

# Sentiments of Business Survey Respondents on Social Media

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## Abstract

In recent years, social media have become an important new infrastructure for communication flows and thus an essential network in our social structure. People that participate in these media are free to express their views, perceptions and sentiments on every topic that keeps them busy. On their side, these expressions can influence the sentiments and perceptions of readers. In this paper we present an exploratory analysis of expressions in the social media which gives insights into the perceptions of business respondents of Statistics Netherlands (SN), and specific factors that lead to a positive or a negative sentiment. We also discuss some recommendations aimed at influencing these expressions with the ultimate goal to stimulate survey participation.

**Keywords:** response burden, business survey communication, survey participation

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## 1. Introduction

Sentiments on business surveys by business respondents are not new. These sentiments have been expressed in traditional media, like news papers, and in publications by business organizations, among others. In a 2006 publication of the Dutch Employers' Union in the provinces of Brabant and Zeeland (Brabants Zeeuwse Werkgeversvereniging) it is stated e.g. that for surveys: '*The costs outweigh the added value*' (Vroenhoeven 2006, p. 23). Other businesses show their views on surveys by sending letters and e-mails to SN, or contacting the Help desk on the phone. Also Customer Satisfaction Surveys among respondents have been conducted to study these views. An overview of these sentiments has been presented by Snijkers et al. (2007; see also Snijkers 2008).

These sentiments are relevant to business surveys because it is assumed that these affect the decision of respondents to participate in surveys, as well as their behaviour when completing a questionnaire, via perceived response burden and the motivation to respond

(as is discussed by Snijkers 2008; Snijkers 2009; Giesen 2012; Snijkers and Jones 2013; Willimack and Snijkers 2013). Consequently this affects the quality of the resulting survey data (see e.g. Wenemark et al. 2011; Haraldsen 2013) as well as cost-efficiency of survey data collection (Snijkers and Jones 2013).

An analysis into these sentiments has been cumbersome because the data needed to be collected from various sources. With the expanding usage of social media, these data have become more easily available. In this paper we present the results of an analysis of expressions in social media about SN, its surveys and questionnaires. This analysis can be characterized as exploratory, and gives insights into sources of positive and negative sentiments and therefore on causes for feelings of perceived response burden.

For several reasons, social media (like Twitter and Facebook) are considered an appropriate source to study such perceptions and sentiments, and their causes. First, in the past years internet and social media have developed into a new and vast communicative infrastructure and cultural forum (Bruhn Jensen and Helles 2011). Building on Carey's ritual model of communication as "a symbolic process whereby reality is produced, maintained, repaired and transformed" (Carey 1989, p. 23), Newcomb and Hirsch (1983) proposed to regard the media as a new cultural forum. From this point of view, media are a repository and a resource articulating and negotiating meanings and world views on behalf of the culture at large (Bruhn Jensen and Helles 2011). Communicative flows thus serve the production and innovation of society and culture, and social media have become an important part of these flows (Bruhn-Jensen 2012). Seeing the new social media as a new kind of cultural forum, implies that expressions in social media are part of a dialogue that influences common perceptions (Carey 1989; Bruhn Jensen 2012). An additional reason refers to Cialdini's compliance principle of social validation (Cialdini 2001; Groves, Cialdini and Couper 1992), which states that the views and behaviour of people is influenced by the social group one belongs to, or the views of others that one identifies with. In the last couple of years we have seen that social media are of strong influence to the behaviour of people. Researching expressions in social media thus gives insights not only in the sentiments and perceptions of those business respondents that are active on social media, it also provides the opportunity to study how people influence each other, via social validation, and consequently how that might affect the public opinion and political agenda. Finally, these expressions are "texts" that have been expressed without interference of a researcher, and as such express 'true' sentiments that can be treated as quantitative data.

This research has three goals. The first goal is to get insights into the number of expressions on social media with regard to business surveys. Secondly, we want to get insights in the content of these expressions, the sentiments expressed and the causes for both positive and negative sentiments. Thirdly, it is a way to get insights into the impact of the social media on the views of business respondents. This paper focuses on the first two goals.

Based on these goals, the following research questions are studied in this paper:

- What is the number of expressions about SN, its surveys and questionnaires on social media and on webfora?

