LUND UNIVERSITY
School of Economics and Management

Master programme in Economics

Nudging insurance customers to go digital:

Evidence from a field experiment with Länsförsäkringar Skåne.

Matilda Axelsson and August Hörlén
matilda.axelsson.163@student.lu.se
au2028ho-s@student.lu.se

Abstract

By performing a field experiment within behavioural economics with focus on creating a nudge, this study enables to investigate whether a nudge that create better awareness have ability to influence individuals to make a more environmental friendly decision. By performing a field experiment in cooperation with Länsförsäkringar Skåne, the study shows that the nudges have a significant impact of raising awareness and making more vehicle-insurance customers more willing to switch to receive their information through digital services. The experiment is performed by sending out three different types of letters by email to three randomly selected groups consisting of 13500 insurance customers. All the letters show significant effect of influencing the recipients compared to a control group. The study includes variables such as gender and age in the models to investigate whether these variables can explain the outcome. The gender variables show significant results of influencing the recipients' decision. However, when it comes to the age variable the study could not show any significant results, which indicates that it cannot be concluded whether the age variable has any affect or not.

Key words: Nudging, behavioural economics, environment, peer pressure, anchoring, reminder nudges and information nudges.

Acknowledgement

First of all we would like to thank our supervisor Erik Wengström for giving great support, encouragement and valuable comments throughout the writing of this thesis.

Finally we would like to thank Emma Balder and Ottilia Svensson at Länsförsäkringar Skåne for giving us the opportunity of performing the experiment and giving us access to valuable information.

Table of content

1. Introduction

The technology of today has along with development of the globalization become more improved and has open the door for many opportunities such as mobility within the labour market and ability to trade in larger volumes and with more countries. But is has also enabled the society to consume more due to greater accessibility and lower production costs and thereby cheaper products. The world's consumption behaviour that today's society is experiencing, is one of many reasons that causes environmental damage and it therefore crucial to take action in order to prevent future environmental suffering (Haas et al, 2005). New technology has led to a huge improvement in printing presses and due to more efficient printing presses, cheaper production of paper and thereby lower costs. This has in turn increased the consumption of paper and the world's consumption of paper is today the fifth largest consumer of the world's energy usage and represents 25 percentages of the landfills. For every year, the consumption of paper grows larger and larger and causes major of negative influences on the environment in terms of pollution from transportation, but also from the overcut of trees (The world counts, 2014a). The globalization of the world has indeed led to great improvement of the technology, which have result in several of options to a paperless society. However, even if this is the case the paper consumption is still remarkable high, which can be explained by that the improvement in technology did also lead to more advanced and efficient printing presses and thereby higher consumption of paper due to lower costs for the average customer of disposable paper (The world counts, 2014a).

The paper industry has a huge negative impact on the environment through its massive energy consumption, as mention before. Hence, it is important to find new alternatives for consuming paper, in order to reduce the negative influence on the global warming and on the climate (The world counts, 2014a). The study of Ment et al (2014) argues that strategies that are developed in purpose to solve the negative impacts on the environment and problems with the climate changes, have gradually become more dependent whether individuals' behaviour and/or decisions is able to be complemented with the solutions of todays' technology or not.

One alternative that can be used to influence individual's behaviour and decisions is nudging (Ment et al, 2014). Nudging is an innovative concept that has become extensively used within the field of behavioural economics and can be used as a tool to influence individuals to make more environmental friendly decisions (Ment et al, 2014). Behavioural economics has emerged during the past decades and is seen as an important tool in the environmental sphere, since it can be used to encourage politicians and public policies to take a more environmentally

conscious direction without that the freedom of choice is violated. By providing the society with important information regarding the environment, one can influence the development of the different policy mechanisms to become more environmental friendly and thereby adjust the environmental behaviour (OECD, 2012). Behavioural economics is a product from the revolution in cognitive science and endeavour to extend the predictive and explanatory effects of economic theory through accommodate the theory with foundations, which are more psychologically reasonable but it has also extended economics to go beyond the assumption in traditional economics (Angner, 2012).

Even though there exist many different efficient channels of distributing information, information from companies is still sent out in large extent through paper-based channels (Energy efficiency, 2013). By creating a nudge to influence the customers to switch to digital distribution through an active choice, one can achieve a reduction of the amount of insurance information sent out in paper-based form at Länsförsäkringar Skåne. Changing to digital distribution can contribute to a reduction within the paper consumption and in that way, reduce the negative influences on the environment. Both when it comes to the paper consumption but also in terms of lower pollution, which is caused due to transportation of mail. In order to implement the nudge, three selected groups of around 3100 people in each group will receive a letter through email, which will contain the same information but in different context. The first letter will give the customer the information of that it is possible to change to digital distribution and serves as reminder nudge, which many earlier studies such as Stämpfli, Stöckli and Brunner (2017) and Östervall (2017) has shown to be an efficient tool in many other situations when influencing individuals' decisions. The other two letters will provide the customer with information of how their insurance letter contributes with negative impact on the environment when it is sent out in paper-based form. But, the two letters will also provide with information of how much they can diminish the negative environmental impact if they choose to receive their insurance information by digital distribution. The difference between letter 2 and 3 is that letter 3 will also contain peer pressure information, in order to examine the effects of peer pressure that also has shown in the studies of Gächter (2006) and Heldt (2005), to be an efficient way of influence individuals' behaviour. The experiment of create and implement this nudge has led forward to the research question:

"Nudges effect on impacting customers of Länsförsäkringar Skåne to choose a digital direction". A field-study experiment within behavioural economics.

1.1 Purpose

The aim with the study is to investigate if a nudge can affect the customers of vehicle insurances at Länsförsäkringar Skåne, to change from receiving their insurance information in paper form to receive it though digital devices. The nudge will highlight three different types of nudges with different information, such as reminder-, information- and peer pressure nudge. Although, even if the nudges contain different information they all have the same purpose that is to reduce the amount of insurance information sent out through paper.

1. 2 Disposition

The study is organized in the following way. Section 2 will contain background information about Länsförsäkringar Alliance, its affiliate and the regional customer-owned insurance company Länsförsäkringar Skåne. The section will also explain briefly an ongoing project at Länsförsäkringar Skåne, which aims to increase the digital distribution amongst customers who buys new car insurances. Section 3 presents theory within behavioural economics such as different types of nudges, but also theory such as peer pressure and anchoring. Section 3 is followed by section 4 that presents the previous research within the field of behavioural economics, which contains studies within nudging and different types of methods to investigate individuals' behaviour such as peer pressure and anchoring. All the previous studies are performed by different types of experiments both at field but also in the lab. Section 5 presents the method behind the nudging experiment and the study's different strategies to be able to perform the experiment. Hereafter will the data part be presented in section 6, which contains information about our data material and this part will be followed by the result and discussion part in section 7 to connect the theory with our findings. The final part will end up the thesis with a conclusion that presents our final marks and findings.

2. Background

This section will contain information and background knowledge about the insurance concern Länsförsäkringar Alliance, one of Länsförsäkringar Alliance customer-owned regional insurance-company Länsförsäkringar Skåne, which is the company where the experiment has taken place. The background section will also provide with background information about Länsförsäkringar AB, which is an affiliated company to Länsförsäkringar Alliance. The section will be followed by background knowledge of an ongoing project within Länsförsäkringar

Skåne that is called "the digital climb". The end of this section will present background information of Mobile Bank ID, which is an important cornerstone to be able for a private person to change to digital distribution of receiving their insurance information.

2.1 Länsförsäkringar Alliance

Länsförsäkringar Alliance operates at the bank and insurance market in Sweden, where the alliance contains 23 customer-owned companies that operates and corporate together. The purpose of having 23 smaller regional insurance companies is to provide its customers with strong local- and regional knowledge and has due to it is customer-owned, no other interested then others then its customers. Each regional company is independent from another and act on its regional playfield. The mission of Länsförsäkringar Alliance is to offer its customer with insurance solutions within different combinations of accident and medical insurances, life assurance, non-life insurance, pension saving plans, fund savings and various bank services (Länsförsäkringar Skåne.se, 2017a).

As mention above, Länsförsäkringar Alliance contains of the 23 regional insurance companies and its affiliate Länsförsäkringar AB who is owned by all the 23 regional insurance companies. The mission of the Länsförsäkringar AB is to manner joint insurance and banking operations, control the whole group's strategic development and accommodate with service within those areas which creates efficiency and economies of scale. The Länsförsäkringar AB group contains Länsförsäkringar Bank, Länsförsäkringar Fondliv, Länsförsäkringar Liv and Länsförsäkringar Sak, Länsförsäkringar Fastighetsförmedling and the affiliates of these companies (LänsförsäkringarSkåne.se, 2017b).

2.2 Länsförsäkringar Skåne

Länsförsäkringar Skåne is one of the 23 regional customer-owned insurance companies within Länsförsäkringar Alliance and has annual revenue of 673 millions of SEK (Årsredovisning 2016, 2017a). Länsförsäkringar Skåne was founded in 1992 and covers the region from Tommarp, Malmö to the northwest parts of Skåne (LänsförsäkringarSkåne.se, 2017c). Länsförsäkringar Skåne is the largest regional company amongst the 23 regional insurance companies if one look at premium volumes of property insurances and the fifth largest insurance company within vehicle- and home insurance products in Sweden (Svensk Försäkring, 2015). Länsförsäkringar Skåne have also a customer-base of almost 430 000 customers in year 2016, where 84 percentage belongs to the consumer segment. Amongst the all insurance products that

are available at Länsförsäkringar Skåne, vehicle-insurances are the most profitable and constitute the largest percentage share of all insurance products (Årsredovisning 2016, 2017b).

