calculation of response burden from the Ministry of Economic Development (New Zealand) is also provided.

In summary, the common themes examined in section 1.2 are:

1. **Calculation of response burden**
2. **Measures taken to diminish or control burden**
3. **Follow up action for non-response**
4. **Factors that affect the response rates.**
   - Time taken
   - Difficulty in providing the data
   - Understanding the questionnaire questions, concepts and instructions
5. **Future plans to deal with compliance burden.**

1.2.2 NSI Response to the ONS letter and calculation of response burden

1.2.2.1 Calculation of response burden

Australian Bureau of Statistics

Business survey questionnaires issued by the Australian Bureau of Statistics (ABS) ask for the time taken for the respondents to complete the questionnaire (Burnside, personal communication 2003). The wording of this question is as follows:

Please provide an estimate of the time taken to complete this form

Including
- The time actually spent reading the instructions, working on the questions and obtaining the information
- The time spent by all employees in collecting and providing this information.

☐☐ hrs ☐☐ mins

Using this information, the formula for calculating the response burden is:

Provider Load (i.e. response burden)	=	returned (completed) forms	x	average time to complete the form

The average time to complete each particular questionnaire is the mean average of all respondents, allowing for the editing of extreme outliers for the 'completion time' question. This mean time is not amended to allow for the recontact rate because of the difficulty in estimating this figure.

The ABS does not use a monetary figure to represent the burden placed on business. This is due to the possibility of compensation requests and it is considered too impractical to implement.

The Australian Statistical Co-ordination Section is concerned with the burden placed on businesses by other Australian government surveys (not specifically those of the ABS). The Australian Statistical Co-ordination Section calculates the cost of the survey before the questionnaires are despatched and is based on the following formula:

Cost of the survey	=	Sample size	**x**	Expected response rate	**x**	Expected time to complete

Statistics Canada

The information from Statistics Canada was obtained from a report written by W. Baxter (2003). Baxter's report presented *"an overview of the burden imposed on Canadian businesses as a result of Statistics Canada surveys"* (2003:4). The calculation of response burden is not given as a monetary cost estimate; instead it is presented as a number of hours. Baxter (2003) stated that the response burden placed on business for 2001 was 746,056 hours.

Statistics Canada makes two measures of compliance costs:

(1) Potential Costs - the burden imposed on all businesses sampled whether they respond or not, and
(2) Actual costs - the actual burden of all responders to the surveys. The cost burden of the 200 or so Canadian business surveys is presented to the Canadian senior management.

Baxter's report (2003) covers all surveys and comments on individual survey plans to reduce the burden imposed on business. However, Statistics Canada recognise that their method could be improved in the following areas:

- their data excludes 'special'/ad hoc/ cost recovery business
- re-contacting the respondents in order to validate or clarify data is not usually a factor taken into account by their measure of response burden.

Baxter (2003) suggests that it would be interesting to establish whether respondents who are re-contacted by the survey team, perceive the response burden to be greater than those respondents who are not re-contacted.

Statistics Finland

The measurement of response burden is undertaken indirectly by Statistics Finland through monitoring the non-response to a survey (Laiho, personal communication 2003). This data is obtained by using:

1 An interviewer feedback system (some check questions and questions about the interview); this is conducted separately using computer assisted telephone interviews.
2 A respondent feedback system.
3 Refusal feedback in computer assisted telephone interview surveys.

This information is also obtained by studying interview duration, length of questionnaires, co-operation in panel surveys (survey attrition), and item non-response. Statistics Finland define response burden as:

> *"the time it takes the respondent to complete the survey questionnaire plus the time spent for extracting data from the business files"* (Teikari 2002:609*).*
>
> *"To avoid the accumulation of response burden in simultaneous and longitudinal business surveys, special techniques can be applied. This is achieved by coordinated sampling and by attaching accumulated response burden markers to the enterprises in the sampling frame"* (Teikari 2002: 609-610*).*

Statistics Finland uses a coordinated sampling system called OTKO. It is based on the use of permanent random numbers (PRN's) and

"remits various sampling designs, including Poisson Mixture (PoMix) sampling. Each unit is given the response index 100 when it comes into the frame, and every questionnaire reduces this index. When it falls below a fixed level the unit is removed from the frame for a time, and when it is reintroduced as a new unit it receives the response index 100 again" (Teikari 2002: 610).

Statistics Finland regard response burden as comprising of three main parts:

1. The response obligation
2. The response load
3. Inclusion probability

Parts (2) and (3) together form the expected response burden – this must not exceed the response obligation.

Statistics Finland suggest that response burden arises from the need for statistical information about finite populations, and that the demand for this information for the purposes of business surveys has grown rapidly in recent times. Teikari states that:

"To create the necessary conditions for business operations, data are needed; but the gathering of such data creates a response burden for those businesses which are included in the survey. Reducing this response burden requires a proper survey program. In planning a survey programme, the response burden should always be considered. The request for survey data should be matched to bookkeeping practices so that replying to the questionnaire will not take up too much time. The questions must be comprehensible and the number of questions should not be greater than is needed" (2002: 610-611).

Administrative data should be used as much as possible to try to reduce the response burden placed on businesses. This is because the completion of questionnaires is not the most expensive aspect of burden; instead, this concerns the maintenance of an information system used to obtain the data required for the survey. Consequently, the response burden is greatest on small businesses because they may lack the sophisticated accounting systems needed to produce the required data.

If the time it takes to complete the form and the time required to collate background information are equal, then the task of the respondent is to find out appropriate information and to put it on the questionnaire. If there were differences in concepts then the respondent would have to make adjustments and interpretations that take considerable gathering time. Such additional efforts increase the time it takes to collate the required data and thus increase the response burden.

Office for National Statistics

The questionnaires issued by the Office for National Statistics (ONS) often include a voluntary question asking respondents to report how long it takes to complete the questionnaire (Coyle, 2002a and 2002b). The wording of such a question varies between surveys, however an example is as follows:

TIME TAKEN TO COMPLETE SECTIONS 2 TO 8

(over and above normal accounting operation)

This question is voluntary

(a) Number of hours | | | | | hrs

Plus

(b) Number of minutes | | | | | mins

For each type of business the ONS uses the median to represent the average amount of time spent by the respondents completing the survey questionnaire. An additional time burden can be imposed on respondents by asking them to supply extra information or to clarify the data returned on their questionnaire. This is known as the 'recontact rate' and is identified for each ONS survey. The resultant time is multiplied by an hourly charge rate to calculate the total costs incurred by the respondent. The hourly charge rate is decided by determining the status of the person completing the questionnaire (e.g. director, senior manager, middle manger, junior manager or clerical grade). The type of respondent contact for each type of business is identified by a triennial or quinquennial review. The hourly cost of each grade is updated annually using the ONS New Earnings Survey. For any ONS business surveys, the total cost is the sum of the separate costs incurred by the individual types of business that it surveys.

Statistics Sweden

Koppies Consult BV and the Netherlands Economic Institute (2003) undertook a study that assessed the burden that the *Intrastat system* placed on statistical information providers of Statistics Sweden. No specific reference was made to perceived response burden in this paper, however many of the measurements made relate in some way to the burden that the respondents perceived in regard to the Intrastat system.

The first measurement of burden was calculated by the average amount of time that it took respondents to complete the Intrastat declaration. The results showed that the majority of respondents needed less than four hours, with less than ten percent needing more than day. Koppies Consult BV and Netherlands Economic Institute also evaluated the perceived difficulty of the Intrastat system by asking respondents to rate the difficulty by using the following Likert scale: Very Easy – Easy – Neither Easy nor Difficult – Difficult – Very Difficult. The results showed that 50.3% of respondents regarded the Intrastat system as neither easy nor difficult, and only ten percent regarded the system as being difficult or very difficult. This measurement could be interpreted to show that those respondents who were indifferent to the requirements of the system, experience less perceived response burden than those respondents who found the Intrastat system difficult to complete.

The authors also analysed the perceived difficulty of individual questions. Respondents were asked to rate on a scale of 1 for very difficult and 5 for not difficult, the level of difficulty they experienced in answering each Intrastat question. The results indicated that,

> *"Swedish respondents consider the commodity code and net mass the most difficult information items to complete"* (Koppies Consult BV and Netherlands Economic Institute, ITM Research, 2003).

Perceived response burden was also measured by asking all respondents whether they had difficulties in meeting the deadline given for return of the information, or with the different rules for Value Added Tax (VAT) and Intrastat. Results showed that,

> *"meeting the deadline causes difficulty for 40 percent, whereas the different rules for VAT and Intrastat causes difficulties for less than 12 percent of the Swedish respondents"* (Koppies Consult BV and Netherlands Economic Institute, ITM Research, 2003).

Reasons given for not being able to meet the deadline were workload related, and issues relating to required information not being available. Other reasons included internal automation problems, complexity of the declaration, problems with the electronic questionnaires, no time/not inclined, lack of support from Statistics Sweden, and holidays.

In relation to these findings, respondents were asked to report their opinion about the information and support provided by Statistics Sweden. Their opinion was measured on a Likert scale from 1 to 5, with 1 being very good and 5 being very bad. 44.3% reported that the information and support given by Statistics Sweden was good, and 47.3% of respondents were indifferent. 4% thought that the information provided was bad or very bad. The main reasons why these respondents were dissatisfied with the contact that they had had with Statistics Sweden *"referred to the general inability to provide the required expertise, more specifically the inability to provide adequate support to find the right commodity code"* (Koppies Consult BV and Netherlands Economic Institute, 2003).

Some further details of this report on the Swedish Intrastat system are given in section 2.2.

1.2.2.2 Measures taken to diminish or control burden

Statistics Finland

For Statistics Finland, response burden is controlled by the Statistical Act of Finland that requires:

1 Data for statistical purposes shall primarily rely on data collected in other contexts (e.g. administrative records and registers).
2 An authority producing statistics shall see to it that respondents are only requested to provide those data that are necessary for the production of statistics.
3 The data shall be collected in a manner that is economical and causes the respondents the minimum of inconvenience and costs.

Office for National Statistics

The Office for National Statistics (ONS) operates a business charter that explains what service businesses (both users and providers of data) can expect. An important element of this Charter is the continued involvement in implementing the recommendations of the independent study 'Statistical Surveys: Easing the Burden on Business' led by Sir Edward Osmotherly (1996). This is commonly referred to as the Osmotherly Guarantee. In 1997 the recommendations of the Osmotherly Guarantee were incorporated in ONS's business surveys. As a result, businesses with between 0 and 9 employees are guaranteed that, if selected for an ONS survey:

1 they would be notified of the period during which they will be included in the survey (generally not exceeding 15 months);
2 they would not be required to contribute to another of ONS's statutory surveys during that time;
3 following this period, they would not be required to contribute to any statutory ONS postal survey for a further three years.

ONS has been largely successful in applying the guarantee, however a small number of businesses have been considered so important to some surveys that they have been repeatedly selected despite their low employment. This is usually because of their high level of turnover. Additionally, in December 1998 the then Economic Secretary to the Treasury agreed that the New Earnings Survey (NES) should be excluded from the Osmotherly Guarantee. This exemption was requested to ensure that the results of the survey were sufficient in quality and coverage to enable appropriate evaluation of the effect of the introduction of the national minimum wage. As a direct consequence, the number of breaches of the guarantee has, as anticipated, increased.

ONS has continued to adopt sampling strategies designed to avoid burdening smaller businesses as far as possible. As a result of this, businesses with less than ten in employment, that are subject to the Osmotherly Guarantee, have a 1 in 13 chance of being selected for an ONS survey.

1.2.2.3 Follow-up action for non-response

Statistics Finland

Statistics Finland uses follow-up letters and computer assisted telephone interviews to 'chase' up those respondents who have not responded to a survey.

Office for National Statistics

The ONS also chases non-respondents for their data by periodic follow-up letters and telephone calls. The follow up letters warn the non-responding sampled units of their

legal obligation to complete and return their questionnaires. If the response is outstanding for a long time the individual businesses can be referred to the ONS legal department for prosecution proceedings to enforce respondent compliance.

1.2.2.4 Factors that affect response rates

A) Time Taken

Office for National Statistics

The ONS recognises that its respondents have a burdensome task in completing its business survey questionnaires. On a regular basis the ONS receives complaints from respondents concerning the time taken to complete survey questionnaires. Also some respondents complain directly to members of parliament to protest against their selection for ONS surveys. The ONS takes care to minimise the number of questions on each of its questionnaires and each fresh question introduced onto a survey questionnaire is tested for its addition to the overall response burden.

Australian Bureau of Statistics

The ABS contend that although responders may dislike the idea of filling in a questionnaire above a certain threshold size, the response rates may be the same for a 28 and a 32 page questionnaire. They advocate the adoption of questionnaire design based on the social exchange theory put forward by Dillman (1978).

B) Difficulty in providing the data

Office for National Statistics

The ONS recognises that, in many cases, its requested data is not readily available in business. This is particularly true of the extensive sets of commodity turnover values requested in the ONS retail surveys. In such cases an ONS questionnaire would state that informed estimates are acceptable. The data requested also normally relates to a calendar year i.e. 1 January to 31 December, but ONS annual survey questionnaires allow the respondent to also cover their accounting year. These measures are implemented in an attempt to reduce the response burden on contributors.

C) Understanding the Questionnaire

Office for National Statistics

The ONS currently tests for the relevance of its questionnaire questions by carrying out cognitive interviews with small samples of its respondents. These interviews are designed to test the respondents' familiarity with the terms used and the main design of the questionnaires. Each ONS questionnaire despatched is accompanied by a set of notes defining the terms used. The questionnaire also provides the name and telephone number of an ONS contact able to give extra assistance.

1.2.2.5 Future plans to deal with compliance burden

Australian Bureau of Statistics

The ABS is investigating the possibility of improving its estimates of questionnaire completion time. The issue of data quality is also being examined.

Statistics Canada

Baxter (2003) states that Statistics Canada

> *"should establish rules for limiting the survey participation/burden for individual small businesses. Consider the idea of ceasing to survey a business once it reached a certain burden threshold, and having rules beyond Royce-Miranda thresholds (e.g. small businesses shall not be asked to participate in more than one survey per year)"* (2003:143)

However, Baxter acknowledges that this would be difficult to manage with their present infrastructure. He suggests introducing relative measures of response burden to account for economic/business growth and the expanding size of their business frame.

Office for National Statistics

Costs of compliance or response burden for ONS business surveys are currently estimated at an individual survey level and then combined to produce a total cost of compliance for all ONS business surveys. It has been suggested that the compliance time should be calculated separately for each questionnaire type over each size band stratum used in the survey. This is because the time taken to complete a survey questionnaire is dependent upon the type of survey and also the type of business.

1.2.2.6 Calculation of response burden

The Ministry of Economic Development (New Zealand) produced a report entitled: "Business Compliance Cost Statements: Guidelines for Departments" (Regulatory and Compliance Cost Unit:2001). This aimed to increase awareness of the balance between the costs of compliance and the objectives of government policy. They defined compliance cost as:

> *"…….the administrative and paperwork costs on business in meeting these government requirements. They include both the administrative burdens and all other compliance costs, such as equipment purchases, retooling, and recurrent production cost"* (2001:4).

The report identified that compliance costs (or response burden) place a particularly heavy burden on small to medium size businesses (SME's). This is because they are less able to employ staff or implement technology to meet regulatory obligations and this can affect their ability to comply cost-effectively. Furthermore, *"the cumulative compliance burden falling on SME's distracts owner/managers from running and growing their businesses"* (2001:4).

Boden and Froud (1996) also highlighted this point in their paper 'Obeying the Rules: Accounting for Regulatory Compliance Costs in the United Kingdom' by stating that there is differential impact of response burden across businesses. Specifically, smaller businesses appear to experience greater perceived response burden than larger businesses, especially where the owner or manager is responsible for all aspects of the running of the business.

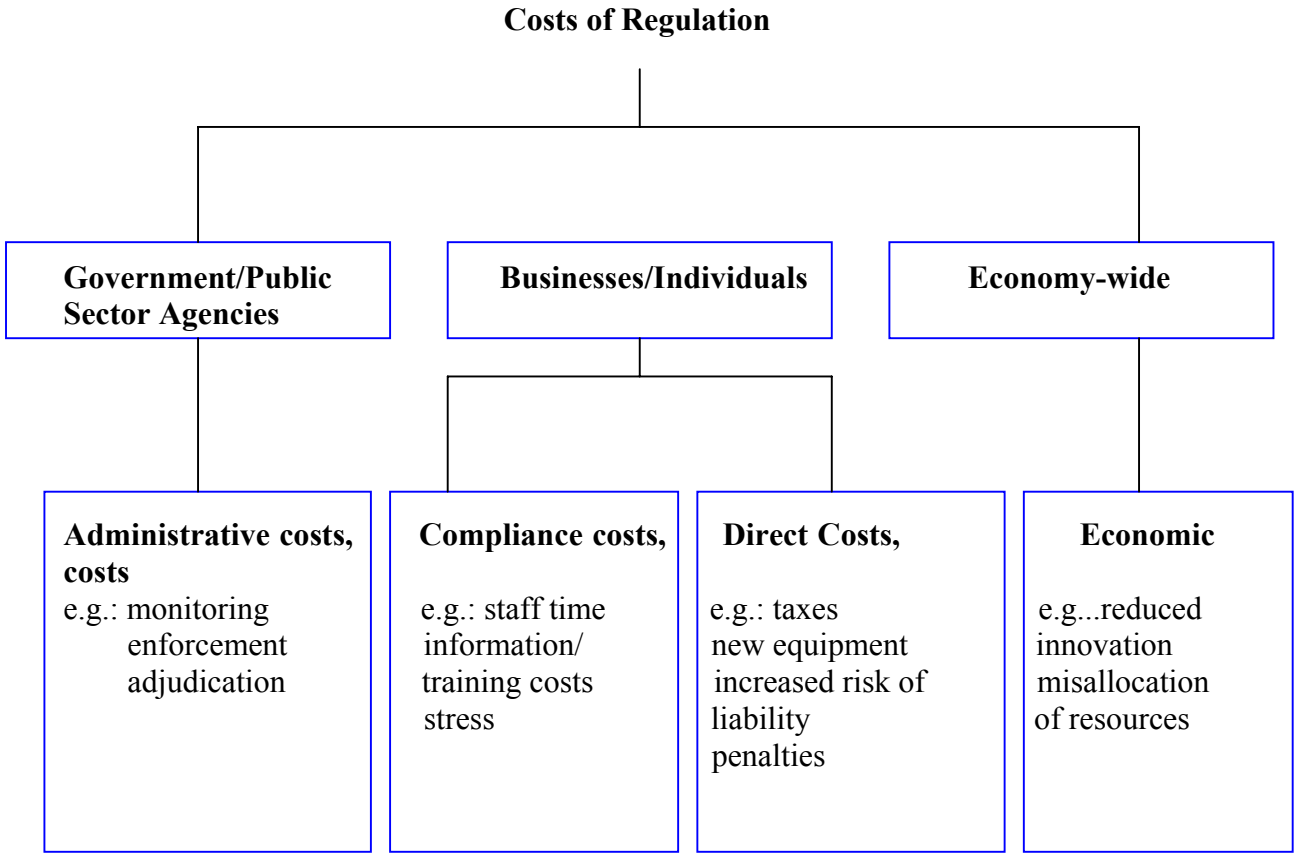
The Ministry of Economic Development (2001) make a distinction between different types of compliance costs:

1 Costs that are *less tangible*: e.g. costs of interpreting and understanding the regulatory requirement of the survey; costs of buying in specialist services (for example accounting, legal, research), training staff and monitoring compliance.

2 Costs that are *non-quantifiable*: e.g. stress and anxiety. These effects arise from uncertainty about obligations. Also, higher compliance costs than necessary due to poor management systems, and lack of experience, capabilities and equipment. This distinction of compliance costs is illustrated in Figure 1.1.

Figure 1.1. suggests that businesses experience four types of burden in complying with regulatory requirements, administrative costs, compliance costs, direct costs and economic costs. The overall costs of compliance to government surveys have to set against the expected benefits of the survey, both to the respondent business and the wider implications to government policy.

Figure 1.1. Compliance costs (Ministry of Economic Development (2001)



Compliance costs can be transferred from the private sector to the government as administration costs are incurred by, for example, the government providing freepost envelopes. The decision by the government to bear this compliance cost is affected by, for example, high non-compliance costs. The provision of freepost envelopes will result in higher compliance rates. It may also be argued that perceived response burden is a factor that affects both the respondent and the survey sponsor.

As well as distinguishing between different types of compliance cost, the Ministry for Economic Development (2001) separated the compliance process into two main categories:

1. One-off costs, for example, purchasing additional equipment, acquiring new knowledge, and training staff members in order to meet the regulatory requirements.
2. Recurring and on-going costs, for example costs from employing additional staff, consumable materials, and questionnaire fillers. Effectively these are costs incurred

from the need to devote extra time and resources in order to meet regulatory requirements.

It may be argued that the greater expense that businesses have to incur in order to meet government regulatory requirements, the greater their perceived response burden. However, the paper identified five main areas of information that businesses need in order to effectively respond to government requirements:

(i) why the regulation applies to the business,
(ii) what it requires the business to do,
(iii) how the business should go about fulfilling the requirements,
(iv) where to obtain further information regarding a regulation,
(v) where to obtain help when clarification is required.

These requirements are designed to help businesses comply with government surveys, by explaining the nature of the survey, what the business has to do, and where the business can obtain help if required.

1.2.2.7 Conclusions

Section 1.2.2 has examined how some National Statistics Institutes (NSIs) measure, calculate and attempt to control response burden. The NSI responses have shown that the cost of compliance to a survey can be calculated as a monetary or an hourly value. The NSIs also consider factors concerning questionnaire design to be important in reducing the response burden placed on businesses.

Koppies Consult BV and Netherlands Economic Institute (2003) took a different approach to response burden, as they focused on identifying respondents perceptions of the Intrastat system. Respondents were asked to rank on a Likert scale how difficult they thought the overall survey was to complete, and how difficult each question was. They also made a measurement of response burden by the average amount of time that in took respondents to complete the Intrastat system.

The evidence presented in this section has highlighted a number of factors that affect actual and perceived response burden. The Ministry for Economic Development (2001) and Boden and Froud (1997) both stated that compliance costs place a particularly heavy burden on small to medium sized businesses. This is because compliance with statutory surveys results in resources being diverted away from the general running of the business. A distinction was also made by the Ministry for Economic Development between tangible and non-quantifiable costs, and this distinction was illustrated by a diagram that showed there are four main types of burden placed upon business. These four types of burden are, (1) administrative costs, (2) compliance costs, (3) direct costs, and (4) economic costs. This diagram also showed how costs of compliance to government survey are experienced by both the respondent and the government agency.

This survey of how NSIs measure response burden disclose a wide range of investments, burdensome activities and feelings that could be included in an exhaustive study of the response burdens in establishments. What we are looking for, however, is a minimum of questions that can distinguish between low and high response burdens and pinpoint the most important problems in the business survey in question in a cost efficient way.

1.3 The Concept of Response Burden

In this section, various models of response burden that have been put forward in the literature are discussed. These models all aim to conceptualise the various areas and processes intertwined with response burden.

1.3.1 Models of response burden

Bradburn (1978) suggests that there are four factors that constitute perceived response burden:

- Frequency of contact
- Length of contact
- Required respondent effort
- Stress of disturbing questions (of questions or surveys that are perceived as disturbing, vacuous or time-wasting).

Willeboordse (1998a) places response burden in the wider context of respondents, NSIs and users of statistics. The demands from the users and respondents are placed upon the NSI, whose task is to bridge the gap.

'The question is, therefore, how to develop a strategy and to take measures which generate a positive effect… i.e. which both relieve response burden and NSI cost, and enhance the quality and the quantity of the output' (Willeboordse 1998a).

Haraldsen (2002, 2004) in '*Identifying and Reducing the Response Burden in Internet Business Surveys'* outlines the two most common methods of measuring response burden. The first method is to measure response burden in terms of the amount of time it takes the respondent to complete the form, however, as Haraldsen states '*this measurement method is not based on an analysis of what is perceived as burdensome'* (2002: 5). The second method by which to measure response burden is via unit or item non-response, however this method is more a measure of data quality than of response burden. In Haraldsen's view, the main problem with these traditional measurement methods is that '*they do not distinguish between what causes the burdens the respondent feels and the feeling itself*' (2002: 5).

In view of this, Haraldsen makes the point that there appears to be a mix-up between (1) causes and measurement of response burden, and (2) response burden and (3) response quality. Haraldsen (2002) states that for response burden to be an appropriate concept, it must differentiate between causes of response burden, perceived burden, and response quality.

In '*Using a Theoretical Model of Response Burden (RB) to Identify Sources of Burden in Surveys'* Fisher and Kydoniefs (2001) have developed a model mapping the multiple factors effecting response burden (Figure 1.2). They have constructed a model that provides a detailed understanding of response burden (alternatively referred to as respondent burden). Fisher and Kydoniefs (2001) suggest that respondent burden is a multidimensional construct. Further to this, there is a division between how RB can be directly measured (the *actual* time spent completing the survey) and the respondent's *perception* of burden. This division can also be conceptualised as one between the more

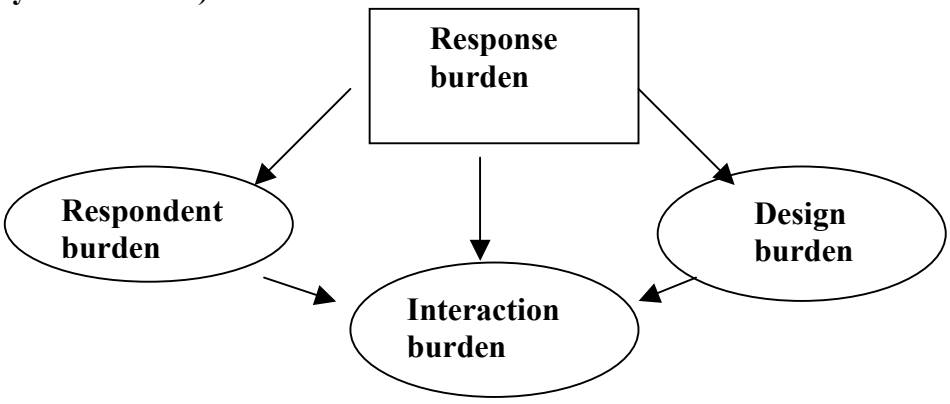
objective quantifiable actual burden and the more subjective, qualitative perception of burden that the respondent has (Willeboordse 1998b). De Vries, Keller, and Willeboordse (1996) also pointed out that in terms of these two dimensions a response burden policy should involve the latter aspect since perceived burden is more important than the actual workload. The Fisher and Kydoniefs (2001) model below separates respondent burden into three components:

Respondent Burden: Behavioural and attitudinal attributes of respondents that impact on the survey and are unlikely to be moderated by the survey sponsor. This label also includes attitudes towards the survey itself such as the belief in the utility of surveys in general.

Design Burden: All aspects of the survey environment that are not directly associated with the respondent e.g. method of collection, mode of collection and the contents of the survey.

Interaction Burden: A product of the relationship between respondent burden and design burden. For example memory and task demands, prior exposure to method and content familiarity.

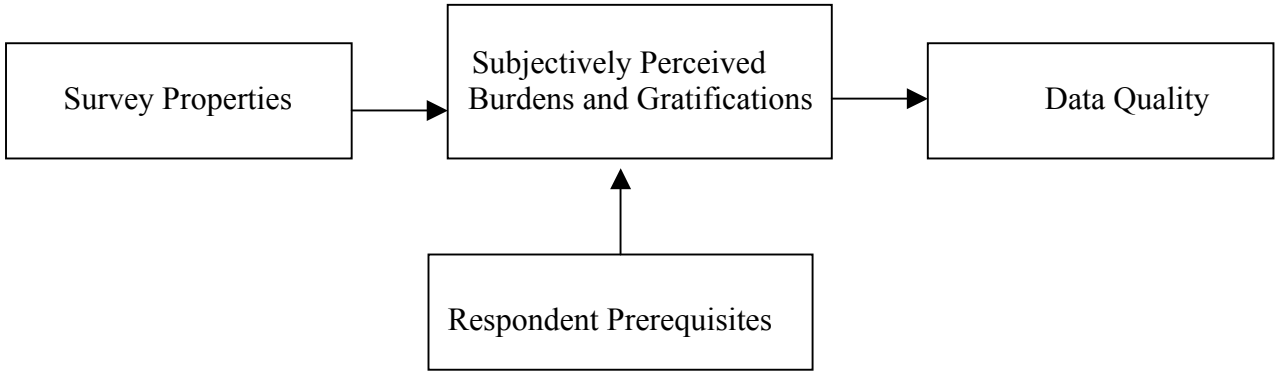
Figure 1.2. The Relationship Between "Response Burden" Model Features (Fisher and Kydoniefs 2001)



Haraldsen (2002) summarises Fisher and Kydoniefs's (2001) conception of perceived response burden as '*influenced both by the respondent's ability to answer, by the design of the survey, and by the combination of these elements'* (2002:7).

In Fisher and Kydoniefs's thinking, the respondent burden are caused by well-established general values and attitudes that are difficult to change, but in contrast, Haraldsen (2002, 2004) has developed a model that focuses on the respondent's interest in the survey topic (Figure 1.3), and the competence that the respondent needs to answer the questions. While these are prerequisites that certainly do not change from one day to the next, they may nevertheless be affected by the design of business surveys. Haraldsen also references Krosnick (1991) in his paper. Krosnick identified that factors relating to the respondent's interest and competence are important in determining what strategy the respondent chooses to use when answering the questions. Krosnick hypothesises that if a respondent's motivation toward the task is low or if he does not feel competent enough to answer the questions completely, he might choose a satisfying strategy instead of step-by-step reasoning.

Figure 1.3. Model of compliance costs (Haraldsen 2002)

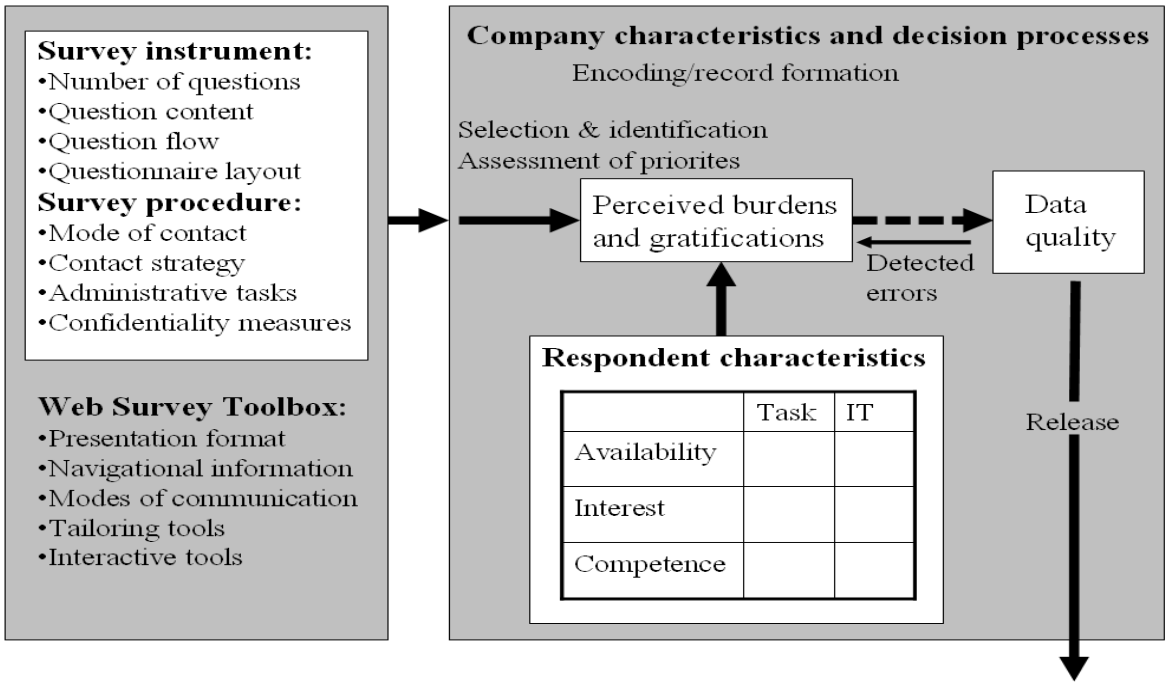


> *"Strictly speaking, the issue is not whether the total burden is high or low, but if the burdens are heavier than the advantages and other positive aspects of the surveys."* (Haraldsen 2002: 7)

The most important point made in Haraldsen's model, however, is that he restricts use of the term response burden to the situation when a respondent with certain characteristics is confronted with a survey with a certain content, structure and design. This is what Fisher and Kydoniefs (2001) refer to as interaction burden.

In a later specification of the model (Figure 1.4), Haraldsen (2004) highlights the importance of the business context which determines what sources of information the respondent have access to and what procedures he has to follow. In this later version of the model, Haraldsen (2004) also lists tools available in web surveys that the survey designer can use to create a less burdensome questionnaire.

Figure 1.4. A conceptual model of survey burdens and gratifications in Internet business surveys



1.3.2 Conclusion

The concept of perceived burden was initially developed by Bradburn (1978) in recognition that time measurement does not take into account factors which may affect burden such as the amount of effort required by the respondent and stress induced by sensitive questions. Willeboordse (1998a) places response burden in the wider context of respondents, National Statistical Institutes (NSIs) and users of statistics. Fisher and Kydoniefs (2001) suggest that response burden is a combination of 'respondent burden' (factors associated with respondent, e.g. belief in the utility of surveys in general), 'design burden' (e.g. frequency of contact) and 'interaction burden' (e.g. task and memory demands and item sensitivity). They suggest that a respondent's perception of burden can be affected by all three areas. This marked a departure from previous research on response burden as the concept was considered in its entirety. Haraldsen (2002, 2004) points out that neither Bradburn's (1978) original conceptualisation nor Fisher's and Kydoniefs's (2001) model distinguishes between the causes of perceived response burden and the perceptions of burden that the respondent may hold.

1.4 Survey Design

1.4.1 Introduction

An individual's decision to participate in a survey can be greatly influenced by the perceived burden of the survey; i.e. the lower the perceived response burden, the greater the likelihood that an individual will accept a request to respond. Careful survey design can increase overall response rates for a survey. Fisher and Kydoniefs (2001:3) suggest that design burden encompasses *'all aspects of the survey environment that are not directly associated with the respondent'*. They include in this methods of collection, data collection instrument, its contents, and the context within which collection occurs.

Section 1.4 reviews the literature regarding different data collection modes available to survey organisations, and attempts to link these findings to aspects of perceived response burden. There are many different data collection modes available to survey designers, and some survey designs are more suitable and dependent upon certain types of survey. The effects of self-completion (pencil and paper) questionnaires, automated telephone data entry (TDE), face-to-face personal interviewing, and web-based data collection will be discussed in relation to perceived response burden. The effects of switching from one data collection mode to another during the same survey will also be discussed.

Dillman (1978) theorises that a social exchange takes place between the survey organisation and the respondent. The survey organisation attempts to evoke a reciprocating response from respondents using a variety of methods. Section 1.4 will examine the effects of:

1. **Survey organisation/sponsor**
2. **Publicity**
3. **Implementation Strategy**
   A) Pre-letters
   B) Follow-up communications
   C) Pre-paid envelopes
   D) Appearance
   E) Instructions
4. **Questionnaire Length**
5. **Question Comprehension**
6. **Modes of Data Collection**
   A) Respondent preferences
   B) Aspects of the survey
   C) Effects of switching data collection modes
   D) Web-based data collection

1.4.2 Survey Organisation/Sponsorship

The survey organisation or sponsor is likely to be one of the first variables a potential respondent takes into account when they assess perceived response burden and decide whether to respond. It has been suggested that the more authoritative the sponsor the higher the response rate (Groves, Cialdini and Couper, 1992); that feelings of civic duty reduce perceived response burden (Couper and Groves, 1996). Heberlein and Baumgartner (1978) found government sponsored surveys or 'official' research

organisations had higher response rates as respondents felt that their contribution was for the good of society and thus overlooked the cost to themselves. This would explain why market research companies experience lower response rates to their surveys. Sudman (1985) proposes that institutional sponsorship of a survey (for example by a university), by an institution respondents are familiar with causes respondent to feel obliged to complete the questionnaire.

The Opportunity Cost Hypothesis proposed by Couper and Groves (1996) argues that potential benefits of survey participation are *"the contribution to a socially useful enterprise"* and *"the gratification of having one's opinions valued by those in authority, and the satisfaction of fulfilling one's perceived civic duty"* (1996: 67). Supporting this theory, Kanuk and Berenson (1975) found that government support for surveys sent to commercial businesses yielded a higher response rate. They also found that academic surveys had higher response rates than commercial surveys (e.g. market research).

As described earlier, social exchange theory may also have a role to play in the decision to respond to a government survey (Couper and Groves, 1996). Any exchange *"may involve the effect of multiple governmental contacts"* in that those with "*the fewest services provided by government or with the least need for such services may feel less need to reciprocate"* (Couper and Groves, 1996: 70). Those who rely on the government and its services are more likely to reciprocate due to a 'cost/benefit analysis'. The costs of not responding for these people may include the loss of government services due to non-co-operation. Groyder (1987; cited in Couper and Groves, 1996) describes the exchange as an *"intuitive complex bookkeeping system"* (1996: 70), in which 'debts' and 'credits' between the individual and various institutions of society are stored over time. Yet, Couper and Groves (1996) found no support for this hypothesis; in fact they found that those receiving state benefits did not feel any greater pressure to comply with a government survey request.

1.4.3 Publicity

Dillman, Sinclair and Clark (1993) conducted an experimental study of alternatives to the 1990 U.S. decennial census questionnaire. The alternative questionnaires were devised by varying the questionnaire length, using respondent-friendly questionnaire design, by asking potentially difficult and/or objectionable questions, and by addressing correspondence directly to a specific person rather than an entire household. Response rates overall for this experimental census survey were lower than observed during the actual 1990 census. These researchers hypothesised that the publicity surrounding a survey (for example the U.S. Census) may give rise to an atmosphere of motivation and willingness to respond and that the lower response rate in the alternative survey could be explained by the lack of 'census climate' during this study. Given that the U.S. decennial census is the one of the largest mail surveys in the world (100 million households) and is conducted each decade in a high publicity environment, it is argued that this *"undoubtedly has a positive influence on response"* (Dillman et al, 1993: 303).

Bad publicity surrounding a government may also affect response rates. The importance of the external context of a survey is emphasised by Groves and Couper (1998). Harris-Kojetin and Tucker (1999) found some evidence that political and economical conditions in the US were related to refusal rates in the Current Population Survey.

1.4.4 Implementation Strategy

Survey designers can reduce perceived response burden by manipulating the survey implementation strategy. Research shows that manipulating factors such as initial contact, the inclusion of pre-paid envelopes, the amount of re-contacts, the appearance of a questionnaire and the inclusion of instructions, can affect perceived response burden thus affecting response rates.

A) Pre-letters

In the Dillman, Sinclair and Clark (1993) study of alternatives to the 1990 U.S. decennial census it was found that census questionnaires were not addressed to a particular person, there was a greater likelihood of the questionnaires being perceived as burdensome because they may be junk mail. This also resulted in the questionnaire being disregarded. A pre-letter was sent to encourage people to anticipate the arrival of the envelope containing the census questionnaire and respond to it. In addition a postcard reminder was sent to all the participants soon after they hade received the questionnaire. The results of this study were substantially higher than those obtained in the 1986 test census, which did not implement such a strategy.

The effects of initial contacts (such as cover letters) on survey response rates have been examined. Boser (1987) found that personalising survey communications had a positive effect on response rates. In her study, envelopes were labelled 'Dear Mr/Mrs …', instead of 'Dear Graduate'. Groves, Cialdini and Couper (1992) propose that the initial contact between interviewer and respondent can affect any future relationship; a strained or awkward relationship could lead to the survey being perceived as more burdensome. Kanuk and Berenson (1975) found that advance notification by telephone is particularly effective in increasing response rates. Moreover, Heberlein and Baumgartner (1978) theorise that initial contacts which demonstrate special attention (e.g. by using methods such as special delivery, certified mail, telephone calls and personal contacts), will increase the sense of importance to the respondent. Kanuk and Berenson (1975) also found an improvement in response rate when special delivery was implemented; the effect was less marked with airmail and in turn less with first class post, and there was little difference in the response rate using first and third class post. However, Kanuk and Berenson (1975), found no significant relationship between personalisation and response rate, and stated that there was insufficient evidence that cover letters could improve response rates. A cover letter may in fact reduce response rates if the respondents disagree with the aims of the survey (Kanuk and Berenson, 1975).

B) Follow-up communications

It has been proposed that follow-up communication can also have an effect on response rates. Heberlein and Baumgartner (1978) theorise that if follow-up communications demonstrate attentiveness, greater effort and expense (for example using special delivery, certified mail, telephone calls and personal contact) they will gain higher response rates (for a more detailed discussion on monetary incentives as a motivational factor see section 1.6). Kanuk and Berenson (1975), also propose that follow-up contacts can be used to great effect and successive use of them can increase response. Yammarino, Skinner and Childers (1991) agree that follow-up contacts increase response rates; in their study, however, response rates differed depending on the characteristics of the sample group.

C) Pre-paid envelopes

The inclusion of pre-paid envelopes can result in the reduction of perceived response burden as this reduces the financial cost to the respondent (Heberlein and Baumgartner,

1978). Kanuk and Berenson (1975) also found that the inclusion of a stamped addressed envelope improved the response rate of a controlled sample from 26% to 62%. Yammarino, Skinner and Childers (1991) also found a significant association between the inclusion of a reply envelope and response rate. Boser (1987) found no significant relationship between response rate and the use of first class stamps on return envelopes. However, Boser (1987) found that addressing a survey request envelope by typewriter instead of using a label increased response rate.

D) Appearance of the questionnaire

The appearance of a questionnaire can have an effect on perceived response burden and consequent non-response (Dillman, Sinclair and Clark, 1993). Following focus groups regarding comments or complaints concerning the design of the 1990 U.S. decennial census, Dillman et al. found that a lack of respondent friendliness could be attributed to several factors relating to the appearance or layout of the questionnaire. These included: inconvenient questionnaire, (e.g. printing on a large piece of paper), inclusion of four inserts (which made the questionnaire appear more complicated), different graphics (which led to confusion about where to start answering), a row-column questionnaire that required matching rows and columns, and the optical scanner guides being the most prominent marks. These themes represent factors that are likely to affect the respondent's perception of cognitive burden. Dillman et al. (1993) found that manipulation of these factors in the creation of a respondent friendly design led to higher response rates in areas characterised by low response. On the other hand, Kanuk and Berenson (1975) state that there is little evidence to suggest that survey appearance (such as expensive reproduction, coloured paper or the size of the questionnaire) affect response rate. Yammarino (1991) found no significant relationship between survey appearance and response rates.

Redline et al. (2003) found in a formally designed experiment that respondents extract instructions from more than the verbal language of the questionnaire. They tested five different branching instructions and found that the stronger the visual impression of the skipping pattern the respondent is expected to follow, the fewer branching errors are made. Also, some redundancy in the verbal instructions helps.

Zukerberg and Lee (1997) investigated how better formatting of survey questionnaires and their notes sections may serve to lower response burden. The study was centred around the self-administered Teacher Listing Form that was designed to obtain a list of teachers at a specific school who met a certain criteria. They noted that *"many respondents perceived the instructions to be burdensome and this negatively affected their desire and ability to complete the task"* (1997:1). They therefore designed different versions of the questionnaire including different designs of the notes section. To try to reduce the confusion experienced by the respondents the researchers included examples and definitions with these notes. This however had the adverse effect of making the notes very long and overwhelming to the respondents, thus for many respondents *"the instructions made the task look more difficult than it actually was"* (1997:1).

Zukerberg and Lee (1997) then incorporated the instructions on a separate loose card which some respondents preferred as they did not have to flick back and forth through the questionnaire to find the relevant note. However, a draw back with this was that the instruction card was easily misplaced. Another version of the questionnaire was then tested, where the notes were incorporated in the question. This had the effect of more respondents reading the instructions (even if they were just skim reading), although as a result some questions did tend to look a bit long.

In summary, Zukerberg and Lee (1997) manipulated visual elements of a questionnaire in an effort to reduce perceived response burden by setting the questionnaire out in a logical and clear order thereby making it look easy to complete. The format of a questionnaire could therefore be an important factor in determining perceived response burden.

E) Instructions/ guidance notes
The contents of survey notes and guidance can also affect perceived response burden as many researchers include long, complicated notes that increase the cognitive burden on respondents. Dillman, Sinclair and Clark (1993) found that long, complicated and perhaps contradictory instructions contribute to survey non-response.

1.4.5 Questionnaire length

Most research suggests that questionnaire length is negatively correlated with response rate. Groves, Cialdini and Couper (1992) argue that the most basic indicator of response burden is questionnaire length. Van Loon, Tijhuis, Picavet, Surtees and Ormel (2003) found that one of the main reasons for non-response to the Health and Life Experiences Questionnaire was that it was *"too lengthy"* (2003: 109).

Heberlein and Baumgartner (1978) found that longer questionnaires represent a potential cost barrier in that they observed a 5% reduction in final response rate for every ten pages of questionnaire. Yammarino, Skinner and Childers (1991) found a significant relationship between questionnaire length (greater than four pages) and response rate, indicating that in order to achieve high response rate, questionnaires should be limited to four pages or less.

However, it is also argued that longer questionnaires can ascribe a sense of importance to the potential respondent, which can overcome perceived burden. Heberlein and Baumgartner (1978) propose that longer questionnaires may impress the respondent, because they may feel the researcher has spent considerable time and effort in designing a questionnaire. Champion and Sear (1969, cited in Dillman et al. 1993) reinforced this view when they found that of a three, six and nine page questionnaire, the longer questionnaire had the highest response. The questions were identical and the questionnaires only differed because the larger questionnaires were more spaced out.

Adams and Gale (1982) discovered that a middle-sized questionnaire obtained the highest response rate, with the longest questionnaire in their study obtaining the lowest response rate (Dillman et al 1993). This suggests that shortening a questionnaire will only go so far in increasing response rates and that sometimes other factors are more important, such as layout. Boser (1987) found no significant relationship between questionnaire length and response rate.

The cognitive processes associated with questionnaire length were also identified by Helgeson and Ursic (1994), who found that longer questionnaires were associated with more affective decision making due to perceived response burden, whereas shorter questionnaires were associated with more cognitive decision making.

1.4.6 Question Comprehension

Couper and Groves' (1996) Opportunity Cost Hypothesis includes *"the cognitive burdens incurred in comprehending and answering survey questions"* (1996: 67) as a

potential cost of response. Dillman, Sinclair and Clark (1993) found that asking an objectionable or difficult question (social security number) obtained high item non-response. They found also that the question reduced overall response rates. They were unsure, however, whether the main reason for non-response was an objection to reporting social security numbers or whether it was difficulty finding social security numbers.

Heberlein and Baumgartner (1978) theorise that attitude measurement can effect perceived response burden as the attitude questions often involve a response choice *"in which the individual may be undecided about the alternatives*" (1978: 460). This cognitive exertion "*may be a sufficient cost to the respondents to deter some from completing the questionnaire*" (1978: 460). Helgeson and Ursic (1994) argue that *"the more positions on a rating scale, the more difficult the judgement becomes, because the respondent has to choose between a greater number of categories"* (1994: 495).

Due to the cognitive burdens incurred from task completion, the respondent may use a more affective decision making process in order to simplify task completion. Helgeson and Ursic (1994), however, found that respondents tended to use a more cognitive rationale in initial decision-making when more scale positions were present. This supports the notion that rating scales increase the perceived response (cognitive) burden.

1.4.7 Modes of Data Collection

A) Respondent preferences

Church (2001) looked at the effects of different data collection modes on five outcomes by analysing the results from three separate business surveys. The five outcomes studied were: (i) response preference, (ii) item completion rate, (iii) use of *don't know* responses, (iv) item mean, (v) variability. The results suggest that when respondents are presented with a variety of data collection modes a greater percentage of respondents chose the more technical method (online or automated phone) by which to respond, compared to traditional paper-and-pencil questionnaires. The survey also compared results across several countries (United States of America, United Kingdom, France, Germany, Italy and Japan), and as such the use of more technical methods were particularly more pronounced in the USA and Japan, and within the younger generation of respondents. However, traditional methods were still preferred in the United Kingdom (UK), Germany and Italy, where paper-and-pencil responses significantly outweighed automated phone ones. Church (2001) interpreted his findings as follows:

> *"In short, it would appear that survey designers and implementers might be better served choosing the method(s) of administration based on the needs and constraints of the organization – for example, budget, speed of response, ease of use, familiarity with approach, limits of existing infrastructure, Web/Internet access, comfort, or perceived confidentiality concerns – rather than on some inherent difference in the quality or empirical soundness of the data that can be obtained from different survey methods"* (2001:965)

Groves and Kahn (1979) (as quoted in Dillman, Phelps, Tortora, Swift, Kohrell and Berck 2001) found that of the respondents to a national telephone survey, 39.4% said that they prefer to be interviewed via telephone, 22.7% by face-to-face personal interview, and 28.1% by mail. This may indicate that certain types of data collection modes elicit lower perceived response burden than others. However, Dillman, Clark and West (1995) (as quoted in Dillman et al., 2001),

> *"found that offering respondents the choice of whether to send back a mail questionnaire or to call in their answers to an interviewer did not improve response rates, although some respondents did change their mode of response"* (2001, p.3).

B) Aspects of the survey

A study conducted by Novo, Hammarström and Janlert (1999) used data from two surveys that examined the effects of unemployment and health among young people (one from 1986 and the other from 1994). They attempted to identify those socio-economic characteristics that influence, what they term as, a respondent's 'willingness to respond' to a survey. Novo et al (1999) also identified that modal effects can affect perceived response burden in terms of issues relating to confidentiality and disclosure. When measuring alcohol consumption, a higher consumption was reported in the latter stages of the survey when face-to-face personal interviews were conducted. Given the sensitive nature of disclosing such information as alcohol consumption, people were less willing to respond to a self-completion questionnaire, than they were to a face-to-face interview (1999). This surprising finding can be explained by the rapport between interviewer and respondent that had been built up, in particular in one of the surveys.

C) Effects of switching data collection modes

Dillman et al. (2001) examined the effects of switching from one mode of data collection to another mode by dividing a survey into two data collection phases. The first phase was conducted by either telephone interview, mail, interactive voice response, or the Internet. The second phase consisted of non-respondents from phase one and these respondents were contacted via a different method of data collection compared to how they were contacted in the first phase. Results from this study,

> *"leave little doubt that a mixed mode strategy of following a complete data collection strategy by one, with a short pause, followed by an attempt to collect data by another mode, can increase response rates substantially"* (Dillman et al., 2001).

Shettle and Mooney (1999) also showed that switching the data collection mode made available to the respondent improved response rates. Their results identified that response was 68% after the respondents were contacted four times by mail (which also included an incentive), 81% after a diligent telephone follow-up, and then 88% after attempts to engage the respondents in personal interviews. It may therefore be argued that the respondent perceived less of a response burden when given the opportunity to respond to a different mode that may be better suited to them (for example, a telephone interview rather than a self-completion questionnaire). This is often done in business surveys.

D) Web-based data collection

Ministry for Economic Development (2001) in New Zealand reported that web-based data collection reduces the paperwork burden and also improves the quality, timeliness and utility of the data received. However, there are several countervailing arguments that should make one think that response burden could just as well increase with web surveys. Firstly, the respondent may not have access to and master the technology. Secondly, if the original paper questionnaire is not properly redesigned to suit a computer screen, the readability will generally be poor. In web surveys the respondent can be led through the questionnaire more efficiently than in a paper questionnaire. On the other hand, the respondent may easily get lost in a web based questionnaire. In web surveys a whole

range of error checks can be used to ensure high response quality. But each time we ask the respondent to correct an error we ask him/her to perform a revision activity that with the old paper technology mainly was handled by the NSI (se figure 1.4 and Haraldsen 2004). Web surveys are also often built into a system where opening the envelope, selecting the survey and mailing the response in fact are carried out with the help of different questionnaires (see the different web screens from the Norwegian Idun system presented in Appendix 5.D). If these administrative questionnaires are poorly designed, that may also contribute negatively to the response burden.

It is necessary to ensure that survey web-sites are easy to use and the information on them is easy to locate so that the burden associated with response is not complicated by inadequately designed websites that cause difficulties for the respondents. Even though perceived response burden may be lowered by the use of web-based data collection, respondents may incur a high one-off burden of monetary cost and time. Such a burden may be caused by,

> *"acquiring sufficient knowledge to meet the regulatory obligations, retooling production processes, purchasing or leasing additional equipment and buildings, legal/constancy fees and training expenses"* (Ministry for Economic Development 2001:10).

The last consideration is that as many businesses and individuals may not have web access the more traditional methods of data collection (i.e. paper and pencil questionnaires) should be maintained. For NSI's web surveys will therefore normally be a part of a multimode design. Such a design is demanding since the NSI has to coordinate data coming in from different sources and the combination of modes may cause undesired instrument effects.

Manfreda, Vehovar, and Batagelj (2002) note that the process of participating in a web survey has several stages. Non-response may occur during any of these stages. This will depend on the respondent's characteristics, the social and technological environment and the survey design features.

1.4.8 Conclusion

The literature referred to in this section shows that survey sponsorship, aspects of the implementation strategy, questionnaire length and question comprehension can all affect perceived response burden due to the potential cognitive and emotional costs. However, very little research looks at the combined effect of these interventions. As mentioned in section 1.3, Fisher and Kydoniefs (2001) suggest that Interaction burden is a product of the relationship found between some aspects of respondent burden and design burden. These may include the effort required to complete a survey (memory and task demands) and the incentives provided by the survey (financial).

In order to reduce perceived response burden and maximising response rates, attention must be given to the combined effect of design features, as opposed to narrowly focussing on the individual effects. Groves, Cialdini and Couper (1992) argue that perceived burden is more likely to be derived from one or two highly prominent and normally diagnostic considerations such as length of the survey and the authoritativeness of the survey organisation or sponsor. Dillman, Sinclair and Clark (1993) found that a combination of respondent-friendly design and shortening the questionnaire significantly improved response rates.

The literature on modes of data collection demonstrates that some modes can increase response rates and can be linked to lowering perceived response burden. It may be argued that if a respondent could respond by his or her most preferred mode, then this would serve to lower the response burden that they perceive. Different individuals prefer different data collection modes as well as, on a larger scale, different countries appear to prefer different data collection modes. Evidently, it would not be possible to tailor each survey data collection mode to each individual respondent. However, it would be important to bear in mind the characteristics of the target population for a survey in regard to choosing the most appropriate data collection mode, as well as taking into account other factors such as the cost of the survey mode and it appropriateness to the aims of the survey.

In addition, there is evidence to suggest that web-based data-collection can lower perceived response burden as it reduces the paperwork burden on respondents. However, there are important concerns to consider in regard to web-based data collection and these need to be borne in mind when considering the impact of a specific data collection mode or a combination of modes on the potential respondents.

1.5 Respondent burden

1.5.1 Introduction

Section 1.5 is dived into four main parts,

- Cognitive response models
- Respondent attitudes
- Topic saliency
- Demographic differences in perceived response burden

Unfortunately there has only been a limited amount of research carried out specifically in relation to business surveys. Nevertheless, there has been a series of research developments concerning that of cognitive response models which are explored in section 1.5.2.

Section 1.4 discussed the effect of survey design on perceived response burden. Research suggests however, that survey design alone does not sufficiently explain survey non-response. As shown in Figure 1.2, Fisher and Kydoniefs (2001) suggest that response burden is a multidimensional construct. Response burden is separated into three components: Respondent burden, Design burden and Interaction burden. Respondent burden is defined as follows:

'the personality, behavioural, and attitudinal attributes of respondents that impact on the survey completion task and are unlikely to be moderated by the survey sponsor' (Fisher and Kydoniefs 2001:3).

