The power of suggestion on consumers' preferences for organic produce
Bachelor Thesis in Economics
Gothenburg University School of Business, Economics and Law.
Amanda Sundberg

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15hp
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Faculty Advisor: Conny Wollbrant
Introduction

Conventional production of fruits and vegetables entail the use of pesticides and other poisonous chemicals. Producers use these poisonous chemicals in order to make the crops more profitable by for example making them more resistant to insects, in order to acquire a faster growth rate or to obtain larger crops. This results in negative effects on the environment as well as consumers' health. The extent of these negative effects is beginning to receive more attention from the public.

Organic production is the opposite of conventional production, where the use of pesticides, genetically modified crops and other poisonous chemicals are banned. The negative effects on consumers' health and the environment are in organic production greatly decreased, however, for the farmer the cost of production and the risks are increased. Organic production therefore is less preferred by producers while becoming increasingly demanded by the educated public. The result is an area of interest where consumer knowledge is often shallow and it is easy for producers to make claims for which they may not have evidence to support. (Aertsens et al 2010)

For these reasons, the importance of mindful consumer behavior when buying fruits and vegetables is becoming more important. Inspite of this, the increasing attention and thereby more studies done on the subject, researchers' opinions of how to increase the consumption of organic products are still varied. One of many factors debated is how to educate the public and moreover, how much education is needed. (Laroche, Bergeron, & Barbaro-Forleo, 2001).

The aim of this paper is therefore to examine if a small reminder/educational quote is sufficient to change consumer behavior in regards of preferring the more organic products. The product chosen for the experiment is an apple due to the fact that fruits and vegetables account for 10 percent of Swedish consumers’ spending. The country of interest is Sweden due to the fact that the country is, relative to many other countries, well acquainted with organic produce, where the consumption of organics is increasing yearly by approximately 4%. (Fagerberg et al. 2014) The experiment was carried out through a survey, which was handed out at different locations in the Vastra Gotaland region in Sweden. The respondents were chosen randomly at three different locations.

The results of this experiment show that in similarity to past experiments, consumers are willing to pay a little more for organic products. A deviation, which has not yet been examined, is the object of this thesis, examining the power of suggestion on consumer behavior. The findings
of the experiment were that a small reminder of what organic production implies on average has no significant effect on changing consumer behavior. However, in a few circumstances some significance was obtained.

**Theoretical Background**

There have been numerous attempts at portraying consumers' willingness to pay a premium for organic foods. Among these, many have found a correlation between knowledge about the effects of pesticides and a willingness to pay a higher premium for organic produce (Lim et al. 2013). A large amount of experiments have also been done on how to encourage an increase in organic purchases among consumers. The most relevant past studies; which are thereby also the most related studies to this thesis are firstly a study by Irma Nordin in 2014 which is a study that examines consumers' perception of organic produce with the aim of examining consumers' attitudes toward the purchase of organic fruit, vegetables and root vegetables.

The second study closely related to this study is a study carried out by Samantha Smith and Angela Paladino examining consumers' motivation toward buying organic produce.

These studies, much like many others, focus on consumers' attitudes toward organic produce, the correlation with knowledge as well as the correlation with other socioeconomic characteristics of respondents. This paper however, has chosen a slightly different approach; by combining the power of suggestion with the current need for increased awareness among consumers about the positive effects of organic produce.

Organic production reduces negative effects on the environment and increases the safety in the produce compared to conventional production. However, this production method is less profitable for the farmer due to a greater exposure to insects and environmental factors and less measures to eliminate these threats (Irma Nordin 2014). In order to use the label *organic*, the producer must have followed EUs regulation 834/-07 of organic production which entails that at least 95% of the production process should be organic. Moreover, pesticides, chemicals and genetically modified crops are forbidden ("EU regulation" 2014).

In Sweden, and contrary to many other countries in the EU, the production is examined by an organization independent of the government in order to avoid corruption as well as to further implement the regulation. One of these organizations is KRAV.

From earlier studies, (Nordin 2014, Lockiea et al 2004) it seems that organic production in
the eyes of consumers is mostly associated by environmental aspects, yet, it seems less widely known that pesticides also have great negative effects on our health. There is a clear need of more education on these negative effects, since they are presently taken lightly by consumers. For example, past studies have found that on average Swedes value taste and quality of the produce above organic production. Locally grown, or at the very least Swedish produce is also more valued than organic.

Due to the fact that consumers are more familiar with conventional production and sadly that this type of production makes the crops more sustainable and more "plastic" in its appearance it will, to most consumers still appear as the better quality product (Lohr et al. 2000). This is a problematic preference since this entails that the conventionally grown produce with its hazardous ingredients are preferred over the healthier organic produce. The consumers are unconsciously being tricked to think that this is the smarter, more sustainable choice (D'Souza 2006).

Hence, it is clear that an increase in the knowledge of the effects of pesticides is an important step in the future. Conversely, apples found in a regular supermarket in Sweden had large amounts of the chemical carbendazium. This is a chemical known to be cancerogenous, changing of hormones as well as having negative effects on the human reproductive system. Pears were shown to include Tiabendazol, which is a chemical used against fungus. This chemical is also cancerogenous in addition to having negative effects on the thyroid gland and liver (Laroche, Bergeron, & Barbaro-Forleo, 2001).

The fruit most commonly associated with pesticides and organic production is bananas. In a sample taken from multiple supermarkets in Sweden it was shown that 6 out of 10 had a too high paraqat ingredient. This is a highly toxic chemical, which can lead to serious illnesses such as kidney failure, liver-damage and collapse of the lungs. Additionally it has negative effects on the ecosystem ("Risker och effekter" 2013).

The reason for choosing an apple for the object of the study is due to the fact that this is an object which consumer’s purchase without much thought, which is what was needed for the study.

The second part of the focus of this thesis is on consumer behavior. Looking back at the 1950s and neoclassical economics consumers were originally thought to act rationally where the goal of each action was to acquire the most possible satisfaction. This is thought of as
maximization of one's utility, where the benefits are compared to the costs for each action. During a time when most products were produces only to meet the basic functional need of consumers then this theory worked relatively well in estimating consumer behavior.

By contrast, today consumers are more likely to attach emotional or socio-psychological buying motives rather than rational buying motives. Consumers of today have a wider range in variation of products available as well as more social pressure in which products should be bought. Nowadays a consumer can choose a product from for example a self-concept approach where they buy the product because it represents what they would like to stand for, or because of social pressure because it is what others expect them to buy (Baines et al. 2001).

