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Priming as a tool for triggering prosocial behavior

Supervisor:	Mgr. Petr Polák MSc.
Study branch:	Economics and finance

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In Prague, 7.7.2019

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Acknowledgment

Title: Priming as a tool for triggering prosocial behavior

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Abstract

Priming is a cognitive bias influencing, in various forms, daily life of people. This paper examines the effect of priming in economics, where subjects are often forced to make decisions under uncertainty.

The empirical part of this paper introduces the experiment, where subjects were manipulated towards or against prosocial behaviour with verbal priming techniques.

The experiment results show that priming to specific concepts correlated with a tendency to act prosocially actually increases the subsequent degree of prosocial behaviour, although the same evidence has not been found with the opposite case.

Key words: priming, nonprofit, behavioral economics, heuristics

Název: Priming jako spouštěč prosociálního chování

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Abstrakt

Priming je kognitivním zkreslením, jež v různých podobách ovlivňuje náš každodenní život. Tato práce studuje působení primingu v ekonomii, kde jsou subjekty běžně nuceny činit rozhodnutí za nejistoty.

Empirická část této práce obsahuje experiment, kde jsou subjekty manipulovány směrem k, nebo proti prosociálnímu chování pomocí techniky verbálního primingu.

Výsledky experimentu ukazují, že priming na specifické koncepty spojené s tendencí jednat prosociálně skutečně zvyšuje následnou míru prosociálního chování, ačkoliv v opačném případě pro toto dostatečný důkaz nebyl nalezen.

Klíčová slova: priming, neziskový sektor, behaviorální ekonomie, heuristika

Proposal

Název práce v češtině: Priming as a tool for triggering prosocial behavior

Název v anglickém jazyce: Priming as a tool for triggering prosocial behavior

Klíčová slova: priming, neziskový sektor, behaviorální ekonomie, heuristika

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Bibliography

[1] Tversky, Amos, and Daniel Kahneman. "Rational Choice and the Framing of Decisions." The Journal of Business, vol. 59, no. 4, 1986, pp. S251–S278. JSTOR, JSTOR, www.jstor.org/stable/2352759.

[2] Kahneman, D., Tversky, A. (1984). Choices, values, and frames. American Psychologist, 39(4), 341-350.http://dx.doi.org/10.1037/0003-066X.39.4.341

[3] THALER, Richard H. a Shlomo BENARTZI. Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving. University of Chicago, University of California, Los Angeles. SCIENCE27 SEP 1974 : 1124-1131

[4] Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. 1991. "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias." Journal of Economic Perspectives, 5 (1): 193-206.DOI: 10.1257/jep.5.1.193

[5] THALER, Richard. Mental Accounting and Consumer Choice. 1985. DOI: https://doi.org/10.1287/mksc.4.3.199.

[6] BREMAN, Anna. THALER, Richard. Mental Accounting and Consumer Choice. 1985. DOI: https://doi.org/10.1287/mksc.4.3.199. 2006. Job market paper.

[7] Richard H. Thaler Cass R. Sunstein, "Libertarian Paternalism Is Not an Oxymoron" (University of Chicago Public Law Legal Theory Working Paper No. 43, 2003).

Research question and motivation

My research question examines whether the effects known from behavioral economics can be applied in non-profit organizations marketing communication and help increase the effectivity of fundraising. In particular, I am going to implement some changes into mainly online communication of few Czech non-profit organizations and watch the change in amount of money donated per a given time unit. To be specific, some examples of heuristics I am going to use are anchoring effect (anchoring ones mind to a number) or social proof effect (showing statistics on how many people have donated in a week etc.) The other part of my research includes questionnaires given to donators which will show further motivation for the charity donations and socio-demographic factors affecting donations. Behavioral economics, recently popularized by Thalers "Nudge" and Kahnemans "Thinking fast and slow," is quickly developing and companies start to use its effects in their marketing strategies. However, non-profit sector still provides a huge potential for using heuristics and biases of human brain to influence more people to behave in altruistic manner and donate more money for charitable purposes.

Contribution

The thesis aims to provide some new perspectives on marketing communication and the results can be applicable across the Czech non-profit sector and help other organizations to innovate their marketing strategies for practically zero cost. The experiments should also correspond with existing literature related to the topic or similar research conducted in other countries before.

Methodology

I am going to conduct a comparative analysis, evaluating previous and current statistics on how many people donate to the particular organization, what is the frequency of donations, how many people decide to join regular donators club etc. I am going to compare the data before and after the implementation of behavioral economy effects. Also, I am going to evaluate the questionnaires given to donators.

Outline

1. Introduction

2. Theoretical background: behavioral economics, its development and practical use in marketing

3. Brief characterization of cooperating non-profit organizations and their current marketing communication

4. The experiments and its evaluation

5. The questionnaires and its evaluation

6. Conclusion: discussion on statistical and practical importance, further application of the results

7. Appendix (statistical data, results presented graphically)

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Glossary

I shall first present a brief summary of the key terms and concepts frequently used in this thesis. The glossary outlines how how the terms are grasped here for some of them have an ambiguous definition within various papers. Also, the acronyms and abbreviations are listed. One can skip this part of the thesis.

GPS = Global Preferences Survey

Altruism = a selfless way of thinking and acting, primarily serving others, even if the certain action is harming its originator

Behavioral economics = a branch of economics, built on the assumption of bounded rationality

Bias = a result of using heuristics, a cognitive error

Bounded rationality = a key behavioral economics phenomenon, assuming people are strongly affected by heuristics when making decisions

Cognition = mental process when a subject experiences and then processes a stimulus (Dictionaries 2016)

Conceptual priming = exposition to cues with orientated to a certain meaning rather than stimulus form (as in the case of *perceptual priming*)

Economic agents is any subjects making decisions in the market. Also called economic actors

Heuristics = rules people tend to use when making decisions under uncertainty

Priming refers to a phenomena or process that intensifies ones reaction on a stimulus after being previously exposed to another, somehow related, stimulus

Prosociality = behaviour aimed at benefiting society as a whole

Repetition priming = a form of positive priming, speeding up processing of a stimulus due to previous repetitive exposition to the prime

Utility = subjective benefits from market decision made by an economic agent

Verbal priming = priming where the subject is exposed to verbal terms

1 Introduction

From the very beginning of economic thought, the market has been viewed as an exchange of goods and services in order to increase ones welfare or, say, utility. All economics agents have been assumed to behave less or more optimally and towards maximizing a welfare of themselves and society as a whole (Heukelom 2014).

Although a certain type of economics has been present in human society from certain stages of its development, the economics as a scientific branch has for a long time been studied as a part of other sciences. The origins of first academic work discussing economic thought has been found in the Ancient Greece, India and China as early as around 700 BC.

Until the modern period, however, the economics was mainly tackled from philosophical perspectives. In the 13th centrury, Thomas Aquinas in his famous Summa Theologica (Aquinas 2012) questioned the justness of selling a good under or above its true value. A few centuries later, Mercantilists introduced some pioneering thoughts on trading goods internationally (Henderson 2008), in order to increase a welfare.

In the 1516, Sir Thomas More proposed an ideal (according to him) vision of society sharing goods, land and education in common (Baker-Smith 2000) in his Utopia. During the Age of Enlightenment in the 18th cetutury, John Locke argued how government should intervene humans property in order to protect their rights (Locke 2013). A degree of influence that government should have on market decisions is still one of the persisting questions in economics nowadays.

Another fundamental problem is the unending aim to maximize wealth and utility of nations and individuals. Adam Smith, the main of classical economic thought, in his crucial work The wealth of the nations, made a turning point in decomposing the factors which contribute to nations wealth (Smith 1776) and later also came with his notorious theory of Invisible hand.

The economic thought then advanced to the ideas of Neoclassical economics school (19th – 20th century) and Keynesianism (20th century). Recently, the 2008 global recession and financial crisis has made all economists worldwide question the theories acknowledged until then. Perhaps, the crisis contributed to the society searching for other explanations behind market decision making and, naturally, also human decisions generally.

Despite the continuous evolution, economics is still considered a scientific discipline functioning on the basis of a bit shaky assumption of human rationality and constant pressure on utility maximization. Ward Edwards, a significant psychologist and decision theory contributor, describes rationality as the ability to always choosing the preferable one from any two states (Edwards 1954). Moreover, to assume rational acting, a transitivity should holds. Practically, it means that if an economic subject chooses a good 1 over good 2 and the good 2 over a good 3, they are expected to chose the good 1 over 2 to stay consistent. However, in reality, transitivity does not always seem to hold. As Edwards himself pointed out, a man who would hold all the properties used to define rationality, would no longer be a human being. (Edwards 1954)

It is hardly surprising, therefore, that recently, most economists gradually accept the concept of bounded rationality. Bounded rationality means allowing existence of some limits in the human reasoning abilities(Arthur 1991)), as opposed to the perfect rationality assumption.

