
Phone campaign 2015

Can we make self employed and companies file their tax return forms?

Tor Arne Pladsen, Arne Kristian Aas, and Inger Guro Bendiksen

Tax Norway, Analysis Team
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Summary

Every year, about 60 000 limited companies and self employed file their tax return forms after May 31st - the due date - or not at all. To increase filing is a main concern for Tax Norway. Failing to file induces a time consuming process of assessing taxes. Furthermore, without the tax return forms in hand, it is difficult to assess the correct taxes, and the tax settlement might be incorrect. In addition, limited companies and self employed who do not file their tax return forms are less likely to pay their taxes than those who do file, so by increasing filing, we also increase payment. This report is about a phone campaign aiming to increase filing. The campaign was organized as a randomized controlled trial, which means we can estimate the effectiveness of the campaign directly.

The phone campaign had these aims:

- Find out if a phone campaign can make more limited companies and self employed file their tax return forms.
- Find out why our targets had not yet filed.
- To gauge if a cheaper, automated phone call would be as effective as a personal phone call from a Tax Norway employee.
- To learn more about how we can design a phone campaign as effectively as possible.

Also, we wanted to find out if we can predict who will be influenced to file by a phone call.

We see that personal phone calls, especially to self employed, can influence many more to file. Personal calls to self employed obtained an effect of 9 percent, whereas personal calls to limited companies obtained a effect of 6 percent. The targets of this report are difficult groups to make file, as they are already several months late. With that in mind, the results are very positive and we recommend repeating a campaign every year.

If there are limited resources, we would recommend focusing on self employed before focusing on limited companies, as self employed are easier to influence by phone calls than limited companies.

We made some interesting discoveries regarding why limited companies and self employed file late. We recommend using those findings to see if there are improvements that can be made at other steps in the fiscal process.

When choosing between personal and automated phone calls, a challenge is that we did not reach as many with the automated phone calls as we did with the personal phone calls. The reason is that the automated phone service was set to wait for an answer for only 17 seconds, which is too short and should be increased if repeating this phone campaign. With that in mind, we see that personal phone calls are more effective than automated phone calls when the target group is self employed. For limited companies, the results are inconclusive. A main reason is that personal calls and automated calls for limited companies were not made at the same time. This would be a small concern if few filed between the two measures, but in our case, it turns out that many filed just before September 1st. This makes it difficult to compare the results, as harder-to-influence limited companies are left for the campaign making personal phone calls, which started August 31st. What is clear, however, is that automated phone calls, as well as personal phone calls, can influence limited companies to file. Our

results indicate that personal phone calls are more effective, but how much more effective is hard to say without repeating the trials at the same time.

Tax Norway has developed a model that uses statistical methods and data from Tax Norway's data warehouse to predict the probability of filing the tax return form. We wanted to find out if the score can predict who picks up the phone and the effect of a phone call on filing. We found that we reach both those who are likely to file and those who are unlikely to file. But self employed with a low probability of filing are not influenced to file by a phone call, while those who are likely to file in the first place are also more likely to be influenced to file when receiving a phone call. The potential benefit of this finding is clear – we could have called fewer self employed and still gotten the same effect on filing.

Last, we would recommend planning a phone campaign carefully, as small details in the planning process might have a large impact on the end results.

Further information about the campaign is available upon request.

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1. Introduction

In late August and early September 2015, four of the five regions of Tax Norway ran a phone campaign targeting companies and self employed who had not yet filed their tax return forms. The main aim of the campaign was to see if a phone call – personal or automated – could influence people to file. The campaign was organized as a randomized controlled trial, allowing us to estimate the effectiveness of the phone calls.

We will start this report by describing the study design.

2. Designing the randomized controlled trials

2.1 *The aims of the phone campaign*

The main goal of the phone campaign was to test whether or not such a phone call would be an effective way to influence limited companies and self employed to file. As the due date is May 31st, the entities in this campaign are almost three months late and we have already sent them a reminder letter in the beginning of August. The letter was a notification that they would be assessed and given a penalty for late filing if they did not file.

This, however, was not our only aim. From experience, we know that it is crucial to understand why someone behaves in a certain way if we want to influence them to behave differently. With this in mind, we made it an aim of the study to find out why our targets had not yet filed. The answers provided important insights and a base knowledge on which we can build.

From an economical perspective, automated phone calls (made by a robot) are a lot cheaper than phone calls made by Tax Norway employees. An aim of the study was therefore to gauge if a cheaper, automated phone call would be as effective as a personal phone call from a Tax Norway employee. The automated phone call had a robotic voice reading a predefined script. At different points during the recorded message, the recipient had to respond by pushing buttons. The setup was semi-robotic in the sense that transfer to a Tax Norway employee was possible, if you stated that you needed help at a late stage in the automated phone call.

One last aim of the study was to learn more about how we can design this kind of phone campaign in order for it to be as effective as possible. This aim goes beyond measuring the effectiveness of the

A self employed person is a person who runs a sole proprietorship, which is a type of corporation "(...) in which a 'physical person' is liable for a business. This means that he or she is financially liable for all the enterprise's liabilities and obligations."

Tax Norway assesses the person who runs a sole proprietorship together with the enterprise. While employed persons do not have to file (quiet consent), self employed have to file. In this report, we refer to this group as self employed. The Norwegian abbreviation is ENK.

In a **limited company**, the owners are normally only liable for the enterprise's debt up to their share of the stock capital. Tax Norway assesses limited companies as non-personal taxpayers. Limited companies range from one-person-enterprises to large corporations. The Norwegian abbreviation is AS.

(Source: Altinn 1 and 2, 2016)

phone campaign the way we conducted it – it extends to going through every step in the campaigning process, taking notes and looking for possible improvements. Our recommendations would not have been the same without the aim of finding improvements.

2.2 How was the campaign organized?

The phone campaign was a cooperation between four of the regions in Tax Norway¹, Oslo Tax Collection Office and Tax Norway's phone assistance service (SOL). This is the first time we have organized a phone campaign together. For practical reasons, employees from the phone assistance service (we will subsequently refer to these as calling agents) sat at the offices of Oslo Tax Collection Office, using their new phone system. In most ways, this worked out well. One drawback, however, was that Tax Norway's computer systems, with up-to-date-information on whether or not each person or company had filed, were not available. Some of the people we spoke to incorrectly claimed that they had already filed. With no access to the computer systems, we could not check if they told the truth, if they were lying or if they were under the misimpression that they had filed (for instance because he or she had started but not completed the filing process). Failing to meet these claims with up-to-date information may have limited the success of the campaign.

Another drawback was that the phone system was new and not yet optimized for this kind of campaign. As a consequence, the calling agents spent a lot of time waiting for responders to pick up the phone. Other systems, like the ones used at polling agencies, are more effective.

The automated phone calls were executed by the same staff at the same location. However, this was the first time we used this system to run a phone campaign and the settings turned out to be less than optimal. When the phone operators called manually, they waited for up to one minute until someone picked up the phone or they reached voicemail. The automated phone system, on the other hand, waited for only 17 seconds before it hung up. The time it takes to route a phone call to a cell phone, that is before it starts ringing in the other end, is included in the 17 seconds, leaving very little time for the recipient to pick up the phone. As a result, the response rate is a lot lower on the automated phone calls than on the personal one. For self employed the difference was 26 percentage points, for limited companies the difference was ten percentage points. The reason the waiting time was set to only 17 seconds was a concern that we would reach voicemail – that in turn could have lead to complaints and errors in the statistics over who picked up the phone. We believe it is possible to increase the waiting time without reaching voicemail. This would take some trial and error, but could lead to significantly improved results.

Despite some drawbacks, the organizing of the campaign was generally satisfactory. In particular, the calling agents did a great job.

2.3 Design

The study was designed as a randomized controlled trial with three separate populations. The three populations were limited companies, self employed and Norwegian Registered Foreign Companies (NRFC) who had not filed by August 15th. The latter is a much smaller population than the two others and we decided to exclude them from the report as we did not obtain reliable results. Within each of

¹ The northernmost region in Norway did not take part in the campaign.

the populations, we randomly assigned each member to one of several treatment groups or to a reference group. Each person belonged to only one group. For the limited companies and self employed, we had two treatment groups; one receiving a personal phone call and the other one receiving an automated phone call. We also had a reference group.

The populations were drawn from Tax Norway's data warehouse.