In this study the product included is an apple; this is a product that represents a basic need for a consumer, it represents a biological need and the purchase decision does not entail much planning or investigation. The type of theory of consumer behavior that has been chosen in this study to explain the consumer behavior is *The theory of planned behavior* which is illustrated in figure 1 below (Baines et al. 2011).

![Diagram of Theory of Planned Behavior]

*Figure 1 "Theory of Planned Behavior" shows the aspects which affect the intention and at last the behavior of the consumer.*

The theory ascertains that the behavior is brought about by the intention the consumer has.
This intention is affected by three different aspects; firstly the attitudes toward the behavior, secondly the subjective norm and third the perceived behavioral control.

The attitude toward the behavior describes the feelings that the person has toward the behavior, if it is preferable or not. The subjective norm encompasses social pressures which may affect the intentions of the consumer. The perceived behavioral control entails how difficult the task of doing the behavior may seem to the consumer.

Combining the theory of planned behavior with the aim of this thesis implies looking at each of the three aspects and examining how they would change a consumer’s intention of buying an organic apple or a conventional apple.

Firstly we consider attitude towards the behavior, this attitude can be favorable or unfavorable towards organic produce. The background to these attitudes can depend on factors like geographical region, perceived taste, perceived quality, knowledge and so on. This is difficult to pinpoint, however, generally Swedes tend to be one of a few countries in the world where organic has become more common. In addition, in higher income families it is clear that it is more common to buy organic (Govinanasamy and Italia 1990; Loureiro et al 2001)

Further, the subjective norm, i.e the social pressure of buying organic is an important aspect to consider. Depending on geographical region, social groups, interests or other factors people may feel social pressure to act in a certain way. In this case a person may feel pressured to buy organic produce because he/ she has an interest in the environment and it therefore feels as if it is expected of them. Or perhaps they have a relatively high income and therefore feel pressured to buy more organic produce because it is what is expected of people who live in their neighborhood.

In this context there is not much analysis needed about the perceived behavioral control due to the fact that the difference in buying either an organically grown apple or a conventionally grown apple does not imply any difference in difficulty. The actions are the same, the difference lies in the pricing of the two fruits.

The last part of the focus for this thesis is the focus on suggestion on consumer behavior. Past studies have found that suggestion can impact consumers' decisions about and evaluations of products. For example, (Lee, Frederick and Ariely 2006) found that when doing an experiment where people in one study tasted two kinds of beer- one secretly infused with vinegar- and were told after tasting of the secret ingredient they still preferred the vinegar infused beer. In contrast,
when the secret ingredient was revealed before the tasting, the expectation that the vinegar infused beer would taste bad led people to prefer the conventional beer. Additionally (Wilcox, Roggeveen and Grewal 2011) carried out an experiment which consisted of tasting unbranded chocolate. When told before or after the tasting that the chocolate was from Switzerland or China the results were that those who were told before hand preferred the Swiss chocolate.

2.1 Hypotheses

Can the power of suggestion change the behavior of consumers in a direction attaining an increase of the consumption of organic apples?

This entails that the aim is to examine if only a small reminder or educational sentence is enough to make the purchase decision of the consumer go from unconscious to conscious and thereby to make them think more and change the consumer behavior to buying more organic produce. In econometric terms we obtain a null hypothesis assuming that the difference in willingness to pay for the apples is 0. The alternative hypothesis is that this difference is not 0.

\[ H_0 : \beta_1 = 0 \]
\[ H_a : \beta_1 \neq 0 \]

In order to examine the stated hypotheses background knowledge of consumers’ conception toward organic produce needs to be considered. Furthermore, control variables need to be added in order to increase the validity of the results as well as to examine if these may have a significant effect. The control variables are divided into sub categories due to the nature of which they are to examine the respondents' answers. The object is to examine on the first hand if socioeconomic characteristics may impact the result and on the other hand if the personal interest of the respondent may impact their knowledge of pesticides and therefore also impact their behavior. The last subcategory of control variables is knowledge variables, which were included in order to examine how much deeper knowledge the respondents actually had about pesticides. Econometrically all subhypothesis obtain a nullhypothesis assuming that the effect of the variable, given that the respondent is exposed to the treatment, is 0. The alternative hypothesis is that it is not 0.

\[ H_0 : \beta_3 = 0 \]
\[ H_a : \beta_3 \neq 0 \]

The first subcategory of control variables is socioeconomic factors. The first variable included is age. It is question 2 where the respondent states their age. The reason for including
this is to examine if there is a difference in willingness to pay for organic produce among consumers which can be connected to their age. Perhaps younger generations have a higher motivation to buy organic produce due to the fact that the knowledge of pesticides is a relatively new research area. Additionally this younger generation may be more concerned in preserving the environment for the future.

The next variable is the sex of the respondent. This is question 1 in the questionnaire. It has been seen in past experiments that female respondents show greater willingness to pay for organic produce than men. This variable is therefore included in order to further validate these findings or perhaps to contradict them and in continuation perhaps manage to find an explanation for these results.

The third variable chosen among the socioeconomic control variables was income in order to examine if the level of income would impact the willingness to pay for the respondents. This is question 4. Additionally the inclusion of income as a control variable is also a check of the validity of our results since it is easy to see if the respondents' answers were subject to bias such as hypothetical bias or experimenter effect.

The fourth variable included is the respondent's profession, the so-called work variable. This is included as question 3 in the questionnaire. It was included in order to examine if the profession of the respondent would affect the results, perhaps a respondent who is unemployed has a smaller willingness to pay than that of a respondent who is active in the work force.

The fifth variable is included in order to establish the respondents' usual buying pattern as well as how familiar they are with the scenario. Despite the fact that an apple is a relatively familiar product, if the respondent is not used to grocery shopping the open-ended willingness to pay question may be too difficult due to the fact that the respondent does not have enough knowledge of what the price range of an apple usually is.

The second subcategory of control variables is interest variables. The variable health is included as a dummy variable, where respondents answer in question 5 if they are interested health & fitness or not. This is due to the fact that respondents who are interested in health and fitness may be more educated on the subject of pesticides, especially the effects on our health, and therefore have a higher willingness to pay for organic produce. Additionally, past studies have shown that in general people who are interested in health are more willing to pay an increased price for organic produce. In one study done by Louireiro et al. in 2001, this was found
to be significant at even a 1 % level.

The variable environment is similarly included as a dummy, where respondents answer in question 4 if they are interested in the environment or not. The reason behind this is that a respondent who is interested in the environment has more knowledge of the negative effects caused by conventional production and therefore are expected to have a higher willingness to pay than the average person. This was also established as a statistically significant result in the study done by Louireiro et al.

Question 9, where the respondent is asked to rank how often they buy organic is to examine how realistic their answers are as well as to acquire information of their usual buying patterns and interest or values.

