

Response Burden: Introductory Overview Lecture

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Abstract

Internationally each year survey organisations send out millions of questionnaires to businesses selected to participate in business surveys. Some businesses may only receive one survey questionnaire a year whilst others receive numerous questionnaires for different surveys and for the different periods that the surveys are conducted e.g. monthly, quarterly and annual. From the perspective of the businesses these survey requests are an irritant that incur them costs and from which they often perceive receiving no benefits – this can impact on how or if they respond. From the survey organisations perspective survey responses are vital to the quality of the final statistical outputs. A trade off therefore exists between the survey demands being placed on businesses and the need for quality statistics. Added complications come from the importance of large businesses in terms of their representation in numerous surveys and their importance (by weight) to the final statistical outputs; and increasing demands for data.

This introductory overview lecture provides an overview of the issues, measurement and management of actual and perceived response burden in business surveys.

Key words: response burden, data quality, costs and benefits

1. Introduction

The objective of this paper is to bring together perspectives in relation to measuring, managing, and reducing response burden. Response burden is not a straight forward area to discuss, measure and manage. It is multi-faceted and intrinsically linked to outcomes such as the quality of survey data. The paper provides an introductory overview of some of the facets of business survey response burden. The paper first looks at how burden is generated, then looks at different perspectives of response burden (actual, perceived and total burden), different ways of measuring and managing burden (actual and perceived) are then discussed. The paper finishes by looking at some guidelines for managing and reducing total business survey burden. It must be remembered that this is an introduction to response burden and that it is an evolving area of research and development.

2. How is response burden generated?

2.1 The need for business data (external factors)

The generation of burden originates with the need for data from businesses, which is often generated from external policy or regulatory requirements. For example, policy makers, businesses and individuals need information on a monthly, quarterly and annual basis on how the economy and individual industries are performing; and policy makers and businesses need information on working practices, policies and working conditions. There is a huge demand for business data and this demand also needs to keep pace with economic changes. A good example of this is the response to the recent global financial crisis. Part of the reason why we were all surprised by the collapse of the financial sector was that our financial statistics had not kept pace with financial innovations e.g., the measurement of derivatives, hedging and forwarding. Nationally and internationally this is now being addressed for example, via the International Monetary Funds' G20 data gaps initiative (Heath, 2011); and the latest System of National Accounts manual (2008) also makes improvements in this specific area. The result of these statistical improvements may be improved financial statistics but it will also place additional burden on businesses to provide the new and redefined data (Jones et al. 2013).

2.2 Ways of collecting business data

Once the need for data has been identified and agreed the data must be collected. There are several ways of collecting business data: (1) surveys, (2) administrative data, (3) electronic data interchange (EDI) (although this can be used as a collection method within a survey, (4) published business information, and (5) qualitative methods e.g., indepth interviews, focus groups and observation (Jones, et al, 2013). From an additional burden perspective i.e. businesses having to spend time to provide the requested data, published and available business information e.g., company accounts, and EDI theoretically create no additional cost, although there may be a start-up cost using EDI. The other data collection methods (surveys, administrative data, and qualitative methods) theoretically do create an additional burden on businesses as they have to spend time responding to the data request (see Table 1).

Table 1: Data collection methods and theoretical burden on businesses

Method of data collection	Theoretical burden on large businesses	Theoretical burden on small and medium businesses
Business surveys	High burden on the large business universe, as samples are generally skewed to include every large business in the relevant industry or sector (especially in surveys conducted to collect data for official statistics)	Low burden on the small and medium size business universe, as samples are generally designed to minimise burden on these businesses e.g., selected with probabilities in proportion to size and rotation in recurring surveys. High burden on the businesses selected.
Administrative data	Initial collection of administrative data (e.g., for taxation) creates high burden on the business universe. No burden for secondary use of data.	Initial collection of administrative data (e.g., for taxation) creates high burden on the business universe. No burden for secondary use of data.
Electronic data interchange	No burden once set-up*	No burden once set-up*
Published business information	Little burden apart from preparing the reports.	Little burden apart from preparing the reports - but published information may not be available.
Qualitative methods	Very low burden on the business universe. Potentially high burden on the businesses selected.	Very low burden on the business universe. Potentially high burden on the businesses selected.

*Additional burden (costs) may be created in the survey organisation if definitions and concepts do not match those required.