As stated in the table below, the phone campaign consisted of four different trials with two reference groups:

Table 1: Overview of the trials

No.	Trial	N =	Time of trial
1	Personal calls, Self employed	2 500	Aug. 24 – Aug. 28
2	Automated calls, Self employed	8 735	Sep. 1 – Sep. 4
	<i>Reference group, Self employed</i>	1 500	
3	Personal calls, Limited companies	2 500	Aug. 31 – Sep. 4
4	Automated calls, Limited companies	10 870	Aug. 24 – Sep. 1
	<i>Reference group, Limited companies</i>	1 500	

As you can see from the table above, the groups are of different sizes. Most notably, the groups receiving automated calls are a lot larger than the other groups. When choosing the group sizes, we wanted to make sure that we made as many personal calls we could and decided that our practical limit was 5 000 calls. When choosing the size of the reference groups, we calculated that 1 500 would be enough to get reliable results. The rest were to receive an automated phone call, which does not cost more to a large volume of recipients than to a few. Because of issues with the robot, not all were called. We have taken this into account when evaluating the campaign, as well as in the table above. Unequal group sizes may affect the results, but our tests show that they do not in our case.

The calling agents making personal calls asked the respondents why they had not yet filed. Then they categorized the answer into a number of pre-defined categories or wrote down the reasons in full text. For the automated phone calls, asking for explanations was considered too complicated, and the respondents were simply asked to confirm whether they had not filed their tax return, or if they had filed recently. They were also given the option to be put through to the Tax Norway's phone assistance service (SOL), or to call back themselves at a more convenient time.

For practical reasons, we had to create the lists of who we were to call by August 15th, about a week before we made the first phone calls. In the meantime, many companies and self employed had filed their tax return forms. In particular, we found out that many limited companies had decided to file by August 31st. We found out too late that this date was the extended deadline for electronic filing of annual accounts to Brønnøysund, another government body to which Norwegian companies report². Also, the late delivery penalty for tax returns increased after this date, to 2 percent of taxable income. We started making personal calls to limited companies on August 31st and kept calling for five days. About half the limited companies we talked to had filed by the time we called them. The automated calls to limited companies were mostly made before August 31st. Different timing makes it difficult to compare the results of personal calls and automated calls for limited companies. For self employed, filing before we called them was less of an issue.

² This deadline is subject to change. In 2016, electronic filing is compulsory, and all have to file by July 31st.

2.4 Methods

A main concern when estimating the effects of a phone campaign is how to deal with people in the treatment group who do not pick up the phone. In an ideal situation, everyone would pick up the phone at our first attempt of calling them, or alternatively, we would have the chance to keep calling until we reach everyone we are supposed to reach. In reality, though, we have to deal with the fact that a lot of people do not pick up the phone.

The first consequence of this is that we need larger samples to estimate the effects. A rule of thumb is that we reach about one in four at our first attempt. While this is pessimistic, we used this rule of thumb when estimating how large samples we needed to avoid ending up with samples that are too small to yield significant results.

The second consequence concerns how we should analyze the data after the campaign is finished. We can use the analysis to answer at least two different questions, which both have different implications for how we analyze the data.

The first question is "How would a phone campaign influence filing?" In order to answer this question, we first need to compare everyone in the control group (the people we tried to call) with everyone in the reference group, regardless of whether or not those we tried calling actually picked up the phone.

Next, we have to deal with people and companies who had already filed by the time we called them. If we include everyone we tried calling, independent of whether they had already filed and independent of whether they picked up the phone or not, we would then obtain what we will call the "At least effect" of the phone campaign.

However, we can also choose to exclude the persons/companies who have already filed. The reason we would do so is that with better planning and some adjustments to the campaign design, notably updating lists of recipients every day, we would avoid calling people/companies who have filed, which in turn would increase the effectiveness of the campaign. If we include in the analysis only those who have not yet filed, we obtain what we choose to call the "Practical effect", which is an effect we believe we can easily achieve.

The "at-least-effect" and "practical effect" of the phone campaign are calculated using linear and logistic regression.

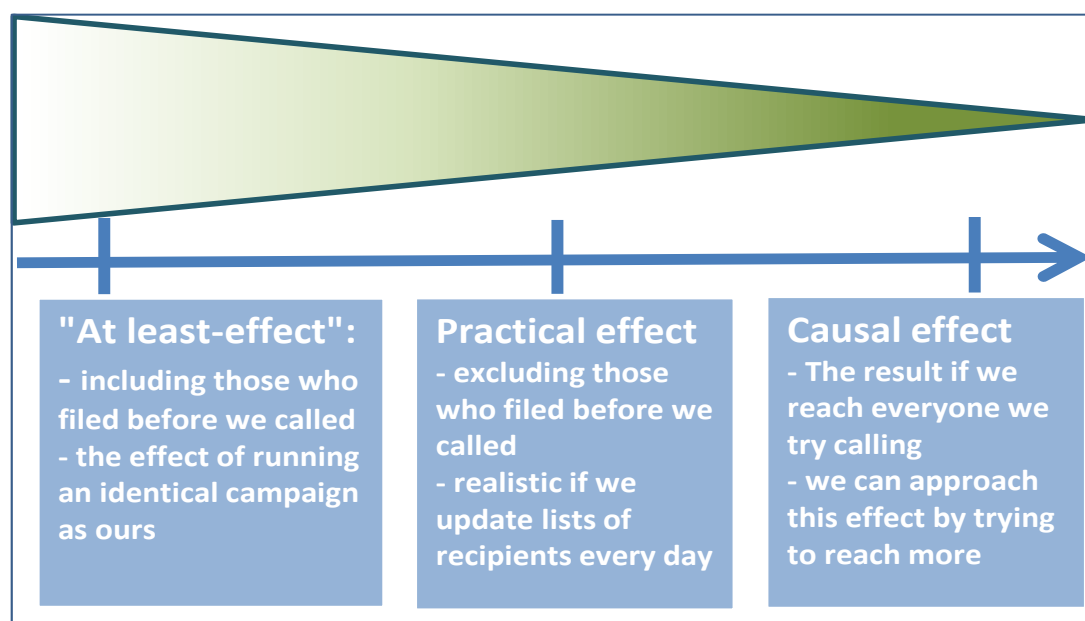
A second and somewhat different question is "What is the causal effect of phone calls?" A phone call has a causal effect if the phone call causes the recipient to file. The causal effect of campaigns is the focus of many academic articles. When estimating the causal effect of the phone campaign, we exclude phone calls where no one picks up the phone and phone calls to those who have already filed. In a sense, this is the highest potential effect of a phone campaign, as this would be the effect if we had an ideal setup. We include this value in the report in addition to the estimates of the "at-least" and "practical" effects. The reason is that we think it is possible to increase the number of recipients we reach, for instance by attempting to call several times and at different times of the day. By including this value, we encourage those who consider organizing a phone campaign to make an effort to reach as many recipients as possible and to minimize the number of phone calls to companies and persons who have already filed.

The reported effects are percentage points difference in filing between the treatment group and the reference group. The proportion filed is measured at the date for the final tax settlement. For self employed this was September 25th, and for limited companies September 18th.

The causal effect of the campaign is calculated using 2SLS-regression, using non-responses as an instrument variable to take into account that we would not reach everyone in the reference group (Gerber and Green, 2012).

We give a schematic overview of the three effects in the figure below.

Figure 1: An overview of the effects. The upper arrow illustrates the likelihood of reaching the given effect. The more we work on improving a phone campaign, the closer to reaching the causal effect we get.



The illustration underscores that the more we improve the phone campaign, the more we approach the causal effect of the campaign. We believe that the most interesting question for decision makers is not whether to run a campaign, but rather how to run a campaign that is as effective as possible. We believe it is possible to improve on our results by learning from some of our mistakes and possibly by targeting subgroups that are likely to be influenced by a phone call.

We believe that by improving the design of the phone campaign, a realistic result is somewhere between the practical effect and the causal effect.

All the calculated effects are point estimates. We have chosen not to include the confidence intervals in the figures, but rather to comment on them in the text when it is relevant.

