Charles University in Prague

Faculty of Social Sciences

Institute of Economic Studies

MASTER THESIS

Irrationality of consumer choice and the effect of nudging decision-making: A field experiment on tipping

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Declaration of Authorship

1. Hereby I declare that I have compiled this master thesis independently, using only the listed literature and sources.
2. I declare that the thesis has not been used for obtaining another title.
3. I agree on making this thesis accessible for study and research purposes.

Prague, January 4, 2016

Signature

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Abstract

Human behavior in consumer choice was always an interesting topic for economists as well as for psychologists. Economists emphasize the importance of utility theory for decision making, whereas psychologists look for different extrinsic and intrinsic motivations for particular choices. Finally, both approaches started to cooperate in a science called behavioral economics. Knowledge of different factors from economy and psychology that affect our behavior can help, besides other things, in investigation of tipping. An experiment about tipping behavior of Czech customers was conducted to explore different motives for tipping. The tip percentage was related to gender of a waitperson, group size, size of the bill per person and three independent treatments. Treatments were associated with altruistic behavior, reciprocity and good mood based on personalized behavior. The results of the experiment were astonishing and did not correspond with results from the previous research. It was discovered that altruistic and reciprocity treatments have negative impact on the amount tipped and a personalized treatment does not have any effect on tipping percentage. It is argued that the country of experiment is crucial for such outcomes.

JEL Classification	C21, C93, D03, L83
Keywords	Irrationality, decision making, tipping, restaurant, nudges, experimental economics

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Abstrakt

Ekonomy i psychology po celém světě vždy zajímala otázka procesu lidského rozhodování. Ekonomové zdůrazňují význam teorie úžitku během rozhodování, kdežto psychologové se zaměřují na různé vnitřní a vnější stimuly ovlivňující naše rozhodnutí. Oba tyto přístupy můžeme najít v behaviorální ekonomií, kde oba koncepty mezi sebou těsně spolupracují. Znalost různých ekonomických i psychologických faktorů, které ovlivňují náš výběr může být mimo jiné přínosná například ve výzkumu spropitného. Abychom našli různé důvody pro

placení spropitného, vytvořili jsme experiment ohledně výše spropitného u českých zákazníků. Procentuální výše spropitného byla zkoumána v závislosti na pohlaví obsluhy, velikosti skupiny, která navštívila restauraci, velikosti účtu na jednu osobu a také byl zkoumán vliv tří na sobě nezávislých intervencí. Tyto intervence byly zaměřeny na altruistické chování, reciprocitu a dobrou náladu způsobenou personalizací. Výsledky experimentu jsou překvapující a neshodují se s výsledky z předchozích experimentů. Bylo zjištěno, že intervence spojené s altruismem a reciprocitou mají negativní vliv na výši spropitného, avšak intervence spojená s personalizací nemá žádný vliv na spropitné. Ve výsledku se také poukazuje na klíčový vliv země, ve které je experiment proveden.

Klasifikace JEL	C21, C93, D03, L83
Klíčová slova	Iracionalita, rozhodování, spropitné, restaurace, intervence, experimentální ekonomie

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Master's Thesis Proposal

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Proposed Topic:

Irrationality of consumer choice and the effect of nudging decision-making: A field experiment on tipping.

Motivation:

In the past, economists had an incredulous attitude towards study of irrational patterns of behavior in economics. Most of such irregularities had been considered as errors which were not in contradiction with their theory. But in recent years, more scientists agree that standard economic theory does not fit observed behavior every time. Humans do not behave rationally in all circumstances and that is what has to be considered. This problem, where the impact of irrational behavior is examined, is among others studied in a science called behavior economics (Ariely, 2008).

Fortunately, evidence from scientific experiments shows that deviations from standard economic behavior are not completely random, and we can often find mechanisms behind them. According to Kahneman (2011), there are cognitive biases that influence our choice and force us not to behave as a standard homo economicus. However, there are almost always some patterns in our actions that can be used for future predictions and sometimes for improvements of people's decision makings. Nudge theory (Thaler and Sunstein, 2009) builds a solid framework for interventions, and thanks to it we are able to use the knowledge of our seemingly irrational behavior for carrying out a change when necessary.

Nudges are often considered to be an effective method for improving human well-being. For example, York and Loeb (2014) studied the text messaging program for literacy development that significantly enhanced early literacy of preschoolers. Castleman et al. (2014) and Lavecchia et al. (2014) also deal with helpful nudges in education, whereas Oullier et al. (2010) demonstrates how to apply this theory in public health prevention. The essential point is that these low-cost interventions can be adapted in many other large fields (John, 2011). Even entrepreneurs can use them to change customers' behavior (Goldstein et al., 2008; Haug and Busch, 2014) or increase the productivity of employees. Moreover, this option is greatly examined in restaurant business where patrons are slightly nudged towards higher tips (Seiter, 2007; Strohmetz et al., 2002; Jacob et al., 2013). All the above mentioned evidences force us to think about the importance of non-monetary incentives that shape our intrinsic motivations.

Hypotheses:

1. Hypothesis #1: Tip percentage can be influenced by various non-monetary incentives.
2. Hypothesis #2: Higher amount of non-monetary incentives causes higher tip percentage.
3. Hypothesis #3: Tip percentage varies according to the manner non-monetary incentive was given.

Methodology:

I will run an experiment on restaurant patrons in order to study potential influences on their tipping behavior. My experiment will be based on previous researches in this area. I will analyze past studies about significant impacts on

the tip percentage affected by altruism quotes (Jacob et al., 2013), giving an unexpected gift to a dining party (Strohmetz et al., 2002) or complimenting the customer (Seiter, 2007). In my field experiment, I will not set any limitations on sex or age of guests in a dining party. In order to collect the data, waitpersons will be responsible for filling the form for each dining party. They will write down information concerning the type of the incentive exposed, the amount of the tip, etc.

In my experiment, I want to combine some of these non-monetary factors and observe resulting tipping behavior. I would like to focus on the influence of small gifts and the effect of altruistic and personalized messages. Visitors of the restaurants will be randomly assigned to several groups by a waitperson, e.g. by dice rolling or by drawing uniquely marked coins from the pocket. There will be one control and few treatment groups. Different treatment groups will be exposed to different factors, so I could perform multiple experiments. I intend to use one-way ANOVA to compare means of these independent groups. I will not use multiple t-tests to avoid substantial errors. If statistically significant difference will appear, I will use some of post hoc tests. I suppose to use Fisher's Least Significant Difference (LSD) test.

In the first experiment, I want to find out the effect size of various non-monetary incentives on the tip percentage. Contrary to many other countries, where similar experiments have been performed, in Czech restaurants the bill does not include tip. For example, in France the (additional) tip is not expected because it is already included in the bill, but in the Czech Republic tip is usually required. Therefore, it could be very interesting to compare my results from the results in other countries. In the second experiment, I will concentrate on the importance of the manner of presentation an incentive to the customer. I want to follow previous experiments (Rind and Bordia, 1995; Rind and Strohmetz, 1999; Gueguen and Legoherel, 2000) and investigate the importance of personalization in tipping.

Expected Contribution:

In my master thesis I will explain how to change people's behavior for the better by using the knowledge of our irrational minds. I will also construct a field experiment where the effect of non-monetary incentives on the tip percentage will be examined. I expect that these incentives will strongly increase gratuity, and I want to discover which factors are the most significant ones. In my experiment I will take into account suggestions, for improvement of the study, from previously mentioned researchers. I believe that I will prove the usefulness of non-monetary incentives, as a powerful tool in business, and overall importance of irrational behavior in consumer choice. I expect that the results from my study will have practical interest for business executives and will be applicable as an easy instrument for motivating people to raise a monetary award in response to non-monetary stimulus.

Outline:

1. Introduction and motivation: What is behavioral economics about and why we need to pay close attention to it.
2. Behavioral biases: I will describe numerous behavioral biases that make us react irrationally.
3. Crowding effects: I will introduce how intrinsic motivation can be crowded in/out with respect to monetary incentives I will also illustrate possible extrinsic and intrinsic motivations.
4. Case studies: I will give examples of other relevant case studies and show significant impact of irrational people's reactions on the preference in consumer choice. I will also demonstrate how appropriate interventions changes individual's preferences through their irrational behavior.
5. Nudges: I will explain how to change the outcome of irrational behavior through the nudge theory.
6. Empirical analysis – experiment on tipping:
    - I will present some previous researches on tipping in restaurants and explain the motivation for constructing my experiment.
    - I will introduce my experiment with detailed description of its single steps.
    - I will interpret the results and compare its consequences with the hypotheses stated before.
    - I will discuss the welfare analysis of the experiment and its potential profitability.
7. Conclusion: I will summarize the most important findings of the theses and suggest future improvements for similar researches.

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Author **Supervisor**

Introduction

Economists were always interested in questions related to consumer preferences. How people decide, what influence their decisions, and what do they prefer – all these questions were answered in line with rationality described in standard economic theory. Assumption of rationality is one of the main general conditions in economics, but, in fact, it does not hold every time. Sometimes, decisions of economic actors are influenced by various factors and differ from standard model predictions. This effect is largely investigated by a science called behavioral economics.

It was shown that there are many types of incentives that motivate consumers to behave irrationally. The important notice is that consumers themselves might consider that their decision-making is rational, so that it is irrational only from the standard economics point of view. Occurrence of this behavior is also sometimes called imperfect rationality. The evidence from numerous experiments shows that, sometimes, deviations from standard theory create a certain pattern which can be included in future modelling.

People have many cognitive biases connected to their decision-making (Kahneman, 2011). Fortunately, we can build these behavioral patterns in the models and get more accurate results than in models without them. In case we are not satisfied with future predictions, we can use nudges to change consumer decision making process. Nudge-based behavioral policy can significantly influence the outcome and manipulate consumers toward "better choices" without restricting their freedom of choice (Hansen & Jespersen, 2013). The advantage of nudge theory is that it is low-cost and has a great effect very often.