2.3 Data collection design (internal factors)

How the data collection is designed (for surveys, administrative data, and qualitative research) can also create burden, for example, oversampling, badly worded introductions and questions, poorly designed associated communication, over editing and the timing of the data request. The design is largely determined by factors such as the expertise of staff, budgets and systems. It must be remembered that the data collection design could impact on the quality of the collected data and subsequently the utility of the collected data. To date, research findings in relation to the quality aspects remain inconclusive but there has been some evidence that higher burden, generated from the data collection design can result in the potential for respondents to generate more errors (Kennedy and Phipps (1995); Haraldsen and Jones , 2007; Giesen and Haraldsen, 2012). In fact in their 1995 paper, Kennedy and Phipps state that “Response burden needs to be carefully assessed in establishment surveys, as there are clear trade-offs between burden and quality”. Given the importance of collecting fit for purpose data it is essential that going forward these issue are considered further.

2.4 Perceptions of the organisation and value of the data collection

Perceptions of the organisation requesting the data and the value of collecting the requested data can also create burden and could ultimately affect the quality of the data collected. For example, if respondents have no knowledge or negative perceptions of the organisation and/or see no benefits in responding to the data request then this will either result in them not responding or regarding the request as burdensome; both outcomes potentially affecting the quality of the survey data. Data requested for regulatory tax reasons e.g., on behalf of the central government, may be regarded as burdensome by respondents but they will generally have knowledge of the organisation that is requesting the data and understand the value of participating e.g., to calculate how much tax they need to pay. In contrast, survey data requests may often be from organisations that the respondent has never heard of and they may not understand why the data are being requested and how it will be used.

2.5 Motivation

If you are motivated to do something then you are less likely to regard it as a burden, this applies equally to participation in business surveys. Like perceptions of the organisation and the value of the requested data, motivation may also have an effect on whether businesses participate and if they do, how seriously and thoroughly respondents carry out the survey tasks. Torres van Grinsven et al. (2012) provide a useful insight into specific factors and sources of motivation in business surveys based on a conceptual model of motivation and qualitative data.

2.6 Costs and benefits

Burden can always be generated when the benefits in participating in the survey are outweighed by the costs of participating. This is an area of research and analysis that to date, in respect of survey response burden has not been looked at very much. However, a comprehensive view of response burden should ideally include a focus on reducing the costs and increasing the benefits to data providers and producers, and improving the quality of the outputs (Willeboordse, 1998). A cost-benefit approach to response burden, from both the data provider and producer perspectives, should provide a more balanced approach to response burden. However, measuring costs and benefits is not easy. For example, the Eurostat Task Force on Priority Setting was mandated to develop a simple method for measuring production costs, response burdens and benefits. They acknowledged how difficult the measurement of benefits was and consequently it was not deemed appropriate to have a quantitative approach. Instead they took a benefits approach that used information on the relevance to users' needs, which were included in a summary information sheet to be used as a support tool for Eurostat and European Statistical System Committee's when assessing proposal for new and revised statistics (Eurostat, 2009b).

The basic principle of cost benefit analysis is to weigh costs against benefits. Essential cost benefit analysis requires identification of which costs and benefits to include, how to evaluate these, discounting of future benefits and costs over time to obtain a present day value and identification of relevant constraints (Prest and Turvey, 1965). Further information on cost benefit analysis can be found in Marglin (1968), HM Treasury (2003), Cabinet Office (2003), and Bank of England (2006). A useful paper that attempts to develop a methodology for assessing the costs and benefits of new survey data requirements is Orchard et al. (2009).

3. Different perspectives of response burden

3.1 Actual response burden

The traditionally perspective of response burden is simplistic and restricted to the time it takes to respond to the data request. This traditional perspective sees response burden as an issue as it imposes a cost on businesses. For businesses there is often political pressure and initiatives to reduce regulatory burden i.e. from regulatory reporting as well as survey participation (e.g., the UK Hampton Report, 2005, and US Paperwork Reduction Act, 1980).

The cost approach is generally referred to as actual response burden and is equated to the time it takes businesses to respond to data requests including the time it takes to collate the data, compile it into the form requested and provide the response. Cost (time spent) is seen as having negative impact on productivity, as the hours spent by employees responding to data requests reduces the productivity denominator and subsequently overall productivity (Seens, 2010). With productivity calculated as:

Real Gross Domestic Product

Total number of hours worked by employed people in the economy.

The cost approach does not take into consideration the benefits derived from participating in the survey e.g., feedback on individual business performance in relation to other businesses and/or use of the produced statistics. As producers of statistics we continue to be obsessed with the cost element of the demand for business data; possibly because it is easier to measure than benefits and is a political issue in many countries (De Vries et al. 1996).

3.2 Perceived response burden

The concept of perceived response burden was initially developed by Bradburn (1978) in recognition that time measurement does not take account factors which may affect burden such as the amount of effort required by respondents and the stress induced by sensitive questions. Willeboordse (1998) places response burden in the wider context of respondents, survey organisations and users of statistics. Fisher and Kydoniefs (2001) suggest that response burden is a combination of ‘respondent burden’ (factors associated with the respondent, e.g., belief in the utility of surveys in general), ‘design burden’ (e.g., frequency of contact) and ‘interaction burden’ (e.g., the task, 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 as the concept of response burden was considered in its entirety. Haraldsen (2002, 2004) points out that neither Bradburn’s (1978) original conceptualisation nor Fisher and Kydoniefs’ (2001) model distinguish between the causes of perceived response burden and the perceptions of burden that the respondent may hold.