2.3 Digital distribution

Länsförsäkringar Skåne started during the autumn of 2016 a project called the digital climb. Before this project, the policy at Länsförsäkringar Skåne was that every customer should receive their insurance information by regular mail. The purpose with the ongoing project is that employees actively ask customers who calls in to buy new car insurances to switch to digital distribution. The aim of the project is to increase the share of the customers that will receive their insurance information through digital distribution, both due to corporate social responsibility (CSR) but also due to reduce the costs of paper mailings. Another vital reason is the importance of being updated with the latest digital development, in order to offer its customer smarter and efficient solutions in their daily life, which in turn can put Länsförsäkringar Skåne in a better competitive position against other insurance companies. E. Balder (personal communication the 12th of May) could confirm the information above about the project.

2.4 Mobile Bank ID

Bank ID is an electronic identification that enables companies, banks, organizations and authorities to both identify and to enter agreements with a private person's Bank ID. Mobile Bank ID enable customers to identify themselves through their mobile and has since May 2014 become the most commonly way of using the service. Mobile Bank ID is an app, which can be used on smartphones where the ID is stored. A requirement to get Mobile Bank ID is to be a costumer of a Swedish bank that issues the ID's. There are 11 banks in Sweden that issues Bank ID, where 7 million of the Swedish population has a Mobile Bank ID and 8 million bank costumers, given a 87,5 % of all the consumers (Wemnell, 2016).

One of the requirement of changing to digital distribution is to have a Bank ID either on file or on the cell phone, since the individual must identify themselves. Figure 1, see below, shows how many percentage of each age span that have Mobile Bank ID in Sweden. This implies that it is reasonable that the results from the experiment for the individuals who are between 20 to 40 years old are greater than for the older individuals. (Wemnell, 2016). Figure 2 presents also the sex distribution among all the Swedish population that contain Mobile Bank ID, where the figure shows clearly that the distribution amongst gender are more or less the same.

Figure 1. Age distribution of Mobile Bank ID owners in Sweden.
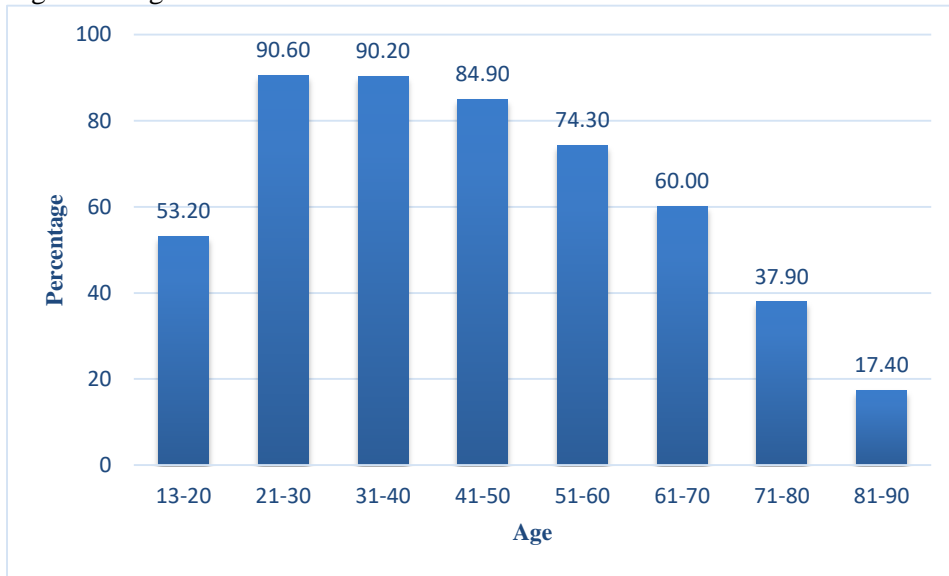
Figure 2. Sex distribution of Mobile Bank ID
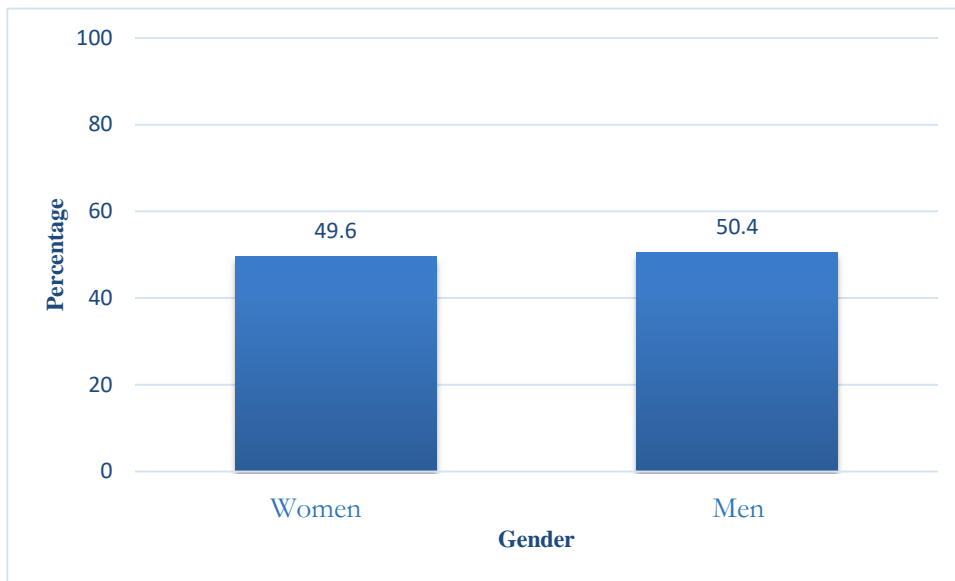
3. Theory

The theory section will contain information about nudges in general and reminder nudge. The theory section will also contain information of relevant theories within behavioural economics such as peer pressure and anchoring.

3.1 Nudge

Nudging belongs to the area within behaviour economics and is founded of Richard Thaler and Cass Sunstein (Thaler and Sunstein, 2009) and originates from asymmetric paternalism within libertarian paternalism. Libertarian paternalism refers to that it is valid to help people making their choices if it will lead to better choices for themselves, with the condition of not removing any options or interposing their autonomy. Asymmetric paternalism is often used to emphasize that paternalistic intervention that are softer, have no or little cost on those individuals that are rational and are fully informed, whereas it has a potential to generate large benefit for those individuals that are not fully rational. Interventions that are designed to generate the effects as in asymmetric paternalism are called nudges (Angner, 2012).

The ideal nudge has several of characteristics and implementations, where the first one is that a nudge rather help individuals to make better choices for themselves than forcing them to make it. The second characteristic is that a nudge enforces no or little cost on those individuals that are subjected for it. The third characteristic refers to that that the nudge has no or little effect on the choices on those individuals that are already well-informed or fully rational. The fourth characteristic implies that the nudge will have a potentially large effect and be beneficial for those individuals that are not fully informed and rational (Angner, 2012).

3.2 Reminder nudges

Reminder is one variety of a nudge and aims to simply work as a reminder. There is a tendency that people have a lot on their mind due to many reasons such as procrastination, forgetfulness or competing obligations. A reminder that is sent out either through email, text message can have a huge impact to prohibit that people forget appointments, obligations or bills etc. It is important to make sure that the reminder enables individuals to act immediately to receive the best effect, due to prevent the individual to forget or procrastinate again (Sunstein, 2014).

3.3 Anchoring and adjustment

Anchoring and adjustment is a two-stage process within behaviour economies and is thought to be efficient but at the same time lead to cognitive bias when shaping judgements, or under certain settings (Angner, 2012). The concept explains the behaviour of that individuals tend to anchor or adjust their thoughts to a reference point commonly without any awareness and affect the later judgement of the value or decision. People tend to do estimates in many situations where they start from a value or reference point, which is adjusted to yield the final answer. The value of the starting point can either occur from how the issue has been formulated or being a result from a partial calculation. Adjustment is quite insufficient since the starting point commonly differ between individuals, due to how it has been estimate and will therefore yield different final answers (Tversky & Kahneman, 1974). If the reference point or anchor largely differs from the true value, adjustment and the anchor might engender that the final answer becomes highly incorrect (Angner, 2012).

3.4 Peer pressure

Peer pressure originates from social interaction and is also a concept that is used within behavioural economics. The concept can be explained by the definition that if people are encouraged by conditional collaborates with other, it can result into an effect called social interaction effect. This effect rises whether an individual is systematically affected by the behaviour of her or his friends and changes her or his behaviour to fit in the same function as the rest of the group. These effects of the group- or social interaction are often called either neighbourhood or peer effect (Gächter, 2006).