The difficulty to grasp the whole utility concept and to comply with the rational behaviour requirement in real life situations naturally called for a sub-field bringing a new direction in economics. The drawbacks of the classical economic approach have given rise to *behavioral economics*, a groundbreaking and fast developing approach which challenges the traditional schools of economics thought and abandons, to some extent, the deep-rooted idea of *homo economicus*, a rationally thinking man, completely informed and perfectly sensitive to incentives. Such a person is expected to coldly calculate the exact consequences of their acting in the market and avoid being affected by emotions or other pychological variables.

Although usually classified as a sub-field of economics, behavioral economics is rather a combination of economics and psychology (Mullainathan and Thaler 2000), principally built upon the irrationality (or, say, bounded rationality) of human decision making processes. Until the recent years, the impact of emotions, social and cultural factors and other seemingly unrelated concepts on our thinking has been neglected or completely ignored.

New results from behavioral economics research has been penetrating a whole spectrum of human activities, be it finance, marketing, education, politics or health care.

Behavioral economics, as a science, has been evolving since 1980s, when Daniel Kahneman

and Amos Tversky, nowadays regarded as pioneers of this scientific discipline, came with the Prospect theory (Kahneman and Tversky 2013), a concept mathematically describing human decision making under some degree of uncertainty. Tversky and Kahneman ascribed the aforesaid imperfections to emotional, cultural and sociological factors influencing human behaviour, such as *risk aversion.* These two scientists with their findings have already occupied a pride of place in the academic society.

After Amos Tversky died in 1996, Daniel Kahneman was awarded by Nobel Prize in Economic Sciences in 2002.

A motivation behind the research question of this paper is to uncover and test some innovative applications of *priming*, one of the well-known subjects of interests in behavioral economics studies.

Priming is one of the most common cognitive biases affecting human decision making under uncertainty. It can be understood as the process of exposure to a specific stimulus, which activates and speeds up the subsequent procession of related information. Priming is described in more detail in the special section devoted to its functioning and types.

In this paper, we firstly shall outline various ways to implement priming techniques in economics. Then we can move to the proposed hypothesis and its experimental testing. In conclusion, we analyze the data sample and suggest some future directions concerning the used types of priming.

Note

The Proposal appended to the first part of this paper captures a primary vision of the research field. It should therefore serve rather as a brief outline of the paper research question and method. The particular topic of priming as a main interest was chosen later. The research question has been narrowed to the only cognitive bias to comply as well as possible with the requirements of this paper and capabilities of conducting an appropriate experiment.

2 Priming as a cognitive bias

Priming noticeably affects human cognitive processes in everyday life. Under the term cognitive process, we understand a set of procedures carried out by human brain simultaneously. Cognitive processes include for instance language using, processing perceptions, memory, attention, and indeed the very act of *thinking* itself (Association et al. 2013).

To understand well the empirical part of this paper and the types of priming used in the experimental questions, it is necessary to introduce and define the ways in which can priming be classified.

2.1 Conceptual and perceptual priming

In other words, priming is a psychological effect resulting in an intensified reaction to a stimulus after an exposure to another stimulus. The stimuli are usually related in their meaning, even though we can distinguish between *conceptual priming* and *perceptual priming*. The former activates some characteristics connected with a stimulus meaning, while perceptual priming works with a stimulus form and external shape.

Conceptual priming stands for primes of a certain important meaning, the perceptual priming is based on the stimulus modality (e.g. an individual is primed to paying extra attention to a certain pattern in a text, image, situation etc.) Conceptual priming is based on the meaning of a stimulus and is enhanced by semantic tasks. For example, table, will show priming effects on chair, because table and chair belong to the same category.(Keane et al. 1991)

As an example of perceptual priming, we can be told to look for the words containing certain letters (regardless of their meaning) and are hence primed to concentrate on such words. On the other hand, if we were exposed to conceptual priming instead, we could be for example shown a set of words expressing winter, and subsequently could find a word "snow" in some different text more quickly, as the concept of winter has been activated in our brain.

2.2 Positive and negative priming

There are more ways to further divide priming. One of them is distinguishing between positive and negative priming, which are defined as increasing or decreasing the processing speed,

respectively. The positivity or negativity here is to be understood in terms of increasing the processing or, conversely, lowering the processing speed, of a stimulus which the subject is exposed afterwards (Mayr and Buchner 2007). The positive priming example can be a mere exposure to certain words with an important meaning, which then results in recognizing the subsequent pieces of related information more quickly and vice versa.(Forster and C. Davis 1984)

2.3   Other types of priming

Other priming forms important for this paper are *repetition priming*, *direct priming* and *verbal priming*.

Repetition and direct priming are two terms describing the same technique, where the experience to a stimulus alone is sufficient for increasing the processing speed. An example of this is an ordinary advertisement where a claim is repeated again and again. After experiencing the same concept repeatedly, the subject is hence primed towards the statement announcement.

Verbal priming, naturally, is defined in terms of the means used for the activation. In this case, it is made by letters, words, phrases and sentences.

To sum up, there are various ways to divide priming, which overlap with each other. The most important types for this paper are positive and negative priming and verbal priming. These are to be further discussed in the Methodology section.

Interesting to denote here is also the fact that priming is often referred to not only as a cognitive bias occurring in human brain, but also as the process of directing an individuals focus to a certain thought (*prime*). This second interpretation of the word denotes the act of manipulating the cognitive processes, whether it is made unconsciously or with the intention to affect the perception of a subsequent stimulus.

Typical priming techniques include actively manipulating subjects (individuals in real-life situations, or experiment participants) to think about specific concepts (Cohn, Engelmann, et al. 2015). The next section summarizes the existing research on some of the priming types introduced here.

3 Existing research

Since the main object of interest in this paper is testing the effect of priming on prosocial behaviour, the research mainly summarizes priming on the concepts or personality traits which have been proven to either directly increase the rate of prosocial behaviour or at least are correlated with such acting.

Up to now, existing findings from experimental economics fail to provide a completely clear portrait of the factors underlying human prosocial behaviour (Haley and Fessler 2005) The research using priming techniques to manipulate the subject has been so far focused mainly on testing impact of various sociodemographic variables, e.g. gender, income, job, education level etc.

However, to some extent, priming on various related characteristics has been examined, testing different human emotions and personality traits. This paper in its empirical part puts emphasis on such variables (summarily called *psychological variables*), also giving some smaller weight to socio-demographic characteristics. Since psychological and sociological variables are rather ambiguous to define and, they often penetrate each others meaning and effect measured in the experiments. We will deal with this problem by testing the psychological variables jointly as a predictor of prosocial behaviour, and hence intensifying the final impact.

The following section characterizes some of the existing research using the priming techniques especially in economics field.

3.1 Priming in economics

The priming action is usually unobtrusive to the subject of priming, which is preferred not to realize being manipulated the certain way. This implies its use in the domains where one can benefit from irrational behaviour of other people (although this could be applied to almost all domains of human activities actually.)

As one of the techniques that can make people in the role of economic agents act against utility maximization, priming is easily applicable to, marketing, sales, public relations and communications generally, and especially to the field economics, typically to manipulate ones decision about allocation of their utility goods. Firstly, we shall briefly introduce some of

the many heuristics and cognitive biases affecting rationality of economic agents apart from, or simultaneously with, priming.

Priming on (dis)honesty

Priming principles have been applied for example in the famous study of Alain Cohn1, Ernst Fehr and Michel André Marechal1, "Business culture and dishonesty in the banking industry" (Cohn and Maréchal 2016). It the experiment, one random group of bank employees were given a set of priming questions regarding especially their banking profession. The other group was asked some different questions without any priming effect.

Then, all bankers were asked to participate in a simple experiment. The accessibility to the concept of dishonesty served as a manipulation check. The group primed to put their professional identity (as banking industry was assumed to cause dishonesty) at the front by the preceding question set, showed a significantly higher propensity to cheat in the experiment, than the control group.

This method demonstrates clearly, how the prime does not even have to be directly and intuitively connected to the subsequent variable, but the mere closeness of the psychological traits (here it means the patterns of behaviour typical for banking industry and its resemblance with dishonest behaviour generally) is enough to activate the cognitive bias.

Priming on relatedness

By relatedness, we understand an emotional connection to other people (Pavey, Greitemeyer, and Sparks 2011). In a study about relatedness, respondents were asked to complete a simple task where a set of words associated with relatedness (e.g. "community", "together", "connected", "relationship" etc.) were embedded in sentences.

The degree to which the participants were willing to behave prosocially was later measured as a response to the relatedness concept. The effects of the manipulation on intentions to undertake volunteer work for a charity and their interest in volunteering were recorded after the priming towards relatedness.

According to results, the participants of the manipulation condition primed towards relatedness reported greater intentions to volunteer compared to control group. This study lays a foundation for using relatedness and similar psychological concepts as a priming tool triggering prosocial behaviour.