The UK Office for National Statistics (ONS) with Statistics Norway and Statistics Sweden conducted two research projects investigating causes of and measurement of perceived response burden (Hedlin et al. 2005; Dale et al., 2007). The research projects found that respondents do not only, or even, equate burden with the number of times they respond to a particular survey and the time it takes to respond to a survey; instead respondents perceptions of burden are often closely associated with other factors such as:

- Who is conducting the survey (i.e. which survey organisation)
- The mode of data collection
- How quick or time consuming it is to collect the requested survey information
- How easy or burdensome it is to complete the questionnaire
- If the produced statistics from the survey are used by the business
- If the produced statistics from the survey are useful to society

Respondents’ perceptions of these factors are often closely associated to the quality of the data they return; often with short cuts being made if perceptions of burden are high. For example, if the concepts and definitions do not match what is available in the business records respondents may just provide the data most closely associated with what is requested.

Poor quality data will produce poor quality statistics, which will reduce the utility and benefits of the statistics – and could potentially lead to inappropriate economic decisions. Despite recognising this we do not typically make the connections between costs, benefits and quality. The quality of collected business data may be affected by a number of factors e.g., requesting data before it is available, sending the data request to the wrong person in the business, having badly worded questions and ill-defined definitions, using a mode that the business does not want to use.

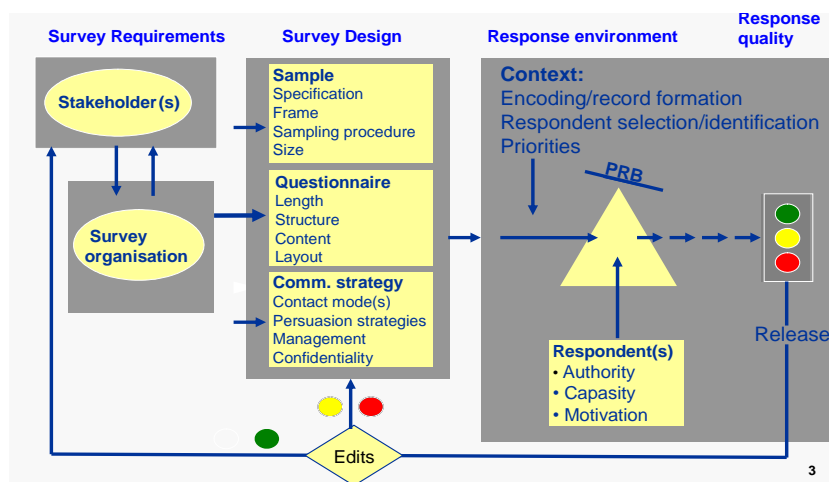
Respondents perceptions of these factors will determine levels of perceived response burden, which are not necessarily correlated with actual response burden i.e. as the level of perceived response burden increases it does not necessarily increase the level of actual response burden.

3.3 Total business survey burden

An understanding of total business survey burden (i.e. how it is generated, how it flows through the survey process, and the impact on burden) is important if taking an analytical approach to identifying causes and effects of burden. It is important as the measurement and analysis will be informed by this understanding.

Reviewed literature and qualitative research findings by Hedlin et al. (2005) led to the development of a model of Total Business Survey Burden (TBSB) (Jones et al, 2005), which was further refined in Dale et al. (2007) (see Figure 1). The research findings informed the survey design and response elements of the model. The survey requirement element was incorporated into the model 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 TBSB from the conceptualisation of data requirements to the receipt of data from the business. It 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.

Figure 1: Total Business Survey Burden



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.

The 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. The flows back to the survey organisation and ultimately the stakeholder(s).

In the response environment part of the model, the perceived response burden (PRB) seesaw in the response refers to the social exchange theory to point out that a questionnaire can be perceived both in a positive and negative way (Dillman, 2007). The ‘context’ and ‘respondents’ (authority, capacity and motivation) are taken from business survey participation work by Willimack and Nichols (2001) and Willimack et al (2002). With then the four arrows, linking perceived response burden with

response quality referring to the four cognitive steps described by Roger Tourangeau (1984). The model attempts to put these different contributions together in a socio-psychological model.

The process of interaction between the stakeholder(s) and survey organisation produces a set of survey requirements, which 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 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 comprises 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 include 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 business with domain averages.