The third subcategory of control variables included is the so-called knowledge variables. The questions from the questionnaires with the intent to investigate the respondents' knowledge are questions 8, 10 and 11.

Here alternative answers were added which all seem logical, however, only one alternative is true. For example question 8, where the respondent is asked if they wash the fruit/vegetables in order to remove pesticides is a knowledge question since pesticides can NOT be removed by washing the fruit, hence a lack of knowledge is present among the respondents who answered yes to this question.

Question 10 the effect of pesticides on our health was what was asked for, where the true answer is that it is underestimated and can be very dangerous.

The last question, number 11, is not per say a knowledge question, but more of a preference question. This was included in order to establish the interest of the respondent in concern of the environment. Additionally to check the validity of the answers, if the respondents claim to have a large willingness to pay but contrary to this claim states that there is no reason for us to buy organic produce, there is a bias in the answers.

Data

The method used is a field experiment with cross-sectional data. The data was collected through a survey, which was distributed at multiple locations in the Gothenburg vicinity in Sweden. The population to be estimated from the sample is the population of Sweden.

Two pilot studies were carried out with pilot respondents. The respondents' overall
understanding of the assignment was examined as well as the relevance of the socioeconomic characteristics and the external socioeconomic questions. A few adjustments were made; for example transforming the first question from a closed-ended question where only one of the apples were to be chosen. This was changed to the present layout with an open-ended question where willingness to pay was asked for both apples. Additionally some changes were made to the layout of the questionnaire as well as the language in some questions.

The survey was distributed in person at a local university in Gothenburg, a gym in Lerum, the central station in Gothenburg as well as a shopping mall in Gothenburg. The response rate was 96%, due to the low amount of non-responses (4%) these did not result in bias.

The first part of the survey is a question asking the respondent’s willingness to pay for a conventionally grown apple compared to an organically grown apple. An open ended willingness to pay question is a question where a scenario is explained and there is a question asking the respondent to write down what they would be willing to pay for this scenario. The scenario can have different forms, it can be an object so the respondent is asked to state what they would be willing to pay for the object. In other cases it could be a scenario of better air quality, improvements of garbage disposal etc. where the respondent is asked to write what they would be willing to pay for this improvement (Bateman et al. 2004). In this experiment it was an object, namely two different apples, one organically grown and one conventionally grown.

Furthermore, an experiment was done where the respondents were divided into two groups. The treatment group which was exposed to the treatment and a control group which was not exposed to the treatment. The treatment group was unknowingly exposed to the treatment. The treatment comprised of an additional reminder/ informational section of what the difference between conventional and organically grown entails. This addition was included in the survey directly above the first question where the respondent was asked to state their willingness to pay for the apples.

Continually the rest of the survey consisted of questions chosen to examine some socioeconomic characteristics of the respondents, as well as their knowledge of organic production and interests of health, the environment and other factors that seemed significant. The variable sex was chosen due to the belief that women may be willing to pay a larger amount for organic production compared to what men would be willing to pay. The variables age, work and income were socioeconomic characteristics that were assumed to have enough significance that
they may bias our results if not accounted for.

Furthermore, the budget constraint (question of income) was included to examine if, for example, outliers are subject to hypothetical bias due to respondents stating a high willingness to pay, which is larger than their actual ability to pay or realistic willingness to pay.

The health and environment variables were questions examining the interests of the respondents based on the assumption that interest in the environment leads to higher willingness to pay for a better environment and hence larger consumption of organic produce. Moreover, interest in the environment was assumed to be correlated with greater knowledge of the effects of pesticides on the environment and our health.

The question of whether the respondent is the one responsible for grocery shopping in the household was included to eliminate biased responses due to lack of knowledge or experience of the respondents.

The question where the respondent was asked to rank how often they tend to buy organic produce was further included to examine how realistic the responses were. The question of what the effect of pesticides on our health is was included to examine the average knowledge of the respondents concerning the effects of pesticides on our health, due to the fact that there seems to be a lack of knowledge among consumers in this area.

The last question is an opinion question where the respondent is asked to state their opinion—whether there is a benefit at all in buying organic as well as an examination of their actual knowledge of the issue due to the fact that only one of the alternatives is the most correct. This was included in order to eliminate protest answers that might bias the results as well as to further examine the validity of the answers.

Table 1A, in the appendix, shows the correlation between the dependent variable, the treatment and the control variables. In this case, in contrast to other past studies, it is found that there does not seem to be any correlation between the dependent variable, difference, and the control variables. Additionally the correlation between health and the variables estimating knowledge of the effects of pesticides show that most respondents are aware that pesticides cannot be removed simply by washing the fruit, which is illustrated in the fact that there is no correlation between those who answered that they wash the fruit and those who stated that they have an interest of the environment.

The results of the collected questionnaires were accumulated and written into an excel file,
and continually imported into a statistics software called Stata where several tests of significance were done. A regression model was established which shows the relationship between the dependent variable, the difference in willingness to pay for the organic apple versus the conventionally grown apple, and the independent variables. The regression as well as summary statistics (table 1) are shown below.

\[(org - con) = \alpha + \beta_1 T + \beta_2 C + \beta_3 CT + \epsilon_i\]

The significance of the reminder, thereby the treatment in this study was examined. The results show that contrary to the experimenter's belief a small reminder had no significance in changing the consumer behavior.

<table>
<thead>
<tr>
<th>Table 1  Summary statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>T</td>
</tr>
<tr>
<td>P1</td>
</tr>
<tr>
<td>P2</td>
</tr>
<tr>
<td>Difference</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Work</td>
</tr>
<tr>
<td>Shopping</td>
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<tr>
<td>Environment</td>
</tr>
<tr>
<td>Health</td>
</tr>
<tr>
<td>Organic</td>
</tr>
<tr>
<td>Buy organic</td>
</tr>
<tr>
<td>Effect</td>
</tr>
<tr>
<td>Wash</td>
</tr>
</tbody>
</table>

Note: Mean. Number of observations and standard deviation in parenthesis.
Results

Summary statistics and descriptives of the variables used in the experiment are included in table 2.