2.5 Not everyone who say they have filed have filed

When analyzing the results of the campaign, we quickly found that a surprisingly high number of recipients reported that they had already filed. Upon further investigation, it turned out that this information was not always accurate. When designing the campaign, we thought that if people reported that they had already filed, we should end the conversation as we could no longer influence

them to file. While we did discuss the need to have access to internal systems while making the phone calls, we did not anticipate that one in three self employed and one in five limited companies would say that they had - or thought that they had - already filed. For limited companies this was for the most part accurate, but many of the self employed who said that they had filed had not done so. While claiming to have filed might be the first answer that comes to mind, we also know that some self employed misunderstand the buttons on the Altinn website when they are about to file and end up storing their tax return form instead of filing. The dialog box for filing will be changed as a result of this finding. However, the changes will not be implemented until 2017.

Naturally, those who answered that they had already filed were included in the analysis. Surprisingly, we found that self employed who answered that they had (or thought they had) filed were more influenced by a phone call from Tax Norway than those who said that they had not filed.

3. Results: How much can we influence filing and why have they not filed?

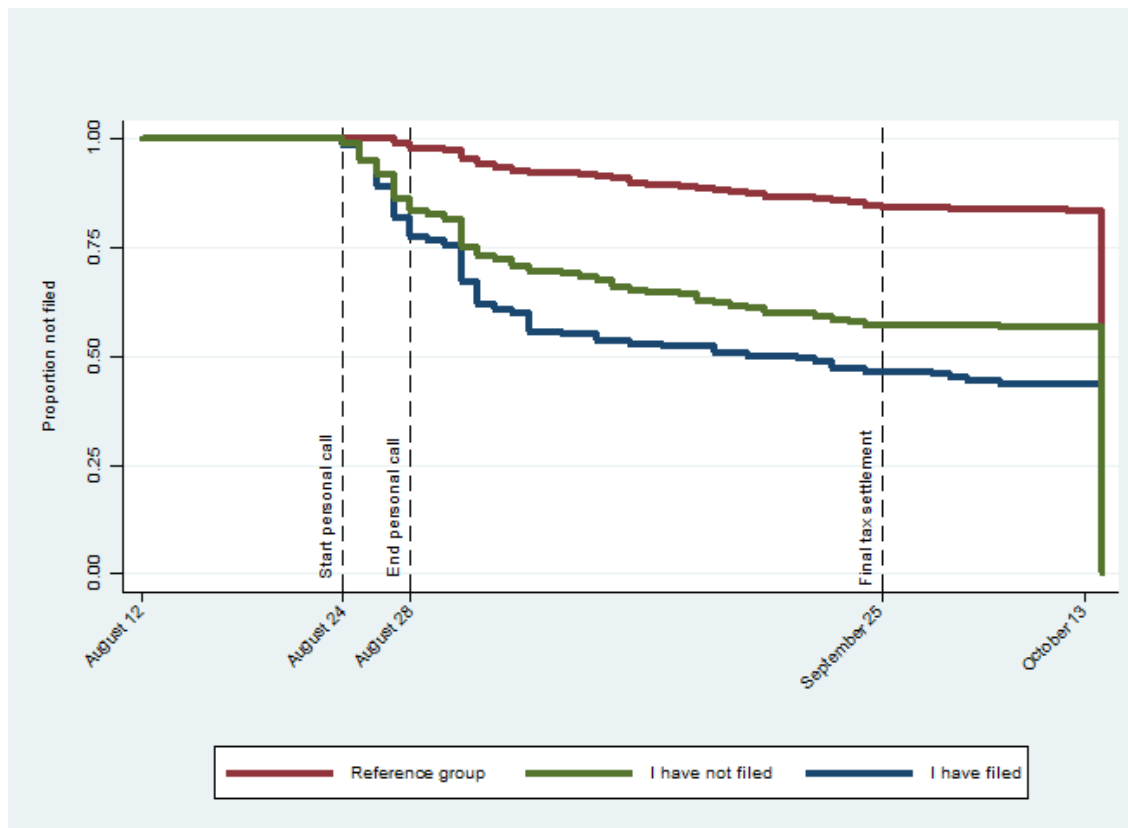
In this chapter, we will present the key findings from the various trials. We start by reporting the results for the self employed persons.

3.1 Self employed

3.1.1 Effects of personal calls to self employed

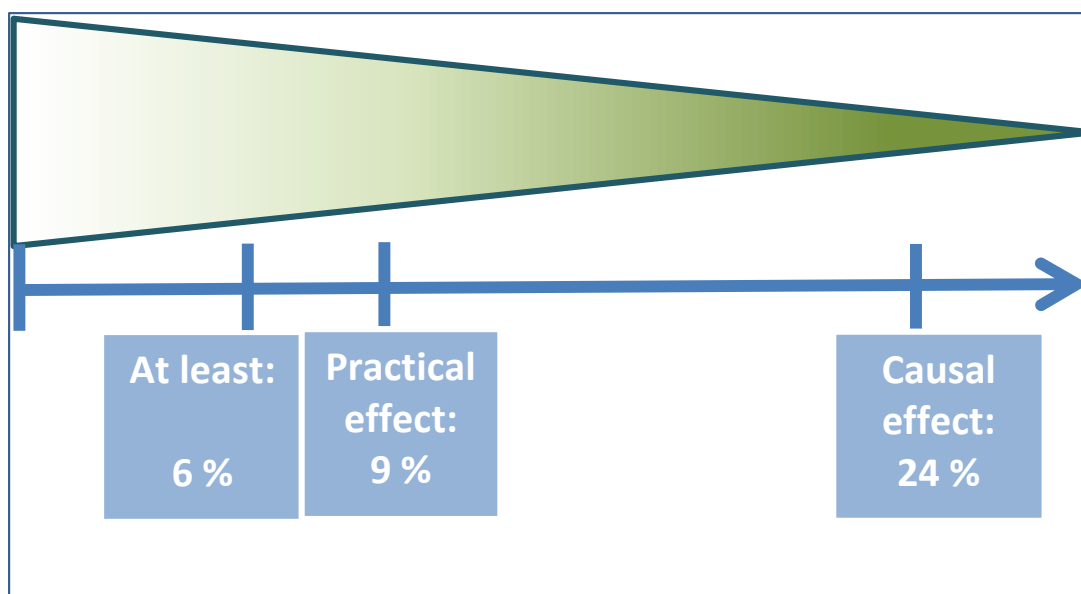
From August 24th to August 28th, we called self employed who had not yet filed. We attempted calling each self employed twice and reached 38 percent. As discussed in Section 2.5 above, almost a third of the self employed answered that they had already filed. In the graph below, we look at the difference in filing between self employed who say that they have not filed and those who say that they have filed.

Figure 2: Self employed and proportion not filed, split in three subgroups. The line for those we did not reach is not shown in the graph – this means that the reference group and the two other groups are not directly comparable.



Interestingly, those who claim that they have already filed are much more likely to file, both compared to the reference group and compared to those who say they have not filed. We are not going to speculate in any psychological reasons why this may be so. However, as discussed in Section 2.5 above, we know that some people mistake the buttons on the website when filing.

Figure 2 also shows that the campaign overall has quite decent results. In the illustration below, we show the results in more detail.

Figure 3: The effect of personal calls to self employed.

Starting from the left, we see that the effects of repeating the campaign with exactly the same design as this campaign would make about six percent more self employed file by September 25th. While this is an acceptable result, given that our population consists of self employed who are almost three months late and who did not respond to the reminder letter sent them in the beginning of August, we think the result can easily be improved. By updating the list every day, we can avoid calling self employed who have already filed. This would increase the result of the campaign to about nine percent. In the four regions where this campaign was conducted, this would correspond to more than 1 300 extra self employed persons filing their tax return³.

However, we did not reach all the self employed we tried calling. The effect, of course, is considerably higher if we look only at the self employed who picked up the phone. If everybody had picked up the phone, the phone campaign would make 24 percent more of the self employed in the target group file. This is the causal effect of the campaign on the people we talked to. While we are unlikely to reach everyone we try calling, we can work on reaching more of the self employed and thereby get closer to the causal effect.