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 outcomes and feedback. Burden may have cumulatively built up since the initial interaction process between the stakeholder(s) and survey organization. Feedback to the survey organization 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 model highlights the fact that burdens are passed around from the stakeholder-survey organisation interaction to respondents through an often far from ideal survey design. Respondents 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 data. The basic success criterion is that the requested data matches business 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.

The model includes three independent variables (survey design, characteristic of the respondent and external factors) and one dependent variable (response quality); with social exchange acting as the intermediate variable, influenced by the three independent variables.

The model can also be used as a causal model and to facilitate the discussion of how the different components could be measured and analysed. This type of analysis should be considered when evaluating changes to the survey process and survey components.

Two important points can be drawn from the TBSB model:

1. The importance of recognising that perceived response burden may originate from sources other than the survey design. If responding to a particular survey is perceived as burdensome due to contextual conditions or respondent's personal characteristics, we can try to adjust our instruments to these conditions, but they are often difficult to change.

2. The importance of recognising that a survey design (as well as the other causal factors), consists of a number of components. What we need to identify is not only that a certain survey design affects perceived response burden, but which design components have that effect.

4. Measuring and managing actual response burden

4.1 Measuring actual response burden

The objective of measuring actual response burden is to measure the time taken to respond to data requests. From a measurement perspective this can be challenging:

- What do you include in the time taken? Should it include everyone involved in understanding what is being requested, collecting the data and compiling the data or should it just include the time taken to complete the questionnaire? Should it include the time taken to read and deal with related survey communication e.g., advance letters and reminders? Should it include the time taken to respond to re-contacts during the data editing stage?
- When you have agreed what to include, how do you measure it? Should actual burden be measured directly i.e. asking businesses questions or indirectly i.e. using information from pre-field tests or an internal assessment? If including time taken to respond to re-contacts how do you measure the number of re-contacts and the time taken by respondents?
- How frequently should actual response burden be measured?

Then from a calculation perspective there are a number of challenges:

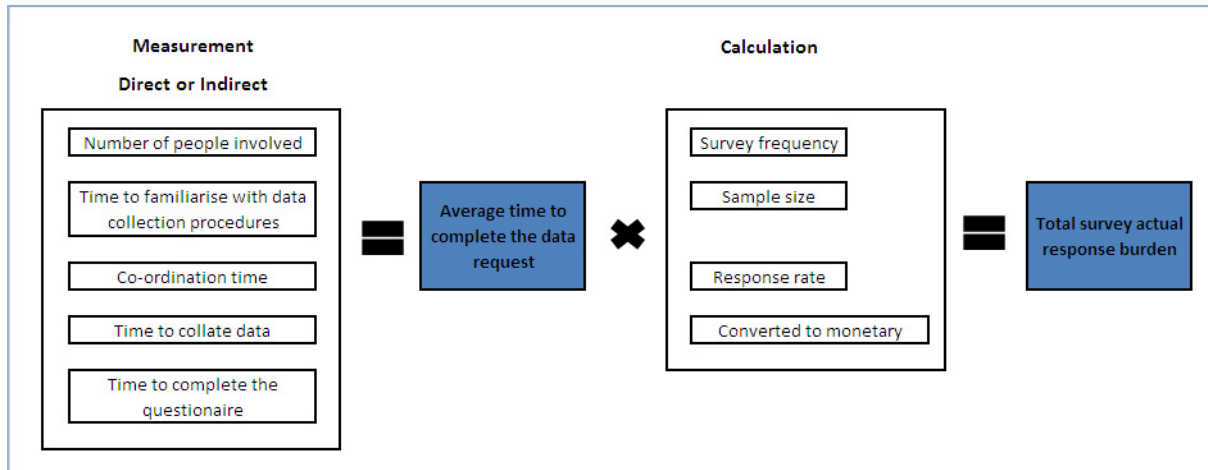
- Should large, medium and small businesses be treated equally in the calculation?
- Should the time taken be converted to a monetary value?
- Should an adjustment for non-response be made i.e. an acknowledgement that non-responders will take time deciding not to respond?
- If response rate is included in the calculation is it a response rate or is it a return rate i.e. does it include blank questionnaires that have been returned?

Then from a dissemination perspective there are a number of challenges:

- Should a total actual burden cost broken down by individual surveys be published for all the business surveys conducted by the survey organisation?

Hedlin et al. (2005) and Peternelj and Bavdaž (2011) both undertook research to identify how National Statistical Institutes (NSI) measure and calculate actual response burden. The common findings from these two research projects are shown Figure 2.