- What are the sentiments? What kind of views and opinions are uttered, and are they negative or positive in nature? What aspects of the survey do these expressions relate to, and about which aspects do people complain, or write positively?
- What arguments are given to respond (accurately) or not to business survey questionnaires?
- Are there fluctuations in these numbers over time?
- What are the causes of these expressions?
- In which social media do these expressions mostly appear?

The results of these analyses are discussed in section 3. Section 4 concludes this paper with a summary of conclusions and a discussion with regard to the quality of the data and the analysis. Also recommendations to enhance motivation, positive perceptions and sentiments of business respondents, improve the public image of SN, its surveys and questionnaires, as well as reduce response burden. But first, section 2 discusses the data used in this study and methods of analysis.

## **2. Data and method**

### **2.1 Data**

The data source used for this research is a database named Coosto: “a full featured social media monitor”. In this database, all public posts in the Dutch language since January 2009 on Dutch social media, webfora and weblogs are collected and stored. Currently, this database contains more than a billion entries, and each day about 3.2 million entries are added. More than 390.000 different sources are used, among which the most important are Twitter, Facebook, Hyves, and Google+.

In this database, a restrictive search was made, that resulted in a selection of posts to be analyzed. The selection was based on posts for the period January 2009 – August 2012. Keywords for the search included a combination of different denotations of the Dutch NSI, such as “CBS” or “Centraal Bureau voor de Statistiek” and a set of survey-related keywords, like “survey”, “questionnaire”, “letter”, “response”, “fine”, “obligation”, “mandatory”, “burden”, the name of major surveys, and so on.

Entries from large news sites were left out, as our interest went out to more personal sentiments and dialogue. Entries coming from Twitter and Facebook news accounts were left in as they were regarded as less professional.

### **2.2. Method**

Data have been analyzed using a sequential two-step mixed-method design. First, a word count or “lexical analysis” was carried out, followed by a thematic analysis.

In a lexical analysis (also called “word counts” or “concordance analyses”) word lists are created which can be seen as *concentrated* or distilled data (Tesch 1990, p. 138-139). This enables the exploration and objective identification of central themes in large bodies of text. Words are therefore classified into meaningful categories in a process analogous to

the development of a coding scheme for the interpretative qualitative analysis of text. For this analysis the software programme Concordance<sup>1</sup> was used. This type of analysis is an effective approach for analysing large volumes of texts in the traditional media (see e.g. Gabrielatos and Baker 2008) but also archived postings from social media like Twitter and webfora,(Seale, Ziebland and Charteris-Black 2006).

Second, a thematic analysis was carried out by one of the researchers, in which the sentiment of the posts (positive/negative/neutral), as well as the themes presented in the posts (see e.g. Ryan & Bernard 2003; Braun and Clarke 2006) were coded. The results of the lexical analysis in the first step aided in identifying themes and coding the posts, as it helped by showing quantitative evidence of words and linguistic patterns being repeatedly used and identifying areas of interest (see e.g. Baker et al. 2008),

### 3. Results

#### 3.1 Exploring the social media

The first research question we had was about the size of the communication related to SN surveys on social media: Is it big or not? Table 1 shows that, by looking at the number of posts in the 2½ year period and the number of different authors, it is not big. Relative to the total numbers, there are not many expressions by business respondents to be found in social media and on webfora. Furthermore, of the number of posts selected a large number was “retweeted” or otherwise re-sent: 31 % of the total number of posts is a “re-post” of a formerly posted expression by someone else, or of a news item. A vast majority of these posts are posted by different authors: on average an author posted 1.2 posts.

Table 1. Number of posts, words and authors

	Number	
Posts (of which Retweet or other kind of “re-post”)	667	(205; 31%)
Words	32.192	
Different words (without stopwords <sup>2</sup> )	5.351	
Authors	539	

When looking at these posts over time, at first sight no clear structural fluctuations are visible nor a relationship with survey contacts (figure 1), e.g. when advance letters are sent out. There is, though, one peek that stands out, namely in January 2012. This peek was caused by a press release by a Dutch ministry, stating that the administrative burden imposed on entrepreneurs by SN had decreased. This press release resulted in a large number of posts, including re-posts of the message by many different authors.