4. Previous studies

Studies within behavioural economics have increased rapidly during the past years and are a relative new area within economics. A lot of the studies within the behavioural economics endeavour to connect economic analysis and models with the understandings from psychology. The studies focus commonly on areas such as nudges and social interaction, to receive a better understanding of how individuals interact and behave. Many of the studies are preformed through different experiment, both field experiment and natural experiment, which has led to that behavioural economics has developed the more traditionally economics to a new direction (Pope and Sydnor, 2014).

When investigating what might influence people's choices and how individuals behave dependent on the situation, social interaction has shown to have a significant effect on influencing individuals' decisions and is therefore an important aspect to take into consideration (Gächter, 2006). By performing a natural- and field experiment that focuses on conditional cooperation, Gächter (2006) proves that peer pressure or social interaction have a significant impact on whether individuals' change their behaviour after the group or not. Other studies such as Heldt (2005) emphasize also that social interaction have a noticeable influence on individuals' choice and behaviour. Heldt (2005) performs a natural field experiment in his study, where he creates a nudge and shows that people tend to act differently depending on what information they have received. He shows in his experiment that those individuals that received the information of that 70 percent of the other tourist have donated money to an ongoing project, tend to contribute more to the project than those tourist that did not received that information.

The study of Allcot and Rogers (2014) proves also that peer pressure affects individuals' decisions and behaviour, but in contrast to Heldt (2005) and Gächter (2006), the study highlights that raising awareness also gives an efficient effect. The authors have formed a sort of an information nudge, which they examine by performing an experiment on a selected treatment group, which shows that creating awareness gives results (Allcot and Rogers, 2014). The study investigates if it is possible to influence households' behaviour of conserving energy, by sending out information that contains personal information of the amount of energy each individual household saves, but also how much other households saves in general. The study shows that raising awareness by sending out the additional information, had a positive effect on the households to increase their conservation of energy. Another result that was proven in the study was that households that did not save any energy, showed a positive trend of starting

to conserve energy. However, it is not always necessary to provide the individuals in question with additional information in order to influence their decision. Other studies such as in Östervall (2017) and Stämpfli, Stöckli and Brunner (2017), shows that by only using the effects of a simple reminder nudge, one can have great influence over individuals' choices and behaviour. Stämpfli, Stöckli and Brunner (2017) performs a field experiment, where the authors investigate the effects of eating unhealthy and healthy food after seen a screensaver of the slender Giacometti sculpture. The study shows that by only using the effects of the reminder nudge of showing the Giacometti sculpture on screensaver with no additional information, the majority of the participants choose the healthier alternative of food before the unhealthy alternative. This can then prove that simpler nudges also may generate significant effects. The study of Östervall (2017) uses a slight different type of angel of the reminder nudge, where the study examines whether it is possible to inhibit antibiotic resistance by expose patient at 31 clinics of a reminder nudge. By reminding the patient of being prudent concerning the usage of antibiotic, due to prevent resistance, enabled to decrease the usage of antibiotics with 12 percent. The decreased result can then be a strengthen argument of the fact that reminder nudges have a significant impact on individuals' behaviour. The effect of reminder nudges has also been shown in Karlan et al (2014) to have a significant impact. Karlan et al (2014) shows that it is possible to influence individuals' commitment that have recently opened savings account, to save money continually by using simple reminders.

By referring to previous studies above, different types of nudges are a widely-used tool when investigating potential influences within behavioural economics. Nudges has shown to have a significant impact on how individuals behave and likewise the influence of social interaction, but what has also become to be an important aspect in influence individuals' behaviour is anchoring and adjustment. According to the study of Marchiori et al (2014) and the earlier study Wansink et al (1998), one can argue that anchoring has a significant influence of individuals' decision. By performing a field-experiment, Marchiori et al (2014) shows that the decision from the participant of the amount of consumption, was different depending on what starting point or reference point they had before they decided their amount of consumption. The study used a control group to measure the effect of the anchoring where the results showed that those participants that got a larger reference point tended to consume more than the control group and those participants that got a smaller reference point tend to consume less. It can also be augured from the study of Wansink et al (1998), that anchoring has a significant impact on the final decision of amount of consumption. The study performs both a field- and a lab experiment and shows that those consumers that retrieve an internal anchoring

have a better ability to resist anchor-based campaign. This can be interpreted as in order to influence these consumers in a larger extent, the anchor-based campaign have to generate a higher utility that fits better to those consumers' internal reference point (Wansink et al, 1998). Other studies such as the study of Cohen (2006), have also proven that anchoring has a significant impact on judgement and decisions. The study of Cohen (2006) shows that by using different anchoring and adjustment models can have an efficient impact on formation individuals' attitude and behaviour.

5. Method

The following part will present the method that has been used to perform the experiment. It will start with presenting the general strategy of the experiment, which will be followed by three information parts that will present the different strategies of each letter. Due to that the subject heading in each email for the whole sample was exactly the same, one can draw the conclusion that the probability of opening the email was exactly the same for each recipient. To get a visual view of how the actual letters looks like that was sent out, see appendix.

5.1 General strategy

The main strategy of the experiment is to send out three different letters to three different groups where each group will contain around 3500 recipients, which will sum up to a total sample of around 10500 observations. The groups are random selected and have only their vehicle insurance at Länsförsäkringar Skåne. According to MailChimp (2013), the most efficient time to send out email is during the morning/midmorning, the letter will therefore be distributed during this time in order to achieve the largest result of the nudge as possible. The reasons why the study is using email as a channel for sending out the letters is due to three reasons. The first reason is that it is cost efficient, since Länsförsäkringar Skåne already have access to the e-mail addresses for a large amount of its customers. The second reason is that the risk of appearing as a hypocrite was also considered, since sending out a letter that urge the customers to decrease their letter receiving though paper would cause double message. The third and last reason is that if people do not open their email they would probably not want to change to digital distribution anyway, which means that we can eliminate those customers directly.

In order to estimate the results and investigate the effects of sending out the letters that contains the nudge, the study will use a control group. The control group contains almost the

same amount of observations as each of the other treatment groups, which is 2800 people, where the control group have received no letter.

5. 2 Strategies

5. 2. 1 Strategy 1

The first letter is designed to test how the recipient reacts when they only get a short information about the possibility of receiving their insurance information digital. The letter is formed in a way where the recipient will understand at the first glance of the email that the information is about reducing her or his mail. The letter contains a short text that explains why they got contacted and after that follows a few bullet points of how they change to digital distribution. In the letter, there is also a box that tells the benefits of changing to digital information and a link that will direct the recipients directly to the login page.

5. 2. 2 Strategy 2

The second letter contains the same text as in the letter with the strategy 1, but with additional symbols and a small text explaining the symbols. The symbols represent easily interpreted images of certain daily objects, a letter, vacuum cleaner, charging a mobile phone and an oven. Above the pictures, as mentioned earlier, are the minutes presented in order to catch the customers' attention to read the letter. The numbers of minuets represent how many minutes a letter from Länsförsäkringar Skåne is equivalent in kilo watt hours (kWh).

There is a text above the symbols in the letter that explains what each symbol means, with the heading "Did you know that?". The heading is according to Länsförsäkringar Skåne graphic design and colours that catches the individuals' attention. This letter contains also a link that as letter 1 that will direct the recipients directly to the login page. The main purpose with this letter is to convert information to be more relatable. A short explanation of how the information was translated can be found in the appendix.

5.2. 3 Strategy 3

The third and last letter is identical to the second letter, but with one additional word line that is "More and more of our customers choose to get their insurance information digitally". Pervious research such as in the study of Gächter (2006), has proven that an individual is willing to change its behaviour if they get the information that other individuals also have done it. The study of Gächter (2006) uses hard or concrete information, i.e. uses of percentages or numbers. Letter number three contains also concrete information, but in contrast to the study of Gächter,

this study uses soft information i.e. no numbers just a line of text, to investigate how individuals reacts when they receive soft information. This letter contains also a link that as letter 1 and 2 that will direct the recipients directly to the login page.

5.3 Hypothesis of the letters

The hypothesis of strategy 1 is that a large number of the recipient will change to digital distribution through receiving this letter, especially individuals in lower age span. The type of nudge that strategy 1 uses is a so-called reminder where the purpose is to give the person a reminder (Sunstein, 2014).

The hypothesis of the letter with strategy 2 is that an individual would have a hard time to know how much one kWh equivalent is to. Meanwhile, the individual could relate more to daily objects. The individual might not know how bad it is for the environment, but probably knowing that it is bad. With this line of thinking the extra information should give an extra push for the individual to change to digital distribution.

The hypothesis of the letter with strategy 3 is that it will generate a higher effect than letter two and letter one. The difference in result between letter two and three will not be extreme, but letter three will still have a significantly higher result. The difference between letter three and the first letter will be larger than between letter three and letter two, due to that the soft information in letter three will have distinct higher contribution to that more customers will change to digital contribution.

5. 4 Model

5.4.1 Ordinary Least Square (OLS) and probit model

To compare differences between the treatment groups, various statistical methods are used through analyses of variance and linear regressions. These methods will tell if there exists a significant difference between the groups or not. The regressions will give estimates of what aspects that affected people to change to digital distribution.

The primarily regression model used in the study is an ordinary least square (OLS). A probit model will also be used as a complement to the OLS model.

Formula 1 represents the OLS equation.