Priming on childhood memories

As with the banking industry case, a study by F. Gino and S. D. Desai (Gino and Desai 2012) used a rather wide concept, not intuitively connected to behaving prosocially.

In the experiment, the authors primed participants using childhood memories. Since childhood is usually being associated with moral purity and prosociality, the participants have been manipulated to try to remember some memories from their childhood. The hypothesis that the pleasant memories which the majority of people have of their childhood, would increase their sense of moral purity. Therefore, the likelihood that they would help someone in the present and donate money to a good cause was measured as a dependent variable. This hypothesis has been proven, and moreover, fairness was secondly tested the same way. The second test showed that also punishment of ethically-questionable actions of others has been significantly increased after priming to childhood memories.

Priming on gratitude

In a gratitude-manipulation experiment(Bartlett and DeSteno 2006), the respondents were firstly helped with their computer by a seemingly random stranger. After this act, they were expected to feel more grateful then the control group. The accessibility to prosocial behaviour were significantly higher afterwards, since the group that received help showed better willingness to help a stranger afterwards.

Priming on empathy

Empathy is a psychological variable defined as ability to recognize and share emotional states of other people. It is therefore intuitively related to prosociality and altruism, which has been proven for example by Eisenberg (Eisenberg and Fabes 1990).

The experiment by Eisenberg discovered positive relationship between empathy and prosocial behaviour, although empathy (and sympathy, which is a certain form of empathy – including positive feelings toward others) is not itself classified as an emotion. A more accurate statement is that emotions are a byproduct of human empathy.

Priming on affiliation

Affiliation is one of the cases where the definition overlaps with other psychological variables, such the already mentioned relatedness.

After having been exposed to affiliation primes, 18-month-old infants were three times as likely to behave prosocially towards adult people as after having been exposed to individuality primes.(Over and Carpenter 2009)

Here, prosociality was tested in an interesting way, using wooden dolls. Two participants were shown a random neutral image depicting a household object. In the background of the image, however, they would see two dolls facing each other. This arrangement was to express the affiliation.

In contrast, the other group of children were tested with an individuality condition. They watched almost the same image, with only a single wooden doll standing by itself or two dolls standing back-to-back.

The control group then saw the dolls in the background replaced by wooden cubes of similar sizes and colors.

The version where children were exposed to affiliation prime resulted in them being more willing to help an adult.

Priming on proximity

Proximity is, as a concept, also strongly related to affiliation and relatedness. Here, we shortly summarize two significant papers on proximity effects.

In the first one, Mikulincers study(Mikulincer et al. 2005), participants were asked to type, in an Excel worksheet, the first names of particular people they were in close relationship with. This included their father, mother, brothers, sisters, best friends, current and previous romantic partners, grandfathers, and grandmothers.

The recollection of the names close to the respondents activated prosociallity in their acts, tested by subsequent tasks.

The second interesting study(Fraley and K. E. Davis 1997) examined and proved the effects of attachment security on empathy, compassion, and altruism. The priming mechanism functioned on a principle similar to the first paper. The respondents were told to fill in the first names of people with whom they sought proximity and who provided them with a subjective feeling of safety. They were also asked about a person who they like to spend their time with the most or a person whom it is hardest to stay away from. Other questions required first name of a person the respondent wants to talk to when they are worried about something or a person they turn to when they are feeling down. The last two questions asked the name of a person who is always present when the respondent needs them and a person who is a good friend to share some personal successes with.

The questions were reported as efficient in increasing prosocial tendencies of the partici-

pants.

This method of testing is in some aspects similar to the previously mentioned experiment with recalling childhood memories. Here, the questions also manipulate the subject to start searching in their memory and recall some positive experiences, especially related to people who make them feel pleasant for some reason.

Image priming

Other possible way of priming use that is already being frequently implemented in economics is priming with images. For instance, seeing and processing pictures connected with negative emotions can increase charity donations significantly (Burt and Strongman 2005), perhaps due to the subsequent feeling of guilt provoked by the images displaying "sad" things.

This type of priming is commonly applied in nonprofit sector, where individuals are not that motivated to decrease their financial welfare in exchange for other forms of utility.

Category priming

So as the subjects of priming can be shifted towards one specific trait, so they can be primed towards a whole *category* of traits, as was showed by Higgins et. al(Higgins, Rholes, and Jones 1977). Higgins exposed the respondents to a set of words jointly marked as *positive* or *negative*, which then influenced subjects reading comprehension in a positive or negative direction, respectively.

However, this experiment combines the effects of already mentioned psychological concepts and it only difference lies in the approach it uses to test them.

This paper draws inspiration from the existing research and aims to partly replicate some of the mentioned experiments. In the empirical part, we will show how prosociality has been tested in this case. The psychological variables activating prosociality have been combined into two sets, according to the direction of the effect. One of the sets contains the variables positively affecting prosocial tendencies, while the other set aims for the opposite effect.

The whole sets have been implemented instead of a single variables. One of the reasons for this step is avoiding the ambiguous definitions of the psychological variables.

Priming on a whole set of variables

In social psychology, the variables are often found overlapping in their interpretation and difficult to grasp and define clearly. The ambiguity in distinguishing among effects of various

similar psychological and sociological concepts is noticeable in the existing research. The problem starts at the definitions of predictors which are disagreed on by different authors. Some examples include the distinction among moral behaviour, altruism, prosociality, helping behaviour.

This study is atypical due to introducing the whole set of priming variables related to prosocial behaviour as a solution to the existing disagreements. The set of predictors instead of a single one was chosen to test here, since the initial motivation behind this paper is rather practical than academic, aiming to find and provide evidence for some innovative useful real-world application in nonprofit sector.

3.2 Priming in nonprofit sector

Economics of nonprofit is of a specific type among other economics areas. The problem of utility maximization can be more difficult to grasp, as in nonprofit, people usually do not derive their utility from increasing their monetary welfare as much as from some immaterial values. The subjective individuals utility in nonprofit sector can be achieved from warm-glow feeling as a result of helping behaviour or from compliance with ones self-concept when acting altruistically.

This implies the use of priming in economics discussed above and showed on some experimental or real-life examples, can be even easier to implement into nonprofit sector than into commercial sphere. The number of nonprofit organizations is increasing quite rapidly(McKeever and Pettijohn 2014) both in the Czech Republic and worldwide. The importance and ever-growing role of nonprofit sector in economics is the motivation behind exploring new ways to implement the forward-looking concepts from behavioral economics.

3.3 Factors affecting prosociality

Apart from priming, there are always some other variables present in a real-life situation (or corresponding experiment modelling the situation) which affect human behaviour. In social sciences, we should always control for basic sociodemographic characteristics as well. The previous research examining this problem has succeeded in showing the importance of sociodemographic variables such as age, gender or income when conducting research. Below are discussed the variables which have been included into the model in this research

Gender

The various studies have been conducted, looking for an effect of gender on prosocial traits (Bani and Giussani 2010; Prentice and Miller 1993; Croson, Handy, and Shang 2010), yet an exact conclusion about this relationship has not been found. However, women are generally considered and expected to behave more prosocially than men.

Age

Similar problem has been found with age. This variable often tends to be highly collinear with other sociodemographic traits, such as achieved level of education or level of income. Generally, older people are reported as more prosocial, for example by a study by Hodgkinson (Hodgkinson and Weitzman 1990).

Highest achieved education level

Education is similar case as income level. Higher level has been reported (Ribar and Wilhelm 2002) to increase prosocial behaviour, measured for example by size of charity donation made by subjects.

Religion

It is not surprising that religious people have been reported as more prone to prosocial behaviour (for instance (Jackson et al. 1995).) Regardless of the type of religion, these people often share prosocial values within their communities.

Family state

Family situation is a variable very difficult to capture and divide into categories. However, we cannot omit this factor in the experiment, since many studies have found significant effects of marriage on prosocial behaviour (e.g.(**lee2007gives** ; Roistacher and Morgan 1974)).

Monthly income

Higher income level could be expected to increase human tendency to help other individuals. Some experiments have confirmed this conjecture (Ribar and Wilhelm 2002; Glazer and Konrad 1996), however this variable is also rather questionable and can be highly correlated with other factors, such as education, age, experiences, hobbies and interest in others, which can lead to prosociality.

Other factors

There are certainly other factors affecting human prosociality and in experimental environment, especially regarding research in behavioral economics or social psychology, there

are also some omitted variables that we are not capable to control for. One instance of such variables is norm obedience. As one is asked about their willingness to help or donate money, they necessarily take into account their already built pro-social identity before the final decision. The identity corresponds with how the respondent uses to decide in the similar situations, what are their opinions and *norm obedience*, e.g. how prone are they to obey conventional social norms. Norm obedience is typically affected by either the set of values people believe that they should obey or the values people believe others should obey (Bicchieri 2005), however these two cases can be disjoint. By activation of human prosocial identity by verbal or other kind of priming, one achieves the increased propensity to subsequent pro-social behaviour.