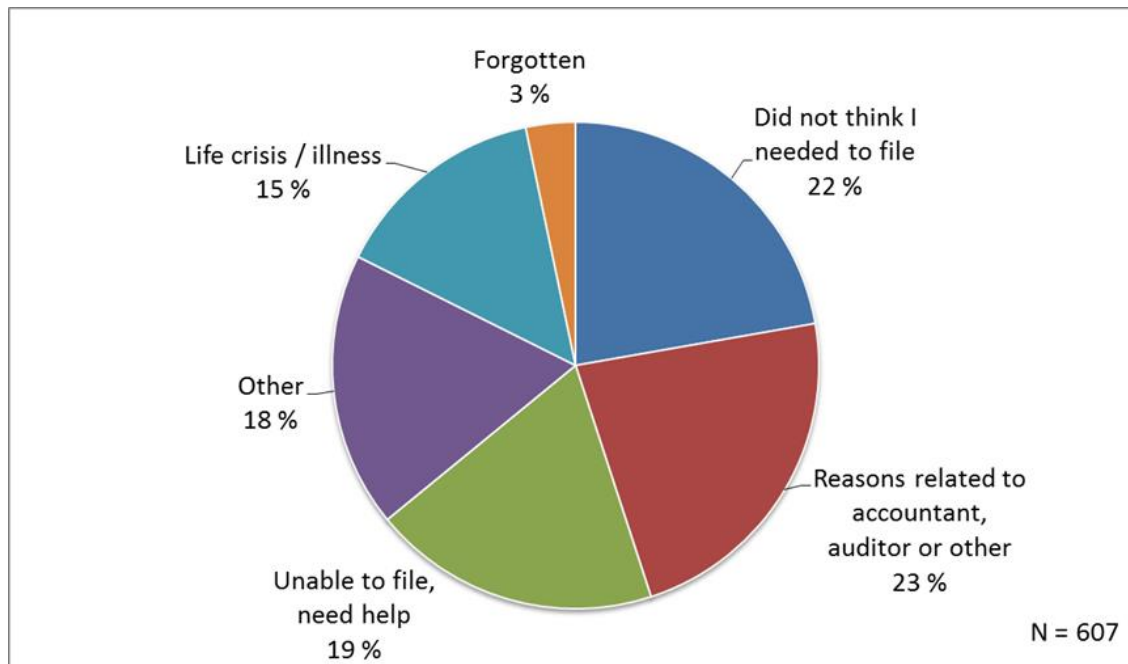
Next, we will discuss the reasons why self employed have not filed. We believe that the reason we are able to influence so many of the self employed to file, has to do with the reasons why they have not yet done so.

3.1.2 Why do self employed not file?

When we called the self employed persons, we asked them why they had not yet filed. In the graph below we summarize the answers for the self employed who admitted they had not yet filed.

³ This number was calculated without including the northernmost region in Norway, as they were not taking part in the study.

Figure 4: Self employed: Why have I not yet filed?



The chart above shows why self employed had not filed by the time we talked to them.

One out of four of the self employed we talked to claimed that they were unaware that they had to file. If this is true, the reminder letter we sent to this group in the beginning of August has not been enough to convince them that they have to file. However, the finding is consistent with the strong belief we find many self employed have about not being self employed. Put differently, some of the people we regard as self employed regard themselves as regular employees. Typically, people in this group has either just started being self employed, they have had no income as self employed (but not de-registered their firm either) or they have quit being self employed the previous year. This group believes that they can use "quiet consent" the way wage workers in Norway can and that reminders from us do not regard them. This misunderstanding is understandable, given that the last few years, the major tax campaigns in media have highlighted the possibility to use quiet consent for everyone who had no changes to make to their tax return form. The focus of the media campaign was changed last year to focusing on making changes electronically. This study shows that a phone call from the tax authorities can influence those who do not know that they have to file to do so.

We also believe that more precise and targeted information before the deadline might influence self employed to file their tax return forms, maybe even on time. We have suggested that information about the duty to file becomes a part of the message that informs companies and self employed that the pre-populated tax return forms are available online.

Another common response to the question of why they had not filed, was that it was due to some other person, accountant or other, who was supposed to file for them or help them file. In an earlier study, we asked the accountants why some of their clients filed late (Evensen and Løsset, 2014). The accountants said that they received the necessary documents late, and hence they could not file until after the deadline. In other words, we have one study that finds that accountants blame their clients while this current study finds that the clients blame their accountants. However, the previous study also found out that the accountants are not always urging their clients to send the documents they need to file, as they have enough to do even if some clients do not send them what they need on time. Also,

the accountants said that many self employed are expecting the accountants to take care of filing no matter how late they give them all the paperwork needed to file. Put simply, we have a situation where the accountants and their clients point at each other for filing late. In this situation, Tax Norway could influence each of the parties to do their part by:

- Reminding self employed that they have to send their documentation to their accountant early enough for the accountant to file on time.
- Encouraging the accountants to spend time asking for the documentation they need to file for their clients.

Another common answer among the self employed was that they were unable to file and needed help, either with the filing or with filling in the tax return forms correctly. This campaign shows that those who need help are happy to get a phone call from the tax authorities so they can get the help they need to file. It turns out that some of the people who need help do not to call us to get the help they need.

Along a similar vein, fifteen percent told us that they had not filed because of a life crisis (separation, death in close family etc.) or because they had been seriously ill. Some of the people we talked to in this group could not be influenced to file. Quite a few, however, accepted our offer to help and filed as a result. In other words, the campaign proved that we can make self employed who are in a difficult life situation file by offering our help on the phone.

The self employed we talked to also referred to numerous other reasons for not filing. We categorized these reasons as "Other reasons". The "other"-category includes wrong number, bankrupt, being dead, unknown reason and having postponed filing. All the answers we categorize as "other reasons" are reasons we believe are difficult to influence by a phone call from a Tax Norway employee. Overall, the phone campaign was less effective towards self employed who name these reasons.

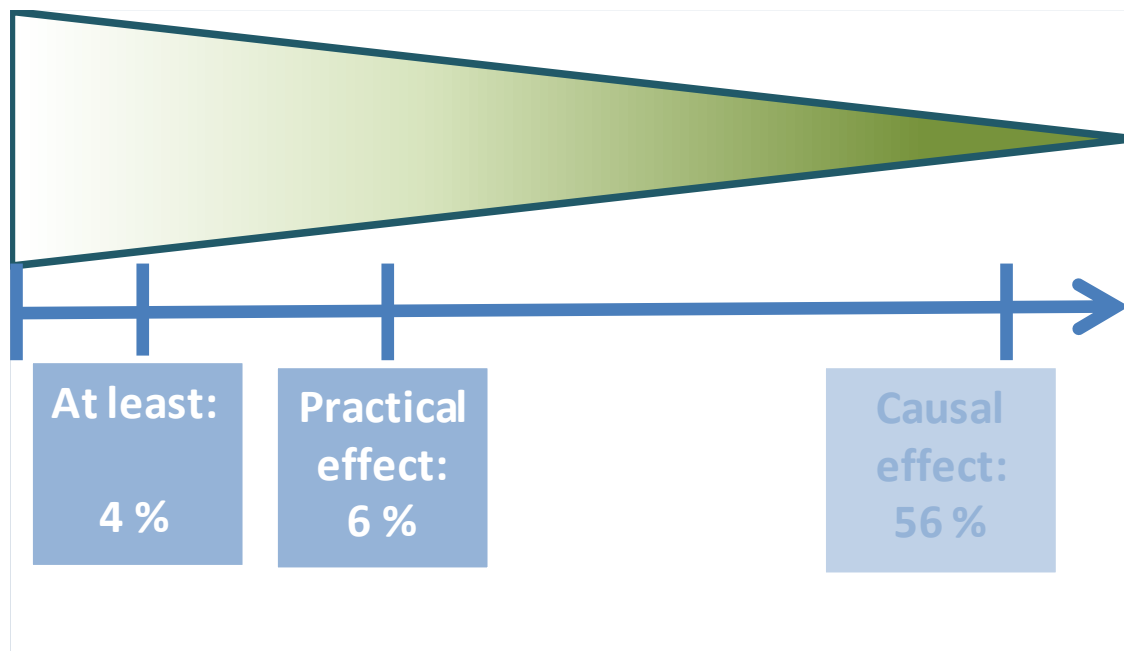
At last, we note that merely three percent of the self employed we talked to say that they have forgotten the deadline. This group reacts well to the phone campaign. However, if this was a main reason for not filing, a simple reminder could have been enough to make more self employed file. When forgetting is a problem only for the few, measures like offering help with filing might be more appropriate than a simple reminder.

Next, we present the results of the automated phone calls.

