

The effect of Protestantism and Catholicism on economic, health and philanthropic behaviour.

Sem Kippers

Thesis supervisor: Prof. Dr. Dinand Webbink

Thesis co-reader: Prof. Dr. Robert Dur

Abstract

Religion is generally seen as an important factor for economic behaviour. This paper uses variation in religion induced by priming techniques to estimate the effects of Protestantism and Catholicism on economic, health and philanthropic behaviour. Priming is recently introduced in economic literature as a technique to estimate the marginal causal effects of social identity categories on potential outcomes. We find that Protestantism and Catholicism affect those outcomes differently. The main findings of this study are that financial risk taking is reduced by Catholic identity norms. The same is true for donating to charity organizations and trust, these variables are both negative affected by Catholic identity norms. Furthermore we find that trust is negative affected and Health related behaviour seems to be positively affected by Protestant identity norms.

1. Introduction

The effect of religion on behaviour has been investigated in many studies. The main difficulty is to isolate the effect of religion from the effect of possible confounding factors, such that it's difficult to investigate causal effects of religion on behaviour. In a recent economic study Benjamin, Choi and Fisher introduced priming, which originally used in psychology studies, as a technique to create, identify and to measure exogenous variation in religious identity. In this paper the same technique is used to study the causal effects of religious identity on several economic outcomes, health related behavior and philanthropy.

One of the leading figures in the research topic where the effect of religion on economics is investigated is Weber. Weber (1930) argued that Protestants have a strong work ethic and encourage capital accumulation; thus leading to the rise of capitalism. This study tries to investigate the impact of religious identity norms on different economic outcomes where we will focus on the Protestantism and Catholicism identity norms as the different religious identities we want to investigate.

In this study we use the ideas of Akerlof and Kranton (2000) how identity affects economics. Furthermore we use priming techniques as used by Benjamin, Choi and Fisher (2010) to create and identify exogenous variation in religious identity. In their study they used the theoretical framework created by Benjamin, Choi and Strickland (2010) which is inspired by the same ideas of Akerlof and Kranton (2000). In this study we will use the same theoretical framework as Benjamin, Choi and Fisher (2010) have used as a starting point for our theoretical framework how priming affects identity temporally and how to analyze the impact of religious identity on economic outcomes.

Benjamin, Choi and Fisher (2010) used the psychology "self-categorization theory" which is a idea described by James (1890) and later described by Turner (1985), to create exogenous variation in the strength of religious identity. This theory describes that each person belongs to multiple social categories such as religion, gender and ethnicity, which all have their own set of norms. Furthermore this theory says that behavior in a given moment is more affected by the norms off identity categories that are top of mind at a given moment than non top of mind identity categories.

When there exists a situation where a certain identity category temporarily are more salient than normal situations for some persons or between different periods, the marginal behavioral effect of this identity category could be estimated. We call such a situation where there exist a temporarily difference between the awareness of a certain identity category a "prime". Benjamin, Choi, and Strickland (2010) used this methodology to identify the economic effects of racial, ethnic, and gender identity norms. In a second study Benjamin, Choi, and Fisher (2010) used this method to identify the economic effect of the religious identity norms on the following economic outcomes: contributions to public goods, trust, financial risk-taking, thrift and capital accumulation, generosity and at last work ethic.

Benjamin, Choi, and Fisher (2010) used religious orientated sentences which persons needs to unscramble as a priming technique to let the strength of the religion identity grow. In this paper a version of this priming technique as used by Benjamin, Choi, and Fisher will be used to prime persons.

By using this priming technique we investigate the causal effect of the religious identity norms of Catholicism and Protestantism on economic, health and philanthropic behavior. To study the effect of religion on economic behavior we will test three hypothesis's (H1-H3), and to investigate the effect of religion on health and on philanthropic behavior we will test respectively hypothesis H4 and H5. The hypothesis's we will test defined as follows:

- H1: Contribution to public goods are affected positively by Protestantism and negatively by Catholicism (La Porta et al., 1997)
- H2: Financial risk taking is reduced by Protestantism (Kumar, Page and Spalt, 2009)
- H3: Trust is affected positively by Protestantism and negatively by Catholicism (La Porta et al., 1997)
- H4: Health is positively affected by religion, especially smoking and drinking (Koenig et al., 1998)
- H5: Donating to charity is positively affected by religion, especially by Protestantism and less by Catholicism (Brooks, 2003; Geven in Nederland, 2003 and 2011)

To test these hypothesis we set up an online experiment where we asked respondents to fill in an internet survey where we primed fifty percent of the respondents, let them play two economic orientated games, asked them some questions and finally let them make the choice what to do with the money they have won by participating the two games.

The main results of this study are as follows.

- H1: We don't find evidence for this hypothesis.
- H2: We find evidence that financial risk taking is reduced by the Catholic identity norms. But we don't find evidence for the original hypothesis.
- H3: We don't find evidence for H4 but we do find evidence for the opposite of this hypothesis. Trusting other people is negatively affected by the Protestant identity norms and You can't be too careful in dealing with other people is positive affected by the Catholic identity norms. These results together indicate that the Protestant identity norms and the Catholic identity norms affect trust both negatively.
- H4: We don't find significant evidence for H5 but there is a strong indication that H5 is true for the Protestant identity norms.
- H5: We don't find evidence for H6, but we do find evidence for the opposite that donating to charity is negatively affected by the Catholic identity norms.

This article is structured as follows. First we will describe a theoretical framework how priming is working. After that we will introduce our priming technique and the process how to validate this priming technique. In the fourth sector of this paper we will describe our data collection process, the methods we will use to estimate the effect of religion on economic, health and philanthropic behavior and we will describe for each hypothesis what we will especially test. The fifth part in this article are the results of our experiment and we will finish this article with the conclusions and discussion of this study.

2. Theoretical Framework for priming

We use the theoretical framework for priming developed by Benjamin, Choi, and Strickland (2010) as starting point, we will focus on estimating the economic effects of increasing the strength of a social category identity. By increasing the strength of a social identity category we increase the influence of the norms which belongs to a certain identity in a personal decision process. This whole theoretical framework for priming is based on the ideas of Akerlof and Kranton (2000).