Couper and Groves (1996) argue that sub-groups react differently to certain design features dependent on the characteristics of the group. The characteristics discussed here specifically focus on the individual.

Section 1.5 will discuss the evidence that indicates that respondent characteristics affect perceived response burden. The effect of respondent attitudes will be discussed, along with demographic variables such as age, gender, education, employment, income, language, environment and personality traits. This section will also focus on household variables and societal variables such as the over-surveying effect. However it begins by focusing on the cognitive processes involved in business survey response.

1.5.2 Cognitive response models

Willimack and Nicholos (2001) outline a complete cognitive response model for survey response. This model has been developed from previous work carried out in the field (see Tourangeau 1984, Edwards and Cantor 1991, Eisenhower et al. 1991, Sudman et al. 2000). The basic cognitive model as developed by Tourangeau (1984) outlined four steps:

Comprehension: Understanding the meaning of the question.
Retrieval: Gathering relevant information, usually from memory.
Judgement: Assessing the adequacy of retrieved information relative to the meaning of the question.

Communication: Reporting the response to the question, e.g., selecting the response category, editing the response for desirability, etc.

Edwards and Cantor (1991) developed a five step model specifically for business surveys. This included an additional step on encoding, first developed by Eisenhower et al. (1991). The encoding process refers to the knowledge to answer survey questions. Encoding focuses on how knowledge and memories are stored and utilised.

The response processes of the 'complete model' (Willimack and Nicholos 2001) are as follows:

1. **Encoding in memory/record formation:** There are two types of knowledge encoded in memory important to the response process in business surveys, these are Personal knowledge and Knowledge of records.
2. **Selection and identification of the respondent or respondents:** For example, different respondents for the same company may have differing knowledge of available records encoded in memory.
3. **Assessment of priorities:** The higher the priority for the response task, the greater the motivation to complete the survey.
4. **Comprehension of the data request:** Understanding the meaning of the question.
5. **Retrieval of relevant information from memory and/or existing company records:** Including the respondent's ability to retrieve data from memory and access to appropriate records.
6. **Judgement of the adequacy of the response.**
7. **Communication of the response.**
8. **Release of the data:** For example, authoritative figures may consider the confidentiality and security of the data release relative to the data being requested.

The model was developed as the result of exploratory research on the response process in large companies, and primarily referring to survey requests for numerical data. It may not be appropriate for analysis of small and medium-sized business nor those surveys which require non-numerical information requests.

1.5.3 Respondent Attitudes

A potential respondent's attitude and their perceptions of response burden can influence the decision to respond to a survey request. There are several attitudinal variables that contribute to perceived response burden. Firstly, the respondent's interest in the survey can impact on perceived burden – lack of interest is likely to result in a negative attitude towards the survey request. Krosnick (1991) found that factors relating to the respondent's interest and competence are important in determining what strategy the respondent chooses to use when answering the questions. Krosnick (1991) hypothesised that if a respondent's motivation towards the task is low or they do not feel competent enough to answer questions completely, they are likely to perceive response as more burdensome. The respondent may choose a more satisfying strategy instead of step-by-step reasoning. Kanuk and Berenson (1975) found that a significant characteristic of survey response was the respondent being interested in the topic being surveyed. The authors also found that respondents who return the survey early generally have an interest in the survey topic.

The attitude towards the agency making the survey request can also affect perceived response burden. Couper and Groves (1996) state that the past relationship with the agency or organisation making the request is likely to influence such attitudes. The potential respondent will perceive response as less burdensome if they have previously benefited from a survey. Respondents perceive response as more burdensome if they have a negative attitude due to a previous negative experience.

Gerber (2001) puts forward that respondents are more willing to provide data if they understand the benefits that are derived from the data collection. In a series of in-depth interviews, she found that respondents are very concerned with knowing to whom they are giving information. First, they determine whether they approve of the organisation collecting the data. Second, they are concerned with the authenticity of the agent, interviewer or collection device. Gerber (2001) points out that collecting personal information is widely considered a legitimate function; for example, people reason that insurance companies have a right to information about health conditions. Respondents see benefits to the community with divulging information in the census. If people believe that there is a good purpose to be achieved by giving the information, they will cooperate despite suspicions of 'government monitoring'. 'Being a good citizen' was a reason for cooperating. Assurances of confidentiality were not completely convincing; respondents do not believe that reputable organisations are effective at protecting themselves from intruders. In particular, providing data over the Internet is perceived as risky. Singer (2001) found that many businesses are ignorant about confidentiality laws despite the fact that references to relevant laws are made in all questionnaires.

Kanuk and Berenson (1975) identified several personality traits that predict response. They found that respondents were high in leadership, out going, well read, organised and dependent, while non-respondents tended to be aggressive, domineering and autonomous. Non-respondents are largely anti-social in their general behaviour (again this can lead to a sense of social alienation and an increase in perceived response burden). Since this research was conducted, however, non-response has become more socially accepted.

Groves et al. (1992) propose that certain social psychological factors contribute to the respondent's attitude towards the survey request. These factors affect the decision to respond to the survey request and underline the fact that perception of burden can often be beyond the influence of the researcher or survey designer. These factors are the:

> *"respondents' current mood, feeling of obligation, deference, liking towards the interviewer and/or sponsor, and perceptions that interview participation is normative or represents a scarce opportunity to be counted or is consistent with existing commitments and values."* (Groves et al. 1992: 486).

The characteristics of an interviewer can also affect the attitude of a potential respondent. Groves et al. (1992) argue that the respondent makes judgements about the purpose of the interviewers' visit by considering possibilities such as a sales call, an assault, or a charity call. The respondent then matches visual and audio cues with those preconceptions. Furthermore, the psychological state, and resulting behaviour, of the interviewer prior to contact with a potential respondent can also affect the decision to respond. A negative attitude towards an interviewer will increase the perceived response burden.

1.5.4 Topic Saliency

Topic saliency is the level of significance or importance of the topic to the respondent. It is argued that respondents are more likely to comply with a survey request that relates to

something that they have an interest in (see Groves, Cialdini and Couper, 1992; and Kanuk and Berenson, 1975).

A respondent may perceive burden to be much higher if the survey topic is less salient, as more cognitive exertion may be required to process information regarding a less interesting topic. Couper and Groves' (1996:70) Opportunity Cost Hypothesis argues that *"the enjoyment of thinking about novel topics"* is one of the potential benefits of survey participation. They state that a common metaphor for surveys is a *"conversation with a purpose"* (1996: 74); and that, like a conversation, when the purpose of a survey is consistent with goals held by the potential respondent, co-operation is more likely. That salient topics offer a chance of personal gain to the respondent as they may benefit from the survey information and the chance to *"exhibit ones knowledge on the topic"* (1996: 74).

Heberlein and Baumgartner (1978) explain that when the content of a questionnaire is of importance to the respondent and the respondent is knowledgeable and interested in the topic, the perceived response burden may be reduced. Initial and follow-up contacts with respondents by methods that require a greater expense and effort, such as special delivery, certified mail, telephone calls and personal interviewing, also increase the importance of the survey to the respondent. However, Heberlein and Baumgartner (1978) make two interesting points; (1) that repeated mailings might increase the cost of non-response as respondent's guilt may increase and personal regard may decrease, and (2) those who respond to repeated contacts, "may not feel that their reply is more important, but that the psychological cost of non-response is simply greater than the time and effort to complete and return the questionnaire" (1978: 460).

Van Loon et al. (2003) found evidence for this theory when they looked at the reasons non-respondents gave for not participating in a survey monitoring chronic disease risk factors. These were; "no time" (35%), "already have a medical check up on a regular basis" (25%), "I am healthy there is no reason to participate" (16%), and "no interest" (15%). Some respondents therefore perceived response to be burdensome on time constraints and did not have the motivation in terms of interest to overcome the perceived burden of taking part.

There is evidence that the sensitivity of a survey topic could increase perceived response burden. Responding to a survey that is perceived as sensitive could represent a form of emotional burden. Couper and Groves (1996:47) in their Opportunity Cost Hypothesis argue that a perceived cost of survey participation is *"the potential embarrassment from or sensitivity of the self-revelations that the questions require"* (1996: 67). In terms of business surveys this may be a more minor point. However, issues surrounding sensitivity to the confidentiality of the business data are of greater relevance.

Novo, Hammarström and Janlert (1999) found the sensitivity of the survey topic led potential respondents to perceive a higher response burden, dependent on the survey mode (for a more detailed discussion on mode preferences see section 1.4.7). Van Loon, et al. (2003) also found that one of the reasons for non-response to a survey was that it was "too personal". The intimate nature of a questionnaire could represent an emotional burden because respondents could worry about confidentiality and/or may not wish to think, or talk about certain topics that are personally painful or bring back bad memories.

1.5.5 Demographic differences in perceived response burden

Groves et al. (1992) and Couper and Groves (1996) outline several personal characteristics that affect the decision to participate in a survey or respond to a survey request. These included age, gender, race, income and environmental factors. There is limited research that examines these factors individually. These factors may contribute to various predispositions that affect how individuals react to a survey request. Some research suggests that different sub-populations perceive response to be more burdensome than others do.

A) Language
Couper and Groves (1996) found that respondents perceive response to be more burdensome if English is not their first language. Similarly, Kanuk and Berenson (1975) found that if an individual's parents were born abroad, the likelihood of non-response was increased. Couper and Groves (1996) also argue that constraining factors such as facility with the English language will lead to a greater perception of response burden. Therefore, having to interpret another language or difficulties with language and communication would represent a form of cognitive burden.

B) Age
Couper and Groves (1996) hypothesised that older respondents may perceive door-to-door interviews as more burdensome due to an increased fear of crime. Alternatively, younger respondents may perceive official surveys (government or academic) as more burdensome due to a lower sense of civic duty or negative attitude towards the survey sponsor. Kanuk and Berenson (1975), however, found no significant correlations between age and early and late response.

C) Socio-economic
Dillman et al. (1993) found a difference of approximately 20% in completion rates between low response areas and high response areas using the same data collection methods. In the low response areas the residents were more likely to have a poor education and lower income. Similarly, Kanuk and Berenson (1975) found positive correlation between educational qualifications and response rate. They also found significant differences in early and late response dependent on the respondent's occupation, reporting that when the economy was stable with a very low employment rate, a bad financial position indicated a low willingness to respond. Novo et al. (1999) analysed the data from two surveys researching the effects of unemployment and health among young people. For both surveys a low willingness to respond correlated with poor education amongst both men and women.

Couper and Groves (1996), however, found higher participation rates for government surveys among groups characterised by low education, and low income. The authors suggest that this is a form of social exchange in which the respondent perceives response to be less burdensome due to the reliance on government services. Non-respondents were in fact largely white-collar employees. Kanuk and Berenson (1975) found no difference in early and late response in relation to income. They also found that occupational position within a company was not a significant predictor of response.

Groves, Cialdini and Couper (1992) discuss numerous factors that detail the causes of respondent motivation to participate in interviews. Groves et al. (1992) state that a theory is required that integrates "the observed socio-demographic and survey design factors" (1992: 477) with "the less observable impact of the psychological components of the relatively brief interactions between interviewer and respondent" (1992: 477). Societal-level factors can influence the motivation that a respondent may feel to respond to a

survey. For example, social cohesion, social inclusion and social alienation can affect the respondent's sense of social responsibility. Those with a lower sense of social responsibility are more likely to perceive a greater response burden. Another factor affecting burden and consequent non-response are the number of survey's conducted in society, or "the over-surveying effect and perceived legitimacy of surveys" (1992: 477).

D) Geographical area

Dillman et al. (1993) discovered that response rates for the 1990 U.S. decennial census questionnaire differed significantly by geographic area. The lower response areas were characterised by highly urban areas and a high percentage of minority groups. Dillman et al. (1993) reasoned that certain survey designs might differ for high and low response rate areas and have significant implications for designing the 2000 census. A respondent-friendly design significantly improved response rates in the low response areas. And a short questionnaire, significantly improved response rates in the high response areas.

Groves et al. (1992) argued that environmental factors such as level of urbanisation and crime rates contributed to a psychological predisposition that affected the decision to respond to a survey request. Geographic factors may therefore affect perceived response burden. Areas characterised by high minority groups may have a greater sense of social alienation. Social alienation can reduce the sense of social responsibility, which lowers the motivation to respond to a survey request, and increases perceived response burden (Groves et al. 1992).

E) Household Variables

Some research suggests that characteristics of the household can affect perceived response burden. Couper et al. (1998) found that related households were more likely to return census forms than households containing unrelated individuals in the U.S. This might suggest that related households share the burden of response via a process of delegation through closeness of relationship. Couper et al. (1998) also found that having children younger than the age of 18 affected perceived response burden. Households with children were less likely to respond due to the burden on time constraints. In contrast, Couper et al. (1998) theorise that children's presence in a household *"leads to closer relationships with the broader community and increased level of participation"* (Couper et al. 1998:68). Similarly, Couper and Groves (1996) propose that more children will lead to a sense of social connectedness that will increase the likelihood of a parent responding to a survey request. Social connectedness will motivate potential respondents to overcome any perceived burden on time constraints by weighing up the benefits of response through a cost/benefit analysis.

Couper and Groves (1996) state that the amount of discretionary time available to potential respondents can have a significant impact on the reaction to a survey request. Couper and Groves' (1996:67) Opportunity Cost Hypothesis includes the time required to respond and *"the lost opportunity to perform other activities"* . Those who have little discretionary time are less likely to be found at home and when they are, less likely to respond to a survey request due to the burden on time constraints. Couper et al. (1998:68) argue that *"households in which all adults are working may have less time for extraneous"* activities. Van Loon et al. (2003) found that over a third of non-respondents gave "no time" as the reason. Couper et al. (1998), however, argue that the survey design can impact on the burden imposed on potential respondents due to lack of time. For example, interviewers are trained to show a willingness to conduct an interview at any time the potential respondent is available. This would reduce perceived response burden, thus maximising response rates. Couper et al. (1998) outline a potential shortcoming of

their findings. Their study relied on indirect or proxy indicators of lifestyle differences that may affect the burden on time constraints. Ideally a series of measures relating to the actual time available to household members to deal with tasks such as census return would be more accurate.

Couper et al. (1998) discovered that those who attend to their mail right away were more likely to return a postal survey request. Presumably perceived burden would increase as the potential respondent's mail builds up. However the burden in this case would be the potential respondent having to sift through the built up mail as opposed to respond to the survey request.

F) Tenure

Couper et al. (1998) found that respondents renting or owning expensive housing units are less likely to respond to a government request. In Couper et al. (1998) social exchange theory explains that this sub-group would not be reliant on government services. Therefore, the benefits of response do not out-weigh the costs such as burdens on time and effort. Kanuk and Berenson (1975) however only found a negligible effect of average rental value of a home and response rate. Furthermore, Kanuk and Berenson (1975) did not find a relationship between home ownership and response rate.

1.5.6 Conclusion

Perceived response burden can be significantly affected by the characteristics of the potential respondent. Groves et al. (1992) state that several personal characteristics such as age, gender, race, and income affect survey response. Further factors include environmental factors such as the level of urbanisation and crime rates. These factors produce a set of psychological predispositions that affect perceived response burden and the consequent decision to respond.

In terms of the cognitive processes that a respondent passes through, the complete model developed by Wilimack and Nicholos (2001) provides a thorough itinerary of the cognitive areas that may impact on respondent burden and influence measurement error.

Evidently, that the effects of respondent characteristics are out of the control of the researcher. Researchers must therefore adjust survey designs to account for the possible influence of the characteristics of the potential respondents. Surveys should be tailored to the intended target population. For example, if a survey is investigating unemployment, design considerations must be made in order to reduce the burden perceived by that sub-population. However this could prove impractical when taking into account national surveys. Survey designs could incorporate incentives in order to overcome the differences in perceived response burden between certain characteristics and sub-populations. The next section will discuss the affect of motivational factors and incentives on perceived response burden.

1.6 The Use of Monetary Incentives

1.6.1 Introduction

Section 1.6 summarises some of the research that has been conducted on the effects of monetary incentives in surveys. A variety of studies have been examined which provide support and criticism of the use of money in questionnaire surveys. See Singer (2002) for a recent overview.

Section 1.6 is divided into six parts:

1. **Respondent views on monetary incentives**
2. **The use of incentives in government surveys**
3. **Response rates**
4. **Arguments against the use of incentives**
5. **Cost effectiveness**
6. **Interactions between incentives and response burden**

1.6.2 Respondent views on monetary incentives

Singer, Groves and Corning (1999) conducted a study called the Detroit Area Study that investigated inter-racial contacts and attitudes. Between April and August 1996, 451 households were interviewed and the overall response rate was 66 per cent. The incentive offered to two thirds of the households was $5 and the remaining third acted as the control group by not receiving an incentive.

Amongst responders in general, the authors identified two main opposing views concerning incentive payments. The first opinion is that those who do not respond have less use for the survey results and therefore regard the survey as more burdensome. The second view is that respondents have a social obligation to respond to the survey and that those who receive incentive payments are being treated unfairly.

The results showed that those who received the incentive payment were 8% more likely to respond to the survey than those who did not receive the incentive. The second stage of the study involved the non-respondents from both the incentive group and the control group. These non-respondents were split into two groups where one half received a persuasion letter, and the other half were offered a $25 incentive for their compliance. Near the end of the survey, half of the respondents were informed that some non-respondents had been offered a $25 incentive, and they were to report whether they considered this to be unfair.

The study raised two issues surrounding the use of incentives:

(1) Do co-operative respondents regard the incentive payments as unfair or inequitable?
(2) Do the incentive payments affect the attitudes of co-operative respondents to future surveys?

The results showed that 75% of respondents thought that the practice of offering differential incentive payments was unfair. However, despite this, the survey found that disclosing the differential payments had no significant effect on willingness to take part in future studies. The final result showed that most respondents believe that payments are being offered to encourage participation. Singer et al. (1999) concluded that responders

are sensitive to issues of fairness, but that these are not salient or motivating factors for participation in the survey.

1.6.3 The use of incentives in government surveys

The majority of research relating to the use of incentives in surveys is mostly related to household or social surveys. However, Shettle and Mooney (1999) investigated the use of monetary incentives in government business and social surveys. Whilst the researchers acknowledge that there are a broad range of studies that demonstrate a link between incentives and increased response rates among various populations, the use of incentives in government surveys has been somewhat limited. The reasons for this are as follows:

- incentives may increase non-response bias, by exacerbating differences between respondents and non-respondents;
- individuals who respond purely because of the incentive may, on average, be more careless in completing the survey instrument, thereby reducing data quality;
- incentives may introduce a new source of response bias into the survey as they influence respondents perception of the survey organisation;
- the costs of incentives; and
- the possibility that some respondents may react negatively to the use of incentives in government surveys.

In most countries business surveys are statutory, and those businesses that do not comply may face legal action. A penalty for not responding can be described as a negative incentive. We are not aware of research on effects of this kind of 'whip', but Norwegian experience indicates that while the response rate in business surveys before warnings of legal action are given may be low, the final result is close to 100 percent.

Shettle and Mooney (1999) addressed these concerns through a reanalysis of data collected for a pre-test of a mixed mode survey for the National Survey of College Graduates conducted by the Census Bureau for the National Science Foundation in the USA. The results from their study show that incentives provide a decided cost advantage, assuming moderately high response rates are desired, without offsetting negative consequences. There were two experimental groups in the survey. One was the control group who received no incentive, the other group was called the incentive group, and received a $5 cheque in the first mailing. All sample members were reminded of or offered an incentive during the follow-up contacts. The results of the survey were analysed by non-response bias, data quality, and negative reactions to the use of incentives in government surveys. Non-response bias refers to the difference between respondents and non-respondents, and the percentage of those in the sample that did not respond to the survey.

If incentives have a greater motivating impact in groups already highly predisposed to respond, total non-response bias could conceivably increase with the use of incentives. Conversely, if incentives differentially motivate those generally disinclined to respond, they could decrease non-response bias by reducing the difference between respondents and non-respondents in addition to decreasing the percent not responding.

The results of the study showed that although a greater percentage of the incentive group initially responded to the mail questionnaire, this effect declined with successive follow-ups. The difference then between the response rates for the control and incentives groups once all follow-ups had been completed was not statistically significant (86% for the control group, and 88% for the incentive group). This result perhaps suggest that

incentives have the effect of motivating participants during the early stages of a survey, however without additional incentives being offered, this effect diminishes over time.

It has been hypothesised that some respondents may consider that the government is wasting taxpayers money by compensating individuals for work that they should be doing out of a sense of 'civic duty'. Such a negative reaction could contribute to the image of the government as being inefficient and as such diminish the positive impact of incentives in government surveys. However, Shettle and Mooney (1999) found no evidence in their study that this is the case, and none of their respondents complained about the incentives and no angry letters or phone calls were received on the matter. Shettle and Mooney (1999) concluded their paper by stating that,

> *"the authors believe that incentives* can *provide a cost-effective survey tool for use in government surveys when moderately high response rates are needed. This study and the other studies reviewed do not indicate that the potential savings of incentives are paid for through increased non-response bias, decreased data quality, or respondent ill will"* (1999: 247).

1.6.4 Response rates

Yammarino, Skinner and Childers (1991) conducted a meta-analysis reviewing 115 studies that were split into two general categories of consumer groups and institutional groups. The response rates of these studies were correlated against various predictors of response rate, for example:

- Preliminary notification
- Personalisation
- Questionnaire length
- The use of monetary incentives.

The largest frequency weighted mean correlation with response rate occurred with the adoption of incentive payments of less than or equal to $0.5. Yammarino et al. (1991) calculated that the use of incentives increased response by approximately 18% compared to baseline.

1.6.5 Arguments against the use of incentives

Kerachsky and Maller (1981) argued that the effect of incentives on data quality is inconclusive. They propose that, although it may be argued that incentives increase the care with which a respondent completes a questionnaire, if the sole reason that a respondent complies with a survey request is due to the incentive itself, the respondent may take very little care in completing the survey instrument carefully. Shettle and Mooney (1999) investigated the effects of incentives on data quality in their study by evaluating data-item non-response rates in relation to the questionnaire. Most of the areas identified were not statistically significant, however there was a significant difference between the percentage of the respondents from the incentive and control groups in providing contact information requested on the form. Only 26% of the incentive group failed to complete this question, in comparison to 31% of the control group. Shettle and Mooney (1999) interpreted this result as indicative of the respondents in the incentive

group being more willing to be re-interviewed than the respondents in the control group. Shettle and Mooney stated that,

"while this does not necessarily indicate better quality data in the initial baseline survey, provision of additional contact information is likely to contribute to higher response rates, lower response bias, and lower data collection costs in future waves of a longitudinal survey" (1999: 243).

However, it could also be argued that the reason why more respondents agreed to enter their contact details is due to their thinking that they may receive further incentive payments in future surveys or follow-ups.

1.6.6 Cost effectiveness

Brennan, Seymour and Gendall (1993) investigated the effectiveness of using monetary incentives to improve the response rates and cost effectiveness of mail surveys. The authors examined the results from three studies in New Zealand that have specifically looked at monetary incentives of differing values (20 cents, 50 cents and $1), and types (coins, $1 instant lottery ticket, and the promise of $1 donation to charity). Study A consisted of a random sample of 350 people selected from the electoral roll. This sample was split into four experimental groups: (1) control group (i.e. they received no incentive), (2) 20 cent incentive, (3) 50 cent incentive, (4) $1 incentive. The study investigated the potential patronage of a proposed sports centre. Study B examined farmers' use of mineral supplements and consisted of a random sample of 250 dairy and 250 beef farmers. The combined sample was split into four experimental groups: (1) control group, (2) 50-cent coin, (3) $1 coin, (4) $1 instant lottery ticket. Study C involved a random sample of 2154 people and investigated respondents' attitudes towards social inequality. As above, the sample was split into four experimental groups: (1) control group, (2) 50 cent coin, (3) $1 cent coin, (4) respondents were informed that $1 would be donated to charity for each valid return.

The results of the studies showed that the 50 cent and $1 coin incentives proved to be most effective, with each producing an average response rate of 65%, with the 50 cent incentive generally proving to be more cost effective. Whilst the instant lottery ticket and the promise of a donation to charity yielded higher response rates than the control group, they were less effective than any of the coin incentives and were also less cost effective. Brennan et al. (1993) noted that:

> *".....for both the 50 cent and the $1, the additional cost of using the incentive was less than the value of the incentive used…….the reason for this is provided by the response wave data. An incentive is effective because it prompts a speedy response, producing a high response rate to the first mailout. This in turn reduces the cost of subsequent mailouts, since there are fewer non-responses to follow-up, saving the cost of the questionnaires, postage and labour"* (1993: 48).

In conclusion, the results of these three studies suggest that response rates of approximately 65% can be realised by using either a 50 cent or $1 coin incentive. The authors suggest that a 50 cent incentive for surveys of the general public should suffice because even though the $1 incentive resulted in fractionally higher response rates than those produced by the 50 cent incentive, it was less cost effective.

1.6.7 Interactions between incentives and response burden

Singer, Van Hoewyk, Gebler, Raghunathan, and McGonagle (1999) found a significant incentive effect in a meta-analysis of 39 controlled experiments, but no interaction between response burden and incentive. That is, there was no evidence of incentives being less effective in a low-burden survey than in a high-burden survey.

1.6.8 Conclusion

The use of incentives in surveys can positively impact on response rates and possibly the quality of data provided by the respondents. This in turn could impact on perceived response burden. Incentives can be both monetary and non-monetary. By including prepaid envelopes the direct cost to the respondent is reduced thereby reducing perceived burden associated with the survey. Higher response rates have been achieved by including a book of postage stamps given to respondents (McConaghy and Beerten 2003). Money, on the other hand, can act as a motivational incentive to respond to a survey. Although monetary incentives appear to be useful in initially obtaining a higher response rate than if no incentive was offered, the results of Shettle and Mooney's (1999) study suggest that the motivational effect of an incentive may decrease over time.

Appendix 1.A

Office for National Statistics
Room D140
Government Buildings
Cardiff Road
Newport
UK

25th March 2003

Dear ……

Re: Developing methods for assessing perceived response burden

The Office for National Statistics (ONS) in the UK, along with Statistics Sweden (SCB) and Statistics Norway (SSB) are undertaking a joint project partly funded by Eurostat to develop methods for assessing perceived response burden. As part of this project ONS are contacting other National Statistics Institutions to identify current practice in measuring response burden; any research that has been undertaken; and key literature.

We are therefore asking if you could spare some time to respond to the following questions:

Measuring response burden

1. Does your institution currently measure response burden?
2. If yes, how does it currently measure response burden?
3. Do you have any internal documentation that you could send to us?

Research

4. Has your institution undertaken any research into measuring response burden?
5. If yes, what research has been undertaken?
6. Do you have any documentation that you could send to us?

Literature

7. Do you know of any relevant literature references for measuring response burden?
8. If yes, could you send us the reference details?

Any contribution that you feel you could make to this project would be very much appreciated. If possible we would like to receive response by .....
If you would be interested in receiving a copy of the final report in 2005 please indicate this in your response. I look forward to hearing from you in due course.

Yours sincerely

Jacqui Jones
Head of Data Collection Methodology
Methodology Group
Office for National Statistics

Part 2

The Current Situation

2.1 Introduction to Part 2

In Part 1, the literature on response burden and neighbouring areas were reviewed. In Part 2, we start with a brief summary of the characteristics of business surveys that make them different from other surveys. In subsequent sections, interviews with survey managers on response burden are summarised and previous work relevant to response burden done by Office for National Statistics, Statistics Norway and Statistics Sweden is collated.

2.1.1 Characteristics of business surveys

There are clear differences between business and social surveys, see e.g. Edwards and Cantor, (1991), Cox and Chinnappa (1995) and Rivière (2002). Rivière makes the point that a business population is extraordinarily heterogeneous in terms of size, economic activity and behaviour.

Business populations are highly skewed. This population structure calls for unequal sample inclusion probabilities with higher probabilities for large businesses. The very large businesses tend to be included in all business surveys. Medium-sized businesses may take part in more than 10 surveys every year. While these businesses may have a response process in place that allows them to respond to surveys effectively, they do have a significant response burden imposed on them. ONS and Statistics Sweden coordinate surveys with Permanent Random Numbers (Ohlsson 1995) to reduce burden.

In Sweden, Norway and the UK measures are taken to protect small businesses from being included too often in surveys, since these businesses are believed to be more sensitive to response burden than large businesses. In the UK, these measures are formalised in the Osmotherly rule (Osmotherly et al. 1996, see also section 1.2.2.2) which states that businesses with employment between 0 and 9 are guaranteed that, if selected for an ONS business survey they would be notified of the period during which they will be included in the survey. Following the specified period they are not required to contribute to any other statutory ONS business surveys for the following three years.

In household surveys advance letters are sometimes sent to respondents to lower non-response rates in subsequent data collection. Interestingly, Statistics Norway employs a rather similar strategy in their business surveys. In February each year, Statistics Norway sends out information to all enterprises with 20 or more employees, telling which questionnaires they will receive the following 12 months. Every inquiry is listed with its starting month and due date.

Most business surveys are mandatory. They are largely carried out by National Statistical Institutes (NSIs). Business surveys have in the past tended to focus on cost, timeliness and stability of time series, at the expense of issues such as question and questionnaire design. We argue in this report, particularly in section 3.6, that this is shortsighted: not spending enough on the design of the survey will incur costs further down in the survey process. A similar point has been made by, among others, Dillman (2000).

Other characteristics of business surveys include:

Business surveys communicate with respondents by:

- sending out advance letters (Norway),
- sending out letters to new respondents with the survey questionnaire (UK),
- having a front page letter to questionnaires,
- response chasing and data validation by telephone.

Business survey data collection instruments are:

- largely paper self-completion questionnaires based, although web-based self-completion questionnaires are being introduced,
- generally not well designed,
- designed within costs limits, e.g., paper, printing, postage and processing,
- often not asking questions but just have headings,
- sometimes heavily burdened with accompanying guidance notes (e.g. the UK New Earnings Survey is a two sided questionnaire with 4 sides of accompanying guidance notes).

Responding to business surveys:

- involves up to three layers within the business – the business as a whole, gatekeeper(s) and respondent(s),
- often involves more than one respondent in the business (e.g. pay and personnel respondents are needed to complete the UK NES/ASHE survey),
- is dependent on the availability of data from business records,
- is focussed on timeliness,
- may require authorisation to release the data.

2.1.2 The experience of business survey managers

The experience of business survey managers at Stastistics Sweden, Statistics Norway and the Office for National Statistics can be summarized in the following points[1]. First there are issues about the ***data collection instrument***.

- Many business survey managers are very conscious of the length of the questionnaire – a long questionnaire will look more burdensome than a compact one even if they have same number of questions. Similarly, having many questions may give a bad first impression, even if they are easy to answer.
- Immediate understandability of questions – taking a quick look at the questionnaire will give the respondent a feeling of how difficult it is to fill in. This and the previous factor will give a first impression, which may determine the respondent's attitude towards the survey.
- Layout – this and the following factors will be important when the questionnaire is actually filled in. A good layout with relationships between different questions clearly shown is important.
- Comprehension of questions – if the respondent cannot understand the questions, the burden felt will be heavier, since the respondent will think the questionnaire is difficult.
- Contents and data availability – is the information needed available to the respondent at once, is it easy to retrieve or does filling in the questionnaire require a lot of work to find data, and maybe also a lot of contacts with people at other departments of the enterprise? This kind of work, to find and retrieve data, is regarded by business

[1] An early version of these points was based on a set of interviews with business survey managers at Statistics Sweden, conducted by Johan Erikson.

survey managers as being very burdensome. In many NSIs, and in the Nordic countries in particular, concerted efforts have been made to utilize data in administrative systems and businesses' own databases. The more this succeeds, however, the more often questionnaires will be limited to questions for which data are not readily available from the businesses' administrative or economical systems. This situation forms a challenging task for the survey designer.

- Instructions and automatic editing – having easy access to clear and helpful instructions will probably lessen the burden on the respondent. On the other hand, too much and too difficult information will probably put an additional burden on the respondent.

The mode of the survey is viewed by business survey managers as important.

- Normally, survey managers seem to think that respondents like electronic questionnaires, but there is also a risk, they feel, that if no other mode is allowed some respondents might turn very negative; this may happen if the respondent is not familiar with the internet for example, or if there are technical problems in gaining access to the electronic questionnaire.

Timing is viewed as essential. There are two aspects to timing: whether respondents' deadlines of different surveys are staggered and whether the timing suits the business.

- If a respondent has not received a questionnaire in two months, s/he will be more positive than if it is the seventh questionnaire received the same week.
- The importance of the timing of the survey in relation to other deadlines of the respondents (e.g. tax returns and internal accounting) is stressed by survey managers. Having to fill in a large questionnaire at a very inappropriate time will mean a greater risk of non-response and measurement errors.

Finally, it is essential to provide prompt ***service*** to respondents when they need assistance.

- If the respondent is stuck or has other questions regarding the survey or the questionnaire, it is essential that s/he can get the information he/she needs. According to survey managers, there is probably nothing worse for a respondent than having to phone the statistical office a number of times to get help, only to find there is no one in the office who can help.

2.1.2 Response times

Most survey questionnaires take less than a couple of hours to complete. At Statistics Sweden respondents to three surveys were asked to state their response times. For two of them the median response time was about 30 minutes. For the third one, Intrastat, the median response time was considerably longer. See further details in Section 2.2.

These response time surveys gave on the whole fairly different result to what survey statisticians at Statistics Sweden had assumed before these surveys were conducted. The differences did not go in one direction only. One might have conceivably thought that respondents tend to overestimate time spent, but this is not a conclusion that can be drawn at this stage. Preferably, analyses of response times should be based on data given by respondents themselves.

All survey managers at Statistics Sweden are asked once a year to provide their estimate of the average response time. The basis of the estimates (assessments) of response time

varies from limited amount of data to actual surveys of response time such as those described above. Figure 2.1 displays a bar chart response times for business surveys conducted in 2003. Ten survey managers report average response times of two hours or longer; the median is 25 minutes.

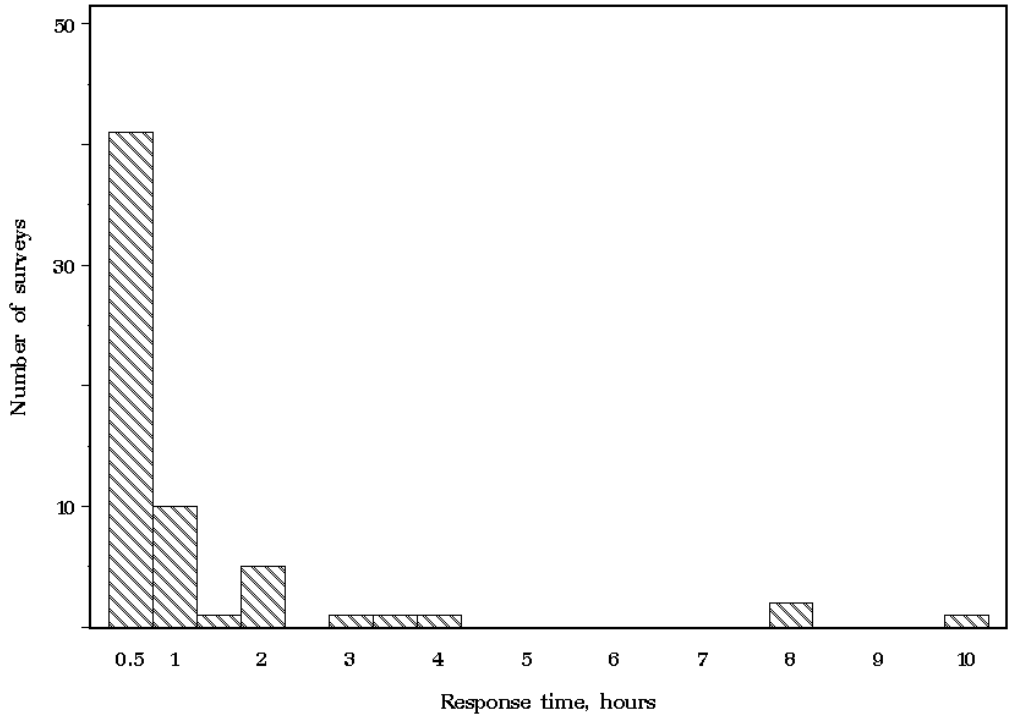


Figure 2.1. Average response time for business surveys, as estimated by survey managers.

As response times form a highly skewed distribution, the tradition of reporting average response times only is inadequate. Summarising measures of response times should include the median and the lower and upper quartiles. A higher percentile, such as the 90^{th} percentile, may also helpful to assess response times for the businesses that devote most time to the response process, although the validity of very long response times reported by a minority of respondents may be hard to assess.

Statistics Norway publishes summaries of the total response time by businesses, as estimated by survey managers. The time series of these estimates shows a downward trend; see section 2.4.6.

2.1.4 Other work on response burden

Questions on response burden have in general in the past been confined to response time and even those have been scarce. However, respondents to the Intrastat survey in Sweden were asked 'How easy is it to complete Intrastat declarations...' with a five-point Likert scale as response categories. Almost 40% found it easy. This rather surprising result could be explained by the fact that that only vastly experienced respondents were included in the target population of the response burden survey. On a more discouraging note, a refurbishment of the survey went largely unnoticed by the respondents. See further details in Section 2.2.

The effects of pre-printing data from the previous response from the same business have been studied recently. Both Statistics Sweden and Statistics Norway utilize pre-printing

to ease response burden. The Office for National Statistics has abandoned pre-printing in business surveys since it was discovered that it leads to respondents reporting less change than they otherwise would have done. In contrast, Holmberg (2004) conducted an embedded experiment in one survey and found that measurement errors are likely to be smaller with pre-printing than without. Since pre-printing most likely reduces response burden, or is at least neutral to it, it is worth further investigation. See section 2.5 for a summary of Holmberg's paper.

Despite the amount of information on response burden issues reported here, we have found that many efforts made in the past to reduce response burden have been poorly documented. One can only speculate on the reason for this. Most of this work has been done by the organisational units responsible for the production of statistics. In these units the focus tends be on production and not on documentation. Holmberg's (2004) research on pre-printing was different. This project belonged to a methodology unit and eventually resulted in an article in a refereed journal.

2.2 Assessment of the Burden of the Swedish Intrastat Survey on Statistical Information Providers – a Summary

A survey regarding the burden of the Intrastat system on statistical information providers was conducted in 2002. The results are given in the report "Assessment of the burden of the Intrastat system on statistical information providers", Koppies Consult BV and Netherlands Economic Institute, February 2003. The report consists of one frequency table for each question in the questionnaire together with a short comment for each table. There is a short summary of the report in section 1.2.2.1 under the headline Statistics Sweden; here are some additional results taken from the report.

Only respondents that had been included in the monthly Intrastat samples for a period of at least two years were included in the response burden survey. Eurostat, which coordinated this response burden survey and similar surveys conducted in several countries, decided to exclude businesses that had participated in the Intrastat system for a shorter time than two years.

Table 2.1 reports on time for completion of the Intrastat declaration. About 70% of the respondents, 481 in total, need less than 4 hours to complete the questionnaire. Less than 10% require more than one day. The distribution is highly skewed with the vast majority using less than four hours.

Table 2.1. Average time required to fill in the Intrastat declarations. Per cent of respondents. Unweighted.

Time	
Less than 1 hour	29.5%
1 hour – 4 hours	43.7%
4 hours -1 person-day	17.0%
1 - 5 person-days	7.9%
6 – 10 person-days	1.7%
>10 person-days	0.2%
N	481

Table 2.2 reports on the self-assessed difficulty completing the Intrastat declaration. About 10% consider the system being difficult or very difficult. The exact formulation of the English version of the question was 'How easy is it to complete Intrastat declarations at the moment?' (in Swedish 'Hur lätt är det för tillfället att rapportera Intrastat?').

Table 2.2. 'How easy is it to complete Intrastat declarations at the moment?'. Per cent of respondents. Unweighted.

Very easy	9.6%
Easy	29.7%
Neither easy, nor difficult	50.3%
Difficult	8.5%
Very difficult	2.1%
N	481

The question is loaded towards a positive answer. Even so, we think it is right to say that respondents in general, the respondents do not encounter major difficulties completing the Intrastat declaration. There is no discernible difference between small and large traders in this respect. The respondents consider the commodity code and net mass the most difficult information items to complete.

A large majority (72%) complete the Intrastat declaration manually. Less than 5% of the respondents produce the Intrastat declaration completely automatically. 80% of the respondents use invoices as their primary source of data. The internal administration and transport documents are also used as a source for the Intrastat declaration. Other sources are rarely used.

2.3 Surveys on Actual Response Burden at Statistics Sweden

2.3.1 Data on actual burden provided by businesses

Business surveys at Statistics Sweden do not usually include questions on response times. In 2001, a question on response time was added to the regular questions in three business surveys (Statistics Sweden 2001). The aim was to make possible formal estimation of actual response burden in terms of time. The surveys were

- Wages and salaries in the private sector (KLP)
- The monthly and quarterly business surveys on production, sales, etc. (KortInd)
- Intrastat

Only a subsample of the Intrastat sample was asked this extra question. The question was asked on an additional form that contained only this question with some information why this question was asked. The instructions to the question state that time spent on reading instructions, collecting the necessary data and completing the questionnaire should be included. This form was sent out together with the regular, mandatory forms. The extra form was voluntary and suffered from a higher nonresponse rate than regular (and mandatory) business surveys at Statistics Sweden; the response rates were 55, 43 and 62%, respectively. The nonresponse rate in KortInd, for example, is usually around 17%. Table 2.3 gives the average and median response times for the surveys. As expected, all averages are larger than the medians, indicating skewed distributions. Table 2.4 reports on response times for KortInd by size.

Table 2.3. Response times as given by respondents. Averages and medians.

Survey	Sample size	Number of respondents	Average (minutes)	Median (minutes)
KLP	8 551	4 680	55	36
KortInd				
Monthly	2 423	1 044	50	30
Quarterly	2 423	1 044	55	30
Intrastat				
Import	1 255	855	170	155
Export	979	532	180	145

Note: The KLP estimates are unweighted.

Table 2.4 Response times for the monthly and quarterly KortInd surveys by size of business. Averages in minutes.

Size, employment	Monthly	Quarterly
5-9	54	47
10-19	45	45
20-49	40	52
50-99	49	54
100-199	37	50
200 +	53	67

2.4 Efforts to Limit Response Burden in Norwegian Economic Statistics[2]

2.4.1 Main efforts to reduce response burden

Statistics Norway is well aware of the burden our questionnaires represent to the business community. Efforts to simplify and minimize the response burden has been going on for years, and one of our objectives is to keep the response burden as low as possible. One of the main challenges is to establish a good overview of the statistical population. The introduction of a unique public identification number for all legal units and their local establishments has been the pivotal element in this work.

Statistics Norway's data collection strategy directed towards business community consists of the following main elements:

- The Statistics Act gives the framework for the work
- Statistics Norway should take part in general public coordination activities
- Information to a public institution should be reported only once
- Re-use of administratively collected data
- Re-use of data originally collected for other statistical purposes
- Extracts from the enterprise's own data systems
- Simplification of questionnaires and response procedures, including Internet use.

The efforts to reduce response burden can be divided into three areas:

1. Activities directed straight towards the response unit, i.e. the primary source of information
2. Activities directed towards secondary sources (register information, chain offices, etc)
3. Activities directed towards a combination of these two sources (preprinting of register information, third party information, etc)

2.4.2 General public coordination activities

The Register of Legal Units has as its main task to coordinate the basic public information in various public registers about enterprises and public institutions. Instead of each and every public office to send out its "own" questionnaire to the enterprises, the Register of Legal Units ensures that all information is collected and remained in one place. When the register opened in 1995, it was characterized as one of the most important efficiency activities in public life for a long time.

The Register of Legal Units holds basic public data about all units with registration duty in the Register of Employees and Employers, The Value Added Tax Register, the Enterprise Register, Statistics Norway's Register of Enterprises and Establishments, Tax Return Register and the regional commissioner's Register of Foundations. Other units may register voluntarily in the Register of Legal Units. Many banks now use the unique identification number as an identification of their customers.

[2] Thanks to Director of Department for Industry Statistics, Mr Nils Håvard Lund. Section 2.4 is based on the paper ”Response burden. Methods to estimate and limit response burden”, written by Mr Lund, and prepared by Mr. Yngve Bergstrøm and Mrs. Elisabeth Gulløy

The nine-digit organization number identifies the units and makes it easier for public authorities to cooperate for exchange of information. According to the Legal Unit Register Act, other governmental registers have a duty to cooperate with The Legal Unit Register, and also to keep the register information updated. A coordinated register notification has replaced the previous registration schemes from various public authorities. This joint register notification secures the spreading of data to those authorities needing new or updated public information.
By using one joint register for sharing of information, the questionnaire work will be easier for businesses and others running economic operations. Many associations and others without a legal duty to register still see the use of voluntarily registering in The Legal Unit Register. The registration is free of charge.

The Legal Unit Register only contains statutory information, and everybody has access to the open information in the register, such as correct name and address, id number, purpose, branch and contact person.

The Register of Reporting Obligations' main task is to keep running records of the business society's reporting obligations towards official authorities, and to identify coordination and simplification possibilities. The purpose is to avoid unnecessary collection and registration of information, particularly considering the situation for small and medium sized business. This register gives an overview of all the different information demanded and collected from the businesses by the many different registers and authorities in Norway. Every single piece of information is kept by the receiving register or authority as before, while the Register of Reporting Obligations only keeps track of who has *what kinds of* information. The overview is recorded in a metadata base.

The Register of Reporting Obligations' should compare questionnaires from different authorities. If two or more ask for the same information to the same type of businesses, these authorities shall cooperate to avoid double requests and registration. The Reporting Obligations Act *demands a coordination duty* from the authorities. In addition, the register keeps track of which permits you need to run a business within different sectors, and how to acquire these permits.

Today, the Register of Reporting Obligations is limited to cover obligations towards central government authorities. Later, the plan is to extend it also to cover regional and local authorities as well.
Due to the protection of privacy regulations, exchange of information between different authorities is restricted. Having access to another units' information is only allowed for units with the right to collect the same type of information directly from the business.

Many types of questions about reporting obligations can be answered from the Register:

- Which reporting obligations are valid for our business/company?
- Where can we turn to receive a particular scheme/questionnaire and fill-in instructions?
- Which authorities have the right to access our information after we have sent it?

By taking part in the international statistical work in Eurostat, Statistics Norway often argues against actions increasing response burden and/or higher degrees of detailed reporting, balancing the value of the statistics towards the burden for the response units. One example is that we now reject the making of so called ad hoc surveys as a mandatory part of the structural statistics.

The Ministry of Trade and Industry has started a pilot project, giving visits to a sample of businesses and enterprises wishing to discuss obligations of reporting to government. Statistics Norway has joined visits to industrial enterprises. Not so many enterprises have ”volunteered” yet. Still, we expect them to be of the kinds who have put quite some efforts in going through the reporting obligations, and that they thereby might have valuable ideas and suggestions for improvements. The first visit took place on January 26, 2004, and the host response was good.

2.4.3 Efforts directed towards the response units – the primary source of information

In producing statistics, both sample size and sample distribution between small and large businesses must reflect and be adjusted to quality requirements. These days, we also have to adapt to the relatively precise quality requirements stemming from the mandatory EEA[3]-regulations, for instance when it comes to sample size. For short-term statistics, we try to limit ourselves to quarterly results instead of monthly and to use administrative data sources whenever possible, if this is in line with international requirements. Whenever possible, small businesses and establishments are taken out of samples after a while, thereafter to be protected from new sampling for a certain period.

We have established information campaigns towards response units about the reporting obligations they can expect. In February each year, Statistics Norway sends out information to all enterprises with 20 or more employees, telling which questionnaires they will receive the following 12 months. Every inquiry is listed with its starting month and due date. In addition, a contact person is named for each inquiry and this survey's responsible unit within Statistics Norway, and we also inform about our activities to reduce the response burden for business society.

An evaluation of the information given was conducted in 2003, to check how precise the information given in February turned out to be when all samples were drawn by the end of the year. The results are available at our website www.ssb.no. The information letter was sent to 8 350 enterprises. The analyses showed that about 50% received correct information, but the rest received a higher number of questionnaires then preannounce in the information letter.

We have put quite some efforts into making it possible for our respondents to deliver their questionnaires via the Internet. Technical solutions are now in place, and we have received positive feedback from response units using the system.

Simplification of questionnaires and response procedures, including Internet use

A separate web solution

After July 1, 2004, all our surveys directed towards businesses and enterprises will have an electronic response alternative. Statistics Norway has two parallel electronic portals available as per date (IDUN and Altinn).

[3] EEA: European Economic Area

Idun
Through the IDUN-project[4], Statistics Norway has established a separate web solution for collection of data from spring 2003. An important part of the project is to establish routines for real *exchange,* or return of information, with the reporting units. An example of returned information might for instance be the reporting unit's own data put together with comparable data for the whole or parts of it sector. We believe that this will stimulate motivation in the reporting unit, and also showing the value of statistics. The statistics for energy use in industry has such a system for return of information today.

AltInn[5]
AltInn is a cooperation project between The Directorate of Taxes, the Brønnøysund Register Center and Statistics Norway. The solution will make it possible with large scale electronic reporting from enterprises via the Internet. From 2005, the solution will also be available for private persons. Tax return information to the Directorate of Taxes will form the major part of the reporting.

Statistics Norway takes part in the AltInn with our own surveys. In the pilot, we have two statistical products included: wages and salary statistics and statistics on job absence. In addition, we work to ensure that other kinds of information reported within the AltInn might be used for statistical purposes. By developing procedures for this, we contribute to a system making it possible to withdraw data extracts from the enterprises' own data production systems as well as personnel and salary administration.

Taylor-made paper questionnaires
In some of the surveys, the questionnaires are developed in several variants, to make them best possible adapted to the different groups of response units.

Electronic questionnaires
At present, we are developing so called dynamic electronic questionnaires, guiding the response unit to the next question depending on what was answered on previous ones, *or* what the response unit answered in earlier surveys. This means that each questionnaire is individually tailor-made to fit the actual unit's situation. Controls are also built into the questionnaires, so that logical mistakes can be corrected instantly. These types of questionnaires utilize technological possibilities more efficiently, compared to a plain translation of an ordinary paper questionnaire into electronic format. One condition for this system to work smoothly is that "foreign" software never is downloaded to the clients' computers. Otherwise, we would risk a situation where we would have to update the software on each client's computer instantly due to changes etc.

2.4.4 Activities directed towards secondary sources

The Statistics Act opens up for Statistics Norway to have access to all public registers. In addition, it says that Statistics Norway shall be consulted whenever changes are planned in these systems. We have therefore entered into cooperation agreements with the register owners to be able to fully utilize the registers. The agreements regulate the transfer procedures for data to Statistics Norway, and the cooperation between the various public units involved. The introduction of a unique unit identification number[6] has opened up for new ways to re-use data.

[4] IDUN: Informasjons- og datautveksling med næringslivet, i.e. "Exchange of information and data between Statistics Norway and business society".
[5] AltInn: Alternative reporting channel
[6] The nine-digit organization number

Use of data collected by others
This is the most important contribution to reduce the response burden. The objective is that information only needs to be reported once to a public office of whatever kind. Statistics Norway utilise 60 different public data registers for statistical purposes. The GAB (Ground Property, Address and Building Register), The Register of Legal Units, The Register for Certificates of pay and tax deducted[7], The Register of Employees and Employers, The VAT register, The Customs Register ("TVINN"), The Farm Register, The National Population Register and Personal Tax Return Register are examples of such registers utilised for statistical purposes. We also cooperate with and have close relations to the Directorate of Taxes, the National Insurance Administration, the Directorate of Customs and Excise, the Norwegian Public Employment Service ("Aetat"), the Brønnøysund Register Center and the Norwegian Agricultural Authority. Statistics Norway uses the organisation number and the personal identification number as match keys to develop comprehensive statistics and show coherence between different data sources. One condition for full utilization of administrative data systems is sufficient data quality and updating without too much delay. This is unfortunately not always the situation today. Especially for the purpose of monitoring the general business tendencies, registers are of little or no use.

Extracts from the enterprise's own data systems

Collection of data from third party units
Third party units can for instance be central chain offices. This particularly concerns collection of data for the monthly detail trade index and consumer price index. Previously, a sample of individual shops was drawn to answer the questionnaire. Today, the chains' head offices give information for all the shops within the chain, on voluntary basis. This has meant a considerable alleviation for each and every shop. At the same time, Statistics Norway receives data from a far more extensive sample than before. For instance, today, 67 head offices now reports for 7 200 local shops, while we previously collected reports from every single shop out of 5 000. Efforts are now taken to arrange a similar system for chain units within other industries, like petrol stations, taxi companies and forwarding transport agents.

Salary statistics
For many years now, Statistics Norway has offered enterprises to report their salary statistics electronically. We cooperate with deliverers of relevant data systems to see that automatic report extracts are included in the systems. The extracts can then be sent to Statistics Norway on diskettes. As soon as we have developed a satisfying data transfer solution written in code, reporting can go through the Internet. The salary statistics in Statistics Norway now have total coverage. This means that business organizations no longer need to collect their own salary statistics. Statistics Norway has contributed to a reduction in total response burden for the business community, although seen isolated, reporting to Statistics Norway is not reduced at all.

We also try to develop other types of reporting via third parts. For instance, wholesale traders sometimes have full information on the purchases of raw materials for single producers. In such cases, it would be better in terms of resource saving to collect information directly from the wholesale traders. The Statistics Act does give a title deed to such a collection, and it could be relevant for several branches to collect individualised information from, for instance, the importer instead of the retail trader. This would

[7] In some English-speaking countries, the same register is called "The pay as you earn Register".

particularly be appropriate in situations where there are a few towards many connections between the different operators. Another example is the collection of information on turnover in alcoholic commodities directly from Vinmonopolet[8] and other importers instead of giving each restaurant a duty to report. The concrete industry is yet another example.

We lack important information about pension rights built up outside the governmental pension scheme in the salary statistics today. These are third party information administered by the insurance companies, which Statistic Norway thereby does not collect. Such information is regarded as very important for the improvement of salary statistics, for analyses of living conditions, distribution, income and savings, as well as future pensions.

A new source of information of relevance today is data from credit card companies. These data will possibly be combined with a sample survey to calculate the spending of foreigners travelling in Norway as well as Norwegians travelling abroad.

Balance sheet data
From 2001 a considerable number of enterprises have used an electronic reporting solution that The Directorate of Taxes has offered for reporting of balance sheet data. These data are later used by Statistics Norway in our structural business statistics and our account statistics. The units now using The Directorate of Taxes' electronic solution do not need to report the same type of information to Statistics Norway.

2.4.5 Efforts directed towards a combination of primary and secondary sources

Preprinting of register information in questionnaires

Most surveys use contact information and basic data from the central population registers - The register of Legal Units and Statistics Norway's Register of enterprises and establishments. In the yearly structural statistics, data for small units are collected from the registers and are written into the questionnaire sent to the response unit. The response unit is asked to control the information and to correct wrong information.

For simplification of the fill-in process, we in addition preprint other known information, such as addresses, identification number etc. on the questionnaires.

Pre-printing of statistical information collected previously and/or for other purposes

A similar technique is used for instance in the production statistics. The questionnaire sent out for each unit is preprinted with answers given previously. If the product composition, or mix, has changed, then the response unit can add new product specifications from an attached list. This technique makes it easier for the response unit to answer. On the other hand, there is a certain danger that we loose information about production change, or receives it "too late". In other words, we get partial non-response.