4 Hypothesis

The purpose of the experiment in this paper is twofold. Firstly, the intention at the root the research is to discover new effective way of priming application in economics. Secondly, the academic purpose of this work is to a certain extent replicate the existing experiments examining effects of priming on the discussed psychological traits, with a further contribution of testing the psychological variables as a combined set.

As follows from the theoretical part, the fundamental aim of the research is to verify the hypothesis about existing positive relationship between priming on ones prosocial identity (consisting of a set of traits understood as prosocial) and subsequent prosocial behaviour. Here, such a behaviour is measure using a special set of adjusted items taken from the Global Preferences Survey, further referred to as *GPS* questions. These have already been verified as a reliable indicator of prosocial behaviour (further on GPS is found in the Methodology section.)

As much as the positive primes are expected to increase the GPS items score, the primes towards values contradicting prosocial behaviour are expected to decrease the final score.

The research question is further structured into two hypotheses, each for one of the contrary priming types (positive and negative priming.)

H1: The positive priming group will report higher adjusted GPS score

_H2:_ The negative priming group will report lower adjusted GPS score

In the Methodology section below, the design, process and analysis of the experiment is described.

5   Methodology

The most common methods for testing priming effects are either forming an experimental environment or manipulating the subjects with questions or other verbal tasks. Unfortunately, in this paper, we have to take into account the limited possibilities and lack of the means needed for conducting an experiment mimicking real situations. The best way to test the priming would be to verify the results both experimentally and in qualitative or quantitative survey questions. However, here, the practical part is replaced by the validation process used within the Global Preference Survey on all its items, including the four questions selected for testing this research question.

From the nature of the research question and the way of measuring the effect (answers to the GPS questions), the intuitive approach is to use a questionnaire. The questions sets in both priming groups serve jointly as a tool for _verbal priming_, where certain words have been chosen as cues for activating prosocial behaviour. This type of priming can also be referred to as _repetitive priming_, for which it is reasonable to expose participants to the subsequent measuring items right after experiencing the primes.

The research question (Hypothesis 1 and Hypothesis 2) is tested by questionnaire in two forms, manipulating the subjects 1. _towards_ and 2. _against_ prosocial behaviour. The two versions are denoted further in the text as _Modification 1_ and Modification 2, or _Positive_ and _Negative priming group_ respectively. The Modification 1 is tested to increase the prosocial behavior with positive priming and the Modification 2 to decrease such behavior with negative priming.

We now introduce some of the variables that participants have been primed towards across this experimental field. Each of the variables is embedded in one or more questionnaire items of the experiment. Then we outline how a set of these variables has been jointly used in our experiment as a target of priming together with other questionnaire items.

Namely, the method uses positive priming technique towards _Generosity, Relatedness, Fairness, Proximity, Childhood memories, Memories of close people, Gratitude, Affiliation, Independence, Social distance and Money._

5.1   Subjects

In order to diversify the random sample as well as possible, the respondents were collected multiple ways.

The dataset sample size of subjects who took part and finished the experiment is 164, which makes approximately 55 people completing each version. (Some percentage of participants did not finish the experiment and decided to quit, none of these being included in the final numbers.)

78 respondents took part in the experiment via a special web platform conducting online surveys on various topics. The other 86 respondents were asked to participate via social media (mainly Facebook). To mitigate some form of response bias, none of the respondents knew the identity of the author or any further details about the research topic, the department of the authors studies or the hypothesis. Hence, it was more difficult for the subjects to guess the researchers intentions.

For the initial motivation behind the research question was to suggest some applications in the Czech nonprofit sector, the participants living in the Czech Republic were chosen as a primary subject of interest for the experiment. However, mainly due to social media groups connectedness, some participants came from the Slovak Republic as well. They succeed in completing the questionnaire in the original version using Czech language. This small fraction of non-Czech subjects was not treated specially within the analysis, since the Slovak population is very similar to the Czech socially and culturally.

5.2 Design

We are to test the hypothesis using certain words and phrases as positive verbal primes. Other possible ways commonly used to activate altruism are exposure to images, music, specific music, temperature, fragnances etc. Verbal priming has proven itself effective in other studies, (for example in the word-fragment completion test, prior study of certain well-chosen words produced even greater priming effect than did study of pictures (Roediger 1990).)

Some most typical and frequently used techniques in behavioral economics experiments also involve recalling past experiences(Callen et al. 2014).

In the experiment, we combine verbal priming (by including specific words and phrases in the questions) with instigating subjects towards recalling past experiences.

Note that the term positive referring to the specific type of the technique is appropriate for both modifications here. In the Positive modification, the technique of positive priming increases the accessibility of prosocial traits, while in the Negative modification, the technique of positive priming increases the accessibility of opposite (antisocial) traits connected with independence, distance etc. To sum up, although the process applied in both cases is technically called positive priming, the modifications are referred to as Positive and Negative to intuitively distinguish between priming towards and against prosociality as a main object of interest.

The experiment in both modifications takes a form of online questionnaire comprised of between 10 and 20 survey items, depending on the version.

The questionnaire used tends the respondent to prosocial behaviour with priming to fairness, morality, altruism, generosity and other traits which can be summarized as prosocial behaviour. In the other modification (Negative) the respondent is manipulated against such traits, using either priming to a social distance,

independence on others and finance or priming against the traits used in the Positive modification. All of these were chosen according to the existing research discussed in the theoretical part.

The concepts are sometimes problematic to distinguish from each other, since some traits overlap in their occurrence or exact interpretation. However, some fundamental set of variables have been outlined when shaping the questions.

The set of concepts being primed within the experiment (or, conversely, being primed against) are following (denoted by the Positive/Negative questionnaire version):

Generosity

Positive: When was the last time you helped or provided some advice to another person?

Negative: When was the last time you refused to help or provide some advice to a someone?

Relatedness

Positive: When was the last time you spent some time with your friends?

Positive: When was the last time you laughed together with another person?

Positive: I like when other people praise me.

Positive: I like when my friends give me gifts.

Negative: When was the last time you felt distant from other people?

Fairness

Positive: I try to consider others' feelings when making decisions

Negative: When was the last time someones behaviour made you angry?

Proximity

Positive: What is the first name of a person you know will always be there for you?

Negative: Write a first name of a person you would NOT trust to share an unpleasant experience with?

Childhood memories

Positive: I can say most of my childhood memories are pleasant.

Grattitude

Positive: I feel grateful for my friends.

Affiliation

Negative: I am concerned with my independence from other people

Money

Negative: Sometimes, I try to find the most cost-effective choice when shopping.

Negative: I sometimes regret of a money I could have spent more effectively.

Global Preferences Survey items

The four questions taken from the Global Preference Survey (GPS) were chosen simultaneously as dependent variables and used for measuring the effect of predictors.

The Global Preferences Survey is a dataset collected worldwide, measuring various psychological and sociological variables.(Falk et al. 2018) The variables measured by GPS are: risk and time preferences, positive and negative reciprocity, altruism, and trust. In our experiment, a small subset of GPS items was chosen, masuring mainly altruism and reciprocity.

The Global Preferences Survey experiment has been conducted in many of world countries, which did not include the Czech Republic. However, the platform provides versions of the GPS items adjusted to suit every country.

The main motivation to use the GPS items as a dependent variable here is the *validation process* which has been used to validate the responses of GPS survey participants.

The validation has been a significant part of the GPS survey, which makes its results possible to replicate across other studies. The experiment was firstly conducted in a standard manner, using word questionnaires with a set of GPS questions.

The validation was then conducted a short period after taking the survey and included some real-life simulating experiments of a practical character. The behaviour of subjects in these experiments was examined and compared with their previous GPS responses.

Then the process was evaluated and the validation hence guarantees the direct relationship between responding the prosocially-oriented GPS questions in a positive way and behaving in the same manner later in a real-life situations.

The Global Preferences Survey website provides all data accessible free, with a guidance on how to operate with the dataset. The authors allow the GPS items or a subset of it to be used either to replicate the existing statistics or as a part of other future research in social psychology, behavioral economics etc.

Therefore, a small subset of GPS items have also been chosen for this experiment. The items were selected in order to measure prosociality traits. The four GPS items implemented to our experiment are these:

(GPS 1) ***How willing are you to give to good causes without expecting anything in return?***

1 = Completely unwilling to do so

10 = Very willing to do so

(GPS 2) ***When someone does me a favor, I am willing to return it.***

1 = Completely disagree

10 = Completely

(GPS 3) ***Imagine the following situation: Today you unexpectedly received 1,600 U.S. dollars. How much of this amount would you donate to a good cause? (Values between 0 and 1,600 are allowed.)***

(GPS 4) *How willing are you to punish someone who treats others unfairly,*

even if there may be costs for you?