The largest amount of posts that were in our selection were placed on Twitter (523), followed with distance by Facebook (31 posts). It is important to mark that possibly many posts on Facebook are not public, while we did only have access to public posts. Contrary, tweets are all public by default.

<sup>1</sup> <http://www.concordancesoftware.co.uk/>

<sup>2</sup> Stopwords are usually frequent words like “the” that are not meaningful.

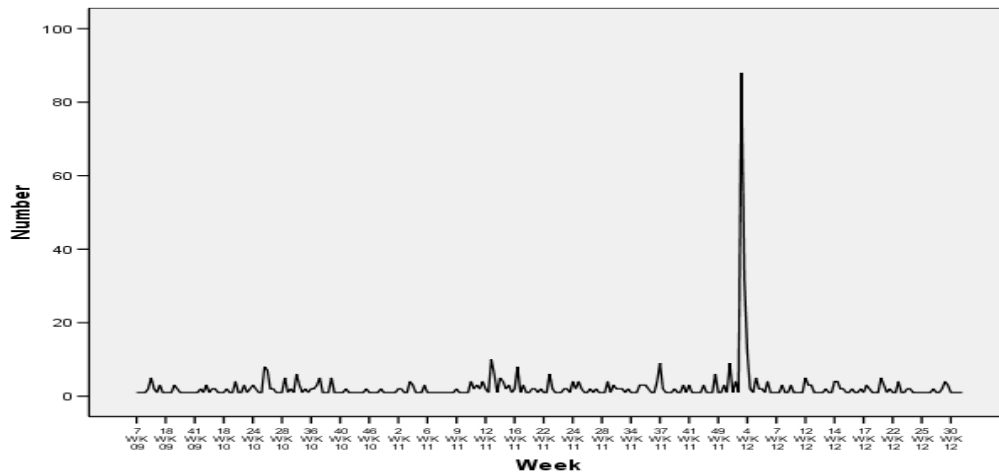


Figure 1. Number of posts in time

Table 2. Meaningful words or categories of words

Item	Number	Item	Number
Entrepreneurs*	358	Research / survey*	73
Not	335	Questions, question	72
Fill in, *, supply, provide	274	Online, digital, log in, internet, passwords	59
Software, technique*	205	Economical	56
Data, information, figures, numbers*	193	Money	54
Must / have to*	188	Year*	53
Sanction*, penalty, euro, “000”**	151	Fail*, “losers”	48
Decrease	133	Website, CBS-site, site	44
Government, The Hague	121	Statistics	37
Less	90	Costs, cost	37
Time	85	ZZP* (business without employees)	38
Netherlands*	83	SBR, XBRL	34
		Threat, coercion*	27

\*Here we refer to categories of words with the same or a similar meaning. .

\*\*Detailed scrutiny revealed this refers to the amount of a fine..

Table 3: Major themes in negative posts

Theme	Number	Percentage
<i>Questionnaires*</i>	316	76.5
<i>Statutory obligation</i>	193	46.7
Technical problems (of which: Apple)	107 (46)	25.6 (10.9)
Unfamiliarity	102	24.6
Letter	92	22.3
Fine, sanctions	77	18.6
Coercive tone	55	13.3
Waste of time, costs in time	48	11.6
Difficult questionnaire	42	10.2
Unnecessary regulation	34	8.2
Tenacity	30	7.3
Many questionnaires	30	7.3
Long questionnaire	29	7.0
Lack of communication	18	4.4

\*The cursive themes are themes that were part of the search words and are present in the posts with all three sentiments.

### **3.2 Results of the lexical analysis**

The results of the word count or “lexical analysis” are shown in table 2. Together with the results of the thematic analysis which will be presented in the next section this gives a clear and objective indication of the content of the posts.

### **3.3 Thematic analysis: sentiments and themes**

Next, we were interested in the sentiments expressed in the posts: positive, negative or neutral. More than half of the posts express a negative sentiment (62 %), followed by the neutral posts (29 %). Posts that express a positive sentiment are a minority with only 9 %. In this section we present the themes found in the posts by sentiment. As the tables will show, the content of the posts clearly diverges for the three kinds of sentiments.