[8] The national wine and spirits monopoly

2.4.6 The response burden for statistical purposes is low

* The estimated person hours are for all reporting to the authorities and Statistics Norway that is statutory.

As seen in the table above, the estimated response burden put on Norwegian society from Statistics Norway is quite low. For 2003 The Register of Reporting Obligations has estimated the total response burden for all Norwegian businesses to 6560 person years. This burden is caused by statutory reporting obligations to the government, and only a very little part of these resources are used on statistical reporting – about 92 person years. Hence, the statistical reporting only constitutes a small part of the total reporting obligations for businesses. The burden estimates are partly based on information given by respondents and partly on information from Statistics Norway. Our estimates are based on a print from our register of products, where basic information about all our surveys is updated.

As long as all response units fill in a paper questionnaire, to make estimates for average time use in each survey has been quite easy. Now we have another type of situation, where approximately half the response units use the web questionnaire solution and the other half use the paper version in some surveys. It has been discussed whether time use on the Internet solution is comparable with time use for the paper version. What if time use, and thereby our response burden, is larger in the introductory fill-in phase by Internet, compared to when we start filling in the paper questionnaire? Then we end up with a paradox: the positive feed-back we have received from response units on the Internet solution is still measured as an increase in the total response burden. Since time is running out for the traditional time use survey to our respondents, Statistics Norway has started the search for an alternative method to measure response burden.

2.4.7 Key numbers on data collection in Statistics Norway

Most enterprises in Norway are never included in Statistics Norway's surveys. Out of 304 000 enterprises (not including agriculture, forestry and fishing), as many as 232 000 (76

per cent) are left out. Most of the left-outs are relatively small units. In the group of enterprises with 0-9 employees, only 19 per cent are included in one or more survey. Among these, almost 90 per cent take part in only one survey (see table below).

Number of surveys for smaller and larger enterprises

No. of surveys	No. of enterprises	No. of employees		
		0-9	10-19	20 or more
Total	303 811	280 859	12 972	9 980
0	231 782	226 315	4 604	863
1	55 548	48 742	4 760	2 046
2-4	13 997	5 721	3 410	4 866
5-9	2124	80	195	1849
10 +	360	1	3	356

Statistisk sentralbyrå
Statistics Norway

In the group "Enterprises with 10-19 employees", 36 per cent are included in one or more surveys. 198 enterprises are taking part in 5 or more surveys, 3 establishments in 10 or more surveys.

In the group "Enterprises with 20 or more employees", the majority is taking part in one or more surveys. Almost 25 per cent are included in 5 or more surveys, and 356 enterprises are in 10 or more. Thus, the response burden is heavier for the largest enterprises.

The response burden towards enterprises follows a skewed pattern. As many as 76 per cent of the enterprises never hear anything from Statistics Norway since we receive enough information about these units from the administrative register systems. We are thus able to produce the statistics about these units solely on a register base. Among the remaining 24 per cent, many are heavily charged. Statistics Norway will have to give these large units special attention in the time to come.

2.5 A Large-scale Experiment on Pre-printing

In surveys where respondents are contacted repeatedly, information from previous data collections may be used in the following data collections. The responses then become dependent on the presentation and the quality of that information. Normally, the presented information is historical data concerning older reference periods. In addition to providing data for the current reference period, the respondents can verify and if necessary amend the historical data. The arguments for presenting historical data to respondents are:

1. It increases the efficiency of the data collection.
2. Previous errors can be corrected.
3. It reduces response burden.
4. It may reduce measurement errors and spurious response variability.

Possible drawbacks are that it can conserve errors and it might lead to underreporting of changes from one period to another.

One example where response burden arguments were used in connection with pre-printing is reported in Holmberg (2004). He reports on a project undertaken at Statistics Sweden in 2001 about pre-printing in self-administered questionnaires. The aim of the project was to investigate the extent of use and to collate the experiences of pre-printing in business surveys.

An argument that some survey managers put forward was that pre-printing simplifies the questionnaire. In communication with respondents they have noticed that respondents find that filling in the same hardly never changing data is a source of irritation. Since respondents simply can verify that the pre-printed values still are valid or update them if necessary, pre-printing was introduced for some variables as a means of simplifying the response procedure.

Holmberg (2004) presents also the main results of a formally designed experiment on the use pre-printing versus no use of pre-printing, as well as a general discussion of pre-printing experiences at Statistics Sweden. In his view, pre-printing leads to fewer clearly incorrect responses and fewer outliers.

Part 3

Understanding

Perceived Response Burden

3.1 Introduction to Part 3

Dan Hedlin, Statistics Sweden

After having collected in-house information on response burden, we turned our attention to the respondents themselves. Each project partner organised focus groups at their National Statistical Institute (NSI) or conducted face-to-face cognitive interviews at the sites of the respondents to collate concerns among respondents with bearing on response burden. Sections 3.2 and 3.3 provide a detailed account of how the focus groups were set up and run.

This subproject proved particularly fruitful. The results (sections 3.2 - 3.5) underline the large variation among respondents and the multi-faceted nature of the concept of perceived response burden. For example, some respondents feel that the survey they have been asked to take part in is burdensome although they have no problem with 'classical' response burden factors, such as response time, respondent's effort, survey frequency, and stress of disturbing questions. It would appear that for some respondents it is rather the lack of understanding of the purpose of the survey that is perceived as burdensome. Other respondents, on the other hand, may find the questionnaire genuinely time consuming. Response burden factors include respondent's knowledge of the survey organisation and the particular survey, their prior exposure to the survey, the timing of dispatch and return date, the number of people involved in the response process, survey design and mode of data collection. Also, respondents' own data inaccuracy makes them believe that the resulting statistics must be equally inaccurate. On the positive side, respondents appreciate feedback of survey data, in particular if they can compare their businesses with domain averages. Some respondents have constructed bespoke software or added functions to their regular software to facilitate the completion of the questionnaire.

As was pointed out by Haraldsen (2002), a respondent's perceptions consist of actual and perceived burdens, on the one hand, and rewards on the other hand. The respondent may feel, for example, that s/he is taking part in a socially useful enterprise or may expect some gift in return. This can be summarised graphically, see Figure 3.1.

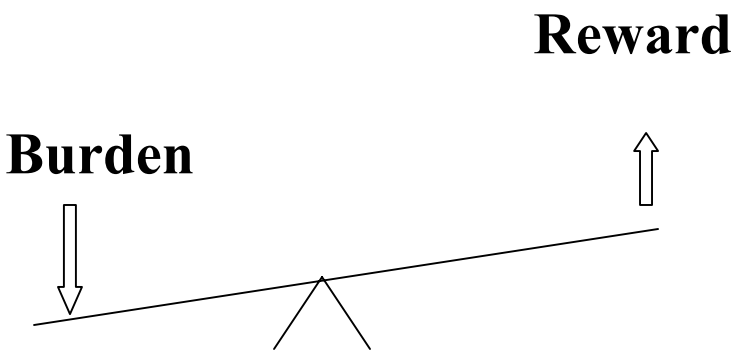


Figure 3.1. A graphical representation of the two sides of perceived response burden.

In sum, common themes of perceived respondent burden were drawn out from the research findings (see details in sections 3.2 - 3.5). The factors that influence perceived response burden can be organised under the following headlines.

1. Existing response structures (e.g. whether the information required is easily available to the respondent).
2. Timing of survey.
3. Question design (e.g. question wording and terminology issues).
4. Questionnaire design (e.g. layout and number of questionnaire pages).
5. Mode of data collection (e.g. web data collection or a choice of different modes).
6. The total number of questionnaires the respondent has obtained.
7. Perceptions of the NSI and the survey (e.g. knowledge of NSI and purpose of survey).
8. Feedback of survey results and other rewards.

The extensive communication with business survey respondents reported here in Part 3 makes it clear that respondents *interpret* questions, without necessarily reading and comprehending the questions in great detail. They attempt to give reasonable answers, although they will not necessarily spend time and effort to find the most accurate answer they could feasibly achieve. In this sense, they will take the edge off the response burden themselves: if they feel the burden is too heavy, they will seek reasonable short cuts. Having said this, we reiterate the very important finding that there is great variation among businesses and respondents within businesses.

Section 3.6 presents a model of 'Total Business Survey Burden (TBSB)'; see in particular Figure 3.2. Burden is transferred from stakeholders and survey organisations to businesses, and back, in a cyclical process. The entities in this model are

a) survey requirements,
b) survey design (sample and questionnaire design),
c) response environment,
d) response outcome,
e) data transferred to survey organisation (with measurement errors).

The actors play an essential role in the model as well as in our understanding of total burden. They are conceptualised as

A. stakeholder(s),
B. the survey organisation,
C. business(es),
D. gatekeeper(s),
E. respondent(s).

For example, unrealistic expectations by a stakeholder may be implemented by the survey organisation in an over-ambitious questionnaire. Poor questionnaire design may further exacerbate the burden, which is transferred to the business. If the cover letter and the questionnaire itself have misleading information, the gatekeeper may pass on the questionnaire to an inappropriate location within the business. If and when it eventually reaches the right person(s), i.e. the respondent(s), the cumulated burden may result in non-response and, if there is a response, this may suffer from measurement errors. The survey organisation, in turn, will have to call back or statistics will suffer from poor quality. Hence we go further towards a holistic view of burden than e.g. Bradburn (1978) who focussed on the respondent.

Section 3.6 underlines the point that the respondent's overall perception is determined by both burden and reward. The evaluation made by the respondent is based on the survey properties and his/her characteristics (interest and knowledge), knowledge of the survey organisation and the particular survey, and also prior exposure to the survey. Other factors are the timing of dispatch and return date, the number of people who need to be involved in the response process and the mode of data collection. The work environment of the respondent is very important in business surveys. Large businesses tend to have systems through which the respondent can gain access to the data.

3.2 Pre-field Testing of Perceived Response Burden

James Rushbrooke and Jacqui Jones, Office for National Statistics

3.2.1 Introduction

The aim of the sub-project was to explore response burden as perceived by respondents. This was achieved by using a range of research methods including cognitive interviews and focus groups. The findings from this initial exploratory work have been used to develop a set of attitudinal questions aiming to assess perceived response burden.

3.2.2 Business response burden focus group

Topic Guide
Three core themes were identified following the review of the response burden literature (Part 1). The design burden incorporates issues such as the layout and the order of the questions on the survey. The definition of questions and their difficulty are also categorised under this theme. The second theme identified was that of *respondent* burden. Topics include the amount of prior exposure the respondent has had of the survey and their position within the business. The third and final theme concerns that of the potential burdens which affect the business. Most of the areas within this theme are at an institutional level. Key aspects of business burdens include the financial costs in hours it takes to complete the survey and the extent of existing structures that are in place to respond to the survey. The focus group topic guide (Appendix 3.A) was based on the themes drawn out from the literature. The topic guide was designed to explore with business respondents key elements of response burden. A response burden ranking exercise was incorporated into the focus group. Respondents were asked to choose the concepts that they perceived were more of a problem.

Methodology
A focus group was conducted with participants who are responsible for returning the New Earnings Survey (NES). All participants were recruited from businesses in the London area. The sample was based on the amount of NES forms that a business receives per year (more than 100 forms). The New Earnings Survey (NES) is an annual sample survey of the earnings of employees in Great Britain. The main purpose of the survey is to produce annual information on the level, composition and distribution of earnings of full time employees.

3.2.3 Results

Most of the respondents were payroll managers who had a great deal of work experience in completing NES forms. Three of the participants had approximately 20 years or more experience. Another three members had been completing the NES for 1 year or under. As the majority of members were payroll managers their training and work experience was tailored to the skills required for filling in business surveys.

As part of the final exercise in the focus group, business respondents were invited to weight, in terms of importance to them on NES, 16 commonly mentioned sources of

response burden. Each person was given 20 'counters' to distribute across a 16 cell grid with each cell representing a different potential source of response burden. The top 5 were as follows:

A. Too many competing deadlines (33)
B. Questionnaire needs to be passed to different people for different information (18)
C. Questionnaire that is cramped or poorly laid out (14)
D. Questionnaire that covers more than two pages (13)
E. No knowledge about how the survey findings/statistics are of value to the country and/or the economy (12)

Eight key findings are outlined below:

1. The timing of the NES was perceived as a major burden
The completion date for the NES survey was described as clashing with other deadlines such as those made by the Inland Revenue. On the concept mapping exercise this burden received the highest mean score (4.1).

2. Most respondents had developed their own routines for form completion
One participant had set up a bespoke software system for completing the forms. The length of time (in terms of years) that the others had spent completing NES forms meant that each one had developed their own methods of completing the forms in the most efficient way. Despite the systems that were in place, the second highest burden (in the concept mapping exercise) was that the "questionnaire needs to be passed around" (mean score 2.2).

3. There was a clear consensus that completing the NES forms was part of their job role
All participants accepted that completing the forms was a mandatory part of their role within the business.

4. There was little or no knowledge of the use of the NES data
The article sent to respondents with the invitation letter was (in most cases) the first time that they had an idea of what the statistics produced were used for. All members agreed that seeing evidence of the use of the data provided would impact on how carefully they filled out the forms. The respondents indicated that they would welcome any feedback from the data that they provide for ONS.

5. Excessive duplication of instructions
Participants indicated that their experience of completing the NES and the amount of forms that they had to complete meant that they were very familiar with the instructions and guidance notes. They found the repetition and increased paper caused by having instructions by the questions rather than in a separate booklet an irritation whilst completing the forms. All agreed that a cover sheet was required which would reduce the amount of text replicated on each form.

6. Alternative means of data collection
There was widespread agreement that the NES should be provided electronically. Participants indicated that this would reduce the burden placed on their business and on themselves.

7. Confusion over question definitions

The question on job description highlighted the mixed interpretations that respondents attach to questions. Some members had never filled in the description box and only completed the job title as this explained the description. Here some judgement was also required as to the amount of detail that is called for.

8. Questionnaire design

The 2003 NES was perceived as too 'busy'. The remedy highlighted by respondents was to reduce the amount of repetition on the form. The draft 2004 NES was commended on being more clear and spaced out but perceived as too long. Respondents expressed a strong dislike of having more paper to fill out.

3.3 Operationalization of Response Burden through Focus Groups

Gustav Haraldsen, Statistics Norway

In this test two focus groups were organized with respondents from businesses in the service industry in Norway. The participants for both groups where selected among those who had recently responded to a questionnaire collecting statistics for real estate, renting and business activities. All the participants came from firms in the Oslo region. The first group gathered seven participants from rather big firms; most of them with more than 100 employees. The second group had five participants from smaller firms; some of them with only one or a few employees.

It was not very difficult to recruit participants to the focus groups, but generally it was harder to persuade respondents from smaller firms to participate than respondents from bigger firms. The reason was obviously that those who work in small firms have tighter, less flexible time schedules. Even if we do not think this was a big problem, it may be that those who bear the heaviest burdens did not have the time to tell us about it.

3.3.1 The focus group guide

The focus group test was based on a revised version of the paper *Identifying and Reducing the Response Burden in Internet Business Surveys* (Haraldsen 2002). In this revised version eight aspects of the survey design which may affect the response burden are named:

1. Mode of survey communication
2. Recruitment strategy
3. Administrative tasks
4. Completion time
5. Confidentiality concerns
6. Question content
7. Question flow
8. Questionnaire layout

The perceived response burden is seen as a result of these survey properties in combination with the initial motivation and competence of the respondent. We wanted to initiate a discussion that covered all these survey aspects. The focus group guide consisted of a mix of topics for discussion and practical exercises. Most of the exercises and visual tools that were used were printed in an eight-page booklet given to each participant.

There were five items on the focus group agenda:

1. **Introduction** covering a presentation of the topic of the discussion, of the moderator and the secretary and of how a focus group is set up and run.
2. The participants **introduced themselves** and the firm they were representing. The main purpose of this presentation was to reveal what the participants had in common, and in this way to create a sense of commonness.
3. An **open and general discussion** about the response burden of questionnaires received from Statistics Norway. This discussion was wrapped up by asking each

participant to indicate on a scale running from 0 to 6 how easy or burdensome they found the questionnaires sent to them by Statistics Norway.

4. **Prepared discussion** based on a four-page questionnaire used to collect statistics for real estate, renting and business activities. All the participants had completed this questionnaire a few weeks earlier. First the envelope with a letter of introduction, the questionnaire and a separate description of difficult terms were given to the participants. They were asked to open the envelope and read the material the way they would have done if they had received it in their offices. Next the moderator focused on five topics. The moderator was free to present these topics in the order s/he found most natural. The topics were as follows.

   4.1. **Readability**. The focus of this discussion was on the layout and the length of the questionnaire, and on the order of questions.

   As a point of departure one of the participants was asked to read aloud and comment on question 2, which consisted of 12 sub-questions about the international relations of the firm. The question had a rather long introduction. It consisted of a mixture of questions with fixed response categories and open questions where the respondents should fill in an amount or a percentage. The sub-questions were presented over two columns, while the other questions in the questionnaire were presented in a full A4 format. The reading of the question was followed up by a discussion on how easy or difficult it was to understand and to find one's way through the different sub-questions.

   The participants were shown a list of the order of sub-questions in question 2 and asked if they found this to be the natural order for questions about international relations.

   The participants were also shown the same kind of list for the topics covered in the questionnaire and asked to comment on the order of the questions.

   Finally the participants were asked:
   - if they found this to be a short or long questionnaire,
   - if they based this impression on the number of pages, the number of questions or on any other characteristics of the questionnaire,
   - how much time (in minutes) they would normally spend to complete this questionnaire and if they considered this to be short or long,
   - if the deadline for completion was considered to be long or short,
   - if they would prefer to receive the questionnaire at an earlier or later point in time.

   4.2. **Question problems.** The focus of this discussion was on the definition of question terms, the tasks that the respondents should perform and the response formats and level of detail asked for in the questions. For each these three aspects we had chosen a question from the questionnaire to illustrate the problem.

   The discussion about problems with the terms and definitions of terms used a question about investments (in tools, means of transport and buildings) as a point of departure. In this question it was referred to budget estimates already reported to the tax authorities. The respondents were told to add together some of these, to add investments that were not covered in posts referred to or to exclude some

investments that were embedded in the sums given in the previous form. On the separate help sheet the same terms were explained with a more formal definition.

The respondents were asked what kind of explanation they preferred and if these two ways of explaining the terms would give the same result. They were also asked if they found it easy or hard to draw the borderline between which expenses that should be included and excluded.

Four of the questions were explained in more detail on the help sheet, while two remaining questions did not have a separate explanation. The respondents were asked if they found some of the explanation unnecessary or if they missed some explanations. They were also asked if they preferred to have difficult terms explained to them on a separate sheet or in the questionnaire itself.

As an example of **questions that may cause calculation problems** we used a question that asked for the average number of owners working in the firm, the average number of employees and the total man-labor carried out in the firm. The focus group participants were asked how difficult it was to answer these questions and how they estimated the figures asked for. They were also asked if it would be easier or more difficult to give monthly figures instead of estimating an annual average.

In the third part of the discussion a question that asked for total and activated expenses used on computer hardware and software was used to discuss **how easy or difficult it is to give detailed figures**. In this question the expenses should be given in NOK1000 (= 125 €).

The discussion about question problems was wrapped up by asking the respondents to indicate in the exercise booklet whether it was difficult terms, difficult tasks or difficult response formats that caused most frustration for the respondents in business surveys. This evaluation exercise was simply presented like this:

Which aspects of the questions cause the most and the least troubles in statistical questionnaires? Write in the words "most" and "least".

Definition of terms _____

Calculation of answers _____

The level of detail in the answers _____

Similar cards were also used in later evaluations.

4.3. **Administrative tasks.** The participants were asked to write down which tasks that took place before, during and after the completion of the questionnaire. The results were presented around the table and discussed.

The participants were also asked to indicate in the booklet which of the steps, from preparation to mailing the answers, they felt were the least and the most

burdensome. They were also asked, if they had had the opportunity, which of these activities they would rather be spared.

4.4. **Attitudes towards the task.** The focus in this part of the discussion was on the interest for and the attitudes towards statistical information and confidentiality concerns.

The cover letter enclosed with the questionnaire states that statistics about real estate, renting and business activities are used as planning and management tools, both by politicians and in the business world. Our first question to the participants was if they could suggest in what way these statistics were useful for policy makers and the industry.

A table and press release from statistics produced from the test questionnaire was shown to the participants. They were asked if they had ever sought information from any of the publications or web pages of Statistics Norway. They were also asked if they found the press release and the table presented to them interesting and useful. If not, we discussed how the statistics could be presented to make it more interesting.

The respondents were obliged by law to respond to the test questionnaire. There was a reference to the relevant paragraphs in the law in the introduction letter. The participants were asked if the knew what these regulations said about the obligation to respond and about what may happen if one refused. They were also asked what they thought would be the consequences if responding was made voluntary.

4.5. The burden of specific questionnaires vs the total burden of all questionnaires one has to fill in.

Questions posed in this part of the discussion were:
- How many statistical questionnaires do you complete during a year?
- How much time do you use on this kind of work?
- Are you filling in all questionnaires for your firm or is this job divided between several people?
- Do you feel that these questionnaires represent a high or low workload?

<10 minutes break>

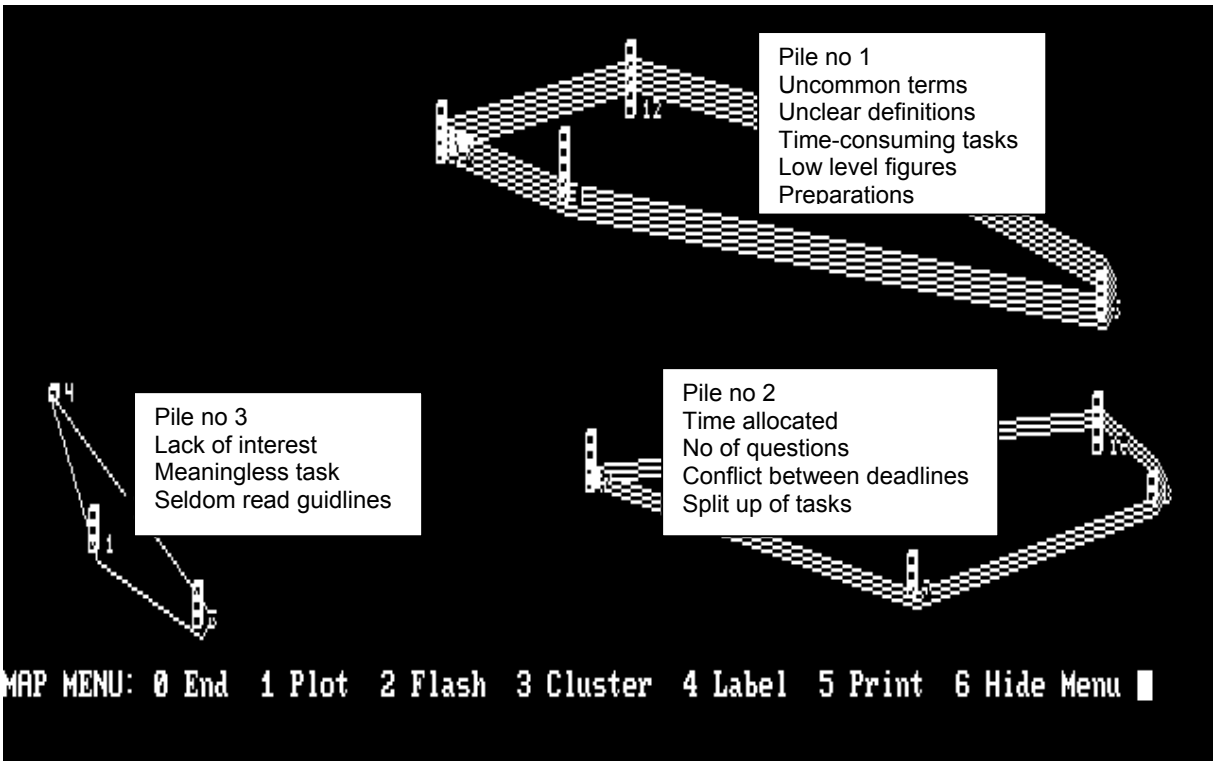
5. **Suggested conclusions discussed**

During the break, the moderator and secretary wrote down what they considered to be the main conclusions about what caused response burdens in business surveys. After the break the participants were given the opportunity to subtract or add new points to the list.

After a list was agreed upon, we used it as a basis for a concept analysis that what carried out in the following way:
- Each participant was asked to write down each statement on a small card.
- Afterwards they were asked to indicate with a number from 0 to 6 how easy or burdensome they found the aspect described by the statement on the card.
- Finally they were asked to put cards that they felt described similar statements together and put a paper clip on each pile of cards.

The cards and the exercise booklet were left in a blank envelope as the meeting ended. The cards were later analyzed with the help of The Concept System, which is a program for concept mapping developed by William M. K. Trochim. The program offers a visual presentation of what statements the focus group participants have grouped together and the weight they have given the cards in each group.

As an illustration of the method, we have copied the concept map developed from the first focus group (with bigger firms). In this example the statements have been split into three piles. Pile no 1 contains those statements that were considered to burden the respondents the most, while the statements listed in pile 2 and 3 were generally considered to be less important.



3.3.2 What did the focus groups tell us about perceived response burden?

The main purpose of section 3.3 is not to go into detail on results from the focus groups, but rather to present the procedure used, and to discuss if this kind of focus groups can help us to operationalize the concept "Perceived Response Burden". The first step towards this aim, however, must be to get a clearer picture of what the business survey respondents perceive as burdensome. Only then do we know what concepts we should seek to measure. Therefore we will sum up some main conclusions from the focus group discussions.

Put in a slogan form, the results can be summarized in the following statement: ***The burdens of answering the questions seemed to be lower than the burdens that the respondents recognized in the questionnaire.***

Both groups recognized many problems in the questionnaires. But these problems did not cause as many problems for the respondents as we would expect. There are two reasons for this. The first one is rather encouraging, while the second one is more depressing.

1

The good news is that there seems to be a happy correlation between response competence and response burden. What we found in these two focus groups was that companies that should report a lot of complicated figures also had the most competent respondents; while firms with less competent respondents also had an easier task.

Respondents in bigger firms are more professional than respondents in small firms. In our focus groups the participants from the bigger firms generally were economists with a controller function in the firm. Their job was to perform different kinds of quality controls and they had established a documented practice for how the statistical questionnaires should be answered. Because of this they did not find the normal reports to Statistics Norway especially burdensome. In smaller firms the respondents had different educational backgrounds and held no formal controller function. On the other hand the smaller firms also had less information to report and had an easier task when the questions asked for calculations. Consequently even they found the respondent's job to be rather easy. For instance, when the questionnaire asks for the average number of employees last year, this needs to be calculated in bigger firms but normally have straight-forward answers in firms with just a few employees.

This observation is a very good illustration of the point that the perceived response burden is the result of the combination of survey design and respondent characteristics.

2

The not so good news is that when there initially is a response burden problem, the respondents seem to be rather clever to find short cuts that lift off some of the burdens. When we looked at the different aspects of questions, it was obvious that unclear terms and terms that did not fit with the business records were the most important problems in the questionnaires. One participant phrased it this way:

"Even if it is the information gathering and the calculations that takes the most time, it is the descriptions of what we shall report that leads to most frustration".

Even in the small sample of questions used in these focus groups and the small sample of business respondents gathered for the discussions, we revealed several examples of terms that were interpreted in different ways. And the most common complaint about the questions was that the terms did not fit with the records available. But we were also told that the standard solution to this kind of problems was to do a qualified guess based on existing records rather than bothering with complicated definitions and extra calculations. In other words, the respondents very often seem to have solved potential response burden problems with the help of simplified, satisficing response strategies. The cost of this way of reducing the response burden is of course that the data quality may suffer.

3

In addition to these two observations, there is a third one that we think is important in the overall picture of how business respondents react to statistical questionnaires. That is a unison ignorance and skepticism towards the value of the statistics produced from the information the respondents provide. Only a few of the focus group participants had ever logged into Statistic Norway's homepage or ever read a statistical publication. The only statistics they knew about was the price index, which some of them had used to revise their own prices. When they were showed a press release and a copy of one of the tables

produced from the questionnaire in focus, none of them had seen this kind of table earlier and none of them could see any immediate use of the results.

There seems to be two reasons for this lack of interest. Firstly the tables we generally publish are not tailored to statistical needs in the companies. Several of the focus group participants said that they collected figures from competitors in order to compare their own resources, investments and results with those of other firms running the same kind of business. But none of them were aware of the fact that Statistics Norway could perhaps produce the same tables.

The other reason for the minimal interest in statistics seems to be a rather negative evaluation of one's own contributions. Because many of the respondents choose short cuts when they are faced with difficult questions, and that short cuts seem to be accepted, this has a negative effect on the credibility of the statistical products that are based on the information given. One participant told us

"The first time I responded to the questionnaire I spent a lot of time on it, but still expected that Statistics Norway would call me up because something was wrong. But I never heard from them. As a result I do not take the task so seriously anymore".

In other words, the absence both of useful statistical products and of quality controls, seem to lead to a laissez-faire attitude toward the tasks we ask the respondents to perform. As a result the potential response burdens of the questionnaires are avoided. Instead the quality and credibility problems appear to be more serious than a heavy response burden.

3.3.4 How to improve the focus group guide and procedure?

We have some ideas for improvements that should be discussed in more detail:

More effort should be made in order to identify companies and respondents that have a high response burden. In forthcoming focus groups we think it is important to bring up questionnaires where both big and small firms need to answer all questions and look for small firms that have a lot of questionnaires to answer. We also think that it is important to ask the participants more about their personal characteristics than what we did in the first focus group sessions.

Also when operationalizing a new response burden concept we believe that we should pay more attention to the characteristics of the respondent in addition to company characteristics (see section 3.6).

The concept mapping that we performed in the summary section of the focus group wrapped up the focus group discussion very well. Therefore, more time should be set aside for this exercise. The list of statements should more clearly state response burden problems than what was the case in these two test groups.

In a focus group that runs for two hours, a concept mapping session cannot be fully completed. Ideally, the respondents should be confronted with the results of the mapping and asked to comment on the results. But there is not enough time to process and present the data quickly enough for this to be done. An alternative procedure could be to send the results to the participants after they have been analyzed, and ask them to respond with their comments. A positive side effect of such a procedure might be that, in contrast to

earlier experiences as respondents, the participants this time receive some interesting feedback.

3.4 Test of the Measurement Instrument in the Accommodation Survey – Cognitive Interviews with Respondents

Ing-Mari Boynton and Helena Bäckström, Statistics Sweden

3.4.1 Introduction

The Statistics Sweden division Environment and Regional Statistics conducts the monthly Accommodation Survey for the Swedish Tourist Authority. The questionnaire is a folded A3 paper (four A4 pages), with questions on number of arrivals, number of guest nights, type and nationality of guests, revenue and other questions. From April to August 2003, eleven in-depth interviews were carried out on site (hotels and hostels). The interviews were recorded and later on edited and written (Boynton and Bäckström 2003). In this report, we give a brief description of the method used and a summary of the results of the study.

3.4.2 Method

All on-site interviews followed a set format with a question guide (Boynton and Bäckström 2003). Respondents are usually members of staff at hotels and hostels. Often they are also the 'contact person' for the survey, that is, they are the persons who receive the questionnaire and send it back to Statistics Sweden. Many work at the reception at the hotel or hostel.

After an introduction where the purpose of the interview was communicated, the interviews started with a feasibility study where the respondent was asked to fill in the questionnaire while the cognitive analyst observed the process. The respondent will often need to look the data up in a computer system or in books. The analyst observes how the respondent uses the questionnaire and probes into how the respondent understands the instructions and other information given in the questionnaire.

The feasibility study was followed by an in-depth interview, which gives insight into data management and other routines of the respondent.

3.4.3 Sample of establishments

A purposive sample of various types of hotels and hostels was taken. Visits were scheduled with eleven establishments, two of which were large hotels (more than 200 rooms), five medium-sized hotels (these had 60-100 rooms) and two small hotels with less than ten rooms. Two establishments were hostels, one with 50 beds, and one with a little more than 10 beds. Of particular note is that the sample included also respondents with less than perfect response pattern in the past.

The majority of the eleven establishments are located in or in the vicinity of Stockholm. One of the middle-sized hotels is located in a town and the small hostel in a village. A detailed description of the characteristics of the establishments is given in Boynton and Bäckström (2003).

3.4.4 Results

Main results

The main source of variance among the visited establishments in terms of their response processes was found to be their data management routines. Some of the smaller establishments keep track of guests and bookings without any computerised system whatsoever. Some of the larger establishments have sophisticated computer support; these establishments tend to respond to the survey with a computer printout only. Establishments with computerised systems that work do not mind responding to the survey. They spend only around a 15 minutes a month on the questionnaire. Their response process consists mainly of producing suitable printouts from their system. They may check contact and other details on the questionnaire that are specific to their establishment. They send the printout with the largely untouched questionnaire back to Statistics Sweden – the questionnaire invites them to do so.

Some of the establishments that do not have a computer system that helps them with the survey or no computer system at all are dissatisfied with the survey and some are neither dissatisfied nor satisfied. All but one of these establishments spend 3-5 hours every month on the survey; the exception is one establishment that spends 15 min every day on the survey, with a couple of hours more at the end of the month, which adds up to more than 10 hours. Some of these respondents find the survey a real nuisance; others feel that it is part of their routine paper work. Some respondents have not noticed that the questionnaire (in small print) invites the respondent to send back computer printouts. The contact person at one medium-sized hotel spends no less than 30 hours every month on the survey. He works nights and does not mind filling in the questionnaire.

The bookkeeping requested by Statistics Sweden does not go far beyond the needs of the establishment. With the exception of one question about types of guest, only data that the establishment has to collect anyway is required.

The information and instructions on the current questionnaire are not read and understood by the respondents. They are not aware of who has commissioned the survey and purpose of the survey results. The current questionnaire has deficiencies: the instructions are not located where the reader needs them.

Other results

The survey is mandatory, which is stated on the first page of the questionnaire. The respondents are aware of this. It also stated that the data will be confidential; the respondents do not seem to have noticed this, or they do not care.

The question about proportions of types of guest (business, pleasure, conference, etc) is not well understood. The respondents more or less guess the answer.

The feed-back of survey results to respondents is appreciated. It allows them to compare their own data with the averages within their domain.

The questionnaire distinguishes between ‘number of arrivals’ and ‘number of guest nights’. A few of the interviewees have not understood the correct definitions of these and other concepts. Another interviewee, ‘who loves tables’, have clearly understood the questionnaire.

The requested revenue data are not always available when the questionnaire is due. A less frequent questionnaire would solve this.

Most or all interviewees find the layout of the questionnaire unappealing.

A detailed account of test results is given in Boynton and Bäckström (2003).

3.5 Short-term Business Surveys at Statistics Sweden

Helena Bäckström, Statistics Sweden

3.5.1 Introduction

Statistics Sweden's monthly survey on production, sales and orders collects data from about 2000 businesses in the industry sector. Statistics Sweden also conducts a quarterly survey on stocks and capacity utilization. In the monthly survey, small businesses are asked to provide data on sales only. All are paper-and-pen surveys.

3.5.2 Method

Ten businesses were interviewed in great detail about their participation in any of these surveys. Six interviews were face-to-face on the site of the business. Four of the businesses were large; two were rather small. All of them were located in or in the vicinity of Stockholm or Örebro. The other interviews were conducted by telephone. The on-site interviews were performed with an especially prepared question guide and were recorded. The records from the interviews were collated and a full summary is given in Bäckström (2004).

3.5.3 Results

The interviewees do not perceive the monthly survey as arduous. The quarterly survey is slightly more onerous, but still takes only about a half-hour to an hour to complete. The interviewed large businesses have constructed some bespoke system for these questionnaires. When other staff take over the task of responding, they will continue to use the systems.

The respondents find the layout acceptable although unexciting. The questions are interspersed with brief guidelines; this layout gives to some respondents a rather messy impression. The guidelines are printed in a small font size causing some problems for a few of the interviewed respondents.

At the beginning of the questionnaires there is a list of the establishments belonging to the business that are in scope of the survey. This list is greatly appreciated by the respondents, since there are other surveys for which data are to be reported for every establishment separately.

The statement on confidentiality is in small print and is not often noticed. The text stating that the survey is mandatory is also in small print. One respondent wished it to be in a larger font size to more easily see whether to respond to the survey or not.

The guidelines are perhaps read the first time the respondent obtains a questionnaire. Most respondents admit to not reading guidelines if the questionnaire looks familiar. However, most respondents seem to have understood the questions correctly. When we went through the questions during the interview, the respondents showed good understanding of the data needs and asked detailed questions about the data definitions. On a detailed level, however, the questions may not be fully understood by the respondents. For example, it was not clear to one respondent if the cost of imported parts

should be included in the response to a certain question. The respondents appear to find reasonable solutions to the issues they may have when responding to the questions.

Even those businesses with a bespoke system have to make some assessments when responding. They do not have all the required data in the precise format required.

If the business responded to the survey at the last period of the survey, the data are pre-printed on the questionnaire. The respondents appreciate this; they feel it is a great help.

Several of the respondents would prefer web-based questionnaires.

Some respondents asked for feedback of the results of the survey.

Brief telephone interviews were conducted with those of the ten businesses that declined visits. They had more negative perceptions about the surveys. One of them was a bakery and did not perceive themselves as belonging to the target population of the survey. The respondent at the bakery felt that the questions were largely irrelevant. Another business lacked a computerised accounting system and would do an absolute minimum when responding to mandatory surveys. The third business interviewed on the phone was not very negative about the surveys. As they worked solely on demand they felt that some of the questions were impossible to respond to. The fourth business responds only rarely to surveys due to lack of time (even mandatory ones).

3.6 Conceptualising Total Business Survey Burden[1]

Jacqui Jones and James Rushbrooke, UK Office for National Statistics
Gustav Haraldsen and Trine Dale, Statistics Norway
Dan Hedlin, Statistics Sweden

3.6.1 Introduction

The UK Office for National Statistics, Statistics Norway and Statistics Sweden are currently working together on the project 'Developing methods for assessing perceived response burden' which is part of Leadership Group (LEG) on Quality Implementation. The project aims to understand what constitutes perceived response burden and produce an evidence-based set of guidelines for assessing and reducing perceived response burden. The focus of the project is on business surveys, where little research has previously been undertaken. Although much of what applies to household surveys (e.g. Messmer and Seymour 1982; Sharp and Frankel 1983; Featherston and Moy 1988; Krosnick 1991) can be applied to business surveys, they should not be considered the same and research focusing on business surveys is needed.

In recent years increasing attention has been paid to response burden in statistical business surveys. In many countries there is increasing political concern about the costs of response burden to businesses. Methodologists are also concerned with response burden as a survey quality issue under the assumption of a negative correlation between burden and quality.
Traditionally, the literature has focused on the respondent and response burden has been equated with the time taken to complete the survey. The Total Business Survey Burden model (TBSB) identifies the creation and flow of burden between all the actors (stakeholder(s), the survey organisation, business(es), gatekeeper(s) and respondent(s)) in the survey process. The model provides a holistic approach to burden, in which the respondent is only a part. In doing this, burden is conceptualised as a cyclical process which is transferred between actors in the survey process.

3.6.2 Development of the TBSB model

In the process of developing the Total Business Survey Burden model, all three National Statistical Institutes (NSIs) carried out qualitative research with business survey respondents. The research was undertaken with respondents who had been sent paper self-completion business survey questionnaires. An interview guide was developed which was adjusted to meet the needs of the different countries and surveys. Statistics Sweden conducted cognitive interviews with respondents of the Accommodation Statistics Survey. The UK Office for National Statistics conducted focus groups and cognitive interviews with respondents of the New Earnings Survey. Statistics Norway conducted focus groups on the Structural Statistics Survey (real estate, renting and business activities) and cognitive interviews on the Structural Statistics Survey (manufacturing). In the focus groups concept mapping was used to define the key concepts that respondents identified as burdens. The qualitative research results identified similar concepts in all

1 This paper was presented at the European Conference on Quality and Methodology in Official Statistics (Q2004), Mainz, Germany, 24-26 May.

three countries. This indicated that the key catalysts for perceived respondent burden were similar. Common themes of perceived respondent burden were drawn out from the research findings. These included:

- existing response structures (e.g. whether the information required is easily available or not)
- question design (e.g. terminology issues)
- questionnaire design (e.g. number of questionnaire pages)
- perceptions of the NSI and the survey (e.g. knowledge of NSI and purpose of survey)
- mode of data collection (e.g. Web data collection).

The model was largely developed based on the research findings. The results informed the survey design and response elements of the model. The survey requirements element was incorporated into the model in order to emphasise how the cyclical nature of burden can be passed from the stakeholder(s) to respondent(s) and back again. The model aims to show Total Business Survey Burden from the conceptualisation of the data requirement to the receipt of data from the business.

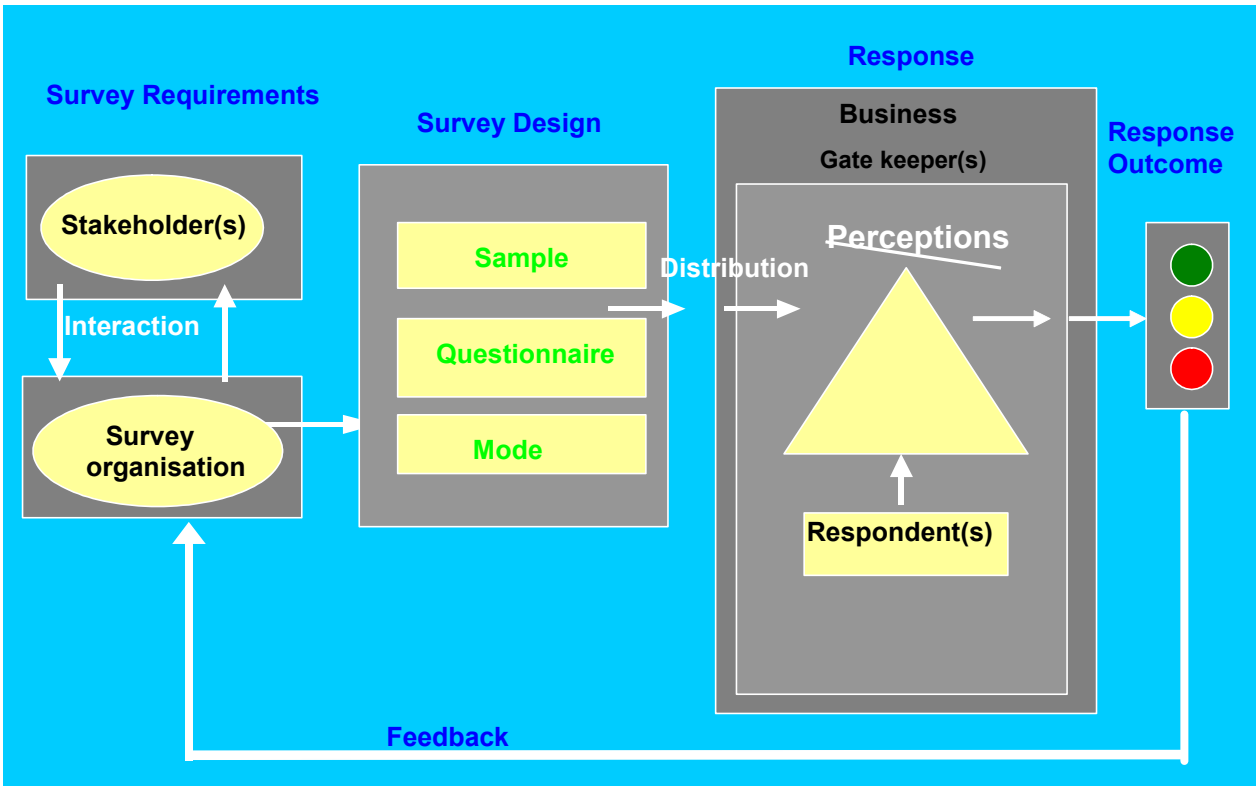


Figure 3.2. Conceptualising Total Business Survey Burden

3.6.3 The Rationale of the Total Business Survey Burden (TBSB) Model

The TBSB model is based around two conceptual areas:

Actors - stakeholder(s), the survey organisation, business(es), gatekeeper(s) and respondent(s)

Processes - survey requirements, survey design, response, response outcome and feedback.

In Figure 3.2 the actors are marked in black and the processes in blue. The TBSB model aims to present a conceptualisation of the causes of burden and their flow throughout the survey process. Burden is identified as originating from the stakeholder(s) and the survey organisation actors. A process of identifying and agreeing survey requirements takes place between these two actors. From the survey requirement process, burden flows to the survey design process undertaken by the survey organisation actor. The response process is then undertaken by the gatekeepers and respondents within businesses. The response outcome is the result of the response process. This flows back to the survey organisation and ultimately the stakeholder(s).

3.6.4 Survey Requirements

The interaction between stakeholder(s) and the survey organisation results in the identification and agreement of survey requirements. This can be conceptualised as a trade-off, firstly between the stakeholder's expectation of receiving 'quality' data; and secondly between the aims of the survey organisation to minimise survey costs to themselves, business actors and respondent actors. Burden may be increased from high stakeholder demands such as the inclusion of more questions on the business survey. Stakeholder data requirements are often determined by what they aim to do with the incoming data and how well these tasks are planned. Stakeholder(s) may plan to carry out analytical research or simply require results for descriptive statistics which can make a great difference to the level of precision needed. The stakeholders' data requirements can influence the chosen sample design used by the survey organisation. There are reasons to believe that this trade off has often not been successfully made. In the literature, for example, there is little research on total survey costs and optimal resource allocation.

Burden on respondents must be considered in this process (Lewington 1995; Dillman 2000). How much burden is created during the process of survey requirements will be largely dependent on the trade-off between the stakeholder(s) and survey organisation actors. Burden created in the survey requirements process will ultimately have an impact on all the actors in the model.

3.6.5 Survey design

The survey design process is primarily undertaken by the survey organisation. Even though the survey organisation is responsible for this process, the interaction that takes place with the stakeholder(s) impacts upon the development of the survey design. Survey design consists of three elements:

- a sample which specifies where the data should be collected

- a questionnaire containing questions to collect data from respondents, to meet data needs
- mode(s) of data collection to disseminate the questionnaire and follow up respondents.

The individual and/or collective properties of these three elements will impact on burden. Sampling design and co-ordination are vital in managing the burden placed on respondents. A good example is the Osmotherly guarantee implemented in the UK (Osmotherly et al. 1996; see also section 1.2.2.2). The objective of the Osmotherly guarantee is to reduce the burden placed on businesses and respondents. Appropriate sampling methods are a means by which producers of statistics can reduce burden.

Equally, the questionnaire design can affect burden. Poor questionnaire design is commonplace in business surveys. Questionnaire design includes elements such as the number of questions, question content, question flow and visual design. Poor questionnaire design increases the burden placed on respondents and is ultimately fed back to the survey organisation and stakeholder(s). Historically business surveys questionnaires have not been subject to the pre-field and field testing that household surveys have. In light of this, the UK Office for National Statistics has begun a full review programme of its business surveys. The reviews are undertaken by following a framework for reviewing data collection instruments in business surveys; for example, expert reviews, pre-field testing, field testing and evaluation (Jones 2003).

In terms of different methods of data collection the survey methodological literature is largely focused on household surveys. In the field of question and questionnaire design this literature is often relevant when applied to business surveys; however it is not so appropriate for different methods of data collection.

Business survey data has been traditionally collected via paper self-completion questionnaires. The introduction of Telephone Data Collection (TDE) and the advent of Web data collection points towards a complete mixed mode data collection approach. In Statistics Norway all businesses surveys questionnaires will be available on the Web from July 2004. It is envisaged that burden placed both on the respondent and the business may be reduced by adopting this approach. This may also reduce the burden on the survey organisation. For example, the introduction of Web data collection may increase the accuracy and relevance of the returned data, improve timeliness and reduce expenditure on data capture (Jones et al. 2004).

Key findings of the qualitative research were that businesses often had unique internal distribution systems and systems for keeping the required survey data. The data collection procedure should be tailored to the internal distribution system that governs how the surveys are distributed within the business and to the information system that determines what information the respondent has access to. Presently, this infrastructure has not been studied very much. The introduction of computer technology in self-administered questionnaires has consequences for businesses and respondents. An objective of introducing a Web data collection method is to reduce respondent burden. However, it may also increase respondent burden if, for instance, the Web data collection instrument is not flexible enough and in the short-term the respondents are not familiar with the software. How modern information technology may affect the relationship between the sender and receiver of business questionnaires is an interesting issue, but outside the scope of this paper.

3.6.6 Response

The concept of response burden can be divided into actual and perceived burden. The actual burden can be measured, for example, by the time taken to complete the survey and the number of tasks performed. It may also include the costs to the business in terms of the resources given to the survey task. This division can also be conceptualised as one between the more objective quantifiable actual burden and the more subjective, qualitative perception of burden that the respondent has (Willeboordse 1998b). The concept of perceived burden was initially developed by Bradburn (1978) in recognition that time measurement does not take into account factors which may affect burden such as the amount of effort required by the respondent and stress induced by sensitive questions. Willeboordse (1998a) places response burden in the wider context of respondents, National Statistical Institutes (NSIs) and users of statistics.

Fisher and Kydoniefs (2001) suggest that response burden is a combination of 'respondent burden' (factors associated with respondent, e.g. belief in the utility of surveys in general), 'design burden' (e.g. frequency of contact) and 'interaction burden' (e.g. task and memory demands and item sensitivity). They suggest that a respondent's perception of burden can be affected by all three areas. Haraldsen (2002) points out that neither Bradburn's (1978) original conceptualisation nor Fisher and Kydoniefs's (2001) model distinguishes between the causes of perceived response burden and the perceptions of burden that the respondent may hold. In the Conceptual Response Burden Model (Haraldsen 2002) survey design properties and respondent characteristics are incorporated as causes of response burden. The respondent's perception of burden is formed when a respondent with certain characteristics responds to a survey design with certain properties (referred to as 'interaction burden' in Fisher and Kidonief's model).

Burden can be distributed from the survey design process to the business, gatekeeper and respondent actors. The distribution of the survey design can be divided into two phases:

1. Distribution to the individual business
2. Internal business distribution.

The first phase relates to the mode of data collection as discussed in section 3.6.5. The second phase concerns that of the internal business distribution system. This may be a part of the total burden felt by the business and the respondent(s). Businesses have different organisational structures and policies. For example, in Sweden some businesses have an official policy not to respond to any voluntary surveys. Three layers are identified in the internal business distribution: These are:

- the business
- gatekeeper(s)
- respondent(s).

Models of the response process have been developed for household and general population surveys (Tourangeau 1984 and Eisenhower et al. 1991). The steps in the model are:

1. Encoding in memory
2. Comprehension
3. Retrieval

4. Judgement
5. Communication

For business surveys, this model was extended to reflect the additional steps in the business survey response process (Edwards and Cantor 1991; Sudman et al., 2000; Willimack and Nichols 2001). The Willimack and Nichols (2001) model identifies 8 steps in the response process (the text indicated in bold has been added by the authors of this paper):

1. Encoding in memory/record formation.
2. Selection and identification of the respondent or respondents.
3. Assessment of priorities.
4. Comprehension of the data request.
5. Retrieval of relevant information from memory and/or existing company records **and/or other persons**.
6. Judgement of the adequacy of the response.
7. Communication of the response.
8. Release of the data.

These steps are integral to the business, gatekeeper(s) and respondent(s) layers in the internal business distribution. The following sections centre on the processes that each layer undertakes, the characteristics that they hold, and the impact upon actual and perceived response burden.

The Business
This layer of internal business distribution incorporates encoding in memory/record formation (step one) of the response process model (Willimack and Nichols 2001).

A key finding from the research carried out by all three NSIs was that the size of the business was an important characteristic in determining perceived and actual response burden. For example, the size of the business affects the number of questionnaires that have to be completed and returned. The characteristics of the business respondents were also found to be linked to the size of the business. For example, large businesses may receive a large quantity of business surveys and employ accountants, who often have developed software to deliver most of the information required. Small business respondents may not have the skills to complete and return the surveys and often hire accountants or solicitors to do their reporting for statistical purposes. Medium-sized businesses tend to take part in many surveys but may not have enough staff or staff with the skills to fill in the questionnaires. Most of the middle and small-sized businesses do not have bespoke computerized systems to support this kind of work, and many have not established any routines for archiving. The total burden is therefore increased for medium and small businesses.

Gatekeeper(s)
This layer of internal business distribution incorporates the selection and identification of the respondent or respondents (step two) and assessment of priorities (step three) of the response process model (Willimack and Nichols 2001).

The relationship between the business and the respondent(s) is often negated by the presence of a gatekeeper(s). The gatekeepers are those actors who decide who should be answering the questionnaire and the priority of this task for the respondent(s) (see Willimack and Nichols 2001). A gatekeeper may also control the information that the

respondent needs to fill in the questionnaire. In small firms there might not be a distinction between the roles of gatekeeper(s) and respondent(s). However, in larger businesses different people play different roles. Even if the gatekeeper(s) does not take part in filling in the questionnaire, they may perceive the survey as a burden or as a rewarding activity.

Respondent(s)
When responding to a survey the respondent(s) goes through a four step cognitive process (steps four to seven in the Willimack and Nichols model). Respondents need to comprehend the data request (step four), retrieve relevant information from memory and/or existing company records and/or other persons (step five), judge the adequacy of the response (step six) and to communicate the response (step seven). The response can be communicated by filling in the answer on the questionnaire or by giving it to the person in charge of organising the response process, who will then put it onto the questionnaire. Sometimes, a single business survey may have several respondents but with one person in charge of organising the response process. Nevertheless, all persons acting as respondents to parts of or the whole survey will go through the four step cognitive process.

Step eight, release of the data is not part of this cognitive process. This step involves returning the questionnaire to the survey organisation or passing it to a person of 'authority' in the business who will authorize it before sending it off. This step is more on the business level than on the respondent level. Although in many cases the main respondent or response process organiser is also in charge of this step.

Respondents can be characterised by the *access* they have to relevant information, their *interest* in the task given to them and the *competence* they have to complete the survey task. The number of times a respondent has completed and/or returned a specific survey questionnaire was also found to be of key importance. These personal traits are embedded in the information system, the competence profile and attitudes towards surveys in the business they work in.

Respondents to a business survey might include people who work in a department such as payroll. The characteristics of the respondents may influence the amount of response burden that they perceive themselves. The perceived burdens may also be affected by their position in the business, their prior exposure to the business survey and to the survey organisation. The value that the respondent(s) places upon completing and returning the business survey may be influenced by these factors and the business culture that they operate in. These were key areas which came out of the research conducted by all three NSIs. Some respondents felt that the survey they had been asked to take part in was burdensome although they had no problem with 'classical' respondent burden factors, such as survey length, respondent's effort, survey frequency, and stress of disturbing questions. It would appear that for some respondents it was rather the lack of understanding of the purpose of the survey that was perceived as burdensome. However, other respondents found the questionnaires genuinely time consuming.

It is at this stage that the causes of the burden reach the respondent and where further burden is created and often placed back onto the survey organisation. As discussed above, the business, gatekeeper(s) or the respondent(s) may increase or decrease the flow of burden passed from the survey design back to the survey organisation. At this stage in the model, the specific process of actual and perceived response burden and rewards is presented. The seesaw on top of the triangle in Figure 3.2 emphasises how the overall perception is governed by the balance of burden and reward, which is the subjective

evaluation made by the respondent(s) who completes the questionnaire. This evaluation is on the one hand based on the properties of the questionnaire and certain parts of the data collection procedure, and on the other hand based upon the respondent's characteristics. It is the result of the meeting between a certain survey design and a certain respondent.