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + \varepsilon_i \tag{1}$$

In formula (1), the Y_i is the response variable, β_0 is the intercept, X_{ki} is the explanatory variables and ε_i is the error term. i = 1, 2, …, n and $\varepsilon_1, \varepsilon_2, ..., \varepsilon_n$ is IIDN(0,σ) (Stock & Watson 2015). In this study, the response variable is binary, i.e. it can only take the value 1 or 0. It is due to this reason the study uses a probity model as complement to our OLS regressions, since the coefficients of the probity regressions are difficult to interpret.

The formula 2 below represents the probit model.

$$\Pr(Y_i = j | X_1, X_2, ..., X_n) = \phi(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n) \qquad (2)$$

$\Pr(Y_i = j | X_1, X_2, ..., X_n)$ = Probability that Y_i equals j given the values of $X_1, X_2, ..., X_n$.

ϕ = Cumulative distribution function

j = 1 and 0 (Verbeek, 2012)

6. Data material.

The data section will present the data that have been used to examine the effects of exposing the groups to the different nudges. This part will start by presenting the data that has been used to perform a regression analysis. This section will then be followed by figures and tables to present our data in a more visual way.

6.1 Variables

Changed to digital distribution, *Bytt*.

The variable represents the dependent variable of the study and will tell if the individual changed to digital distribution or not. The variable is a dummy variable, where 1 represents that the individual changed and 0 indicates no change.

Received letter 1, *Br1*.

This variable indicates if the individual received letter 1. The variable takes value 1 if the respondent received letter 1 and it take value 0 if the recipient did not receive the email.

Received letter 2, *Br2*.

The second variable represents the individuals that received letter 2. If the individual received letter 2 will take value 1 and if the individual did not received letter 2 it will take the value 0.

Received letter 3, *Br3*.

The third variable represents the individuals that received letter 3. A value of 1 represents if the respondent received letter 3 and value 0 represent if the respondent did not received letter 3.

Gender, *Gndr*.

The fourth variable represents the individuals' legal gender, which is female or male. Number 1 represents the male sex and number 0 represent the female sex. This information was found in the respondent's Swedish personal number, where the second last number indicates if the person is a male or a female. If the number is even it is an indication of female, while the male sex has an odd number.

Age & and squared, *Age & Age2*.

The fifth and sixth variable represents the individuals age and age in square. The age was squared to allow non-linear effects in the regressions. The age was identified by the 8 first numbers in the personal number, which tells the exact date the induvial was born.

Table 1 below shows the number of observation (1), mean (2), standard deviation (3), minimum observation observed (4) and maximum observation observed (5). Around 3,5 percent changed to digital distribution in the total sample. The average age of the sample is 43 years old and the male gender corresponds to 64 percent, this is not surprising giving that the population only consist of vehicle-insurance customers.

Table 1. Summarize of the data set

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
bytt	13 050	0,0352	0,184	0	1
br1	13 050	0,271	0,444	0	1
br2	13 050	0,270	0,444	0	1
br3	13 050	0,271	0,445	0	1
age	13 050	43,35	10,40	27	63
gndr	13 050	0,646	0,478	0	1
age2	13 050	1 988	917,5	729	3 969

6.2 Final Models

The final basic model that this study will use, can be seen in equations (3) and (4) where the explanatory variables will be the same for each model. Model (3) is the OLS regression and model (4) is the probit regression.

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + \varepsilon_i \qquad (3)$$

$$Pr(Y_i = j | X_{1i}, X_{2i}, \dots, X_{ni}) = \phi(\beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_n X_{ni}) \qquad (4)$$

$X_1 = Br1op$ $X_4 = Gndr$

$X_2 = Br2op$ $X_5 = Age2$

$X_3 = Br3op$ $X_6 = Age$

6. 3 Description of data

In this part of the data section, the Persons chi square test will be performed over both gender distribution and age distribution. The reason is to control if there exist any differences in distribution between the letters and the control group.

6.3.1 Gender distribution within sample

Table 2. Chi square test over the different letters and the control group

Gender	Letter 1 Freq (Expected)	Letter 2 Freq (Expected)	Letter 3 Freq (Expected)	Control Freq (Expected)	Sample Freq (Expected)
Female	1 369	1 371	1 125	870	4 751
	(1 242,8)	(1 239,6)	(1 244,9)	(1 007,7)	(4 735)
Male	2 162	2 151	2 412	1 993	8 766
	(2 288,2)	(2 282,4)	(2 292,1)	(1 855,3)	(8 766)
Total	3 531	3 522	3 537	2 863	13 517
	(3 531)	(3 522)	(3 537)	(2 863)	(13 517)

Pearson chi2(3) = 88,1119   Pr = 0,000

Table 2 above presents a Pearson chi square test for each letter and control group over gender, where the numbers within the brackets shows the expected frequency. The p-value was 0,000 and implies that there are significant differences in the distribution of genders between the letters and control group. Due to the reason that the whole sample only consists vehicle insurance, it is not surprising that there exists a difference amongst gender since the male gender is overrepresented when looking at Länsförsäkringar Skåne's customer base. The result from table 2 shows also that there are differences between the letters over gender distribution, where letter 1 and 2 have an over-representation of the female sex compared to letter 3 and the control group, if one looking at the expected frequency. While comparing letter 3 and the control group with its expected frequency, the results shows that the female sex has an under-represented compared to the expected frequency. The treatment allocation process was designed to be random, but apparently, there exists some differences in terms of the gender distribution. The gender variable will be controlled for in the regression analysis.

6.3.2 Age distribution within the sample

The table below represents the distribution of who received which letter over age.

Table 3. Chi square test over the letters and control group over age span

Age	Letter 1 Freq (Expected)	Letter 2 Freq (Expected)	Letter 3 Freq (Expected)	Control Freq (Expected)	Sample Freq (Expected)
20	336 (404,5)	306 (403,4)	386 (405,2)	513 (327,9)	1 551 (1 551)
30	1 179 (1 073,2)	1 055 (1 070,5)	1 089 (1 075,1)	766 (870,2)	4 110 (4 110)
40	834 (830,2)	885 (828,1)	890 (831,6)	554 (673,1)	3 178 (3 178)
50	960 (952,5)	1 052 (950,1)	987 (954,1)	630 (772,3)	3 646 (3 646)
60	222 (270,6)	224 (269,9)	185 (271,1)	400 (219,4)	1 032 (1 032)
Total	3 531 (3 531)	3 522 (3 522)	3 537 (3 537)	2 863 (2 863)	13 517 (13 517)

Pearson chi2(12) = 423,7174   Pr = 0,000

Table 3 above represents a Pearson chi square test for each different letter and the control group, over age distribution. The p-value for the test is equal to 0,000 and indicates that there is

significant difference between the letters and the control group when it comes to age distribution. The individuals that received the letters was between the age 27 and 63 and for the age span within the control group was between 21 and 69. The biggest difference within the amount of recipient amongst the three letters is 15 individuals, while the control group contains less individuals. However, the test results indicate that the age spans are not randomly distributed over the different letters, but the sample is still considered as a good representation of Länsförsäkringar Skåne's customer base of vehicle insurance, due to that each letter in itself follows an approximate age distribution that corresponds to the customer-base. As mention before the allocation distribution process was design to be random, while this is not the case. The age variable will be controlled for on the regression analysis.

6.3.3   Misspecification.

A possible misspecification is that the ongoing project "digital climb" at Länsförsäkringar Skåne, see section 2.3, only focuses on new insurances for vehicles to choose digital distribution. A possibility is that when a customer purchase a new insurance, the customer service employee asks if they want to change all their other cars to digital distribution. This is a possible outcome for the control group and some individuals who changed without opening the email.

7. Results and discussion

The following section presents the results of the experiment and how the results can be interpreted to already existing studies within the field of behaviour economics. The section will present deeper knowledge of how the gender- and age variables reacts to the different treatments. As presented in the data section, the data material has a significant difference between the distribution of age and gender over the treatment groups and control group. This means that even if the sample were supposed to be randomised, this is unfortunately not the case. The reason why this happened is nothing the authors could have affected since the selection of the data set was selected by the affiliate Länsförsäkringar AB, whose method of selecting the data set is nothing the authors had any insight in. However, due to the amount of observations, 13517 participants and that each of the treatment groups' looks representative to the vehicle customer-base of Länsförsäkringar Skåne, hence this paper will assume that this will not have an impact on the results from the regressions.

7.1 Regression results of the whole sample

Table 4 below presents the results from a set of regressions, both within OLS and in probit. The dependent variable for all regressions is *Bytt,* which is a dummy variable that indicates if the individual changed to digital distribution during the experiment period or not. All regressions have robust standard errors and are presented in the parenthesis. In the regression table, it tells if the model is an OLS or an probit regression.

As presented in the result of table 4, there is a significant difference between our test groups and the control group in all models. This means that sending out a letter will increase the chances of that customer of Länsförsäkringar Skåne changes to digital distribution, regardless what letter they have received. Using a control group enables to examine the effects of sending a letter and not and from the result in table 4 one can conclude that the sent-out letter had an impact on the recipients' behaviour. An explanation can be that the costumers are not aware of that the option of obtaining the information digitally. Before the project "digital climb" was started at Länsförsäkringar Skåne, the policy was that everyone should receive its insurance information by post, see section 2.3. Customers who then wanted digital distribution would have changed regardless what letter they received, hence the specific information in each treatment would not have any impact.