3.1.3 Effects of automated calls to self employed

We called self employed using an automated phone system from September 1st to September 4th. Among the 8 735 self employed we tried to call, 12 percent answered the phone. The fact that so few picked up the phone seriously limited the effectiveness of the campaign (see section 2.2). The robot tried calling each person on the list once. The results are reported in the illustration below.

Figure 5: Automated phone calls to self employed persons. The causal effect, while correctly estimated, is out of reach since it is not realistic to reach all of the self employed.



If we repeat the campaign with exactly the same design, it would make 4 percent more self employed file. The reason that the effect is not higher is that very few picked up the phone, and among the few who picked up, most had already filed. In other words, we would not recommend repeating the campaign the way we did it. However, if we remove those who have already filed, the effect is 6 percent, with a confidence interval of two percent on either side. This is not great, but it reflects the fact that we reached very few when we used the automated phone system because it was set to wait for only 17 seconds. This was the first time we used this phone system for a campaign. By tweaking the settings so the phone system waits longer for respondents to pick up the phone, we will get better results.

From the illustration, we also see that the causal effect of the campaign was 56 percent. However, this is a result we believe is unattainable. We do not believe it will be possible to reach all self employed using an automated phone service (nor using a manual one, for that matter). Also, in this campaign we reached very few self employed. This indicates that the self employed we reached are more easy to influence than the ones who do not pick up the phone. To avoid high-number-blindness, we therefore put the causal effect in a more faded color.

As already pointed out, a limitation of this part of the campaign is that we reached very few of the ones we tried calling. Unless an automated phone system is able to reach more than 12 percent of the people it tries calling, we would not recommend using an automated phone system. We do, however, believe that we can reach more by increasing the waiting time of the phone system.

3.2 Limited companies

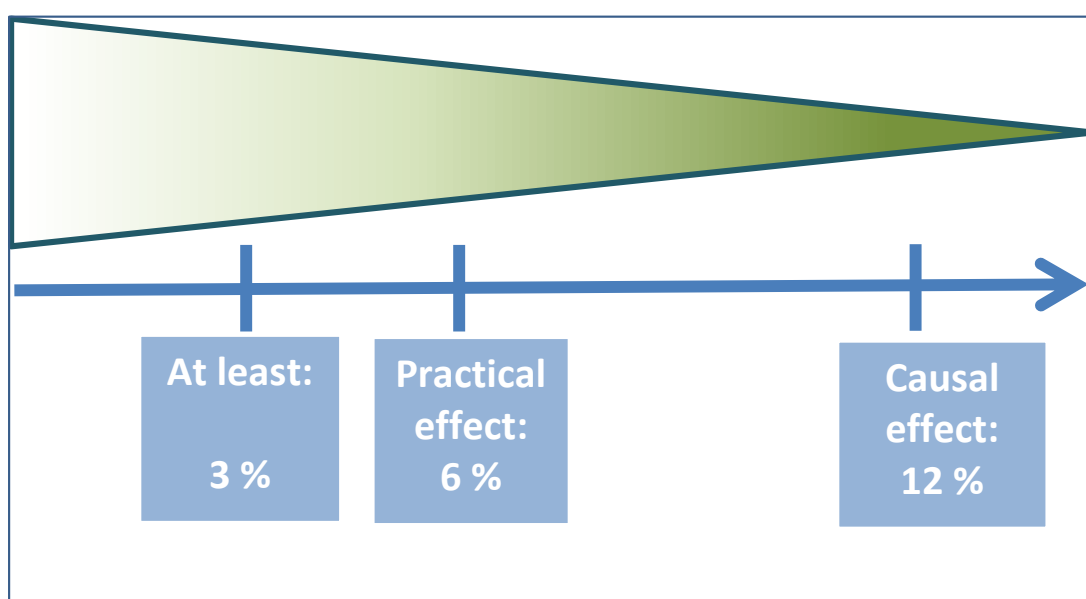
3.2.1 Effects of personal calls to limited companies

We called limited companies from August 31st to September 4th. Due to the reasons given in Section 2.3 above, a considerable amount of the companies we called filed on August 31th. This limited the effectiveness of the campaign considerably.

During the trial we called each of the 2500 companies once and reached 47 percent of them. If we had called more than once, we might have reached more of the companies.

In the graph below, we summarize the results of the campaign.

Figure 6: The effects of personal calls to limited companies.



Starting from the left, we see that even when we call many companies who have already filed and reach less than half the companies we try calling, the effect of the campaign is three percent. However, by updating the lists more frequently, and thus avoid calling companies who have already filed, we could easily achieve twice the effect, which is what we call the practical effect. This would be our result if we make simple improvements to the current campaign design. The effect could be increased further by attempting to call each company more than once and even further by limiting calls to companies that can be influenced by a phone call. The practical effect has a confidence interval of plus/minus three percent.

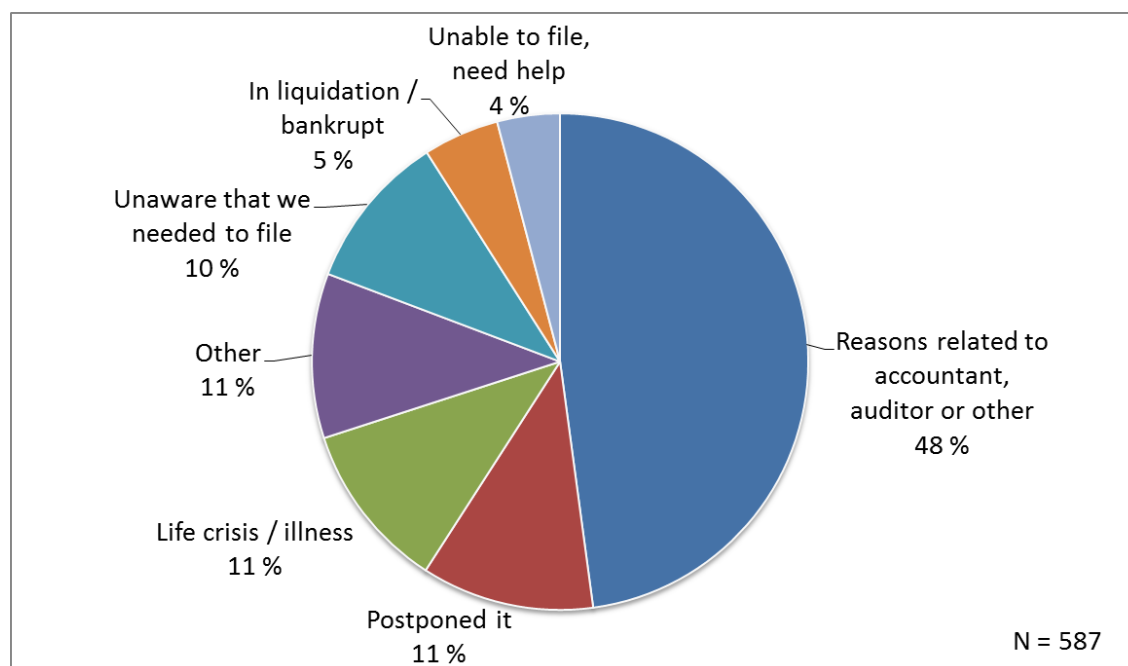
If we kept calling until we reached all companies, and not one of them had already filed, we would achieve the causal effect, which is the effect on companies we reach and who have not filed by the time we call them. The average of the causal effect is 12 percent, and has a confidence interval of 6 percent on either side, meaning that the expected effect is somewhere between six and eighteen percent. The wide confidence interval of the causal effect is a result of fewer observations included in the estimation of the effect – only phone calls where the company picked up the phone and had not yet filed when we talked to them, are included in the estimation.

We believe a well-run campaign can realistically achieve results somewhere between what we call the practical effect and the causal effect. The more improvements are done to the campaign, the closer we would get to reaching the causal effect.

3.2.2 Why do limited companies not file?

The limited companies that received a personal phone call were asked why they had not yet filed. In the graph below we summarize the answers for companies answering that they had not yet filed.

Figure 7: Limited companies: "Why have we not yet filed?"



The most striking finding in the graph above is that almost half the limited companies we spoke to name the same reason for not filing – they say the reason is related to their accountant, auditor or some other person they relied on for filing. We believe that the mechanisms at play are similar for limited companies and self employed who name their helpers as the reason they have not filed. The 2014 study among accountants (Evensen and Løsset, 2014) found that the clients often are late in sending in documentation needed and that accountants are sometimes not persistent enough in following up clients who are late. In part, this may be something we can address in our communication with the two parties, as mentioned in the discussion above. About half of the limited companies who blamed their accountant or auditor filed within three weeks of receiving the phone call from us.