The actual response burden is the cost incurred to a business and/or respondent(s), which in turn is caused by the questionnaire and distribution burdens. Actual burden is also influenced by the perceived burden such as the potential interruption that completing the survey may have on the respondent(s)' working day. On the positive side there may be perceived rewards, such as feedback of survey data to the respondent(s) or the perception of taking part in an important knowledge generating process. Perceived burdens and rewards may affect the overall quality of statistics produced. This may be reflected through response rates and measurement error (Machin 1998).

3.6.7 The response outcome

In the response outcome process, each question on the survey questionnaire can, in principle, have three different outcomes. These are:

- a reasonably accurate answer to the question asked
- a false answer
- no answer at all.

Dependent on what the response problem is, a false answer can either be invalid, (e.g. if it is a correct answer to a misunderstood question), and/or unreliable (if it is an incorrect answer to a well understood question). Question problems in household and business surveys (as discussed above), also suggests that unreliable answers may be a bigger problem in business surveys than invalid answers. These three different types of response outcome are presented as the traffic lights in the model.

3.6.8 Feedback

Feedback from the respondent to the survey organisation is the last process in the model. It represents the final transfer of burden in the model. It is made of three main parts which reflect the options a respondent has at this stage in the model:

- a respondent returns the questionnaire
- a respondent does not return the questionnaire
- a respondent contacts the survey organisation with a query e.g. by telephone and decides whether to return the questionnaire.

The inclusion of extra questions on a business survey could affect the amount of burden that flows from the respondent to the survey organisation. A respondent may not, for example, have the knowledge, information or the skills required to complete a new question. This may lead to an increase in call queries to the survey organisation. The addition of a question by the survey organisation may come 'full cycle' and increase the total burden placed on the survey organisation as well as the respondent. Respondents who make direct contact with the survey organisation may form a non-representative sample of the survey respondents. However, their questions and comments may be a valuable source of information of what problems the survey causes. A further example of how total burden can affect the survey organisation is that data in business surveys is

often subject to intensive validation and editing. Due to poor questionnaire design in some business surveys, there will be an abundance of errors that consume large resources in the editing process. As has often been put forward (e.g. Granquist and Kovar 1997), editing should have the dual role of checking data and providing a tool for continuous survey enhancement.

3.6.9 Summary and conclusions

The process of interaction between the stakeholder(s) and survey organisation produces a set of survey requirements. The survey requirements are incorporated into the survey design by the survey organisation. The sample and questionnaire design are key areas which constitute the survey design, and they are all influenced by the mode(s) of data collection. The distribution of the survey to the business and respondent(s) can be divided into two phases. The first phase concerns how the business survey is distributed to the business (mode of data collection). The second phase is the internal distribution that takes place inside the business and is comprised of three actors: business, gatekeeper(s) and respondent(s). The characteristics and behaviour of each of these actors can impact both collectively or individually on total burden.

Respondent(s) perceptions consist of actual and perceived response burdens and rewards. The evaluation made by the respondent(s) is based on the survey design properties and the respondent's characteristics (access, interest and knowledge), where overall perception is determined by both burden and reward. Respondent burden factors include respondent's knowledge of the survey organisation and the particular survey, their prior exposure to the survey, the timing of dispatch and return date, the number of people involved in the response process, the survey design and the mode of data collection. Finally, respondents' own data inaccuracy can make them believe that the resulting statistics must be equally inaccurate. On the positive side, respondents appreciate feedback of survey data, in particular if they can compare their businesses with domain averages. Some respondents have constructed bespoke software or added functions to their regular software to facilitate the completion of the questionnaire.

The perceptions held by the respondent(s) in the response process (including comprehension, retrieval, judgement and communication), leads to the final processes of the model: response outcome and feedback. Burden may have cumulatively built up since the initial interaction process between the stakeholder(s) and survey organisation. Feedback to the survey organisation depends on the response outcome, which may include queries to the survey organisation, a decrease in response rates, and an increase in editing. Through this process burden is passed back from the respondent to the survey organisation.

The work so far underlines the process of establishing data requirements, the variations in survey design and the large variation among respondents. These factors emphasise the multi-faceted nature of the concept of Total Business Survey Burden. The model highlights the fact that the burdens are passed around from the stakeholder-survey organisation interaction to respondents through an often far from ideal survey design. The respondent(s) can pass this burden back to the survey organisation, and ultimately the stakeholder(s) through a decrease in survey data quality and an increase in non-response rates. The survey can be described as a *cyclical* process that starts with the specification of information needs and ends with collected information. The basic success criterion is that the collected information matches the information needs. Since the actors change and the communication is largely one-way the risk of mismatch is high and not easily

detectable. Burden is transferred between the actors and ultimately decisions made at the beginning of the survey process come back as total burden at the end of the process.

Appendix 3.A

BUSINESS RESPONDENT BURDEN

Focus group topic guide

Note on the topic guide:

This is a topic guide for focus groups designed to explore with business respondents key elements of response burden. It is not a questionnaire, but a game plan for use by the moderator in conducting the focus group. It is intended that key sections of the guide will be taken roughly in the order in which they appear, but within sections this will not necessarily be the case. Moreover, some issues will not be covered at all and others that do not appear within the guide may emerge in sessions and need to be followed up. Questions will seldom be asked in the form in which they are given.

Introduction

" Thank you very much for agreeing to attend this meeting. My name is Wendy Sykes. I am an independent researcher here to encourage you to talk without inhibition about government business surveys, and to ensure that what you have to say is accurately represented to all interested parties.

As you are aware, the government carries out a number of surveys among businesses in order to obtain information and statistics needed for monitoring and planning the economy. ONS, as the government's main survey arm, is aware increasingly of the need to make it as painless as possible for businesses to comply with the requirements of these surveys, and this objective sets the backdrop for today's meeting.

We have asked you here today to talk to you about the surveys that your businesses take part in each year – especially government surveys:

- ***how they are dealt with***
- ***what aspects cause the biggest headaches***
- ***why and what could be done by ONS to improve matters***

A lot of today will focus on one particular survey, ONS' New Earnings Survey. This is an important survey that is in the process of undergoing some revision and is of particular interest to ONS at the moment. But we are also interested in problems and issues that apply to the full range of business/organisation surveys, so we will be encouraging you to think beyond the NES as well.

We will be together for between one and a half and two hours, during which time I will be introducing various topics for discussion and occasionally giving you or showing you material that I am interested in getting your response to.

This is** not **a survey, and there are no set questions. I prefer to think of it as a group conversation around loosely set themes. There may well be things I haven't thought to cover that are important or relevant to you, and I want you to feel free to raise them if that is the case.

I hope that you will listen to and respond to one another as well as to me, and that you will find the experience an enjoyable as well as an interesting one.

I will be tape-recording the session, simply because a hand-written record would miss much that is important and wouldn't give me the space I need to listen. But this is confidential and will not go beyond the research team. Needless to say, neither your name nor that of your business will be connected at any subsequent stage to the views you expressed and in any report of findings we will make every effort to ensure you are not identifiable by any other means.

A. BACKGROUND (brief coverage)

- **Introduction to respondents:**
  - **First name**
  - **Name of business and what business/organisation does**
  - **Role within the organisation:**
  - **Job title and responsibilities**
- **Role in respect of business surveys**
  - **NES**
  - **Other surveys**
- **What do they actually <u>do</u> towards making sure NES is returned to ONS – what is their role in the process**
  - **Before completion of questionnaire**
  - **Towards completion of questionnaire**
  - **After questionnaire has been filled in**

B. BUSINESS BURDEN

Business surveys in general

Can I just start by asking you a bit about the business surveys that your organisation is obliged to take part in every year – surveys like the New Earnings Survey that you are required by law to complete.

- **How many surveys of this kind does your organisation take part in, that you know of**
- **To what extent are there special arrangements within the organisation for dealing with these, eg:**
  - **Named people with responsibility for dealing with them**
  - **Computer software or hardware designed to make it easier to complete certain statutory surveys**
- **Speaking for your organisation as a whole, how does your business feel about filling in questionnaires for these kinds of surveys**

HANDOUT A FOR COMPLETION

New Earnings Survey (NES)

Just to focus the discussion a little, could we talk about the New Earnings Survey for a while. You should all have received copies of NES questionnaires. The one I would like to concentrate on for the moment is the NES 2003 – the questionnaire that will have been filled in for one or more of your employees this year.

- **What happens to NES questionnaires when they reach your business**
- **Is there a well-worn path/procedure for getting them to where they need to go within the business**
  - **Who receives them first**
  - **Is there a standard procedure for getting them completed or does it vary**
  - **Who is involved in the process**
  - **How many people**
  - **What roles do they have in the organisation**
  - **What part does each person play in the process of completing the questionnaire**
  - **Is it always the same individuals or just someone in the relevant departments**
- **What are the main sources of information referred to in completing an NES questionnaire**
- **Are these in one place or scattered**
- **Are they easily accessed or not**
- **Does the information tend to be already in the form required or are fresh calculations needed**
- **Taken altogether, how much time do you think is given to completing NES questionnaires**
  - **Each questionnaire**
  - **All NES questionnaires filled in by the business**
- **Has anyone ever estimated what the financial cost to the organisation is of completing NES questionnaires**

- **Is it a significant cost or not really**
- **What would be the main components of the financial cost or burden**
- **What would be the biggest part of the cost**
- **Does filling in NES represent a significant workload or not**
- **Would it be regarded as:**
  - **Just part of running a business or organisation**
  - **Something over and above that**
- **How much priority is given to making sure that NES questionnaires are completed**
- **Are there measures in place to make sure that deadlines are met**
- **Is there someone whose job it is to make sure that NES questionnaires are filled in and returned**
- **Does anyone check through to make sure that**
  - **The forms are complete**
  - **The information looks about right**
- **Does anyone actually double-check the information provided**
- **Thinking only about the NES, how much idea do they have about what happens to the NES questionnaires completed by the organisation**
- **What statistics are produced**
- **Have they ever seen them printed or published anywhere**
- **How aware are they of the uses to which the statistics are put**
- **How important do they think they are to policy making?**
- **Can they think of any policy areas where they are used (eg setting Minimum National Wage)**
- **Is confidentiality a concern at all in respect of the NES**
- **What concerns if any do people have about releasing information to NES about the earnings of particular individuals**

HANDOUT B FOR COMPLETION

C. Design and respondent burden

General design characteristics

Thinking first about the <u>general design characteristics</u> of questionnaires used in business surveys, not just the New Earnings Survey

- **How important is the overall look and feel of a questionnaire in terms of the job of completing it**
- **To what extent can the overall look and feel of a questionnaire**
  - **Put people off altogether from starting the job of filling it in**
  - **If they do start, make the job of completion feel more difficult or more of a chore**

- **What sots of things make questionnaires seem less attractive or more daunting**
- **In terms of overall look and feel, what helps to sugar the pill of filling in a questionnaire**

We have already touched on the New Earnings Survey and I would like now to turn attention more specifically to the design of NES and the extent to which it is user-friendly from your perspective.

HANDOUT NES 2003

Looking first of all at the NES 2003 – the questionnaire your organisation would have filled in this year: I am going to give you a few minutes to look again at the questionnaire and discuss with a partner what you think about the general look and feel of it – its strengths and weaknesses. Allow 3-5 minutes.

- **What do you think of the overall look and feel of the 2003 NES**
- **What are the best/most attractive features**
- **Is there anything that is particularly unattractive or off-putting to those who have to fill it in**
  - **What**
  - **Why**
- **Probe for reactions on NES 2003 to:**
  - **Font style**
  - **Print size**
  - **layout**
  - **spacing**
  - **length (number of pages) "Would you say that NES is a long or a short questionnaire"**
- **Which if any of these is it most important to get right – even if others have to be sacrificed**
- **<u>If not raised, prompt:</u>**
- **Is it more important to get the questionnaire onto as few pages as possible or to get other things right such as spacing and font size**

HANDOUT DRAFT NES 2004

We are passing round copies of the draft NES questionnaire for next year – 2004. I am going to ask you to spend a bit of time – say 5 minutes – looking at the two together, again just in terms of the overall look and feel. Again you can discuss it in pairs.

- **In terms of the general design features we have been discussing, which – if either - of the two questionnaires would be most appealing/least daunting to someone about to fill them in**

- **Is the 2004 version an improvement on the 2003 NES?**
- **In what general ways?**
- **Are there any respects in which you think it is less appealing?**
- **In what general ways?**

DRAW ATTENTION TO THE FOLLOWING, PROBE FOR REACTIONS

1. **Introductory section**
2. **Response boxes (one box each for 'yes' and 'no' versus one box to be coded either '1' or '2')**
3. **Questions and parts of questions vertically arranged (NES 2004) taking more page space versus parts of questions side by side to save page space**
4. **Longer versus shorter**

Specific design features

General introduction

Thinking now about the actual questions asked on business surveys

- **What kinds of questions cause most problems/are least liked by business respondents**
- **Probe fully for reasons**

Again working in pairs, I would like you to have another look at NES 2003, this time identifying between you <u>two or three</u> questions that you feel would be the biggest headache for your organisations. You have ten minutes.

- **Which questions did you choose**
- **For each question:**
- **What aspect(s) are potentially problematic and why**

Technical terms and definitions that need clarification

Business surveys very often have a high technical content. Notions such as basic pay, tax years, overtime and so on all have very specific meanings and when they appear in survey questions it is often necessary also to include some clarification, definition or reminder of what they include or exclude. Sometimes this appears with or below the question, sometimes respondents are asked to refer to a separate set of notes.

- **How useful do business respondents find these notes**
- **Do they read them/do they think are they read**

  - **Always**
  - **Sometimes**
  - **Never**
- **What affects likelihood that they will be referred to**
- **What increases the chances they will be ignored**
- **Are they more useful when they are printed below the survey question or do they just make the questionnaire look cluttered and complicated?**

<u>Compare Q2 (NES 2003 – Job description) and Q2b (NES 2004 – Job description)</u>

- **Which version – if any - do they prefer**
- **Is there a limit to how much a respondent will read – wherever it appears, or does it depend on the content**

<u>Compare Q10c (NES 2003 – Shift premium payments) and Q5e (NES 2004 – Shift premium pay)</u>

- **Which of these do they prefer the shorter 2003 clarification or the longer 2004 clarification with worked example**

Detailed figures and calculations

Another common feature of business surveys is requests for detailed figures – numbers of employees in different categories, vacancies and pay, broken down into different components, as in NES.

- **What sorts of difficulties do these kinds of questions pose for businesses, if any**

In the case of NES

- **Who in different organisations retrieves earnings data for the selected employees**
- **Where is the information retrieved from**
- **Is it in a form that fits well with the way the questions about earnings are asked or are further calculations/transformations needed**
- **How easy is it to perform these**
- **Are the entries ever double-checked**
- **Is it likely that – because of difficulties in providing detailed information, questions like the one on earnings are sometimes answered**
  - **Only approximately**
  - **Using figures from the previous year (perhaps with minor adjustments)**
  - **Overlooking elements that will be difficult to establish but that are unlikely to affect overall figures very much**
- **How many people altogether are involved in completing the section on earnings**

- **What complaints of any do you hear from people involved in completing this section of the NES**
- **How could ONS collect this information in a way that would make it easier for organisations?**

NES administrative tasks related to completing the NES 2003 questionnaire

HANDOUT C

Ask respondents to list the** administrative tasks **involved in NES. For each, ask them to give a score from 0 to 5 showing how much of a burden it is. Discuss the most and least burdensome

---

D. Response burden element ranking

HANDOUT D

The grid that we have handed out consists of 16 cells each of which represents a commonly identified element of the workload that statutory surveys pose for businesses. We have given you 20 stickers that we would like you to distribute between these elements, according to the following criterion. The more of a problem/headache that you think an element poses, then the more stickers you should give it. You can spread your stickers as much or as little as you want, including leaving some completely blank if you want. The only thing we ask is hat you should use all of your stickers.

<u>After exercise</u>

- **Which elements received the most stickers and why**
- **Which elements received the fewest stickers and why**
- **Explore any major discrepancies between organisations eg why is one element very important in one business but not in another**
- **What are the most important areas that ONS should concentrate on in terms of reducing the burden on businesses – apart from not carrying out surveys at all?**

Part 4

Measuring

Perceived Response Burden

4.1 Introduction to Part 4

In Part 4 we suggest two measurement instruments for perceived response burden. They can be found in Appendices 4.A and 4.B. Since the question set in Appendix 4.A was mainly developed by the ONS (with input from the other project partners) we refer to it as the 'ONS PRB question set'. The other instrument was mainly developed by Statistics Norway, again with input from the other project partners, and we refer to it as the 'Norwegian PRB question set'. Both are aimed at eliciting valuable information on perceived response burden and its causes while not overloading the respondent with questions.

First, we set the scene by giving the background and by discussing the rationale of the measurement instruments, mainly focused on the Norwegian PRB question set.

4.2 Considerations behind the ONS and Norwegian PRB question sets

Gustav Haraldsen, Statistics Norway

The question sets are based on important sources of response burden identified in focus groups and individual interviews with business respondents (Part 3). Broadly speaking, they were:

- How complicated it is to collect or memorize the information that is asked for in the surveys (the mode of data collection and the response process).
- How easy or difficult it is to read and understand the questions and how user friendly the layout of the questionnaires is (questionnaire and question design).
- How motivated the business respondents are to contribute to the survey and the survey organisation (perceptions of the National Statistical Institute, NSI).

The first two of these aspects can be measured both in an objective way and as subjective perceptions. The traditional way of measuring actual burden is the time it takes to respond to the survey. We have not changed that, but have split the time estimates into the time used to collect information and the time used to fill the collected information into the questionnaires. How easy or difficult it is for the respondents to distinguish between the time it took to collect information and the time it took to complete the questionnaire is one of the topics we tried to evaluate in the question set tests. By including both objective and subjective response burden measurements in the question set, it is possible to study the correlation between the actual time spent by the respondents and how they feel about the time taken to complete the questionnaires.

In contrast to information collection and completion of the questionnaire, however, motivation is a personal attitude which can not be measured in an objective way. Both in the Norwegian and the ONS question sets we ask about the relevance of the statistics produced to the business the respondent works in and about the relevance s/he thinks the statistics in question have to society.

The chosen mode of data collection and the question set were based on three priorities:

- Firstly, when the PRB questionnaire would be distributed to respondents. The aim was to present the questions as close as possible to the actual survey experience. The main reason for this is of course that it is easier to report how one felt about the task and the questionnaire while the experience is still fresh in memory. If we have to make a new contact after some time, it may also be difficult to find the original respondent.

  For the Norwegian tests the PRB questionnaire was sent out with the actual survey instrument. In contrast, due to operational reasons the UK tests had to send the PRB questionnaire out as survey responses were received. The different question sets were partly developed due to this difference.

- Secondly, it is important to pose a minimum of questions so that the response burden questions themselves do not represent too much of an extra burden. This is especially important because it must be voluntary to respond to the response burden questions, while the business questionnaires they are embedded in are generally statutory. This means that the response burden questions are vulnerable to nonresponse.

- Thirdly, it should be easy to calculate a perceived response burden index from the questions posed. This is the main reason why we use a five-point scale going from a positive to a negative evaluation for the core questions.

The Norwegian question set consists of both questions about the perceived burden or rewards and of questions about why the respondent role was considered to be burdensome. These two types of question can be asked in different orders. One can start with questions which evaluate different aspects of the information collection and the questionnaire before this evaluation is summarized into a general evaluation of how easy or burdensome this exercise was. The other approach is to start with an overall evaluation and subsequently ask for specifications of the basis for the evaluation. Generally it is not advisable to start with the details because detailed questions in the beginning will affect what comes to the respondent's mind and next what aspects s/he bases his/her overall evaluation on (Sudman, Bradburn, and Schwarz 1996, Schwarz and Strack 2004). We believe that the respondent is able to recognize whether it was burdensome or not to collect information and fill in the questionnaire, but that s/he has not reflected very much on what causes the burdens before we suggest some reasons. This is what we do in questions 2 and 5 (Appendix 4.B) that follow up on the general questions of perceived response burdens or rewards. In addition these questions have an open alternative where the respondent can write about causes we may not have covered. These responses can be used to revise the questionnaire for later use.

While the Norwegian question set consists of mostly factual questions, the ONS question set consists of attitude statements about the user experience that the respondent can agree or disagree with. This question set focuses on attitudes towards different aspects of the survey in question, and the overall attitude will be inferred from the response pattern on these questions. The difference between the two approaches reflects the fact that perceived response burden is both a matter of concrete experiences and of more general attitudes. The Norwegian question set was linked directly to concrete surveys, and in this context it was natural to ask directly about the respondents' experiences with the questionnaires. The ONS question set was used in a separate follow-up interview/questionnaire. Consequently the link between the questions and the concrete experience was weaker. In such a design it might be more appropriate to use attitude

statements. Thus one might rather say that the two designs and corresponding question sets capture two different ways by which the perceived response burden presents itself. There are also cultural differences between the two countries to consider.

There are some common problems with attitude statements that one should take into consideration when using this approach (Fowler 1995, Ajzen 1988, Rajecki 1990):

- If the statements do not cover extreme attitudes on each side of the scale, the whole range of attitudes is not captured.
- The first statement tends to serve as a navigation point for the following answers. Therefore the order of statements should ideally be changed by chance from respondent to respondent.
- By closer inspection one often discovers that attitude statements are double barrelled.
- Attitude statements are vulnerable to compliance effects.
- Negative statements are awkward and difficult to relate to.

We conceptualize response burden and reward as a result of what happens in the crossroad between the survey instrument and the respondent's qualifications to respond. The characteristics of the respondent can be divided into *availability* of time and concentration, his/her *interest* in the task and the topic of the questionnaire and whether or not s/he feels s/he has the appropriate *competence* to answer the questions. Nowadays more and more business surveys are distributed and answered on the Internet. This is for instance true for one of the surveys on which we tested the Norwegian questions (Part 5). In these surveys the Internet design, the type of Internet connection the respondent has, and the extent of web-interest and -competence of the respondent may also affect the perceived burdens and rewards. Finally the business respondent works in an environment which may affect these characteristics (Haraldsen 2004). None of the question sets that we propose covers the full complexity of this model. They are primarily meant to identify surveys that cause problems and to describe the response burdens and rewards in business surveys. Hence, follow up studies are needed in order to investigate more closely why some respondents find business surveys burdensome while others do not.

Appendix 4.A. An outline of the ONS PRB question set

This questionnaire (with professional layout) was used for a follow-up to the Business Register Survey conducted by the ONS.

Section 1

Please complete the following sentences:

1. **When I received the questionnaire, I felt**
   .....

2. **I found the questions**
   .....

3. **To get the information to fill in the questionnaire, I had to**
   .....

4. **Completing the questionnaire was**
   .....

For the following sections please circle your chosen response.

Section 2

5. **The length of the questionnaire was about right:**

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

6. **The questionnaire was clearly laid out:**

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

7. There were too many notes and instructions to read:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

8. The notes and instructions were useful:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

Section 3

9. There were too many questions to answer:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

10. The questions were in a logical order:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

11. I did not understand the terminology used in the questionnaire:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

Section 4

12. How many people took part in responding to this questionnaire?

One	Two	Three	Four or more	Don't know

↓

Go to question **14**

13. It was time consuming to get other people to provide information:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

14. The information was easily accessible from our business records:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

15. How many times has the business previously responded to the Business Register Survey (previously the Annual Register Inquiry)?

Once	2-5 times	6-10 times	10 + times	Don't know

16. How many times have you responded to the Business Register Survey (previously the Annual Register Inquiry)?

Once	2-5 times	6-10 times	10 + times	Don't know

Section 5

17. I did not see why it was necessary to collect this information:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

18. I trust Office National Statistics (ONS) with the information that I have provided to them:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

19. I would like to know more about the function of the ONS:

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

20. Please write in the box below any further comments that you would like to make:

Thank you for participating in this follow-up research study. Please now return this questionnaire to the ONS in the envelope provide.

Appendix 4.B. An outline of the Norwegian PRB question set

This questionnaire was used (with professional layout) for the Quarterly Operating Profits Survey (QOPS) conducted by the ONS. For other examples of actual questionnaires, see Appendices 5.C and 5.D.

1. Do you think it was quick or time consuming to collect the necessary information to complete the QOPS questionnaire?

- ☐ Very quick
- ☐ Quite quick
- ☐ Neither quick nor time consuming

} Go to question 3

- ☐ Quite time consuming
- ☐ Very time consuming

2. What were the main reasons that it was time consuming?

- ☐ Had to collect information from different sources
- ☐ Had to get help from others in order to answer some of the questions
- ☐ Had to wait for information that was available at different times
- ☐ Other reasons, please specify ☐

3. How much time did you spend collecting the information necessary to complete the questionnaire?

Number of hours: ☐ Number of minutes: ☐

Did not spend any time on this at all ☐

4. Did you find it easy or burdensome to complete the questionnaire?

- ☐ Very easy
- ☐ Quite easy
- ☐ Neither easy nor burdensome

} Go to question 6

- ☐ Quite burdensome
- ☐ Very burdensome

5. What conditions contributed to making the questionnaire burdensome to complete?
Cross all that apply.

- ☐ Too many questions
- ☐ The layout made the questionnaire hard to read
- ☐ Terms and explanations of terms were not clear
- ☐ Questions that asked for complicated or lengthy calculations
- ☐ Available information did not match the information asked for
- ☐ Difficult to decide which answer was the correct one
- ☐ Other reasons, please specify ☐

6. How much time did you spend on actually completing the questionnaire?

Number of hours: ☐ Number of minutes: ☐

7. Have you previously responded to the QOPS (previously named the Quarterly Inquiry into Companies GB Operating Profits)?

- ☐ Yes
- ☐ No
- ☐ Don't know

8. Including yourself, how many people were involved in responding to the current QOPS?

☐ Number of people involved

9. Do you think that the statistics based on the QOPS are of big or little use to your business?

- ☐ Very useful
- ☐ Fairly useful
- ☐ Neither useful nor useless
- ☐ Fairly useless
- ☐ Very useless
- ☐ Don't know

10. Do you think that the statistics based on the QOPS are of big or little use to society?

- ☐ Very useful
- ☐ Fairly useful
- ☐ Neither useful nor useless
- ☐ Fairly useless
- ☐ Very useless
- ☐ Don't know

Part 5

Applying
Perceived Response Burden Questions
to Surveys

5.1 Introduction to Part 5

Dan Hedlin, Statistics Sweden

The PRB question sets introduced in Part 4 were applied to several business surveys. The Norwegian question set was tried out in all project countries, thus allowing to some extent comparisons between countries.

5.1.1 Summary of results concerning feasibility of PRB questions

Section 5.3 reports on the results from the ONS PRB questions and gives also brief descriptions of the surveys involved. Appendix 4.A in Part 4 contains an outline of the PRB questions used. Although sample sizes were small and suffered from nonresponse we believe that the tests were successful and gave valuable results.

Responses to the Norwegian questions set have been collated in Appendix 5.B. Appendix 4.B in Part 4 contains an outline of the questionnaire used. The same questionnaire, with slight variations in a few of the questions, were used for all surveys. The mode, however, differed across surveys.

The survey to which the Norwegian PRB questions were applied were:

- In Norway: the Industrial Structural Statistics Survey (ISS) and the Foreign Trade Statistics Survey (FTS). There is a copy of the web-based questionnaire for the latter survey in Appendix 5.D.
- In Sweden: the Structural Business Statistics Survey (SBS). The questionnaire used has been copied into Appendix 5.C.
- In the UK: the Quarterly Profits Inquiry (QPI) and the Quarterly Operating Profits Survey (QOPS).

The results from the ISS and FTS surveys are discussed in detail in section 5.2. This section ends with concluding reflections on the tests and what they tell us about the nature of response burden (see section 5.2.7).

The responses to the Norwegian PRB questions for different surveys are broadly speaking rather similar. There are differences however, and all substantial ones seem credible.

Appendix 5.A contains a large number of cross-tabulations and other displays of association between responses to the PRB question set used for the SBS survey. The responses show a great deal of internal consistency. For example, businesses that have reported heavy response burden have also in most cases reported long response times. Furthermore, as has been mentioned, responses collated in Appendix 5.B show consistency across surveys and also with what is known from other sources (Part 2). The overall impression is that the PRB questions work well and give valuable information to the NSI about response burden.

All results from PRB questions reported here are unweighted. The nonresponse rates are fairly high in all surveys. This would be a concern if the aim were to estimate population parameters. We do not make any such claims.

5.1.2 Possible improvements to the PRB question sets

The Norwegian question set
The skipping instructions by questions 1a and 3a did not work very well. The instructions tell the respondents to skip the questions on why the questionnaire was burdensome or time consuming if they in the first place stated that it was not very burdensome. Quite a few of the respondents filled in the follow-up questions anyway. The solution might be to either improve on the instructions (see e.g. the investigation reported in Redline et al. 2003) or to abolish them. We prefer the first solution. The skip instructions can be made clearer in the paper version and automatic in the web version of the questionnaire.

Question 1b on reasons why it was time consuming to collect the information necessary to fill in the questionnaire, had different response categories in the Swedish application than in the other ones. The category 'data had to be calculated or estimated' that was included in the Swedish question but in not in any of the other question sets, attracted more respondents than any other category. This suggests that this response alternative should be included in forthcoming versions of the question set.

Question 8 asks the respondent whether s/he has responded to the survey before. In some surveys we have been able to determine whether the given response is correct or not: if the business has not taken part in the survey before, it is unlikely that the respondent has seen the questionnaire before. It turned out that there were frequent incorrect responses to this question. In several of our experiments we have applied the PRB questions to surveys which had undergone some redesign and in the process had changed names. Presumably it is difficult for many respondents to recognise a questionnaire if the layout and the name are new.

The questions on response times appear to have been responded to as intended but there is heaping on 'even' values such as 30, 60 and 120 minutes. Hence the reported response times are probably only approximations. Even if the time it takes to complete the survey is short, it may constitute a burden because the time available is also short. This relative aspect is not caught by the time estimates or by any of the questions on perceived burden. Therefore we suggest that an evaluation question is added after Question 6 in the original question set; the wording of this question may be:

Did you find it easy or difficult to set aside the time that you needed to collect the necessary information and complete the questionnaire?

Very easy	Quite easy	Neither easy nor difficult	Quite difficult	Very difficult
☐	☐	☐	☐	☐

The ONS question set
There appears to have been few problems with the ONS question set. If the actual response burden question is not included on the survey questionnaire then the recommendation would be to include it with the PRB question set. There is some anecdotal evidence that the sentence completion questions would be best placed at the end of the questionnaire.

5.1.3 Embedded experiments on perceived response burden

The Quarterly Operating Profits Survey
The questionnaire in the Quarterly Profits Inquiry (QPI) was redesigned using the principles of the ONS for reviewing business survey questionnaires (Jones 2003). The survey changed name in the process to Quarterly Operating Profits Survey (QOPS). In an experiment, part of the sample was sent the new questionnaire and another part was sent the old questionnaire. Also, both the ONS and the Norwegian PRB question sets were applied allowing comparisons between question sets and survey design. However, sample sizes are small: only a subset of the overall sample obtained PRB questions. There is an indication that respondents to the new questionnaire followed by the ONS PRB question set found the length and layout of the questionnaire more agreeable than those who obtained the old questionnaire. Results for respondents who obtained the Norwegian PRB question set showed a tendency among respondents to find the new questionnaire easier to complete. See further details in section 5.3.4.

The Structural Business Statistics Survey
In the focus groups and cognitive interviews reported in Part 3 it was noticed that many businesses survey respondents do not understand the purposes of the surveys and are not familiar with the statistics that the surveys produce. It is reasonable to believe that there is an association between respondents' knowledge and appreciation of the surveys and their perceptions of response burden. Similar points have been made by Willimack and Nichols (2001) and others, see section 1.5.3. Many respondents open the envelope from the National Statistical Institute with negative preconceptions about what they are going to find. One of the sub-processes that comes first in the response process is the realization of what information the respondent needs to collate to perform the (usually mandatory) task of responding. The information collection is perceived as burdensome by many respondents. We wanted to see if we could alleviate some of these negative views among respondents.

In an experiment embedded in the Swedish annual Structural Business Survey (SBS) subsamples were randomized to obtain none of or either of two enclosures that went out with the cover letter: a sheet explaining the purpose of the survey and giving some interesting and surprising facts obtained from the previous wave of the survey and another sheet informing about feed-back of survey results. One quarter of the sample obtained none of these information sheets, one quarter obtained both, and one quarter was devoted to each of them. For all businesses in the sample the questionnaire was appended with the Norwegian version of the PRB questions.

The responses to the PRB questions indicate that respondents at businesses that are given the enclosure informing about feed-back of survey results tend to believe that the statistics from the survey will be more useful to their businesses than respondents at businesses which are not given that enclosure. Other results are not statistically significant. The fact that there was little treatment effect on responses to questions on

whether it was quick or time consuming to find the necessary information to fill in the questionnaire and whether it was easy or burdensome to complete questionnaire indicate that perceived response burden as such is not affected by the enclosures. Rather, it is the reward side of the two-sided concept of response burden (Figure 3.1) that is influenced. In sum, this result shows that it is with simple means feasible to influence respondents' perceptions of the survey and the statistics it produces. Further results and the analysis method are given in section 5.4.

5.2 Embedded Evaluation of Perceived and Actual Response Burden in Business Surveys

Trine Dale and Gustav Haraldsen, Statistics Norway

5.2.1 Introduction

In order to test the PRB-Questionnaire in the field, Statistics Norway chose two surveys that were carried out in spring 2004 – The Industrial Structural Statistics Survey (ISS) and The Foreign Trade Statistics Survey (FTS). The ISS is one of the last surveys run on paper only, while the FTS is one of the first surveys to be designed especially for electronic reporting. While all other business web surveys also have a paper alternative, this is not so for the FTS. To measure actual and perceived response burden we used the PRB-questionnaire developed by Statistics Norway, which consists of ten questions. Both these surveys are split into two versions that will be described in detail in the next section. Hence, one of the things that was tested, was how the question set worked and what results they gave in different settings.

The tests show that the PRB-questionnaire is well suited to measure both perceived and actual response burden, even if some minor adjustments are needed. We found that there are large differences between perceived and actual response burden within each survey, that collecting information is in general far more time consuming than filling in the questionnaires and that there is a high correlation between the subjective and objective measurements of response burden. We also found that size of business is an important factor affecting both perceived and actual burden. The results indicate that in order to reduce response burden we should focus on simplifying the task and offering more relevant response formats. It is important to communicate the use and importance of the data collected and to motivate respondents to do a good job, as business surveys are often met with a negative or ignorant attitude. Since the PRB-questionnaire will often be a voluntary part of a statutory survey, it will often be necessary to take measures to prevent nonresponse. The best way of doing this is by including the questions in the main questionnaire whenever possible. It is also important to do an active follow up of nonrespondents, since there are reasons to believe that nonrespondents perceive the response burden to be higher than respondents do.

5.2.2 Methods

Industrial Structural Statistics Survey (ISS)

The ISS is divided into two parts – one simple version for one-business establishments (ISS o-b) and one more extensive version for multi-business establishments (ISS m-b). Although the sample unit is the establishment, the reporting unit is the business. For one-business establishments these two units are the same and this is not a problem. For multi-business establishments the number of businesses in the establishment is decisive for how many questionnaires that should be filled in and returned. The number can be from a small number to more than 100. In addition a sub sample of the establishments also has to report on environmental issues in a separate questionnaire. To complicate the picture even more, some establishments report centrally while others distribute the questionnaires to the businesses in question. The establishments are free to choose between these two alternative reporting procedures.

The questionnaires are quite short - only two and three pages long, including contact information. Only a few numbers have to be reported and the information asked for are production and sales data. For multi-business establishments there are three different questionnaires. The type of business determines which questionnaire should be answered. Some establishments that produce different types of merchandise or services may have to fill in all three types.

Since the sample unit is the establishment, we wanted the response burden to be reported on the establishment level. The reason for this was that we wanted the response burden for the entire business. In one-business establishments the question set was included in the questionnaire with information that it was voluntary to answer these questions. In multi-business establishments with central reporting, however, a question set added to each questionnaire would have made it necessary for the respondent to answer the same questions again and again for each business in the establishment. And since we did not know beforehand which procedure the different establishments would choose, we could not tailor the data collection procedure to take the way of reporting into account.

Because of the complicated nature of this survey and because multi-business establishments have to fill in more than one ISS-questionnaires, it was necessary to keep the questionnaires sent to one-business establishments apart from the questionnaires sent to multi-business establishments. We therefore produced a separate questionnaire for multi-business establishments that was included in the package sent to the establishment. There was information in the cover letter that these questions were voluntary. In order to make sure the information was reported on the correct level, an extra question was included in the questionnaire asking whether the person responded for the establishment as a whole or for one business only (question 0). If each business answered the questionnaires separately, the PRB-questionnaire should not be distributed to each business. In this situation only the one question (question 0) should be answered. We also added some more alternatives in questions 2 and 5 to cover the fact that the respondents had to report on several questionnaires.

A total of 753 establishments in the ISS survey were asked to report on the response burden. 600 of these were one-business establishments. They were divided into three equally sized strata with 200 businesses in each. The first strata consisted of small firms with 1 to 19 employees, medium firms with 20-49 employees and large firms with 50 or more employees. Before the first reminder was sent out 482 establishments had returned the questionnaire with the PRB question set attached. However, some of these had not filled in the voluntary PRB-part. The other 118 received a reminder. By December 1st we had received a total of 414 responses to the PRB-questionnaire. This gives a response rate of 69 percent in total[1]. There were only small differences in the response rate between different sized establishments (68 percent for small and 66 for medium and large).

The other 153 units in the sample were multi-business establishments. Here too the sample was divided into three equally sized strata, in this case with 51 establishments in each. The definition of small, medium and large establishments were the same as for the one-business establishments. Before the first reminder was posted, 119 businesses had returned the questionnaire. 80 of these had also responded to the PRB questions. 34 establishments received a reminder on the multi-business ISS, but unfortunately a new PRB-questionnaire was not included with the reminder. These had to be sent out later in a separate mail. By November we had received a total of 87 responses to the multi-business PRB-questionnaire. Nine of the respondents had reported for one business only and were

[1] Questionnaires are still coming in, so the response rate is likely to go up.

excluded from the net sample, so we ended up with 78 responses. This gives a response rate of 51 percent. Only one of the small establishments responded, the response rates for medium and large establishments were 35 and 112[2].

Foreign Trade Statistics Survey
Annual survey for 2003

The sample unit for the FTS is on the establishment level. The information can be reported in a web questionnaire or by Excel format by choice[3]. For this statistic some of the establishments have to report both annually and quarterly. We first asked the PRB-questions in the web-part of the annual survey. The FTS is divided in two parts, one part with a questionnaire about import and one with a separate questionnaire about export. The respondents can choose which questionnaire they want to respond to first and last, so there is no fixed order.

The same kind of information is asked for both regarding import and export, so the questionnaires are quite similar. Preferably we would have liked information on response burden for the survey as a whole, but this was difficult because there were two separate questionnaires and we did not know the order in which the respondents would answer them. We did not want anybody to report twice so we had to make a choice and decided to include the PRB-questions with the import questionnaire only. Since the two questionnaires were similar in length and type, we assumed that the results would be pretty similar for the two questionnaires.

Since the PRB-questions were a voluntary part of a mandatory survey, they had to be separated from the import questions with an information part about the voluntary status of the PRB-questions. To do this, information about the PRB-questions followed directly after the last import question, followed by a question if they were willing to answer these questions. The response alternatives were ‘yes’ or ‘no’. If the response was no, they never saw the PRB questions.

All the enterprises in the sample, a total of 392, were asked to respond to the PRB questions. So far we have received 148 responses, which gives a response rate of 38 percent. However, only the establishments who chose web-reporting were given the chance to answer these questions. 327 chose this mode, so the actual response rate is 45 percent.

Survey 3rd Quarter 2004
The PRB-questions were also included in the 3rd quarter FTS survey. The sample in this survey was 393 establishments. The data collection is not yet finished, but we do have some preliminary results. By November 19th, 213 establishments had returned the FTS questionnaire and 162 have responded to the PRB-questions. This gives a response rate of 76 % of those who have responded to the FTS, 41 % of the total sample.

The data collection instrument was a questionnaire presented on an Excel platform. Different parts of the questionnaire were presented on different fans. There were eight

[2] The sample unit was the establishment, but in order to divide the sample for the PRB-questionnaire into strata according to size, we had to use business as the variable. Businesses of different sizes were selected and then the establishments they belong to were used as the sample unit. In the analysis we used the establishment to determine size. There are not that many multi business establishments with less than 20 employees, therefore our way of dividing them might not have worked very well. Also, the number of employees has changed in some establishments since the sample was drawn. This becomes clear since the response rate in the group of large establishments is 112%.

[3] Some also sent extracts from their files.

fans including a starting page, the PRB-questionnaire and instructions. The titles on the other fans were: Export, Import, Finance posts, Balance posts, Other transactions. The PRB-questions were on the last fan before instructions. Some chose other reporting platforms (files or paper), but all establishments responding by Excel were asked to fill in the PRB-questions. The response burden was measured for the whole survey, not just the import part as in the annual survey.

Before the survey was sent into the field, a couple of user tests were carried out to check the functionality. However, no qualitative work was done on the actual questions or the information given in the worksheet. The questionnaire is marked by the fact that an Excel platform was chosen for this survey, and it appears more like a tax form than a questionnaire.

Like in the annual survey the PRB-questions were a voluntary part of a mandatory survey. In this survey as well a question on whether or not the respondent was willing to answer the PRB questions were included.

5.2.3 Response rates

Across the three surveys used in this test, a total of 802 respondents answered the PRB-questions. This gives an average response rate of 60%. The trends are very similar across the surveys in spite of different modes being used. As we have seen in this section the response rates varied, however. We believe this has to do with the choice of mode in the different surveys. In the ISS o-b the PRB-questions followed directly after the mandatory questions and we believe that this made it easier to just continue filling in the questionnaire. In ISS m-b the respondents had to actively pick up another questionnaire in order to answer the PRB-questions and in the web-version of the FTS they also had to make an active choice in order to see the questions that they were asked to answer. We believe these pleas for involvement contributed to the rather low response rates for these instruments. The actual and perceived response burdens may also have an impact on the response rates. We assume that the response rates will be lower among those who have the highest perception of burden. For example, in the ISS m-b very few in the small business category responded. The qualitative research earlier in this project gave strong indications that the perceived burden is higher in small businesses even though the actual burden is probably smaller than in bigger businesses.

Table 5.1: Response rates PRB-questionnaire

Response rates.			
	Sample	Response rate Percent	Net sample
ISS o-b	600	69	414
ISS m-b	153	51	78
FTS-3rd quarter*	213	76	162
FTS-annual	327	45	148
Total all surveys	1293	60	802

*As this survey is not yet finished, the numbers used here are for those who have responded so far. The response rate is likely to decrease when all respondents have returned the FTS.

5.2.4 Findings

The results were very similar across surveys and modes (except for the response rates), so we have chosen not to present them separately. In some areas, however, the multi-business part of the ISS stands out as distinctively different from the others. We will comment on the differences between the ISS m-b and the others as we go along. Details for the different surveys can be seen in the attached tables in Appendix 5.B.

Finding relevant information

When the results from all the surveys are weighted together, 43 percent of the respondents reported that finding the relevant information was very or fairly quick (47% in the ISS o-b, 47% in FTS annual and 65 % in FTS 3rd quarter). However, this trend is not present in the ISS m-b. In this survey only 5 % reported that it was quick to find the necessary information, while three out of four reported that it was fairly (23 %) or very (51 %) time consuming. Two out of five of the respondents to the FTS annual survey also found it time consuming (28 and 9 %), while very few in the ISS o-b and FTS 3rd q reported that it was very time consuming. In these surveys about one out six found it fairly time consuming. Many also chose the middle alternative `neither quick nor time consuming` (33 % in ISS o-b, 21 % in ISS m-b, and 16 % in the two FTS surveys).

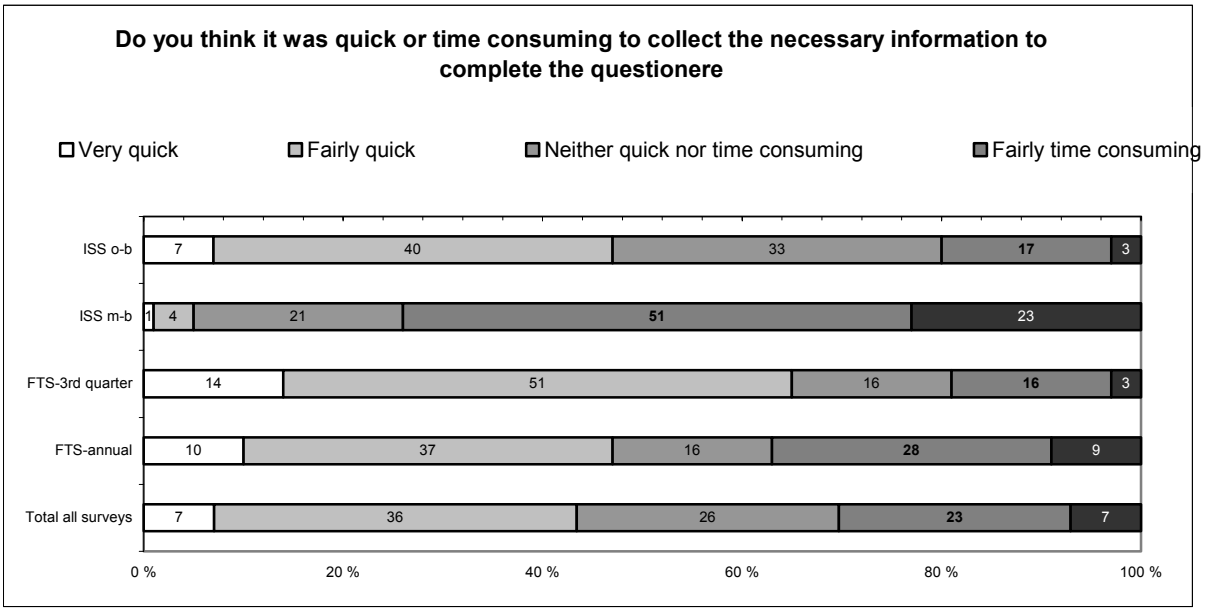


Figure 5.1: Quick or time consuming to collect necessary information. Percent

In all surveys and across modes, the time used varied quite a lot, ranging from 0 to 20 hours (55 in the ISS o-b). However, the majority spent one hour or less on this task except in the ISS m-b where three out of four spent more than one hour. In the ISS the average time spent on collecting information was 79 minutes for one-business establishments and 306 minutes (5 hours) for multi-business establishments. In the FTS the average time was 99 minutes in the annual survey and 85 minutes in the 3rd quarter survey. The reasons for the average being so high are that a few establishments reported to have used much more time than what was common by the others. Especially in the ISS o-b some time estimates were suspiciously high. One reason for this could be that they reported the time it took from they started until they had finished their information collection, and not only the actual time they spent on information gathering.

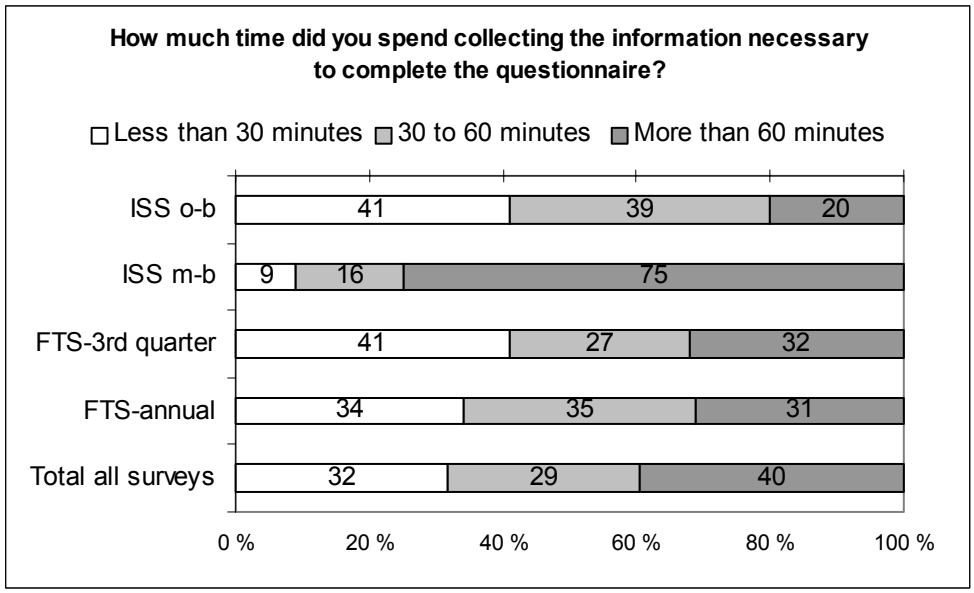


Figure 5.2: Time spent on collection necessary information. Percent

Only those who found it time consuming to collect the necessary information should have answered question 2 about the main reasons about why it was time consuming. However, many did not follow the skip code and answered this question even if they were not supposed to do so. This indicates that even though they did not find the task very time consuming they still had some problems collecting the information. It could also be an indication that the skipping instructions were not noticed or understood. In order to look more closely at this, we have studied some of the paper questionnaires in the ISS in more detail. It appears that many have followed the skipping instructions in one of the filter questions (1 or 4) but not in both. It therefore seems more likely that they understood the skipping instruction but that they in some cases nonetheless felt a need for specifying some problems. We will therefore report the results from all who responded to the follow up questions in this analysis. The list below shows the main reasons why the respondents found it time consuming to collect information sorted by which reason that was given most frequently[4].

	Average score
1. Had to collect information from different sources	77,5
2. Had to have help from other people to find the necessary information	21,8
3. Had to wait for information that was available at different times	9,5

In the ISS m-b one more alternative was presented: 'Many questionnaires that had to be filled in', and this alternative achieved the second highest score in this survey: 43 %.

There were no difference between those who should have and those who should not have answered this question on which factors they found time consuming.

Filling in the questionnaire

[4] The results were a bit different for multi-business establishments in the ISS. They were given an extra alternative – many questionnaires to fill in, and this was the reason given by most.

An even higher majority of the respondents found it fairly easy to fill in the questionnaire. But again ISS m-b was an exception. In this survey 26 % found it easy or fairly easy to complete the questionnaire, while the corresponding figures in the ISS o-b was 59 %. In the two FTS surveys this figure was 71 %. Only very few reported that they found the ISS o-b or the FTS surveys burdensome to complete. In the ISS m-b, however, about one third reported that they found it fairly or very burdensome (33 and 6 %).

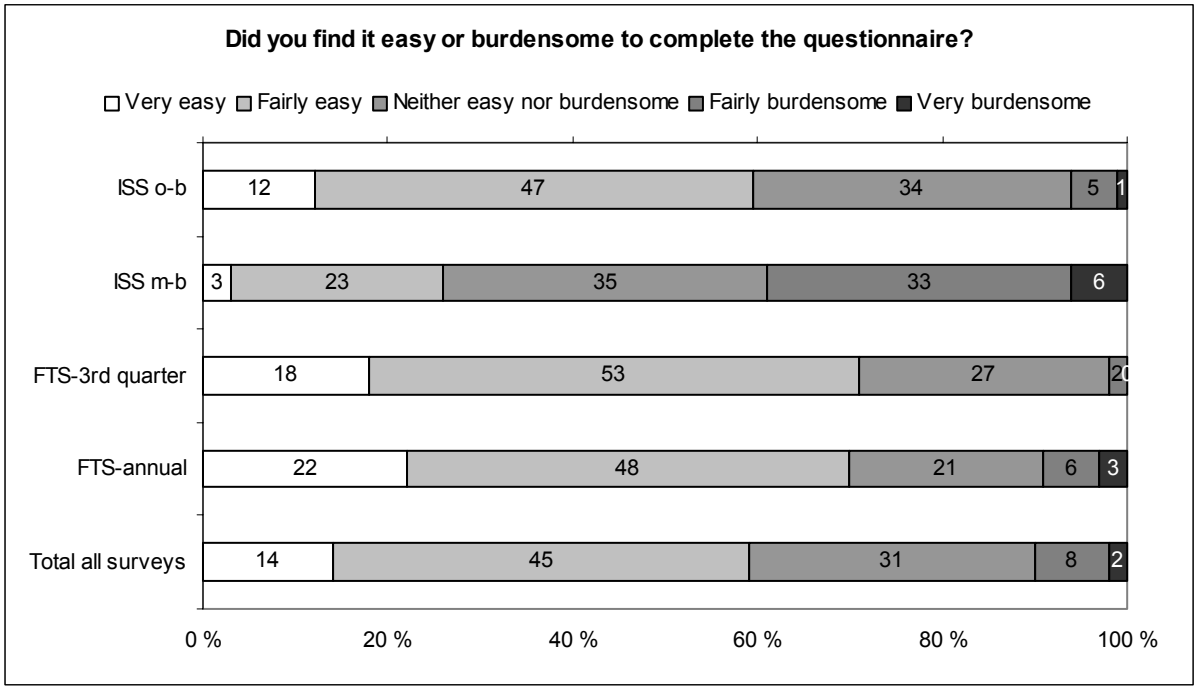


Figure 5.3: Easy or burdensome to complete questionnaire. Percent

Here too only those who found it burdensome were supposed to answer the next question. Like in question two, however, quite a few of those who did not find it burdensome responded. We take this as an indication that there were some problems after all. Like in question 2, we will report the results from all answers given. The most frequent reasons are listed below sorted by frequency[5]:

		Average score
1.	Available information did not match the information asked for	57
2.	Terms and explanations of terms were not clear	32
3.	Questions that asked for complicated or lengthy calculations	30
4.	Difficult to decide which answer was the correct one	26
5.	Many questions	21

Like in the question about time, there were no big differences between those who should have and those who should not have answered this question on which factors they found burdensome.

The time used on filling in the questionnaire ranged from a few minutes to 30 hours (FTS annual). The quickest questionnaire to fill in was the FTS 3rd q, followed by the ISS o-b (22 and 26 minutes on average). About two thirds of the respondents used 30 minutes or less, about one third used between 30 and 60 minutes and only about 3% used more than

[5] In the FTS surveys there were two additional response alternatives: "Difficult to find out how the Internet version of the questionnaire worked" and "Functions in the Internet (Excel) version that didn't work as they should"

60 minutes. The FTS annual questionnaire was also fairly quick to fill inn – about 2/3 of the respondents used less than 30 minutes in both surveys, about 1/4 spent between 30 and 60 minutes and 10 % more than 60 minutes. The average time used in the annual survey was 44 minutes. Not surprisingly, the multi-business part of the ISS took the longest to fill in. Only 10 % spent less than 30 minutes, 36 % spent between 30 and 60 minutes, while 54 % spent 60 minutes or more. In fact 8 % of the respondents in this survey spent more than 7 hours on this task. The average time used was 148 minutes (2,5 hours). There were no significant differences in the time estimates dependent on the size of the establishments.