Tipping in restaurants is one of the behavior which cannot be easily justified by standard theory. Even when some share of tipping can be explained by long-term relationship and reciprocity expectations, it cannot explain tipping issue in general. The literature has identified several motivations as altruism,

reciprocity or good mood (Strohmetz et al., 2002) for tipping but it is not clear what is the main driver. In my thesis, I will try to disentangle motivations of tipping with simple nudges using non-monetary incentives that might shape our intrinsic motivations.

In this work, I present a field experiment about tipping behavior in the Czech Republic. This experiment examines what are Czech motives for tipping and how is the value of the tip affected by priming different motivations. I distinguish between altruistic, reciprocity and personalized treatments and check which of them has the biggest effect on the tipping percentage. I also explore which other factors are relevant for the tipping percentage in the Czech Republic. In my study I concentrate on a gender of a server, size of a dining party and the amount on the bill per person.

In the first chapter, I describe a theory of consumer choice (Mas-Colell et al., 1995). I show the process of making decisions and point out the differences between expected and real choice behavior. I describe what is the core of irrational attitude and name different cognitive biases that appear in our daily life. The second chapter is about extrinsic and intrinsic motivations for actions including crowding effects of rewards in human decision making. I also present several nudges that can guide behavior of consumers and influence their final decisions. Further, in chapter three, I examine literature about tipping. I describe experiments focused on gratuity with various motives for tipping.

In chapter 4, I provide a detailed description of my experiment and state the hypotheses about its expected consequences. Chapter 5 presents econometric analysis with results of my experiment and shows what affect tipping behavior of Czech consumers. The next chapter concentrates on additional discussion of the results of the experiment. I also check the validity of my hypotheses there and offer some recommendations for future investigation of tipping behavior. In the last chapter, I make the overall conclusion of my work.

Chapter 1

The evolution of consumer choice and irrational preferences

1.1 Traditional view of consumer decisions

The economic approach used nowadays is based mainly on the neoclassical economics that comes from the edge of 1870's and 1880's. Contrary to the classical model, this more-than-135-years-old vision does not consider that market prices perfectly reflect the value of products. According to the Marginal Revolution, neoclassical theory shows that market prices depend on the level of supply and demand. In twentieth century, this theory was simplified through its mathematization, so that it gave an impression that everything can be classified and counted. It describes the economy that consists of producers maximizing their profits and buyers, or households, who maximize their utility. Thus, the resulting outcome depends on marginal units of "effort" that must be balanced by the gain obtained by this effort. This neoclassical vision is very useful for various generalized conclusions, but, sometimes, it is not consistent with the common reality.

1.2 Rationality and reality

Neoclassical economics not always mirrors real consumer behavior. In situations when descriptive elements significantly distinguish from a normative theory, we have to think about more elaborated and complex models. We should assume different aspects that influence human decision making and make

us react differently than it would be predicted by standard economic theory. Neoclassical economics is based on certain assumptions, but more complicated consumer choices in real life can, sometimes, violate these assumptions.

One of the fundamental normative assumptions about consumer choice is that all economic actors behave rationally. Economists imagine consumers who precisely know what they want, have a perfect access to information and evaluate and compare consequences of every decision they make (Marschak, 1950; Simon, 1955). These assumptions allow them to create models of economic behavior that give us a basic vision about how markets work. In fact, rational behavior is not applicable for individual consumers in the real world due to many constraints that make such behavior frequently impossible.

Limited access to information is one of the main limitations of rationality. Unfortunately, a perfect information, which is a part of the major assumptions in the neoclassical economics, can be only rarely met in reality. Usually, people do not have the whole sample at their disposal but just a subsample from which they choose the best option to optimize their situation. It means that people rather satisfice instead of optimize, because they do not know all their theoretically possible options. Moreover, searching for the perfect outcome might take too long time, but "time is money", so it might be too costly to find it. Therefore, consumers prefer to look only for satisfactory outcomes instead of the perfect ones.

Another difficulty in neoclassical economics is that only situations with the Pareto optimal state are explained. Pareto efficiency condition describes the state when no economic actor can be better off without making another economic actor worse off (Mas-Colell et al., 1995). This situation can be reached only if all the actors behave rationally but, as I mentioned before, this can be hardly achieved in a real world. It is quite tricky question, what rational behavior is, and where irrationality starts. Rationality axiom says that "rational economic man maximizes utility" (Goodwin et al., 2013), but behavioral economics has demonstrated that people still tend to act against the utility presented by standard economics. We can generalize that the difference between rational and irrational behavior depends on one's attitude to his/her utility maximization, but it depends on the perception of utility in various attitudes.

1.2.1 Prospect theory and utility

Neoclassical models provide us results of various life situations, and they can be found largely in economics textbooks. Predictions from these standard models are very useful, but, sometimes we must adjust our models to specific situations and make a new forecast with respect to the particular circumstances. To get more realistic predictions for some specific conditions, we can use a descriptive model. It is an alternative economic model that counts for predictable errors detected in normative models. Kahneman & Tversky (1979) presented this alternative descriptive model as "a prospect theory". The purpose of the prospect theory was to replace expected utility theory in cases when it is violated. In their paper, they conducted a survey to find out the differences between expected utility theory and real human behavior. Three main conclusions from their empirical results were very well summarized by Thaler (1980).

1. Consumers perceive gains and losses differently – they want to take the risk when losses are expected and they try to avoid any risk when they anticipate profit. This conclusion is based on the discovery that people prefer to risk to loose more than to loose less but with a certainty.
2. The structure of the problem may affect the final decision of the consumer. Even when the final result is totally the same, consumers react differently under different initial conditions.
3. People prefer to choose a smaller guaranteed amount than bigger uncertain amount till the moment when probabilities change. When the amount is no longer certain, they prefer to take a risk and choose bigger amount with lower likelihood.

The next discovery is even a little bit older. It was described already in 1952 by a French economist Maurice Allais (Kahneman, 2011). During a meeting about economics of risk, he executed a small experiment that is lately called as the Allais paradox. He asked conference participants (including very famous economists like Paul Samuelson or Milton Friedman) two simple questions about their preferences. He asked which option would they choose in the cases similar to the cases below.

- CASE A: They could win \$520,000 with a probability 61% or they could win \$500,000 with a probability 63%

- CASE B: They could win $520,000 with a probability 98% or they could win $500,000 with a probability 100%

Most of the participants chose the first option in CASE A and the second option in CASE B, but this violates expected utility theory. If we choose to win less but with higher probability, we have to stick to that decision no matter what. It is obvious that people became more impressed by a certain win than by a win with 98% probability, but it means that economics has some oversights if even experienced economists decide against expected utility theory. This decision shows how irrational can be our behavior and require us to pay closer attention to it.

1.3 Importance of irrationality

Economists do not like to focus on irrationality of economic actors too much.[1] They justify it by an opinion that market adjusts to this kind of behavior, so there is no need to include irrationality in economic modelling. In past years, this claim has been discussed, and some economists have casted doubt on omitting of irrationality. For instance, Fehr & Tyran (2005) disagreed with an opinion that deviations from rationality are totally random, so they are cancelled out at the aggregate level. Their disagreement is based on a finding of Tversky & Kahneman (1974) who had already shown that there is a systematic pattern in biases under uncertainty. The presence of biases makes deviations from rationality to be non-random, and, therefore, it may significantly affect a correct prediction of market movements.

Another strong argument used for ignoring irrationality, questioned by Fehr & Tyran (2005), was that "rational agents will drive the irrational agents from the market because the former make higher profits". Theoretically, it is true, because we assume that rational agents maximize their profits while irrational agents always have some "gaps" in their optimization. Nevertheless, Fehr & Tyran (2005) say that, sometimes, irrational traders may earn even more than the rational ones. It might happen, for example, if irrational traders take higher risks than rational ones.

Fehr & Tyran (2005) describe also a situation when "a small amount of individual irrationality may lead to large deviations from the aggregate pre-

[1] By irrationality I mean decision not in line with neoclassical theory

dictions of rational models". It is called strategic complementarity, and it is one more evidence uncovering the importance of irrationality in our prediction models. It can be illustrated by a behavioral effect of money illusion when people tend to compare nominal values instead of real values. For example, employees compare just the change in salaries irrespective of inflation that influences the true value of the sum earned. This comparison is irrational and incorrect, and it leads to distinct conclusions from what we might rationally expect.

Various examples show that we cannot simply assume full rationality of economic agents, so we have to think about the degree of their rationality. Not only individuals but even firms are not fully rational and do not maximize their profits all the time (Armstrong & Huck, 2010). Sometimes, it is because managers in the companies might maximize their own profits instead of increasing the profit of the whole company. Sometimes, firms are just doing better if they maximize their relative profits instead of the aggregate profits. All in all, we have to concentrate on different aspects of every situation to evaluate it correctly, and this involves a consideration of possible irrationality of subjects and an analysis of their incentives for decisions.

1.4 How we make decisions

Optimists, pessimists, pragmatists, skeptics, etc. – all the people make decisions differently. Every individual has diverse economic and intellectual background and, therefore, different decision methods. Nevertheless, we can still define some judgment strategies that fit all kind of people. Psychologist Daniel Kahneman, who is also The Nobel Prize winner for Economics, describes two systems of making decisions, sometimes called as the dual-process model of the brain (Kahneman, 2011). He introduces System 1 that belongs to fast thinking and System 2 that requires much more effort and concentration and, therefore, belongs to slow thinking.

System 1 is intuitive, spontaneous and works with no intermissions, it creates our automatic reactions that can be compared to reflexes. System 2 is characterized as a mental work and it can exhaust our brain easily, because it needs much more mental energy for its functioning. Both systems are active all the time and, what is more, they complement each other. System 1 offers feelings, impressions and suggestions to System 2 which evaluates them

using acquired knowledge and logic. Kahneman (2011) says that the efficient cooperation between these two systems is incredibly important because it can minimize effort and optimize performance at the same time.