#### **3.3.1 Themes in negative posts**

Table 3 shows the major topics that are identified in posts with a negative sentiment. The following main causes of negative sentiments are revealed:

- An important part of the posts that express a negative sentiment refers to technical problems, namely problems with software and / or hardware (e.g. the questionnaires can't be completed in Google Chrome or with an Apple computer). Especially, the combination of these technical problems with the fact that responding is obligatory appears to have resulted in negative sentiments.
- A lot of negative posts show that respondents are unknown with SN, its role in society, the legal obligation to comply and the reasons of receiving the questionnaire. This unfamiliarity seems to make respondents insecure about their position. This seems to especially cause negative sentiments in combination with the receipt of a letter in which one is “threatened” with a fine.
- The letters that mention the possibility of fines seem to be experienced as compelling. Moreover, the coercive tone is expressed not to have a positive influence on the motivation and response behavior.
- Completing questionnaires is expressed to be experienced as a waste of time. Presumably the reason for this is that entrepreneurs prefer to spend their time on profit-oriented activities, and that they are unaware of the backgrounds of the survey.
- In addition, characteristics of the questionnaires, like questionnaires that are hard to complete, long questionnaires, and the fact that businesses receive many questionnaires (for various surveys or as part of a recurring survey) are also found as a cause of negative sentiments.
- Some negative posts refer to the large number of legal requirements entrepreneurs have to respect. The legal obligation to respond to SN's business surveys is seen as one of these, and experienced as an “unnecessary control mechanism”.
- Also the (lack of) communication with SN may cause negative sentiments, when the help desk is hard to reach for business respondents who have a question.
- Taken together, the fine, the coercive tone, the tenacity, and the technical problems seem to additionally cause negative sentiments, and reinforce these sentiments.

#### **3.3.2 Themes in positive posts**

Themes in positive posts are shown in table 4. These include the acknowledgement of the value of statistics produced by SN, the observation that the number of questionnaires is reduced, the simplification of these questionnaires, and the decrease of response burden.

Table 4. Major themes in positive posts

<b>Theme</b>	<b>Number</b>	<b>Percentage</b>
<i>Statutory obligation</i>	46	75.4
<i>Questionnaires</i>	17	27.9
Positive value statistics	15	24.6
Simplification questionnaires	12	19.7
Administrative burden (decrease)	11	18.0
Decrease in amount of questionnaires	11	18.0

### 3.3.3 Themes in neutral posts

Though the neutral posts do not clearly express a positive or negative sentiment, they identify themes that denote concern or interest of business respondents. Most of these posts are repost of retweets, indicating that the authors somehow find it worthwhile to do so. The main themes in neutral posts refer to response burden (125), and time and money entrepreneurs have to spend on survey requests, showing that these are important issues for business respondents.

Table 5: Major themes in neutral posts

<b>Theme</b>	<b>Number</b>	<b>Percentage</b>
Administrative burden	125	64.8
<i>Questionnaires</i>	76	39.4
<i>Legal mandate</i>	49	25.4
Less costs in time	43	22.3
Less costs in money	41	21.2
Unfamiliarity	28	14.5
Letter	12	6.2
Fine, sanctions	7	3.6

## 4. Conclusion, discussion and recommendations

The exploratory study presented in this paper is – to the best of our knowledge – one of the first into the use of social media data aimed at exploring sentiments by business survey respondents. We found that the discussions on social media with regard to SN, its surveys and questionnaires are very small in number. Also, we did not find any increases in communication activities related to the dispatching of questionnaires. The topics discussed show a wide variety of themes, varying over the associated sentiments. In negative posts the main themes are: technical failures, unfamiliarity with SN and its role, letters that are experienced as too coercive, the idea that filling in a questionnaire is a waste of time and that these surveys are “unnecessary mandatory regulations”, characteristics of the questionnaire, and the inaccessibility of SN for business respondents with questions, both by telephone and email. In a number of posts more than one theme was mentioned, indicating that a combination of these factors may lead to more negative feelings. The combination of the technical problems with the waiting time to contact SN, the legal obligation and the deadlines to return the completed questionnaire, is not helping the image of SN.–Positive posts showed that statistics produced by SN are considered valuable, and that actions by SN to decrease response burden, the number of questionnaires and to simplify those are signaled and valued. Unfortunately this was the lowest number of posts. Neutral posts indicate that entrepreneurs somehow show interest

in the reduction of response burden, simply by retweeting these messages. Authors in social media react to press releases and news reports. One can assume that they especially react to the releases they are interested in.