### Table 2  Summary statistics and description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Treatment 1 if in treatment, 0 if not</td>
<td>0.51</td>
<td>(96, 0.50)</td>
</tr>
<tr>
<td>P1</td>
<td>Stated willingness to pay of conventionally grown apple</td>
<td>4.47</td>
<td>(96, 2.32)</td>
</tr>
<tr>
<td>P2</td>
<td>Stated willingness to pay of organically grown apple</td>
<td>6.39</td>
<td>(96, 2.66)</td>
</tr>
<tr>
<td>Difference</td>
<td>P2-P1</td>
<td>1.917</td>
<td>(96, 0.243)</td>
</tr>
<tr>
<td>Age</td>
<td>0= 20-30 years old, 1= 31-40 years old, 2= 41-50 years, 3= 51-65 years, 4= 66+</td>
<td>1.23</td>
<td>(96, 1.24)</td>
</tr>
<tr>
<td>Income</td>
<td>0=&lt;15 000 SEK, 1=15 000- 25 000 SEK, 2=25 000-35 000 SEK, 3=&gt;35 000 SEK</td>
<td>1.31</td>
<td>(96, 1.21)</td>
</tr>
<tr>
<td>Sex</td>
<td>0= male and 1=female</td>
<td>0.45</td>
<td>(96, 0.5)</td>
</tr>
<tr>
<td>Work</td>
<td>0= Working, 1=Student, 2=Unemployed and 3=Retired</td>
<td>0.68</td>
<td>(96, 0.83)</td>
</tr>
<tr>
<td>Shopping</td>
<td>0= Not responsible for grocery shopping and 1= Responsible for grocery shopping</td>
<td>0.74</td>
<td>(96, 0.44)</td>
</tr>
<tr>
<td>Environment</td>
<td>0= No interest in the environment and 0= No interest in the environment</td>
<td>0.78</td>
<td>(96, 0.42)</td>
</tr>
<tr>
<td>Health</td>
<td>0= No interest in health &amp; Fitness and 1= Interest in health &amp; fitness</td>
<td>0.75</td>
<td>(96, 0.44)</td>
</tr>
<tr>
<td>Organic</td>
<td>Ranking of to which degree the respondent buys organic produce, of values 0 to 5</td>
<td>2.31</td>
<td>(96, 1.32)</td>
</tr>
<tr>
<td>Buy organic</td>
<td>0= Better for the environment, 1=Locally grown, 2=Better for our health and 3=There is no reason to buy organic foods</td>
<td>1.03</td>
<td>(96, 0.104)</td>
</tr>
</tbody>
</table>
0= Overestimated/ imagined, 1=Only dangerous if you do not wash the fruit/ remove the skin and 2=Underestimated, can cause serious illnesses such as cancer.

<table>
<thead>
<tr>
<th>Effect</th>
<th>1.17 (96, 0.76)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash</td>
<td>0.89 (96, 0.0.32)</td>
</tr>
</tbody>
</table>

0= does not wash fruit to remove pesticides and 1= does wash

Note: Mean. Number of observations and standard deviation in parenthesis.

In total 96 surveys were collected. The gender distribution among respondents was relatively even, with 55 % male and 45 % female respondents. The majority of respondents were consumers in the ages between 20-30 years of age (43 %), in the workforce (48 %) or students (44 %), with an income of less than 15000 SEK per month (39 %) and, moreover, they were responsible for the grocery shopping of the household (74 %).

An overwhelming majority were interested in health and fitness (75 %) and similarly they were interested in the environment (78 %) and ranked their usual purchases of organic foods as 2 or 3 in the range between 0-5 (56 %).

It is clear that respondents are relatively unsure of the effects of pesticides. The responses to this question are varied, 39 % answered correctly that the effects are underestimated, while 40 % answered wrongly that pesticides are only dangerous if you do not wash the fruit.

Continually, it is also clear that the effects of pesticides are mostly associated with environmental effects, as the majority (44 %) answered that the reason for buying organic produce is that it is better for the environment. Conversely, 30 % answered that organic produce is better for our health.

The average treatment effect, which implies the average extra amount that respondents were willing to pay for the organic apple compared to the conventionally grown apple, was 1.92 SEK, with a standard deviation of 0.243 SEK.

In Sweden the average percentage of consumption of organic produce was estimated to be approximately 4.3% in 2014. A clear increase in this amount is constantly present. (Fagerberg et al. 2014)

The treatment is estimated through a Least Squares regression:

The estimated regression becomes:

\[
(\text{org} - \text{con}) = \alpha + \beta_1 T + \beta_2 C + \beta_3 CT + \varepsilon,
\]

\( \alpha = \text{intercept} \)

\( T = \text{Treatment} \)

\( C = \text{control variable} \)

\( \varepsilon = \text{error} \)
The dependent variable is the extra amount the respondent is willing to pay for an organic apple. This variable is henceforth called "difference". The independent variables, which are added to the equation in order to eliminate bias, are all called control variables; however these control variables have been divided into three categories as explained earlier. These vary between being socioeconomic characteristics, so called interest variables or knowledge variables.

The alpha is the intercept. It illustrates the default value; what the difference would be if all the variables were equal to zero. Here it implies the situation of when the respondent was not in the treatment and the control variables are all equal to zero. This is the situation of the price of organic produce subtracted from the price of conventionally grown produce.

Table 3 shows the frequencies of the respondents' stated willingness to pay in the form of their preference of organic apples. Outliers are present and are assumed to bias the result. Thereby, these are eliminated in our regression in order to acquire a more realistic result.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Difference</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>1</td>
<td>1 %</td>
<td></td>
</tr>
<tr>
<td>-2</td>
<td>1</td>
<td>1 %</td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td>2</td>
<td>2 %</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>13</td>
<td>13.5 %</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>23</td>
<td>24 %</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>31.2 %</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>13.5 %</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>3 %</td>
<td></td>
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<tr>
<td>5</td>
<td>7</td>
<td>7 %</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1 %</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1 %</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1 %</td>
<td></td>
</tr>
</tbody>
</table>

A Negative binomial regression is used to check the overall significance of the treatment. The reasons for using this particular regression is due to the fact that the overall mean of the variable is larger than that of the variance (square root of the standard deviation) of the mean, which was shown in the statistics in table 1 and table 2. Continually, a robust regression was used due to the fact that there are a few outliers present in the data and the unaccountability of these.
Table 3  Negative binomial regression results

| Dep. Var  | Difference | T
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>0.09</td>
<td>0.17</td>
</tr>
<tr>
<td>Constant</td>
<td>0.871***</td>
<td>(0.11)</td>
</tr>
<tr>
<td>lnalpha</td>
<td>-2.246</td>
<td>(1.06)</td>
</tr>
</tbody>
</table>

Note: Standard errors in parenthesis

***=p<0.01

With a p-value of 0.619 and a z-value of 0.50, implying that the value is 0.5 standard deviations from the mean. The p-value is 0.619 implying that there is a 62 % chance of acquiring the z-value of 0.5 if the null hypothesis is true. Therefore we see that there is no reason to reject the hypothesis, a suggestion would not with statistical significance increase consumption of organic produce. In line with previous studies respondents are willing to pay more for organic produce, however, a reminder in the form that was used in this study is not sufficient to significantly alter the behavior of consumers.