The limited companies we spoke to also mentioned several other reasons for not filing. Eleven percent said that they had postponed filing while 11 percent mentioned their life situation or illness as the reason they had not filed. We can assume that these groups knew that they had to file, but had chosen not to. The campaign was less effective in making this group file than in making those who had postponed it file.

In contrast to the above reasons, we see that ten percent answered that they thought they did not have to file a tax return form. When it comes to limited companies, the communication from Tax Norway is clear: Every registered limited company has to file. Also, the limited companies we called had received a written notification that they would be assessed and given late delivery penalty if they did

not file. However, the phone campaign did increase filing from limited companies who claimed they did not know they had to file.

Few limited companies say that they need help to file. This is a strong contrast to the self employed, who to a lesser extent have accountants to help them file. The difference underscores that limited companies and self employed are different from each other and that, as a consequence, we should communicate differently to each of the two target groups. The Tax Norway calling agents reported that they felt they had more to offer self employed than most businesses, which to a larger extent relied on their accountants to get their tax return forms right.

Five percent answered that their company was in a liquidation process or bankrupt. We were somewhat surprised by this, because we had already removed bankrupt companies from our lists. Still, it might be that the companies are in the process of declaring themselves bankrupt but have not completed the paperwork yet, or it might be due to delay somewhere in the process between when a company is registered as bankrupt in the Brønnøysund registers and when Tax Norway's systems are updated and the lists of companies to call extracted. The companies we talked to were not yet registered as bankrupt in our systems, and they still have an obligation to file. We believe that there is little we can do to make bankrupt companies file, but hopefully, more updated lists will reduce the size of this group when calling.

Lastly, we constructed a large category of other reasons for not filing. This category includes reasons like "wrong number", "forgotten", "do not know" and "unknown or unspecified".

Overall, for limited companies, the most important knowledge we got is that many answer that a third party is the reason they have not filed. This is the reason we need to address if we want to increase filing from limited companies.

Next, we turn to automated calls to limited companies.

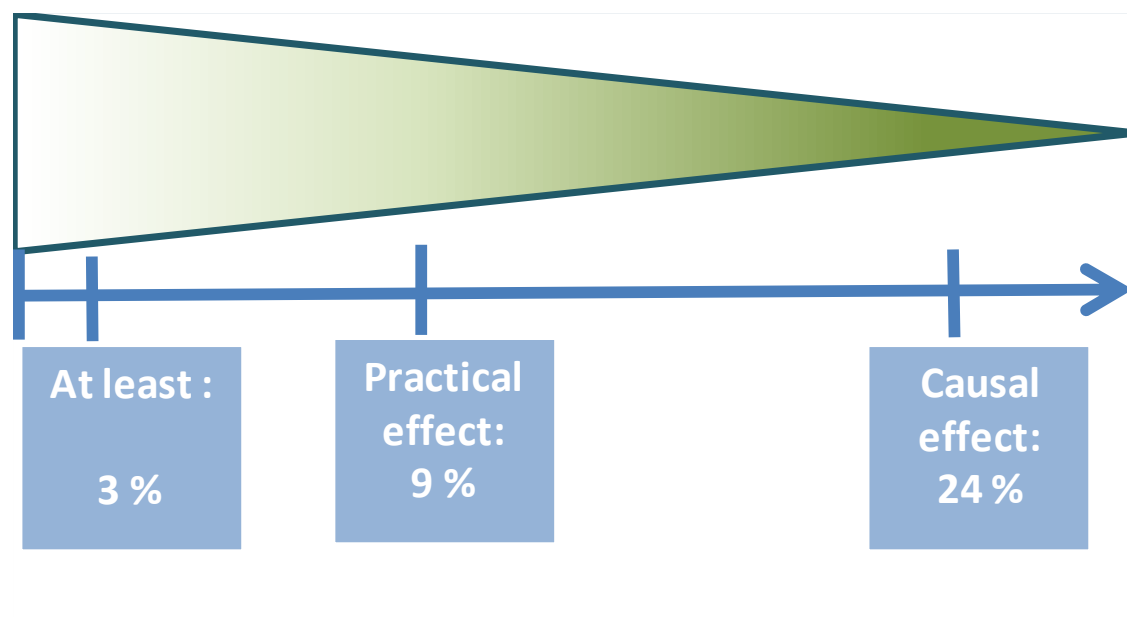
3.2.3 Effects of automated calls to limited companies

We ran the campaign using automated phone calls from August 24th to September 1st. Out of the 10 870 companies called, 37 percent answered the phone. The reason why so few picked up the phone was that the automated phone system waited only 17 seconds for someone to pick up the phone (see Section 2.2).

We attempted to call each company once.

In the graph below, we summarize the results of the campaign.

Figure 8: The effects of automated phone calls to limited companies.



If we include limited companies who had filed before we called them, we find that the effect of running a campaign identical to ours was 3 percent. When we exclude those who had filed before we called them, about 9 percent more companies were made to file as a result of an automated phone call. One reason these effects are not higher, is that so few picked up the phone when we tried to call them.

We reached only 37 percent of the companies we tried calling. As a result, the effect on the companies we did reach is much higher as the effect of the overall campaign. If everybody had picked up the phone, the phone campaign would make 24 percent more limited companies file. This is the causal effect of the campaign on the people we reached. While we are unlikely to reach everyone we try calling, we can work on reaching more of the self employed and thereby get closer to the causal effect.

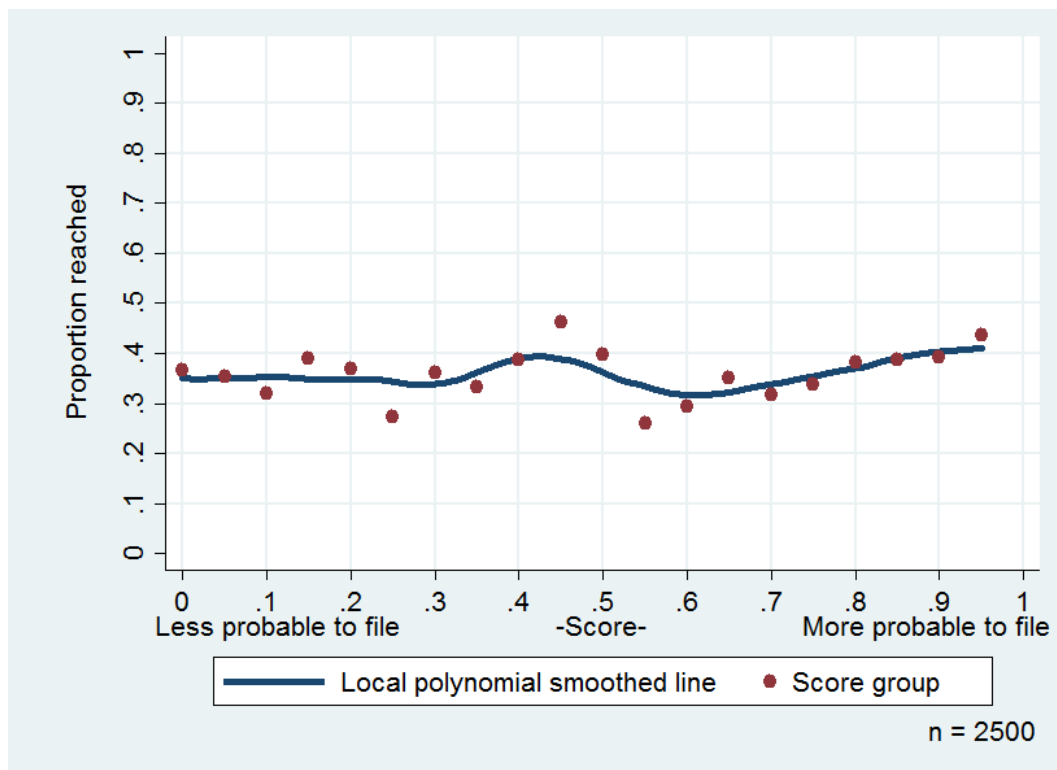
4. Can we predict who will be influenced to file by a phone call?