The results present that some letters have had a larger impact on its recipients than others, see figure 3, which is one of the hypothesis of this study since the letters contains different information but with the same purpose. This hypothesis can also be supported by the study of Heldt (2005), who proves from its results that some information might have larger influence on individuals' decisions than others.

Tabel 4. Regression for each model

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6	(7) Model 7
br1	0,0375***	0,679***	0,0393***	0,706***	0,0383***	0,690***	0,0203***
	(0,00397)	(0,0799)	(0,00401)	(0,0810)	(0,00413)	(0,0823)	(0,00518)
br2	0,0246***	0,529***	0,0264***	0,554***	0,0254***	0,538***	0,0115**
	(0,00352)	(0,0819)	(0,00357)	(0,0829)	(0,00368)	(0,0843)	(0,00455)
br3	0,0326***	0,627***	0,0329***	0,635***	0,0319***	0,618***	0,0217***
	(0,00380)	(0,0805)	(0,00381)	(0,0813)	(0,00391)	(0,0827)	(0,00567)
br1g							0,0287***
							(0,00759)
br2g							0,0219***
							(0,00672)
br3g							0,0161**
							(0,00749)
gndr			0,0214***	0,316***	0,0213***	0,315***	0,00352
			(0,00301)	(0,0489)	(0,00301)	(0,0489)	(0,00355)
age					0,00131	0,0267	
					(0,00109)	(0,0186)	
age2					-1,64e-05	-0,000328	
					(1,20e-05)	(0,000211)	
Constant	0,00922***	-2,356***	-0,00571**	-2,597***	-0,0290	-3,088***	0,00677**
	(0,00177)	(0,0711)	(0,00269)	(0,0836)	(0,0229)	(0,390)	(0,00276)
Observations	13,517	13,517	13,517	13,517	13,517	13,517	13,517
R-squared	0,006		0,009		0,009		0,010
OLS	YES	NO	YES	NO	YES	NO	YES
Probit	NO	YES	NO	YES	NO	YES	NO

Robust standard errors in parentheses
*** p<0,01, ** p<0,05, * p<0,1

Model 1 & 2

The results for both model 1 and 2 shows that if an individual has received the email, it had a significant effect on the individual's behaviour towards changing to digital distribution, regardless what letter they had received. By looking at the different coefficients in model 1 for each letter, it can be concluded that letter 1 has the largest effect of influencing the recipient to change to digital distribution compared to the control group. The letter that has the second largest effect is letter 3, followed by letter 2, which has the lowest effect. This can also be supported by model 2, where the explanatory power has been tested. Model 2 shows the same structure as the OLS regression in model 1, which is that letter 1 has the largest effect, letter 3 has the second largest and letter 2 has least effect. The ranking of how much each letter influence the receiver is presented more visually in figure 3, see below, which also illustrates that letter 1 has the largest impact amongst the three letters, followed by letter 3 and latest letter 2. All the letters give the recipients information that creates awareness of the digital option and enables therefore customers to change to the digital option. However, in this case have letter 1 and letter 3 had a greater effect of influencing the recipients' decisions than letter 2. Letter 1 works as a pure reminder nudge and letter 3 as an information nudge that includes the peer pressure aspect. Both these two letters show that they have significant effect on individuals' behaviour, which can be supported by the studies of Östervall (2017) and Gächter (2006) that also shows that reminder nudges and peer pressure has an efficient impact on individuals' decision.

However, looking at the results of Wald's test, figure 5, one can see that there is a significant difference between letter 1 and letter 2 with a significance level at 5 %, and between letter 2 and letter 3 with a significance level of 10%, but there cannot be seen any significant difference between letter 1 and 3. This means that Wald's test can support that letter 1 has a larger effect than letter 2 and that letter 3 has a larger effect than letter 2. However, due to that Wald's test could not show any significant difference between letter 1 and 3, is cannot be concluded that letter 1 has a larger impact than letter 3.

When looking at model 1 and 2 in table 4, one can see that the coefficient within the two letters for both the OLS and probit regressions are quite similar. A more comprehensive explanation is that the effects between a reminder and a peer pressure nudge are too alike to give a noticeable larger effect for one of them. As mentioned in section 3.2, reminder nudges have a large impact of influencing individuals' behaviour and especially when the nudge enables the receiver to act immediately on direct information that letter 1 allows. While letter 2 and 3 contained more information, the recipients might have thought that it was too much of

information at the same time and stopped reading. These reasons might in turn explain why the effects of letter 1 has one of the highest effects amongst the all letters.

However, even if reminder nudges can be supported to have a significant impact of influencing individual's' behaviour, the same can be shown for nudges that contains peer pressure information (Gächter, 2006 and Heldt 2005). As mentioned in section 3.4, peer pressure information has also a tendency to affect individuals' behaviour in large extent just as reminder nudges. This is also an important aspect to take into consideration, since this might explain why the Wald's test in figure 5 cannot show any significant difference between letter 1 and 3. A deeper analysis of why letter 1 and 3 have larger effect than letter 2 will be followed later in the upcoming discussion parts.

Figure 5. F-test of model 1.

Br1=Br2	F (1, 13 513)	=	7,65
	Prob> F	=	0,0057
Br1=Br3	F (1, 13 513)	=	1,00
	Prob> F	=	0,3182
Br2=Br3	F (1, 13 513)	=	3,15
	Prob> F	=	0,0760

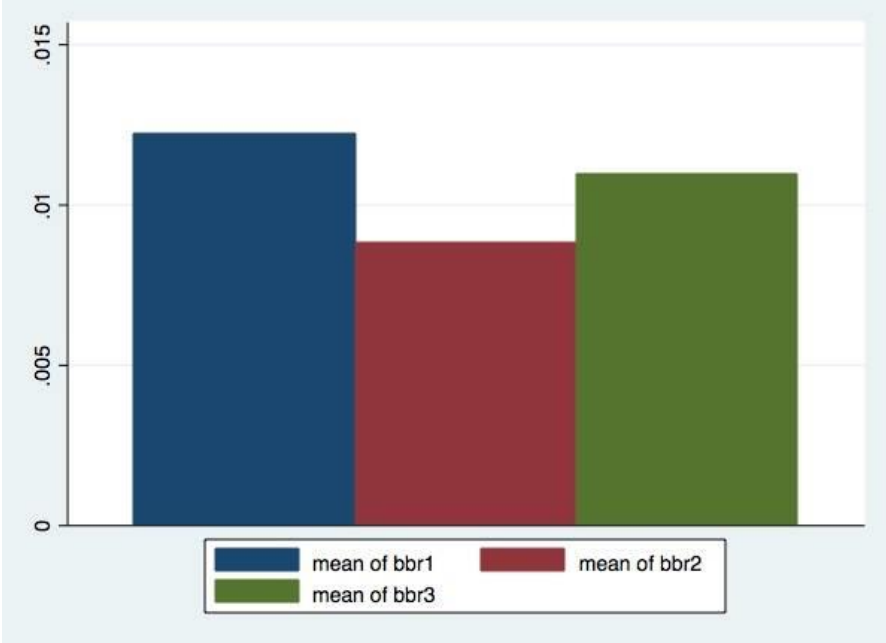Figure 3. Effects of the nudge on the whole sample for each letter.

Figure 3 represents the mean of the individuals who change to digital distribution by each treatment group. The graphs correspond with the results from model 1 and 2 in table 4, where

letter 1 had the greatest effect followed by letter 3 and then letter 2. Of the individuals who change to distribution it was in total 4,08 % of all treatment groups. For letter 1 4,67 % changed, letter 2 3,38% and for letter 3 4,18 % changed to digital distribution.

Model 3 & 4

In model 3 and 4 has the gender variable been added, to investigate if the recipient's gender might impact if one choose to change to digital distribution or not. The effects of changing to digital distribution with the gender variable are significant at the level of 1 % for each letter, when comparing the results against the control group and that the results has a high credibility. The effects for each treatment group to change to digital distribution are more or less the same, but the results show still the same pattern as in model 1 and 2, which is that letter 1 has the highest effect than letter 3 and last letter 2. As mention before, a possible reason why letter 1 has the highest effect might be that the recipients did not have the knowledge about the possibility to choose digital distribution. Having this in mind it can be argued that the effects of letter 2 should not have been smaller than the effects of letter 1. One might explain this by that the information in letter 2 was not translated well enough or was too forward, almost off-putting. As the study of Allcot and Rogers (2014) shows, information nudges have a significant effect of influencing recipients' decisions. However, the same can be argued for the reminder nudge where the studies of Östervall (2017) and Stämpfli, Stöckli and Brunner (2017) shows that reminder nudges also have a significant effect. In this case, letter 1 has had a larger impact than letter 2, whose effect depends in high extent on the recipients' attitude against new information or the amount of information, which can cause issues such as adjustment problems.