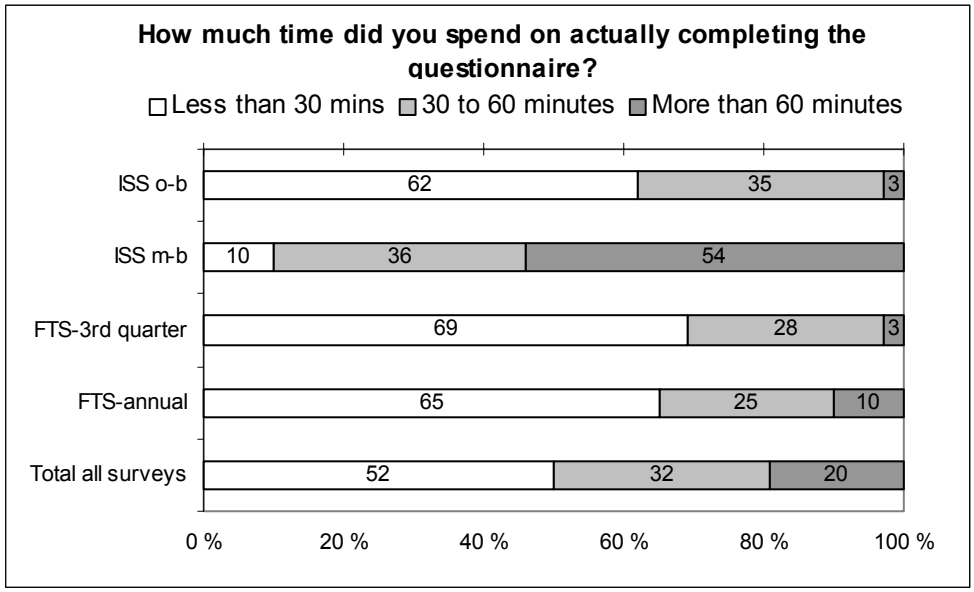


Figure 5.4: Time spent on completing questionnaire. Percent

Table 5.2: Mean time used on responding to the survey. In minutes

	Mean time collecting information (minutes)	Mean time filling in questionnaire (minutes)	Mean time collecting information and filling in questionnaire (minutes)	N
ISS o-b	79	26	105	375
ISS m-b	306	148	454	75
FTS-3rd quarter	84	22	107	63
FTS-annual	99	44	143	155
Total all surveys	142	60	202	668

In table 5.2 we can see that the total time used on responding to the survey also varies quite much. While the respondents to the ISS o-b used an average of 105 minutes (1 hour and 45 minutes), the respondents to the ISS m-b used an average of 454 minutes (7 hours and 34 minutes). This is more than one days work. The total time in the FTS 3rd quarter was about the same as in the ISS o-b, while the respondents to the annual FTS had the second highest time use – 143 minutes (2 hours and 23 minutes).

For the ISS-surveys Statistics Norway has already given a time estimate of 150 minutes to the The Register of Legal Units in Brønnøysund. This estimate should both include information collection and questionnaire completion. It is also an average for both the one-business and multi-business establishments. Hence it is difficult to make a direct comparison of the estimates. If we add the estimates for information gathering and completing the questionnaire and weigh the sums for the proportion of one- and multi-businesses in our sample, however, the result is an overall average of 175 minutes. This result is surprisingly close to the estimate already given. What the specifications made in our PRB-question set add, however, is an important and valuable insight into the details behind the rather broad estimate given to the register in Brønnøysund.

Experience and human resources

In both ISS versions a majority of the respondents had filled in this questionnaire before (69 % for o-b and 74 % for m-b). But the minority, who are first time respondents, still is considerable. In the FTS annual this was the first time filling in the questionnaire for most of the respondents (84 %)[6]. The results are a bit strange in the FTS 3rd q, since 80 % claim to have filled in this questionnaire before. One reason might be that they have already responded to the annual questionnaire and mix the two of them up or they may have responded to the Census of Assets and Liabilities.

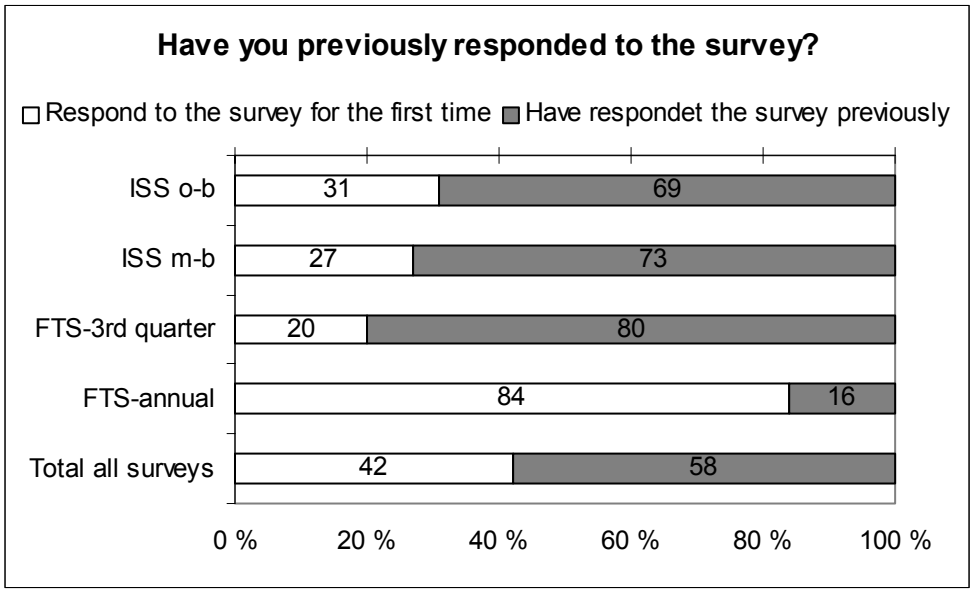


Figure 5.5: Whether respondent had previously responded to survey. Percent

In all surveys the common situation was that only one person had been involved in filling in the questionnaire (76% in ISS o-b and annual FTS, 70% in the 3rd quarter FTS and 54 % in ISS m-b). However, in multi-business establishments in the ISS survey there seems to be a weak tendency towards more people being involved in the task of collecting data and answering the questions[7].

Usefulness of the statistics

Hardly any respondents thought that the statistics based on the two surveys were useful to the business, in fact about half the respondents (63 % in ISS m-b) found it to be very useless (a little less in the 3rd quarter FTS – 45%) and between 13 and 30 % fairly useless (the highest in the 3rd quarter FTS).

[6] The reason why some thought that they had answered this questionnaire before, is that they have responded to the Census on Assets and Liabilities that is pretty similar (run for last time this year).

[7] In this question several respondents put 0 as an answer, clearly not understanding that they were supposed to count themselves in. This have been treated as if one person was involved.

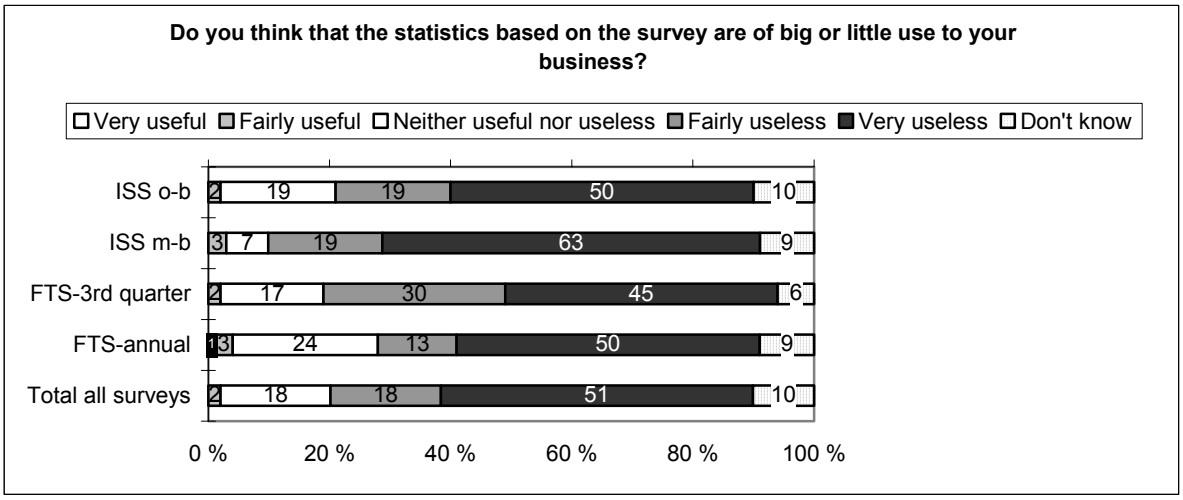


Figure 5.6: Perceived usefulness of statistics produced from survey to business. Percent

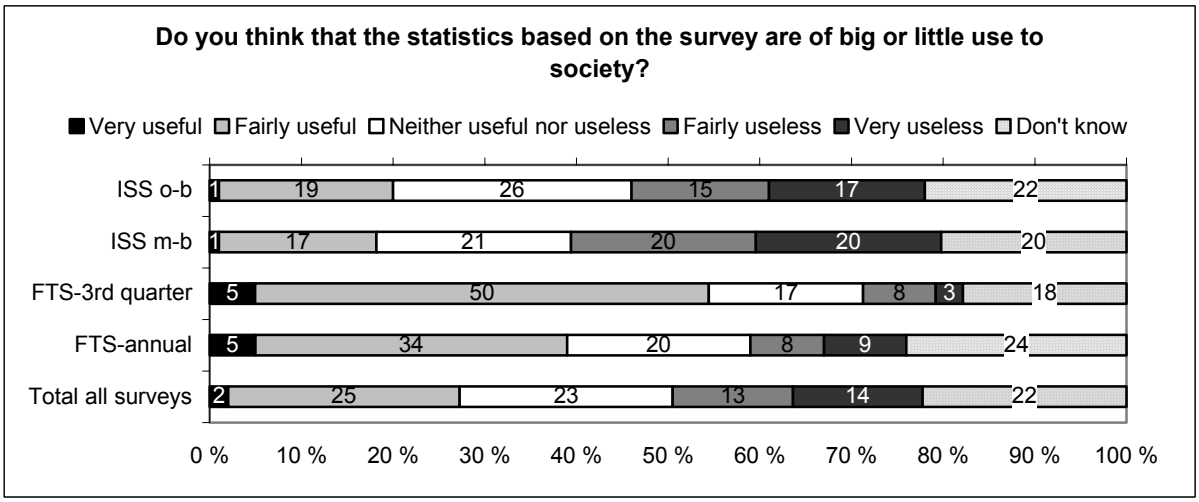


Figure 5.7: Perceived usefulness of statistics produced from survey to society. Percent

The results are somewhat better when asked about the usefulness to society: In both the ISS versions only 1 % thought the statistics were very useful to society, while almost 20 % thought they are fairly useful. In the FTS more respondents thought the statistics are useful - 5 % very useful in both surveys and 35 % in the annual survey and 50% in the 3rd quarter survey thought it fairly useful. In these surveys 10 and 17 % respectively thought the statistics are useless to society. One should also note that quite a lot of the respondents revealed that they did not know any answer to this questions. These results indicate that the understanding of what statistics can be used for is quite low.

5.2.5 Does size matter?

Based on the results from our qualitative pre-tests, we assumed that size of business is an important factor for both perceived and actual response burden. The results from this quantitative test show that although this is true for some factors, it is not correct for others.

The results from the ISS o-b show some differences between different sized establishments. Large establishments are more likely to spend more time collecting the necessary information to complete the questionnaire. However, when it comes to time spent on actually completing the questionnaire, large and medium sized establishments tend to use less time than small. Respondents from large establishments are more likely to have responded to the survey before. When it comes to the number of persons involved in responding to the survey the chance of more than one person being involved decreases with size of the establishment. Respondents from the smallest establishments are less likely to say that the statistics produced from the survey are very useless to the business, but this is mainly because more of these respondents say they don't know.

In the ISS m-b survey and in the two FTS surveys the net samples are too small to say anything about how size of establishment affects the results. Because of this it is too early to conclude on the impact of size. Based on the results from the ISS o-b survey it appears that size of business/establishment is not as important as we believed, but further research is necessary to see if this also applies for other surveys.

5.2.6 Qualitative inquires after data collection

After the data collection was finished, we tried to contact some of the nonrespondents to the ISS m-b survey to find out what the reasons were for not responding to this voluntary survey. We suspected that the nonrespondents might be the ones with the highest response burden or people who are very busy for other reasons, and that this was a major reason for not responding.

It proved hard to get in touch with the nonrespondents. During two days we attempted to contact ten nonrespondents but only managed to get in touch with three of them. However, the people who answered the calls in these establishments informed us that they do not respond to voluntary surveys because all surveys are an annoyance and because they do not have the time. This is an indication that our assumptions about the nonrespondents having the highest perceived burden and being very busy people might be correct. The three potential respondents we actually got in contact with gave the same kind of comments. What was perceived as most burdensome among these people was to collect the necessary information and to answer questions about matters they did not have on record. One of the persons had actually responded to this survey even if he normally would not because response burden interests him. What he perceived as most burdensome was to collect the necessary information and that we ask for information they do not have. He also complained that he had to report the same information several times to different governmental agencies. Also, he could not see that Statistics Norway could have any use for his information.

One of the nonrespondents had looked at the questionnaire before deciding not to participate since it was voluntary. Besides, he did not believe that the response burden will decrease. The ISS m-b questionnaire is medium hard, he said. He reported that he spent some time with it, but that the most important thing was to finish it as soon as possible. He could see absolutely no use in the resulting statistics for his establishment.

The second nonrespondent we talked to could not remember if he had actually filled in the ISS m-b questionnaire, but he had some thoughts about response burden. Normally he did not respond to voluntary surveys and he could not see that the questions in the surveys were of any use, they are just a pest and a plague and there is far too many of them. He would prefer not responding to any questionnaires at all.

Since we could not get in touch with more nonrespondents, these results only give a vague indication of what kind of people who do not want to tell us about the response burden. The general impression is that their motivation is even below low. They are directly hostile to surveys.

5.2.7 Concluding reflections

All in all, the questions seem to have worked well and to be an effective instrument for measuring both actual and perceived response burden for businesses. The survey with the heaviest burden was clearly singled out and the small differences between the other surveys can be explained by factors related to design and choice of data collection mode. However, there seems to be a need for some minor adjustments to some of the PRB-questions.

- Not surprisingly, the results show very clearly that both the perceived and the actual burdens are higher in the ISS m-b than in the other surveys. This survey is very complex and for some establishments a lot of work is necessary for responding to the survey.
- The results for the three other surveys are surprisingly similar, we would have expected larger differences because of different modes used and because the length of the surveys were different. When this is not so, it might be because the ISS o-b asks for more complex information that is not available in the businesses, because of the design of the questionnaire and because the electronic instruments in the two FTS surveys made them easier to complete than the paper and pencil format of the ISS. The results indicate that the burden in the ISS o-b is higher than in the two FTS surveys if we take into account that the questionnaire is a lot shorter. More time and effort is needed to find less information and to fill in a shorter questionnaire.
- The fact that the response burden measured in the annual FTS was not lower than in the quarterly survey even if it appears to be shorter, may be explained by the fact that the respondents had to break down the information by country and that they had not seen this questionnaire before. The reporting in the quarterly survey may have been facilitated by the fact that many of the respondents had already participated in the annual survey. It might, of course also be that the respondents are more familiar with the Excel platform than the web platform and therefore perceive it as easier, but this is something that requires further research.
- There are large differences in perceived and actual burden within each survey.
- Broadly spoken our results show that it takes twice the time to collect information for the questionnaire than to fill the figures into response boxes. Some respondents must collect large amounts of information before they can complete the questionnaire, but first of all respondents complain that the information that we ask for is different from what can be read directly from the records kept in the companies.
  One important comment to this result is that this is how it should be. If the information we collect with the help of questionnaires could be directly extracted from files, we should rather ask for a copy of the files.
- There is a high correlation between the subjective and objective measurements of response burden. The task of collecting data was described as a higher burden than filling in the questionnaire. It is important, however, not to misinterpret this as an indication that the questionnaires work well (although this observation does suggest that the *PRB questionnaire* works well). The ultimate test of how well the questionnaires work is the quality of the data they produce.
- The difference between the time spent on collecting information and the time spent on completing the questionnaire was smaller in small establishments than in larger

ones. This may be because smaller establishments have fewer or more simple records to look up. There is, however, more variation both in the subjective and objective response burden than what can be explained by the difference in size.

- Time estimates should be corrected in a way that takes into account how many questions the respondents have to answer (the objective and subjective response burden per question). In surveys where the number of questionnaires/questions depend on the number of businesses in an establishment (like the ISS m-b), this should also be taken into account.
- Some adjustments to the questionnaire are necessary. The skipping codes were not always followed and, and even respondents who did not report heavy burden gave reasons for having problems. In a forthcoming version the skipping instructions will be improved. The question on how many people were involved in the response process will need some improvement as well. Interestingly, this question worked better in the Swedish survey.
- There might be a need for more specific questions about how user friendly the respondents found the questionnaire. Also it might be an idea to ask the respondents to compare the burden of collecting data with the burden of filling in the questionnaire.
- The most important change that we suggest, however, is to add an item requesting the respondent to evaluate how easy or difficult it was to find the time to respond to the survey.
- For the questions about perceived burdens and attitudes to the usefulness of the data collected we suggest using a simple additive index. The different response alternatives could for instance be given values from -2 to +2. Then the percentage of people that chose the different response alternatives could be multiplied with these values. This would give index with -200 as minimum and +200 as maximum. An index like this could of course also be adapted to intervals going from -100 to +100 or from -1 to +1.
- Traditionally a question can be split into three aspects; the terms and linguistic formulations, the task we ask the respondents to perform and the response format that the respondents have to adapt their answers to. The results referred to above indicate that, in order to reduce the response burden, we should focus on simplifying the tasks and offering more relevant response formats.
- The number of respondents who find the task useful for the business or for society is depressingly low. We had expected that it would be low on the first question about the usefulness for the business, but not that it was so low on the second question about the social importance of the statistics produced from the collected data.
- One important result from the test that may be easy to forget, is that it seems quite essential to split questions about the perceived response burden into the three aspects that we covered in the tests, namely an evaluation of the information collection, the user-friendliness of the questionnaire and the attitudes towards the usefulness of the whole exercise.
- Another result from the test that is easy to overlook is that a fairly high proportion of the respondents filled in the questionnaires for the first time (42 %). This result punctures the myth that business respondents are a stable group that know the instruments well.
- When we design a specific questionnaire, one of the golden rules is that it is important to raise motivation with the help of marketing arguments and the first questions posed. Business surveys seem to be received with a negative or ignorant attitude towards the purpose of the data collection. Also, the information collection, which is the first task required, seems to be the heaviest part of the job. Finally most of the respondents seem to find it fairly easy to fill the figures into the questionnaire and post it. This sequence of motivating and not motivating elements seem to be the

opposite of what we want, and to what we try to accomplish in the questionnaire itself.

- The response rates were not very high, but still fairly high taken into consideration that these voluntary questions were embedded in compulsory surveys and that very little effort was done in order to convince those that did respond to the main questionnaire to go on to the voluntary PRB questions. The lowest response rate was in the web questionnaire (FTS-annual). In this questionnaire a filter question was posed without showing the respondents what questions would follow if they agreed to answer the response burden questions. The wording of the filter question was: "Finally some questions about how easy or burdensome it was to fill in this questionnaire about Import of Services. These questions are voluntary. The questions are part of an international research project, and we would very much appreciate it if you would take the time to answer these questions. **Are you willing to answer these questions?**". We were hoping that curiosity would lead the majority to answer yes to this question. The test showed us that it would probably have been wiser to show the respondents what kind of questions that followed.
- There are reasons to believe that those who did not respond may have a higher perceived response burden than those who did respond. The FTS-annual questionnaire had a complicated structure and was quite long. The average time for completion was 44 minutes, which was the second longest completion time. The questionnaire that had the longest completion time was the ISS m-b questionnaire, which for many respondents in fact was not one, but a lot of questionnaires covering different businesses within the establishment. This survey had the second highest nonresponse figure (49 %). After the data collection, we tried to contact some of the nonrespondents to the PRB-questions, but they were very hard to find or too busy to spare any time for us. This experience and the information we got from the few we did get to talk to support the notion that the nonrespondents may feel that the burden of completing statistical questionnaires are high. However, we do not have enough information to conclude that they perceive surveys as more burdensome than the respondents.
- Based on the two previous points, we recommend a more active follow up among nonrespondents than what was done in these tests.

5.3 Responses to PRB Questions in Several ONS Surveys

5.3.1 Background to Improving Questionnaires

Over the past two and a half years, the Office for National Statistics has been redesigning some of its business survey questionnaires. Data Collection Methodology (DCM) has also researched, developed and implemented methodologies for improving business survey paper questionnaires. As part of this, in April 2003 ONS agreed a programme for reviewing all statutory ONS business survey questionnaires. Each review follows an agreed structure and aims to improve the quality, accuracy and timeliness of the collected data. Each business survey questionnaire review is undertaken using the framework for reviewing data collection instruments (Jones, 2003).

All redesigned questionnaires have a common 'look and feel' to them. This common approach has been driven by research to minimise measurement error and respondent burden. For example, there is purpose of the survey paragraph(s) at the beginning of the questionnaires, response categories are always on the left of the response boxes and instructions and definitions are placed at the point that they are required.

New Earnings Survey (NES) to Annual Survey Hours and Earnings (ASHE)
The NES questionnaire is 2 sided and contains several methodological problems with it. For example:

- the questions are crammed onto the questionnaire.
- questions with more than one response category ask the respondent to select the response code and enter it into the response box. This can lead to respondent coding error. It also increases the risk of generating scanning and data capture errors.
- the questionnaire uses 'firm', 'organisation' and 'company' interchangeably.
- there are several pages of accompanying guidance notes that have been historically added to.

NES questionnaire development work was undertaken during 2003 and 2004. The redesigned questionnaire (ASHE) has overcome some of the NES issues. For example:

- the layout of the questionnaire was improved to follow researched and developed best practice. Respondent feedback indicates that this layout makes it easier for them to navigate through the questionnaire.
- all respondent coding questions have been replaced by X box response categories.
- terminology has been standardised and qualitatively tested with respondents.

Annual Register Inquiry (ARI) to Business Register Survey (BRS)
Several methodological issues were identified concerning the ARI questionnaire. For example:

- not enough information was given about the purpose of ARI.
- It was not clear which business the respondent had to report for (this could lead to both under-reporting and double counting).
- the questionnaire appeared 'crowded'.

The ARI questionnaire was then redesigned taking these issues into account:

- a short paragraph was included at the beginning of the questionnaire briefly outlining the purpose of the survey to respondents.
- the name of the business that the section should be completed for was clearly stated.
- it was ensured that there was consistent spacing between and within questions to make navigation of the questionnaire easier for respondents.

Quarterly Profits Inquiry (QPI) to Quarterly Operating Profits Survey (QOPS)
The main issues identified concerning the QPI questionnaire were:

- the use of red ink dominated the questionnaire.
- there was inconsistent use of question numbering and fonts.
- confusing terminology and abbreviations were used.

When redesigning the QOPS these issues were taken into account as follows:

- the use of red ink was minimised to just the response boxes.
- question numbers, questions, and section headings used consistent fonts.
- guidance on abbreviations and terms was provided.

5.3.2 The Perceived Respondent Burden Questionnaire

Apart from QPI and QOPS the UK attitude questionnaires were only sent out to some respondents who responded using the revised questionnaires. This approach was adopted due to operational reasons.

When survey questionnaires were returned a sub-sample were sent the PRB questionnaire.

For each survey the following number of attitude questionnaires were completed and returned:

	Number completed & returned	**Response rate**
ASHE	72	36%
BRS	69	35%
QOPS	35	23%
QOPS NOR	61	41%
QPI	39	26%
QPI NOR	57	38%
Total	333	33%

The time taken to complete each questionnaire was collected separately on a letter that went out with the survey questionnaires. This approach was adopted as the ONS has an obligation to collect this information. A high response rate was therefore required and

solely relying on the PRB questionnaire to collect this information was deemed to be too risky.

5.3.3 Responses to the ONS PRB questionnaire

Table 5.3. Responses to the statement: The length of the questionnaire was about right

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	1	39	32	18	10	**100**
BRS	3	42	28	16	12	**100**
QOPS	17	58	17	6	3	**100**
QPI	8	56	18	5	13	**100**
Total	**6**	**46**	**25**	**13**	**10**	**100**

It is interesting to see that the highest percentage who strongly agreed to the questionnaire length being about right received the QOPS. It is encouraging to see that the majority of respondents agree with this statement. However, it is interesting to see that QPI received the highest percentage for strongly disagree.

Table 5.4 Responses to the statement: The questionnaire was clearly laid out

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	4	67	26	1	1	**100**
BRS	1	75	12	9	3	**100**
QOPS	14	72	14	0	0	**100**
QPI	0	74	15	0	10	**100**
Total	**4**	**72**	**18**	**3**	**3**	**100**

It is interesting to see the contrasting responses for QOPS and QPI to the lay out of the questionnaire. We have to be cautious though as these are very small numbers. It is encouraging to see that the majority of respondents agree with this statement, and the highest percentage who strongly disagree received the QPI (the original QOPS) questionnaire.

Table 5.5. Responses to the statement: There were too many notes and instructions to read

	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly Agree (%)	Total (%)
ASHE	1	31	44	22	1	**100**
BRS	6	17	39	35	3	**100**
QOPS	3	36	42	14	6	**100**
QPI	5	33	46	10	5	**100**
Total	**4**	**28**	**43**	**23**	**3**	**100**

The percentage rates for strongly agree are reasonably low, which is encouraging. However, the rates for strongly disagree are also low, with the majority of respondents opting for neither agree nor disagree. There is little difference between QPI and QOPS, with QOPS having a slightly higher percentage for agree.

Table 5.6. Responses to the statement: The notes and instructions were useful

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	3	54	40	3	0	**100**
BRS	1	49	45	4	0	**100**
QOPS	3	54	34	9	0	**100**
QPI	0	62	28	8	3	**100**
Total	**2**	**54**	**39**	**5**	**0.5**	**100**

The majority of respondents agree with this statement and the rates for disagree are very low. What is even more encouraging is that there are no responses for strongly disagree, apart from QPI.

Table 5.7. Response to the statement: There were too many questions to answer

	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly Agree (%)	Total (%)
ASHE	1	14	47	24	14	**100**
BRS	17	30	26	25	1	**100**
QOPS	3	39	42	11	6	**100**
QPI	5	51	28	8	8	**100**
Total	**7**	**30**	**36**	**19**	**7**	**100**

It is interesting to see that quite high a percentage strongly disagrees that the BRS questionnaire has too many questions to answer. Also the rates for disagree are high for QOPS and particularly QPI, with over half disagreeing. ASHE has the lowest rate for disagree and the highest for strongly disagree.

Table 5.8. Response to the statement: The questions were in a logical order

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	1	58	35	6	0	**100**
BRS	0	71	25	3	1	**100**
QOPS	6	58	31	3	3	**100**
QPI	0	56	41	0	3	**100**
Total	**1**	**62**	**32**	**3**	**1**	**100**

It is encouraging to see that the majority of respondents agree with this statement, particularly for BRS. The disagree and strongly disagree rates are also very low.

Table 5.9. Response to the statement: I did not understand the terminology used in the questionnaire

	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly Agree (%)	Total (%)
ASHE	7	61	28	4	0	**100**
BRS	0	7	28	61	4	**100**
QOPS	19	61	14	6	0	**100**
QPI	5	56	28	5	5	**100**
Total	**7**	**43**	**26**	**23**	**2**	**100**

For BRS there was a high percentage of respondents stating that they had problems understanding the terminology. This was due to one of the questions (holding company). For the other questionnaires the majority of respondents disagree that the terminology was a problem, which is shown through high disagree rates and low agree rates.

Table 5.10. Response to the question: How many people took part in responding to the questionnaire?

	One (%)	Two (%)	Three (%)	Four or more (%)	Don't know (%)	Total (%)
ASHE	61	24	10	4	0	**100**
BRS	63	25	4	6	1	**100**
QOPS	82	15	0	3	0	**100**
QPI	86	14	0	0	0	**100**
Total	**70**	**21**	**5**	**4**	**0**	**100**

The majority of respondents have reported that only one person took part in the questionnaire. ASHE and BRS have the highest rates for two, three and four or more.

Table. 5.11. Response to the statement: It was time consuming to get other people to provide information.

	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly Agree (%)	Total (%)
ASHE	3	24	10	45	17	**100**
BRS	16	56	12	16	0	**100**
QOPS	0	50	33	0	17	**100**
QPI	43	29	0	14	14	**100**
Total	**12**	**39**	**12**	**27**	**10**	**100**

NOTE: This statement was only answered by those who responded that more than one person had taken part in responding to the questionnaire.

It is interesting to see a high percentage of people agree that it is time consuming to get others to fill out the questionnaires, particularly for ASHE.

However a very high people disagree QOPS is time consuming and for QPI a high rate strongly disagree. These disagree rates are higher than the agree rates, which is the same for BRS.

Table 5.12. Response to the statement: The information was easily accessible from our business records.

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	6	58	21	11	4	**100**
BRS	4	54	16	19	7	**100**
QOPS	19	61	11	3	6	**100**
QPI	21	46	5	21	8	**100**
Total	**10**	**55**	**15**	**14**	**6**	**100**

The majority of respondents agree the information is easily accessible. The highest disagree rates are for BRS and QOPS

Table 5.13. Response to the question: How many times has the business previously responded to the <insert name> survey?

	Once (%)	2 – 5 times (%)	6 – 10 times (%)	10+ times (%)	Don't know (%)	Total (%)
ASHE	6	31	11	17	35	**100**
BRS	10	33	6	10	41	**100**
QOPS	3	17	11	50	19	**100**
QPI	0	8	17	50	25	**100**
Total	**6**	**25**	**10**	**26**	**33**	**100**

The highest rate for QPI and QOPS is 10+ times. The other response rates appear to be spread across the 3 categories quite evenly. It is also interesting to see that there is quite a high response rate for the don't know option, particularly for BRS.

Table 5.14. Response to the question: How many times have you responded to the <insert name> survey?

	Once (%)	2 – 5 times (%)	6 – 10 times (%)	10+ times (%)	Don't know (%)	Total (%)
ASHE	11	40	14	13	21	**100**
BRS	28	32	7	9	25	**100**
QOPS	6	42	19	31	3	**100**
QPI	8	32	24	34	3	**100**
Total	**15**	**36**	**15**	**18**	**16**	**100**

Table 5.15. Response to the statement: I did not see why it was necessary to collect this information.

	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly Agree (%)	Total (%)
ASHE	1	19	36	26	17	**100**
BRS	18	30	38	12	1	**100**
QOPS	6	36	31	14	14	**100**
QPI	13	41	23	5	18	**100**
Total	**10**	**30**	**33**	**16**	**12**	**100**

It is interesting that, for ASHE, a high percentage agree (26%) or strongly agree (17%) with the statement that I did not see why it was necessary to collect this information. This may be explained by the fact that each questionnaire asks specific questions about an identified employee. In contrast all the other surveys ask about the business.

Table 5.16. Response to the statement: I trust the Office for National Statistics (ONS) with the information that I have provided to them.

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	11	53	29	4	3	**100**
BRS	6	54	32	6	3	**100**
QOPS	8	58	28	3	3	**100**
QPI	15	67	10	3	5	**100**
Total	**10**	**56**	**26**	**4**	**3**	**100**

The majority of respondents agree that they trust the ONS with the information they provide. The rates for disagree and strongly disagree are low, with the highest rate being 6%.
The highest rate for strongly agree is for QPI (15%) in comparison with QOPS (8%).

Table 5.17. Response to the statement: I would like to know more about the function of the ONS.

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly Disagree (%)	Total (%)
ASHE	3	11	33	35	18	**100**
BRS	1	13	42	22	22	**100**
QOPS	3	31	22	28	17	**100**
QPI	5	23	26	26	21	**100**
Total	**3**	**17**	**33**	**28**	**19**	**100**

The majority of respondents have reported that they neither agree nor disagree. The response rates also show that more respondents disagree than agree that they would like to know more about the function of the ONS and the rates for strongly disagree are much higher than for strongly agree.

5.3.4 Responses to the Norwegian PRB questionnaire

Table 5.18. Responses to the question: Do you think it was quick or time consuming to collect the necessary information to complete the <insert name> questionnaire?

	Very quick (%)	Quick (%)	Neither quick nor time consuming (%)	Quite time consuming (%)	Very time consuming (%)	Total (%)
QOPS	15	39	23	18	5	**100**
QPI	11	47	23	12	7	**100**

It is interesting to see the comparison between QOPS and QPI. The response rate for the questionnaire being quick to complete is higher for QPI however for it being very quick the rate is higher for QOPS. Again for it being quite time consuming QOPS has the highest rate yet for it being very time consuming QPI has the highest.

Table 5.19. Responses to the question: What were the main reasons that it was time consuming?

	Had to collect information from different sources (%)	Had to get help from others in order to answer some of the questions (%)	Had to wait for information that was available at different times (%)	Other (%)	Total (%)
QOPS	26	13	35	6	**100**
QPI	48	17	17	17	**100**

NOTE: This question was only answered by those who responded that it was 'quite time consuming' or 'very time consuming'.

It is interesting that almost half (48%) of the QPI respondents who answered this question found that the questionnaire was time consuming because they had to collect information from different sources, compared to just over a quarter of QOPS respondents (26%). Similarly QOPS respondents found that the main reason (35%) why the questionnaire was time consuming was because they had to wait for information that was available at different times, when only 17% of QPI respondents selected this response. It should also be noted that this question was not solely answered by respondents who reported that the questionnaire was time consuming, several respondents did not follow the routing correctly and unnecessarily answered this question.

Table 5.20. Responses to the question: How much time did you spend collecting the information necessary to complete the questionnaire?

	Mean time (in minutes)	Median time (in minutes)	Mode (in minutes)
QOPS	60	30	30
QPI	45	30	30

It appears that the mean time to collect information for QOPS is significantly higher than the mean time for QPI, however this may be due to one outlier (480 minutes). The

median and mode times reflect that the times taken to complete both the QOPS and QPI questionnaires are actually more similar than the mean suggests.

Table 5.21. Responses to the question: Did you find it easy or burdensome to complete the questionnaire?

	Very easy (%)	Quite easy (%)	Neither easy nor burdensome (%)	Quite burdensome (%)	Very burdensome (%)	Total (%)
QOPS	18	47	18	10	7	**100**
QPI	16	39	35	5	5	**100**

The rates are higher for QOPS being burdensome to complete. Yet what is interesting is that the rates are also higher for QOPS to be easy to complete. QPI has an overall higher rate for neither easy nor burdensome.

Table 5.22. Response to the question: What conditions contributed to making the questionnaire burdensome to complete?

	Too many questions (%)	Layout made questionnaire hard to read (%)	Terms not clear (%)	Questions asked for complicated or lengthy calculations (%)	Available information did not match information asked for (%)	Difficult to decide which answer was correct	Other	Total (%)
QOPS	0	4	4	4	42	0	25	**100**
QPI	27	7	13	0	27	7	20	**100**

NOTE: This question was only answered by those who responded that it was 'quite burdensome' or 'very burdensome'.

The most common response given for QPI was 'too many questions' (27%) in comparison to QOPS, which had a 0% response. The most common response for QOPS was 'available information did not match information asked for' (45%) in comparison to QPI (27%).

Table 5.23. Response to the question: How much time did you spend on actually completing the questionnaire?

	Mean time (in minutes)	Median time (in minutes)	Mode (in minutes)
QOPS	13	10	5
QPI	18	15	5

It is clear to see there is a greater mean and median for the time spent on QPI compared to QOPS. However, this may be due to any outliers that occurred.

Table 5.24. Response to the question: Have you previously responded to the <insert name>?

	Yes (%)	No (%)	Don't know (%)	Total (%)
QOPS	85	8	7	**100**
QPI	83	12	5	**100**

Table 5.25. Response to the question: Including yourself, how many people were involved in responding to the current <insert name>?

	0 (%)	One (%)	Two (%)	Three (%)	Four or more (%)	Total (%)
QOPS	3	71	16	5	5	**100**
QPI	0	72	19	4	6	**100**

Table 5.26. Response to the question: Do you think that the statistics based on the <insert name> are of big or little use to your business?

	Very useful (%)	Fairly useful (%)	Neither useful nor useless (%)	Fairly useless (%)	Very useless (%)	Don't know (%)	Total (%)
QOPS	2	7	16	29	28	18	**100**
QPI	5	5	30	25	19	16	**100**

Table 5.27. Response to the question: Do you think that the statistics based on the <insert name> are of big or little use to society?

	Very useful (%)	Fairly useful (%)	Neither useful nor useless (%)	Fairly useless (%)	Very useless (%)	Don't know (%)	Total (%)
QOPS	10	23	16	21	12	18	**100**
QPI	7	28	14	26	5	19	**100**

5.4 Embedded experiment on perceived response burden in the Swedish Structural Business Statistics survey

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5.4.1 Aim of the experiment

In the focus groups and cognitive interviews it was noticed that many respondents do not understand the purposes of the surveys and are not familiar with the statistics that the surveys produce. It is reasonable to believe that there is an association between respondents' knowledge and appreciation of the surveys and their perceptions of response burden. The more meaningless the survey seems, the more enervating the task is. We wanted to see whether giving the respondents information about the purposes of one particular survey could influence their perceptions. Also, paralleling use of incentives in social surveys, we were interested in whether an incentive suitable for businesses can change respondents' perceptions of the survey. To investigate these issues an embedded experiment in the Structural Business Statistics Survey (SBS) was conducted.

To operationalise these pursuits, one information sheet and one incentive were designed[8]. The former was a folded four-page green sheet stating the general purpose of the survey and giving some interesting and surprising facts obtained from the previous wave of the survey. In the sequel, we refer to this sheet as 'How the data are used', which is an approximate translation of the Swedish title of the sheet. The incentive was a two-page beige sheet informing about the feed-back of survey results that respondents could expect. The feed-back allows respondents to compare their business ratios (such as return on adjusted equity and return on total assets) with those of the industry. We refer to the incentive as 'Business ratios'. By 'treatment' we refer to which of the two sheets the respondent obtained as an enclosure to the cover letter.

To measure the potential effects of the treatments the 'Norwegian' PRB questions (Appendix 5.C; translated and adjusted as described in Bäckström and Hoff 2004) were sent to all businesses in a certain part of the sample. The treatments were randomised; see further details below under 'Experiment plan'. The focus was on a subset of the PRB questions; see 'Research questions and response variables'.

5.4.2 Some details of the survey

The annual structural business statistics is part of Sweden's official statistics. The target population comprises all active businesses except businesses in the financial sector (NACE J 65-67 Financial intermediation). About 800 of the largest businesses are sent a questionnaire in the spring. A Pareto πps sample (Rosén 2000) of some 8,000 other businesses obtain a shorter questionnaire in the autumn. On this questionnaire tax records from the year before are pre-printed. The respondents are asked to break down the tax data in some specified detail. Businesses with employment less than 20 are sent a paper questionnaire together with the cover letter, whereas businesses with at least 20 in employment are sent a cover letter with information on how to down-load an electronic questionnaire from a website. In 2004, 3,677 businesses were included in the electronic questionnaire part of the sample and all of them

[8] They were designed by Johan Erikson at Statistics Sweden, who also took care of the practical matters of the experiment

were included in the experiment. The paper and electronic questionnaires are essentially the same although the layout differs. The experiment was embedded in the 2004 survey. The survey was re-engineered in the period of 2002-2004, and the 2004 survey was new in several respects, including the enlargement of the survey population to encompass also small businesses, a new name of the survey and a redesigned questionnaire.

5.4.3 Experiment plan

Since it is believed that perceived response burden is associated with size of business, the businesses included in the experiment were grouped in four blocks (strata) by number of employees:

Block

- **A** 20 - 29 employees
- **B** 30 - 49 employees
- **C** 50 - 99 employees
- **D** 100 or more employees

Within each block the businesses were randomised to four treatments:

Treatment

- **1** No special enclosure
- **2** The enclosure 'How the data are used'
- **3** The enclosure 'Business ratios'
- **4** The enclosures 'How the data are used' and 'Business ratios'

The sample sizes for each block and treatment are given in Table 5.28.

Table 5.28. Number of businesses by treatment and block.

	Treatment				
Block	**1**	**2**	**3**	**4**	**Total**
A	209	209	209	208	835
B	260	260	260	259	1,039
C	219	219	219	218	875
D	232	232	232	232	928
Total	920	920	920	917	3,677

The businesses took part in the experiment without their knowing. However, survey staff at Statistics Sweden had information about which treatment each business was randomised to. Therefore, it was a single-blind experiment.

5.4.4 Data collection

In the cover letter the businesses were asked to obtain the questionnaire from a website. The questionnaire was constructed in Excel (it will be a web questionnaire next year). On the first of four sheets there are general questions about the business. The second sheet is the main one for the SBS. The PRB questions are on the third sheet (reproduced in Appendix 5.C). Finally, on the fourth sheet the businesses are invited to give further comments.

An Excel macro produced a dialogue box with the help of which the respondents could save the completed questionnaire and transfer it to Statistics Sweden by pressing a button. However, some respondents preferred to print out the questionnaire and send it to Statistics Sweden by ordinary mail.

The letters with enclosures were distributed in the beginning of October 2004 and respondents' deadline was 5 November 2004. The data collection in the SBS is still going on (December 2004) and will do so for another couple of months. However, the results which are given in this report are only based on those observations which had been received by 21 November.

Since the experiment and its treatments are believed not to have any effect on the survey in which the experiment was embedded, all businesses, no matter which treatment they were randomised to, will be used in the same way when analysing the results from the SBS. It is conceivable that with reduced perceived response burden measurement errors will be smaller but we do not know whether this is true and the experiment was not aimed at measurement error issues.

5.4.5 Research questions and response variables

The research questions were:

1. Can we influence respondents' perceptions of the survey by enclosing supplementary information (either 'Business ratios' or 'How the data are used') with the cover letter?
2. Can we influence respondents' appreciation of
   a) the importance of the statistics to society
   b) their own (potential) use of the statistics
   by the same supplementary information?

As was mentioned above, the experiment focussed on a subset of the PRB questions. Four response variables were identified ahead of the experiment, see Wahlström (2004):

attitude (Y_1)	Attitude towards their taking part in the survey
use for business (Y_2)	To what extent results will be useful for the business
use for society (Y_3)	To what extent results will be useful for society
response (Y_4)	Whether the business has responded by 7 November or not (the 7th was the Sunday after deadline).

The variable Y_1 was constructed by means of question 1a (Q1a) and 3a (Q3a) in the PRB questionnaire (Appendix 5.C). The categories of the variable are defined in the following way (Wahlström 2004):

Y_1	
positive	If Q1a = Very quick or Quite Quick *and* Q3a = Quite easy or Very easy
negative	If Q1a = Quite time consuming or Very time consuming *and* Q3a = Quite Burdensome or Very burdensome
neutral	If at least one of the questions Q1a and Q3a are answered but not in the ways which are given for **positive** and **negative**.

The variables Y_2 and Y_3 were measured by means of questions 7 and 8, respectively. Therefore, the categories of Y_2 and Y_3 are:

	Y_2, Y_3
Very useful	
Fairly useful	
Neither useful nor useless	
Fairly useless	
Very useless	
Don't know	

Finally, Y_4 is defined in the following way:

	Y_4
Responded by 7th of November	If the business had responded to the SBS by 7 November.
Not responded by 7th of November	If the business had not responded to the SBS by 7 November.

The variables Y_1 and Y_4 provide information about research question 1; the variables Y_2 and Y_3 about research questions 2a and 2b, respectively.

5.4.6 Statistical models

The four response variables Y_1, Y_2, Y_3, and Y_4 all generate ordered categorical data, but with different number of categories. The variable Y_1 has three categories, and Y_2 and Y_3 have five categories. The category "Don't know" is omitted from the analysis and is therefore treated in the same way as item nonresponse. Finally, Y_4 has two categories, and can therefore be said to generate dichotomous data.

Through four cumulative logit models, one for each of the four response variables, we investigated if the treatments have any effect on the variability of the response variables. The proportional odds model, see e.g. Agresti (1990), was used since for that model the parameters have meaningful interpretation. The model and specified odd-ratios under the model were included in the experiment plan, see Wahlström (2004).

Note that for the variable Y_4, the model simplifies to the ordinary logistic model.

We aimed at a parsimonious model. Therefore, treatment and block were used as factors. Treatment was included since it is the factor of interest and block was included since the stratification in the randomization procedure was made within blocks. Therefore, the model is:

$$\log\left(\frac{\Pr(Y \le d \mid i,j)}{1-\Pr(Y \le d \mid i,j)}\right) = \alpha_d + \beta_{1i} + \beta_{2j}, \quad 1 \le d \le \Delta, \quad 1 \le i \le 4, \quad A \le j \le D$$

where Y is the response variable which can attain the categories 1,2,…, Δ, Δ+1. It is the log odds for the probability $\Pr(Y \le d \mid i,j)$ which is modelled. The probability $\Pr(Y \le d \mid i,j)$ is the probability of marking category d or lower given that the factors attain the levels i and j, respectively. The parameters $\alpha_1,...,\alpha_d$ are intercepts, β_{1i} is a parameter for treatment i and β_{2j} is the block parameter, where

$$j = \begin{cases} A & \text{if block A} \\ \text{B} & \text{if block B} \\ \text{C} & \text{if block C} \\ \text{D} & \text{if block D} \end{cases}.$$

Note that for Y_4, Δ =1, and therefore $\alpha_d = \alpha$. To avoid redundancy the chosen parameterisation was $\beta_{11} = 0$ and $\beta_{2A} = 0$. It is the parameter β_{1i} that is of interest. By rewriting the model we can, for two arbitrary values of *i*, for example i' and i'', obtain the following relationship:

$$\frac{\dfrac{\Pr(Y \le d \mid i = i')}{1 - \Pr(Y \le d \mid i = i')}}{\dfrac{\Pr(Y \le d \mid i = i'')}{1 - \Pr(Y \le d \mid i = i'')}} = \exp(\beta_{1i'} - \beta_{1i''}), \qquad 1 \le d \le \Delta$$

From this relationship it can be seen that $\exp(\beta_{1i'} - \beta_{1i''})$ is the odds ratio over all possible cut-offs *d* for treatment i' relative to treatment i'' and measures the treatment effect on *Y*. If $\exp(\beta_{1i'} - \beta_{1i''}) > 1$ there is an advantage in terms of Y_1 for treatment i' in comparison with treatment i''. For example, if treatment 2 'How the data are used' is beneficiary to the attitude Y_1 (in comparison with the treatment 1 'No special enclosure'), we would expect $\exp(\beta_{12})$ to be greater than unity (recall that $\beta_{11} = 0$). If the treatment has no effect at all, the odds ratio equals 1.

The parameters in the proportional odds models were seen as model parameters and not as quantities in a finite population. This means the design weights were not taken into consideration when estimating the parameters in the models. See further discussion of this issue in Chambers (2003). The model parameters were estimated with the SAS procedure PROC LOGISTIC.

For all inferences being made the significance level 5% (or the confidence level 95%) was used.

5.4.7 Statistical analysis and results

Response rates
The number of responses is given in Table 5.29. For example, 920 businesses were given treatment 1, 443 of which sent back the SBS questionnaire (51 of those printed the questionnaire out on paper). 365 of the 443 businesses responded to the PRB questions.

Table 5.29. Response rates by treatment and respondents' choice of mode

	Treatment				Total
	1	2	3	4	
Sample size	920	920	920	917	3,677
Number of responses to the SBS (%)	443 (48.2)	473 (51.4)	429 (46.7)	468 (51.0)	1,813 (49.3)
electronic	392	425	400	422	1,639
paper	51	48	29	46	174
Number of responses to the PRB questions	365	401	363	391	1,520

See the section 'Analysis of Non-response' for a discussion of the possible effect non-response may have on the response variables.

Frequency tables of responses to PRB questions

The electronic questionnaire contained some validity checks. For example, only one category for Q1a could be marked. The same holds for Q3a, Q5, Q7, and Q8.

The respondents were not supposed to answer Q1b if they had marked one of the three first categories in Q1a. Therefore, for those respondents who had not followed the skipping instructions answers to Q1b were taken away. The same procedure was made for Q3a and Q3b.

Turning to Q2 and Q4, a variable for time in minutes was derived by means of the questions about number of hours and minutes, respectively.

Annotated frequency tables for all variables are given in Appendix 5.A.

Response variables

The variable Y_1

Table 5.30 reports the results for the variable Y_1 by treatment. Those businesses which have responded to the PRB questions but which have responded to neither Q1a nor Q3a are reported in Table 5.30 as item non-response.

Table 5.30. Number of businesses by treatment and Y_1 (derived from Q1a and Q3a).

	Treatment				Total
Y_1	1	2	3	4	
positive	93 (26%)	119 (30%)	89 (25%)	101 (26%)	402
neutral	207 (57%)	220 (56%)	217 (60%)	224 (58%)	868
negative	61 (18%)	57 (14%)	54 (15%)	64 (16%)	236
TOTAL	361	396	360	389	1,506
item non-response	4	5	3	2	14

By studying the relative distributions of Y_1 it seems as if there is not much of a difference between the treatments.

The 1,506 observations were used for estimating the parameters in the proportional odds model with the main factors treatment and block. The interaction between the two factors was not included in the model since the additional effect of the interaction (adjusted for treatment and block) was not significant (likelihood-ratio-test with $X^2 = 13.01$, df = 9, and p = 0.16). The treatment effect was not significant (likelihood-ratio-test with $X^2 = 3.19$, df = 3, and p = 0.36), although it can be noted that block (adjusted for treatment) was highly significant ($X^2 = 11.18$, df = 3, and p = 0.011). The blocks differ in such a way that respondents at larger businesses seem to have more positive attitudes than those at smaller ones. This is indicated by the following 95% confidence limits for the odds ratios $\exp(\beta_{2B})$, $\exp(\beta_{2C})$, and $\exp(\beta_{2D})$: 0.94 – 1.67, 1.04 – 1.89, and 1.22 – 2.19, respectively.

Table 5.31 displays estimated odds ratios with confidence intervals: all point estimates are greater than 1. However, all 95% confidence intervals cover unity meaning that the odds ratios are not significantly greater than unity.

Table 5.31. Odds ratios and corresponding estimates and 95% confidence intervals.

parameter	Estimate	95% confidence interval
$\exp(\beta_{12} - \beta_{11})$	1.24	0.94 – 1.64
$\exp(\beta_{13} - \beta_{11})$	1.03	0.77 – 1.37
$\exp(\beta_{14} - \beta_{11})$	1.01	0.76 – 1.34

The variable Y_2

Table 5.32 shows the results for the variable Y_2 by treatment.

Table 5.32. Number of businesses by treatment and Y_2 (Q7: 'Do you think that the statistics based on the SBS survey are of big or little use to your business?').

Y_2	Treatment				Total
	1	2	3	4	
Very useful	0 (0%)	0 (0%)	1 (0%)	4 (1%)	5
Fairly useful	15 (5%)	23 (7%)	23 (8%)	31 (10%)	92
Neither useful nor useless	66 (22%)	65 (20%)	80 (27%)	71 (22%)	282
Fairly useless	64 (21%)	70 (21%)	49 (17%)	63 (19%)	246
Very useless	160 (52%)	171 (52%)	138 (47%)	156 (48%)	625
TOTAL	305	329	291	325	1,250
Don't know	52	63	63	60	238
item non-response	8	9	9	6	32

By studying the table one can see that businesses given treatment 3 or 4 tend to mark lower categories (i.e. believing more strongly in benefits of using the statistics for the purposes of management of their business) than those in treatment groups 1 and 2.

Since there are only five observations in the lowest category of Y_2, the two lowest categories were joined when the proportional odds model was applied. Only the main factors were included: the interaction factor (adjusted for the main factors) was not significant (likelihood-ratio-test with $X^2 = 7.46$, df = 9, and p = 0.59). Block adjusted for treatment is not significant ($X^2 = 0.16$, df = 3, and p = 0.98) but treatment adjusted for block is almost significant ($X^2 = 6.06$, df = 3, and p = 0.11).

For this variable, we were only interested in comparing the mean effect of treatments 3 and 4 compared with the mean effect of treatments 1 and 2 on the responses to the variable Y_2, see the plan of analysis: Wahlström (2004). The reason is that the enclosure 'How the data are used' is not assumed to have an appreciable effect on this variable which measures to what extent respondents at businesses think about how useful the statistic will be for their business. Instead, it is the enclosure 'Business ratios' which is thought to have a possible effect. The estimated odds ratio can be found in Table 5.33: the enclosure 'Business ratios' has a positive effect on Y_2 since the confidence interval does not cover unity. The interpretation is that respondents given this incentive believe more strongly that the statistics the survey eventually will produce are of use to their own business than do respondents not given this incentive.

Table 5.33. Odds ratio and corresponding estimate and 95% confidence interval.

parameter	estimate	95% confidence interval
$\exp(0.5(\beta_{13}+\beta_{14})-0.5(\beta_{11}+\beta_{12}))$	1.30	1.05 -1.60

The variable Y_3

Table 5.34 shows the results for Y_3 by treatment.

Table 5.34. Number of businesses by treatment and Y_3 (Q8: 'Do you think that the statistics based on the SBS survey are of big or little use to society?'**)**

Y_3	Treatment				Total
	1	2	3	4	
Very useful	7 (3%)	8 (3%)	2 (1%)	9 (3%)	26
Fairly useful	75 (29%)	90 (32%)	87 (35%)	94 (33%)	346
Neither useful nor useless	74 (29%)	84 (30%)	74 (29%)	82 (28%)	314
Fairly useless	50 (19%)	55 (19%)	42 (17%)	57 (20%)	204
Very useless	51 (20%)	46 (16%)	46 (18%)	46 (16%)	189
TOTAL	257	283	251	288	1,079
Don't know	101	110	101	96	408
item non-response	7	8	11	7	33

Again, the interaction was not significant (likelihood ratio test with $X^2 = 6.31$, df = 9, and p = 0.71). Furthermore, neither treatment nor block was significant ($X^2 = 1.72$, df = 3, and p = 0.63 and $X^2 = 3.82$, df = 3, and p = 0.28, respectively).

For this variable the mean effect of treatments 2 and 4 as one group was compared with the mean effect of treatments 1 and 3 combined into another group with similar arguments as for Y_2. A 95% confidence interval for the odds ratio of interest is given in table 5.35.

Table 5.35. Odds ratio and corresponding estimate and 95% confidence interval.

parameter	estimate	95% confidence interval
$\exp(0.5(\beta_{12}+\beta_{14})-0.5(\beta_{11}+\beta_{13}))$	1.11	0.89 -1.37

The point estimate is greater than 1. However, as can be seen from the confidence interval, the enclosure 'How the data are used' does not have a significant effect on Y_3.

The variable Y_4

Finally, the outcome for Y_4 (responded by Nov 7) is reported in table 5.36.

Table 5.36. Number of businesses by treatment and Y_4.

Y_4	Treatment 1	2	3	4	Total
Responded by 7th of November	335 (36%)	341 (37%)	310 (34%)	359 (39%)	1,345 (37%)
Not responded by 7th of November	385 (64%)	579 (63%)	610 (66%)	558 (61%)	2,332 (63%)
TOTAL	920	920	920	917	3,677

For this variable, Y_4, the proportional odds model simplifies to a logistic model since Y_4 has two categories only. The interaction factor was omitted since it was not significant ($X^2 = 10.93$, df = 9, and p = 0.28) and the corresponding p-values for treatment and block are p = 0.11 and p = 0.13, respectively (with df = 3, $X^2 = 6.03$, and $X^2 = 5.67$).

Three parameters have been identified in the plan of analysis; these are given in Table 5.37 with 95% confidence limits. Recall that $\exp(\beta_{1i} - \beta_{11}) = \exp(\beta_{1i})$ is the odds ratio of treatment i (i = 2 'How are the data used', i = 3 'Business ratios', and i = 4 both) over treatment 1 (no special enclosure).

Table 5.37. Odds ratios and corresponding estimates and 95% confidence intervals.

parameter	estimate	95% confidence interval
$\exp(\beta_{12} - \beta_{11})$	1.03	0.85 – 1.24
$\exp(\beta_{13} - \beta_{11})$	0.89	0.73 – 1.08
$\exp(\beta_{14} - \beta_{11})$	1.12	0.93 – 1.36

The estimates indicate that treatment 3 has, surprisingly, a negative effect on the response rate (in comparison with treatment 1) while treatment 4 has a positive effect (again in comparison with treatment 1). However, all confidence intervals cover unity.