Tax Norway has developed a model that predicts the probability of filing the tax return form. The model uses statistical methods and data from Tax Norway's data warehouse to give each company a score between 0 and 1, where score close to 0 has the least probability to file. Tax Norway has to assess those who do not file. This model makes it possible to prioritize persons and companies with the least probability to file. However, this model may also be used to choose between various available measures. In this case, we wanted to find out if the score can predict who picks up the phone and the effect of a phone call on filing.

4.1 Self employed

4.1.1 Can we predict who picks up the phone?

First, we wanted to see if how many we reach varies by score. To visualize this, we divided the score in 20 groups and calculated the proportion of reached within each group.

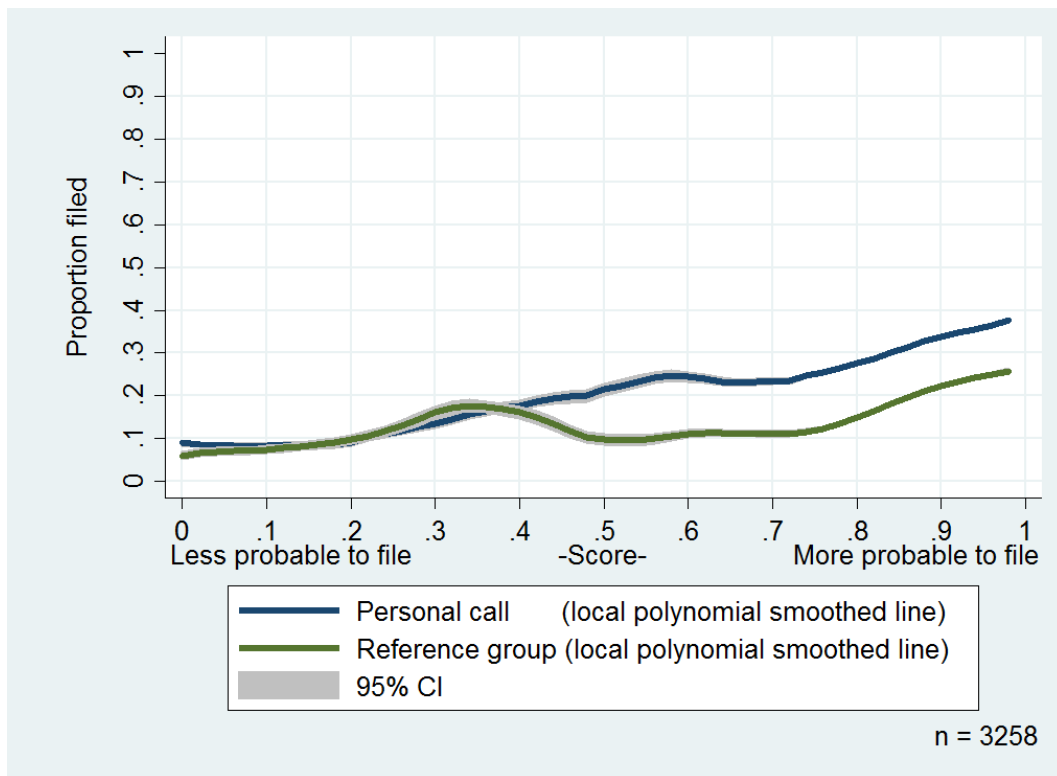
Figure 9: Can the score level tell us the probability for reaching self employed by phone?

The figure shows that the proportion reached does not vary with the score level. This means that we reach both persons who are likely to file and persons who are unlikely to file. This again means that we can use phone calls to offer help, also to those who are unlikely to file.

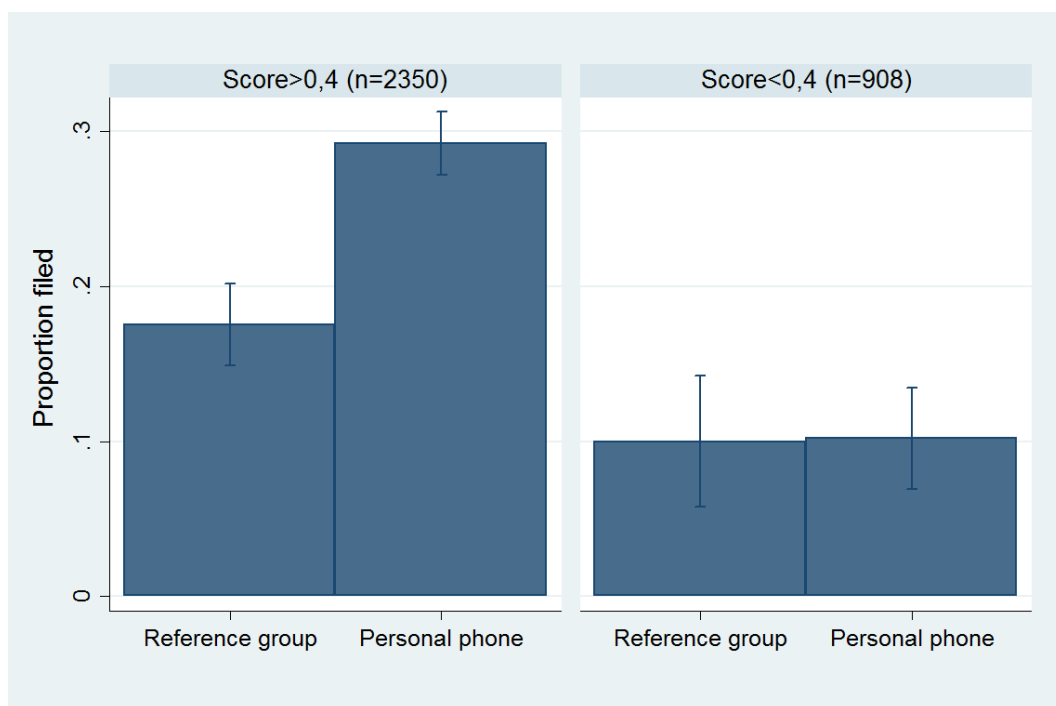
4.1.2 Can we predict who will be influenced to file after a personal phone call ?

To find out how filing varies by score level, we divided the score in 50 groups and calculated the proportion filed for those who received a phone call and for the reference group for each score level. We excluded self employed who had filed before we called them. To show the correlation, we hide some of the variation from point to point using local polynomial smoothed lines to draw the graph.

Figure 10: Does filing and the effect of a phone call vary between score groups?



The figure suggests that calling self employed with a score of less than 0.4, (low probability to file) has no effect on filing. We can test this by using a regression analysis where we take into account that the effect may be different for persons with low probability of filing. The result of the regression is shown in the figure below.

Figure 11: Did the calls to self employed with a score below 0.4 have effect?

Indeed, the figure shows that there is a clear difference in filing after a phone call depending on whether or not the person is likely to file or not. Self employed with a low probability of filing are not influenced to file by a phone call, while those who are likely to file in the first place are also more likely to be influenced to file when receiving a phone call. Self employed with score above 0,4 are 12 percentage points more likely to file if they receive a phone call.