Thanks to System 1, we can simplify the decision making process and come faster to the conclusion. We spend less time thinking about problems, and we can complete many tasks without excessive concentration. We automatically know answers to many questions even if we were given just a little information about the event. For example, we can say that one object is closer than another because we can see it better. The first system is also responsible for easy calculations (e.g., $1 + 1 =?$), thanks to it, we can identify the weather by looking out of the window, we can finish some simple sentences (e.g., in a phrase "Merry..." everybody knows that the word "Christmas" should be filled in) and much more.

It sounds that System 1 is a unique unmistakable scheme that provides us a great shortcut to evaluation of the situations. In most cases, it is true but, at the same time, it is also a source of behavioral biases and irrational inferences. It allows us to make quicker decisions but we must pay a high price for its inaccuracy. When System 2, responsible for rationality, is skipped, our conclusions may become far from rational. To understand how big the impact of cognitive biases has on us and on economics as a whole, we need to explore this area more.

1.5 Behavioral biases

Humans act irrationally because they are affected by various cognitive biases. Behavioral economists compared the results from different experiments with the standard economic theory principles and came to the conclusion that the outcomes predicted by the theory can be inconsistent with the results from experiments. This finding inspired researchers to look for the reasons of these results in psychology. System 1, the system of human thinking which is completely heuristic efficient thinking strategy, described by Kahneman (2011), could be a good explanation for some of our behavioral patterns including irrational behavior.

Heuristic helps us to use less effort to evaluate the situation because we do not need to compute the eventual effect of all possible options at that

moment and can react spontaneously. Just in few seconds, or even less, we already know what to do and how to decide. But, as I mentioned before, even such a useful method as heuristics can be misleading for decision makers.. The defect of heuristic, or rules-of-thumbs is that it uses proxies which lead to systematic errors in our evaluation. Therefore, when consumers start to rely on several heuristic principles too much, they start to make systematic errors in decision making and they may substantially overestimate or underestimate the real state.

If we want to know how to avoid our incorrect predictions, we have to learn more about the source of our choices. It would help us to recognize our cognitive biases and prevent possible bad decisions. Tversky & Kahneman (1974) provide us a description of three main heuristics that we often use to assess a likelihood of an event and to predict the future. These heuristics were summarized by Fiedler (2015), whose summary is provided in a Table 1.1.

Heuristic	Field of application	Illustration/Example
Availability	Memory-based judgments of frequency or probability	Overestimation of risks that are easily available in memory
Representativeness	Judgments of likelihood of instances belonging to a category	Birth order son-daughter-son-daughter more representative of random outcome than son-son-son-son
Anchoring and adjustment	Quantitative estimates on a unidimensional scale	Cost calculations biased towards starting value

Table 1.1: The most prominent heuristics
(Fiedler, 2015)

1.5.1 Representativeness

Representativeness describes how much one event is represented by another or how close the relationship between two events is. Under the influence of this heuristic, we compare the actual state with our previous experience. If both situations are very similar, we simply deduce that their aspects are also the same. This behavior is very closely connected to stereotypes and unintentional prejudices because, subconsciously, we try to categorize every episode, person or object we deal with. For example, if we see a person who is dressed badly, we might assume that this person is a homeless, but it is not necessary true.

We just make a comparison between this person and all the previous homeless people we have already met, and then we make a quick judgment that dirty and simple clothes are always related to a homeless.

As Tversky & Kahneman (1974) remark, people react and think differently in case they do not have any evidence and when they are given worthless evidence. It means that we try to use all the available information to make a decision, even if this information is not important. If we know somebody who is good in communication with children, we might assume that this person is a teacher, but it does not have to be true again. If we do not have any further information, the probability that this person is a teacher or a doctor is the same (if we assume that there is the same proportion of teachers and doctors in the world).

1.5.2 Availability of instances or scenarios

Availability heuristic is another type of decision making behavior presented by Daniel Kahneman in the 1970s. It is a situation when people "give undue weight to information that is easily available or vivid" (Goodwin et al., 2013). It is another illustration of human irrationality, when we change our decision without any important reason. For example, we plan to buy a microwave but, first, we decide to read some reviews before our purchase. We find a summary of one hundred good reviews and only one really awful review about this specific microwave we plan to buy. What would be the rational behavior in this case? Rationally, we should buy this microwave because, according to the previous experiences, the probability that this product is bad is just around one percent. In reality, availability heuristic influences us, and after we recall the bad review first, we decide not to make this purchase. Due to the negativity bias, it is easier for us to recall a bad review (we always pay more attention to bad news because they seem to be more important and look like a warning for us). Therefore, one piece of negative information works like a "fly in the ointment" here and spoils all the reliable facts obtained before.

1.5.3 Adjustment from an anchor

Anchoring effect is quite similar concept to availability heuristic and decision framing. It occurs when people make their decisions based on a piece

of information that may or may not be significant for making a correct decision (Goodwin et al., 2013). A great example of anchoring effect is usually observed in pricing and most of the shops use this idea to get a higher profit. This miraculous trick is called sales. Customers tend to succumb to do comparisons, and retailers know that very well. When we go for shopping and see a T-shirt on sale, we do not look only at the new price, but we focus mainly on the the difference between the old and the new price. Bigger difference means more favorable purchase, no matter whether the final price is adequate to the value of the offered item or not.

It is astonishing how often we make our decisions based on comparison, and it is true not only for shopping during sales period. When we come to the bar to drink some wine, what do we do first? We check the menu and look at the highest and the lowest prices but, usually, we do not order either of it. We tend to choose the middle options and keep off extremes, so menus in restaurants are commonly created with respect to this strategy. In fact, the most expensive drink or meal in the menu is not introduced just for satisfaction of rich customers but it should convince customers to buy the second most expensive choice more often (Ariely, 2008).

1.5.4 Decision framing

Tversky & Kahneman (1981) described irrational choice as a behavior "in which people systematically violate the requirements of consistency and coherence". They say that each decision-maker has his personal "decision frame" that depends on his personality, usual habits, external conditions and also on the formulation of the problem. According to the rationality hypothesis, changes in the decision frame should have no impact on the preference between choices, but, in fact, preference reversals are quite usual in real life. I want to introduce one of the experiments conducted by Tversky & Kahneman (1981) that illustrates how framing effect causes inconsistency of the human choice.

In that experiment participants should vote for a type of treatment to save people. In the first case, participants chose to save 200 of 600 people for sure rather than to have a one-third chance to save everybody and two-thirds chance that everybody will die. On the contrary, in the second case, participants chose the treatment where was one-third chance that no one will die and a two-thirds chance that everyone will die, and just minority chose the

option where 400 of 600 people would die. Options where 200 people are alive or 400 people are dead are exactly the same, but the phrasing is different, and it makes participants change their choice easily.

- CASE 1: *200 of 600 people will survive, 1/3 chance to save everybody, 2/3 chance that everybody will die*
- CASE 2: *1/3 chance that no one will die, 2/3 chance that everyone will die, 400 of 600 people will die*

This example illustrates a framing effect that causes inconsistency of the human choice which is dependent on the magnitude of gains or losses in a risky situation. It is shown that choices involving losses look risky and are not very popular among economic actors. On the contrary, choices where gain can be obtained are usually risk averse, therefore, consumers prefer them more. It means that the formulation of the problem is crucial, because there is very high probability that we will react differently if completely identical problems will be presented in different manners.

We can also experience framing during filling in different forms with "yes or no" options. Sometimes we can choose to sign up for a specific offer but in some forms we are already signed up by default and there is free possibility to sign out. These options are exactly the same and both of them give us a chance to decide as we want, but the difference in the formulation leads to big changes. This effect was examined by Brigitte C. Madrian (2001) in her investigation of savings behavior. She found out that automatic enrollment in a savings plan significantly rises participation rate. People who were already enrolled in it usually preferred not to change this condition and to stay opted in (86%), but there was much fewer people who decided to opt in when they were not signed in automatically (37%). We can see that diverse formulation causes really huge change in decision making again. The best explanation for so big effect is the "power of suggestion", when people under automatic enrollment perceive the default option as a helpful advice they should stick to.

1.5.5 Trust and revenge

According to Ariely (2009), we are not capable of making good decisions because we are emotional and can be quickly confused and distracted. He concludes that irrational behavior should be accepted and anticipated, because then the offset rules can be created, so the effect of this behavior will not be

damaging. He also describes "The trust game with revenge" which starts with two people in the "game" where each has $10. If the first man decides to keep money, the game is over, and everybody can keep their $10. If he decides to send his amount, his unknown partner will receive $50 instead of $10. Here comes the second step when the first participant may expect that his partner will be honest and will share half of the obtained amount with him ($25). The standard economic theory says that this behavior is impossible, it means that if participants were rational, the second participant would never share his money with the first one.

In fact, in this experiment, many people were willing to reciprocate and send half of their amount to their anonymous "colleague". Moreover, maybe even more interesting finding was that if the second participant did not want to share money with his partner and just kept $50 for himself, many people wanted to punish such a greedy behavior. They even agreed to use their own money for the revenge, if for every $1 they spend, their "enemy" would lose $2. It was discovered that such a punishing behavior makes people feel pleasure, regardless it is absolutely irrational to spend their own money for revenging a stranger. Despite economic expectations, our biological desire for revenge seems to be stronger than our rational thinking, and it can have noticeable impact on society.

Chapter 2
Improving decisions

2.1 Extrinsic and intrinsic motivation

In economics, preferences are described by a utility function where an optimal choice has the the biggest utility value. According to this theory, higher monetary reward for an action should increase our willingness to act, because, from an economic point of view, more money means higher satisfaction. In reality, there are more variables that affect our decisions. These variables can influence us from the outside and from the inside, and we call it intrinsic and extrinsic motivation.

Extrinsic motivation is based on some goals, expectations, social status or age. When we are extrinsically motivated, we take actions for a specific reason – to earn money, to get to the better school, to gain the appreciation, or, on contrary, to avoid punishments. This kind of motivation can be always influenced by any circumstances change, for example a change in price, information or restrictions (Bolle & Otto, 2010). Intrinsic motivation is more individualized and is described as "the doing of an activity for its inherent satisfactions rather than for some separable consequence" (Ryan & Deci, 2000).