In this framework every person seeks to maximize his own utility of each decision he makes. How to maximize the personal utility of a decision depends on the personal preference based on his personal situation, the personal strengths given to each identity he belongs to and on the norms which belongs to the identities a person belongs to. The personal choice x is chosen such that a person maximize U in the utility function

$$U = - (1 - w(s)) (x - x_0)^2 - w(s)(x - x_C)^2$$

where $w(s)$ is the weight placed on the norm of social identity category C in the person's decision, $w(s)$ is equal or bigger than 0 and smaller or equal than 1. In this function x_0 represents a personal preference how to make a choice, this personal preference is based on the situation of the person itself included all the other identity categories norms not equal to C . Finally x_C represents the norm for this particular decision of identity category C , this norm is a person specific norm because it could be that this norm is influenced by other personal characteristics and other social identity categories. Such that x_C can be described by

$$x_C = x_{C(base)} + \sum x_{C,PC} + \sum x_{C,SID}$$

where $x_{C(base)}$ is the base norm of category C for a decision, $\sum x_{C,PC}$ represents summation over all the interaction effects between norm x_C and a person's characteristics, furthermore $\sum x_{C,SID}$ represents the summation over all the interaction effects between norm x_C and all other social identity categories not equal to C .

When we describe x_C in this way it could be that this norm is not equal for every person and probably depends personal characteristics like income, gender, age, profession, ethnicity and so on. All these personal characteristics are social identity categories itself, so have their own norms for a decision, these norms could also interact themselves with x_C . So the differences

across persons in x_C could be seen as results of interaction effects between different social identity categories with x_C and the interaction effects of the norms of social identity category with x_C .

We assume that the level of mindset variable for social identity category C ; s has a steady-state of \bar{s} , but we assume that s could temporarily increased to $\bar{s}+\varepsilon$ where $\varepsilon \geq 0$. When s increased temporarily to $\bar{s}+\varepsilon$ the weights given to the norms which belongs to social identity category C also increases, the positive differences are not per definition equal to ε . When the weights increases of the norms, the norms of the social identity category C have more influence on the decisions made by a person.

The first order condition of the utility function for decision x gives the optimal action in making this decision x^* as, $x^* = (1 - w(s))x_0 + w(s)x_C$. This optimal action in making a decision for x is a weighted average of the person's preference and the social identity category norm C for this decision.

Benjamin, Choi and Fisher (2010) set up six implications based on the results how the optimal choice for x is explained.

1. The higher the steady-state level of the mindset variable \bar{s} is, the closer x^* is to x_C in the steady-state.
2. A category prime will influence x^* such that it will move closer to x_C .
That means that priming social identity category C reveals the marginal behavioral effect of increasing the steady-state level of the mindset variable \bar{s} .
3. The sign of the priming effect depends on the sign of $x_C - x_0$.
Because this sign could be different for different persons due to differences in x_C or x_0 , the marginal effect of priming social identity category C measures the average marginal effect for the persons together.
4. Differences in the marginal effect of priming social identity category C depends not only on x_C and x_0 itself, but also on the differences between x_C and x_0 and the differences in the weights given to the norms of social identity category C during the decision.

Given that the weights have an influence on the marginal effect of priming social identity category C tells us that the size of ε , how much does the level of the mindset variable s increase, have an influence on the marginal effect of priming social identity category C . For that reason it's important to use a good priming instrument, otherwise it will be become difficult to measure effects at all, even if social identity category C has a causal effect on an outcome variable in reality.

5. Priming will not reveal social category effects that operate exclusively through x_0 rather than x_C .
6. There will be no difference between primed and unprimed choices in domains where the choice situation itself functions as a strong social category prime. Benjamin, Choi

and Fisher (2010) give a good example for this sixth implication; a Jew who is strictly kosher will have his Jewish identity primed whenever he is presented with the choice to eat pork. He will always refuse to eat the pork whether or not an additional Jewish category cue is presented.

Benjamin, Choi and Strickland (2010) assume in their original framework that x_C is the same for each person. In our approach we introduce the option that there can be differences across persons in x_C due to interaction effects with other norms and social identity categories. If the assumption Benjamin, Choi and Strickland makes is true our model gives the opportunity to give equal values to x_C for each person, but if the assumption is not true our model will give more flexibility to the values of x_C .

The drawback of this adjustment is that the interpretation of the results become more difficult. For example it could be possible that we don't find effects for category C on decision x , which can now be the result of differences in x_C , but it could still be true that there are effects of category C on decision x in reality. Without the assumption that x_C is equal for each person there is another possibility to explain that finding a null effect will not prove that there is any effect at all from category C on decision x .

3. Priming instrument and validation process

To create variation in the strength of a identity category several techniques are possible to use. But to investigate the causal effect it's important to mention that it could be possible that by priming a identity category, in this study the religious identity, other identity categories with their own norms could be primed too. A simple technique to prime a person's religion identity is to ask which religion they belong to. But a side effect of this technique is that the persons who feel that they are "bad" religious persons are primed besides the religion identity also for the "bad" religious person's identity; we don't know what the norms of these other primed identity categories are but side effects of priming techniques are not preferred. Another side effect of asking a person to which religion they belong, and thus showing them the other options besides their own religion, the opposite identity of the religions a person don't belong to grow as well in strength. This outcome of using this priming technique could be another side-effect. It must be clear that this situation is not preferred when a researcher wants to identify the causal effect of the religious identity norms of different religions separated or together. To avoid not rewarded side effects as described before researchers must be very careful and transparent by using priming techniques.

To prime the respondents in this study we use a similar priming technique as Benjamin Choi, and Fisher have used to prime their respondents. In this study every respondent has to create ten sentences out of words which placed in a non logical order. Seven out of the ten sentences for the primed group have a religious content. This type of priming technique is quite similar to the priming technique used by Benjamin, Choi and Fisher (2010), we have chosen for a similar subtle priming technique because Wheeler and Petty (2001) said that

subtle primes are more reliably cause behavior to conform to norms compared with blatant primes.