Further, another ordinary least squares regression is done where control variables are added with the treatment variable to test if the variables are affected by the treatment. The regression was done as a robust ordinary least squares regression on account of the fact that some limitations in the underlying assumptions were assumed to be present. These limitations were the fact that there were a few outliers in the data, which doing a robust regression can correct for.

Econometrically, the equation for the regression becomes:

\[
(\text{org} - \text{con}) = \alpha + \beta_1T + \beta_2\text{age} + \gamma_1\text{Tag} + \beta_3\text{inc} + \gamma_2\text{Tinc} + \beta_4\text{sex} + \gamma_3\text{Tsex} + \beta_5\text{shopping} + \gamma_4\text{Tshop} + \beta_6\text{work} + \gamma_5\text{Twork} + \beta_7\text{environ} + \gamma_6\text{Tenviron} + \beta_8\text{health} + \gamma_7\text{Thealth} + \beta_9\text{org} + \gamma_8\text{Torg} + \beta_{10}\text{buyorg} + \gamma_9\text{Tbuyorg} + \beta_{11}\text{effect} + \gamma_{10}\text{Teffect} + \beta_{12}\text{wash} + \gamma_{11}\text{Twash} + \varepsilon_i
\]

The regression results are shown in table 4 below.
There is no statistical significance in this second model. The adjusted $R^2$ is 0.22, which implies that 22% of the variation of the dependent variable can be explained by the variation of the independent variables. The only statistical significance is present for respondents who usually buy organic; they had a significantly higher willingness to pay for organic produce than those who usually do not buy organic produce; which is consistent with results of past studies and the subhypothesis of this study.

\[
\begin{array}{|c|c|c|}
\hline
\text{Dependent variable} & \text{Difference} & \\
\hline
T & -0.54 & (2.57) \\
& & \\
Age  & 0.00 & 1.24 \\
& & (0.33) & (1.24) \\
Income & -0.10 & -1.45 \\
& & (0.32) & (1.27) \\
Sex & -1.10 & 1.47 \\
& & (0.87) & (1.02) \\
Shopping & -0.60 & -0.31 \\
& & (0.91) & (1.15) \\
Work & 0.40 & -1.26 \\
& & (0.31) & (0.58) \\
Environment & 0.06 & 1.24 \\
& & (0.84) & (1.39) \\
Health & -0.55 & 0.21 \\
& & (0.77) & (1.00) \\
Organic & 0.56* & -0.57 \\
& & (0.29) & (0.39) \\
Buyorganic & -0.25 & 0.49 \\
& & (0.47) & (0.76) \\
Effect & -0.32 & 1.21 \\
& & (0.55) & (0.71) \\
Wash & -0.12 & 0.67 \\
& & (0.55) & (1.28) \\
Constant & 2.42 & \\
& & (1.99) & \\
F & 1.35 & \\
R^2 & 0.22 & \\
\hline
\end{array}
\]

Note: Standard errors in parenthesis

Note: * denotes significance at a 10% level or higher
Based on the fact that the main hypothesis of the study has been established to lack statistical significance and addition of the control variables did not enhance the substance of our models; an extended examination is done to find other significance in the experiment. Hereon the focus will lie on the sub hypotheses, the statistics for these are given by the control variables.

Socioeconomic variables:

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Regression results socioeconomic control variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Difference</td>
</tr>
<tr>
<td>T</td>
<td>1.21</td>
</tr>
<tr>
<td>Age</td>
<td>-0.16</td>
</tr>
<tr>
<td>Income</td>
<td>-0.04</td>
</tr>
<tr>
<td>Sex</td>
<td>-0.96</td>
</tr>
<tr>
<td>Shopping</td>
<td>-0.35</td>
</tr>
<tr>
<td>Work</td>
<td>-0.44</td>
</tr>
<tr>
<td>Tage</td>
<td>1.22</td>
</tr>
<tr>
<td>Tincome</td>
<td>-1.36</td>
</tr>
<tr>
<td>Tsex</td>
<td>1.866*</td>
</tr>
<tr>
<td>Tshopping</td>
<td>0.142</td>
</tr>
<tr>
<td>Twork</td>
<td>-0.943*</td>
</tr>
<tr>
<td>Constant</td>
<td>2.14**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Note: Standard errors in parenthesis
Note: * denotes significance at a 10% level or higher

There is no overall significance in the model, implying that combining all the control variables in one model does not give the model statistical significance. This overall
significance test is done as an F-test, because of the sample having an F-distribution. The test is done to see if the sample fits the population to be estimated (Wooldridge, J 2014). An F-value of 1.43 is reached and a p-value illustrating that in approximately 18% of cases will this value be acquired under a true null hypothesis. There is not enough evidence to reject the hypothesis and therefore there is no statistical significance in our model of socioeconomic variables.

Continually, the R-squared of the model is only 0.12, implying that only 12% of the variation in the dependent can be explained by the variation of the independents. Additionally, the adjusted R-squared is only 0.01, which implies that when accounting for added variables only 1% of the variation of the dependent is explained by the variation in the independents.

The constant in the model is significant even at a 5% level, establishing, as many studies before, that consumers are willing to pay more for an organic apple compared to a conventionally grown apple.

Other obtained effects which are interesting; are for example, that if the respondent is not in the treatment then women tend to have a lower willingness to pay than men, of approximately SEK -0.96. However, when the respondent is exposed to the treatment women have a higher willingness to pay than men of approximately SEK 1.86 and additionally this effect is statistically significant at a 5% level with a t-value of 1.08. This shows that women are more sensitive to suggestion than men, this could be due to the fact that women are more aware of the social norm or more affected by social pressure than men.

A similar effect is present when examining the effect of age. When the respondents are not exposed to the treatment the effect is that the older the person is, the smaller difference. Conversely, when the respondent is exposed to the treatment, the older the respondent is, the more the respondent is willing to pay in the difference between organic and the conventionally grown apple. This effect is not statistically significant.

However, looking at the economic significance of this effect we can ascertain some substantiality. When not exposed to the treatment younger generations have a willingness to pay that is approximately SEK 0.16 greater than that of older generations. Conversely, when exposed to the treatment this effect changes and the older generations have a larger willingness to pay; this change is economically significant due to the fact that the difference in willingness to pay between the generations in the latter case is SEK 1.22, which is a substantially larger amount.
Despite no statistical significance, the evidence of this experiment still shows that there is significance in the reminder, however; it is not large enough to be of statistical significance.