———————————————————————————————————— We can see three

1 = Completely unwilling to do so

10 = Very willing to do so

of the chosen GPS items are evaluated on a $1 - 5$ scale, the fourth one allows quantitative response (asking a financial amount.) Thus, for the sake of analysing the items jointly, the financial one was rescaled to the same measure and average of the four items was taken as a dependent variable.

For the purpose of better measure of the predictors effect, the original $1 - 10$ response scale used within the Global Preferences Survey questionnaires was reduced here to $1 - 5$ scale. Also, this step makes capturing the effect easier, as respondents shall answer the items in more "extreme" way, while on the wider scale, they would tend to avoid the highest or lowest value, having more possibilities to choose from.

Within the questionnaire items, the lowest number always represents a complete disagreement while the highest number (5 in our case) represents the highest willingness or agreement with the statement.

The questionnaires have been modified to suit the population of the Czech Republic. In particular, it has been translated and the financial statements units have been converted into Czech crown (Kč). The GPS items have already existed in many versions for certain world countries. Any other adjustments of the experiment were not necessary and it is hence easily replicable in other countries.

5.3 Procedure

The method works with cross-sectional data, being collected in 21 days period (from 30.6.2019 to 20.7.2019). Before the very start of the survey, it has been put to pretest conducted on a few people and final adjustments have been made.

The experiment then proceeded as follows:

Firstly, the subject came across some basic information about the topic online and was proposed to take part in a short survey. The survey was introduced as a behavioral economics experiment regarding human irrationality.

No further details concerning the research question were provided to respondents. None of the participants knew the author of the survey personally (apart from the pretest group.)

The subjects were assured about all answers anonymity and use for the scientific purposes only. After reading the brief introduction, the subjects could make an arbitrary decision to take part by clicking on the attached link and being redirected to the experiment. The redirection was made by a special online randomizing tool which the respondent was not aware of. In the case of the online survey platform, the randomization was taken care of by a special embedded *branching question.*

Completing the survey took on average between 2.8 minutes of time.

5.4 Analysis

The collected dataset consists of the twelve fundamental variables of interest, listed and described in the table below. The set is composed of six sociodemographic predictors, defined either as categorical or numeric. The G1-G4 items, separately, are not used in the initial model, as they have rather been replaced by the Adjusted GPS as a dependent variable. The Version and whether it has any significant effect on the GPS items, is the major object of interest in the analysis.

	Variables definition	
Notation	Variable	Data type
Vers	Version	Factor
ADJ	Adjusted GPS	Numeric
G1	GPS item 1	Factor (ordered)
G2	GPS item 2	Factor (ordered)
G3	GPS item 3	Integer
G4	GPS item 4	Factor (ordered)
Gend	Gender	Factor
Age	Age	Integer
Educ	Highest education level	Factor (ordered)
Relig	Religion	Factor
Fam	Family state	Factor
Inc	Income level	Factor (ordered)

Version

Indicates one of the experiment versions randomly assigned to each subject individually. The three versions are the Positive priming, the Negative priming and the Control group.

Adjusted GPS

This variable was computed from the collected data as the average of GPS1, GPS2, GPS4 and adjusted GPS3. The GPS3 has been, for this purpose, re-scaled to the same interval of values, $[1, 5]$, even though it has been hence allowed to take on continuous values. This is therefore also the reason behind the numeric data type of the Adjusted GPS variable.

GPS item 1

This is a categorical (ordered) variable representing a degree to which a respondent states to agree with a certain statement. The particular questionnaire items wording is presented in the Appendix. The values it can take on are $\{1; 2; 3; 4; 5\}$.

GPS item 2

The GPS item 2 has similar properties as the GPS item 1.

GPS item 3

This variable is of a numeric type, as the subject is asked to state a financial amount in a pre-determined interval. However, all of the participants stated integer values, usually rounded to decimals or hundredths.

GPS item 4

The GPS item 2 has similar properties as the GPS item 1 and 2.

Gender

Binary variable indicating respondents gender.

Age Numeric variable, respondents stated their age in years.

Highest education level

The highest education level achieved by the subject. The scale is from elementary school to a higher than master university degree.

Religion

This categorical variable mostly takes on two values (as excepted among Czech participants): Atheist and Christian.

Family state

Factor variable determining the family state category of the respondent (single, married etc.)

Income level

Reports the category of subjects monthly income. The "lowest" level is Student/unemployed, the highest is Above 50 000 CZK.

The data has been analysed using the R software as a suitable tool for statistical analysis together with graphical representations.

6 Results

The total sample size of the dataset is 164. All participants have been randomly assigned into three sufficiently balanced groups with similar sub-sample sizes.

Group	Sample size
Positive priming	75
Negative priming	50
Control group	39

The descriptive statistics for the adjusted GPS items are summarized in the table below, comparing the Positive and Negative priming group with the Control group and total dataset. (All pieces of data across the results have been rounded to not more than three decimal places to allow better readability.)

The mean values for the Positive and Negative priming are slightly lower compared to the Control group. Medians do not differ significantly from each other; the ranges of data groups are also similar. The standard deviations measure the average deviations from the group means. The highest standard deviation has been observed in the Positive priming group.

ADJ.GPS	Total	Positive	Negative	Control
Mean	1.643	1.678	1.637	1.584
Median	2.167	2.252	2.229	2.008
Standard deviation	1.36	1.402	1.316	1.37
Minimum	1e-04	0.042	1.637	1e-04
Maximum	4.5	4.5	3.667	3.5

The moderate shift of the Positive priming group (together with longer boxplot whiskers) is best seen from the graphical comparison.
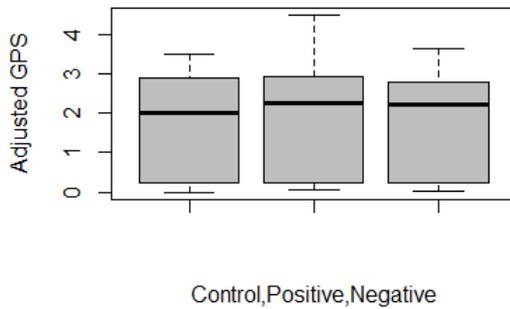

The following table summarizes the extremes of the boxplot notch ("Notch lower","Notch upper"), whiskers extremes ("Whiskers lower", "Whiskers upper"), median and extremes of the grey box ("Box lower", "Box upper".)
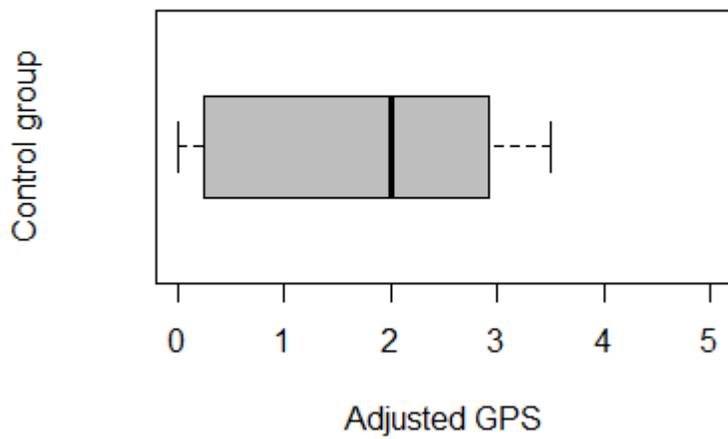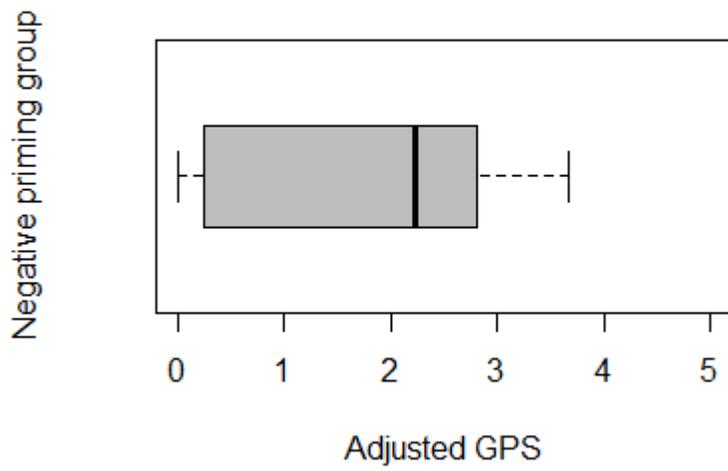
	Positive	Negative	Control
n	72	48	37
Notch lower	1.748	1.645	1.315
Notch upper	2.757	2.814	2.701
Whiskers lower	0.042	0.008	0.000
Box lower	0.250	0.250	0.250
Median	2.252	2.229	2.008
Box upper	2.958	2.813	2.917
Whiskers upper	4.500	3.667	3.500

There are no significant differences between groups regarding extreme values or medians. However, there is a slight but distinguishable tendency towards higher GPS score in the Positive priming group.