The seven religious sentences for the primed group are as follows:

1. Maria married Josef
2. The pastor tells the Easter Story
3. Noah built an ark
4. The Bible lay on the table
5. Mary appeared in Lourdes
6. You should not curse
7. He kept the Sunday rest

The three sentences without religious content are:

1. On safari in Africa
2. The table is covered festively
3. The weather is beautiful

It could be possible that the seven religious sentences prime the respondents not only on religion identity but also on other social categories. To avoid that there are more differences than the level of religious identity between the primed and non primed group, each religious sentence has its own almost similar non religious sentence for the persons in the control group. That means that for the religious sentence 'Maria married Joseph' the sentence for the non primed group was equal to 'Sandra married Peter'. The seven non religious sentences are included in appendix A.

To treat each person equal the order of the ten sentences are fixed. Hence, each person starts with the same non religious sentence and the persons in the primed group finished with a religious sentence and the persons in the non primed group finished with the corresponding non religious sentence.

After we set up a concept priming instrument we have tested the impact of this priming instrument. In the results we saw that we were better able to prime relatively young people in our sample. After these first results of the impact of our priming instrument we improved our priming instrument such that we were better able to prime Catholic persons, and selected the sentences witch prime the respondents on religion the best. Furthermore we have decided that the maximum age was 75.

After these improvements of our priming instrument we validate the quality of our definitive priming instrument by an online survey under 95 respondents. Immediately after the sentence unscramble, the questionnaire asked: "What five aspects of your identity are most important to you". From the primed persons 65 percent selected religion as an important aspect of their identity, while 50 percent from the non primed group selected

religion as an important aspect. Benjamin Choi, and Fisher found in their experiment percentages of 47 for the primed group who have selected religion and 25 for the non primed group. Although the base level of the percentages are different for the non primed group (25% and 50%) the differences created by priming are quite similar. We observe that the religious identity substitutes for the social personality, social personality scores higher in the non primed group than in the primed group. This difference is not preferred off course, but it's a logical substitute for religion, for that reason we expect that the weights given to the norms of the different social identity categories are not different for the primed and non primed group. Furthermore this pilot showed that the priming instrument had more effect for relatively younger group. In the younger group, the persons under the age of 65, 69 percent of persons of the primed group selected religion while 45 percent of the persons of the non primed group. When we compare these percentages with the percentages of Benjamin Choi, and Fisher we do see that the difference created by priming is now almost the same, even a little bigger. This difference between the primed and non primed group is made in the first two selected answers, the percentage of persons who have selected religion in the first two answers is equal to 38 for the primed group and 14 for the non primed group, therefore we conclude that our priming instrument places religion "top of mind" as a social identity category. When a social identity category is placed more "top of mind" the weights given to the norms of this social identity category will increase, and the choices made by the primed persons move closer to the norm of religion.

Another validation step to check if this priming instrument has worked is to look at the differences between the primed and non primed group for the persons from which we at the invitation moment don't know if they are religious or not, to the answers given on the question if they are religious. We see that 69% of the persons in the primed group say that they are religious while 55% of the persons in the non primed group answer that they are religious. Although this difference is not significant we conclude that our priming instrument has worked correctly. We can conclude this because we see many aspects which point out that our priming instrument has probably worked correctly and together these aspects give us enough evidence that this technique has worked. Especially because we haven't found evidence or non significant aspect which indicate the opposite way, that this priming instruments hasn't worked at all.

4. Data & Methodology

4.1 Methodology

The typical Econometric model used to estimate the effect of religion on economic, health and philanthropic behavior is:

$$y_i = \alpha_0 + \alpha_1 P_i + \alpha_2 X_i + \varepsilon_i$$

where y_i is the outcome of individual i , P_i is a dummy variable if person i is primed the value of P_i is equal to 1 and zero otherwise, X_i is a vector of control variables for individual i ,

in the model without control variables X_i is deleted out of the model and ε_i corresponds with a random error term for individual i . In our paper the estimates of α_1 are reported, these estimates are the effects of priming on the outcome variables. When the estimate of α_1 is significant it means that priming so religion has a significant effect on the outcome variable. To estimate the effect of a particular religion, like Protestantism and Catholicism, on the outcome variable the sample used for the estimation is changed. If we want to estimate the effect of Protestantism on the outcome variable, only the respondents are included for whom religious activity is known before and who have said in the survey they have Protestantism as a religion. The reason why only the respondents are included for whom religious activity is known before is because the question which religion they belong could be affected by being primed or not for the respondents for whom religious activity is not known before. This question could be affected such that these respondents give the answer they belong to a certain religion while if they weren't primed they wouldn't give the answer they don't belong to a certain religion. If this occur this will mean that the primed and the non primed group are not similar anymore.

To estimate if there are differences between the effect of Protestantism and Catholicism on the outcome variable another econometric model is used. This model is used for the difference in difference estimation and is formulated as:

$$y_i = \alpha_0 + \alpha_1 P_i + \alpha_2 C_i + \alpha_3 P_i C_i + \alpha_4 X_i + \varepsilon_i$$

where y_i is the outcome of individual i , P_i is a dummy variable if person i is primed the value of P_i is equal to 1 and zero otherwise, and C_i is a dummy variable if person i is Catholic C_i is equal to 1 and zero otherwise, X_i is a vector of control variables for individual i and ε_i corresponds with a random error term for individual i . In this model effect of being primed is estimated by α_1 , the effect of being Catholic is estimated by α_2 and the additional effect of being primed and belong to the Catholic religion is estimated by α_3 . If α_3 is significant different from zero it means that the Catholicism and Protestantism effect the outcome variable significant different. To estimate this model only the respondents are included for whom religious activity is known before.

4.2 Data

The data of this study is collected by an internet survey, in April and May 2012. The respondent were all members of "De Onderzoeksgroep" and have experience with internet surveys.

To invite the respondents for the internet survey an e-mail was sent with a unique link to participate we have send a reminder after seven days. The moments of sending the invitation e-mails were selected such that e-mails were not sent on Sundays or Saturdays to reduce the time dependent variation in awareness of religion between people.

All the respondents are invited without the knowledge that they could win some money but when they participate they have played games with the knowledge that they play for real money. For that reason it could be possible that some respondents who have participated would have quit without the knowledge that they could win money. An option to check if this could be the case for some respondents is to look to the average time spend on each question, when we do this we didn't find respondents who filled in survey too fast. Because everybody passed this check we expect that none of the respondents participate just for the money.