5.4.8 Discussion

Multiple confidence intervals

It should be noted that eight confidence intervals have been constructed and the problem of performing multiple significance tests should be taken into account when drawing conclusions from one significant result among a large number of non-significant results. However, a 99% confidence interval of the effect in Table 5.33 just covers unity (the limits for such a confidence interval are 0.99 and 1.71) and the number of confidence intervals was already in the plan of analysis restricted to these eight (only) which should be compared with the large number of possible combinations (if all possible contrasts are taken into account) of comparisons.

Factors included in the model

As one can see from the section 'Statistical models', it was decided in advance that the factors treatment and block were to be included in the model. Another potential factor, or variable, could be formed by responses to Q5: 'Have you previously responded to the SBS questionnaire' (exact formulation in Appendix 5.C) with the categories 'Yes, more than once', 'Yes, once', 'No, this is the first time', and 'Don't know'. However, it was our belief that there is an association between block and Q5. The reason is that this was the first time that the SBS was conducted not using cut-off sampling. Earlier, only businesses with employment 50 or more were included in the sampling frame. Therefore, we expected that there would be no point in including Q5 as a factor. The data supported these ideas. As can be seen from Table 5.38, the main part of the businesses in block A and B are in the categories 'No, this is the first time' or 'Don't know' while the businesses in C and D mainly are in 'Yes, more than once' and 'Yes, once'. Also, a large proportion of the respondents appear to have answered to this question incorrectly: It is unlikely that many respondents in blocks A and B have seen the predecessor to the SBS questionnaire before as their businesses have not been sampled for this survey before.

Table 5.38. Number of businesses by block and Q5 'Have you previously responded to the SBS questionnaire'

Q5	Block				Total
	A	B	C	D	
Yes, more than once	60 (20%)	103 (25%)	184 (48%)	235 (59%)	582
Yes, once	15 (5%)	26 (6%)	45 (11%)	48 (12%)	134
No, this is the first time	145 (49%)	179 (44%)	103 (27%)	88 (22%)	515
Don't know	78 (26%)	97 (23%)	53 (14%)	30 (7%)	258
TOTAL	298	405	385	401	1,489
item non-response	6	9	8	8	31

Therefore, whether Q5 is included or not in the model does not matter for the results concerning the effect of treatment on the response variables. For example, if Q5 is substituted for block when modelling Y_1 that factor is highly significant with the interpretation that businesses that are in the categories 'Yes, more than once' and 'Yes, once' have a more positive attitude than those in 'No, this is the first time' or 'Don't know'.

Model assumptions

When applying a proportional odds model it is assumed that the odds are the same no matter where the cut-off of the response variable is being made. In SAS, the procedure PROC LOGISTIC reports results from a score test of the proportional odds assumption when the number of categories is more than two. For the models applied (i.e. those where the main factors treatment and block were included only) the p-values for this test were for Y_1, Y_2, and Y_3 p = 0.73, p = 0.34, and p = 0.84, respectively. These p-values indicate that the proportional odds models fit the data reasonably well.

Analysis of non-response

The main aim of the experiment is to compare the effects of the treatments on the perceived response burden. If, for example, large businesses tend to have higher response rates than small businesses, all treatment groups would be equally affected since randomization was made within blocks created by number of employees. The non-response appears missing at random conditional on block. Adding employment or industry as factors to any of the models above

does not change the results. Furthermore, the set of respondents is balanced in terms of employment and the size measure used in the πps sampling design.

However, it should be noted that one should not draw any general conclusions from the total sample (ignoring treatment) to a population concerning proportions of businesses marking certain categories of the variables measured in the questionnaire. This means for example that the marginal (relative) frequencies for Y_1 (see Table 5.30) should not be used as estimates for the corresponding proportions in a finite population. To make such estimations some adjustment for non-response would have been necessary. Moreover, the design weight should have been taken into account.

5.4.9 Conclusions

The results indicate that respondents at businesses which are given the enclosure 'Business ratios' tend to believe that the statistics from the survey will be more useful to their business than respondents at businesses which are not given that enclosure. Other results are not statistically significant.

Appendix 5.A. SBS freqency tables

This appendix contains summaries of unweighted responses to PRB questions put to businesses that were included in part of the sample for Statistics Sweden's Structural Business Statistics Survey 2004. Businesses in this part of the sample had at least 20 employees.

Table 5.A1. Question 1b vs question 1a.

	1a. Quick or time consuming to collect the necessary information to complete the questionnaire						
	item nonresponse	Very quick	Quite quick	Neither quick nor time consuming	Quite time consuming	Very time consuming	All
1b. The main reason for being time-consuming							
item nonresponse	16	59	397	431	18	10	931
Information from different sources	0	0	0	0	139	33	172
Get help from others to answer the questions	0	0	0	0	33	12	45
The information was available at different points in time	0	0	0	0	2	3	5
Figures had to be calculated/estimated	1	0	0	0	183	50	234
There were many instructions to read	0	0	0	0	25	13	38
Other reason, namely ...	2	0	0	0	53	40	95
All	19	59	397	431	453	161	1520

Comments to Table 5.A1. Item nonresponse consisted of 19 and 44 units for questions 1a and 1b, respectively. The skipping instruction stated that only responses 'quite time consuming' or 'very time consuming' to question 1a qualified for a response to question 1b. About 40 respondents had failed to adhere to this instruction: They are here included in 'item nonresponse' (to question 1b), although this is a slight abuse of terms. Note that all response categories to both questions have been used, although few selected the category 'the information was available at different points in time'. There is, for example, no indication of the first or last category in question 1b to have been selected more often than the other categories. Furthermore, it turned out that responses to 'other reason, namely...' could either be classified into one of the specified categories or were general comments such as 'we get sent too many questionnaires'. For question 1a the mode is on 'quite time consuming' with monotonically decreasing response rates from this category in either direction towards the more extreme categories.

Table 5.A2. Question 1a vs question 2.

Time to collect the information, in minutes					
1a. Quick or time consuming to collect the necessary information to complete the questionnaire	**# Obs**	**Mean**	**Lower Quartile**	**Median**	**Upper Quartile**
item nonresponse	19	120	30	60	120
Very quick	59	22	5	10	30
Quite quick	397	69	20	48	60
Neither quick nor time consuming	431	86	30	60	120
Quite time consuming	453	165	60	120	210
Very time consuming	161	5675	90	180	360

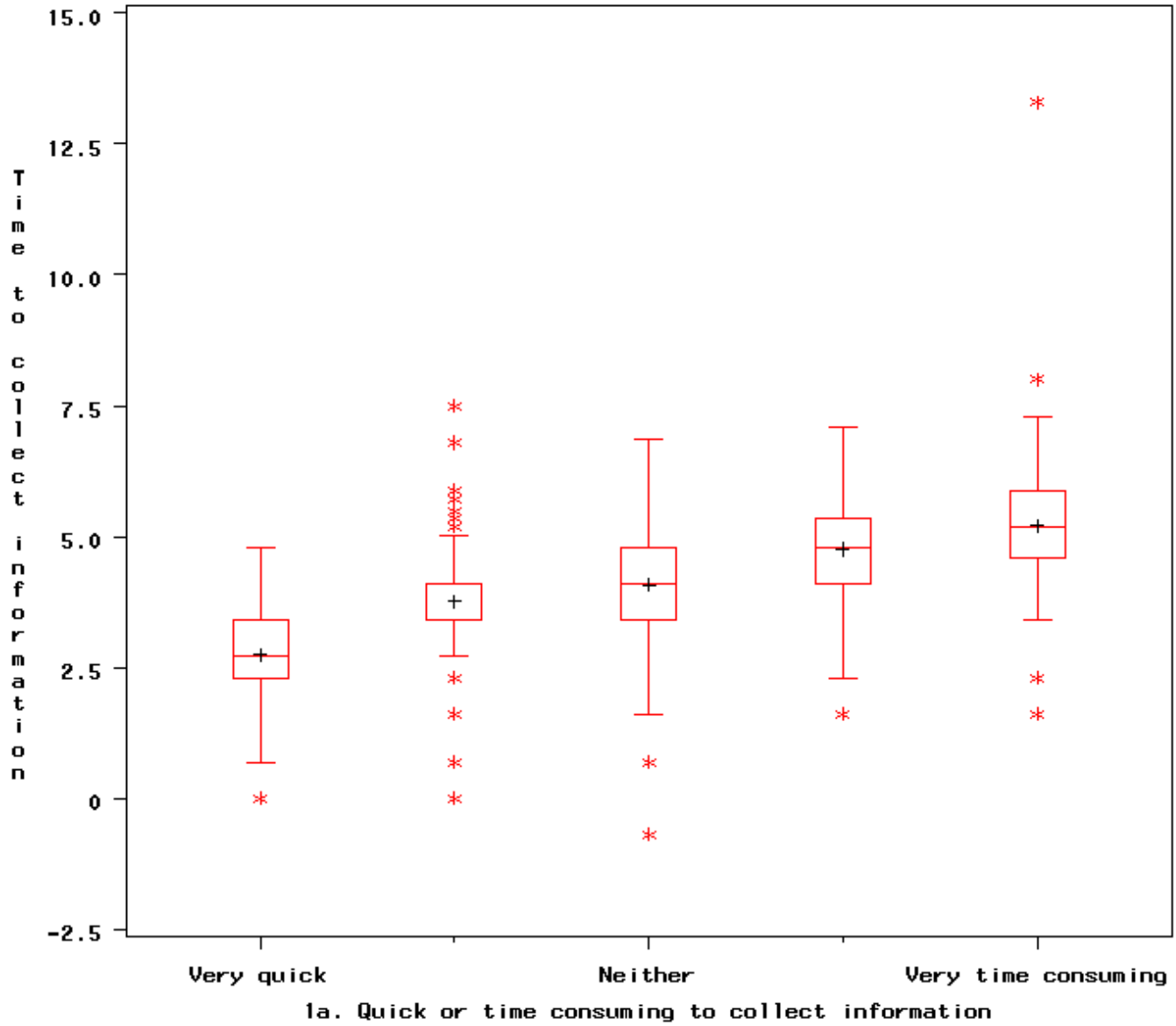


Figure 5.A1. Question 2 (in log-scale) vs question 1a.

Comments to Table 5.A2 and Figure 5.A1. There is a clear association between responses to questions 1a and 2. Note the monotonic trend in the averageges in Figure 5.A1. The median time (over all response categories to question 1a) to collect the necessary information is 60 minutes, upper quartile 120 minutes.

Table 5.A3. Question 3b vs question 3a.

	3a. Easy or burdensome to complete the questionnaire						
	item nonresponse	Very easy	Quite easy	Neither easy nor burdensome	Quite burdensome	Very burdensome	All
3b. The main reason for being burdensome							
item nonresponse	32	131	637	446	13	6	1265
Many questions	0	0	0	0	13	3	16
Messy layout which made the questionnaire difficult to read	0	0	0	0	15	6	21
Terms and explanations of terms were unclear	0	0	0	0	62	4	66
Questions that asked for complicated or lengthy calculations	0	0	0	0	24	5	29
Available information did not match the information asked for	0	0	0	0	78	14	92
Other reason, namely ...	1	0	0	0	23	7	31
All	33	131	637	446	228	45	1520

Comments to Table 5.A3. Item nonresponse consisted of 33 and 51 units for questions 3a and 3b, respectively. The skipping instruction stated that only responses ‘quite burdensome’ or ‘very burdensome’ to question 3a qualified for a response to question 3b. About 40 respondents had failed to adhere to this instruction: They are here included in ‘item nonresponse’ (to question 3b), although this is a slight abuse of terms. Note that all response categories to both questions have been used. For question 3a the mode is on ‘quite easy’ with monotonically decreasing response rates from this category in either direction towards the more extreme categories. The response distribution to this question is quite different from that of question 1a; this indicates that respondents have noticed that the questions are not the same.

Table 5.A4. Question 1a vs question 3a.

	3a. Easy or burdensome to complete the questionnaire						
	Item nonresponse	Very easy	Quite easy	Neither easy nor burdensome	Quite burdensome	Very burdensome	All
1a. Quick or time consuming to collect the necessary information to complete the questionnaire							
item nonresponse	14	1	2	0	1	1	19
Very quick	2	37	18	0	2	0	59
Quite quick	1	45	302	42	7	0	397
Neither quick nor time consuming	5	26	163	211	26	0	431
Quite time consuming	8	19	124	163	134	5	453
Very time consuming	3	3	28	30	58	39	161
All	33	131	637	446	228	45	1520

Comments to Table 5.A4. Here the relationship between responses to questions 1a and 3a is shown. Note that very few respondents have filled in the combination ‘very/quite quick’ as a response to 1a and ‘very/quite burdensome’ to 3a. The other way round is not uncommon. This is reasonable: it should take longer to find the necessary information to complete the questionnaire. Outside the diagonal, one common combination of responses is ‘quite easy’ or ‘neither easy or burdensome’ to 3a and ‘quite time consuming’ and ‘neither quick nor time consuming’ to 1a.

Table 5.A5. Question 3a vs question 4.

Time to complete the questionnaire, in minutes					
3a. Easy or burdensome to complete the questionnaire	**# Obs**	**Mean**	**Lower Quartile**	**Median**	**Upper Quartile**
item nonresponse	33	58	30	45	60
Very easy	131	42	15	30	48
Quite easy	637	73	30	38	60
Neither easy nor burdensome	446	79	30	60	60
Quite burdensome	228	114	60	60	150
Very burdensome	45	22383	60	120	240

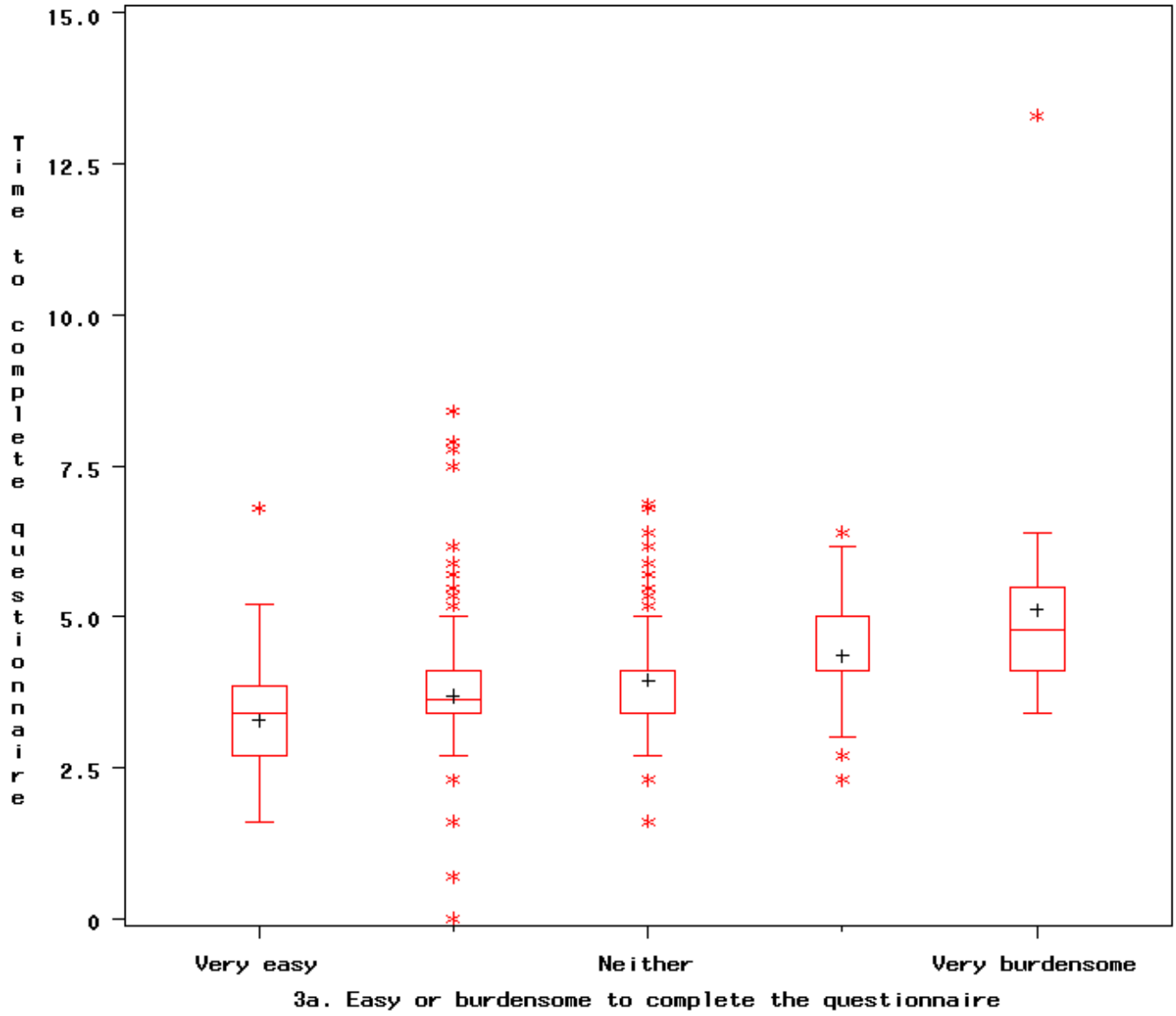


Figure 5.A2. Question 4 (in log-scale) vs question 3a.

Comments to Table 5.A5 and Figure 5.A2. There is a clear association between responses to questions 3a and 4. Note the nearly monotonic trend in the averages in Figure 5.A2. Comparing figures 5.A1 and 5.A2, note that times are shorter for Q4 than Q2, in particular for the higher alternatives for Q3a/Q1a, suggesting that even if the questionnaire is burdensome, it does not take excessive time to fill it in. The median time (over all response categories to question 3a) to complete the questionnaire is 60 minutes, the upper quartile is also 60 minutes.

Table 5.A6. Question 1a vs question 5.

	5. Have you responded to the previous questionnaire					
	item nonresponse	Yes, more than once	Yes, once	No, this is the first time	No idea/Do not remember	All
1a. Quick or time consuming to collect the necessary information to complete the questionnaire						
item nonresponse	7	5	0	4	3	19
Very quick	2	26	4	17	10	59
Quite quick	1	190	41	112	53	397
Neither quick nor time consuming	4	164	37	153	73	431
Quite time consuming	13	155	35	165	85	453
Very time consuming	4	42	17	64	34	161
All	31	582	134	515	258	1520

Comments to Table 5.A6. Here the relationship between responses to questions 1a and 5 is shown. First-timers tended to find the data collection more time consuming (230 out of 515 said ‘quite’ or ‘very time consuming’) than those who had previously responded to the questionnaire more than once (200 out of 582). Having said that, there is likely to be response errors to question 5 as discussed in section 5.4.8.

Table 5.A7. Question 6.

6. Number of people (yourself included) involved in responding to the questionnaire	
item nonresponse	37
1	1078
1.5	1
2	311
3	70
4	15
5	3
6	2
7	2
29	1
All	1520

Comments to Table 5.A7 Responses to this open question are reasonable, with the possible exception of '29'. Note that someone has responded 1.5 but everybody else seems to have understood that an integer number was expected. The version of the PRB-questions used for the SBS survey had an italicized instruction below question 6 reading 'include yourself'; as seen in table 5.A7 respondents adhered to this instruction.

Table 5.A8. Question 7 vs question 8.

	8. Will the results be useful for society							
	item nonresponse	Very useful	Fairly useful	Neither useful nor useless	Fairly useless	Very useless	No idea	All
7. Will the results be useful for your business								
item nonresponse	29	0	0	1	1	0	1	32
Very useful	0	4	0	0	1	0	0	5
Fairly useful	0	10	64	11	2	0	5	92
Neither useful nor useless	2	4	135	106	10	1	24	282
Fairly useless	0	4	65	69	51	5	52	246
Very useless	2	2	53	107	132	177	152	625
No idea	0	2	29	20	7	6	174	238
All	33	26	346	314	204	189	408	1520

Comments to Table 5.A8. Here the relationship between responses to questions 7 and 8 is shown. Note that very few respondents have filled in the combination ‘fairly/very useless’ as a response to 8 and ‘fairly/very useful’ to 7. Most responses fell outside the diagonal, which indicates that respondents did fill in these two questions with some thought. One of the most common combinations of responses (250 responses) is the category ‘fairly useful’ to question 8 and a response in the interval ‘neither useful or useless’ to ‘very useless’ to question 7. It is particularly noteworthy that question 7 is the only question (apart from question 5 to some extent) that has a bimodal response distribution. It is also the only question where an extreme category is most frequently chosen.

Table 5.A9. Question 1a vs size of business (block)

	Block				
	1	2	3	4	All
1a. Quick or time consuming to collect the necessary information to complete the questionnaire					
item nonresponse	4	7	3	5	19
Very quick	14	12	17	16	59
Quite quick	64	105	104	124	397
Neither quick nor time consuming	87	120	119	105	431
Quite time consuming	87	130	117	119	453
Very time consuming	48	40	33	40	161
All	304	414	393	409	1520

Table 5.A10. Question 3a vs size of business (block)

	Block				
	1	2	3	4	All
3a. Easy or burdensome to complete the questionnaire					
item nonresponse	4	11	10	8	33
Very easy	21	34	32	44	131
Quite easy	111	174	173	179	637
Neither easy nor burdensome	101	117	115	113	446
Quite burdensome	52	68	52	56	228
Very burdensome	15	10	11	9	45
All	304	414	393	409	1520

Comments to Tables 5.A9 and 5.A10. These tables show the relationship between responses to questions 1a and 3a, on the one hand, and block on the other hand (the businesses were grouped in blocks by employment as defined in section 5.4.3). Respondents at large businesses tend to perceive the response process as quicker and easier than do respondents at medium-sized businesses, although it actually tends to take longer for large businesses (Figures 5.A1 and 5.A2). Note that the nonresponse rate is higher in Block 1 than in other blocks.

Appendix 5.B. Field Test of the Norwegian PRB-questionnaire

See section 5.1 and following sections for details of the surveys.

Table 5.B1: Quick or time consuming to collect necessary information. Per cent

	Do you think it was quick or time consuming to collect the necessary information to complete the 'name of survey' questionnaire?					Total each survey	N
	Very quick	Fairly quick	Neither quick nor time consuming	Fairly time consuming	Very time consuming		
ISS o-b	7	40	33	17	3	100	414
ISS m-b	1	4	21	51	23	100	78
FTS-3rd quarter	14	51	16	16	3	100	69
FTS-annual	10	37	16	28	9	100	164
SBS	4	26	29	30	11	100	1501
QPI	11	47	23	12	7	100	57
QOPS	15	39	23	18	5	100	61

Table 5.B2: Reasons for collecting necessary information being time consuming. Per cent**

	ISS o-b.	ISS m-b.	FTS-3. quarter	FTS-annual	QPI	QOPS
Had to collect information from different sources	71	72	82	85	48	26
Had to get help from others in order to answer Some of the questions	24	17	29	17	17	13
Had to wait for information that was available at different times	12	15	6	5	17	35
Other reasons	7	12	12	14	17	6
Many questionnaires*	.	43	.	.		
N	213	65	17	59		

* This was an alternative only in ISS m-b
** SSB had different categories and is not included in Table 2

Table 5.B3: Time spent on collecting necessary information**. Minutes

	How much time did you spend collecting the information necessary to complete the questionnaire?						
	Less than 30 minutes, %	30 to 60 minutes, %	More than 60 minutes, %	Mean (mins)	Min (mins)	Max (mins)	N
ISS o-b	41	39	20	79	1	3300	375
ISS m-b	9	16	75	306	3	1200	75
FTS-3rd quarter	41	27	32	85	2	960	63
FTS-annual	34	35	31	99	0	1200	155
SBS*	18	38	44	117	0	3000	1261

* One record with 600,000 minutes has been deleted
** These calculations were not done for QPI and QOPS

Table 5.B4: Easy or burdensome to complete questionnaire

	Did you find it easy or burdensome to complete the questionnaire?					Total each survey	N
	Very easy	Fairly easy	Neither easy nor burdensome	Fairly burdensome	Very burdensome		
ISS o-b	12	47	34	5	1	100	407
ISS m-b	3	23	35	33	6	100	78
FTS-3rd quarter	18	53	27	2	0	100	66
FTS-annual	22	48	21	6	3	100	159
QPI	16	39	35	5	5	100	57
QOPS	18	47	18	10	7	100	61

Table 5.B5: Reasons for being burdensome to complete questionnaire. Percent**

	ISS o-b.	ISS m-b.	FTS-3. quarter	FTS-annual	QPI	QPS
Too many questions	5	21	30	27	27	0
The layout made the questionnaire hard to read	1	3	10	0	7	4
Terms and explanations were not clear	24	22	30	53	13	4
Questions that asked for complicated or lengthy calculations	18	36	20	47	0	4
Available information did not match the information asked for	53	72	30	73	27	42
Difficult to decide which answer was the correct one	14	21	20	47	7	0
Other	6	5	0	13	.	.
Functions in the Internet version/Excel that did not work as they should*	.	.	10	20	.	.
Difficult to figure out how the Internet version/Excel version of the questionnaire worked*	.	.	.	0	.	.
N	154	58	10	15	57	61

* These two alternatives were only asked in the FTS, where the data was collected with electronic questionnaires
** SSB had different categories and is not included in Table 2

Table 5.B6: Time spent on completing the questionnaire. Minutes**

	How much time did you spend completing the questionnaire?						
	Less than 30 mins, %	30 to 60 minutes, %	More than 60 minutes, %	Mean (mins)	Min (mins)	Max (mins)	N
ISS o-b	62	35	3	26	1	300	369
ISS m-b	10	36	54	148	5	540	69
FTS-3rd quarter	69	28	3	22	2	120	64
FTS-annual	65	25	10	44	1	1800	155
SBS	20	57	23	79	1	4500*	1233

* One record with 600,000 minutes has been deleted
** These calculations were not done for QPI and QOPS

Table 5.B7: Whether responded to survey before or first time respondent. Per cent

	Have you previously responded to the 'name of survey'?		Total each survey
	Respond to the survey for the first time	Have responded to the survey previously	
ISS o-b	31	69	100
ISS m-b	27	73	100
FTS-3rd quarter	20	80	100
FTS-annual	84	16	100
SSB**	42	58	100
QPI	83	12	100
QOPS	85	8	100

** SSB had several categories: here they have been collapsed to first time/responded previously.

Table 5.B8: Number of people involved in response process. Per cent

Including yourself, how many people were involved in responding to the 'name of survey'?	1 person	2-3 persons	4 persons or more	N
ISS o-b	69	30	1	390
ISS m-b	51	37	12	72
FTS-3rd quarter	71	24	5	62
FTS-annual	69	28	3	157
SBS	73	26	1	1483
QPI	72	23	6	57
QOPS	74	21	5	61

Table 5.B9: Number of people involved in responding to the survey

Including yourself, how many people were involved in responding to the 'name of survey'?						
	N Obs	N	Mean	Std Dev	Minimum	Maximum
ISS o-b	544	390	1.32	0.88	0	10
ISS m-b	85	74	2.16	2.86	0	20
FTS-3rd quarter	162	62	1.52	1.16	1	8
FTS-annual	392	157	1.35	0.82	0	6
SBS	1520	1483	1.38	1.0	1	29

Table 5.B10: Usefulness of statistics to business. Per cent

	Do you think that the statistics based on 'name of survey' are of big or little use to your business?						Total each suvey	N
	Very useful	Fairly useful	Neither useful nor useless	Fairly useless	Very useless	Don't know		
ISS o-b	0	2	19	19	50	10	100	406
ISS m-b	0	3	7	19	63	9	100	75
FTS-3rd quarter	0	2	17	30	45	6	100	66
FTS-annual	1	3	24	13	50	9	100	158
SBS	0	6	19	17	42	16	100	1488
QPI	5	7	16	29	28	16	100	57
QOPS	2	7	16	29	28	18	100	61

Table 5.B11: Usefulness of statistics to society. Per cent

	Do you think that the statistics based on 'name of survey' are of big or little use to society?						Total	N
	Very useful	Fairly useful	Neither useful nor useless	Fairly useless	Very useless	Don't know		
ISS o-b	1	19	26	15	17	22	100	407
ISS m-b	1	17	21	20	20	20	100	75
FTS-3rd quarter	5	50	17	8	3	18	100	66
FTS-annual	5	34	20	8	9	24	100	157
SBS	2	23	21	14	13	27	100	1487
QPI	7	28	14	26	5	19	100	57
QOPS	10	23	16	21	12	18	100	61

Appendix 5.C. The PRB-questions in Swedish, used for the SBS survey

Here follows a rough translation of the questionnaire into English:

1a. Do you think it was quick or time consuming to *collect* the necessary information to complete the SBS form?

Very quick
Quite quick
Neither quick nor time consuming
Quite time consuming
Very time consuming

1b. What was the *main* reason that it was time consuming?

Had to collect information from different sources
Had to get help from others in order to answer some of the questions
Had to wait for information that was available at different times
Had to calculate/estimate data
Many instructions to be read
Other reasons, please specify |

2. How much time did you spend *collecting* the information necessary to complete the questionnaire?

Number of hours: ☐ Number of minutes: |

Did not spend any time on this at all
Cannot estimate the time spent

3a. Did you find it easy or burdensome to *fill in* the form?

Very easy
Quite easy
Neither easy nor burdensome
Quite burdensome
Very burdensome

3b. What conditions contributed to making the questionnaire burdensome to *fill in*?

Many questions
The layout made the questionnaire hard to read
Terms and explanations of terms were not clear
Questions that asked for complicated or lengthy calculations
Available information did not match the information asked for
Other reasons, please specify

4. How much time did you spend on *filling in* the form?

Number of hours: ☐ Number of minutes:

Cannot estimate the time spent

5. The form was previously named 'Business Statistics'. Have you previously responded to the form 'Business Statistics'?

Yes
No
Don't know

6. How many people were involved in responding to the SBS form? Include yourself.

Number of people

7. In what extent do you think that the statistics based on the SBS survey are of use to your business?

Very useful
Fairly useful
Neither useful nor useless
Fairly useless
Very useless
Don't know

8. In what extent do you think that the statistics based on the SBS survey are of use to society?

Very useful
Fairly useful
Neither useful nor useless
Fairly useless
Very useless
Don't know

Hur upplevde du uppgiftslämnandet till "Företagens ekonomi"?

Avslutningsvis ber vi dig att svara på några frågor om hur du tycker att det fungerade att rapportera uppgifterna till undersökningen "Företagens ekonomi". Det är frivilligt att svara på frågorna, men då svaren kan hjälpa oss att minska uppgiftslämnarbördan uppskattar vi om du tar dig tid att svara på dem. Vill du ha mer information om de här frågorna kan du ringa till oss på 08-5069 44 20 eller skicka e-post till: prb@scb.se

1a Tycker du att det gick snabbt eller var det tidskrävande att *ta fram* de uppgifter som behövdes för att fylla i blanketten "Företagens ekonomi"?

Uppskatta den sammanlagda tiden det tog att läsa instruktioner, ta fram uppgifter från t.ex. register och pärmar, kontakter med andra personer etc.

- ☐ Mycket snabbt → *Gå till fråga 2*
- ☐ Ganska snabbt → *Gå till fråga 2*
- ☐ Varken snabbt eller tidskrävande → *Gå till fråga 2*
- ☐ Ganska tidskrävande
- ☐ Mycket tidskrävande

1b Vilken var den *huvudsakliga* anledningen till att det var tidskrävande?

- ☐ Uppgifter måste samlas in från olika källor
- ☐ Hjälp av andra krävdes för att ta fram nödvändiga uppgifter
- ☐ Uppgifter som skulle fyllas i blanketten blev tillgängliga vid olika tidpunkter
- ☐ Uppgifter måste beräknas/uppskattas
- ☐ Många instruktioner som måste läsas
- ☐ Annat, nämligen: _____

2 Ungefär hur lång tid tog det att *ta fram* de uppgifter som behövdes för att fylla i blanketten "Företagens ekonomi"?

Uppskatta den sammanlagda tiden det tog att läsa instruktioner, ta fram uppgifter från t.ex. register och pärmar, kontakter med andra personer etc.
Fyll i timmar och/eller minuter, eller markera i lämplig ruta.

Antal timmar _____

Antal minuter _____

- ☐ Använde ingen tid till detta
- ☐ Kan ej uppskatta tidsåtgång

3a Tycker du att det var lätt eller svårt att *fylla i* blanketten "Företagens ekonomi"?

- ☐ Mycket lätt → *Gå till fråga 4*
- ☐ Ganska lätt → *Gå till fråga 4*
- ☐ Varken lätt eller svårt → *Gå till fråga 4*
- ☐ Ganska svårt
- ☐ Mycket svårt

3b Vilken var den *huvudsakliga* anledningen till att det var svårt?

- ☐ Många frågor
- ☐ Rörig layout som gjorde blanketten svår att följa
- ☐ Oklara begrepp och/eller begreppsförklaringar
- ☐ Svåra eller tidskrävande beräkningar
- ☐ Företagets tillgängliga uppgifter stämmer inte överens med frågorna
- ☐ Annat, nämligen: _____

4 **Ungefär hur lång tid använde du/ni för att *fylla i* blanketten "Företagens ekonomi"?**

Fyll i timmar och/eller minuter, eller markera i rutan. Räkna inte med tiden som redovisades i Fråga 2.

Antal timmar

Antal minuter

☐ Kan ej uppskatta tidsåtgång

5 **Blanketten "Företagens ekonomi" hette tidigare "Företagsstatistik".**
Har du fyllt i blanketten "Företagsstatistik" tidigare?

☐ Ja, mer än en gång
☐ Ja, en gång
☐ Nej, detta är första gången
☐ Vet ej / Kommer inte ihåg

6 **Hur många personer har varit med och tagit fram uppgifter och/eller fyllt i blanketten "Företagens ekonomi"?**

Räkna även med dig själv.

Antal personer

7 **I vilken utsträckning anser du att statistiken som görs utifrån blanketten "Företagens ekonomi" är till nytta för *företaget*?**

☐ Mycket stor nytta
☐ Ganska stor nytta
☐ Varken stor eller liten nytta
☐ Ganska liten nytta
☐ Mycket liten nytta
☐ Vet ej

8 **I vilken utsträckning tror du att statistiken som görs utifrån blanketten "Företagens ekonomi" är till nytta för *samhället*?**

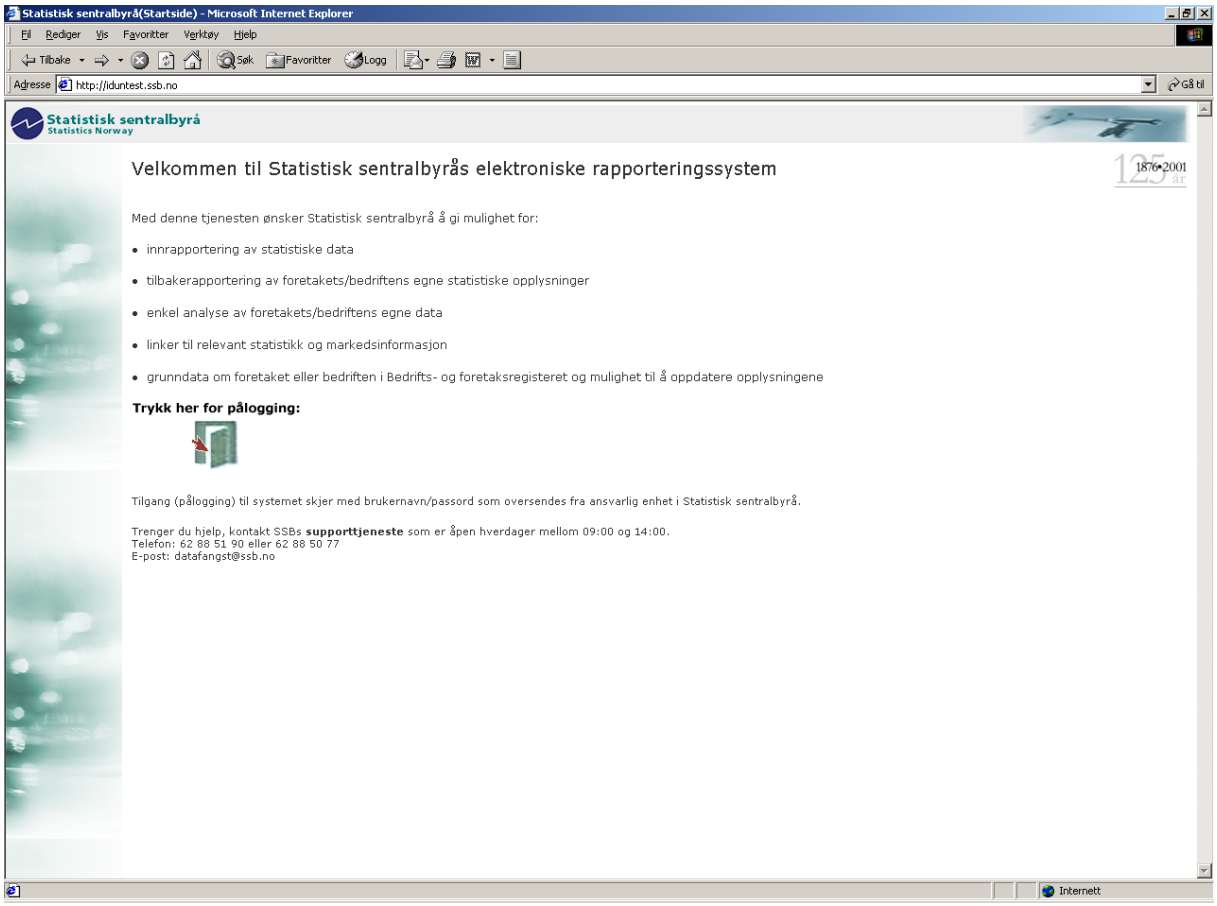
☐ Mycket stor nytta
☐ Ganska stor nytta
☐ Varken stor eller liten nytta
☐ Ganska liten nytta
☐ Mycket liten nytta
☐ Vet ej

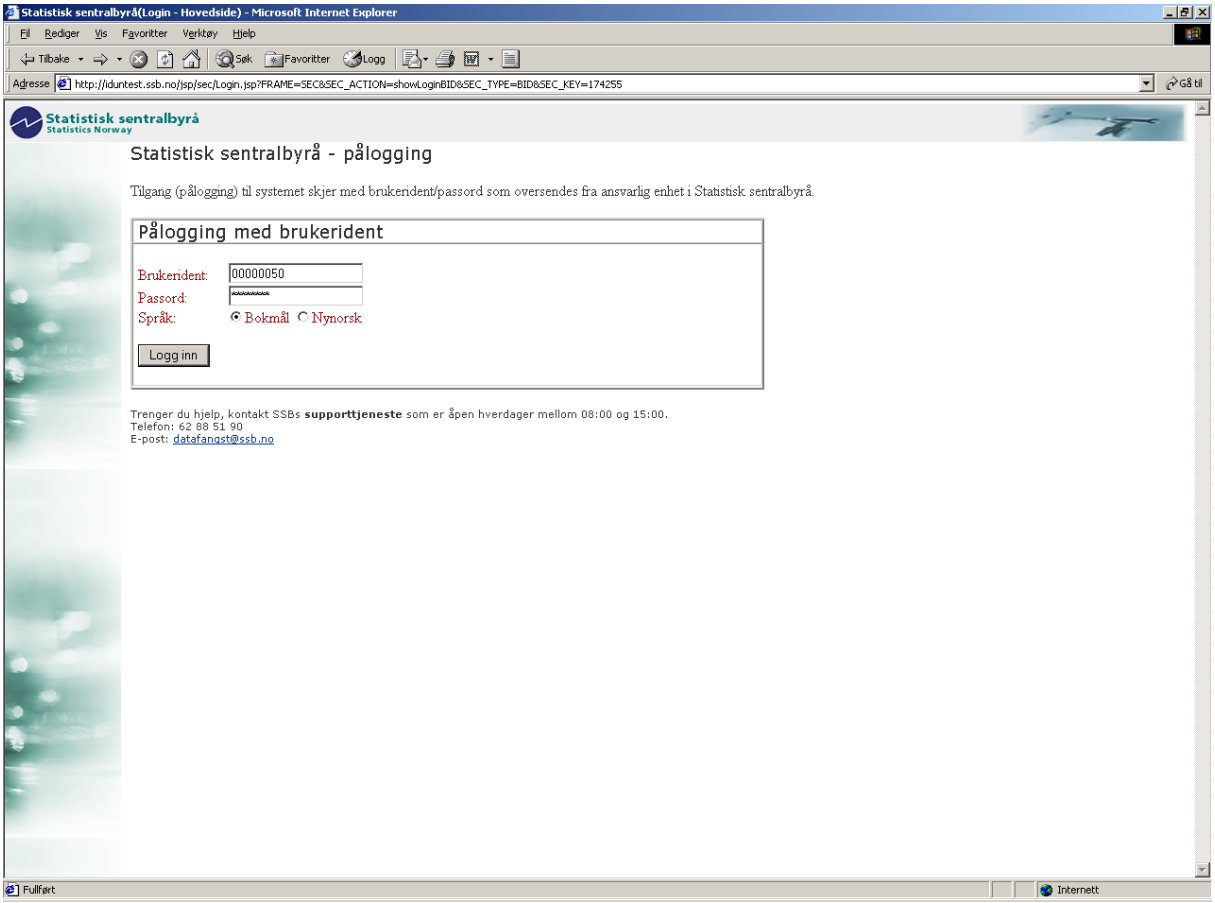
9 **Har du ytterligare kommentarer angående uppgiftslämnandet?**

Kommentarer

Tack för din medverkan!

Appendix 5.D. The Foreign Trade Statistics Survey (in Norwegian)

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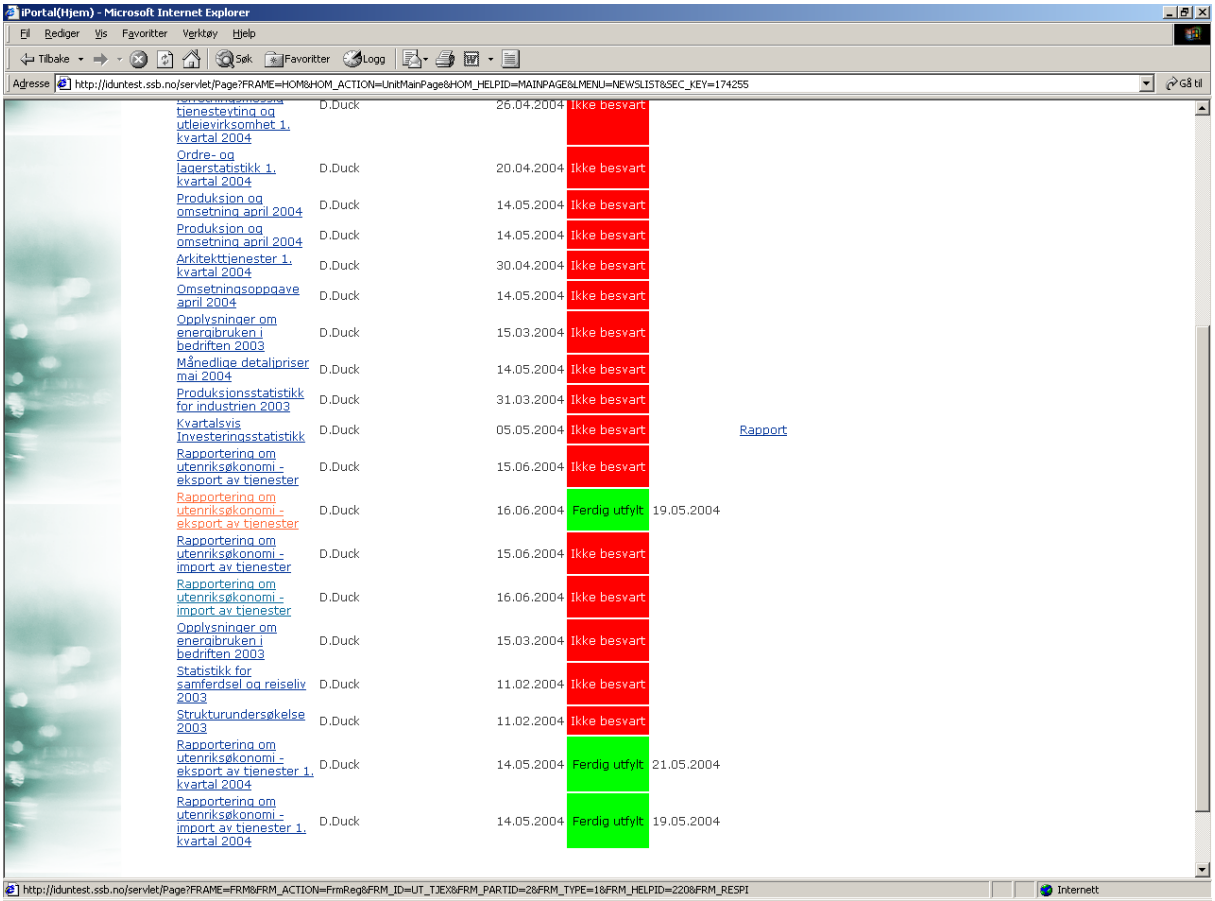
Gå til
Statistisk sentralbyrå
Statistics Norway
Statistisk sentralbyrå - pålogging
Tilgang (pålogging) til systemet skjer med brukerident/passord som oversendes fra ansvarlig enhet i Statistisk sentralbyrå.
Pålogging med brukerident
Brukerident: 00000050
Passord:
Språk: Bokmål Nynorsk
Logg inn
Trenger du hjelp, kontakt SSBs supporttjeneste som er åpen hverdager mellom 08:00 og 15:00.
Telefon: 62 88 51 90
E-post: datafangst@ssb.no
Fullført
Internett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Tilbake Søk Favoritter Logg
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Gå til
tjenesteyting og utleievirksomhet 1. kvartal 2004 D.Duck 26.04.2004 Ikke besvart
Ordre- og lagerstatistikk 1. kvartal 2004 D.Duck 20.04.2004 Ikke besvart
Produksjon og omsetning april 2004 D.Duck 14.05.2004 Ikke besvart
Produksjon og omsetning april 2004 D.Duck 14.05.2004 Ikke besvart
Arkitekttjenester 1. kvartal 2004 D.Duck 30.04.2004 Ikke besvart
Omsetningsoppgave april 2004 D.Duck 14.05.2004 Ikke besvart
Opplysninger om energibruken i bedriften 2003 D.Duck 15.03.2004 Ikke besvart
Månedlige detaljpriser mai 2004 D.Duck 14.05.2004 Ikke besvart
Produksjonsstatistikk for industrien 2003 D.Duck 31.03.2004 Ikke besvart
Kvartalsvis Investeringsstatistikk D.Duck 05.05.2004 Ikke besvart Rapport
Rapportering om utenriksøkonomi - eksport av tjenester D.Duck 15.06.2004 Ikke besvart
Rapportering om utenriksøkonomi - eksport av tjenester D.Duck 16.06.2004 Ferdig utfylt 19.05.2004
Rapportering om utenriksøkonomi - import av tjenester D.Duck 15.06.2004 Ikke besvart
Rapportering om utenriksøkonomi - import av tjenester D.Duck 16.06.2004 Ikke besvart
Opplysninger om energibruken i bedriften 2003 D.Duck 15.03.2004 Ikke besvart
Statistikk for samferdsel og reiseliv 2003 D.Duck 11.02.2004 Ikke besvart
Strukturundersøkelse 2003 D.Duck 11.02.2004 Ikke besvart
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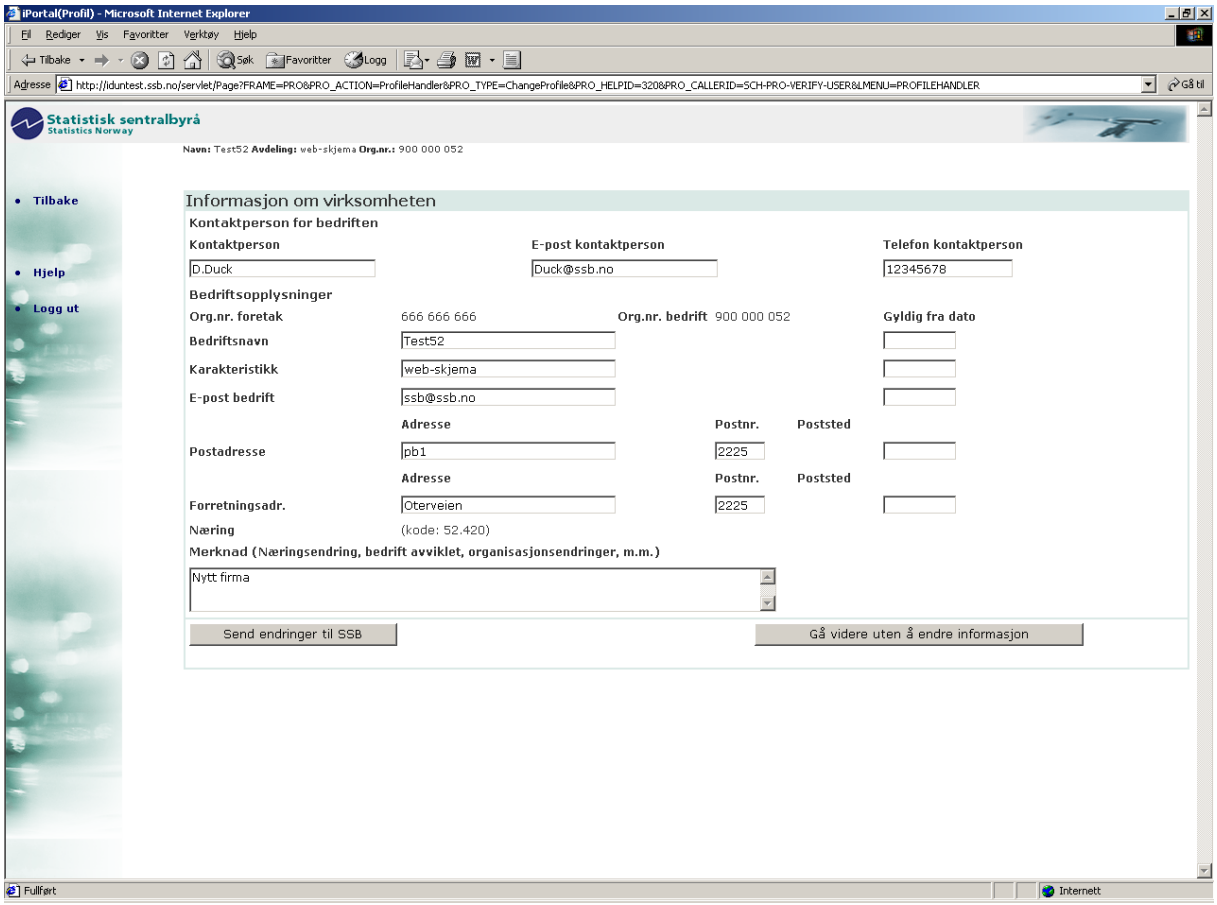
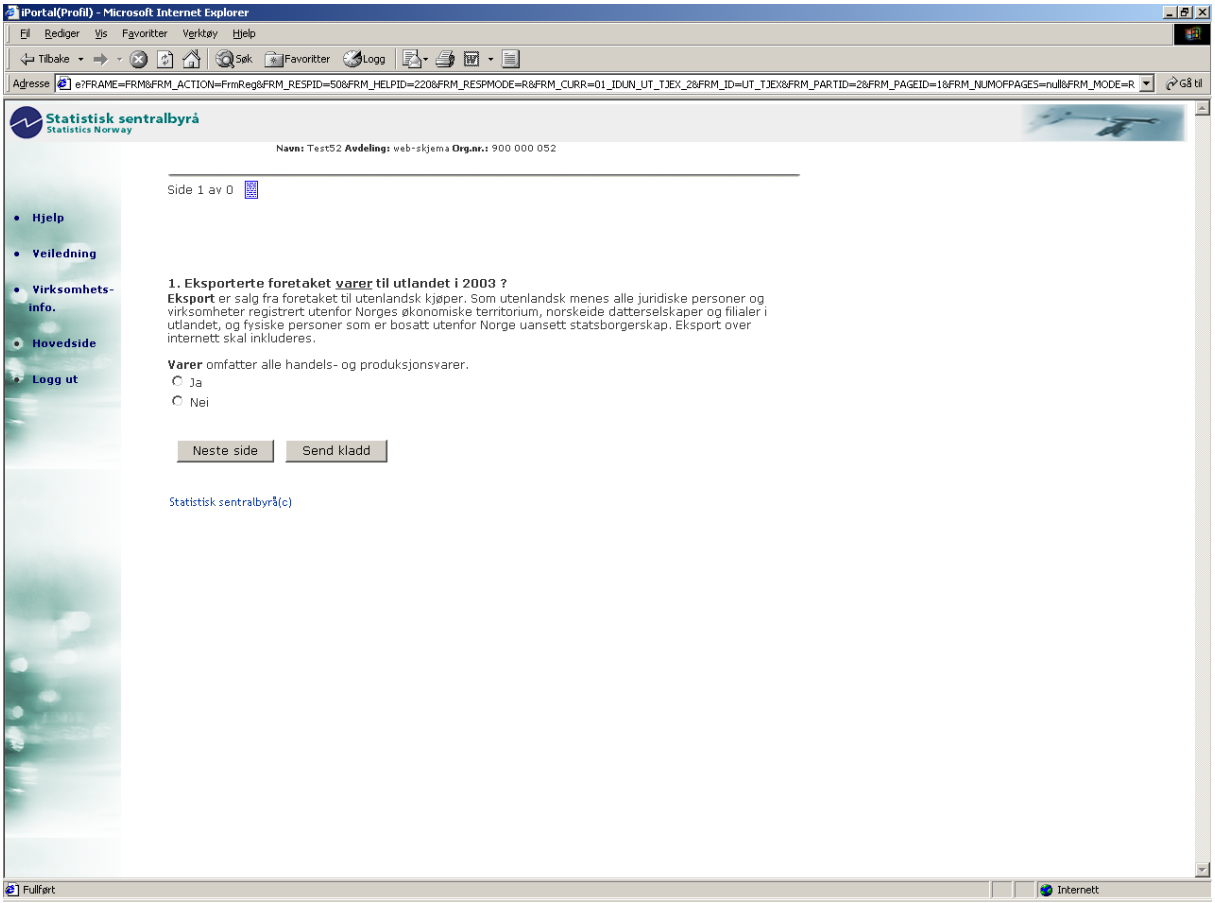
Questionnaire for Export