Interestingly with a negative effect, regardless of if the respondent is exposed to the treatment or not, a higher income results in a smaller willingness to pay for organic produce. This effect is much larger when the respondent is exposed to the treatment.

Interest variables:

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Regression results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Difference</td>
</tr>
<tr>
<td>T</td>
<td>-0.224</td>
</tr>
<tr>
<td>Environment</td>
<td>-0.24</td>
</tr>
<tr>
<td>Health</td>
<td>-0.819</td>
</tr>
<tr>
<td>Organic</td>
<td>0.442**</td>
</tr>
<tr>
<td>Tenvironment</td>
<td>1.58</td>
</tr>
<tr>
<td>Thealth</td>
<td>1.04</td>
</tr>
<tr>
<td>Torganic</td>
<td>-0.445</td>
</tr>
<tr>
<td>Constant</td>
<td>1.13</td>
</tr>
</tbody>
</table>

Note: Standard errors in parenthesis
Note: * denotes significance at a 10% level or higher

When examining the interest variables as a group; there is significance. The probability that the F-value of 3.01 or more extreme values will be acquired is 0.007% when the null hypothesis is true; whereby we can reject the null hypothesis. With the interest variables combined there is statistical significance that a small reminder/ suggestion does change consumer behavior.

The R- squared is only 0.10, implying that only 10 % of the variation in the dependent variable can be explained by the variation of the independents. Additionally, the
adjusted R-squared is only 0.04, which implies that when accounting for adding variables, only 4%
of the variation of the dependent is explained by the variation in the independents.

Continually, there are interesting effects of the treatment, which concern all variables. When the respondent is not exposed to the treatment a person who is interested in health and fitness is estimated to have a SEK 0.82 smaller willingness to pay for the organic apple than someone who does not have a health and fitness interest. When the respondent is exposed to the treatment a person who is interested in health and fitness is estimated to have a larger willingness to pay than a person who is not interested in health and fitness, of approximately SEK 1.04.

When the respondent is not exposed to the treatment and interested in the environment he/she is estimated to have a SEK 0.24 smaller willingness to pay for the organic apple than someone who does not have an interest for the environment. When the respondent is exposed to the treatment and is interested in the environment he/she is estimated to have a much larger willingness to pay than that of a person who is not interested in the environment, namely SEK 1.6 larger.

The results of how often a person chooses organic produce showed that when the respondent is not exposed to the treatment then he/she has a greater willingness to pay for the organic apple. This increases by approximately SEK 0.44 the more the person tends to buy organic produce in normal cases. This effect is statistically significant at a 5% level. This implies that there is statistical significance that a person who usually buys organic produce is willing to pay more for an organic apple compared to a conventionally grown apple.

When the respondent is exposed to the treatment this effect is reversed and a person who usually buys organic produce now has a smaller willingness to pay than a person who does not usually buy organic produce. Although this effect is not statistically significant, it is a positive effect of the treatment since a reminder will not as greatly influence a person who already believes that it is better to buy organic. Therefore, the effect on someone who does not usually buy organic should be greater and the difference in what they now pay should be larger.
Knowledge variables

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Difference</th>
<th>T</th>
<th>Buyorganic</th>
<th>Effect</th>
<th>Wash</th>
<th>Tbuyorganic</th>
<th>Teffect</th>
<th>Twash</th>
<th>Constant</th>
<th>Difference</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1.65</td>
<td>1.65</td>
<td>0.51</td>
<td>0.69</td>
<td>0.696</td>
<td>0.59</td>
<td>1.23</td>
<td>1.02</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>-0.639</td>
<td></td>
<td>-0.061</td>
<td>0.857</td>
<td>-0.223</td>
<td>0.855</td>
<td>0.671</td>
<td></td>
<td>1.803*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard errors in parenthesis
Note: * denotes significance at a 10% level or higher

Again, according to the F-value and the accompanying p-value; the model with the knowledge variables does not give any significance either. The R-squared is only 0.05, which is the lowest value, attained of all the sub hypothesis analyses. Only 5 % of the variation in the dependent variable can be explained by the variation of the independents. It is clear that this model is not sufficient to analyze the effects of the dependent.

The constant in the model is statistically significant, implying that we can ascertain that a person who does not buy organic produce, who believes that the effect of pesticides is overestimated and who does not wash the fruit to remove pesticides has a larger willingness to pay, of approximately SEK 1.8 than other respondents.
Moreover effects worth mentioning are that in general when the respondent is exposed to the treatment, the effect is increased a little for all of the variables relative to when the respondent is not exposed. However, the effect of BUYORG is negative, which implies that respondents who believed that the reason to buy organic produce is either because it is:

1. locally grown,
2. better for our health or
3. there is no reason to buy organic

Have a smaller willingness to pay for the organic apple than do those respondents who claimed that the reason to buy organic is because it is better for the environment. This effect is less economically and statistically significant when the respondent is subject to the treatment.

**Discussion**

In order to ensure that the sample acquired was in fact random a randomization check needs to be done on the data. This entails that the sample in its proportions is similar to the population being estimated. Hence, for example a check of the respondents' age variation needs to be checked against the age variation of the population. See figure 2A and 3A for graphs. ("Statistiska centralbyrån", 2013) This is done to ascertain that the sample is sufficiently similar to the population, allowing an estimate of the population. In the sample a relatively large percentage of respondents were in the range of 20-30 years, which is not entirely consistent with the distribution in age of the population. However, one of the aims of this thesis and the reason for adding the socioeconomic variable age was that the younger generation was perceived to have greater motivation to buy organic produce.

In light of this aim, the difference in distribution is not expected to bias the results and the sample is still assumed to be random. The estimation of the thesis that younger respondents seem to prefer organic produce more than that of older respondents seems to hold.

The method used for the experiment part of this thesis was a randomized experiment with cross sectional data. In doing randomized experiments, there are several factors that can bias the results if the experimenter does not account for them (Duflo et al, 2007). The factors that need to be accounted for in this experiment are among others:

Ethical costs of this experiment are minimal; the circumstances to be considered are if the respondents in the treatment group would have realized that they were exposed to a treatment and
thereby felt used. Otherwise there are no obvious ethical concerns.

"Threats to internal validity" is an issue which needs to be examined. There are several categories within the threat to internal validity. The type of "Threat to internal validity" that is relevant in this case is the concern of failing to randomize. This means that the sample collected was not randomly chosen, which could bias results since they do not represent the random population. In this experiment a relatively large percentage of the respondents were in the ages between 20-30, which is not exactly representative of the Swedish population. However, a sample of respondents in the range of 20-30 years is a relatively large variation of different ages, and thereby, this should be sufficient as a sample to estimate a population.