As mentioned in section 3.3, anchoring can lead to adjustment problems for the recipient. Looking at the results in table 7, one can see that letter 2 has an effect of influencing the recipients to change to digital distribution. However, compared to the other letters this is the one with least impact. One explanation might be that the recipient of letter 2 may have anchoring and adjustment problems to the information presented in the letter and since there is no knowledge of the recipient's start reference point, it may cause adjustment problems as mention section 3.3. If the recipients have a too high reference point, the adjustment process to the information in letter 2 will fail since the recipient will not think that the effect of one letter is sufficient enough to make a change. If the recipients have a low start referent point the outcome will be the opposite and can be one explanation why letter 2 has the lowest impact of the letters, which can be supported by the studies of Marchiori et al (2014) and Wansink et al (1998).

What also can be concluded from model 3 and 4 in table 4, is that since the gender variable has a positive effect at a significant level of 1 %, it indicates that the male gender has a higher tendency to change to digital distribution. This means in other words that the male sex is more responsive against the treatment in each letter compared to female recipient, which also can be seen in figure 4 for each treatment group.

To investigate if some of the letters might have greater effect of influencing the gender than another, a Wald's test has been performed, see table 6. The result from the Wald's test shows that the difference between the coefficient for letter 1 and 2 are still significant at a significance level at 5 %. While the difference between letter 1 and 3 is not significant at a level of 5 % and neither the difference between letter 2 and 3. A reason why it is only letter 1 that can be supported to have a larger effect of influencing the individuals' decision in terms of gender influences, might be due to that male recipients prefer direct information. As mentioned before, the variable gender was significant in model 3 and 4 in table 4 and implies that male recipients are in greater extent more willing to change to digital distribution compared to females. An interpretation can be that when it comes to cars, the male sex has a higher tendency to handle car issues and might therefore explain the outcome mentioned above. When comparing each letter between the genders willingness to change, the distribution amongst the effects in the letters looks similar except for that the male recipients has a higher frequency, see figure 4. The effects are highest for letter 1 than followed by letter 3 and last letter 2. This implies that the letter is preferable in the same extent and one cannot draw any conclusions of that female recipients prefer another letter more than the male recipients.

Table 6. F-test for model 3.

Br1=Br2	$F_{(1, 13\,512)}$	=	7,65
	Prob> F	=	0,0057
Br1=Br3	$F_{(1, 13\,512)}$	=	1,69
	Prob> F	=	0,1936
Br2=Br3	$F_{(1, 13\,512)}$	=	2,06
	Prob> F	=	0,1509

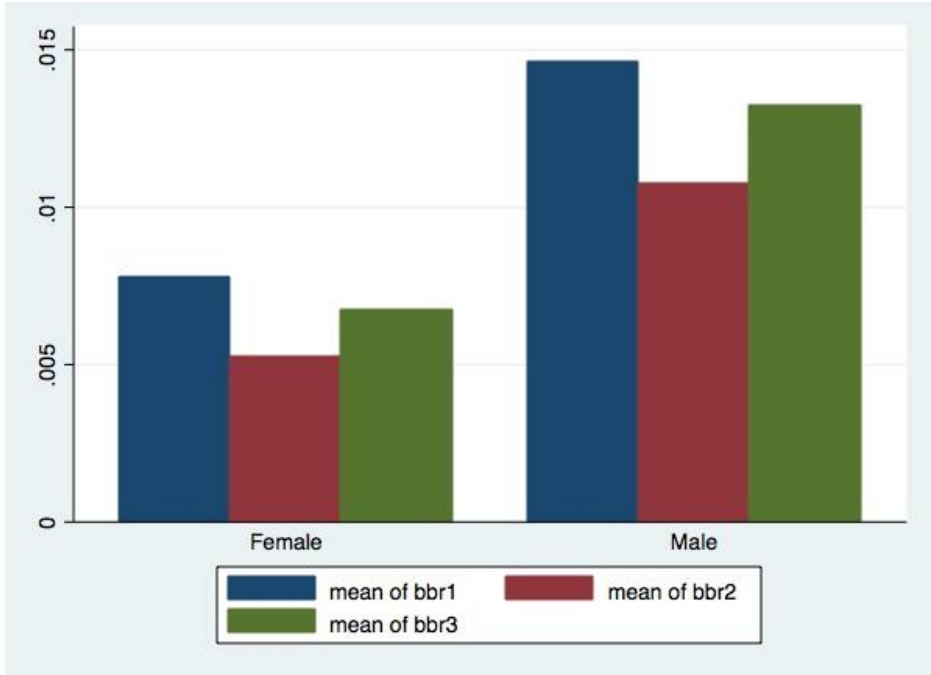Figure 4. Individuals who changed to digital distribution divided by gender.

Figure 4 above shows whether gender may have any impact on changing to digital distribution amongst the three letters, as mentioned in earlier section. As one can see from figure 4, males has a higher tendency to change to digital distribution compared to females in all the letters. It can also be concluded that letter 1 and letter 3 have a larger impact on making the recipients change to digital distribution within both females and males compared to letter 2, who had the lowest impact.

Model 5 & 6

Model 5 and 6 shows the results of adding two additional variables, which is age and age square. The reason why the aged variable has been squared is to allow for non-linear effects. None of the added variables are significant at a level of 5 %, while the other explanatory variables are still significant at a level of 1 %. The coefficient for age is positive while age square is negative, which means that along with an increased age the effect of changing to digital distribution diminishes. An indication of this effect can be viewed in figure 5, since individuals within the age spans 50 and 60 have a lower change frequency, compared to cage span 40. Table 4 shows also the result of that the coefficients for the letters in model 5 and 6 are slightly lower when comparing to previous models.

The Wald's test that can be seen below, figure 7, presents the difference between each letters coefficient. The results go in line with the previous presented Wald's test, table 5 and 6, where there still is a significant difference between letter 1 and 2 while the difference for letter

1 and 3 are still insignificant, as well for letter 2 and 3. The results support earlier results in table 4, that letter 1 has a higher effect of influence recipient's behaviour to change to digital distribution than letter 2. It cannot be concluded anything concerning if letter 1 has a higher effect than letter 3, nor if letter 3 has a higher effect than letter 2 since the Wald's test in figure 7 shows no significant difference between those letters.

Figure 7. F-test for model 5.

Br1=Br2	$F_{(1, 13\,510)}$	=	7,58
	Prob> F	=	0,0059
Br1=Br3	$F_{(1, 13\,510)}$	=	1,72
	Prob> F	=	0,1900
Br2=Br3	$F_{(1, 13\,510)}$	=	2,000
	Prob> F	=	0,1570

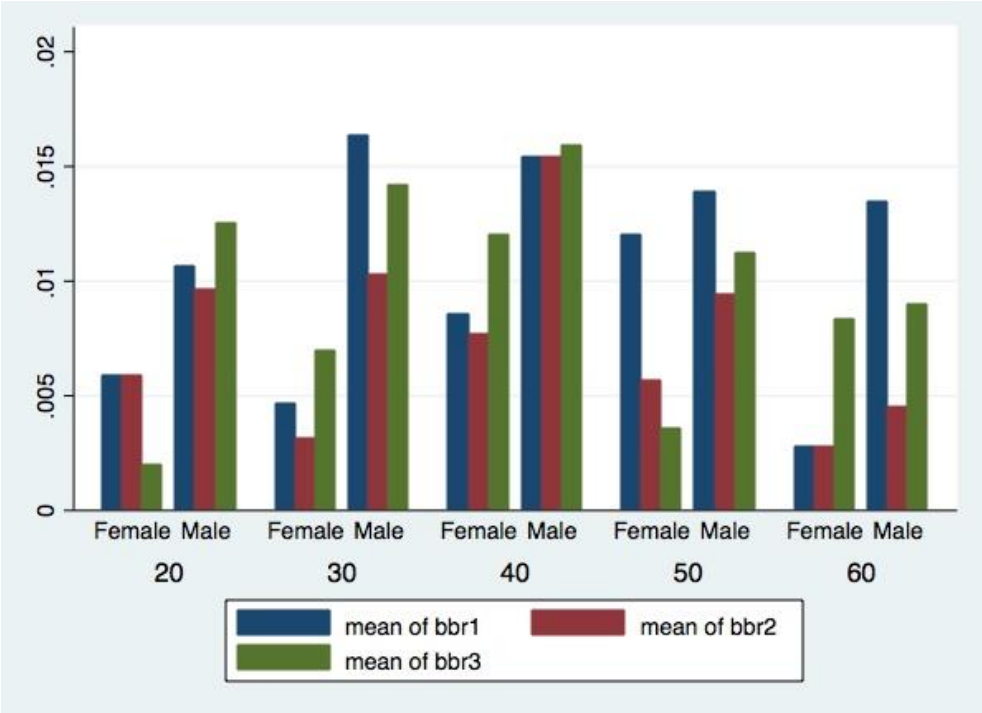Figure 5. Effect of the letters of changing to digital distribution amongst age and gender.

Figure 5 above represents the frequency of changing to digital distribution amongst the different letters, over gender and age. Figure 5 supports the results from the regression models 5 and 6, that there is no clear indication that age should have an effect whether a recipient would change to digital distribution or not. The results from figure 5 and from model 5 and 6 is quite surprising, since it is easy to assume that younger people are more exposed to technology and should therefore have a higher tendency to change to digital distribution than older individuals. An aspect that can be considered is that according to the assumption above concerning younger

people, figure 5 should have a more diminishing slope within age distribution but as one can see there is no sign of this kind of pattern.