In general we may conclude that all posts in one way or another were related to response burden and the legal obligation to comply. The reduction of response burden is on the political agenda in the Netherlands for a number of decades now, and has had the attention of SN since the 1990's. It is also discussed in publications by e.g. business organizations and commercial banks (as we saw in the Introduction). Considering the attention that is given to the imposed response burden by SN, by politicians and in these publications, we had expected that in the social media this topic would also be discussed quite often. However, this assumption is not corroborated in our exploratory analysis.

This may have several reasons. The most obvious one is that we can trust the results: it is a minor topic in social media, indicating that a vast majority of the entrepreneurs is not interested in this topic; they are busy running their businesses. But, we still need to put some critical remarks with these data and the analyses. A first remark regarding the data is that we only had access to public posts; we don't know about private posts. This may lead to an underestimation of the number of messages in our source, and consequently the source could not represent the total population of all posts and authors. In addition, the data that actually have been analysed are a selection from the posts in the Coosto database. Even though these data have been selected carefully, we may have missed relevant posts, which may result in biased results. Next, the selected data have been categorized in sentiment categories (negative, positive, neutral). In this study the coding of the data is done by one researcher, which also may lead to errors in the final data set. At best the data would have been coded by various coders. In future research these aspects need to be taken into account.

In addition, an aspect of social media that we haven't analysed in this study is the impact factor. We have looked at the posts sent out, but not at the receivers. It may well be that, even though the number of posts is small, their impact on the sentiments and response behaviour of businesses is high. As such, to get a full picture, a network or impact analysis still needs to be carried out.

But even though we may question the final data set, and the results are only one side of the picture, we can conclude that the findings (as to the expressed sentiments) are in line with previous findings from qualitative studies into sentiments of business respondents towards SN and its surveys (see e.g. Snijkers et al. 2007; Snijkers 2008; Giesen and Hak 2012). In addition to these qualitative studies, with this analysis, we now have gained some quantitative information about the level of the discussions going on among entrepreneurs about this topic.

Based on the results, we can now formulate a set of recommendations that should eliminate the causes of negative posts, enhance a positive perception of SN and its surveys, enforce motivation to comply, and decrease perceived response burden. As costs in time and money are important for entrepreneurs, it is important to reduce participation



costs and increase the (perceived) value of the surveys for the businesses. The expressions indicate that, just because most business surveys are mandatory, an NSI should not lean back but do its utmost to reduce perceived response burden. This includes the following:

- Firstly, it is very important to *facilitate and simplify* the response tasks. Responding should be made as easy as possible, e.g. by adapting to commonly applied tools and software. Logging-on to the questionnaire, completing it, and sending the data should work properly and there should be no technical problems. These kind of negative experiences cause a negative perception and therefore a higher perceived burden, especially in combination with a coercive tone and the strict response deadline, and response chasing. Furthermore, our analysis shows that simplification of questionnaires enforces positive sentiments, which may lift the public image of an NSI.
- Secondly, the unfamiliarity with SN, its role as surveyor of data, and producer and publisher of statistics needs to be reversed by developing a *sound and coherent survey communication strategy* (Snijkers 2009), with regard to lay-out, tone-of voice and motivation. Apart from advance and reminder letters, this includes e.g. providing background information of SN, its surveys, and the uses of the data in statistics, involving business organisations in the design of surveys, and having business representatives endorse survey compliance (Snijkers and Jones 2013).

A final set of recommendations is related to the use of social media as communication channels to be used by NSIs. Social media can be used to disseminate statistics, but can also be used to communicate with respondents. As such a webcare facility (Snijkers and Jones 2013) can be established to monitor the posts on social media, using alerts: as soon as questions and complaints pop up, these are addressed by answering the questions and providing assistance and additional information. This is expected from of a modern and adequately reacting organisation nowadays. Furthermore, a set of sentiments indicators can be developed based on the numbers of negative and positive posts, and their relative rate, aimed at monitoring the sentiments among our business respondents over time.

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