For this study we have invited 716 respondents between the age of 45 and 65. From 508 respondents of these 716 we already knew before we sent them a invitation that they attended a religious meeting. What we didn't know was what kind of religious meeting this was or which religion they belong to. From the other 208 respondents we didn't know if they attended religious meetings or not. From the 716 persons 390 persons completed the whole survey with an average complete time of 16 minutes and 50 seconds. The persons are randomly assigned to the priming group or the non priming group with both a probability of 50 percent.

The order of this online survey was as follows; first the individuals were randomly assigned to the primed or non primed group. All the respondents must complete ten sentences where for the primed group seven of those ten sentences had a religious content. After the priming process the respondents must play two economic games, with both games the respondents could win some money. The first game was a public good game and the second game was a risk aversion game. The respondents don't win the money of both games but only of one of the two. For each respondent the computer randomly decides at the end of the questionnaire for which game the respondent had won the money. After the second game the respondents were shown the amount of the money they had won by participating in game two. After the two games questions were asked about different topics like charity, health, trust and savings. Finally respondents could make a choice between donating the money to a charity organization they could select themselves or transferring the money to their own bank account.

4.3 Independent variable

The main independent variable in this paper is if respondents are in the primed group or not. If a respondent is assigned to the primed group the dummy variable "primed" will have the value 1, otherwise this dummy variable will have the value 0.

Individuals were randomly assigned to the primed or non primed group. As such, we expect no differences between the two groups.

To check this we compare the mean values for the following characteristics: gender, education, income, ethnicity and age. For all of these characteristics there are no significant

differences for the total means of these characteristics between the primed group and the non primed group for the breakdowns: respondents started with survey, respondents who ended the survey, respondents for whom religious activity is known before, Protestant respondents and Catholic respondents. When we split these characteristics up in different dummy variables as is done in Table 1, there are differences between the primed and unprimed group for the variable “income higher” for the following breakdowns: respondents who ended the survey, respondents for whom religious activity is known before and Catholic respondents.

To investigate if these differences between the primed and non primed group on income occurred by accident because the random assignment didn't work well or occurred because particular respondents quitted the survey if they were primed, we looked to the respondents who didn't finish the survey. In Table 1b we see that it seems to be that priming respondents have a negative effect on the chance that a respondent will finish the whole survey. If we estimate the effect of priming on the variable finishing the survey as is done in Table 1c, we see that there is a significant negative effect of priming on the chance to finish the survey. This effect is not significant when only the group is taken of respondents for whom religious activity is known before. An explanation for this result could be that persons don't like to participate with strange questionnaires where religion is included in a different way than normally is the case. This result could be a risk for the quality of our experiment, if particular primed respondents quitted the survey who don't have quitted the survey if they weren't primed, in that case the primed group and the non primed group are not similar anymore.

To investigate if particular respondents quitted when they are primed we have estimated the effect of being primed on the control variables for the respondents who are quitted. The results are shown in Table 2.

We don't find any evidence that particular respondents quitted the survey. For that reason the risk that the primed group and the non primed group are not similar because particular respondents quitted the survey because they were primed is not present anymore.

Table 1a sample means (standard deviations) and proportions

	started with survey		ended with survey		respondents for whom religious activity is known before					
	primed	unprimed	primed	unprimed	primed	unprimed	Protestant		Catholic	
							primed	unprimed	primed	unprimed
N	251	215	201	189	166	149	107	99	57	47
Gender	0.55 (0.5)	0.53 (0.5)	0.54 (0.5)	0.53 (0.5)	0.44 (0.5)	0.4 (0.49)	0.47 (0.5)	0.4 (0.49)	0.4 (0.49)	0.38 (0.49)
Education low	0.41 (0.49)	0.47 (0.5)	0.42 (0.49)	0.49 (0.5)	0.39 (0.49)	0.47 (0.5)	0.41 (0.49)	0.47 (0.5)	0.35 (0.48)	0.45 (0.5)
Education middle	0.4 (0.49)	0.38 (0.49)	0.41 (0.49)	0.38 (0.49)	0.44 (0.5)	0.38 (0.49)	0.44 (0.5)	0.37 (0.49)	0.44 (0.5)	0.43 (0.5)
Education higher	0.19 (0.39)	0.16 (0.37)	0.17 (0.38)	0.13 (0.34)	0.17 (0.38)	0.15 (0.36)	0.15 (0.36)	0.15 (0.36)	0.21 (0.41)	0.13 (0.34)
Income low	0.35 (0.48)	0.33 (0.47)	0.35 (0.48)	0.32 (0.47)	0.41 (0.49)	0.36 (0.48)	0.36 (0.48)	0.39 (0.49)	0.47 (0.5)	0.3 (0.46)
Income middle	0.34 (0.48)	0.29 (0.45)	0.35 (0.48)	0.28 (0.45)	0.36 (0.48)	0.29 (0.45)	0.36 (0.48)	0.26 (0.44)	0.35 (0.48)	0.3 (0.46)
Income higher	0.31 (0.46)	0.39 (0.49)	0.3 (0.46)	0.4(0.49)*	0.23 (0.43)	0.36 (0.48)*	0.27 (0.45)	0.34 (0.48)	0.18 (0.38)	0.4 (0.5)*
Ethnicity	1.12 (0.48)	1.11 (0.52)	1.13 (0.49)	1.11 (0.53)	1.12 (0.48)	1.11 (0.54)	1.13 (0.5)	1.1 (0.52)	1.11 (0.45)	1.06 (0.44)
Age	55.0 (7.5)	54.3 (7.0)	54.2 (7.6)	54.3 (7.0)	54.3 (7.8)	54.7 (7.1)	53.4 (7.6)	54.9 (7.3)	55.8 (8.0)	54.2 (6.8)

* significant at the 5 percent level

Table 1b sample means/proportions (standard deviations)

	started with survey	
	primed	unprimed
N	466	
Finsihed	0.8 (0.4)	0.88 (0.33)

Table 1c estimation results of priming on economic dependent variables

	started with survey		respondents for whom religious activity is known before	
	No	Yes	No	Yes
N	466		373	
Finsihed	-0.08 (0.03)**	-0.07 (0.03)**	-0.06 (0.04)	-0.05 (0.04)
controls	No	Yes	No	Yes

* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level

in column one the dependent variable is shown, the standard error is shown in the brackets

Table 2 estimation results of priming on control variables

	started the survey but not finished the survey
N	104
Gender	-0.08 (0.09)
Education low	0.05 (0.09)
Education middle	0.08 (0.10)
Education higher	0.04 (0.08)
Income low	0.01 (0.10)
Income middle	0.02 (0.07)
Income higher	-0.03 (0.10)

* significant at the 10 percent level

Because the primed and the non primed group are similar for the Protestant group it's possible to analyze the outcomes correctly without including standard control variables in the regression model. For the other breakdowns there are differences in the variable "income higher", such that the estimations of the regression model without control variables could be biased. To fix this we will also include explaining variables, gender, education, income and age as explaining variables beside primed and non primed as explaining variables in the regression model. But there are more reasons to estimate the effect of religion on behavior with this extended regression model, with this extended regression model we will check the outcomes on robustness and improve precision of describing the dependent variable. Because almost all respondents were natives (almost 95%) we have not included ethnicity in the extended model.

4.4 *Dependent variables*

The dependent variables in this paper can be clustered in three parts: economic behavior, health behavior and the third part is philanthropic behavior.

4.4.1 *Economic behavior*

The economic part contains the two economic orientated games; the public good game and the financial risk aversion game. Furthermore this part includes saving intention and trust.

The public good game is a game where the respondent decides on the allocation of money given to a respondent. In this paper each respondent get's five Euro's to allocate, each person can keep the total amount of money or a part of it for themselves, or put the money in the group account. Each group account has four members. The total money which is put into the group account is doubled and equally distributed between the four respondents. If all the four respondents of a group account put all the money in the group account they all finish with ten Euro's, but the part of the money they will get themselves of the five Euro's they

put into the group account is only 50 percent. For that reason the dominant strategy is to keep the five Euro's. In our tables and analysis a higher value corresponds with more contributions to public goods

The financial risk aversion game is a game where respondents make six decision between one Euro guaranteed or a certain amount of money with a chance of 50% and nothing otherwise. The six amounts of money are: €1,60; €2,00; €2,40; €2,80; €3,20 and €3,60. The six choices are asked in a random order. At the end of the sixth question the respondent is told how much money he has made with this game. In the tables these variables are represented by the variable labels "risk €1,60" ... "risk €3,60". In the analyses a variable is included "Risk total" this variable corresponds with the number of times a respondent have chosen to take the risk of losing his money. A lower value corresponds with more risk aversion.

The third dependent variable of the economic variables is saving intention. Each respondent is asked how much he or she has saved last month, and each respondent is asked how much he or she is going to save next month. By taking the differences between those amounts we could estimate the effect of religious identity on savings. To decrease the weight given to the big differences we also look to the log of these differences. In the tables these variables are represented by the variable labels "Savings (dif.)" and "Log savings (dif.)".

Trust contains three question. The first question which is related to trust is the question asked just before the public good game is played; How much do you expect the other members will put into the group account? Where the first answer is related to zero and the fifth answer is related to putting all the money into the group account. The second question which is related to trust is the question: Do you agree or disagree with the statement; on average you can trust most people. Where the first answer is related to the answer completely disagree and the fifth answer is related to the answer completely agree. In the estimation model we have constructed a dummy variable out of this question which is equal to one if a respondent have answered on this question: completely agree, agree, agree/disagree. The third question which is related to trust is the question: Do you agree or disagree with the statement; you can't be too careful in dealing with other people. The answer levels and the dummy variable for the third statement are the same as for the second statement. In the tables these variables are represented by the variable labels "Trust public goods", "Trust most people", "Trust careful".

4.4.2 *Health behavior*

The health related part contains three different dependent variables; smoke intention, sport intention and intention of alcohol consumption.

The first health related variable is the amount of cigarettes a respondent will smoke next year. This variable is formulated as a dummy variable; smoke at least one cigarette a day next year. If a respondent will smoke at least one cigarette a day this dummy will have the

value one and zero otherwise. In the tables this variable is represented by the variable label "Smoking".

The second health related variable is the frequency a respondent will sport next year. This variable is formulated as a dummy variable; sport less than once a week next year. If a respondent will sport less than once a week this dummy will have the value one and zero otherwise. In the tables this variable is represented by the variable label "Sport".

The third health related variable is the amount of alcohol consumption a respondent will consume next year. This variable is formulated as a dummy variable; consume at least one alcohol consumption a day next year. If a respondent will consume at least one alcohol consumption a day this dummy will have the value one and zero otherwise. In the tables this variable is represented by the variable label "Alcohol".

In our analysis a fourth variable is included "Alcohol/Smoking" this variable is a combination of the variables "Smoking" and "Alcohol". This variable is one if "Smoking" or/and "Alcohol" is equal to one and zero otherwise.

4.4.3 *Philanthropic behavior*

The philanthropy related part contains three different dependent variables; money donated to religious charity organizations, total amount of money donated to charity and the dummy variable if respondents have chosen to donate the money they have won with the games to a charity organization.

The dependent variable for the analyses for the aspect money donated to religious charity organizations is such created that it is the difference of the amount of money which respondents think they are going to donate next year minus the money donated to religious charity organizations last year. To decrease the weight given to the big differences we also look at the log of these differences. In the tables these variables are represented by the variable labels "Donations religious" and "Log donations relig.".

The dependent variable total amount of money donated to charity is constructed the same but is a summation over all the possibilities of charity organizations. For this variable we construct also the log of the differences. In the tables these variables are represented by the variable labels "Total donations" and "Log total donations".

The third variable; the dummy variable if respondents have chosen to donate the money. Is created by one of the last questions of the survey. At this question respondents needs to decide if they want to give the money they have won to a charity organization. If they donate the money to a charity organization the value is one and zero if they want to keep the money themselves. In the tables this variable is represented by the variable label "Donate money".