The boxplots display data differences between the three experiment versions (positive, negative and control.) The lots do not show any outliers in either modification.

A slight trend towards higher GPS score is distinguishable in the Positive modification, compared to the Negative one.
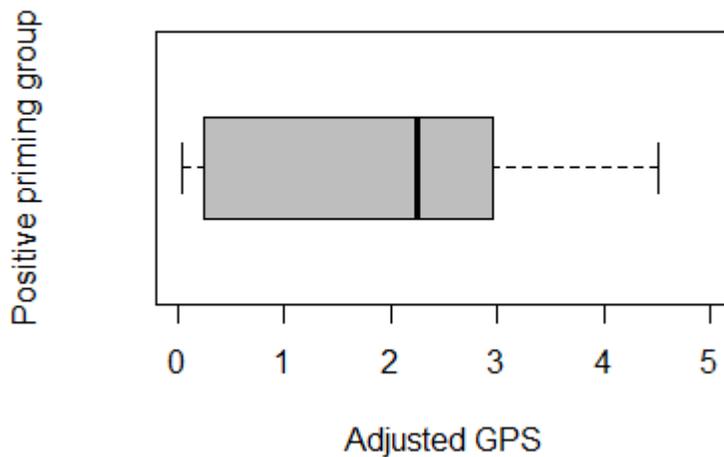
As we can see from the boxplots, the medians of both the positive and negative group are slightly higher compared to control group. The boxplots are noticeably right-skewed, which is not a surprise, since one of the GPS items (GPS 3) measures the hypothetical financial donation. This item, displayed on the histogram below, shows disproportionally high density by zero.

**GPS 3 distribution**

Donation size
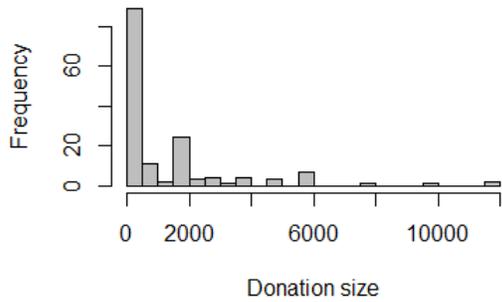
There are no outliers strongly affecting the results in either sub-group, which contributes to the conclusion that the groups show different trends, which could be potentially confirmed on larger data samples.
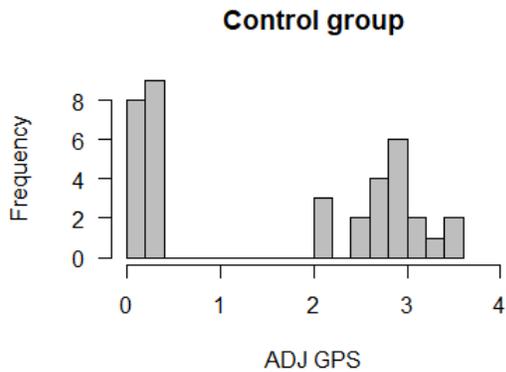
Before further discussion regarding the results and comparing the data with regards to each GPS item separately, the distributions are shown also with histograms.

Positive priming group

ADJ GPS

Negative priming group

ADJ GPS
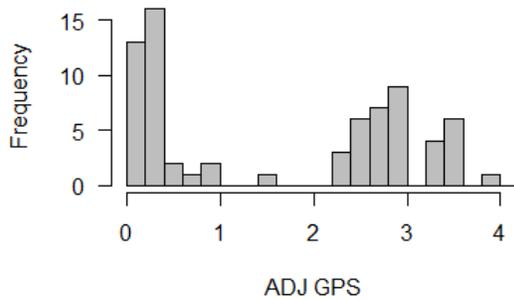
Control group
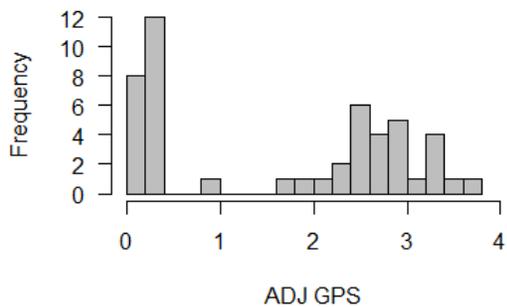
To conclude, the analysis leads to approving the evidence of the first hypothesis about the traits manipulating subject towards prosocial behaviour (with fairness, generosity, relatedness etc.) Further, in the Discussion section, the evidence for individual GPS items is also added to illustrate the significant effect of the prriming towards prosociality and the opposite effect of the priming against prosociality. However, the latter has been found only when GPS 1 was used individually as a measure and is not that distinguishable on the adjusted GPS score. Therefore, the conclusion is not to consider the second hypothesis verified.

Result: sufficient evidence found Result: sufficient evidence not found

H1: The positive priming group will report higher adjusted GPS score

Result: sufficient evidence found

H2: The negative priming group will report lower adjusted GPS score

Result: sufficient evidence not found

7 Discussion

Although the results can seem to fail in providing enough statistical evidence within a linear regression coefficients, some interesting data trends are noticeable between group means, which is best seen from the boxplot comparison.

First of all, the group mean is higher for the Positive priming group, which, taking into account the small number of subjects, can provide at least a clue for the future research directions.

Secondly, the highest standard deviation has been observed in the Positive priming group. A possible explanation is that the positive primes can have different effect on different people.

Another noticeable difference between groups is in the sub-sample sizes. The Control group is composed of

only 39 subjects, compared to 75 and 50 subjects in the other two groups. Considering the randomizing tool working properly, we could assume lower number of participants finished the Control group questionnaire.

As for the GPS items separately, the responses divided by groups have been compared with as well. The individual boxplots show some interesting results of existing positive effect of prosocial primes.

Again, the medians in Negative modification are slightly lower.

Even more clear here is the effect of prosocially oriented primes on answering the GPS 1 ("How willing are you to give to good causes without expecting anything in return?")

On the other hand, the second GPS item testing ones fairness ("When someone does me a favour, I am willing to return it.") does not seem very affected by previous exposure to priming.

Neither does the third GPS ("Imagine the following situation: Today you unexpectedly received 1,600 U.S. dollars. How much of this amount would you donate to a good cause?"), although the Positive modification has the biggest number of outliers approaching higher financial values.
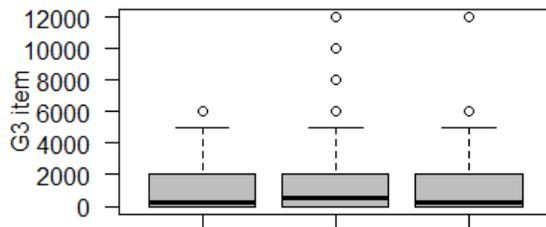
The last GPS item does not seem interesting for our analysis. The distribution of answers to the GPS 4 ("How willing are you to punish someone who treats others unfairly, even if there may be costs for you?") fails to show any interesting trends.
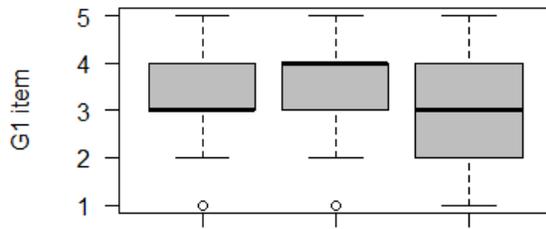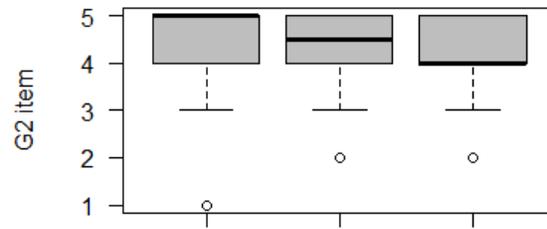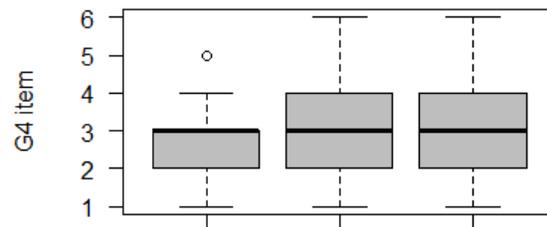
The group differences are main interest of the analysis. However, to control also for the effects of sociodemographic predictors along with the Version variable, the dataset has been subsequently analyzed using linear model in R, also to look at the discussed Version effects in a different way.

A multiple linear regression of the adjusted GPS on the whole set of predictors (the experiment Version and the sociodemographic variables) failed to report any significant effects of the predictors. Overall F-statistic = **0.767** with a p-value of **0.739** has been reported by this simple linear model.