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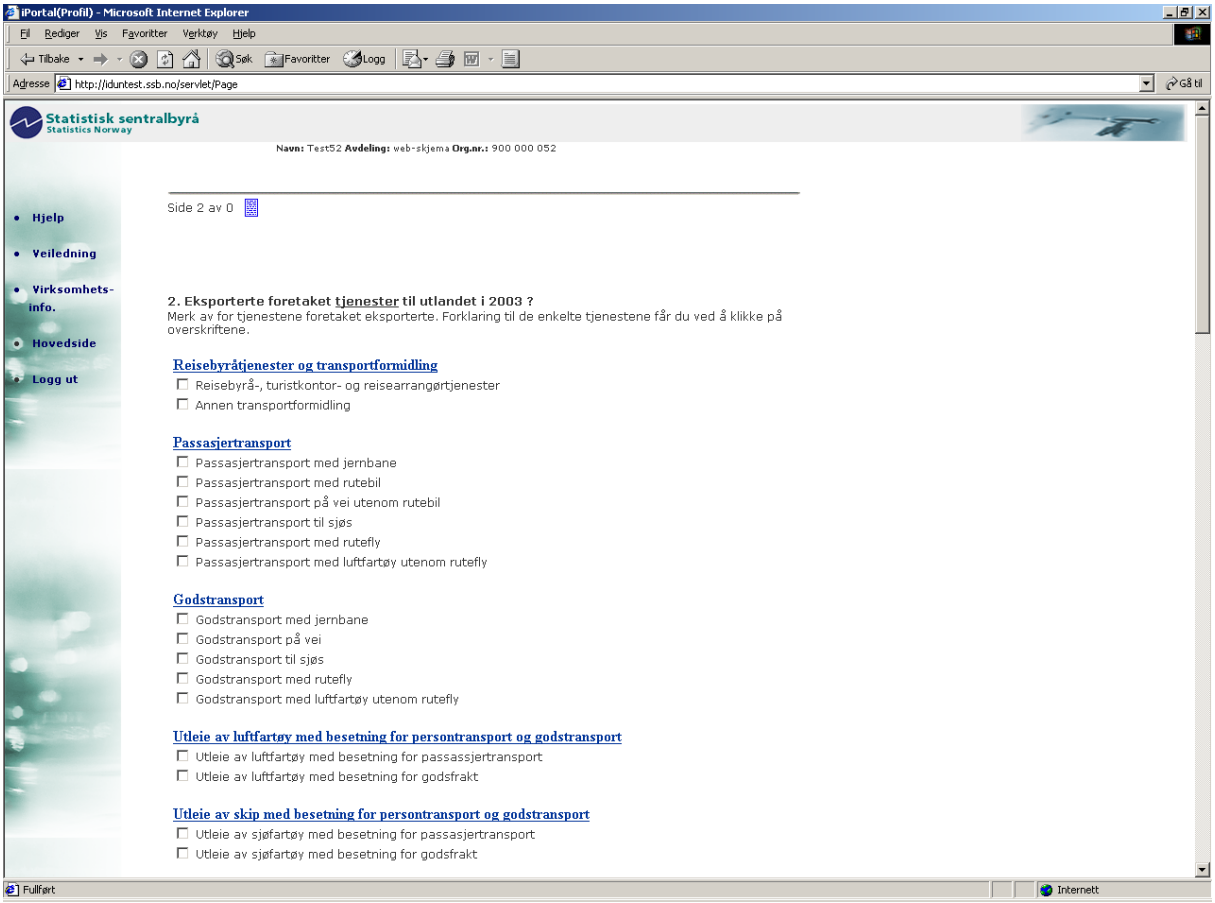
Gå til
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Side 1 av 0
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
1. Eksporterte foretaket varer til utlandet i 2003 ?
Eksport er salg fra foretaket til utenlandsk kjøper. Som utenlandsk menes alle juridiske personer og virksomheter registrert utenfor Norges økonomiske territorium, norskeide datterselskaper og filialer i utlandet, og fysiske personer som er bosatt utenfor Norge uansett statsborgerskap. Eksport over internett skal inkluderes.
Varer omfatter alle handels- og produksjonsvarer.
Ja
Nei
Neste side
Send kladd
Statistisk sentralbyrå(c)
Fullført
Internett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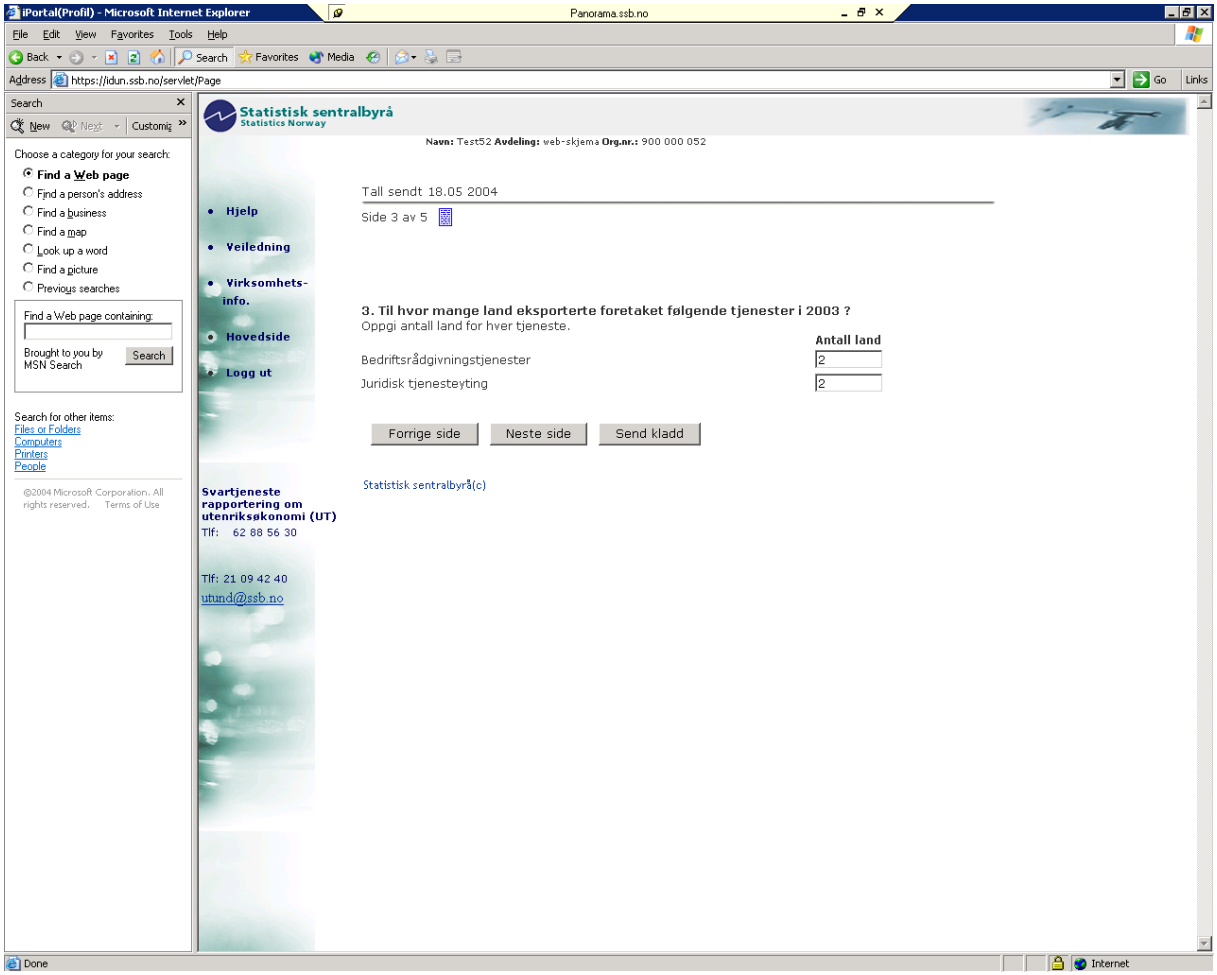
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Side 2 av 0
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
2. Eksporterte foretaket tjenester til utlandet i 2003 ?
Merk av for tjenestene foretaket eksporterte. Forklaring til de enkelte tjenestene får du ved å klikke på overskriftene.
Reisebyråtjenester og transportformidling
Reisebyrå-, turistkontor- og reisearrangørtjenester
Annen transportformidling
Passasjertransport
Passasjertransport med jernbane
Passasjertransport med rutebil
Passasjertransport på vei utenom rutebil
Passasjertransport til sjøs
Passasjertransport med rutefly
Passasjertransport med luftfartøy utenom rutefly
Godstransport
Godstransport med jernbane
Godstransport på vei
Godstransport til sjøs
Godstransport med rutefly
Godstransport med luftfartøy utenom rutefly
Utleie av luftfartøy med besetning for persontransport og godstransport
Utleie av luftfartøy med besetning for passasjertransport
Utleie av luftfartøy med besetning for godsfrakt
Utleie av skip med besetning for persontransport og godstransport
Utleie av sjøfartøy med besetning for passasjertransport
Utleie av sjøfartøy med besetning for godsfrakt
Fullført
Internett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Panorama.ssb.no
File Edit View Favorites Tools Help
Back Search Favorites Media
Address https://idun.ssb.no/servlet/Page
Go Links
Search
New Next Customiz
Choose a category for your search:
Find a Web page
Find a person's address
Find a business
Find a map
Look up a word
Find a picture
Previous searches
Find a Web page containing:
Brought to you by MSN Search
Search
Search for other items:
Files or Folders
Computers
Printers
People
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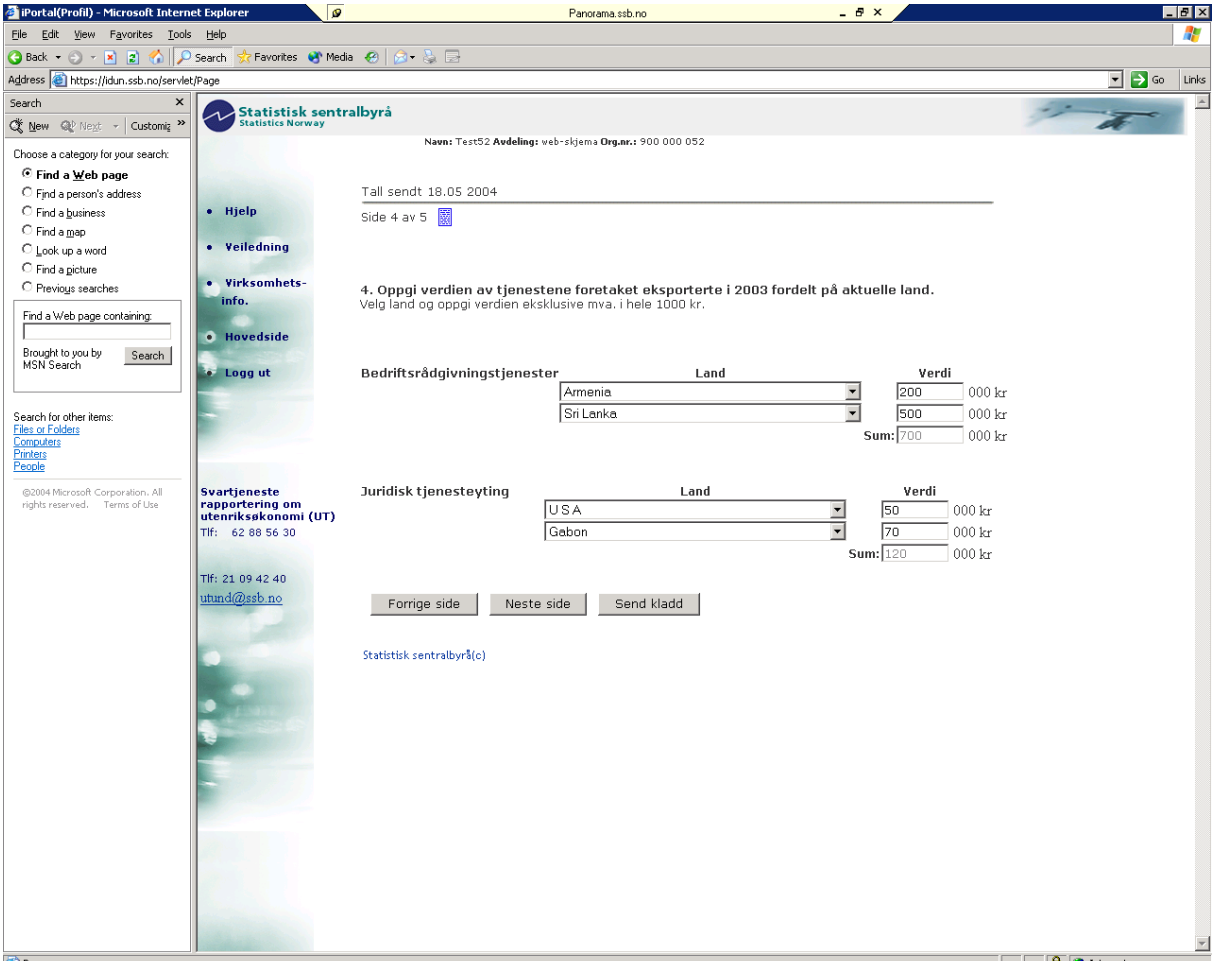
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Tall sendt 18.05 2004
Side 3 av 5
3. Til hvor mange land eksporterte foretaket følgende tjenester i 2003 ?
Oppgi antall land for hver tjeneste.
Antall land
Bedriftsrådgivningstjenester 2
Juridisk tjenesteyting 2
Forrige side
Neste side
Send kladd
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Done
Internet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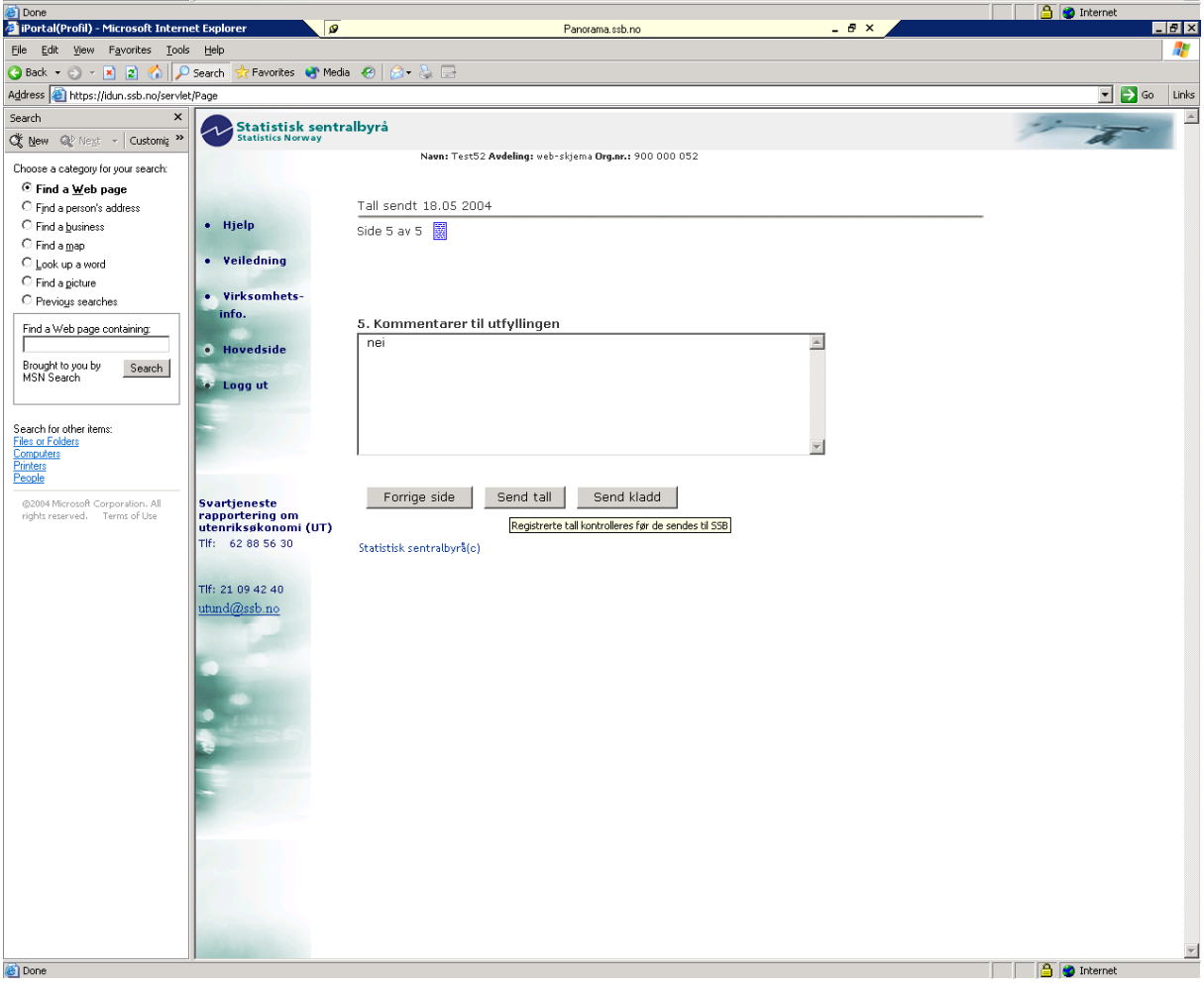
Panorama.ssb.no
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 4 av 5
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
4. Oppgi verdien av tjenestene foretaket eksporterte i 2003 fordelt på aktuelle land.
Velg land og oppgi verdien eksklusive mva. i hele 1000 kr.
Bedriftsrådgivningstjenester
Land
Verdi
Armenia
200
000 kr
Sri Lanka
500
000 kr
Sum: 700 000 kr
Juridisk tjenesteyting
Land
Verdi
USA
50
000 kr
Gabon
70
000 kr
Sum: 120 000 kr
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Forrige side
Neste side
Send kladd
Statistisk sentralbyrå(c)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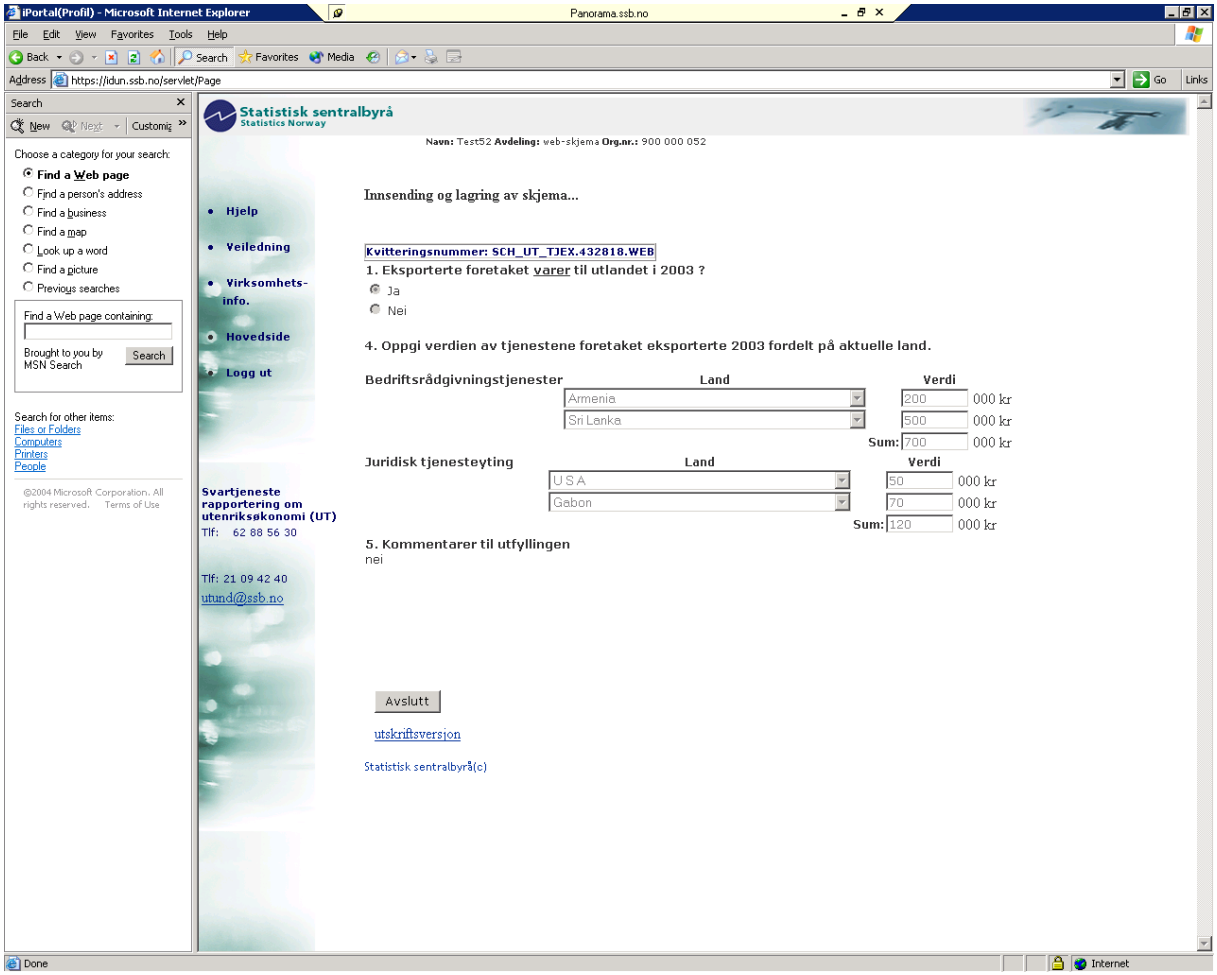
Tall sendt 18.05 2004
Side 5 av 5
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
5. Kommentarer til utfyllingen
nei
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Forrige side
Send tall
Send kladd
Registrerte tall kontrolleres før de sendes til SSB
Statistisk sentralbyrå(c)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Panorama.ssb.no
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Back Search Favorites Media
Address https://idun.ssb.no/servlet/Page
Go Links
Search
New Next Customiz
Choose a category for your search:
Find a Web page
Find a person's address
Find a business
Find a map
Look up a word
Find a picture
Previous searches
Find a Web page containing:
Brought to you by MSN Search
Search
Search for other items:
Files or Folders
Computers
Printers
People
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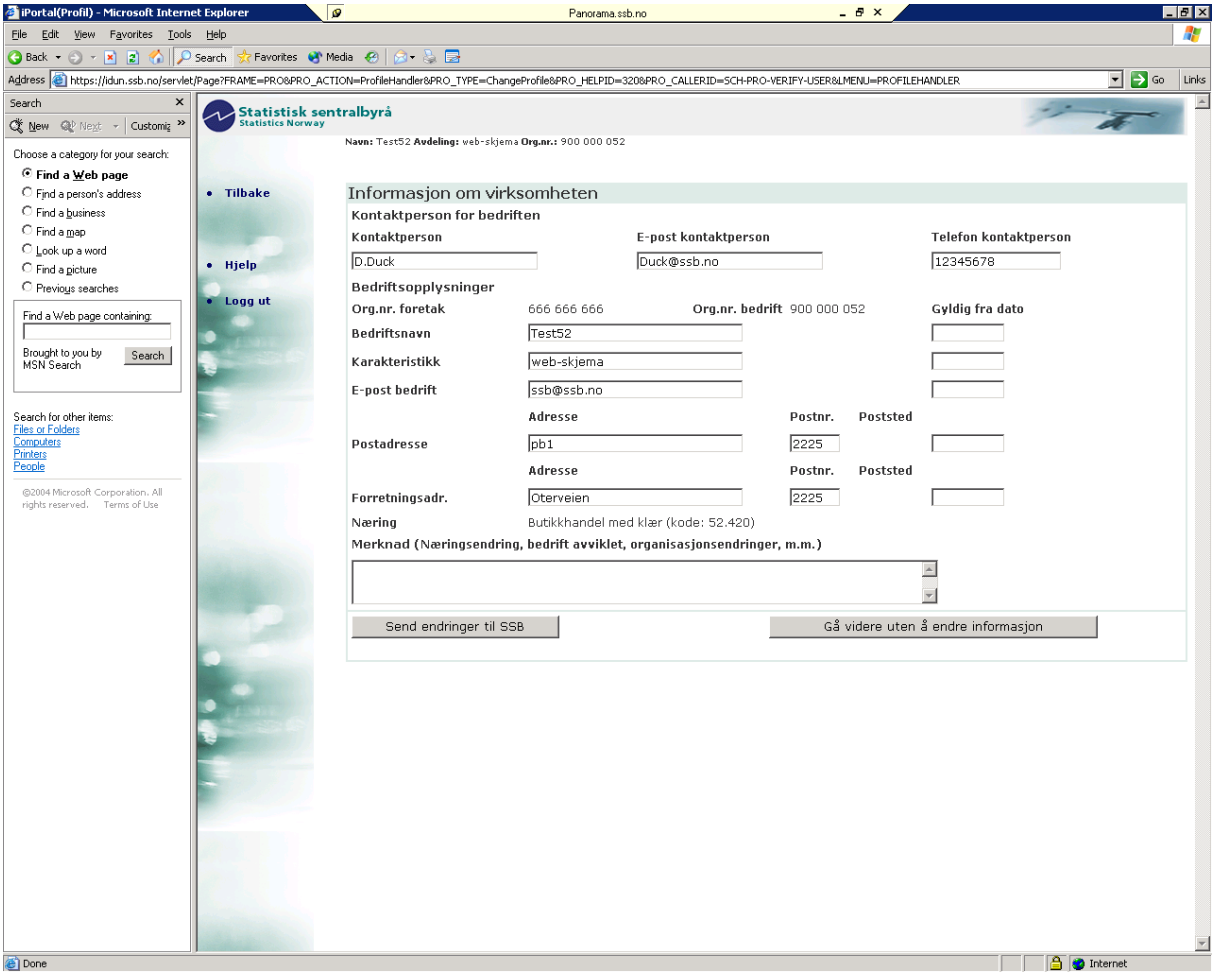
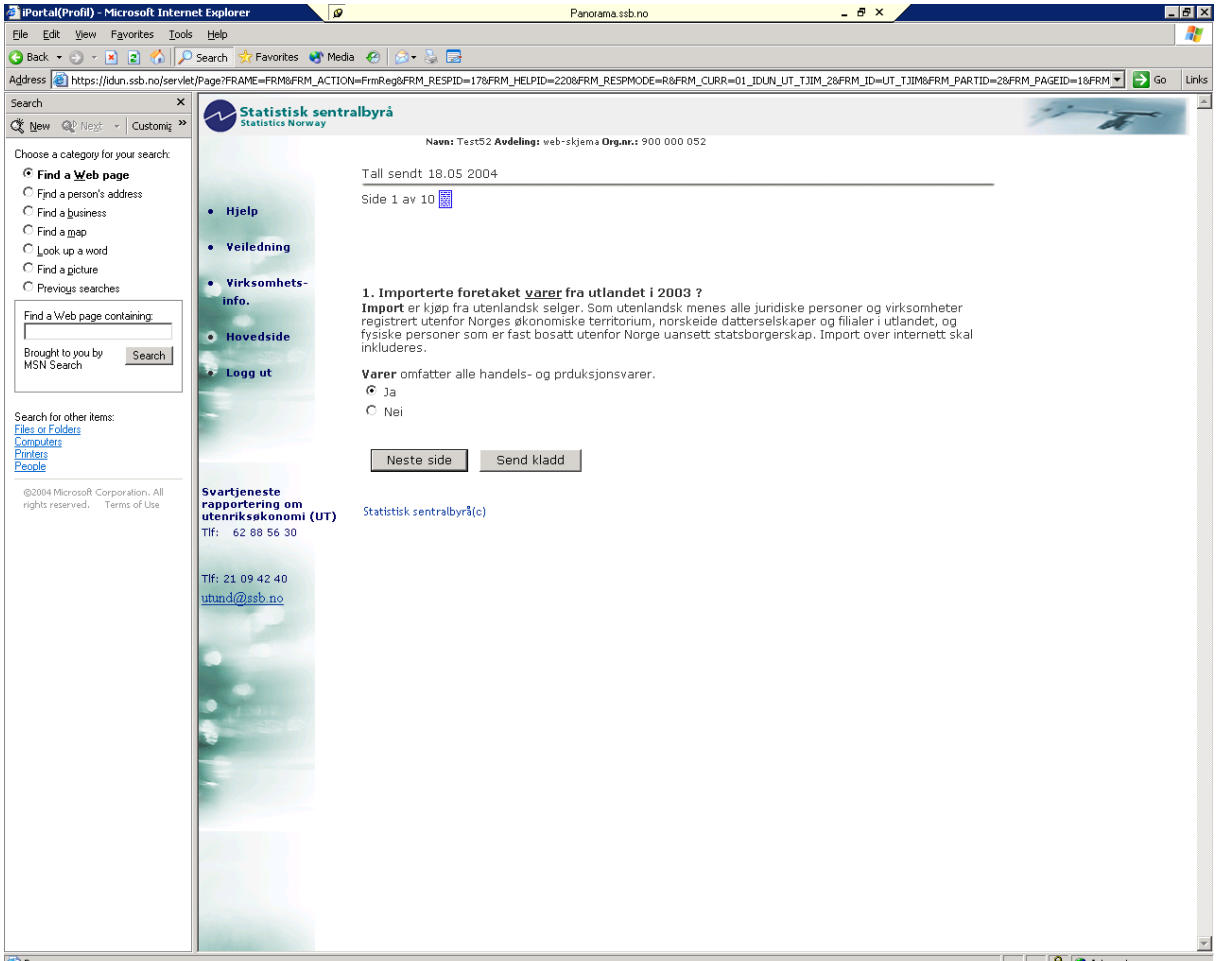
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Innsending og lagring av skjema...
Kvitteringsnummer: SCH_UT_TJEX.432818.WEB
1. Eksporterte foretaket varer til utlandet i 2003 ?
Ja
Nei
4. Oppgi verdien av tjenestene foretaket eksporterte 2003 fordelt på aktuelle land.
Bedriftsrådgivningstjenester
Land
Verdi
Armenia
200
000 kr
Sri Lanka
500
000 kr
Sum: 700 000 kr
Juridisk tjenesteyting
Land
Verdi
U S A
50
000 kr
Gabon
70
000 kr
Sum: 120 000 kr
5. Kommentarer til utfyllingen
nei
Avslutt
utskriftsversjon
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Done
Internet

Questionnaire for Import

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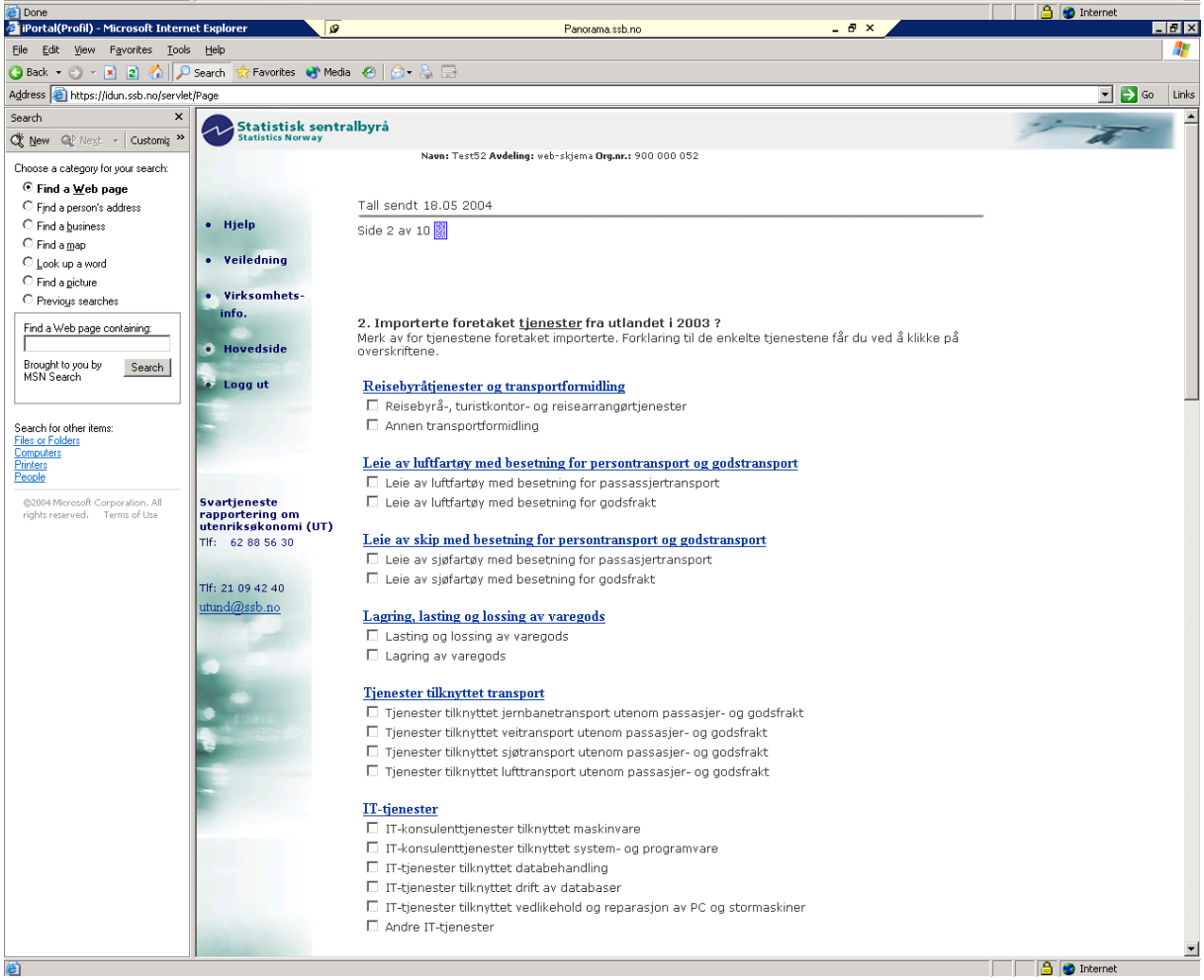
Panorama.ssb.no
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 1 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
1. Importerte foretaket varer fra utlandet i 2003 ?
Import er kjøp fra utenlandsk selger. Som utenlandsk menes alle juridiske personer og virksomheter registrert utenfor Norges økonomiske territorium, norskeide datterselskaper og filialer i utlandet, og fysiske personer som er fast bosatt utenfor Norge uansett statsborgerskap. Import over internett skal inkluderes.
Varer omfatter alle handels- og prduksjonsvarer.
Ja
Nei
Neste side
Send kladd
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Statistisk sentralbyrå(c)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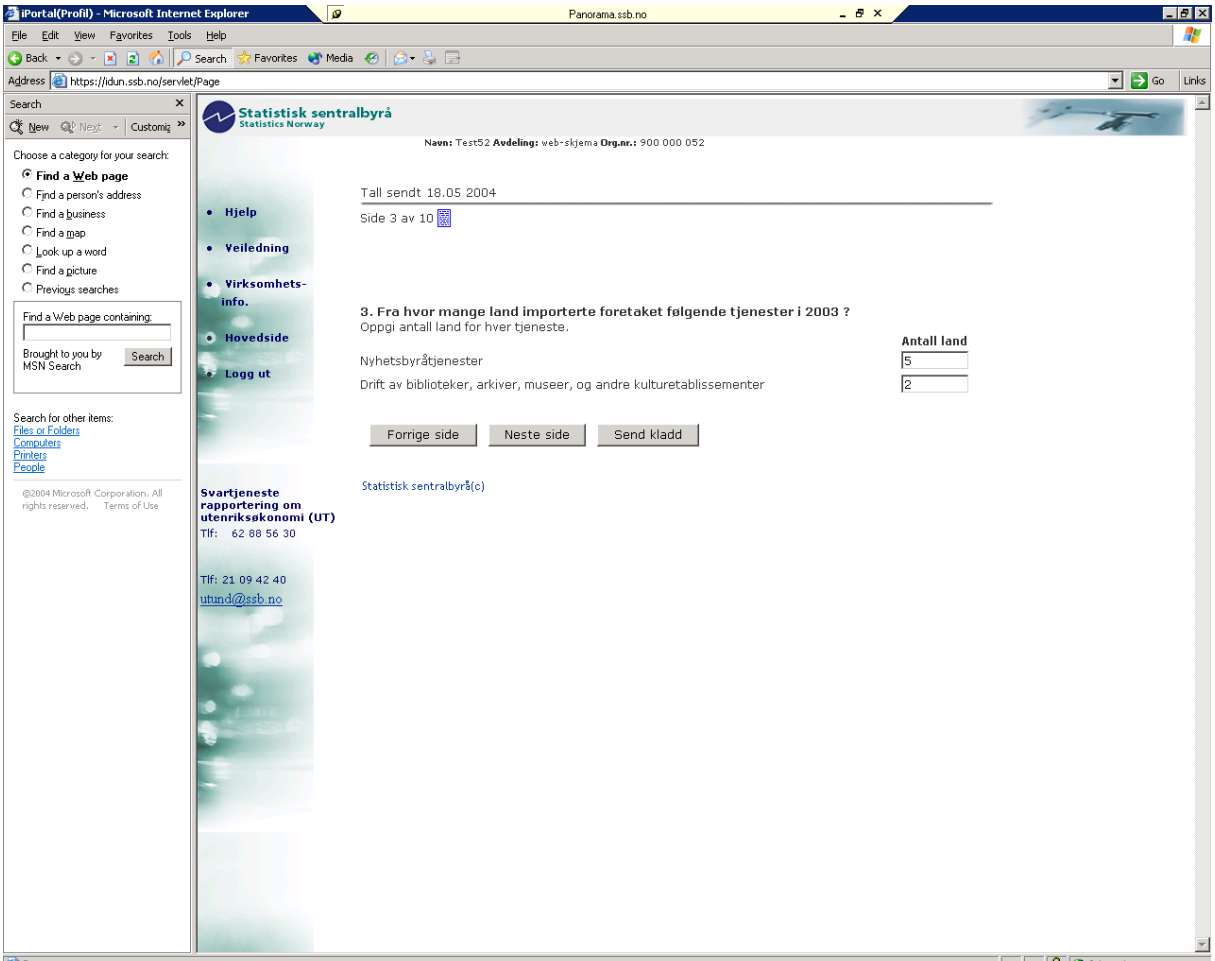
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 2 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
2. Importerte foretaket tjenester fra utlandet i 2003 ?
Merk av for tjenestene foretaket importerte. Forklaring til de enkelte tjenestene får du ved å klikke på overskriftene.
Reisebyråtjenester og transportformidling
Reisebyrå-, turistkontor- og reisearrangørtjenester
Annen transportformidling
Leie av luftfartøy med besetning for persontransport og godstransport
Leie av luftfartøy med besetning for passassjertransport
Leie av luftfartøy med besetning for godsfrakt
Leie av skip med besetning for persontransport og godstransport
Leie av sjøfartøy med besetning for passasjertransport
Leie av sjøfartøy med besetning for godsfrakt
Lagring, lasting og lossing av varegods
Lasting og lossing av varegods
Lagring av varegods
Tjenester tilknyttet transport
Tjenester tilknyttet jernbanetransport utenom passasjer- og godsfrakt
Tjenester tilknyttet veitransport utenom passasjer- og godsfrakt
Tjenester tilknyttet sjøtransport utenom passasjer- og godsfrakt
Tjenester tilknyttet lufttransport utenom passasjer- og godsfrakt
IT-tjenester
IT-konsulenttjenester tilknyttet maskinvare
IT-konsulenttjenester tilknyttet system- og programvare
IT-tjenester tilknyttet databehandling
IT-tjenester tilknyttet drift av databaser
IT-tjenester tilknyttet vedlikehold og reparasjon av PC og stormaskiner
Andre IT-tjenester
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no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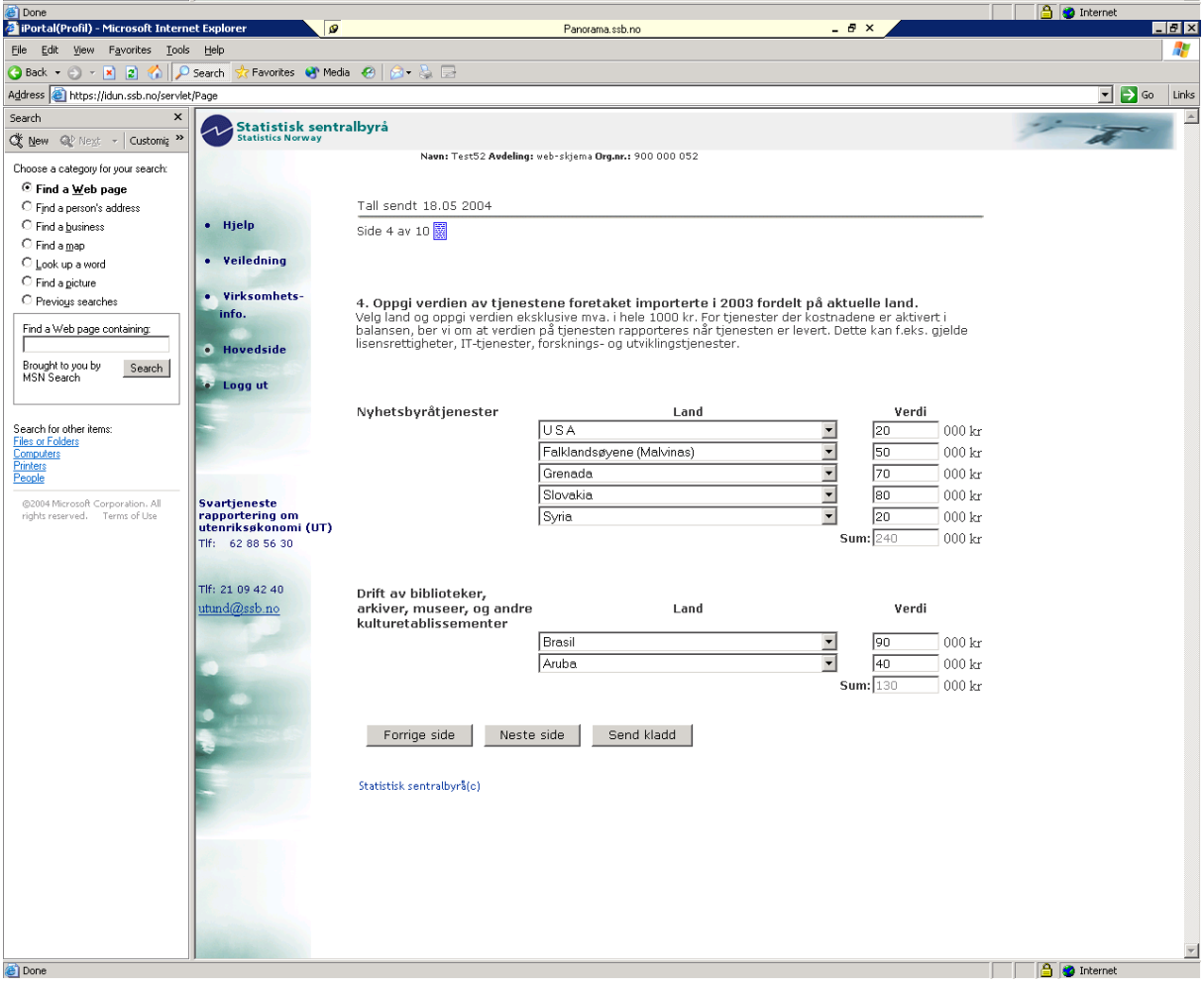
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 3 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
3. Fra hvor mange land importerte foretaket følgende tjenester i 2003 ?
Oppgi antall land for hver tjeneste.
Antall land
Nyhetsbyråtjenester
5
Drift av biblioteker, arkiver, museer, og andre kulturetablissementer
2
Forrige side
Neste side
Send kladd
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no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Statistics Norway
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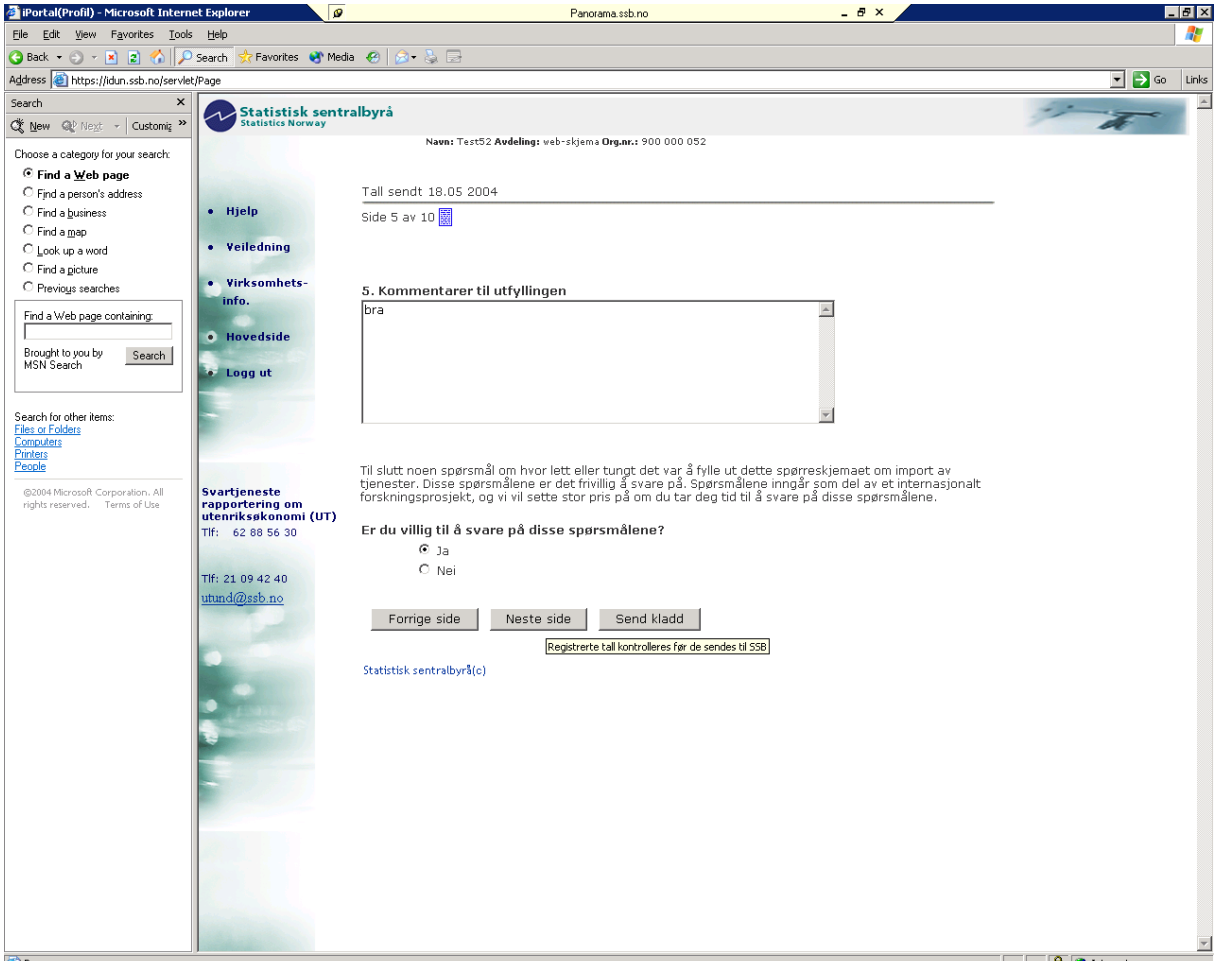
Tall sendt 18.05 2004
Side 4 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
4. Oppgi verdien av tjenestene foretaket importerte i 2003 fordelt på aktuelle land.
Velg land og oppgi verdien eksklusive mva. i hele 1000 kr. For tjenester der kostnadene er aktivert i balansen, ber vi om at verdien på tjenesten rapporteres når tjenesten er levert. Dette kan f.eks. gjelde lisensrettigheter, IT-tjenester, forsknings- og utviklingstjenester.
Nyhetsbyråtjenester
Land
Verdi
USA
20
000 kr
Falklandsøyene (Malvinas)
50
000 kr
Grenada
70
000 kr
Slovakia
80
000 kr
Syria
20
000 kr
Sum: 240 000 kr
Drift av biblioteker, arkiver, museer, og andre kulturetablissementer
Land
Verdi
Brasil
90
000 kr
Aruba
40
000 kr
Sum: 130 000 kr
Forrige side
Neste side
Send kladd
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no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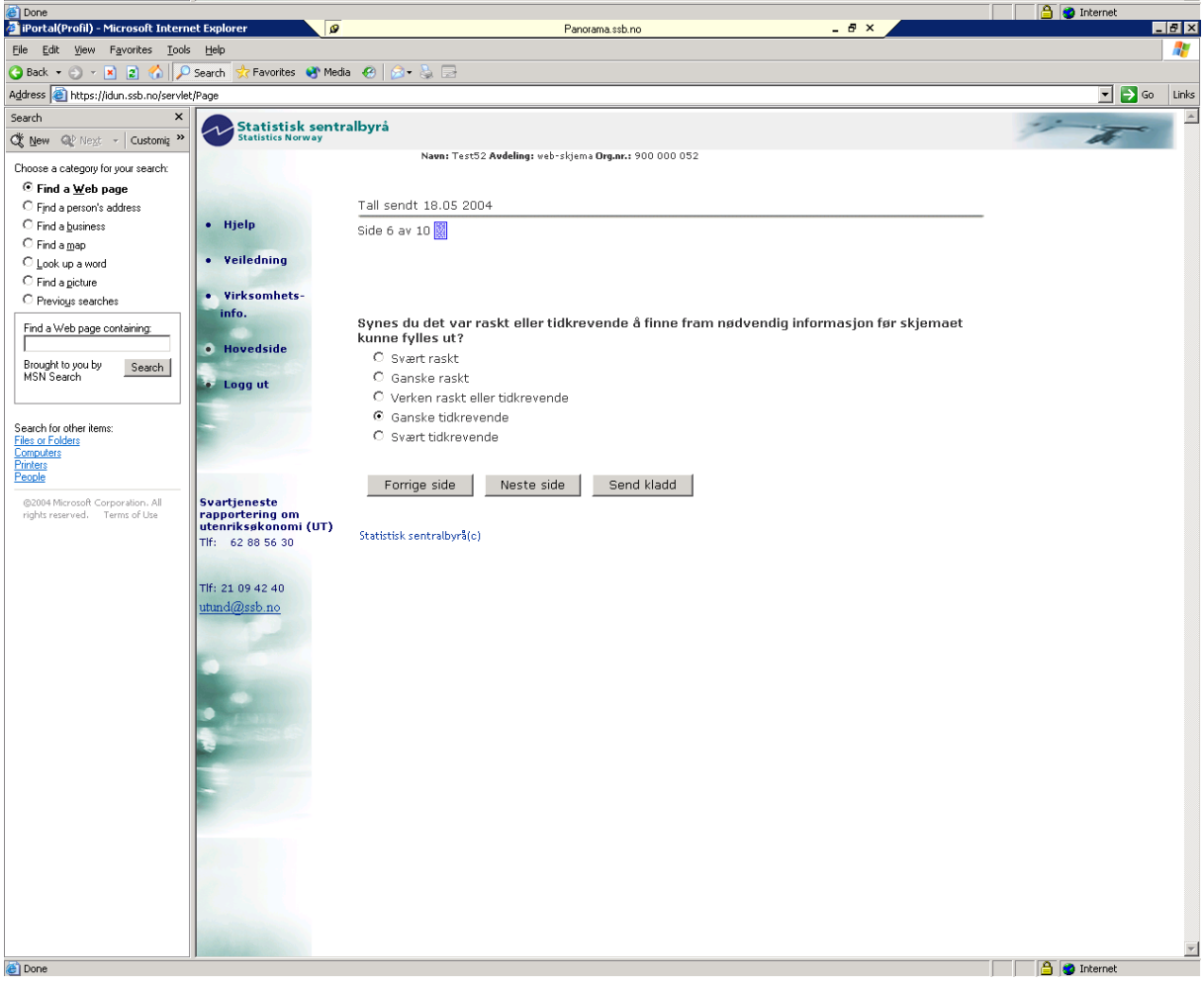
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 5 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
5. Kommentarer til utfyllingen
bra
Til slutt noen spørsmål om hvor lett eller tungt det var å fylle ut dette spørreskjemaet om import av tjenester. Disse spørsmålene er det frivillig å svare på. Spørsmålene inngår som del av et internasjonalt forskningsprosjekt, og vi vil sette stor pris på om du tar deg tid til å svare på disse spørsmålene.
Er du villig til å svare på disse spørsmålene?
Ja
Nei
Forrige side
Neste side
Send kladd
Registrerte tall kontrolleres før de sendes til SSB
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no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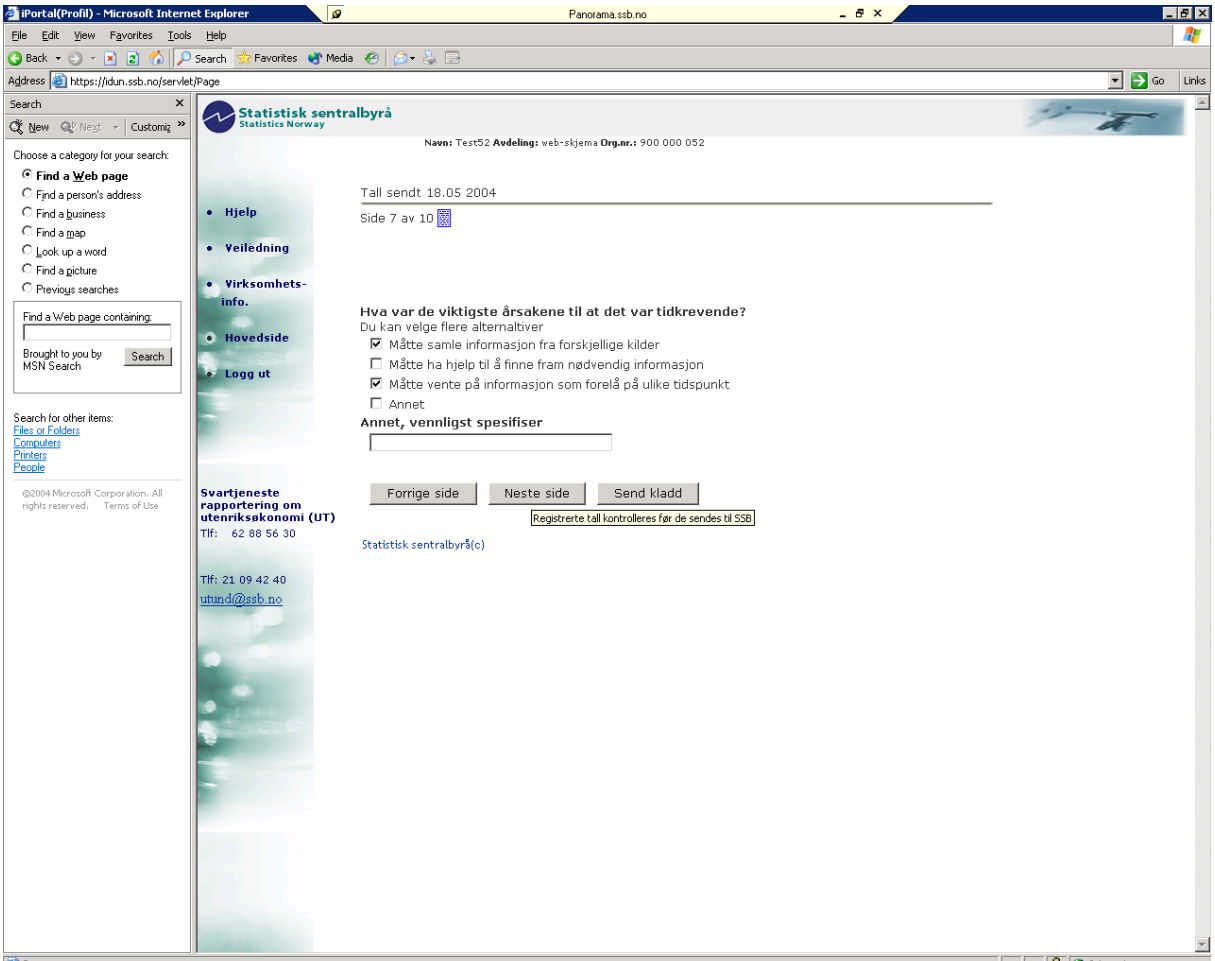
Panorama.ssb.no
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 6 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Synes du det var raskt eller tidkrevende å finne fram nødvendig informasjon før skjemaet kunne fylles ut?
Svært raskt
Ganske raskt
Verken raskt eller tidkrevende
Ganske tidkrevende
Svært tidkrevende
Forrige side
Neste side
Send kladd
Statistisk sentralbyrå(c)
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no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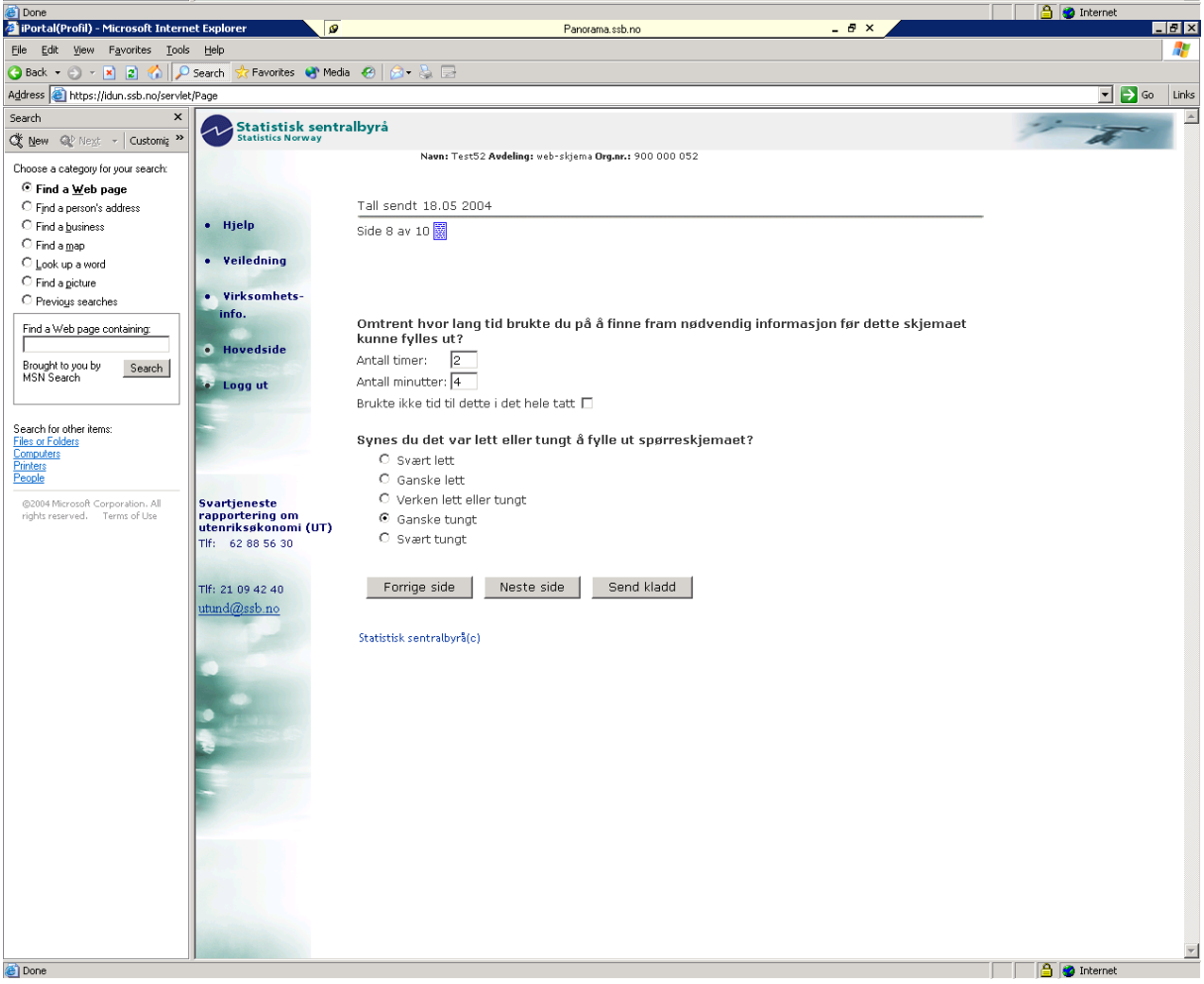
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Tall sendt 18.05 2004
Side 7 av 10
Hva var de viktigste årsakene til at det var tidkrevende?
Du kan velge flere alternativer
Måtte samle informasjon fra forskjellige kilder
Måtte ha hjelp til å finne fram nødvendig informasjon
Måtte vente på informasjon som forelå på ulike tidspunkt
Annet
Annet, vennligst spesifiser
Forrige side
Neste side
Send kladd
Registrerte tall kontrolleres før de sendes til SSB
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Statistisk sentralbyrå(c)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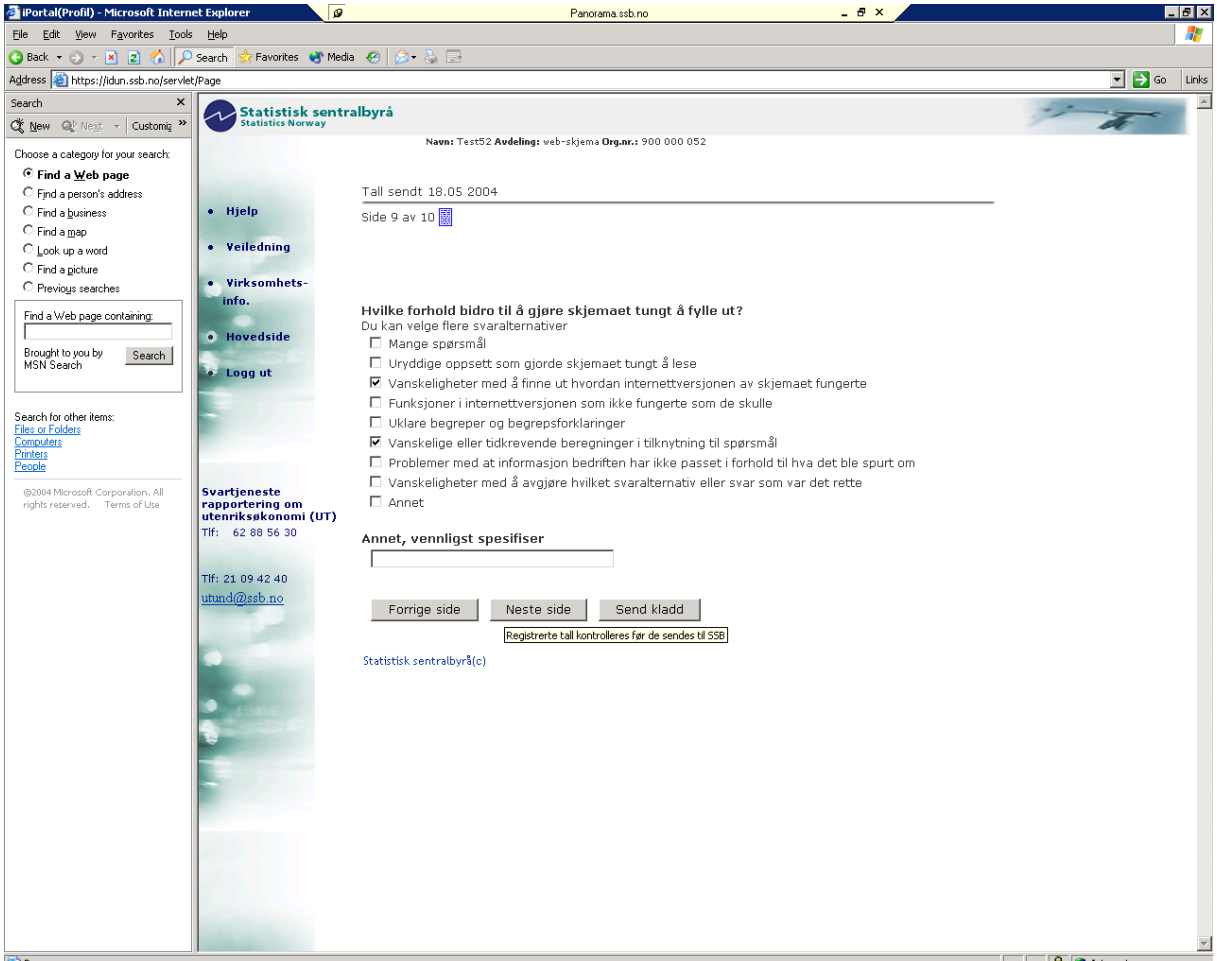
Panorama.ssb.no
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Tall sendt 18.05 2004
Side 8 av 10
Omtrent hvor lang tid brukte du på å finne fram nødvendig informasjon før dette skjemaet kunne fylles ut?
Antall timer: 2
Antall minutter: 4
Brukte ikke tid til dette i det hele tatt
Synes du det var lett eller tungt å fylle ut spørreskjemaet?
Svært lett
Ganske lett
Verken lett eller tungt
Ganske tungt
Svært tungt
Forrige side
Neste side
Send kladd
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Statistisk sentralbyrå(c)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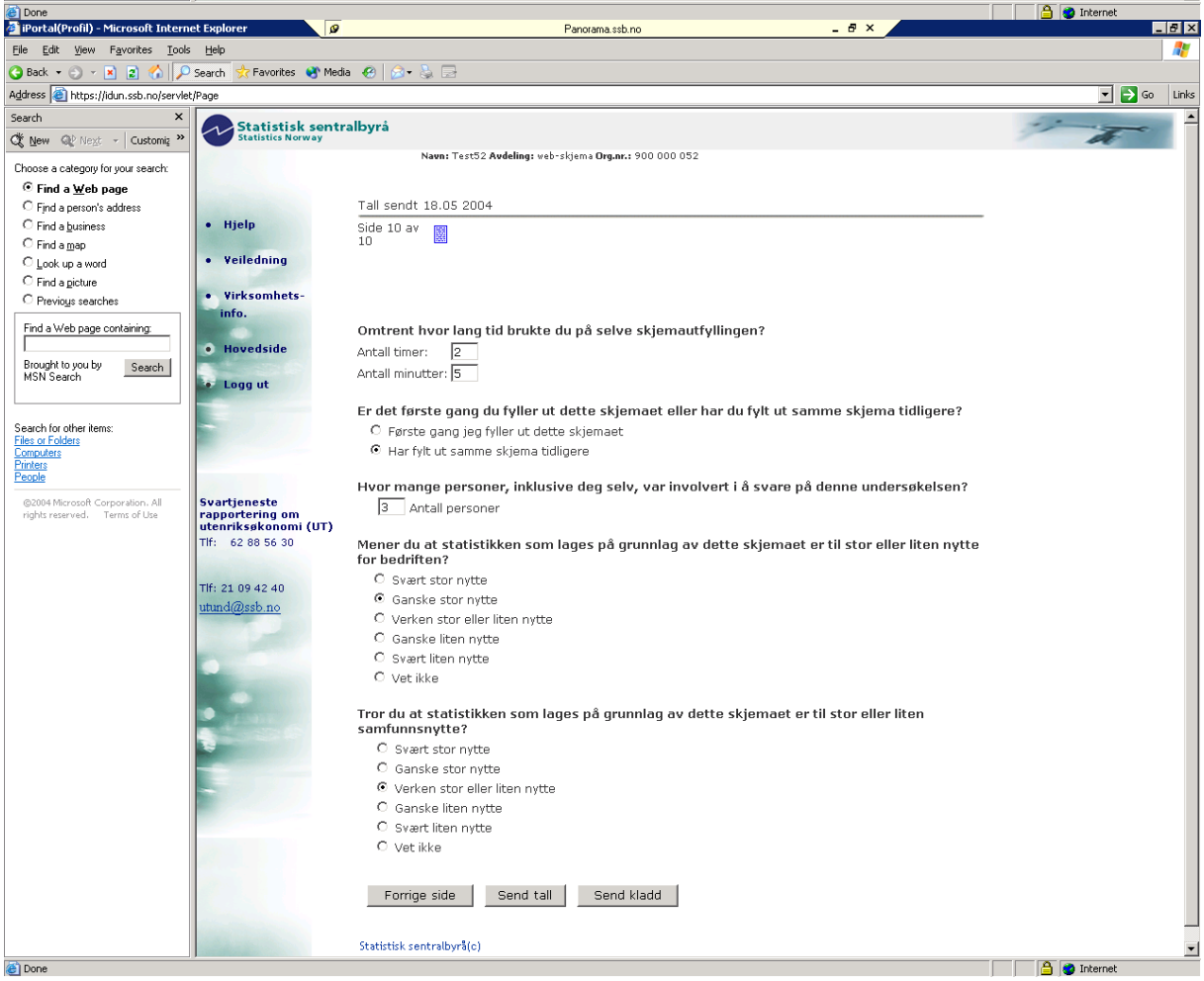
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 9 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Hvilke forhold bidro til å gjøre skjemaet tungt å fylle ut?
Du kan velge flere svaralternativer
Mange spørsmål
Uryddige oppsett som gjorde skjemaet tungt å lese
Vanskeligheter med å finne ut hvordan internettversjonen av skjemaet fungerte
Funksjoner i internettversjonen som ikke fungerte som de skulle
Uklare begreper og begrepsforklaringer
Vanskelige eller tidkrevende beregninger i tilknytning til spørsmål
Problemer med at informasjon bedriften har ikke passet i forhold til hva det ble spurt om
Vanskeligheter med å avgjøre hvilket svaralternativ eller svar som var det rette
Annet
Annet, vennligst spesifiser
Forrige side
Neste side
Send kladd
Registrerte tall kontrolleres før de sendes til SSB
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Statistisk sentralbyrå(c)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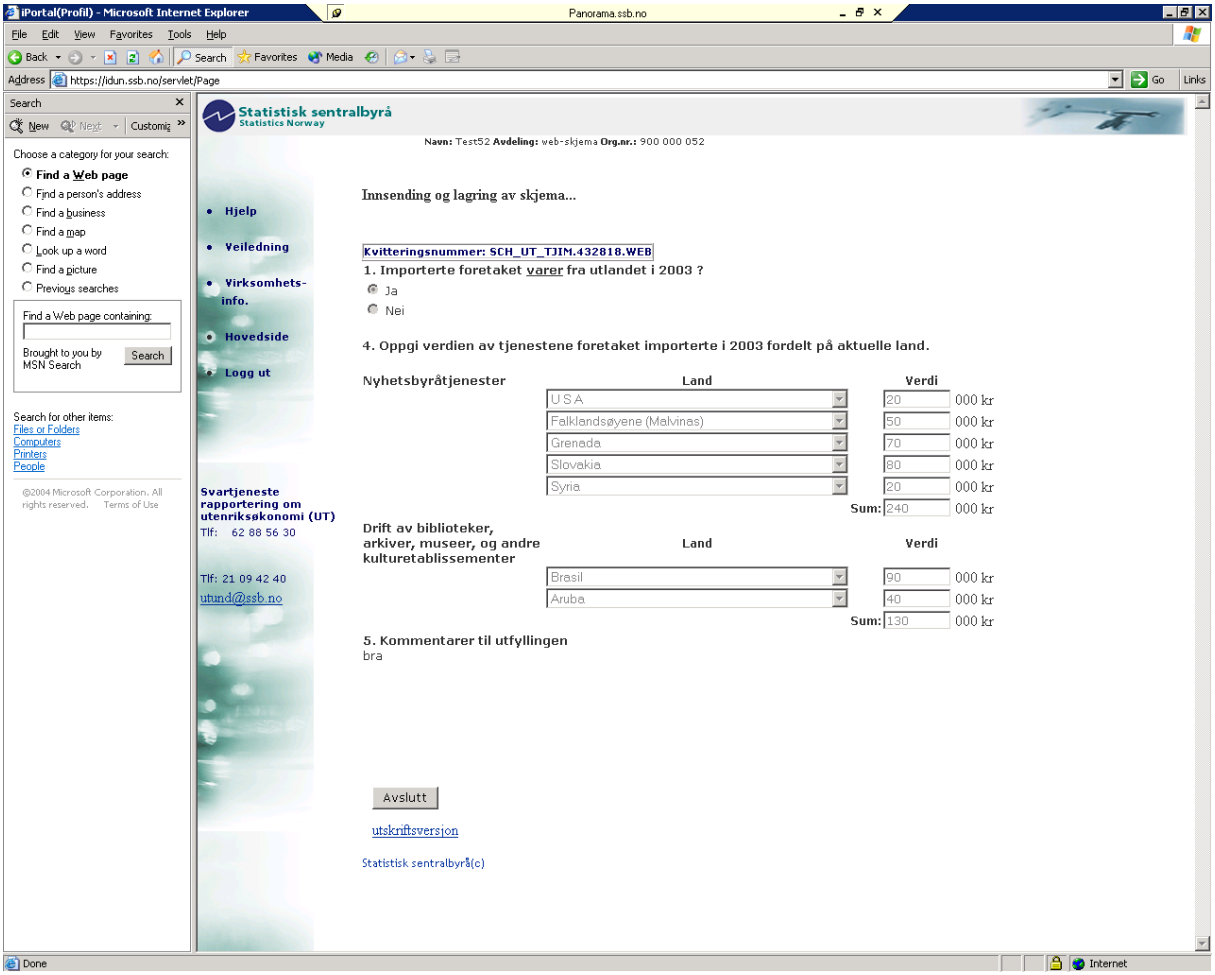
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Tall sendt 18.05 2004
Side 10 av 10
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Omtrent hvor lang tid brukte du på selve skjemautfyllingen?
Antall timer: 2
Antall minutter: 5
Er det første gang du fyller ut dette skjemaet eller har du fylt ut samme skjema tidligere?
Første gang jeg fyller ut dette skjemaet
Har fylt ut samme skjema tidligere
Hvor mange personer, inklusive deg selv, var involvert i å svare på denne undersøkelsen?
3 Antall personer
Mener du at statistikken som lages på grunnlag av dette skjemaet er til stor eller liten nytte for bedriften?
Svært stor nytte
Ganske stor nytte
Verken stor eller liten nytte
Ganske liten nytte
Svært liten nytte
Vet ikke
Tror du at statistikken som lages på grunnlag av dette skjemaet er til stor eller liten samfunnsnytte?
Svært stor nytte
Ganske stor nytte
Verken stor eller liten nytte
Ganske liten nytte
Svært liten nytte
Vet ikke
Forrige side
Send tall
Send kladd
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Statistisk sentralbyrå(c)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Panorama.ssb.no
File Edit View Favorites Tools Help
Back Search Favorites Media
Address https://idun.ssb.no/servlet/Page
Go Links
Search
New Next Customiz
Choose a category for your search:
Find a Web page
Find a person's address
Find a business
Find a map
Look up a word
Find a picture
Previous searches
Find a Web page containing:
Brought to you by MSN Search
Search
Search for other items:
Files or Folders
Computers
Printers
People
©2004 Microsoft Corporation. All rights reserved. Terms of Use
Statistisk sentralbyrå
Statistics Norway
Navn: Test52 Avdeling: web-skjema Org.nr.: 900 000 052
Hjelp
Veiledning
Virksomhets-info.
Hovedside
Logg ut
Innsending og lagring av skjema...
Kvitteringsnummer: SCH_UT_TJIM.432818.WEB
1. Importerte foretaket varer fra utlandet i 2003 ?
Ja
Nei
4. Oppgi verdien av tjenestene foretaket importerte i 2003 fordelt på aktuelle land.
Nyhetsbyråtjenester
Land
Verdi
USA 20 000 kr
Falklandsøyene (Malvinas) 50 000 kr
Grenada 70 000 kr
Slovakia 80 000 kr
Syria 20 000 kr
Sum: 240 000 kr
Drift av biblioteker, arkiver, museer, og andre kulturetablissementer
Land
Verdi
Brasil 90 000 kr
Aruba 40 000 kr
Sum: 130 000 kr
5. Kommentarer til utfyllingen
bra
Svartjeneste rapportering om utenriksøkonomi (UT)
Tlf: 62 88 56 30
Tlf: 21 09 42 40
utund@ssb.no
Avslutt
utskriftsversjon
Statistisk sentralbyrå(c)
Done
Internet