In Table 3 the sample means with the standard deviations are shown. Some interesting insights from these tables for the economic dependant variables are that Protestant respondents are in the first place more risk averse then the Catholic respondents but that the Catholic respondents are more affected by religious identity to become more risk averse then the Protestant respondents. Furthermore we can see that the difference is savings for Protestant respondents who are primed are less negative then for the unprimed respondents. For trust we don't see large effects but probably trust is negative affected by religious identity. The dependent variables which are related to health seems to give interesting results; we see that Protestant respondents seems to drink less alcohol and smoke less cigarettes when they are primed. For the Catholic respondents we see the opposite effect they are going to smoke more cigarettes and drink more alcohol when they are primed.

For the dependant variables which belongs to the philanthropy part, we see for the amount donations small differences but the standard deviations are huge compared to the differences, so for those variables we don't see effects yet. But we see that Protestant respondents who are primed donate their money more often to a charity organization then Protestant respondents who are not primed, and for Catholic respondents we do see the opposite effect.

Table 3 sample means (standard deviations) and proportions

	ended with survey		respondents for whom religious activity is known before					
	primed	unprimed	Primed	unprimed	Protestant		Catholic	
					primed	Unprimed	Primed	unprimed
N	201	189	166	149	107	99	57	47
Economic								
Public good	4.19 (1.62)	4.3 (1.55)	4.22 (1.57)	4.3 (1.54)	4.2 (1.59)	4.37 (1.49)	4.3 (1.56)	4.15 (1.64)
Risk €1,60	1.47 (0.5)	1.56 (0.5)	1.48 (0.5)	1.53 (0.5)	1.43 (0.5)	1.54 (0.5)	1.56 (0.5)	1.51 (0.51)
Risk €2,00	1.62 (0.49)	1.67 (0.47)	1.62 (0.49)	1.64 (0.48)	1.64 (0.48)	1.63 (0.49)	1.6 (0.49)	1.68 (0.47)
Risk €2,40	1.65 (0.48)	1.7 (0.46)	1.62 (0.49)	1.67 (0.47)	1.62 (0.49)	1.66 (0.48)	1.63 (0.49)	1.72 (0.45)
Risk €2,80	1.64 (0.48)	1.75 (0.43)	1.62 (0.49)	1.73 (0.44)	1.61 (0.49)	1.69 (0.47)	1.65 (0.48)	1.83 (0.38)
Risk €3,20	1.72 (0.45)	1.72 (0.45)	1.71 (0.45)	1.72 (0.45)	1.7 (0.46)	1.7 (0.46)	1.74 (0.44)	1.77 (0.43)
Risk €3,60	1.67 (0.47)	1.78 (0.41)	1.68 (0.47)	1.77 (0.42)	1.71 (0.46)	1.72 (0.45)	1.63 (0.49)	1.89 (0.31)
Savings (dif.)	48.22 (515)	-199.91 (3385)	1.35 (451)	-311.11 (3938)	-0.14 (543)	-467.86 (4737)	4.68 (27)	41.67 (317)
Trust public good	4.31 (1.25)	4.38 (1.15)	4.38 (1.18)	4.41 (1.14)	4.36 (1.14)	4.43 (1.15)	4.44 (1.28)	4.34 (1.13)
Trust most people	2.32 (0.75)	2.28 (0.72)	2.3 (0.72)	2.23 (0.65)	2.3 (0.69)	2.19 (0.68)	2.26 (0.77)	2.28 (0.58)
Trust careful	3.02 (0.96)	3.1 (0.93)	2.95 (0.95)	3.07 (0.88)	2.96 (0.93)	3.17 (0.87)	2.93 (1.02)	2.87 (0.88)
Health								
Smoking	0.09 (0.29)	0.12 (0.32)	0.08 (0.28)	0.11 (0.31)	0.08 (0.28)	0.14 (0.35)	0.07 (0.26)	0.04 (0.2)
Sport	0.31 (0.47)	0.28 (0.45)	0.31 (0.46)	0.3 (0.46)	0.32 (0.47)	0.32 (0.47)	0.3 (0.46)	0.28 (0.45)
Alcohol	0.3 (0.46)	0.36 (0.48)	0.28 (0.45)	0.32 (0.47)	0.26 (0.44)	0.35 (0.48)	0.32 (0.47)	0.26 (0.44)
Philanthropy								
Donations religious	5.49 (75)	3.97 (227)	6.79 (82)	7.35 (255)	12.16 (102)	8.33 (313)	-3.04 (12)	5.74 (32)
Total donations	6.49 (91)	3.45 (242)	8.79 (97)	5.54 (271)	16.17 (115)	6 (332)	-4.77 (53)	4.7 (57)
Donate money	0.61 (0.49)	0.6 (0.49)	0.62 (0.49)	0.6 (0.49)	0.64 (0.48)	0.58 (0.5)	0.58 (0.5)	0.66 (0.48)

5. Main results

5.1 Economic dependent variables

The results of the models for the economic variables are shown in Table 4.

5.1.1 Contribution to Public Goods (H1)

We find no evidence for the hypothesis; Contribution to public goods are affected positively by Protestantism and negatively by Catholicism (La Porta et al., 1997).

The signs of the estimates of the impact of the religious identity on contribution to public good gives us the indication that the Protestant identity norms affect the contribution to public goods negatively, and the Catholic identity norms affect the contribution to public goods positively. But both estimates are not significant, so we couldn't find evidence for H1.

To investigate if the Catholic and the Protestant identity norms affect contribution to public goods significant different, we have estimated the difference between those effects by using the difference in difference model. The results of this analysis are given in Table 7. Although the estimation is equal to 0.33 which is not very small when we compare this with the estimations in Table 4 for the variable Public goods, the estimation is not significant due to the large standard error.

5.1.2 Financial risk taking (H2)

We don't find evidence for the hypothesis; Financial risk taking is reduced by Protestantism (Kumar, Page and Spalt, 2009). We do find evidence that financial risk taking is reduced by the religious Catholic identity norms at a 1 percent significant level for the dependent variable "Risk €3,60" and at a 5 percent significant level for the dependent variable "Risk €2,80". For these variables we find besides for only the Catholic respondents a significant effect for all the respondents and for the group where from which we knew at the invitation moment that they attend religious meetings in the last three years. For the variable "Risk total" we only find significant evidence that the religious identity norms reduce financial risk taking for the total group. Although all the estimations are indicating that financial risk taking is reduced by the religious identity norms the most estimations for this outcome are not significant.