Figure 2: Common ways of measuring and calculating actual response burden

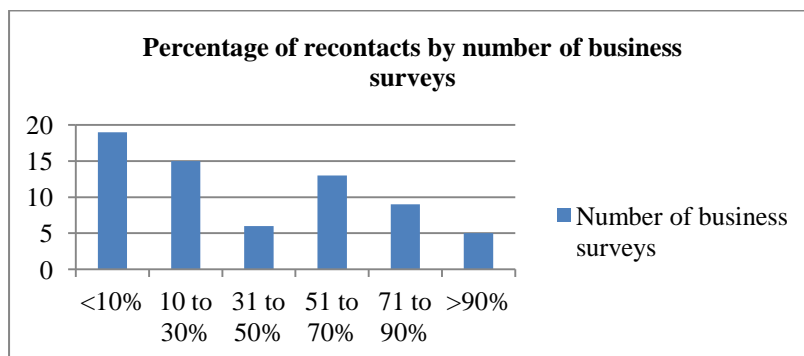


What is evident from the findings of Hedlin et al. (2005) and Peternelj and Bavdaž (2011) is the general exclusion of (1) a non-response adjustment i.e., a cost to businesses in deciding not to participate; (2) any external costs e.g., paying accountants to provide some data items; (3) the time it takes to deal with reminders (occasionally when the questionnaire has already been returned); and (4) the time it takes to comply with re-contacts during data editing. In the UK Office for National Statistics (ONS) the later is included in the calculation of actual response burden but there are measurement issues with this. For example:

- How do you record the number of re-contacts during data editing?
- How do you estimate the average time businesses spend on re-contacts?

A manual exercise in 2010/11 for 57 ONS business surveys found that the survey re-contact rate varied from 2 per cent to 95 per cent; with 60 per cent of the business surveys having re-contact rates of 30 per cent or less.

Figure 3: ONS 2010 business survey recontact rates



The highest re-contact rates (more than 90 per cent) were generally for more complicated financial surveys. Unfortunately, what we do not know is how many were resolved quickly over the telephone, how many involved respondents having to go and check data and possibly collate new data items, and how many were a combination of the two? The current ONS response burden calculation (based on Government Statistical Service guidance (2010)) states that if the re-contact time is not known then the actual time to complete the questionnaire should be used as a proxy – the result, potentially large increases in estimates of actual burden.

In terms of a standard approach to the measurement of actual response burden, Eurostat (2009a) suggest that it should be calculated as:

$R * T * C$

Where:

(R) Number of people involved in completing the questionnaire.

(T) Time taken by people involved.

(C) Salary costs of these people .

Or as salary costs can be difficult to determine:

$R * T$

Although this would standardize the approach it excludes a number of elements that impose actual burden on businesses e.g., recontacts – the result – under-reporting.

Another approach that has been used to measure actual response burden is the ‘Standard Cost Model’ (SCM) (Eurostat, 2004). The SCM approach collects data on activities and time taken using in-depth interviews and is based on a ‘normally effective business’. The approach includes qualitative data on all the activities associated with the specific administrative data request. However, the SCM approach can be time consuming and expensive to implement and essentially collects qualitative data which is then quantified. At ONS a quantitative SCM approach was developed which included the development of a questionnaire that included all the SCM identified activities such as:

- A breakdown of response burden into types of activity
- A specific assessment of external costs
- Adjustment for business-as-usual costs using the specific SCM approach (Frost et al. 2010).

The response burden calculation then included a 30 per cent uplift for overheads for internal costs, and an uplift for re-contacting businesses. Survey frequency was also included (monthly, quarterly or annual), by using a multiplication factor (12, 4 or 1 respectively) (Frost et al. 2010). The SCM methodology was piloted on nine surveys between 2006 and 2009. The pilot results showed that the quantitative SCM approach was resource intensive for data providers and producers; the 10 SCM questions often created more burden than the actual survey questions (e.g., a monthly survey might only include two questions); respondents found it difficult and time consuming to breakdown their time by activities; the confidence intervals for the SCM estimates were of the same magnitude and overlapped with estimates using the previous methods. Overall the desire to measure and collect more detailed information on response burden appeared to impact on the quality of the derived estimates (Frost et al. 2010).

Key lessons that should be learnt from the development of actual response burden measurement and calculations are in relation to: (1) accuracy – the results will be estimates with associated confidence intervals; (2) burden – the measurement and calculation of actual response burden should be proportionate both from the data provider and producer perspectives; (3) the objectives of measurement – to measure levels or changes over time? And (4) how little it offers in understanding what is needed to reduce burden.

4.2 What does the measurement of actual response burden provide you with?

The measurement of actual response burden provides an overall indicator of levels and/or changes in burden, possibly split by size of business. However, with the exception of sample design considerations it does not provide an indication of areas to target to reduce response burden; below is an example of this.