If we really simplify the differences between motivations, it might seem to look as the rule of thumb, where pleasure, fun and happiness refer to intrinsic motivation, whereas logical and rational motives are related to extrinsic motivation. On the other hand, exactly the same action might be caused by different nature of motivations. Ryan & Deci (2000) show an excellent example about student's motivation for studying. A student can be really curious about his homework and about the new knowledge, or he may want to procure the approval of a teacher and get "the privileges a good grade affords". Both of

these motivations lead to studying but, probably, with a different effort, because it is more natural to work hard when you are really enthusiastic about what you do.

Frey (1994) emphasizes that different motivations are also associated with different modes of behavior. Extrinsically motivated behavior is associated with calculativeness and discipline, while intrinsically motivated behavior is connected with idiosyncrasy and playfulness. Another distinction, between these motivations, is that extrinsically motivated activities are rewarded only with a goal achievement, but, as Ryan & Deci (2000) point out, intrinsically motivated activities are ones for which "the reward is in the activity itself". This fact makes intrinsic motivation more productive in terms of utility.

2.2 Crowding in and out

Crowding in and crowding out effects are used in many different contexts. Financial crowding out effect suppose to describe a situation when large government borrowing causes high interest rates. Nowadays, we can also meet with crowding in and crowding out effects within basic human decision making. Crowding in (out) effect is sometimes called "hidden gain (cost) of reward" (Frey, 1994). This expression is extremely accurate because it depicts the nature of crowding effects very well. Frey (1994) illustrates the ability of external intervention to crowd out or crowd in an intrinsic motivation in a real world and explains what is the hidden gain or cost there. In his first example, he describes a boy who is paid for mowing the lawn of the house by his parents. He get used to this income and does not want to do any housework for free. It is a clear instance of crowding out effect, i.e. the hidden cost.

Another example involves a girl who received a bicycle because she had helped her parents with some housework. She keeps on helping them as a result of the crowding in effect, i.e. the hidden gain. These diverse cases show how very similar leverage might have completely different impact. One can object that doing a housework is incomparable with serious economic issues, but the truth is that housework is just a subsample of a broader view of economic actors' behavior. We only need to draw parallels between parents and government, and children and an economic agents, respectively.

From the illustrations above, we can see that various external inter-

ventions can crowd an individual's intrinsic motivation in or out, and, what is even more interesting, sometimes, these interventions do not have a rationally expected effect. We cannot omit this fact because it would lead to serious mispredictions of diverse interventions. The more detailed study of crowding effects can help us to avoid many mistakes and to understand the core of preference change. What's more, economists have a great advantage, because they can apply already discovered psychological findings from this sphere in procedures enhancing the effectiveness of economic policy rules.

2.2.1 Inefficient rewards

We have to take into account that there are several models of behavior in reaction to a reward, while thinking about crowding effects. The typical model, that is consistent with the economic theory, says that suitable rewards for an activity motivate individuals to start engaging in this activity (Bénabou & Tirole, 2003). Another model of behavior, introduced by Schnedler & Vanberg (2011), contradicts this assumption and presumes that rewards are able to destroy the individual's interest in the activity. The intuition behind is that, when a positive monetary reward is suddenly offered, the agent feels that "the activity is less attractive than he would have believed given a reward of zero"(Schnedler & Vanberg, 2011). This can happen because the activity is no longer entirely enjoyable and fun-oriented, and turns into a work activity.

Schnedler & Vanberg (2011) also come up with a "playing-hard-to-get motive" where an agent refuses to engage in the activity after he ceases to be rewarded for it (or he is not rewarded enough). It is a new conception because it is anticipated that the agent is still intrinsically motivated for the action and still wants to do it. At the same time, he does not want to voluntarily engage in the activity because he already knows that he may be rewarded, so he waits until somebody rewards him again. This behavior is quite awkward but still rational. With regard to economic principles, it is completely logical, because agent received a knowledge about the possibility of maximization of his benefits at time $t-1$, and he wants to use that knowledge at time t. It is a simple illustration of economic action and reaction.

"The Gift Relationship: From Human Blood to Social Policy" is a controversial study about crowding out effect made by Titmuss in 1970 (Titmuss, 1998). It has been supported and criticized by many authors who are interested

in this topic as well (Frey & Oberholzer-Gee, 1997; Bolle & Otto, 2010; Janssen & Mendys-Kamphorst, 2004; Mellstrom & Johannesson, 2008; Shearmur, 2014; Archard, 2002). In his book, Titmuss compares American and British systems of blood donation and focuses on a possible crowding out effect induced by a financial compensation. He states that "paying for blood destroys an altruistic motivation to contribute" (Janssen & Mendys-Kamphorst, 2004).

Thirty-eight years later, Mellstrom & Johannesson (2008) decided to empirically verify the assumption stated by Titmuss[1]. The results of their field experiment confirmed the existence of crowding out effect after monetary compensation is offered. They recorded a sizable drop of blood suppliers from 52% to 30%. Another remarkable finding was noticed in a testing group that could choose between receiving a financial reward and donating it to charity. The crowding out effect was counteracted after a charity option is added, and the supply of blood donors even slightly increased (from 52% to 53%).[2]

Not only rewards are able to crowd out individual's intrinsic motivation. The field study presented by Gneezy & Rustichini (2000) indicates that the introduction of monetary fines, which should discourage economic actors from unwanted behavior, may also lead to the crowding out effect. The survey took place in the day-care centers, where parents were coming late to collect their children. The solution of this problem should be an implementation of monetary penalties for late-coming parents, but it was illustrated that this punishment significantly increased number of late arrivals. Authors did not find a clear explanation for this occurrence. A potential justification for this consequence could be an idea that the introduction of a fine make parents feel that it is just a fee for new additional service in case they want to come late. Therefore, money probably activates "I pay for it, so I can do whatever I want" kind of behavior, and parents stop to worry about their delays.

So, when is it effective to use monetary compensations? This question is partially answered by Frey & Oberholzer-Gee (1997) in their study of motivation crowding out. They empirically analyzed crowding out theory in locally unwanted projects, the so-called "Not In My Backyard", that generally include construction of socially desirable facilities that nobody wants to have in their neighborhood (e.g., airports, prisons, etc.). They found out that, if intrinsic

[1] Only the assumption about blood donors is meant, not about crowding out effect in general.
[2] An interesting remark is that all the results were meaningful only for women, for men no significant crowding out effect was observed.

motivation prevails, so that society perceive an acceptance of the project as their civic duty, then monetary incentives have large crowding out effect. This effect was demonstrated by 26.2% drop in willingness to accept a building of nuclear waste repository when financial compensation was offered. It was also found that the crowding effect is persistent, thus civic spirit of proponents is crowded out once compensation is introduced.

Nevertheless, Janssen & Mendys-Kamphorst (2004) found that it is possible to return back the intrinsic motivation after the reward has been removed. They suggest to set up a very high reward price and then start reducing it. The problem is that this method is very costly and still does not guarantee hundred per cent success. Therefore, authors recommend to protect existing social norms that are responsible for altruistic behavior rather than remove existing monetary rewards.[3] After all, the empirical evidence shows that the use of price incentives is a good strategy only for the cases with no, or already crowded out, intrinsic motivation (Frey & Oberholzer-Gee, 1997).

2.3 Nudges

The examination of human irrational behavior shows us that it is not easy to completely avoid irrational choices. People can be warned about the power of their cognitive biases, they can be even taught how to control them, but it is still not enough. Of course, the awareness of behavioral biases is beneficial, and it can help consumers to think more about the actual reasons of their choices. Regardless of this benefit, not everybody takes biases seriously, some people keep thinking that they are fully in control of their decisions. This attitude demotivates them to familiarize with potential mistakes in decision making. All these circumstances put us in a situation when only part of the population makes an effort to avoid being biased. Therefore, we are not able to control, or at least measure, the irrationality of individual behavior. The following question is: what can we do about it?

If we assume that irrational behavior harms people, one of the solutions could be to restrict consumer choice. This suggestion is based on a thought that smaller (or even zero) choice means easier decisions with less irrationality. It is not surprising that this explanation does not look very optimistic for consumers

[3]This recommendation is applicable mainly in the short and medium run.

who prefer product variety. According to Koopman & Ghei (2013), the idea that consumer welfare can be increased by reduced choice, is not satisfactory. They pointed out that behavioral-based regulations may cause higher costs than benefits for consumers. Constraining consumer choice and excluding some "irrational options" almost necessary means discrimination and increase in costs of individuals who would rationally prefer these options. The rationality of choice is subjective and depends on the diverse needs of individuals, so no irrational choice can be always considered as one hundred percent irrational. Therefore, consumer choice limitation is not the optimal method for dealing with irrationality.

A better and much more efficient solution is "nudging"[4] of consumers toward particular choices. It describes an unobtrusive action that helps to get one's attention or to make a slight change. In context of human behavior, it is a concept that should guide people towards better decisions. Nudges do not solve irrationality, but they help to take advantage of irrational behavior to influence consumers in a way set by a social planner. Nudge concept does not want to dispose irrational behavior, but, on the contrary, it wants to turn it into a useful system.

Richard Thaler and Cass Sunstein define a term nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008). It means that a nudge is an intervention but not a command, so nobody is forced to do something, as well as anything is utterly prohibited. The advantage of nudges is that they are easy, powerful, and their costs are low, so they are economically attractive and efficient at the same time. Basically, nudge theory finds the smallest change that leads to the biggest difference. Thanks to its simplicity, nudging has a large range of uses – it can be used as a tool for policy makers in different spheres, no matter if it is medicine, education, finance or any further area.

In the last two decades, many experiments have been executed to test whether minor changes in initial conditions can really have a significant impact on the final result. The researchers were fascinated how often and how easily people are led to the desired decisions. Therefore, nudges are considered to be an efficient but very manipulative tool for improvement of decisions.

[4]In general, the word nudge stands for a light push or a gentle reminder.