We do see that the estimates for the Protestant respondents for the small amounts of money "Risk €1,60" and "Risk €2,00" are negative, what means that there is an indication that the Protestant identity norms affect risk taking negatively, but these estimates are not significant. For the dependent variable "Savings (dif.)" and "Log savings (dif.)" we do see that there is an indication that the Protestant identity norms affect saving intention positively, so affect risk taking negatively. But due to the large standard errors of "Savings (dif.)" these estimates

are not significant. For the Catholic respondents we do see that the estimation of “Log savings (dif.)” is significant negative at a 10 percent significant level.

5.1.3 Trust (H3)

For H3 we find evidence for the second part of this hypothesis; Trust is affected positively by Protestantism and negatively by Catholicism (La Porta et al., 1997). We find significant negative estimates for the Catholic respondents for the impact of priming on dummy variable “Trust most people”. This estimation indicates that trust is negatively affected by the Catholic identity categories.

For the Protestant respondents we don’t find evidence for the first part of the hypothesis; Trust is affected positively by Protestantism. But we find evidence for the statement; Trust is affected negatively by Protestantism. At the part of trust constructed out of the question: You can’t be too careful in dealing with other people, we do find significant positive estimates of priming on the dummy variable “Trust careful”. This indicates that Protestant respondents who are primed are on average significant more often agree with this statement.

Table 4 estimation results of priming on economic behaviour

	respondents for whom religious activity is known before							
					Protestant		Catholic	
	390		313		206		104	
N								
Economic								
Public good	-0.1 (0.16)	-0.07 (0.16)	-0.07 (0.18)	-0.04 (0.18)	-0.18 (0.21)	-0.12 (0.22)	0.15 (0.31)	0.12 (0.34)
Risk €1,60	-0.08 (0.05)	-0.09 (0.05)*	-0.05 (0.06)	-0.06 (0.06)	-0.11 (0.07)	-0.1 (0.07)	0.05 (0.1)	0.01 (0.1)
Risk €2,00	-0.05 (0.05)	-0.05 (0.05)	-0.02 (0.05)	-0.03 (0.06)	0.01 (0.07)	-0.01 (0.07)	-0.08 (0.1)	-0.1 (0.09)
Risk €2,40	-0.06 (0.05)	-0.06 (0.05)	-0.05 (0.05)	-0.06 (0.05)	-0.04 (0.07)	-0.06 (0.07)	-0.09 (0.09)	-0.09 (0.09)
Risk €2,80	-0.11 (0.05)**	-0.12 (0.05)**	-0.11 (0.05)**	-0.12 (0.05)**	-0.08 (0.07)	-0.09 (0.07)	-0.18 (0.09)**	-0.19 (0.09)**
Risk €3,20	-0.01 (0.05)	0 (0.05)	-0.01 (0.05)	0 (0.05)	0 (0.06)	0 (0.06)	-0.03 (0.09)	-0.03 (0.09)
Risk €3,60	-0.11 (0.04)**	-0.11 (0.04)	-0.09 (0.05)*	-0.09 (0.05)*	-0.01 (0.06)	0 (0.06)	-0.26 (0.08)***	-0.26 (0.09)***
Risk total	-0.42 (0.22)*	-0.43 (0.22)*	-0.34 (0.25)	-0.36 (0.25)	-0.22 (0.31)	-0.26 (0.30)	-0.60 (0.42)	-0.66 (0.44)
Savings (dif.)	248 (312)	209 (317)	312 (397)	284 (408)	468 (574)	544 (599)	-37 (57)	-25 (64)
Log savings (dif.)	0.04 (0.32)	0 (0.32)	-0.2 (0.35)	-0.27 (0.36)	0.12 (0.47)	-0.01 (0.5)	-0.89 (0.51*)	-0.79 (0.58)
Trust public good	-0.07 (0.12)	-0.07 (0.12)	-0.03 (0.13)	-0.05 (0.13)	-0.07 (0.16)	-0.05 (0.16)	0.1 (0.24)	0.16 (0.24)
Trust most people	-0.03 (0.03)	-0.03 (0.03)	-0.04 (0.03)	-0.04 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.1 (0.05)*	-0.1 (0.05)*
Trust careful	0.08 (0.05)*	0.07 (0.05)	0.09 (0.05)	0.07 (0.05)	0.15 (0.07)**	0.15 (0.07)**	-0.04 (0.09)	-0.04 (0.09)
Controls	No	Yes	No	Yes	No	Yes	No	Yes

* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level

in column one the dependent variable is shown, the standard error is shown in the brackets

Table 5 estimation results of priming on health behaviour

	respondents for whom religious activity is known before							
					Protestant		Catholic	
	No		Yes		No	Yes	No	Yes
N	390		313		206		104	
Health								
Smoking	-0.02 (0.03)	-0.03 (0.03)	-0.02 (0.03)	-0.03 (0.03)	-0.06 (0.04)	-0.07 (0.04)	0.03 (0.05)	0.04 (0.05)
Sport	0.03 (0.05)	0.03 (0.05)	0.01 (0.05)	-0.01 (0.05)	-0.01 (0.07)	-0.02 (0.07)	0.02 (0.09)	0.01 (0.1)
Alcohol	-0.06 (0.05)	-0.05 (0.05)	-0.04 (0.05)	-0.03 (0.05)	-0.09 (0.06)	-0.08 (0.06)	0.06 (0.09)	0.09 (0.09)
Alcohol/Smoking	-0.04 (0.05)	-0.05 (0.05)	-0.03 (0.05)	-0.03 (0.05)	-0.10 (0.07)	-0.09 (0.07)	0.09 (0.09)	0.12 (0.09)
Controls	No	Yes	No	Yes	No	Yes	No	Yes

* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level

in column one the dependent variable is shown, the standard error is shown in the brackets