ONS publishes an annual actual burden report of its estimates of business survey burden for each financial year (ONS, 2012). The latest report (2012) shows that in 2010/11 ONS conducted 66

surveys of business and local authorities issuing 1.6 million requests for data to 269 thousand businesses out of a universe of 2.0 million. In the business universe, 90 per cent of small businesses (i.e those with 0 to 19 employees) received no ONS surveys, in contrast almost 50 per cent of large businesses (100 or more employees) received six or more ONS surveys. In relation to the burden imposed on businesses selected for 2010/11 ONS surveys the greatest proportion of burden was on large businesses (44 per cent), followed by small businesses (32 per cent) and then medium sized businesses (24 per cent) (see Table 2). The ONS annual report also contains information on time and cost for each individual survey.

If the focus is on not only measuring response burden but also reducing response burden then the question has to be, how can this aggregate and individual survey burden information be used to reduce response burden?

It could be used to look at the sampling methods for small businesses as they are experiencing a higher proportion of burden compared to medium sized businesses. Or at the individual survey level the surveys with the highest actual burden (costs) could be reviewed but the surveys with the highest actual burden are also associated with the fact that they are generally monthly surveys – so, the frequency of the surveys could be reviewed. Generally however, the identification of areas to target for response burden reduction initiatives are difficult to identify from actual response burden data.

Table 2: ONS Actual Response Burden in 2009/10 and 2010/11 by employment size band

Employment size band	Actual burden cost (£m)		Proportion of total burden		Average burden cost (£) per business contacted		Cost to business percentage change
	2009/10	2010/11*	2009/10	2010/11	2009/10	2010/11*	
0 - 19	17	16	31%	32%	£87	£88	0
20- 99	14	11	25%	24%	£182	£162	-11
100+	24	21	44%	44%	£1,131	£1,032	-9
Total	55	48	100%	100%	£187	£180	-4

*Based on 2009/10 prices

Source: Government Statistical Service Report 2010/11

Traditionally in survey organisations attempts are made to reduce universal actual business survey burden through sample designs with the ethos that ‘if you are not in it you don’t get burden from it’. This ethos is little comfort to the businesses that are ‘in it’. For example, at a European level a decision has been made to reduce by 50 per cent the burden imposed by Intrastat. To achieve this a single flow transactions approach is proposed i.e. to only collect export data across European Union member states. This would result in a 50 per cent reduction (in relation to the business universe) as import data would not be collected but it would also result in differential burden i.e. burden would be exclusively imposed on business exporting goods and services. The businesses left ‘in it’ will not feel the benefits of the 50 per cent burden reduction.

4.3 Managing actual burden

Actual burden is typically managed by either sample management or reducing the length of the questionnaire. Laundry (2011) provides a good overview of how response burden generated from sampling in a monthly survey can be controlled by: (1) controlling overlaps between monthly samples; and (2) increasing the number of businesses in the take-none strata. Although a useful approach to managing universe response burden it still does not help the businesses that are still in the monthly sample.

The other traditional approach in managing actual burden is making the questionnaire shorter. This can be achieved either by removing questions and/or instructions, or simply squashing the text up to minimise white space. The removal of questions should assist in minimising actual burden, as long as there is a logical flow to the questions. Removing instructions to shorten questionnaires is not

recommended as can generate higher perceived burden and risks to the quality of the collected data. Simply squashing text up does little to minimise burden and could even increase it.

5. Measuring and managing perceived response burden

5.1 Measuring perceived response burden

Between 2003 and 2007, Statistics Sweden, Statistics Norway and the ONS carried out two Eurostat funded Leadership Group (LEG) on Quality implementation perceived response burden projects. The first project included qualitative studies (focus groups and indepth interviews) to understand factors that contribute to perceived survey response burden (Hedlin et al, 2005). From the research, common themes relating to respondents perceptions of burden were identified across the three countries. These themes were then used to develop and test perceived and actual response burden questions.

Based on this research in 2007 the three National Statistical Institutes published a 'Handbook for Monitoring and Evaluating Business Survey Response Burdens' (Dale et al, 2007). The aim of the handbook was to provide a tool for measuring perceived and actual response burden in business surveys that would help statistical organisations and other survey organisations carry out their own response burden surveys.

The handbook procedures built on the set of questions developed during the original project (Hedlin et al, 2005), which included core questions aimed at monitoring actual burden and collecting information on why burden is high or low (perceptions). In addition to this an analytical approach could be adopted that focused on identifying the causes of response burdens, the effect these burdens have on response quality and what could be done to reduce the identified response burdens. The distinguishing features between the monitoring and analytical approaches were the number of questions that need to be asked and the way the results were treated. The questions used to measure perceived response burden (PRB) are separated into a core set covering dimensions of perceived response burden, actual burden, perceived causes of burden and motivation (see Table 3) and an additional PRB question set covering dimensions of business context factors, division of labour, personal characteristics and response problems (see Dale et al., 2007, pp. 24).