We proceeded with regressing on different combinations of sociodemographic and group predictors. The evidence for significant effects is best achieved regressing only the GPS 3 item as a dependent variable. This item is, unlike the other three, of a numerical character - proportion of financial amount a subject decides to donate - and hence, the behaviour regarding this question is different than answering the factor questions.

In fact, the model controlling for effect on the GPS 3 solely, is significant and includes some statistically strong evidence of some influence. The overall p-value is **0.048** with F-statistic = **1.705**, although the multiple R-squared is **0.2484**, which means it explains less than one fourth of the data variance. However, this model predicts significant negative effect of family states of married individuals (coefficient = **-2826.96**, p-value = **0.008**, t-statistic = **-3.45**) and significant positive effect of Intercept. However, its meaning is still questionable, since the intercept gives more sense in the cases where the predictors can take on zero values.

The linear regression outputs have also shown how the effects of priming vary when we regress each of the four GPS item on the predictors as a measure tool separately. The individual linear models report different variables as statistically significant and also deviate from the initial regression of the adjusted GPS items variable. This implies the fundamental problem could lie in heterogeneity of the GPS questions.

7.1 Limitations

The limitations of the research begin with some sample issues.

The collected data sample indeed suffers from a certain form of bias occurring typically within experimental surveys. Looking at the dataset, the distribution of sociodemographic variables fails to represent the standard Czech population. For instance, the sample consists of approximately 70 % females and mean age is 32.5 years.

Moreover, the questionnaire is likely to suffer from a certain form of response bias, commonly present in sociological of psychological research. The participants may tend to guess the experiment purpose, try to sabotage the experiment with answering inappropriately or tend to agree with all the statements. All of these, and other potential response bias types, could have distort the results, which would leave even stronger impact on the small sample.

As has been mentioned several times before, the dataset collected for testing the research question is of sample size 164, which is not very large number of participants for measuring the effect with higher reliability.

This problem occurred due to insufficient means of data collecting and short time-frame established for the gathering of responses.

The smaller sample, however, is useful in indicating some interesting trends which can serve as a guidance for some future research.

7.2 Further implications for future research

This paper may not serve as a rock-solid evidence of exact variables relationships, however, its contribution lays in providing some interesting implications for potential future research in this field. A possible adjustment for the future is to use only one of the GPS items as a dependent variable and carefully select specific personality traits as independent variables.

Other possible way is to adjust the GPS items into dependent variable in a different way that by weighted average of the items. For this, a more in-depth analysis of the results would be needed to calculated the optimal scaling of the variables. Also, different methodology approaches could be used to replicate. An experiment with practical tasks instead of using questionnaires solely, could serve as a twofold verification of the results and imply some use of the priming in real world situations.

However, all of the above listed future implications would be better to conduct with a larger number of subjects or during a longer time period.

8 Conclusion

This paper introduces priming, having special place among the myriad of cognitive biases, and aims to implement its effect into economic agents decision making.

Priming is certainly one of the most interesting phenomena known from behavioral economics. It is no exaggeration to say it is experienced i every-day situations by all individuals, no exception.

The incredibly high frequency of priming occurrence allows for the equally high variety of its implementations not only in economics, but also in various other fields.

Accordingly, this paper can serve as a future guideline for some of creative possibilities of priming techniques application rather than aiming for coming with a revolutionary discoveries.

The set of adjusted Global Preferences Survey items has been used here as a measure of the effect, although there is a possibility of testing similar priming effects experimentally with a chance for modelling the real-life situations better.

In conclusion, the results presented in the empirical part did reported some significant evidence about existing positive effect of verbal priming aimed towards increasing prosocial thinking on the subsequent prosocial behaviour of the subject. Also, the linear model using GPS 3 item (Size of money donation) as a dependent variable, reported significance of some sociodemographic characteristics.

The Positive priming group also proved higher tendency to donate larger amounts of money, as measured by GPS 3 item. The Negative priming group showed decreased scores of GPS 1 and GPS 2 items individually.

Apart from the significant limitations of this papers methodology, the experiment can serve as a guidance for future research directions.

Appendix A: The questionnaire

Below are presented the items specific for each of the modifications of the experiment, Positive and Negative priming group. All of the groups also contain the same set of GPS items and the same set of sociodemographic characteristics. (The Control group contains no extra questionnaire items apart from the four GPS dependents and the sociodemographic questions.)

Positive priming version

When was the last time you helped or provided some advice to another person?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

What is the first name of a person you know will always be there
for you?

When was the last time you spent some time with your friends?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

When was the last time you laughed together with another person?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

How strongly do you agree/disagree with the following statements?

I like when other people praise me.

I like when my friends give me gifts.

I try to consider others' feelings when making decisions

I can say most of my childhood memories are pleasant.

I feel grateful for my friends.

1 = Disagree... 10 = Agree

Negative priming version

When was the last time you refused to help or provide some advice to a someone?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

Write a first name of a person you would NOT trust to share an unpleasant experience with.

When was the last time someones behaviour made you angry?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

When was the last time you felt distant from other people?

Today or yesterday

This week

Last week

Last month

Last half-year

Last year or longer ago

How strongly do you agree/disagree with the following statements?

I am concerned with my independence from other people

Sometimes, I try to find the most cost-effective choice when shopping.

I sometimes regret of a money I could have spent more effectively.

I can say most of my childhood memories are pleasant.

I feel grateful for my friends.

1 = Disagree... 10 = Agree

GPS items

(GPS 1) *How willing are you to give to good causes without expecting anything in return?*

1 = Completely unwilling to do so

5 = Very willing to do so

(GPS 2) *When someone does me a favor, I am willing to return it.*

1 = Completely disagree

5 = Completely agree

(GPS 3) *Imagine the following situation: Today you unexpectedly received 1,600 U.S. dollars. How much of this amount would you donate to a good cause? (Values between 0 and 1,600 are allowed.)*

(GPS 4) ***How willing are you to punish someone who treats others unfairly, even if there may be costs for you?***

1 = Completely unwilling to do so

5 = Very willing to do so

Sociodemographic items

Your gender

Male

Female

Your age

Your highest achieved education level

Elementary school

High school degree or equivalent

University bachelor degree

University master degree

Higher university degree

Other

Your religion

Atheist

Christian (including Catholic, Protestant etc.)

Buddhist

Hindue

Jewish

Muslim

Other

Your marital status

Single (never married)

Married, or in a domestic partnership

Widowed

Divorced

Separated

Other

Your monthly income

Student/unemployed

Less than 20,000 CZK

20,000 CZK to 30000 CZK

30,000 CZK to 40,000 CZK

40,000 CZK to 50,000 CZK

Above 50 000 CZK

Appendix B: The questionnaire adjusted for the Czech population

Opening text

"Experiment je přísně anonymní a bude použitý pouze pro diplomovou práci. Autorka se zkoumá lidské rozhodování a faktory, které jej ovlivňují. Dotazník zabere maximálně pár minut a můžete jej kdykoliv ukončit nebo některé otázky vynechat. Pokračováním ve vyplňování dotazníku dávám souhlas s mou anonymní účastí na výzkumu. Děkujeme za vaši pomoc!"

Verze s pozitivním primingem

Kdy jste naposledy pomohl(a) nebo poskytl(a) radu jinému člověku?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Minulý rok nebo před delší dobou

Jaké je křestní jméno osoby, která tady pro vás vždy bude a můžete se na ni spolehnout?

Kdy jste naposledy strávil(a) nějaký čas s přáteli?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Last year or longer ago

Minulý rok nebo před delší dobou

Nevím

Kdy jste se naposledy smál(a) spolu s jinými lidmi?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Last year or longer ago

Minulý rok nebo před delší dobou

Nevím

Do jaké míry souhlasíte/nesouhlasíte s následujícími výroky?

Mám rád(a), když mě ostatní lidé chválí.

Mám rád(a), když dostanu od blízkého člověka dárek.

Snažím se brát ohled na pocity ostatních, když činím nějaké rozhodnutí.

Většina mých vzpomínek z dětství je příjemná.

Jsem vděčný/á za své přátele.

1 = Velmi nesouhlasím... 10 = Velmi souhlasím

Verze s negativním primingem

Kdy jste naposledy odmítl(a) pomoci nebo poskytnout radu jinému člověku?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Minulý rok nebo před delší dobou

Nevím

Uveďte křestní jméno člověka, kterému NEdůvěřujete natolik, abyste s ním sdílel(a) nepříjemný/trapný zážitek.

Kdy vás naposledy rozčílilo něčí chování?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Minulý rok nebo před delší dobou

Nevím

Kdy jste se naposledy cítil(a) vzdálený ostatním lidem?

Dnes nebo včera

Tento týden

Minulý týden

Minulý měsíc

Minulý půlrok

Minulý rok nebo před delší dobou

Nevím

Do jaké míry souhlasíte/nesouhlasíte s následujícími výroky?

(1) Záleží mi na tom, abych byl(a) nezávislý/á na ostatních.