Assessments of the facts that a large percentage of the respondents were students as well as an assessment of if a sample of Gothenburg is representative of the country of Sweden as a whole may be valid to perform; to determine if the results are only applicable in Gothenburg and on the student population. On the other hand, these factors do not seem very momentous and therefore are not expected to bias the result in any substantial way. A large segment of the population in most countries are students, and continually, Gothenburg should not fluctuate from the rest of the population of Sweden in any significant way.

"Failure to follow treatment protocol" means that participants in the experiment do not follow the instructions given during the experiment, respondents drop out or other unforeseeable things which may bias the results. This should not be a significant factor in this experiment. Due to the fact that the treatment was not carried out during a longer period of time, the factor of participants dropping out is not applicable here. Concerns present are instead that a few non-responses were acquired and that a few surveys were not completed perhaps due to lack of understanding or interest in addition to a few demonstration responses.

An interesting effect which is a threat to internal validity of the experiment is the so called "Experimentation Effect". This is an effect resulting in that when participants know that they are part of an experiment they tend to focus more, are more motivated to reach better results. This could be a relevant issue in this experiment, yet, not in the exact circumstance that the effect is usually used. In this experiment respondents are not aware that they are part of an experiment, therefore they would not feel the extra pressure to perform well. Conversely, respondents may instead in this case feel the urge to state a larger willingness to pay since they may feel an added pressure to be willing to pay more for the good of the environment.
Issues relating to "Threats to power" of the experiment, meaning that the scale of the experiment and sample may be too small to be sufficient in estimating the population. The aspect here is namely the problem of a "Small sample" arising from estimating an effect from a small sample to a whole population, due to the small scale of the sample it may not be representative of a whole population. This experiment was done in a relatively small scale due to the short amount of time and resources on the experimenter's part. Therefore, as before mentioned, it may not be fully representable of the Swedish population.

"Threats to external validity" is also a relevant aspect of concern in this experiment. It entails the ability to generalize the results of the study to other populations and settings. The location of the experiment was Gothenburg, which may not be representative of the country of Sweden as a whole. It has been established that Swedes are generally more informed and more interested in health and fitness and the environment than other nationalities, thereby perhaps creating a bias if the results of this study were to be generalized for a population of a different country.

The most usual and as a result most discussed type of circumstance that has an effect of creating a bias in results is the "General equilibrium effects". This entails that factors which may influence results have been overlooked, thus creating an upward or downward bias of the results. In this experiment factors such as sex, age and income were thought to have these characteristics and were therefore included in the model as control variables in order to eliminate bias. Continually, these variables were added in order to estimate their effect on the treatment as well.

Furthermore, the applicability of some of the aspects of the experiment can be discussed. A few issues were realized under way of the experiment, such as the accuracy of an open-ended willingness to pay question. It has been established that open-ended willingness to pay questions are more difficult to answer for respondents due to the fact that they do not resemble the typical market transactions that consumers are used to being subjected to in everyday life. These questions have however, been found to work well when the object is a familiar object, for this reason a open-ended question was chosen for this experiment (Bateman et al 2002). Post experiment it could be established that despite the fact that an apple is a familiar object, the form of payment of only one apple and not SEK per kg which is more familiar to consumers, was an oversight and perhaps utilizing the form of SEK/kg might have decreased the response difficulty for the respondents. This change does not seem monumental and the expected difference in the
results that this change could have provided does not seem sufficient to motivate redoing the experiment with this latter form of payment.

Further improvements that were realized post-experiment was the fact of eliminate non-responses and protest answers by asking a payment principle question (PPQ) in the beginning of the survey. This type of question is a question asking the respondents if they are interested in taking part of the experiment at all. This would then have made it easier to eliminate the respondents who have no interest in organic produce or do not have any interest in answering a survey. Thereby establishing a few answers where “difference” was equal to 0. In addition to eliminating those respondents who answered above their ability or actual willingness to pay for different reasons.

When handing out the surveys the experimenter clearly stated that the answers were anonymous and that answering was voluntary. This fact should have already eliminated some uninterested respondents, which was also founded in the fact that some surveys handed out were not answered. However, since the surveys were sometimes filled out by larger groups uninterested respondents may have felt pressure to answer despite their uninterest and therefore some responses, which under different circumstances could have been eliminated, were acquired.

A type of "experimenter effect" or hypothetical bias could be the answer to why we see that when subject to the treatment respondents who are interested in the environment still have a larger willingness to pay than those who do not have an interest in the environment. The expected result had been that when subject to the treatment, respondents who do not have an interest in the environment may be reminded of the effects of pesticides and therefore increase their willingness to pay, while in contrast, respondents who have an interest in the environment would already consider these effects in their decision of willingness to pay. The experiment effect or hypothetical bias may be present here by making respondents who have an interest in the environment feel a pressure to pay even more for the organic apple due to some kind of subjective norm, which is described in the theory of planned behavior; they may perceive the reminder as a pressure to pay even more. This may cause them to state a willingness to pay that exceeds their actual ability to pay which then causes a hypothetical bias.

A different theory of consumer behavior may have given a different insight in why consumers act as they do. A study by Eckerblad et al. in 2014 utilized the "consumer proposition acquisition process", which consists of six stages to help explain the development of a consumer
purchase decision. This process was considered when choosing a model during this study, however it was discarded due to the fact that during the purchase of an apple this process is very compact and made almost entirely by our unconscious. In spite of this, the latter model or another more common model of consumer behavior may have been better suited or given more for the analysis of the consumer behavior.
Conclusion

In this thesis, an examination of how a small reminder of what organic production implies can impact consumers to increase their consumption of organic produce relative to their consumption of conventionally grown produce.

The examination was carried out by means of a survey and the results were analyzed by using a negative binomial regression. The effects of the main hypothesis were examined as well as the effects of sub hypotheses.

The findings of the analysis are that generally consumers are willing to pay more for organic produce relative to conventionally grown produce. This effect is statistically significant and moreover, has been seen in past experiments (Govinhasamy R et al. 1990, Steward et al. 2004) Further analysis of the main hypothesis shows that on average there is no statistical significance in the effect of a reminder on consumer behavior.

The findings of the analysis of the sub hypothesis shows that under normal circumstances women have a lower willingness to pay than men, contrary to what many previous studies have found. While when exposed to the treatment women have a higher willingness to pay for organic produce than men do. Further scrutiny of this result would be interesting, however, this is more in the psychological field to examine why women are more sensitive to suggestion than men.

Continually, the sub hypothesis that younger generations are willing to pay more for organic produce than older generations was rejected due to lack of statistical significance. However, interestingly, when exposed to the treatment, older generations' willingness to pay increased substantially.