Table 6 estimation results of priming on philanthropic behaviour

	respondents for whom religious activity is known before							
					Protestant		Catholic	
	No		Yes		No	Yes	No	Yes
N	390		313		206		104	
Philanthropy								
Donations religious	1.5 (16.9)	1.4 (17.2)	-0.6 (20.9)	-1.3 (21.3)	3.8 (31.9)	0 (32.9)	-8.8 (4.5)*	-10.8 (4.6)**
Log donations relig.	-0.05 (0.16)	-0.06 (0.16)	-0.09 (0.2)	-0.13 (0.2)	-0.05 (0.28)	-0.11 (0.29)	-0.16 (0.18)	-0.32 (0.19)
Total donations	3 (18.3)	3.2 (18.5)	3.2 (22.6)	2.9 (23)	10.2 (34.1)	4.7 (35)	-9.5 (10.7)	-7.5 (11.6)
Log total donations	0.01 (0.24)	0.01 (0.24)	-0.09 (0.28)	-0.06 (0.29)	0.13 (0.38)	0.1 (0.38)	-0.34 (0.41)	-0.49 (0.43)
Donate money	0.01 (0.05)	0.01 (0.05)	0.02 (0.06)	0.01 (0.06)	0.06 (0.07)	0.06 (0.07)	-0.08 (0.1)	-0.17 (0.1)
Controls	No	Yes	No	Yes	No	Yes	No	Yes

* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level

in column one the dependent variable is shown, the standard error is shown in the brackets

Table 7 results of difference in difference estimations

	respondents for whom religious activity is known before	
	No	Yes
N	313	
Public good	0.33 (0.37)	0.33 (0.38)
Smoking	0.07 (0.07)	0.08 (0.07)
Alcohol	0.13 (0.11)	0.15 (0.11)
Alcohol/Smoking	0.18 (0.11)	0.18 (0.11)
Donate money	-0.14 (0.12)	-0.15 (0.12)
Controls	No	Yes

* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level
in column one the dependent variable is shown, the standard error is shown in the brackets, the estimates are the estimations of the explanatory variable being primed and being Catholic

5.2 Health related dependent variables (H4)

The results of the models for the health related dependent variables are shown in Table 5.

We don't find evidence for the hypothesis; Health is positively affected by religion, especially smoking and drinking (Koenig et al., 1998).

For all the four dependent variables: smoking, sport and alcohol consumption and the combined variable alcohol/smoking we don't find significant evidence, but for the Protestant respondents we find small almost significant estimates (p-value of 0.13 for the model with controls included) of priming on the dependent variable smoking. These estimates are negative which indicate that health could be positive affected by the Protestant identity norms.

We find smaller estimates with a higher p-value (p-value of 0.15 for the model without controls) for the Protestant respondents for priming on the dependent variable alcohol consumption, for priming on sport the estimates are too small to give only an indication if health is positively affected.

For the Catholic respondents the estimates for priming on the dependent variables are too small to take seriously but there is an indication that Catholic identity norms affect Health negatively on the aspects smoking and alcohol consumption.

To estimate if the Catholic and Protestant identity norms affect health behavior, and specially smoking and alcohol behavior, differently we have used the difference in difference model. The results of these estimations are given in Table 7. There is no significant evidence that the Catholic and Protestant identity norms affect health behavior differently. But the estimations on the combined variable "Alcohol/Smoking" are almost significant (p-value of 0.11). This indicates that the Catholic identity norms affect health behavior less positive then the Protestant identity norms do.

5.3 Philanthropy related dependent variables (H5)

The results of the models for the dependent variables which are related to philanthropy are shown in Table 6.

We don't find evidence for the Hypothesis; Donating to charity is positively affected by religion, especially by Protestantism and less by Catholicism (Brooks, 2003; Geven in Nederland, 2003 and 2011). We don't find evidence but the estimates show a indication for priming on the dependent variable "Donate money", that the Protestant identity norms affect the donating to charity positively.

A remarkable estimation is the significant estimation for priming on the dependant variable "Donations religious" for the Catholic respondents. This estimation in combination with the almost significant negative estimation (p-value of 0.103 for the model with controls) of priming on "Donate money", indicates that donate to charity is negatively affected by the Catholic identity norms.

To estimate if the Catholic and Protestant identity norms affect the willingness to donate money to a charity organization differently we have used the difference in difference model. The results of these estimations are given in Table 7. There is no significant evidence, but there is a strong indication (p-value of 0.20) that the Catholic and Protestant identity norms affect philanthropic behavior differently. The negative estimation indicates that the Catholic identity norms affects the willingness to donate money to a charity organization less positive than the Protestant identity norms do.

6. Conclusion and discussion

In this paper priming is used as a technique to estimate the causal effect of the Protestant and Catholic identity norms on economic -, health related - and, philanthropy related variables. In many cases we don't find evidence for the hypotheses set up by statements made in literature, for some hypotheses we actually do find evidence for the counterpart of the hypotheses. The outcomes of this study won't reject these hypotheses completely because there are a few potential impacts of the identity categories which we can't estimate with priming as a technique. Although we increase the weight given to the religious identity norms in the decision process of primed persons, we don't increase the weight from nothing given to the religious identity norms to something. If the total effect of an identity category on a dependent variable is realized by the change from zero weight given to these norms to a certain weight, priming is not the technique which give a good indication of the total effect. It could be possible when priming as instrument is used in such a case we won't find an effect or even find a negative effect due to interaction effects.

For that reason priming is a good technique to estimate the causal marginal effects of identity categories for persons which already belongs to this identity category, but for the total impact of an identity category we need exogenous switchers. These switchers must switch from zero weight for the weight given to the norms of an identity category in a decision process to a certain weight.

Although priming is not a technique where we can estimate the total effect of religion on economic, health and philanthropic behaviour, and we have seen that respondents with a higher income are not equally distributed between the primed and non primed groups we trust the results of this paper. The main findings of this paper must be interpreted as the causal impact for already religious persons from the religious identity categories on economic, health and philanthropic behaviour. We can summarize our main findings as follows. Financial risk taking is reduced by the Catholic identity norms. The same is true for the variables donating to charity organizations and trust, these variables are both negative affected by the Catholic identity norms. Furthermore we find that trust is negative affected and that we can assume that Health is positively affected by the Protestant identity norms. And that the Protestant identity norms affect Health differently than the Catholic identity norms.

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8. Appendix A

The seven non religious sentences:

1. Sandra married Peter
2. The commentator reports about Queensday
3. The king built a ship
4. The book lay on the table
5. Carice van Houten appeared in Cannes
6. You should not shout
7. He never worked on Saturdays