What also is surprising with the results in figure 5, is that according to the amount of usage of Mobile Bank ID, see section 2.4, individuals in the age group between 20 and 40 are the ones with highest share of Mobile Bank ID users. The usage share of Mobile Bank ID is easy to assume to have an impacting effect whether an individual will change to digital distribution or not, since this is a key feature to be able to change. However, there cannot be seen any pattern between figure 5 and figure 1, which can be assumed to correspond to the results in model 5 and 6 that age have no effect on the frequency of digital distribution. While looking at gender, the distribution amongst using Mobile Bank ID is equal, see section 2.4, which can indicate that Mobile Bank ID is not a vital factor that influence the individuals to changing to digital distribution. An explanation to why the younger age span shows a low effect might be due to that many recipient in the span of 20 years old have their first car in this age. There can therefore exist a tendency to be extra careful with invoices and insurance information, due to the risk of missing something when its digital frightens them.

Model 7

As seen in model 3 and 4 gender had a significant difference, implying that the male recipients have a greater effect than females. To investigate the gender effect more, interaction terms for each letter has been created by multiplying each letter with the gender, which has resulted in a variable that shows the extra effect of the male gender.

The results in model 7 shows that each letter have a significant effect at a level of 5 %, of effecting an individual to change to digital distribution. The added interaction terms are also significant at a level of 5 %, which means that male recipients who received the letters are more responsive to be affected by the treatment in the letters and has thereby a greater chance to change to digital distribution. However, gender was not significant at a level of 5 %, with a p-value of 0,322 and implies that when gender is 0, female, the letters have an effect for them to change to digital distribution. On the other hand, when the letters take the value 0, it means that the individuals did not receive any letter. This in turn means that when the variable gender takes the value 1, male, it has no significant effect on the individuals to change towards digital distribution, if no letter was sent out. The result for the interaction terms presents that there are significant differences at a level of 5 % between the effects for each treatment or letter, compared to male and female recipients. This means that when looking at the coefficients for females, the greatest coefficient is letter 3, followed by letter 1 and last letter 2. On the other

hand, the first three rows of the results of Wald's test in table 8, shows that there is only a significant difference between letter 2 and 3 at a level of 10 %. The difference between letter 1 and 2 are only significant at a level of 12,18 %, which is not a sufficient result.

By instead looking at the last three rows, which represent the male recipient, it can be concluded that there exists only a significant difference between letter 1 and 2 at a 5 % level. What also can be seen is that there exists a significant difference between letter 1 and 3 at a level of 10 %, while letter 2 and 3 where had no significant difference. It can then be concluded that for male recipients they prefer letter 1 over any letter at a significant level of 10 %. One explanation can be that male recipients have a higher tendency to prefer direct information as reminder nudge, such as letter 1 and are therefore more responsive against this type of way of presenting information. As mention in the theory section, reminder nudge works as a simply reminder nudge to prevent that people forget, which can explain why letter 1 has had such a high effect throughout all the models and Wald's tests. Another reason why letter 1 is the preferable letter amongst the male gender, might be that the male gender has a higher tendency than the female gender to be less altruistic and prefers letter 1 over the other two letters. The female gender on the other hand, tend to be less selfish than males and can therefore explain why letter 1 is not as preferable as for the male gender (Rand et. all, 2016).

Figure 8. F-test for model 7.

Br1=Br2	F (1, 13 509)	=	2,39
	Prob> F	=	0,1218
Br1=Br3	F (1, 13 510)	=	0,05
	Prob> F	=	0,8304
Br2=Br3	F (1, 13 510)	=	2,77
	Prob> F	=	0,0961
Br1+Br1g=Br2+Br2g	F (1, 13 510)	=	5,32
	Prob> F	=	0,0211
Br1+Br1g=Br3+Br3g	F (1, 13 510)	=	2,76
	Prob> F	=	0,0968
Br2+Br2g=Br3+Br3g	F (1, 13 510)	=	0,50
	Prob> F	=	0,4786

8. Conclusion

The effects of sending out letters to existing customers to encourage them to receive their insurance information through digital distribution, has proven to be an efficient way of influence their behaviour and decisions. This study has investigated the effects of nudges by performing a field experiment in cooperation with Länsförsäkringar Skåne, by creating three different types of nudges such as reminder, information and peer pressure and divided these nudges between three samples that contained around 3500 individuals each and 2800 in the control group. The letter has in total contributed to that 4,08 % of all the recipients that received the email, have changed to digital distribution and shows that nudges has a significant effect of influencing individuals' behaviour and decisions. Nudges is according to previous studies known as an efficient and simple way within behaviour economics to influence individuals' behaviour and contributes commonly to significant results.

The results of this study shows that the customers of Länsförsäkringar Skåne is most receivable against information that either works as a reminder or information that creates a feeling of peer pressure, which refers to letter 1 and 3. Letter 1 might have been more efficient due to that the male recipients preferred direct information. Within the female recipients, the results showed that letter 3 was significant different from letter 2 at a significant level of 10 %. The result can indicate that female recipients prefer letter 3 and are therefore more responsive against the treatment in letter 3. This pattern can be explained by the hypothesis that females have a higher tendency to be more altruistic compared to the male sex and care therefore more about other individual's actions. The results have also proven that information that is straight forward, as in letter 2, was the least successful since it gave the least effect on influence customers' decision. Two potential explanations can be that the information in letter 2 was either to forward or that the recipients has adjustment problems.

The study investigated also the potential impact of gender and the willingness to change to digital distribution. However, it could not be presented any significant results at a credible significance level, which implies that it cannot be concluded that the age has any significant impact whether the recipient was influenced of the treatment or not.

Although the major share of the Mobile Bank ID users where in the age between 21 and 40, it could not be concluded from the results that this would have any impact on the recipients' decision to change. However, since the distribution amongst gender and usage of Mobile Bank ID was equal, one can draw the conclusion that this had no impact of effecting the frequency of changing to digital distribution.

All in all, the experiment of creating a nudge and examines its effects can be seen as successful experiment. Both when it comes to influence the behaviour of the customers of Länsförsäkringar Skåne to be more environmental friendly, but also to gain better knowledge of how ready the customers are to move towards a more digital future. This experiment can be seen as a good start for companies to in a smoother way encourage individuals to participate into a more environmental friendly future by reducing paper consumption, but also the transition to a more digital society.

10. References

Angner, Erik (2012a): A Course in Behavioral Economics, second edition, Palgrave MacMillan, p. 3-318

Cohen, J.B. (2006). A Multiple Pathway Anchoring and Adjustment (MPAA) Model of Attitude Generation and Recruitment. *Journal of Consumer Research, Vol. 33, Issue 1, p. 1-15*

Energy efficiency. (2013). Benchmarking energy use in the paper industry: a benchmarking study on process unit level. Volume 6, Issue 1. pp 49–63

Gächter, S. (2006). Conditional cooperation: Behavioral regularities from the lab and the field and their policy implications. Centre for Decision Research and Experimental Economics, School of Economics. No. 2006–03, p. 1-30

Haas et al. (2005). The Environmental Impacts of Consumption: Research Methods and Driving Forces. *International Institute for Applied Systems Analysis, Vol. 3*

John. 2010. Insights from MailChimp's Send Time Optimization System. *Mailchimp*. Available online: https://blog.mailchimp.com/insights-from-mailchimps-send-time-optimization-system/, [Accessed 28th of April 2017]

Karlan et al. (2014). Getting to the Top of Mind: How Reminders Increase Saving. Available online: http://karlan.yale.edu/sites/default/files/top-of-mind-oct2014.pdf, [Accessed 22th of May 2017]

Laurijssen, J et al. (2010). "Paper and biomass for energy? The impact of recycling on energy and CO_2 emissions". *Resources Conservation and Recycling Vol 54, issue 12, 1208-1218.*

Länsförsäkringar Skåne. (2017a). Länsförsäkringar Alliance. Available online: http://www.lansforsakringar.se/skane/om-oss/in-english/, [Accessed 13th of April 2017]

Länsförsäkringar Skåne. (2017b). Länsförsäkringar AB. Available online: http://www.lansforsakringar.se/skane/om-oss/in-english/, [Accessed 13th of April 2017]

Länsförsäkringar Skåne. (2017c) Historia. Available online: http://www.lansforsakringar.se/skane/om-oss/, [Accessed 13th of April 2017]

Marchiori et al. (2014). The portion size effect on food intake. An anchoring and adjustment process? *Elsevier Appetite Vol 81 (2014) 108–115*

Ment et al. (2014). Nudging, a tool for sustainable behavior? The Swedish Environmental Protection Agency. Available online:

https://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6643-7.pdf?pid=14232, [Accessed 17th of January 2017]

OECD. (2012). *Behavioral economics and environmental policy design*. Available online: https://www.oecd.org/env/consumption-innovation/Behavioural%20Economics%20and%20Environmental%20Policy%20Design.pdf, [Accessed 16th of January 2017]

Pope, D.G & J.R, Sydnor. (2014). Behavioral Economics: Economics as a Psychological Discipline. Available online: http://faculty.chicagobooth.edu/devin.pope/research/pdf/website_handbook_chap.pdf, [Accessed 11th of May]

Stock, J.H. & Watson, M.W. (2015). *Introduction to Econometrics* Third edit., Harlow: Pearson Education Limited.