The only significance found in the knowledge variables were the effect of women's willingness to pay increasing substantially when exposed to the treatment. And, moreover, that generally respondents in the work force had a larger willingness to pay when exposed to the treatment then students had when they were exposed to the treatment. Both these effects were statistically significant.

Examining interest variables as control variables then an overall significance in the model was obtained. This suggests that when exposing people who are interested in health & fitness, the environment or people who usually buy organic produce to a reminder of the effects of pesticides then we can with statistical significance ascertain that they will have a larger willingness to pay for organic produce relative to conventionally grown produce. Further, in the regression it was
shown that when the respondent is not exposed to the treatment and interested in health and fitness he/ she has a smaller willingness to pay than those not interested in health and fitness. When the respondent is exposed to the treatment and interested in health and fitness he/ she has a larger willingness to pay than those who are not interested in health and fitness.

Contrary, when examining interest in the environment, a respondent not exposed to the treatment and interested in the environment is estimated to have a greater willingness to pay for the organic apple than that of someone who does not have an interest in the environment. When the respondent is exposed to the treatment their willingness to pay increases even more relative to someone who is not interested in the environment.

Respondents who tend to buy organic produce more often have a larger willingness to pay for the organic apple. When the respondent is exposed to the treatment, this effect is reversed and a person who usually buys organic produce now has a smaller willingness to pay than that of a person who does not usually buy organics. Here is a small but positive effect of the experiment; generally some small effects of the treatment are visible despite not being large enough to be statistically or economically significant.

In the analysis of the knowledge variables the intercept was significant at a 10% level, entailing that again respondents are willing to pay more for organic produce relative to conventionally grown produce.

The results of the study are that in similarity to past experiments it seems that consumers are willing to pay more for organic produce than conventionally grown produce. On average a small suggestion has been established with statistical significance to not impact consumer behavior in order to make them increase their consumption of organic produce. However, a few preliminary interesting results have been obtained through this study, where the treatment had effect. These results need further assessment in order to attain more information on what they entail as well as how to use the information. For example, the result that women tend to be more sensitive to suggestion than men would be interesting to examine further. Continually, additional assessment of why respondents in the workforce are more sensitive to suggestion than students are would be useful and interesting.

The findings of the study give light on the amount of education which is needed in order to increase the consumption of organic produce. It has been established through this study that more extensive education or reminders than the short paragraph used in this study is needed.
Moreover, education of not only the negative environmental effects but also the negative health effects need to be increasingly publicized. Hereby, producers of organic foods can utilize these results in order to, for example, establish advertisements for their products which are more educational than they may have done without the results of this study.
Appendix

Survey 1
This is a survey to examine what respondents are willing to pay for an apple.

Please choose the alternative that you prefer by placing an X in one of the boxes provided for every question. By *Organically grown it is implied that the apple has been grown in accordance to the EU legislation with restrictions on e.g. the use of pesticides.

What would you be willing to pay for this apple? Write the amount (in SEK) in the box:

What would you be willing to pay for this organically grown apple?

Please answer some questions regarding your lifestyle and preferences:
When alternatives are given, choose the alternative that best fits your situation or opinion.
Show your answer by placing an X in the box for the alternative that you prefer.

1. Gender
   Male   Female

2. Age
   □ 20-30   31-40   41-50   51-65   66+

3. What is your current profession?
   □ Working   Student   Unemployed   Retired
4. Are you interested in environmental aspects?

☐ Yes  ☐ No

5. Are you interested in health & Fitness?

☐ Yes  ☐ No

6. What is your average income/month?

☐ <15 000 SEK  ☐ 15 000-25 000 SEK  ☐ 25 000-35 000 SEK  ☐ >35 000 SEK

7. Are you responsible for the grocery shopping in your household?

☐ Yes  ☐ No

8. Do you wash your fruits/vegetables in order to remove pesticides?

☐ Yes  ☐ No

9. How often do you buy organic foods?

(Circle the alternative that fits best, using 0 as never buying organic food and 5 as almost everything you buy is organic)

0  1  2  3  4  5

10. The effect of Pesticides on your health is

☐ Overestimated/imagined
☐ Only dangerous if you do not wash the fruit/ remove the skin.
☐ Underestimated, can cause serious illnesses such as cancer.

11. Why do you think that we should buy organic foods?

(Choose ONE of the alternatives that in your opinion fits best)

☐ Better for the environment  ☐ Locally grown  ☐ Better for our health  ☐ There is no reason to buy organic foods
Survey 2
This is a survey to examine what respondents are willing to pay for an apple.
Please choose the alternative that you prefer by placing an X in one of the boxes provided for every question.

What would you be willing to pay for this apple?                                           What would you be willing to pay for this organically grown apple?
Write the amount (in SEK) in the box:

Please answer some questions regarding your lifestyle and preferences:
When alternatives are given, choose the alternative that best fits your situation or opinion.
Show your answer by placing an X in the box for the alternative that you prefer.

1. Gender
   Male   Female
2. Age
   □ 20-30   31-40   41-50   51-65   66+
3. What is your current profession?
   □ Working   Student   Unemployed   Retired
4. Are you interested in environmental aspects?
   □ Yes   No
5. Are you interested in health & Fitness?

☐ Yes  ☐ No

6. What is your average income/ month?

☐ <15 000 SEK
☐ 15 000- 25 000 SEK
☐ 25 000-35 000 SEK
☐ >35 000 SEK

7. Are you responsible for the grocery shopping in your household?

☐ Yes  ☐ No

8. Do you wash your fruits/vegetables in order to remove pesticides?

☐ Yes  ☐ No

9. How often do you buy organic foods?

(Circle the alternative that fits best, using 0 as never buying organic food and 5 as almost everything you buy is organic)

0 1 2 3 4 5

10. The effect of Pesticides on your health is Overestimated/ imagined

☐ Overestimated/ imagined
☐ Only dangerous if you do not wash the fruit/ remove the skin.
☐ Underestimated, can cause serious illnesses such as cancer.

11. Why do you think that we should buy organic foods?

(Choose ONE of the alternatives that in your opinion fits best)

☐ Better for the environment
☐ Locally grown
☐ Better for our health
☐ There is no reason to buy organic foods
Table 1A Correlation of independents

<table>
<thead>
<tr>
<th></th>
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<th>Difference</th>
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Figure 2A

Age distribution of respondents
Figure 3A

Population divided into region, age, sex and year

Folkmängd efter region, ålder, kön och år

Källa: Statistiska centralbyrån (SCB)
References


"Risker och effekter av bekämpningsmedel" (May 2013) (Available online) http://www.naturskyddsforeningen.se/nyheter/risker-och-effekter-av-bekampningsmedel