Part 6

Guidelines for Reducing Perceived Response Burden

6.1 Introduction to Part 6

Dan Hedlin, Statistics Sweden

In Part 6 we suggest guidelines that can be implemented by National Statistical Institutes (NSIs) to measure and reduce actual and perceived response burden. In Parts 1-3 we gained insight into the multi-faceted nature of perceived response burden. What was missing at that point was a tool for measuring perceived response burden. In Parts 4 and 5 such tools (i.e. the measurement instruments) were introduced and discussed. Measurement plays an important role in the guidelines. Without measuring perceived response burden we cannot tell whether a new survey design is less burdensome or not. Measuring perceived response burden will also have the important effect of enhancing awareness of response burden issues among survey staff.

Section 6.2 puts what the literature says about perceived response burden (Part 1, in particular sections 1.3-1.6) against our research findings, which are summarised in Parts 2 and 3. The result of this is used as a basis for formulating action points – section 6.2.4 offers guidelines for reducing perceived response burden. When they are applied to surveys, the new level of response burden should be measured. Practical guidelines for doing so are proposed in section 6.3. Guidelines that can only be implemented for a system of business surveys are put forward in section 6.4.

Concluding remarks are given in section 6.5.

6.2 Survey Design Guidelines for Minimising Perceived Respondent Burden

Jacqui Jones, Office for National Statistics

6.2.1 Introduction

This project has focussed on the conceptualisation and measurement of perceived response burden in business surveys. During the course of the project a model for conceptualising 'Total Business Survey Burden' (TBSB) was developed (section 3.6, also section 3.1). The model includes both actual and perceived response burden. The TBSB identifies the creation and flow of burden between all the actors (stakeholder(s), the survey organisation, business(es), gatekeeper(s) and respondent(s)) in the survey process. The model provides a holistic approach to burden, in which the respondent is only a part. In doing this, burden is conceptualised as a cyclical process with burden transferred between actors in the survey process.

6.2.2 Background

As previously mentioned, the concept of response burden can be divided into actual and perceived burden. The actual burden can be measured, for example by the time taken to complete the survey and the number of tasks performed. It may also include the costs to the business in terms of the resources given to the survey task. This division can also be conceptualised as one between the more objective quantifiable actual burden and the more subjective, qualitative perception of burden that the respondent has (de Wries et al. 1996; Willeboordse 1998b).

The literature review brought forward a number of issues pertaining to response burden, albeit mainly in household surveys. Here we cross-reference those issues against our findings reported in Parts 2 and 3. In Table 6.1 there is one column with issues from the literature review and one with project results. The fairly low degree of overlap reflects essentially differences between household and business surveys. Table 6.1 is divided into subtables for survey requirements, survey design (sample and questionnaire design), response environment, and response outcome, which are four out of five entities in the TBSB model. Each subtable indicates the main actors (i.e. stakeholder(s), the survey organisation, business(es), gatekeeper(s), respondent(s)) involved in the process.

Table 6.1. Response burden issues from Part 1 'A literature review on perceived response burden' cross-referenced against results from Parts 2 and 3.

Table 6.1a. Survey Requirements

Total Business Survey Burden Actors	Literature review	Identified from the PRB research project
Stakeholder(s) and Survey Organisation	Survey sponsorship	*Match* (in terms of the credibility of the NSI)
	How well the survey is tailored to the characteristics of the targeted population	*Match* (in terms of survey requirements complying with availability of business records)
	No match	Timing of survey

Table 6.1b. Survey Design

Total Business Survey Burden Actors	Literature review	Identified from the PRB research project
Survey Organisation	Publicity	*No match*
	Perceived importance of the survey	*Match*
	Survey communication	
	Advance notification of survey	*Match*
	Personalising survey communication	*Match* (in a limited sense: business survey are often addressed to a specific person)
	Initial contact which demonstrates special attention e.g. special delivery mail.	*No match*
	Pre-paid envelopes	*No match*
	Data collection instrument	
	Respondent friendly instrument	*Match*
	Survey notes and guidance	*Match*
	Cognitive burden of questions	*Match*
	Choice of modes	*Match*

Table 6.1c. Response

Total Business Survey Burden Actors	Literature review	Identified from the PRB research project
Business	Characteristics of the reporting/target unit	*Match* (business characteristics e.g. size, industry)
	No match	Interest in the survey
	No match	Trust in NSI
	No match	Feedback of survey information
	No match	Availability of business records
Gatekeeper(s)	Monetory incentive	Feedback of survey information
	No match	Interest in the survey
	No match	Trust in NSI
	No match	Knowledge of the business to enable identification of the most appropriate respondent(s) in the business
Respondent(s)	**Respondent characteristics** Personal respondent characteristics	 *No match*
	No match	Respondent's position, role and knowledge of the business records
	No match	Trust in NSI
		Feedback of survey information
	Interaction with survey Personal interest in survey How well the survey is tailored to the characteristics of respondents Topic saliency Sensitivity of questions Respondent does not feel competent to answer questions	 *Match* *No match* *No match* *No match* *No match*
	No match	Availability of information from the business records

It must be remembered that respondents and specific business surveys were the focus of the PRB research project. Some different guidelines may have been mentioned if

different surveys were looked at. For example, sensitivity of questions may have been mentioned if the data being requested was commercially sensitive.

6.2.4 Guidelines to minimise respondent burden

To attempt to minimise respondent burden the following guidelines should be considered. The guidelines below cover a large area and it would not be feasible to give a detailed account for every piece of advice.

Guidelines for Survey Requirements
Stakeholders must have agreed on well defined and realistic data requirements. These requirements need to be matched to what and when data are available in businesses.

Guidelines for Survey Design

Perceived importance of the survey
The importance and use of the survey needs to be indicated on survey communication or the survey instrument. In the UK redesigned instruments a purpose of the survey is included at the beginning of the measurement instrument. For example, the purpose of the Annual Survey of Hours and Earnings is stated as

'The purpose of this questionnaire is to collect information on the hours, pay and related information for a sample of employees working in your organisation. The Office for National Statistics (ONS) uses this information to produce statistics for national and regional Government to develop policies for the labour market.'

Personalising survey communication
All survey communication needs to be addressed to a specific person within the business. Although further internal business distribution may occur when the survey communication has been received this should assist with assuring that someone takes responsibility.

Respondent friendly instrument
The benefits of a user friendly instrument should be equally considered with the costs of running the survey. A well designed questionnaire reduces perceived and actual response burden. Adherence to a consistent instrument design will assist respondents in understanding what is asked of them.

Survey notes and guidance
Where possible, survey notes and guidance should be placed at the point where respondents need them. The notes and guidance should be tested with respondents to ensure that they are understandable. Where possible notes and guidance should be harmonised across surveys. For business surveys this is especially important as many respondents set up specific systems to provide NSIs with their survey data.

Survey notes and guidance should be periodically reviewed. This is required to ensure that they have not been historically added to and that the notes and guidance remain relevant.

Cognitive burden of questions
Questions should be cognitively tested with respondents. This includes old, often-used questions that have not previously been tested or has been modified since they were tested.

Choice of modes
Where possible, alternative modes of data collection should be available to respondents.

Guidelines for Response

Interest in the survey
NSIs need to recognise that there are potentially three layers within a business – the business, gatekeeper(s) and respondent(s). Each of these layers has to be motivated to respond. During the course of the PRB research the feedback of survey information has been raised as an important motivating factor for response, in particular survey results that relate to the respondent's business. Feedback of general survey results should also be considered, although the experiment Statistics Sweden carried out gave few clear indications of statistically significant effects on certain response variables (section 5.4).

Trust in the NSI
Businesses, gatekeepers and respondents need to understand the identity and role of the NSI. NSIs need to ensure that relevant and well structured information regarding the identity and role of the NSI is sent to new respondents. This information should also be available to other respondents via a variety of modes (e.g. paper leaflets and web).

Respondents need to trust the NSI with their data. A statement assuring confidentiality needs to be provided in survey communication or the survey instrument. Further confidentiality information needs to be available if requested. Breaches of confidentiality must not occur.

Identification of the most appropriate respondent(s)
Where possible, the title of the survey needs to reflect the area(s) of the business that will need to be involved in responding. In the PRB research a common theme from respondents to the New Earnings Survey was that the survey name did not adequately reflect the areas that needed to be involved. From the survey title it was anticipated that pay staff were the respondents where in fact personnel staff were also required. Respondents repeatedly stated that the survey title made it more difficult to persuade personnel staff to respond to the survey.

6.3 Practical Guidelines on Measuring Response Burden

Trine Dale and Gustav Haraldsen, Statistics Norway

We have developed two sets of questions (see Part 4) that are suited to measure both the perceived and the actual burden businesses and respondents experience when reporting data to the government. The questionnaires have been tested in the field in the UK, Sweden and Norway. The two questionnaires use different methodology, but have both proved to be effective instruments to measure response burden. In the evaluation of these two methods, we have argued that the perception questions developed in Norway and the UK are measurement on a scale from immediate reactions towards a questionnaire that one has just filled in to more general attitudes based on the experiences from one or several business surveys. Hence, the choice among these two question sets might be a choice of perspective. The sets of questions, with some suggested adjustments, form a base line for what should be measured. From this baseline we recommend that three kinds of studies should be carried out:

1. Simple objective indicators

In many countries, survey organisations are already obligated to report on response burden to the authorities on a regular basis. The current situation, however, is that these numbers often are estimated by the survey organisation, and not actually measured by asking the respondents. Generally the response burden is also reported as the total response time, not distinguishing between the time it takes to collect the necessary information and the time it takes to fill the figures and answers into the questionnaire. We recommend that this kind of estimate is based on two questions posed to a sample or all respondents with fixed intervals between each measurement. Preferably we think this should be done annually or at least every second year.

Our tests have shown that the effort required to collect the necessary information often is a much better indication of the response burden than the number of questions asked, as this is the most time consuming task. It also seems that it is possible to keep the information collection and questionnaire completion time apart and that the two time estimates can be added up to a measure of the total response burden. If these simple indicators are collected for all surveys run by the NSI on a regular basis, they can be aggregated up to a figure that shows the total response burden of statistical surveys for the business world, although there will be nonresponse to adjust for. If other institutions that collect information with the help of questionnaires use the same question set, the results can even be aggregated to an indicator of the total business response burden.

However, our tests have also shown how important it is to report not only average or median response burden, but also measures of variances between big and small establishments, between different modes of data collection and between similar establishments.

2. Full scale measurement

The first time response burden is to be measured in a survey, we recommend a full scale measurement similar to the ones we have conducted in our tests. A full scale measurement should also be used when there are major changes in a questionnaire – if questions are dropped or new ones included, if the layout and design of a survey changes, if the mode of data collection changes (paper to web) and/or if the sample size or

composition changes. Even if there are no major changes in a survey, there might be changes in the survey climate or in the businesses that have impact on the response burden – for instance the respondent might change or the business might be reorganized. We therefore recommend that a full scale measurement is carried out at given time lags – every 5 years seems appropriate.

A full-scale measurement should include the same three elements that we used in our tests:

a) Evaluation of the information collection (actual and perceived)
b) Evaluation of the user-friendliness of the questionnaire (actual and perceived)
c) Measurement of attitudes towards the usefulness of the task

In addition we have suggested an additional question about the time spent on information collection and the completion of the questionnaire relative to the time available at the time of completion. It might also be useful to ask the respondents to weigh the burden of collecting information against the burden of filling in the questionnaire. The full scale measurement will give information that can help the survey organisation document and deal with both perceived and actual response burden. The results will give information about where the burden is the highest and also about how it can be reduced.

Whether the PRB-questions should be put to the whole sample or to just a selection of the potential respondents should depend on the sample size and the survey climate. If the PRB-questions are a voluntary part of a statutory survey as in our tests, it is important to take into account that the nonresponse might be quite high.

If possible the PRB-questions should be included in the survey subject to measurement. The best method is to include it in the same questionnaire. When that is not possible, the PRB-questionnaire should be sent out simultaneously. Our tests have shown that this gives better response rates. If this is not possible, the PRB follow up (regardless of mode) should be distributed as soon as possible after the survey in question has been returned to the survey organisation.

Because nonrespondents are likely to have a high perception of response burden, they should be followed up actively - either by sending out reminders, by telephone, or both. If a telephone follow-up is chosen, the respondents should be able to give their answers at the point of contact.

In some surveys respondents are required to fill in several questionnaires, for example in the ISS-multi business (Norway) and in the ASHE (UK). Sometimes all the questionnaires in a survey are completed by the same person, other times several people are involved - at least by supplying the necessary information. In these cases it is necessary to make a choice on the level of reporting. The PRB-questions can be distributed in such a matter that they either follow each questionnaire or that they are answered by only one person who is placed centrally in the organization.

3. Research that uncover the dynamics of the perceived response burden and response quality

The most ambitious study that can be based on our question sets is an analysis which focus on:

- the relationship between the survey design and the respondent characteristics;

- the relationship between business attitudes, procedures and principles on one hand and the attitudes and procedures that the respondent have to follow or do follow on the other;
- the relationship between perceived response burden and the response quality.

These are all analytical topics, but in particular the first and last one are important to address in a time when the data collection mode in business surveys shift from paper to web or other types of electronic data collection. The total response burden model that we have presented in this report (Part 3, see also Haraldsen 2004) should be used as a conceptual model for this type of studies.

In order to carry out this kind of research, the question sets we used in our tests have to be complemented with more information about the establishment and the characteristics of the respondent. In some countries some of this information can be extracted from business and individual registers. In other countries additional questions have to be asked. Also, some countries regularly collect data for quality indicators, while others will have to collect this kind of data specifically for their research program.

6.4 Guidelines at the level of a system of business surveys

Johan Erikson and Dan Hedlin, Statistics Sweden

The guidelines in previous sections have mainly focused on surveys seen in isolation. However, business surveys tend to be conducted by large NSIs in coordinated systems. Furthermore, many respondents fill in several business survey questionnaires every year. Here we propose guidelines at the level of the system of business survey. Some of them have also been suggested by de Vries et al. (1996).

At the system level, one of the most important actions to take is to restrict the number of surveys each business is involved in. The very large businesses tend to be included in every business survey sample and they tend to spend most time on each questionnaire. But results from the Swedish Structural Business Statistics Survey indicate that respondents at large businesses tend to *perceive* the response process as quicker and easier than do respondents at medium-sized businesses (Parts 3 and 5, in particular Tables 5.A9 and 5.A10 in Appendix 5.A). This observation suggests that the focus should be on small and medium-sized businesses.

Sample coordination
A sample coordination scheme should be used to control the number of surveys each business takes part in and also to prevent small- and medium-sized businesses being selected for several surveys in a short period of time (e.g. Ohlsson 1995 and section 1.2.2.1 Statistics Finland).

Efficient estimation
Modern and efficient estimation methods should be used not to include an unnecessarily large number of businesses in samples. The main reason for taking a large sample is to be able to provide estimates for small domains. Instead of excessive sample sizes model based estimation should be considered. See e.g. the Small Area Estimation project report at http://www.statistics.gov.uk/.

Timing
Often NSIs need the data at a certain time of the year (e.g. for the National Accounts). If this point in time is inconvenient for many respondents, the deadline could be moved forward for those respondents who need it. To meet the reporting deadlines of the NSI a heavier burden is put on estimation, as opposed to burden on the respondents, but this may be a reasonable trade-off. The sample coordination scheme should also stagger surveys since receiving several questionnaires at almost the same time increases the burden felt by respondents.

Data requirements
In the SBS survey we found that the most common reason for the questionnaire to be perceived as burdensome was that the available information at the business does not match the information asked for (Table 5.A3 in Appendix 5.A). Thus the need for data should be continuously re-considered, in particular those data that are difficult for most businesses to provide. Instead of requiring difficult data from businesses, both the respondents and the NSI may be better off if slightly different data are asked for and the relationship between the data ideally needed and the data provided is estimated. Data from administrative registers should also be considered (Wallgren and Wallgren 2004).

There may be a need for different sectors of government or different authorities to co-ordinate and share relevant parts of their business registers.

Data coordination
Surveys should be integrated as far as possible to ensure that similar pieces of information are not asked for on different questionnaires. However, very different questions may preferably be put on separate questionnaires, as it may otherwise be confusing for gatekeepers as to where to forward the questionnaire internally. Over and above harmonisation of notes and guidance mentioned in section 6.2.4, variable definitions should also be harmonised. This may be easier said than done since it may call for re-engineering of the system of business surveys.

Early announcement
Whenever possible, businesses should be notified about which surveys they can expect to take part in the, say, next 12 months. However, since businesses often re-organise, the NSI will have to frequently amend the scheme. There may also be methodological issues to address (see e.g. Srinath and Carpenter 1995).

Information on survey methodology and purposes of statistics
Enclosed with a questionnaire there should be information about the purposes of the survey. This information needs to be brief. In addition to this, there should be more detailed information readily available about the system of business surveys and business statistics, such as purposes of the statistics and how the methodology works. Many respondents are aware of their own response inaccuracy and will assume that the inaccuracy is exacerbated on population level. It is important that the correct information about methodology is available to those respondents who want to find out more. This could for example be a FAQ list at the NSI web site. Web based questionnaires should have a link to this information.

6.5 Concluding remarks

Dan Hedlin, Statistics Sweden and Gustav Haraldsen, Statistics Norway

As mentioned in Part 3, the issue of response burden can be organised under the following headlines:

1. Existing response structures (e.g. whether the information required is easily available to the respondent). Large businesses in particular tend to have systems through which the respondent can gain access to the data.
2. Timing of survey (both in relation to the business's other information processes and to the deadlines of other surveys and similar governmental paper work).
3. Question design (e.g. question wording and terminology issues).
4. Questionnaire design (e.g. layout and number of questionnaire pages).
5. Mode of data collection (e.g. web data collection or a choice of different modes).
6. The total number of questionnaires the respondent has obtained.
7. Perceptions of the NSI and the survey (e.g. knowledge of NSI and purpose of survey; prior exposure to the current survey and other surveys).
8. Feed back of survey results and other rewards the respondent perceives (if any). For example, does the respondent feel s/he is a responsible person taking part in an important societal process?

In section 3.6 these headlines are discussed and the response burden issue is broadened to include stakeholders and the survey organisation in a Total Business Survey Burden model.

The respondent's overall perception is determined both by burdens and rewards that results from his or her encounter with the survey in question. Unfortunately, the request for business data is often presented as an imperative with little attention paid on how to motivate the respondent to participate. Our tests indicate that few respondents feel that they by taking part in a business survey carry out an important task for their company or society. This observation suggests that NSIs should pay particular attention on how their surveys are introduced and the information products that could be offered to the participating businesses to enhance their interest in the surveys conducted by the NSI and the statistics the surveys produce. The ongoing efforts to minimise data requirements by coordinating data collections conducted by different institutions and by utilizing alternative sources of information should be intensified.

As suggested by empirical evidence documented in this report, most respondents find that collecting information necessary for the completion of the questionnaire takes longer and is more burdensome than actually filling in the questionnaire. Therefore, to reduce response burden there is a special need for user-friendly guidance on how to estimate data not easily available.

Finally, most business surveys have yet to implement question wording and layout principles that, as indicated from extensive household survey research, will reduce response burden. One important message from this research is that respondents appreciate a personal and friendly presentation. The formal imperatives that often characterise business surveys probably have a negative effect on both perceived response burden and response quality.

An efficient way to test and measure amendments to the survey process is to conduct experiments embedded in full-scale surveys (Biemer and Lyberg 2003). One random part of the sample could be exposed to the amended survey process (e.g. a redesigned questionnaire) and the other part to the old survey process. To study how factors interact more complex randomisation designs are called for. Responses to PRB questions (Part 4) and other data, for example response rates, will indicate the effectiveness of the new survey process and any differences in perceived response burden between sample parts. In section 5.4 such an experiment is described.

In web surveys the effectiveness can also be measured by what often is referred to as paradata, i.e. process data, either collected from the web server (server side paradata) or from the client's computer (client side paradata) about how the questionnaires are filled in. Paradata can for instance contain information on the time it takes to complete each item, which error messages are initiated and what answers are often corrected during the response session (Heerwegh 2003). For example, one indicator on how easy or difficult it was for the respondent to complete the web questionnaire is the number of activated error messages divided by the number of possible error messages.

When implementing the guidelines special consideration must be given to the fact that the population of businesses is heterogeneous. Some survey designs known to suit most businesses may well be awkward for a minority of the businesses. The PRB questions can identify businesses that perceive heavy response burden and these can be followed up for detailed information. This follow-up could in its methodology be similar to the work presented in Part 3. We suggest a three-step procedure: first, identified problems are followed up with individual or small-group cognitive and feasibility tests. Second, the initially identified problems as well as deeper insights from the qualitative tests, may be brought to focus groups organised to come up with ideas on how the issues could be addressed. Third, after amendments to the survey process have been implemented, the application of PRB questions and other quality measurements should be repeated, preferably in an embedded experiment, to see if perceptions and data quality have been improved on. In this way, the PRB questions will be an integral part of continuous improvement to the survey process.

References

Agresti, A. (1990) *Categorical Data Analysis*. New York: Wiley.

Ajzen, I. (1988) *Attitudes, Personality and Behaviour*. Buckingham, Open University Press.

Bäckström. H. (2004) *Projekt Perceived Response Burden. Kortperiodisk industrienkät, ES/II* (in Swedish). Internal Report. Statistics Sweden.

Baxter, W. (2003) *Estimates of Compliance Costs to Business Respondents 2001*. Internal Report. Statistics Canada.

Biemer P.P. and Lyberg, L. (2003). Introduction to Survey Quality. New York: Wiley.

Boden, R. and Froud, J. (1996) *Obeying the Rules: Accounting for Regulatory Compliance Costs in the United Kingdom.* Accounting, Organizations and Society, 21, 529-547.

Boser, J.A (1987) *Teacher Education Follow-up Surveys: Variables Related to Response Rate.* Paper presented at the annual meeting of the American Educational Research Association. Washington, D.C. April 1987.

Boynton, I.-M. and Bäckström H. (2003) *Test av mätinstrumentet i Inkvarterings-statistiken: användbarhetstest och djupintervjuer med uppgiftslämnare* (in Swedish). Internal report. Statistics Sweden.

Bradburn, N. (1978) *Respondent Burden*. In Health Survey Research Methods*,* DHEW Publication No. (PHS) 79-3207, 49-53.

Brennan, M., Seymour, P. and Gendall, P. (1993) *The Effectiveness of Monetary Incentives in Mail Surveys: Further Data*. Marketing Bulletin, 4, 43-52.

Chambers, R.L. (2003) *Introduction to Part A.* In Analysis of Survey Data, eds R.L. Chambers, C.J. Skinner. New York: Wiley & Sons, 13-28.

Church, A.H. (2001) *Is there a Method to our Madness? The Impact of Data Collection Methodology on Organizational Survey Results.* Personnel Psychology, 54, 937-969.

Couper, M.P. and Groves, R.M. (1996) *Household-Level Determinants of Survey Non-response.* Advances in Survey Research: New Directions for Evaluation, 70, 63-79.

Couper, M.P., Singer, E., and Kulka, R.A. (1998) *Participation in the 1990 Decennial Census.* American Politics Quarterly, 26, 59-80.

Coyle, B. (2002a) *Compliance Practices: Paper for Compliance Board Meeting.* Internal Report. Office for National Statistics, UK.

Coyle, B. (2002b) *Results of Project Leading to Common Guidelines on Collection and Measurement of Compliance Times for Business Surveys.* Internal Report. Office for National Statistics, UK.

Cox, B. and Chinnappa, N. (1995). *Unique Features of Business Surveys.* In Business Survey Methods, eds. B. Cox, D. Binder, N. Chinnappa, A. Christianson, M. Colledge, and P. Kott. New York: Wiley, 1-17.

De Vries, W., Keller, W., and Willeboordse, A. (1996) *Reducing the Response Burden: Some Developments in The Netherlands.* International Statistical Review, 64, 199-214.

Dillman, D.A. (1978) *Mail and telephone surveys: The total design method,* New York: Wiley.

Dillman, D.A. (2000) *Procedures for Conducting Government-Sponsored Establishment Surveys: Comparison of the Total Design Method (TDM), a Traditional Cost-Compensation Model, and Tailored Design.* Proceedings of the Second International Conference on Establishment Surveys, American Statistical Association, 343-352.

Dillman, D.A., Sinclair, M.D., and Clark, J.R., (1993) *Effects of Questionnaire Length, Respondent-Friendly Design, and a Difficult Question on Response Rates for Occupant-Addressed Census Mail Surveys.* Public Opinion Quarterly, 57, 289-304.

Dillman, D.A., Phelps, G., Tortora, R., Swift, K., Kohrell, J., and Berck, J. (2001) *Response rate and measurement differences in mixed mode surveys using mail, telephone, interactive voice response and the Internet*. Retrieved November 18, 2002 from http://survey.sesrc.wsu.edu/dillman/papers.htm

Edwards, W.S. and Cantor, D. (1991) *Towards a Response Model in Establishment Surveys.* In Measurement Errors in Surveys, eds. P.P. Biemer, R.M. Groves, L. Lyberg, N.A. Mathiowetz, and S. Sudman. New York: Wiley, 211-233.

Eisenhower, D., Mathiowetz, N. A., and Morganstein, D. (1991) *Recall Error: Sources and Bias Reduction Techniques*. In Measurement Errors in Surveys, eds P.P. Biemer, R.M. Groves, L. Lyberg, N.A. Mathiowetz, and S. Sudman. New York: John Wiley and Sons, 127-144.

Featherston, F. and Moy, L. (1988) *Minimizing respondent burden in mail questionnaires.* Paper presented at the American Association for Public Opinion Research annual meeting.

Fisher, S. and Kydoniefs, L. (2001) *Using a Theoretical Model of Response Burden (RB) to Identify Sources of Burden in Surveys.* Paper presented at the 12th International Workshop on Household Survey Nonresponse. Oslo, Norway, September 12-14.

Fowler, F. J. (1995) *Improving Survey Questions: Design and Evaluation*. Thousand Oaks: Sage.

Gerber, E.R. (2001) *The Privacy Context of Survey Response: An Ethnographic Account.* In Confidentiality, Disclosure, and Data Access: Theory and Practical Applications for Statistical Agencies, eds P. Doyle, J.I. Lane, J.J.M. Theeuwes, and L.M. Zayatz. Amsterdam: North-Holland, 371-394.

Granquist, L. and Kovar, J.G. (1997) *Editing of Survey Data: How Much is Enough?* In Survey Measurement and Process Quality, eds L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. New York: Wiley, 415-435.

Groves, R.M., Cialdini, R.B., and Couper, M.P. (1992) *Understanding the Decision to Participate in a Survey.* Public Opinion Quarterly, 56, 475-495.

Groves, R.M. and Couper, M.P. (1998) *Nonresponse in Household Interview Surveys*. New York: Wiley.

Haraldsen, G. (2002) *Identifying and Reducing the Response Burden in Internet Business Surveys.* Paper presented at the International Conference on Questionnaire Development, Evaluation and Testing Methods (QDET). Charleston, South Carolina, November 14-17.

Haraldsen, G. (2004) *Identifying and Reducing Response Burden in Internet Business Surveys.* Journal of Official Statistics, 20, 393-410.

Harris-Kojetin, B. and Tucker, C. (1999) *Exploring the Relation of Economic and Political Conditions with Refusal Rates to a Government Survey.* Journal of Official Statistics, 15, 167-184.

Heberlein, T.A. and Baumgartner R. (1978) *Factors Affecting Response Rates to Mailed Questionnaires: A Quantitative Analysis of the Published Literature.* American Sociological Review, 43, 447-462.

Helgeson, J. C. and Ursic, M. L. (1994) *The Role of Affective and Cognitive Decision-Making Processes During Questionnaire Completion.* Psychology and Marketing, 11, 493-510.

Heerwegh, D. (2003) *Explaining Response Latencies and Changing Answers Using Client-side Paradata from a Web Survey*. Social Science Computer Review, 21, 360 – 373.

Holmberg, A. (2004) *Pre-printing Effects in Official Statistics.* Journal of Official Statistics, 20, 341-355.

Jones, J. (2003) *A Framework for Reviewing Data Collection Instruments in Business Surveys,* Survey Methodology Bulletin, 52, 4-9. Office for National Statistics, UK.

Jones, J., Borgerson, H., Williams,G., Curzon, J., and Smith, A. (2004) *Catalysts for change: the rationale for mixed mode data collection in the UK Office for National Statistics.* Paper presented at the European Conference on Quality and Methodology in Official Statistics, Mainz, Germany, 24-26 May.

Kanuk, L. and Berenson, C. (1975) *Mail Surveys and Response Rates: A Literature Review.* Journal of Marketing Research, 12, 440-453.

Kerachsky, S.H. and Maller, C.D. (1981) *The Effects of Monetary Payments on Survey Responses: Experimental Evidence from a Longitudinal Study of Economically Disadvantaged Youths.* Proceedings of the American Statistical Association, Section on Survey Research Methods, 258-263.

Koppies Consult BV and Netherlands Economic Institute, ITM Research (2003) *Assessment of the Burden of the Intrastat System on Statistical Information Providers.* Sweden.

Krosnick, J.A. (1991) *Response Strategies for Coping with the Cognitive Demands of Attitude Measure in Surveys.* Applied Cognitive Psychology, 50, 213-236.

Lewington, R.J. (1995) *The Role of National Accounts and Their Impact on Business Surveys,* in Cox B. et al (ed). Business Survey Methods, New York: Wiley, 655-690.

Ohlsson, E. (1995) *Coordination of Samples Using Permanent Random Numbers.* In Business Survey Methods, eds. B. Cox, D. Binder, N. Chinnappa, A. Christianson, M. Colledge, and P. Kott. New York: Wiley, 153-169.

Osmotherly E, Graham T, and Pepper M. (1996) Osmotherly Report: Statistical surveys: Easing the Burden on Business*, a report by the Osmotherly Steering Group.* Office for National Statistics, UK.

Machin, A. (1998) *Reducing Statistical Burdens on Business.* Government Statistical Service Methodology Series*,* 9, Office for National Statistics, UK.

Manfreda, K. L., Batagelj, Z., and Vehovar, V. (2002). *Design of Web survey questionnaires: Three basic experiments.* Journal of Computer-Mediated Communications, 7(3). Retrieved November 18, 2002 from http://jcmc.indiana.edu/vol7/issue3/surexp

McConaghy and Beerten (2003) *Influencing Response Rates on the Family Resources Survey by Using Incentives*, Survey Methodology Bulletin, 51, 27-35. Office for National Statistics, UK.

Messmer, D.J., and Seymour, D.T. (1982) *The Effects of Branching on Item Nonresponse,* Public Opinion Quarterly, 46, 270-277.

Ministry of Economic Development (2001) *Business Compliance Cost Statements: Guidelines for Departments.* Regulatory and Compliance Cost Unit, Wellington: New Zealand.

Novo, M., Hammarström, A. and Janlert U. (1999) *Does Low Willingness to Respond Introduce Bias? Results from a Socio-epidemiological Study Among Young Men and Women.* International Journal of Social Welfare, 8, 155-163.

Rajecki, D.J. (1990) *Attitudes*, 2nd ed. Sunderland: Sinauer.

Redline, C., Dillman, D.A., Dajani, A.N., and Scaggs, M.A. (2003) *Improving Navigational Performance in U.S. Census 2000 by Altering the Visually Administered Languages of Branching Instructions.* Journal of Official Statistics, 19, 403-419.

Rivière, P. (2002). *What Makes Business Statistics Special?* International Statistical Review, 70, 145-159.

Rosén, B. (2000). *A User's Guide to Pareto πps Sampling*. Proceedings of the Second International Conference on Establishment Surveys. American Statistical Association, 289-299.

Schwarz, N. and Strack, F. (2004) *Wie Sie über ihr Leben nachdenken sollten (und wie nicht): Einige Einsichten aus der sozialen Urteilsbildung* (in German). In Zum Glück, ed. S. Neiman. Berlin: Akademie Verlag, 163-182.

Sharp, L. M. and Frankel, J. (1983) *Respondent burden: A test of some common assumptions*. Public Opinion Quarterly, 47, 36-53.

Shettle, C. and Mooney, G. (1999) *Monetary Incentives in U.S. Government Surveys.* Journal of Official Statistics, 15, 231-250.

Singer, E. (2001) *Public Perceptions of Confidentiality and Attitudes Toward Data Sharing by Federal Agencies.* . In Confidentiality, Disclosure, and Data Access: Theory and Practical Applications for Statistical Agencies, eds P. Doyle, J.I. Lane, J.J.M. Theeuwes, and L.M. Zayatz. Amsterdam: North-Holland, 341-370.

Singer, E. (2002) *The Use of Incentives to Reduce Nonresponse in Household Surveys.* In Survey Nonresponse, eds R.M. Groves, D.A. Dillman, J.L. Eltinge, R.J.A. Little. New York: Wiley, 163-177.

Singer, E., Groves, R.M., and Corning, A.D. (1999) *Differential Incentives Beliefs about Practices, Perceptions of Equity, and Effects on Survey Participation*. Public Opinion Quarterly, 63, 251-260.

Singer, E., Van Hoewyk, J., Gebler, N., Raghunathan, T., and McGonagle, K. (1999) *The Effect of Incentives on Response Rates in Interviewer-Mediated Surveys.* Journal of Official Statistics, 15, 217-230.

Srinath, K.P. and Carpenter, R.M. (1995) *Sampling Methods for Repeated Business Surveys.* In Business Survey Methods, eds B. Cox, D. Binder, N. Chinnappa, A. Christianson, M. Colledge, and P. Kott. New York: Wiley, 171-183.

Statistics Sweden (2001) *Resultat från försök med att mäta uppgiftslämnartid i tre SCB-undersökningar* (in Swedish). Internal report, 2 Feb 2001.

Sudman, S., Bradburn, N., and Schwarz, N. (1996) *Thinking about Answers: The Application of Cognitive Processes to Survey Methodology*. San Francisco: Jossey-Bass.

Sudman, S., Willimack, D. K., Nichols, E., and Mesenbourg, T. L. (2000) *Explanatory Research at the U.S. Census Bureau on the Survey Response Process in Large Companies.* Proceedings of the Second International Conference on Establishment Surveys: American Statistical Association, 327-337.

Teikari, I (2002) *Evening out the Response Burden*. Internal Report. Statistics Finland.

Tourangeau, R. (1984) *Cognitive Science and Survey Methods.* In Cognitive Aspects of Survey Methodology: Building a Bridge Between Disciplines, eds T. Jabine et al. Washington: National Academy Press, 73-100.

Van Loon, A.J.M., Tijhuis, M., Picavet, H.S., Surtees, P.G., and Ormel, J. (2003) *Survey Non-response in the Netherlands: Effects on Prevalence Estimates and Associations*. Ann Epidemiol, 13, 105-110.

Wahlström, H. (2004) *Projekt Perceived Response Burden. Analysplan* (in Swedish). Internal Report. Statistics Sweden.

Wallgren, A. and Wallgren, B. (2004) *Registerstatistik – administrative data för statistiska syften* (in Swedish). R&D Report 2004:2, Statistics Sweden.

Willeboordse, A. (1998a) *The Mission of National Statistical Institutes.* In Handbook on Design and Implementation of Business Surveys, ed. A. Willeboordse. Luxembourg: Office for Official Publications of the European Communities, 5-7.

Willeboordse, A. (1998b) *Minimizing Response Burden*. In Handbook on Design and Implementation of Business Surveys, ed. A. Willeboordse. Luxembourg: Office for Official Publications of the European Communities, 111-118.

Willimack, D. and Nichols, E. (2001) *Building an Alternative Response Process Model for Business Surveys*. Paper presented at AAPOR, Montreal, Canada. Retrieved October 05, 2003 from http://www.amstat.org/sections/srms/proceedings/ at '2001'.

Willimack, D.K., Nichols, E., and Sudman, S (2002) Understanding Unit and Item Nonresponse in Business Surveys. In Survey Nonresponse, eds R.M. Groves, D.A. Dillman, J.L. Eltinge, R.J.A. Little. New York: Wiley, 213-277.

Yammarino, F.J., Skinner, S.J. and Childers, T.L. (1991) *Understanding Mail Survey Response Analysis: A Meta-Analysis*. Public Opinion Quarterly, 55, 613-639.

Zukerberg, A. and Lee, M. (1997) *Better Formatting for Lower Response Burden.* Internal Report. U.S. Census Bureau.