Table 3: Core PRB question set (Dale et al. 2007, pp. 12)

Dimension	Indicator	Question	Response categories
Perceived burden	Perception of time	Did you think it was quick or time consuming to collect the information to complete the ... questionnaire?	Very quick, Quite quick, Neither quick nor time consuming, Quite time consuming, Very time consuming
	Perception of burden	Did you find it easy or burdensome to fill in the questionnaire?	Very easy, Quite easy, Neither easy nor burdensome, Quite burdensome, Very burdensome
Actual burden	Time to collect information	How much time did <u>you</u> spend collecting the information to complete the questionnaire?	Number of hours Number of minutes Did not spend any time on this at all:
		How much time do you think <u>the business</u> spent on collecting the information to complete the questionnaire?	Number of hours Number of minutes Did not spend any time on this at all:
	Time to complete questionnaire	How much time did you spend on actually filling in the questionnaire?	Number of hours Number of minutes
Perceived causes of burden	Reason for time-consuming	What were the main reasons that you found it time consuming?	Had to collect information from different sources Needed 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
	Conditions for burden	What conditions contributed to making the questionnaire burdensome to fill in?	The high number of questions Messy presentations made the questionnaire hard to read Unclear terms and explanations of terms Questions that asked for complicated or lengthy calculations Available information did not match the information asked for Difficult to decide which response alternative was the correct answer Other reasons, please specify
Motivation	Usefulness for own business	Do you think that the statistics from this questionnaire are useful or useless to your business?	Very useful, Fairly useful, Neither useful nor useless, Fairly useless, Very useless, Don't know
	Usefulness for society	Do you think that the statistics from this questionnaire are useful or useless to society?	Very useful, Fairly useful, Neither useful nor useless, Fairly useless, Very useless, Don't know

The questions are based on an understanding of the challenges respondents meet and are linked to survey properties, which the survey organization has an influence on. The two questions about the usefulness of statistics indicate how successfully the survey organization has communicated the value of survey participation.

As the questions of perceived response burden are presented here, they may reveal problems, but do not identify which survey questions cause which problems. Still this may often be quite obvious. If not, there are several methods which can identify where the questionnaire needs improvements. One simple way is to add an open question about which questions caused problems to the response burden sequence.

The PRB question set and methodology (Dale et al. 2007) provides a useful approach to monitoring both actual and perceived response burden that can be applied by adding a few questions to business survey questionnaires. Yet, there has been little empirical research using this approach, which is

concerning given the amount of political attention burden received and the importance it potentially has to the quality of survey data and ultimately statistical outputs.

5.2 What does the measurement of perceived response burden provide you with?

Measuring perceived response burden provides you with an indication of: (a) areas of the survey design that are causing burden; (b) perceptions of motivation to respond to the survey; and (c) the level of competence respondents have to respond. Ultimately this provides some evidence of where to focus efforts to reduce perceived response burden.

At ICES3 Haraldsen and Jones (2007) presented the results of an empirical investigation attempting to identify the causes and effects of response burden by linking perceived response burden data with the following three variables: contextual factors, personal characteristics and survey design.

Using the PRB core and non-core questions outlined in section 5.1 data were collected from respondents in six of Statistics Norway’s 2006 annual business surveys (Haraldsen and Jones, 2007). Although the mandatory survey questionnaires were similar the construction and sea transport industries contained more questions; with the least number of questions being on the service industry questionnaire. The PRB questions were linked to the web version of the survey questionnaire and included as voluntary questions. For the different industries, the achieved response rate ranged from 30 per cent (sea transport) to 45 per cent (service industries).

Data collected from the core questions were coded as weights, which were then used to construct indexes ranging from -1 to +1. The non-core questions were used to collect data about different sources of perceived response burden in relation to contextual factors, personal characteristics and survey design. In the analysis each source of potential response burden was separately looked at and then put together into a regression model to distinguish the most important source of burden.

5.2.1 Findings

It must be noted that this was an investigation into the usefulness of an analytical approach to the causes and effects of response burden. The results of the analysis should be treated with caution and cannot be generalized to the net sample. In the analysis each source of potential response burden was separately investigated and then combined into a regression model. Table 5 shows the key findings from the research linked to possible causes.

Table 5: PRB research finds and causes

Findings	Causes
Collating information can be burdensome	Documentation; expertise; mismatches between requested and available data; and time
Poor layout and usability were often mentioned as burdensome	Questions; questionnaire; instructions; and mode.
Medium sized businesses reported highest burden	Large business have good systems and expertise; small businesses less to report
Perceptions of the usefulness of statistics can affect PRB	Insufficient information on the use of statistics; little knowledge of the survey organisation.
High PRB leads to high potential for errors	More problems to overcome.