Default option

One of the common and efficient nudging strategies is called "default subscription". It automatically suggests people a particular option, and then it depends on them if they want to opt out from that choice or not. Default options are created to simplify and speed up decision making. They are very useful especially for busy consumers, who do not want to spend a lot of time with making decisions. According to Thaler & Sunstein (2008), defaults can be described as the building blocks of "choice architecture" (Goldstein et al., 2008), so they help to influence decisions and to guide them towards one particular option. Usually, they are beneficial for both consumer and producer, but people tend to stick with them even when the decision is not perfect. This effect occurs because default subscription gives the impression of the best and the most popular choice .

I already described this kind of behavior earlier, in an example with an enrollment in a savings plan introduced by Brigitte C. Madrian (2001), but, in fact, default suggestions have much more applications. For instance, Johnson & Goldstein (2003) show the effect of default in organ donation. They asked individuals if they would be donors under different conditions of the research. It was discovered that the number of potential donors increases almost twice, from 42% to 82%, if being a donor is set as a default option (in comparison with not being a donor as a default). The study confirmed that very often people just passively accept the suggested behavior instead of being active and adjust their choice.

Power of suggestion

Another nudging method is called a "power of suggestion", and it is closely linked to default options. Both, suggestions and defaults, help to form human decisions. For example, recently, it was discovered that implementation of new technology of payment can increase the value of tipping by a full 38 percent (Yeung (2014)[5]). This effect arises because electronic payment software includes a possibility to give a preloaded tip amount. Therefore, even a simple decision to select "tip" or "no tip" button on the digital screen results in a huge difference. Usually, 15%, 20% and 25% are the preloaded options that are

[5]Cited from Weissmann (2014)

being offered, including the option of no tip or a custom tip. The suggested tip amounts are crucial, because, in most of the cases, customers want to give at least some tip but do not want to waste their time with customizing an option.

The anchoring effect that nudges customers to avoid the cheapest choice and to prefer the middle option is also important. Middle options look more popular and almost always give an impression of a standard decision. So suddenly we may give a 20 percent tip instead of usual 10 or 15 percent, that is common when we pay by cash.[6] Moreover, very often, people do not realize how much they really pay if only a percentage is displayed. This effect was noticed also by The New York City Taxi and Limousine Commission.[7] It was found out that their average tip increased from 10 percent to 22 percent after implementation of a new technology of payment.

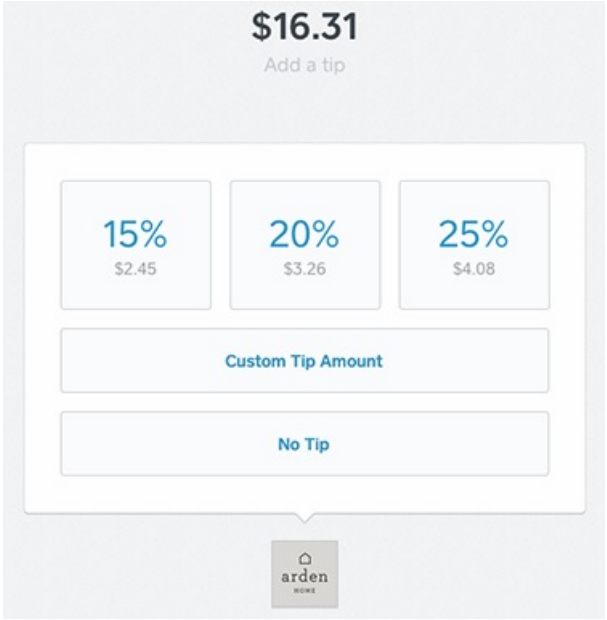

Figure 2.1: A screenshot of e-payment software Square
(source: `http://www.slate.com/` [cit. December 15, 2015])

Sometimes, this method is criticized for the way how a request for gratuity is formulated. It can be regarded not as a nudge but as a push based on a sense of guilt. According to the customers point of view, it was easier to avoid a tip when we pay by cash. Big banknotes allow us to say that we simply

[6] `http://www.nytimes.com/2009/11/08/nyregion/08taxi.html` [cit. January 3, 2016]
[7] `http://www.nytimes.com/2009/11/08/nyregion/08taxi.html` [cit. January 3, 2016]

do not have change to give a tip, but it is not easy to find any excuse when we pay by a credit card. It means that some people give a tip just because they would feel guilty if they did not give any tip for no objective reason. Therefore, the power of the "guilt tip" is higher than we would expect. Lynn (2009) states that the feeling that we have to tip comes from the social pressure to tip because people do not want to look greedy in comparison to others.

Modern technologies and feelings of guilt

Nudging through modern technologies described above can be found in taxicabs and restaurants mainly in America. In the Czech Republic, we can find quite similar system with tip suggestions offered by food delivery services. The tipping amount is not expressed in percentage there but just a little exact amount is offered (from CZK 10 to CZK 50) that works as a reward for a delivery man. A presence of that option is a quite surprising, because delivery is not for free, and we already have to pay a sufficient amount for it, so why should we pay even more? Nevertheless, the option is there, so the probability that we will tip increases. Another important notice is that digital era definitely changes the perception of money. When we do not pay by cash, we do not hold the money, so that, we value them a little bit less and we can tip more without even realizing how much we are actually paying. The simple fact that we do not hold money physically makes higher tipping less painful.

Smile

Facial expression is also a very efficient nudge. Waiters with a sincere smile can get higher tips than upset or sad waiters (Lynn, 1996). Surprising is that, sometimes, even a picture of a human expression can be enough. It is illustrated in example with speed detectors in Italy, when a smile appeared on a detector when the speed was fine, and an angry face appeared when driver exceeded the speed limit (Oullier & Sauneron, 2010). As a consequence of this small improvement, drivers really lowered their speed.

Another experiment was conducted by Schultz et al. (2007). He compared electricity consumption of each user with the mean user and added this information on their electricity bill statements. Later, he discovered that consumers with above-average consumption decreased their energy usage after this

innovation, but low-energy-consuming households had just the opposite reaction. Schultz decided to change it and added a picture of happy face on the bills of low-energy-consuming users. After this simple action, low consumers suddenly stopped increasing their energy consumption again. These experiments expose how influential is a role of smiley faces, or approval messages in general, for most of us.

Chapter 3

Tipping: A literature review

Tipping topic is very attractive topic for psychologists as well as for economists. Even though tipping has purely nonobligatory character, people still spend billions of dollars on tips. It is demonstrated by Azar (2009) who simply multiplies total sales in bars, restaurants, and other dining establishments by an average tip percentage (he estimates tips in US restaurants to be about $27 billion annually). A crucial consideration is that culture of tipping exists not only in restaurants. We tip also hairdressers, taxi drivers, messenger boys, bellhops or other employees in hotels. The list of the people who we tip can be really long, but why do we do that?

Tipping has some economical advantages, e.g., it allows to dodge some taxes because very often it works as an untaxed income. It also improves minimum wage of many waiters, so that even small changes in gratuity can have big impact on their salary. Sometimes gratuity just enhances the overall wage but sometimes it is just a small bonus for servers. Tips should also motivate servers to enhance the service quality. The size of tips varies also among different countries, because there are different tipping traditions, social norms and rules across the world.

Azar (2009) points out that tipping behavior challenges traditional economic theory. He claims that the theory of consumer utility maximization is not in compliance with tipping because consumers do not receive anything back for their "investment". This fact makes tipping topic even more interesting. We assume, that if consumers were rational, probably, they would not tip at all or, at worst, they would choose the only tip percentage share and pay it all the time. This behavior would help in economic modelling and financial predictions, but tipping does not work this way in real world. The question

remains: why people tip in general? From the economical point of view, it would be more rational to increase prices and servers salaries, respectively. Better service for higher price definitely makes sense. Nevertheless, tipping etiquette still preserves, and consumers around the world always guess how much they should tip in different countries and situations.

3.1 Investigation of tipping

Tipping in bars and restaurants is quite common all around the world, but it still differs among various countries. There are miscellaneous tipping rules based on local legislation, national customs, social norms and other unwritten rules. Tipping can also differ for diverse services. *Synovate survey*[1] shows, that consumers are most likely to reward waiters (86%) and hairdressers (58%). The third big group, who receives tips, are taxi drivers (52%). But let's concentrate on the tipping within hospitality industry. In the United States, servers expect that the customer will tip around 15%–20% (Wang, 2010), and this makes Americans the world's largest tippers because consumers from the majority of other countries do not tip more than 15%.

In some countries gratuity is already included in the bill. For example, in France there is a 12% service charge which is already included in the prices written on a menu (Jacob et al., 2013), so that waiters do not expect extra tips too often. In the Czech Republic, tips are not mandatory, but they are still very expected. There is an unwritten rule of 10% tip, but 80% of consumers just round up the bill instead of paying 10%. This happens because Czechs do not tip automatically but only for an excellent service.[2]

According to Lynn (2013), Hispanics are perceived as poor tippers. Asians also do not tip a lot, on average, only 40% leave a tip (for comparison, it is 97.7% in the USA). The most generous consumers in Asia are Thai people (84%), and the least generous are Japanese who tip only 4%.[3] This contrast is caused by diverse tipping culture. We must not claim that Japanese are stingy,

[1] http://www.marketresearchworld.net/content/view/1448/76/ [cit. January 3, 2016]

[2] https://www.homecredit.cz/tiskove-zpravy/cesi-spropitne-davaji-ale-nepredaji-se-jen-zaokrouhli-nahoru [cit. January 3, 2016]

[3] http://newsroom.mastercard.com/asia-pacific/press-releases/thailand-overtakes-bangladesh-and-claims-title-as-top-tippers-in-asia-pacific-mastercard/ [cit. January 3, 2016]

tipping is simply not a part of their lifestyle, moreover, it is even insulting them.

3.1.1 Irrationality in tipping behavior

Tipping is usually used to show an appreciation for the service. In most of the cases, it is some voluntary amount that depends on the consumer's conscience. In restaurants, tips should be correlated with the food quality, quality of service, and the overall satisfaction with a restaurant. The problem is that sometimes size of the tip is not correlated with, e.g., food quality (Mok & Hansen, 1999), and, moreover, there are many seemingly irrelevant factors that influence gratuity too. Jacob et al. (2010) tested the effect of songs with prosocial lyrics during the lunch and the dinner periods in a restaurant. She found out that prosocial lyrics have a positive effect on the average rate of clients who left a tip.