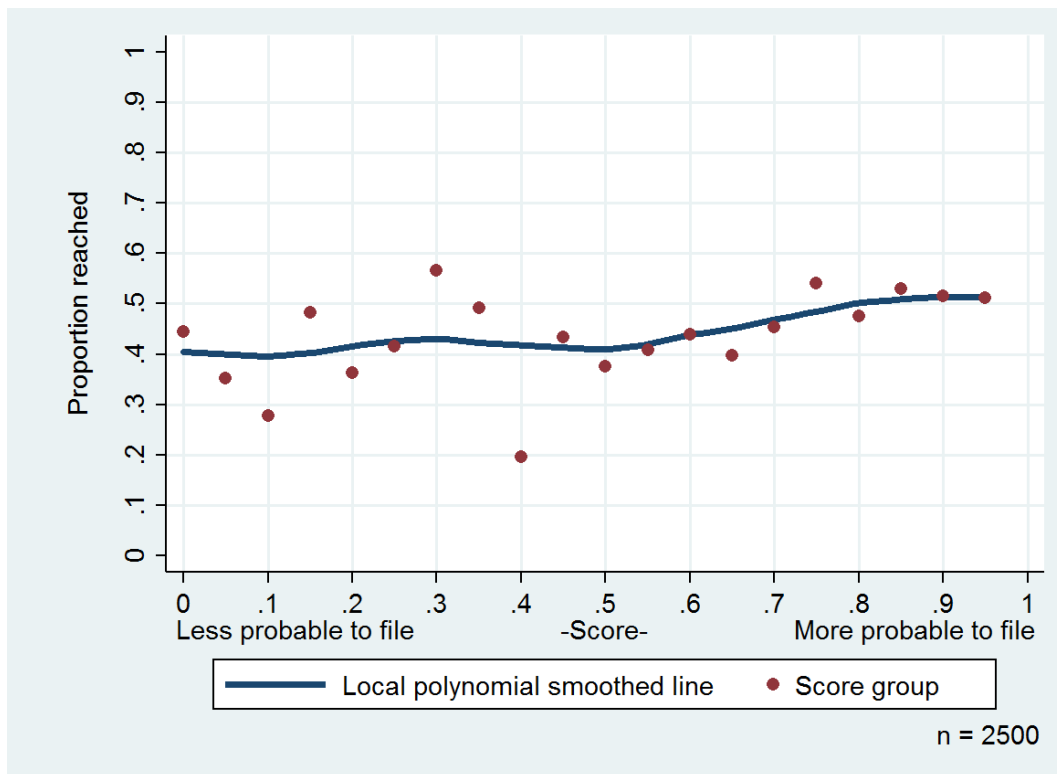
The potential benefit of this finding is clear – we could have called fewer self employed and still gotten the same effect on filing. In our population, 28 percent had a low probability of filing. Not calling this group would have made the campaign significantly cheaper. The question is if calling this group has other benefits, or if calling them is just not worth the effort.

4.2 Limited companies

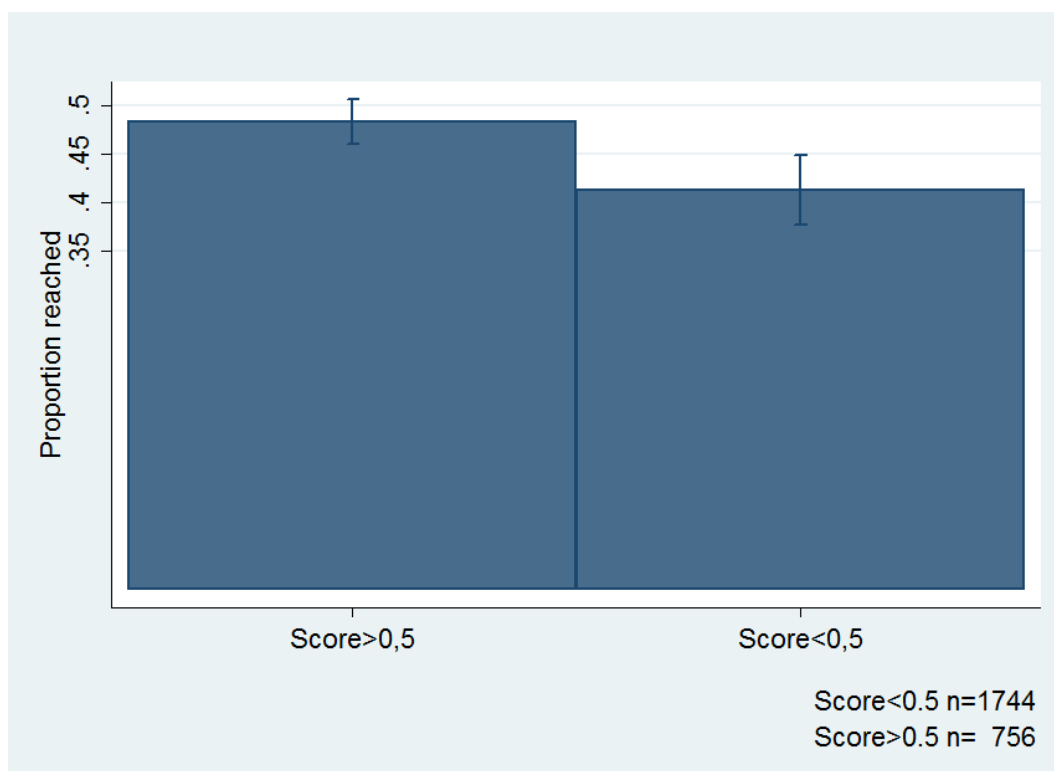
4.2.1 Can we predict who picks up the phone?

For limited companies, we followed the same procedure. In the graph below, we see how picking up the phone varies by score. Again, a low score means a low probability of filing.

Figure 12: Can the score level tell us the probability for reaching companies by phone?



The figure shows that there is no strong trend in any direction. However, it seems to be somewhat easier to reach companies with a score above 0.5. We tested this using regression analysis. We show the result in the figure below.

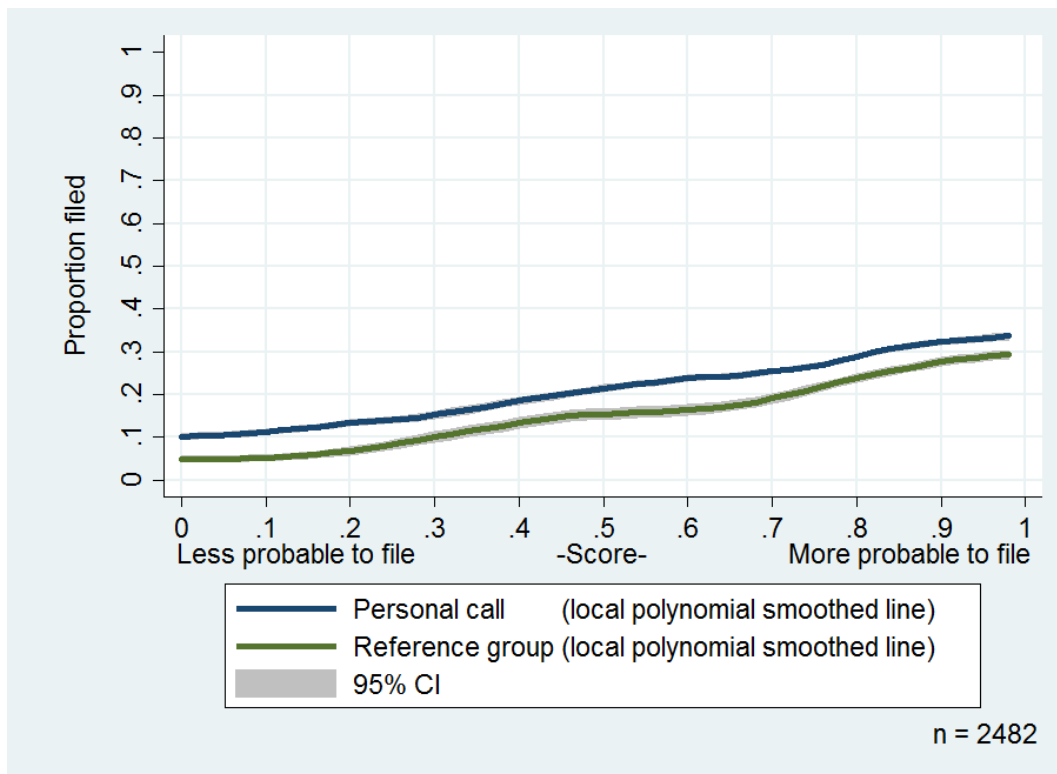
Figure 13: Are companies with a score below 0.5 less likely to pick up the phone?

We reached 41 percent of the companies with a score less than 0.5 and 48 percent of the companies with score above 0.5. The confidence intervals are not overlapping, but almost. So while it is easier to reach companies who are likely to file, it is not much easier.

4.2.2 Can we predict who will be influenced to file after receiving a personal phone call?

To find out how filing varies by score level, we divided the score in 50 groups and calculated the proportion filed for those who received a phone call and for the reference group for each score level. We excluded companies who had filed before we called them. To show the correlation, we hide some of the variation from point to point using local polynomial smoothed lines to draw the graph.

Figure 14: Can the score level tell us the probability of filing after our call?



This figure shows two clear stories. First, the higher the score, the more likely a company is to file. Secondly, however, this seems apply equally to those who received personal phone calls and the reference group. In other words, phone calls influence filing independent of likelihood of filing when it comes to limited companies. This means that we cannot increase the effectiveness of a phone campaign by only targeting limited companies with a high probability of filing.

5. Literature

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