Svensk Försäkring. (2015). Svensk Försäkrings branschstatistik. Nr 1/2016 – 4e kvartalet 2015. Available online: http://www.svenskforsakring.se/globalassets/statistik/importerad-statistik/statbranch/branschstatistik/2015/branschstatistik-q4_2015.pdf, [Accessed 11th of May 2017]

Sunstein, C. R. (2014). Nudging: A Very Short Guide. 37 J. Consumer Pol'y 583. Available online: https://ssrn.com/abstract=2499658 or http://dx.doi.org/10.2139/ssrn.2499658, [Accessed 26th of April 2017]

Thaler, R.H and C.R, Sunstein. (2009). Nudge: Improving Decisions About Health, Wealth, and Happiness. Penguin Books

Tversky, A and D, Kahneman. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, New Series, Vol. 185, No. 4157. (Sep. 27, 1974), pp. 1124-1131

The world counts. 2014a. *A useful but wasteful product.* Available online: http://www.theworldcounts.com/stories/Environmental_Impact_of_Paper_Production, [Accessed 16th of January 2017]

Verbeek, M. (2012). A Guide to Modern Econometrics, Fourth edition. John Wiley & Sons Ltd.

Wansink et al. (1998). An Anchoring and Adjustment Model of Purchase Quantity Decisions. *Journal of Marketing Research, Vol. 35, Issue 1, p. 71-81*

Wemnell, M. (2016). Statistik april 2016. Statistik BankID – användning och innehav. Available online: https://www.bankid.com/assets/bankid/stats/2016/statistik-2016-04.pdf [Accessed 15th of May]

Årsredovisning 2016. (2017a). Länsförsäkringar Skåne. Available online: http://www.lansforsakringar.se/globalassets/skane/dokument/rapporter/arsredovisning2016_final.pdf, [Accessed 16th of April 2017]

Årsredovisning 2016. (2017b). Länsförsäkringar Skåne. Available online: http://www.lansforsakringar.se/globalassets/skane/dokument/rapporter/arsredovisning2016_final.pdf, [Accessed 16th of April 2017]

Östervall, W. L. (2017). Nuding to prudence? The effect of reminders on antibiotics prescriptions. *Journal of Economic Behaviour & Organization. Vol 135, issue C, 39-52*

Appendix.

Figure 9.
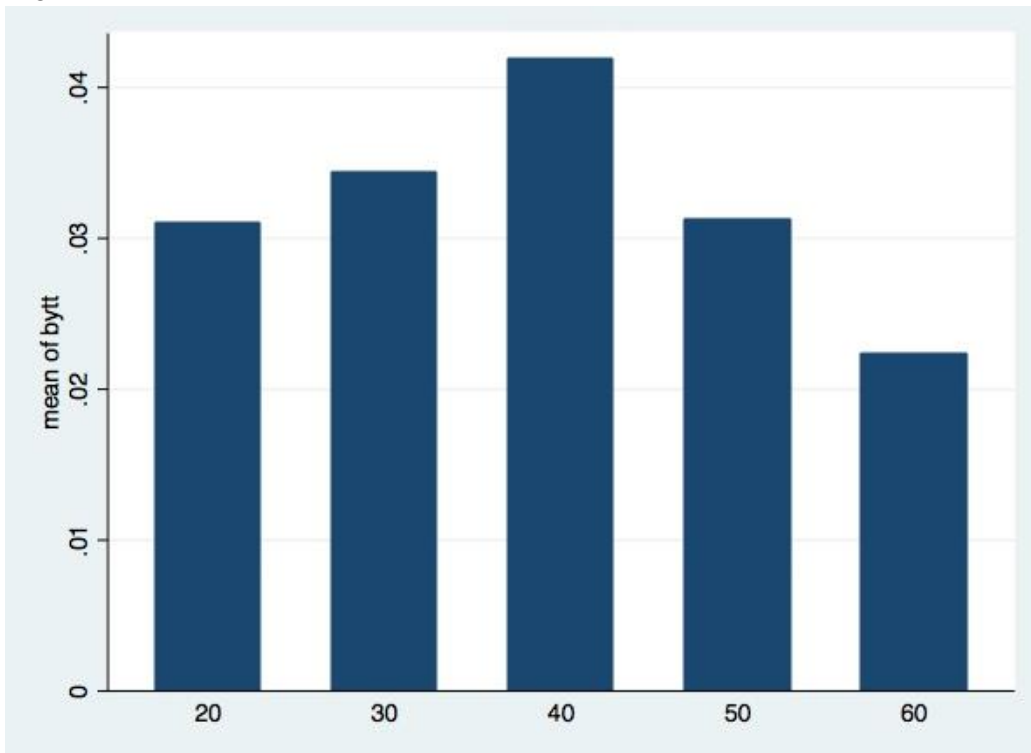
Calculations of the objects in letter 2 and 3.

Given a copy paper weighs $80g/m^2$, an A4 paper has a weight of 5 grams. This implies that 200 A4 papers corresponds to one kilogram. To calculate the energy consumption of one A4 paper this study will use a paper that has been performed in the Netherlands, written by J, Laurijssen et al 2010.

To calculate the energy consumption the result from the study above are converted down to one A4 sheet. The results from the study shows that one A4 sheet is equivalent to 0,059 kWh. This value was then used to calculate a varies of different daily object, where 3 was chosen, vacuuming, charge phone and oven usage, which also is the values the study has used in the sent out letters.

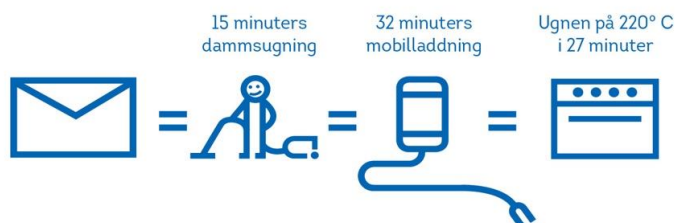# Länsförsäkringar Skåne

Vill du minska din post från oss?

Allt fler av våra kunder väljer att få sina försäkringsbrev digitalt. Vill du också minska din post från oss och istället kunna läsa dina försäkringsbrev digitalt via vår hemsida? Logga då in med Bank ID på Mina sidor och ändra till digitala dokument.

1) Logga in med Bank ID på "Mina sidor"

2) Tryck på "Dokument"

2) Tryck på "Ändra inställningar"

3) Tryck på "Ändra"

Logga in här -->

Visste du att...

Ett levererat brev i din brevlåda är i energiförbrukning jämförbart med 15 minuters dammsugning, 32 minuters mobilladdning eller att ha ugnen på 220 grader i 27 minuter

15 minuters dammsugning | 32 minuters mobilladdning | Ugnen på 220° C i 27 minuter

Fördelar med digitala utskick

• Dokumenten är alltid tillgängliga.
• Möjligt att få mail- eller sms-avisering när nytt dokument finns tillgängligt.
• Bra för miljön

Länsförsäkringar Skåne
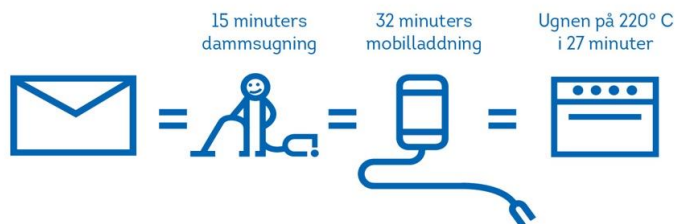
Vill du minska din post från oss?

Vill du också minska din post från oss och istället kunna läsa dina försäkringsbrev digitalt via vår hemsida? Logga då in med Bank ID på Mina sidor och ändra till digitala dokument.

1) Logga in med Bank ID på "Mina sidor"

2) Tryck på "Dokument"

2) Tryck på "Ändra inställningar"

3) Tryck på "Ändra"

Logga in här -->

Visste du att...

Ett levererat brev i din brevlåda är i energiförbrukning jämförbart med 15 minuters dammsugning, 32 minuters mobilladdning eller att ha ugnen på 220 grader i 27 minuter

| 15 minuters dammsugning | 32 minuters mobilladdning | Ugnen på 220° C i 27 minuter |

Fördelar med digitala utskick

- Dokumenten är alltid tillgängliga.
- Möjligt att få mail- eller sms-avisering när nytt dokument finns tillgängligt.
- Bra för miljön

© Länsförsäkringar Kommunikation 2016

Vill du minska din post från oss?

Allt fler av våra kunder väljer att få sina försäkringsbrev digitalt. Vill du också minska din post från oss och istället kunna läsa dina försäkringsbrev digitalt via vår hemsida? Logga då in med Bank ID på Mina sidor och ändra till digitala dokument.

1) Logga in med Bank ID på "Mina sidor"

2) Tryck på "Dokument"

2) Tryck på "Ändra inställningar"

3) Tryck på "Ändra"

Logga in här -->

Fördelar med digitala utskick

• Dokumenten är alltid tillgängliga.
• Möjligt att få mail- eller sms-avvisering när nytt dokument finns tillgängligt.
• Bra för miljön