A helpful message written on the back of the check has also a positive impact, and it can increase mean tip percentages by 3% (Rind & Strohmetz, 1999). Even such a thing as a flower in the hair of a waitress may cause higher tips (Jacob et al., 2012). Touching a person increases tipping behavior (Guéguen & Jacob, 2005; Lynn et al., 1998) and alcohol consumption of patrons (Kaufman & Mahoney, 1999), and, at the same time, alcohol consumption increases tips (Lynn, 1988). Naturally, actions as complimenting a dinner selection of the customer with a sentence "You made a good choice!" (Seiter, 2007), or approaching a client with a broad smile, instead of minimal one (Tidd & Lockard, 1978), also lead to significantly higher tips.

Another experiment demonstrating human irrationality in tipping was executed by Strohmetz et al. (2002). He studied the use of fancy chocolate candy to increase tipping in two experiments. In the first one, he discovered that people tip more when they receive an unexpected gift, and in the second one he found out that the manner, in which a gift is offered, is crucial for tipping. The finding was that consumers react differently if they are offered two pieces of candy, and if they are offered one candy, and one additional candy afterwards. Basically, these two conditions should have the same effect, however, according to the empirical evidence, the mean percentage for the case with one plus one additional candy was 22.99%, whereas for the case with two candies it was 21.62%.

Based on the studies above, it is obvious, that irrational behavior of the clients can be manipulated to obtain a monetary benefit thanks to it. We can look at the paper of Strohmetz et al. (2002) to understand why does it happen. He names several reasons why customers tip more, when they receive a free candy. The first explanation is generosity, because they start to perceive a server as a very generous person and feel pleased about it. Another explanation is that receiving an unexpected gift changes client's mood. Client receives a nice surprise and is full of positive emotions, which lead to a larger tip. The last and probably the best explanation is the reciprocity effect. It means, that the consumer feel obliged to reciprocate a kind gesture and the finest possibility for him is to tip more. Another potential motives for tipping are provided by Azar (2009). He mentions reasons as "desire to conform to the social norm"

Chapter 4
Experimental design

As we can see, there are plenty of factors that affect consumer tipping behavior. Voluntary tipping is not rational according to standard economic theory, but it still works and customers are still willing to pay money for it. What does motivate them to behave this way? Can we find any steady pattern in motivations for tipping? These questions have already been discussed in many researches about tipping behavior in different countries but not in the Czech Republic. I study whether discovered motivations for higher gratuity can be applied in the context of the Czech Republic and whether different cultural background can affect the way of tipping.

I run a field experiment on tipping in the Czech Republic to find the motivations for tipping of Czech customers. My research is inspired by Jacob et al. (2013), who examined the impact of altruistic quotes on tipping behavior. I also follow the studies of the power of personalized handwritten messages, or pleasant drawings (Rind & Strohmetz, 1999; Guéguen & Legoherel, 2000; Rind & Bordia, 1996) on restaurant bills. I decided to combine these experiments into the one to potentially disentangle altruism, reciprocity and good emotion motives. The experiment should show how local customers tip and if their motivation for tipping could remain the same regardless cultural distinctions within people, rules, and customs. I concentrate mainly on the value of the tip depending on the altruistic and personalized types of motivations.

4.1 Participants

The participants were 478 restaurant customers consisting of 139 dining parties. For simplification of the experiment, only individuals and groups

where just one person paid for a whole dining party were taken into account. It is different from the previous experiment by Jacob et al. (2013) where participants were people sitting alone at the table, but it allows to compare the difference in the tip percentage between various groups of people. Based on the previous research, I expected that the tip percentage would decrease with a higher number of participants (Lynn & Latane, 1984; Snyder, 1976). The range of clients was from 1 to 12, with a mean of 3.44 clients per dining party. Almost half of the dining parties consisted of two customers (43.17%), and the second most frequent group consisted of four customers (18.71%). The distribution of dining parties is shown on a picture below.

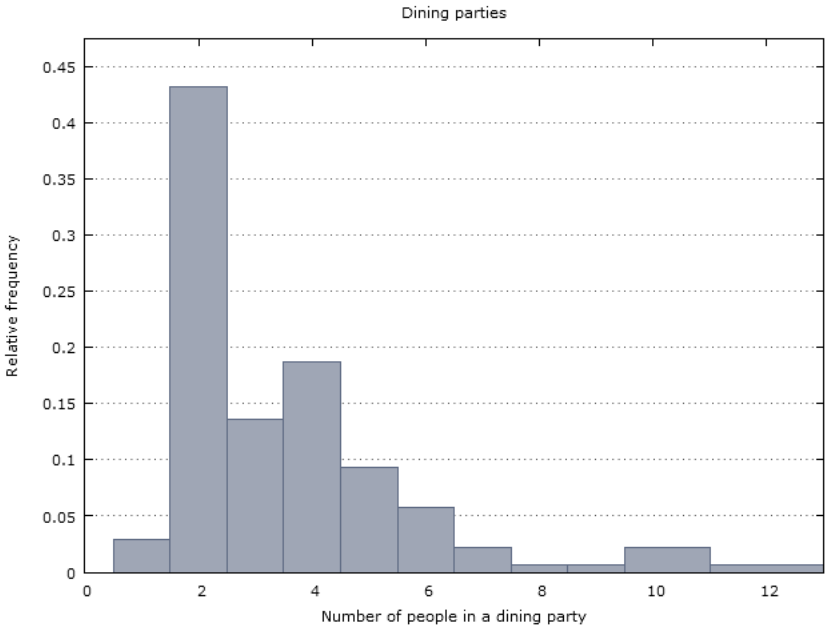

Figure 4.1: The distribution of dining parties

4.2 Background of the experiment

The experiment took place in a typical Czech restaurant, in a less touristic area of Prague, with a price range for a main course between CZK 135 and CZK 212. The experiment was focused on the tipping behavior of Czechs, so tourists were not involved in the experiment to avoid different social norms in different countries. It was held from June 2015 to November 2015, including weekends, and the collected data was not separated between weekdays and weekends. There is also no big difference in the type and price of food

ordered on weekdays and during weekends, so it suggests that people coming on weekends are similar to those coming on weekdays.

The experiment was going on in the afternoon between 15.00 and 20.00. It was conducted in the evening after the lunch time is over, because many people visit the restaurant during the lunch hours regularly, and it is unlikely to have more observations from the same group of people for this experiment. Moreover, it could be hypothesized that, in the Czech Republic, people order lunch menu during the lunch time and, very often, they pay the same amount for it every day (irrespective of their satisfaction or other circumstances). To avoid this potential problem, I decided not to run my experiment during the lunch. Besides it, the lunch hour is too busy for the waitresses, and so it would be technically complicated for them to record the results.

4.3 Procedure

All involved customers were randomly divided into four groups (three treatment groups and one control group), their distribution is described in a table below. In my experiment mainly women were serving (115 observations for females and 24 observations for men). All the waitresses were aware about the goal of the experiment, but the importance of their usual behavior and common attitude to customers was greatly emphasized. Waitresses were instructed to behave in the same way, regardless of the type of the card they give with the check.

Groups	Card Type	Quotation Type	No. of Observations
control group	no card	-	32
group 1	type 1 card	altruistic quotation	34
group 2	type 2 card	neutral quotation	39
group 3	type 3 card	personalized quotation	34

Table 4.1: Groups distribution

As I mentioned before, I was inspired by the experiment of Jacob et al. (2013). She randomly added altruistic and neutral quotes to the bills and compared the effect of altruistic quote to the effect of neutral and no quote conditions. In my experiment, I printed all the quotes on small separated cards (7.2 x 4.8 mm) and configured the design of the card to make it look like a business card. I executed it by a simple addition of the contact details under the quote

on the card. I chose this procedure to get rid of a possible odd impression on clients (because Czechs are quite used to business cards but are very suspicious towards unusual innovations). Besides cards with altruistic and neutral quotes, I improved the experiment by creating an additional "personalized" card for the experiment. I provide a closer description of all treatments in a following subchapter.

4.3.1 Types of treatments

For my study, I decided to choose the same altruistic quote as the one used in the French experiment (Jacob et al., 2013). Its English version is "A good turn never goes amiss", but, because the whole experiment was in Czech language, I had to find the most accurate translation of the quotation.[1] Participants primed with the altruistic sentence should become more thoughtful and generous when it comes to rewarding servers after the meal. Exposure to such quotation should lead to altruism with a greater helping behavior which should raise the average tip percentage.

The neutral quote, I chose, was "Practice makes perfect".[2] I chose this quotation to investigate whether simple "business cards" can activate a reciprocity effect forcing costumers to increase their tips. The neutral statement has no special function itself and should not affect decision making about a tip size. In this case, the important step is the process of giving some small non-monetary incentive that might increase patron's willingness to "repay for the gift". This effect would depict reciprocity, e.g., as it was in the experiment where customers increased their tips after receiving a candy after their meal (Strohmetz et al., 2002).

The personalized card looked exactly the same as other cards, but it had a handwritten message "Thank you for your visit" instead of the printed quotation on it. This card should give a client an impression as if it was written by servers themselves. Writing a message by hand is a demonstration of personalization, because handwritten card needs more time and effort to be prepared, so it is considered to be more valuable. I also added a drawing of a smiley face next to the message to make the card even more personalized. Lynn (2011), in his paper, states that "smiley face" makes customers smile

[1] The Czech variant is: "Dobré skutky nikdy nezůstanou neodměněny".
[2] The Czech variant is: "Cvik dělá mistra".

themselves and, additionally, it communicates to customers that a waiter was happy to have served them. It means that a nice drawing itself is a positive treatment which should enhance the mood of customers. Therefore, the feeling of being treated in a special way and good mood make customers feel better and, thereby, could increase their gratuity.