(2) Když nakupuji, snažím se obvykle rozhodnout pro nejvyýhodnější možnost z hlediska poměru cena/výkon.

(3) Občas lituji peněz, které jsem mohl(a) utratit o efektivnějším způsobem.

1 = Vůbec mě nevystihuje... 10 = Velmi mě vystihuje

GPS otázky

(GPS 1) ***Do jaké míry jste ochotný/á přispívat na dobročinné účely, aniž byste za to něco očekával/a?*** height1 = Naprosto neochotný/á takto jednat

5 = Velmi ochotný/á takto jednat

(GPS 2) ***Když mi někdoprokáže laskavost, jsempřipraven/a mu to oplatit..***

1 = Vůbec mě to nevystihuje

5 = Vystihuje mě to dokonale

(GPS 3) ***Představte si následující situaci: Dnes jste úplně neočekávaně získali 12 000 Kč. Kolik z této částky věnujete na dobročinné účely? (Povolené hodnoty jsou v rozmezí 0 až 12000.))***

(GPS 4) **_Do jaké míry jsteochotný/á někoho, kdo s vámijedná nespravedlivě, potrestat,_**
i za cenu toho, že to pro vás může mít důsledky?

1 = Naprosto neochotný/ á takto jednat

5 = Velmi ochotný/ á takto jednat

Sociodemographické otázky

Jste

Muž

Žena

Váš věk

Vaše nejvyšší dosažené vzdělání

Základní škola

Středoškolské nebo jeho ekvivalent

Vysokoškolské - bakalářský titul

Vysokoškolské - magisterský titul

Vysokoškolské - vyšší titul

Jiné

Vaše náboženství

Ateista

Křesťanství (zahrnuje i Katolicismus, Protestantství atd.)

Buddhismus

Hinduismus

Judaismus

Islám

Jiné

Váš rodinný stav

Svobodný(á)

Ženatý/vdaná nebo ve společné domácnosti

Vdovec/vdova

Rozvedený/á

Žijící odděleně

Jiný

Váš měsíční příjem

Nevydělávám (student/nezaměstnaný)

Méně než 20,000 CZK

20,000 - 30000 CZK

30,000 - 40,000 CZK

40,000 - 50,000 CZK

Více než 50 000 CZK

References

Dictionaries, Oxford (2016). *cognition-definition of cognition in English from the Oxford dictionary.*

Heukelom, Floris (2014). *Behavioral economics: A history.* Cambridge University Press.

Aquinas, Thomas (2012). *Summa theologica.* Authentic Media Inc.

Henderson, David R (2008). *The concise encyclopedia of economics.* Liberty Fund.

Baker-Smith, Dominic (2000). *More's Utopia.* Vol. 11. University of Toronto Press.

Locke, John (2013). "Two Treatises of Government. 1689". In: *The anthropology of citizenship: A reader*, pp. 43–46.

Smith, Adam (1776). "The wealth ofnations". In: *New York: The Modern Library.*

Edwards, Ward (1954). "The theory of decision making." In: *Psychological bulletin* 51.4, p. 380.

Arthur, W Brian (1991). "Designing economic agents that act like human agents: A behavioral approach to bounded rationality". In: *The American Economic Review* 81.2, pp. 353–359.

Mullainathan, Sendhil and Richard H Thaler (2000). *Behavioral economics.* Tech. rep. National Bureau of Economic Research.

Kahneman, Daniel and Amos Tversky (2013). "Prospect theory: An analysis of decision under risk". In: *Handbook of the fundamentals of financial decision making: Part I.* World Scientific, pp. 99–127.

Association, American Psychological et al. (2013). *Glossary of psychological terms. Apa. org.* Tech. rep. Retrieved 2014-08-13.

Keane, Margaret M et al. (1991). "Evidence for a dissociation between perceptual and conceptual priming in Alzheimer's disease." In: *Behavioral Neuroscience* 105.2, p. 326.

Mayr, Susanne and Axel Buchner (2007). "Negative priming as a memory phenomenon". In: *Zeitschrift für Psychologie/ Journal of Psychology* 215.1, pp. 35–51.

Forster, Kenneth I and Chris Davis (1984). "Repetition priming and frequency attenuation in lexical access." In: *Journal of experimental psychology: Learning, Memory, and Cognition* 10.4, p. 680.

Cohn, Alain, Jan Engelmann, et al. (2015). "Evidence for countercyclical risk aversion: An experiment with financial professionals". In: *American Economic Review* 105.2, pp. 860–85.

Haley, Kevin J and Daniel MT Fessler (2005). "Nobody's watching?: Subtle cues affect generosity in an anonymous economic game". In: *Evolution and Human behavior* 26.3, pp. 245–256.

Cohn, Alain and Michel André Maréchal (2016). "Priming in economics". In: *Current Opinion in Psychology* 12, pp. 17–21.

Pavey, Louisa, Tobias Greitemeyer, and Paul Sparks (2011). "Highlighting relatedness promotes prosocial motives and behavior". In: *Personality and Social Psychology Bulletin* 37.7, pp. 905–917.

Gino, Francesca and Sreedhari D Desai (2012). "Memory lane and morality: How childhood memories promote prosocial behavior." In: *Journal of Personality and Social Psychology* 102.4, p. 743.

Bartlett, Monica Y and David DeSteno (2006). "Gratitude and prosocial behavior: Helping when it costs you". In: *Psychological science* 17.4, pp. 319–325.

Eisenberg, Nancy and Richard A Fabes (1990). "Empathy: Conceptualization, measurement, and relation to prosocial behavior". In: *Motivation and Emotion* 14.2, pp. 131–149.

Over, Harriet and Malinda Carpenter (2009). "Eighteen-month-old infants show increased helping following priming with affiliation". In: *Psychological Science* 20.10, pp. 1189–1193.

Mikulincer, Mario et al. (2005). "Attachment, caregiving, and altruism: boosting attachment security increases compassion and helping." In: *Journal of personality and social psychology* 89.5, p. 817.

Fraley, R Chris and Keith E Davis (1997). "Attachment formation and transfer in young adults' close friendships and romantic relationships". In: *Personal relationships* 4.2, pp. 131–144.

Burt, Christopher DB and Karl Strongman (2005). "Use of images in charity advertising: Improving donations and compliance rates". In: *International Journal of Organisational Behaviour* 8.8, pp. 571–580.

Higgins, E Tory, William S Rholes, and Carl R Jones (1977). "Category accessibility and impression formation". In: *Journal of experimental social psychology* 13.2, pp. 141–154.

McKeever, Brice S and Sarah L Pettijohn (2014). "The nonprofit sector in brief 2014". In: *Washington, DC: Urban Institute.*

Bani, Marco and Barbara Giussani (2010). "Gender differences in giving blood: a review of the literature". In: *Blood Transfusion* 8.4, p. 278.

Prentice, Deborah A and Dale T Miller (1993). "Pluralistic ignorance and alcohol use on campus: some consequences of misperceiving the social norm." In: *Journal of personality and social psychology* 64.2, p. 243.

Croson, Rachel TA, Femida Handy, and Jen Shang (2010). "Gendered giving: the influence of social norms on the donation behavior of men and women". In: *International Journal of Nonprofit and Voluntary Sector Marketing* 15.2, pp. 199–213.

Hodgkinson, Virginia Ann and Murray S Weitzman (1990). "Giving and volunteering in the United States". In:

Ribar, David C and Mark O Wilhelm (2002). "Altruistic and joy-of-giving motivations in charitable behavior". In: *Journal of political Economy* 110.2, pp. 425–457.

Jackson, Elton F et al. (1995). "Volunteering and charitable giving: Do religious and associational ties promote helping behavior?" In: *Nonprofit and Voluntary Sector Quarterly* 24.1, pp. 59–78.

Lee, Yu-Kang and Chun-Tuan Chang (2007). "Who gives what to charity? Characteristics affecting donation behavior". In: *Social Behavior and Personality: an international journal* 35.9, pp. 1173–1180.

Roistacher, E and J Morgan (1974). "Charitable Giving, Property Taxes and Itemization on Federal Tax Returns". In: *Ann Arbor: Inst. Soc. Res., Univ. Michigan.*

Glazer, Amihai and Kai A Konrad (1996). "A signaling explanation for charity". In: *The American Economic Review* 86.4, pp. 1019–1028.

Bicchieri, Cristina (2005). *The grammar of society: The nature and dynamics of social norms.* Cambridge University Press.

Roediger, Henry L (1990). "Implicit memory: Retention without remembering." In: *American psychologist* 45.9, p. 1043.

Callen, Michael et al. (2014). "Violence and risk preference: Experimental evidence from Afghanistan". In: *American Economic Review* 104.1, pp. 123–48.

Falk, Armin et al. (2018). "Global evidence on economic preferences". In: *The Quarterly Journal of Economics* 133.4, pp. 1645–1692.