5.2.2 The impact on data quality

For analysis of data quality, the number of questionnaires corrected during editing was used as a proxy for the quality of returned data. More sophisticated data quality indicators would be the number of questions corrected and/or the results of different edit checks. However, this coarse quality

indicator showed some interesting results with the service industry, with the lowest number of questions, having the lowest percentage of questionnaires corrected (33 per cent); and the highest percentage of questionnaires corrected was for the construction industry (81 per cent). One hypothesis might be fewer questions, so less to go wrong. Alternatively, or in combination with this hypothesis, you might also hypothesis: high perceived response burden, so high potential for things to go wrong.

5.3 Managing perceived response burden

Work has been undertaken to understand and measure perceived response burden (e.g., Hedlin, 2005; Dale et al. 2007; and Giesen & Raymond-Blaess, 2011). Yet, not many survey organisations take a perceived response burden approach. If however, a PRB study is undertaken e.g. using the PRB question sets then this does provide some evidence of burdensome elements of the survey design. These elements can then be targeted for redesign and subsequently managing and reducing burden.

6. Some guidelines for managing and reducing response burden

To date, response burden research has provided us with some general guidelines for how we can manage and reduce actual and perceived response burden (e.g., Hedlin, 2005; and Giesen and Raymond-Blaess, 2011). To attempt to manage and reduce response burden the following guidelines, taken from Jones (2005) pp. 183-187; Erikson and Hedlin (2005) pp. 191-192; and Giesen and Snijkers (2011) pp. 50-64, should be considered.

6.1 Guidelines for data requirements

- Stakeholders must have agreed well defined and realistic data requirements. These requirements need to be matched to what and when data are available in businesses.
- Administrative data should be used whenever possible.

6.2 Guidelines for Survey Design

6.2.1 Sample design:

- Samples should be designed to optimise the accuracy and reliability of the statistical outputs but in consideration of differential response burden i.e. of large, medium and small businesses.
- Samples should be co-ordinated, preferably across all surveys conducted by the organisation but at the very least across the different periods of a survey.
- Strategies to monitor individual business burden from participating in different surveys should be developed.

6.2.2 Survey communication:

- Perceived importance of the survey - The importance and use of the survey data should be indicated on survey communication and the survey instrument. At ONS, a purpose of the survey is often included when questionnaires are redesigned. 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.’

- Interest in the survey – survey organisations 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 (Hedlin, 2005) the feedback of survey information was 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 (Hedlin et al., 2008).

- Survey communication should be addressed to a specific person or unit 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.
- For recurring business surveys individual business survey calendars can be a useful communication tool and help businesses to plan their resources.
- Large businesses, responding to many surveys, may benefit from having a single point of contact in the survey organisation (account management).

6.2.3 Data collection instruments

- 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 (2005) 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.
- Respondent friendly instruments - 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.
- The questionnaire should clearly state the unit of response, the period for which data is being requested and the deadline for responding.
- A name and number should be provided for respondents to contact if they require additional information or have any questions.
- 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 survey organisations 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 and 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.
- Changes to recurring surveys should be clearly indicated to respondents, ideally in advance of them receiving the amended questionnaire.

6.2.4 Data editing

- Telephone calls to validate data should be carried out as soon as possible to the data being returned.

6.3 Guidelines for increasing trust in the survey organisation

- Trust in the survey organisation - Businesses, gatekeepers and respondents need to understand the identity and role of the survey organisation. Survey organisations need to ensure that relevant and well structured information regarding their identity and role are 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 survey organisation with their data. A statement assuring confidentiality should be provided in survey communication or the survey instrument. Further

confidentiality information needs to be available if requested. Breaches of confidentiality must not occur.

7. Final thoughts

The ultimate outcome of a business participating in a survey is that it places both actual and perceived burden on the business. Government's in many countries require the cost (actual burden) of collecting business survey data to be monitored and reduced. This actual burden approach does not acknowledge businesses' perceptions of the benefits in participating and the possible link between burden and quality. It also does not identify areas of the survey design that are creating perceived response burden.

For statutory recurring business surveys response burden is not evenly distributed, with large businesses being in many surveys. Research to date indicates that we should perhaps not just be focussed on measuring and managing actual and perceived response burden in small businesses but also in medium sized businesses as large businesses generally have good systems to get the data from and readily available internal expertise; small businesses have not so much information to respond with; and medium businesses are caught between the two.

As survey practitioners we should do more to:

- Promote the benefits of participating in individual business surveys.
- Use identified guidelines (e.g. see section 6) when designing and reviewing business survey methods and procedures.
- Standardise the approach to measuring actual and perceived response burden
- Recognise that we have an obligation to measure and manage actual and perceived response burden and that burden is most probably intrinsically linked to data quality.

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