4.3.2 Particular steps and manual

I printed 56 cards from each type of card, mixed it and put it into one envelope. This step had to guarantee the randomness of card distribution. I also put the same number of empty cards to the envelope. The empty cards represented the control group that must not receive any card. Then, the procedure for a waiter/waitress was as follows:

- Before the end of the client's visit, the server randomly drew the card from the envelope and recorded the number written on the card in the special form (see Appendix A: Experiment details). Number one represented the altruistic quotation, number two represented the neutral quote, and number three determined personalized card. Number zero had to be written in the form when the empty card was drawn.
- Server took a bill together with a card and brought it to the customer (only individuals and groups where one person paid for a whole dining party were included into the experiment). If the empty card had been drawn, no card was given to the customer (but the information about the dining party was still recorded).
- After the departure of the clients, server noted his/her gender, number of people in the dining party, the amount written on the bill and the amount paid by a client (including a tip).

The aim of the experiment was to demonstrate that people have different motivations for tipping, and these motivations have different effect on the tip percentage. This knowledge can be used to influence and control the tipping behavior of the clients. It would also help restaurants to predict the part of their revenues based on tipping.

4.4 Hypotheses

In my experiment, I want to find out what makes people to tip. Why people tip in general? What is the reason for paying more? What is customers tipping range, and who is willing to pay the most? From a standard economic perspective, tipping has no logic, but the system of gratuity still works. Sometimes people tip more, sometimes less, and it can be explained by different incentives for gratuity which affect their tipping behavior. It means that, contrary to the standard theory, one person can behave differently with no significant economic reason for it but only because of a minor change of seemingly unimportant factors.

I introduced several studies where customers were nudged toward higher tipping and found many different incentives that motivate people to tip. I want to concentrate on the irrationality from the neoclassical economics point of view and check out particular hypotheses about occurrence of irrational decision-making. I investigate if there is any specific reaction based on cultural differences in response to different nudging methods. Generally, I expect that all non-monetary incentives must have a significant effect on tipping behavior. If it is so, I want to know what is the difference between these treatments and which method is the most effective.

H1: Non-monetary incentives have an effect on tipping behavior.

Based on the previous research (Guéguen & Legoherel, 2000; Jacob et al., 2013; Rind & Strohmetz, 1999; Rind & Bordia, 1995; Strohmetz et al., 2002), I expect that all included non-monetary incentives have a significant effect on tipping percentage. Many times, it has been shown that we can find various treatments that can affect tipping behavior of consumers. Rind & Strohmetz (1999) describe three main categories of factors affecting tips: tipping based on characteristics of the dining party, tipping based on characteristics of the server, and tipping based on server-diner interactions. It is very exacting task to create an experiment that can measure all the factors because their effects overlap each other. Therefore, in my experiment, I concentrate mainly on particular server-diner interactions oriented on the specific attachment to the bill given at the end of diner's meal.

H2: Altruistic quotes have a positive effect on tipping behavior.

I want to compare a tip percentage of customers influenced by a card with an altruistic quote and ordinary customers with no quote condition. The effect of altruism on gratuity was already described by Jacob et al. (2013) who observed a significant difference between altruism quote condition and neutral and no-quote condition. I expect that a quotation about doing good deeds can remind people the importance of altruistic behavior. I assume that a good behavior in a restaurant environment can be associated with an idea about higher tips. Moreover, after finishing the meal, clients might be in a good mood, and they might start to behave more altruistically than usually.

H3: Personalization has a positive effect on tipping behavior, and this effect is lower than for the treatment with an altruistic quote.

Usually, people like surprises and appreciate being treated exceptionally. Small gifts, limited offers and other exclusive and unexpected surprises please customers. Cards with handwritten messages should also satisfy this experience. Customers who did not expect anything except for the bill suddenly obtained a card with a thankful message on it and, what is the most important, with a drawing of a smiley face next to the message. Smiley face should evoke positive emotions and strengthen the overall effect of the card. I expect that a small drawing of a smiley face will increase the number of customers willing to tip and raise an amount of gratuity as well. This effect was observed in the experiment conducted by Guéguen & Legoherel (2000) when they examined an influence of hand-drawn picture of the sun.

I hypothesize that personalized treatment should have also a positive effect on a tipping percentage. A nice message with a cute drawing can be also considered as a kind of altruism when a server wants to cheer up the customer without expecting anything in return for it. Nevertheless, I expect that the effect of personalized treatment will be slightly lower than the effect of altruistic treatment. I assume that personalized message should affect mainly the mood of the customer but not the altruistic thoughts, but I expect the effect of altruism to be stronger than the effect of personalization. Therefore, the decision about tipping amount here should be less generous.

H4: The effect of reciprocity appear for the group with a neutral quote condition, this effect is positive but smaller than the effects of altruistic and personalized treatments.

A card with a neutral quotation is created mainly for comparison with a first, altruistic, card. It should help to understand whether a customer is influenced by a quotation or just by a card itself. Jacob et al. (2013), in her experiment about the usage of altruistic quotes in restaurants, found that there is no difference between neutral quote condition and no-quote control condition. My experiment has distinct circumstances, so my expectations about neutral quote condition differ. In my experiment, customers get a card with a neutral message, but the mere fact that dining parties get something (even though it is just a "business card") can impress them and influence a gratuity level. Therefore, I expect a small level of reciprocity in response to receiving a card.

An increase in tipping because of the treatment based on reciprocity is described also in a "candy experiment" made by Strohmetz et al. (2002). My hypothesis is that the usage of cards is less powerful leverage than giving candies, so the effect of my nudge might be lower here. I also expect a lower (but still positive) change of the level of gratuity than in cases with altruistic and personalized cards.

Chapter 5
Results

In this chapter, I present results from the tipping experiment. Firstly, I show information about fluctuation in the tipping percentage, some details about expenses of Czech customers and, above all, results which are not consistent with previous researches in this area. I start with a short description of summary statistics about expenditure per person and tip percentage. Afterwards, I focus on the comparison of tip percentage means of all treatment groups. Later, I describe the magnitude of captured variables with a discussion about their effect on gratuity. Certainly, besides other things, I focus on the analysis of the hypotheses stated before.

5.1 Summary statistics

The collected results show that almost all the participants of the experiment (97.84%) tipped their servers, and the average tip was 5.69%. The highest tip that appeared in the experiment was 17.37%, but, usually, costumers rarely tipped more than 10% (12.23% of customers do that). The highest tips (over 10%) were paid by those whose bill was under CZK 310, and almost 18% of customers tipped under 3%.

Bill per person (CZK)	
maximum	520.5
minimum	54.5
mean	223.03

In my data, I found two outliers with a tip percentage 17.24% and 17.37% (group with treatment 2 and 1, respectively). I excluded these outliers

from the sample because they are significantly different from other data. Both outliers are more than three times bigger than the mean value and the new maximum tip without them is almost 3% lower (it is 14.5%). The coefficients for regression with outliers are not substantially different from coefficients in regression without outliers (see Appendix C: Field experiment).

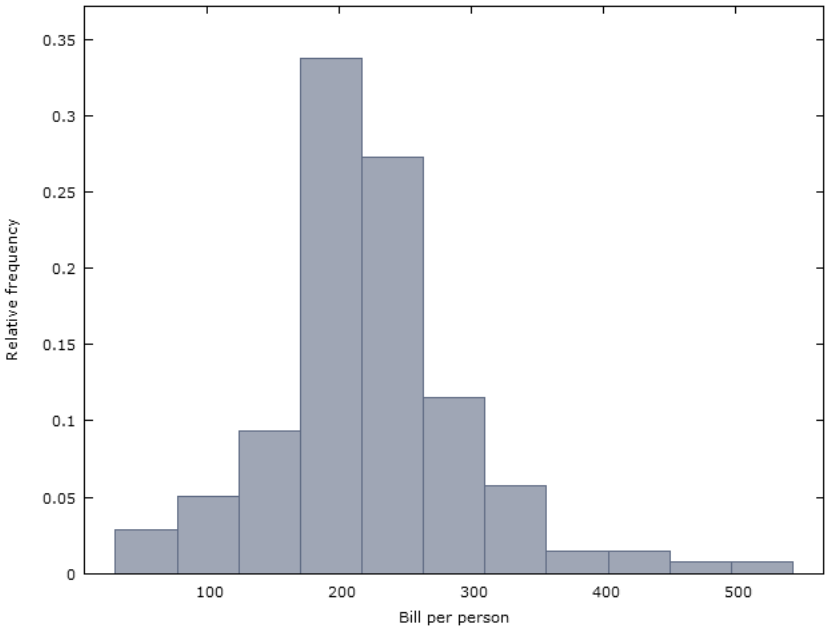

Figure 5.1: Distribution of bill per person

Tip per person (%)	
maximum	17.37
minimum	0
mean	5.69

Tip per person (%) (without outliers)	
maximum	14.50
minimum	0
mean	5.52

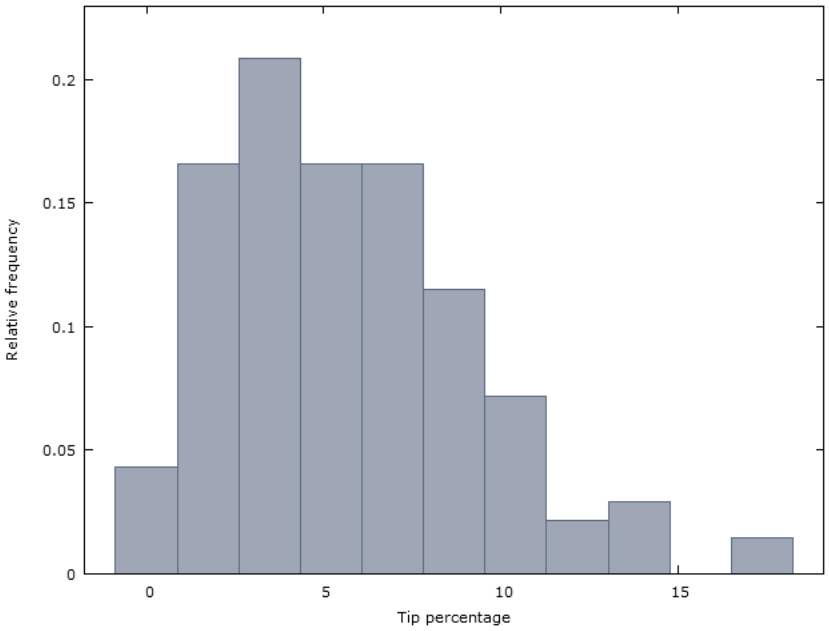

Figure 5.2: Distribution of tip percentage

5.2 Analysis of subsamples

I used one-way ANOVA (analysis of variance)[1] to test whether the means of the tip percentage are the same for the different treatment groups. It is a method that allows me to compare the means of all four treatment groups at once. My comparison is based on the type of card that customers in the restaurant received. They could get altruistic, neutral or personalized card. Other customers, who did not obtain any card, represent a control group. All the results from different groups are mutually independent, so one-way ANOVA is suitable here. The null hypothesis of ANOVA is that the means of the tip percentage are the same for all of the groups. The alternative hypothesis is that at least one group has different mean.

$$H_0 : \bar{x}_{altruistic} = \bar{x}_{neutral} = \bar{x}_{personalized} = \bar{x}_{control} \text{ (i.e., } difference\,of\,means = 0)$$

$$H_A : difference\,of\,means \neq 0$$

[1] I assume that ANOVA fulfils its assumptions about normality of sampling distribution of means, independence of errors and absence of outliers.

The result of F-test in ANOVA is statistically significant on 5% level of significance (p-value 0.0122). It means that the null hypothesis that the population means for all conditions are the same is rejected. The weighted among-group variance is not the same as the within-group variance, so some of groups (or even all groups from each other) differ. First, we can find the differences between groups by checking their mean values. We can observe that the highest tip percentage is for the control group and very similar tip amount is paid by the customers influenced by personalized cards. About two percent lower tips are noticed for clients influenced by altruistic and neutral cards. The smallest tips are recorded for the neutral treatment.

Group/card type	Number of observations	Mean	Std. dev.
control	32	6.711	3.260
altruistic	33	4.828	2.960
neutral	38	4.506	2.969
personalized	34	6.209	3.613

Table 5.1: Analysis of Variance

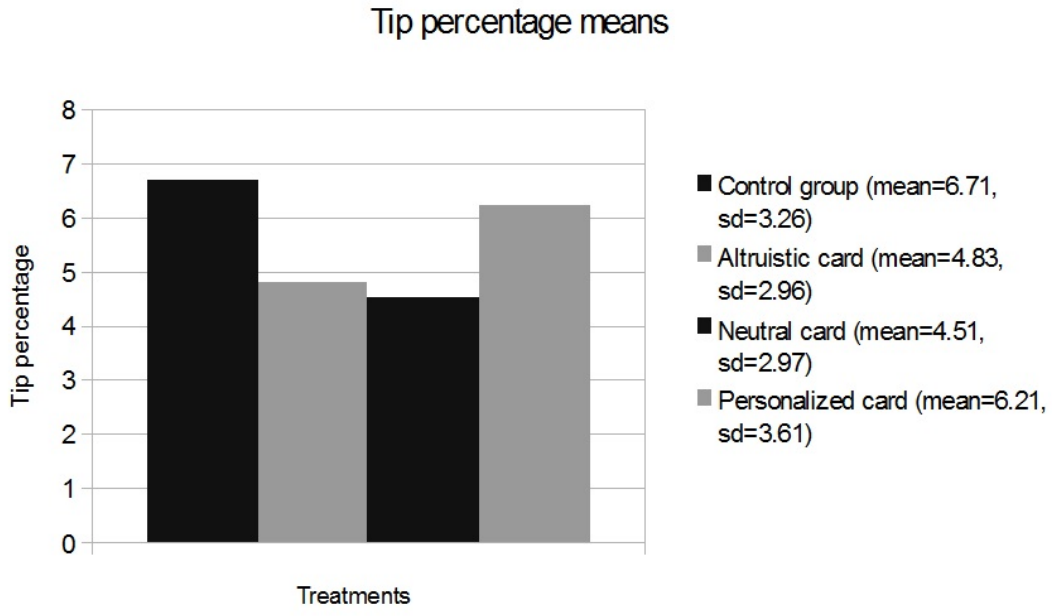

Figure 5.3: Tip percentage means under various treatments

I used multiple t-statistics to determine under which treatments groups of customers are significantly different from each other. The results show that

group with an altruistic card and group with a neutral card are significantly different from the control group on 1% level of significance (p-values are 0.0088 and 0.0021, respectively). A group which obtained a personalized card is not significantly different from the control group (p-value 0.2784). The effect of personalized card is significantly different from the effects of other two cards, and there is no significant difference between the altruistic and neutral treatments.

	control	altruistic	neutral	personalized
control	-	0.0088 ***	0.0021***	0.2784
altruistic	0.0088 ***	-	0.3244	0.0462**
neutral	0.0021***	0.3244	-	0.0158**
personalized	0.2784	0.0462**	0.0158**	-

Table 5.2: T-statistics among pairs of groups
(*, ** and *** represent significance at 10%, 5% and 1% level, respectively)

5.3 Econometric analysis

I run OLS regression[2] to find out how different independent variables affect tip behavior of Czech customers. I examine a size of tip percentage which is described as a proportion of money given as a tip relative to the whole amount paid by a dining party. In my regression, I included several dummy variables as *female*, which is an indicator for a gender of a waitperson (it is equal to one for waitresses and it is equal to zero for waiters), and *small group*, which is a dummy variable that describes the size of the dining party. The variable *small group* is equal to one if the group consists of individuals and pairs only, and it is equal to zero for groups of three and more customers.

I run two OLS regressions. The first regression consists of strongly exogenous variables. It describes a tip percentage influenced by the restaurant factors. It tells how is tip percentage affected by a gender of a waitperson and by different treatment cards. To see that, I created dummy variables for all types of treatment cards used in the experiment. Dummy *altruistic* stands for obtaining a card with an altruistic quotation, dummy *neutral* stands for obtaining a card with a neutral quotation and *personalized* dummy variable stands for obtaining a card with a hand-written message including a drawing of a smiley face. The situation when all dummies are equal to zero represents the

[2]I assume that OLS is BLUE (Best Unbiased Linear Estimator)

control group that is not influenced by any specific treatment. The regression looks as follows:

$tip\,percentage = \beta_0 + \beta_1 * female + \beta_2 * altruistic + \beta_3 * neutral + \beta_4 * personalized + \varepsilon$ (regression 1)

The second OLS regression includes factors dependent on the customers. It allows me to investigate how tip percentage is dependent on the bill per person (*bill_pp* is an average bill per person in one dining party) and on the size of a group (*small group*). I am aware of the possible endogeneity of bill per person and group size variables. In my experiment, only one person pays for a whole dining party, so people who pay for bigger groups can have different tipping behavior than people who pay for smaller groups. The results of this regression do not substantially differ from the results from the first regression, so endogeneity do not have to be a problem in this case. The regression looks as follows:

$tip\,percentage = \beta_0 + \beta_1 * female + \beta_2 * small\,group + \beta_3 * bill\_pp + \beta_4 * altruistic + \beta_5 * neutral + \beta_4 * personalized + \varepsilon$ (regression 2)

After running both OLS, I used Breusch-Pagan test to check for heteroscedasticity and control whether the variance of the error is constant. Breusch-Pagan test demonstrated a presence of heteroscedasticity only for the second regression when the outliers are included (see Appendix C: Field experiment), because the size of the error term differs across the observations there. Therefore, I used robust standard errors in this ordinary least squares regression in order to avoid heteroscedasticity.

OLS coefficients (regression 1)	
female	1.38*
altruistic card	-1.72**
neutral card	-2.27***
personalized card	-0.35
No. of observations	137
R-squared	10.22%
P-value (F)	0.0063

OLS coefficients (regression 2)	
female	0.97
small group	1.47**
bill per person	-0.004
altruistic card	-1.57**
neutral card	-2.18***
personalized card	-0.35
No. of observations	137
R-squared	15.54%
P-value (F)	0.00016

Table 5.3: OLS models
(*, ** and *** represent significance at 10%, 5% and 1% level, respectively)

The results for both OLS regressions are very similar. The main difference is in significance of the gender of waitperson. When size of the group and size of the bill per person are added to the model, the importance of gender of a server is no more crucial. It means that size of the group is more significant for the tip percentage than a gender of serving person. Moreover, we have to take into account that the physical attractiveness of servers might be more crucial than just their gender.

The second OLS regression shows that a tip percentage for small groups (with one or two people in a dining party) is 1.47% higher than for larger dining parties (from three to twelve customers in a dining party). The mean percentage of smaller groups is 6.36 (n=62, sd=3.72), whereas the mean of bigger groups is 4.83 (n=75, sd=2.75). This effect is statistically significant and support the finding that the tip percentage in larger groups is usually smaller (Lynn & Latane, 1984). The explanation for this effect was mentioned by Snyder (1976) who suggested that there is an opinion that bigger groups probably require less per customer effort to serve than smaller ones. Diffusion of responsibility is another explanation for a negative group size correlation with tipping provided by Lynn & Latane (1984).

The bill per person does not significantly affect the size of the tip. This finding can be explained by the idea that Czech customers are not used to tip a percentage from a whole amount, but they tend to give some concrete amount irrespective from the overall bill. I check this hypothesis by a creating a frequency distribution of the tip per person. According to it, Czech customers tip between CZK 2 and CZK 18 per person with a mean tip CZK 12 per person.

The most unexpected result is that all types of cards have a negative effect on a tip percentage instead of anticipated positive effect. However, only cards with altruistic and neutral statements have significant effects. The application of the “altruistic card” in the second regression makes customers to tip 1.57% less than is a tip of customers who did not receive any card. The application of the “neutral card” in the second regression makes customers to tip about 2.2% less than is a tip of customers who did not receive any card. The results from the first regression are almost the same. I briefly discuss potential explanations of these results below.

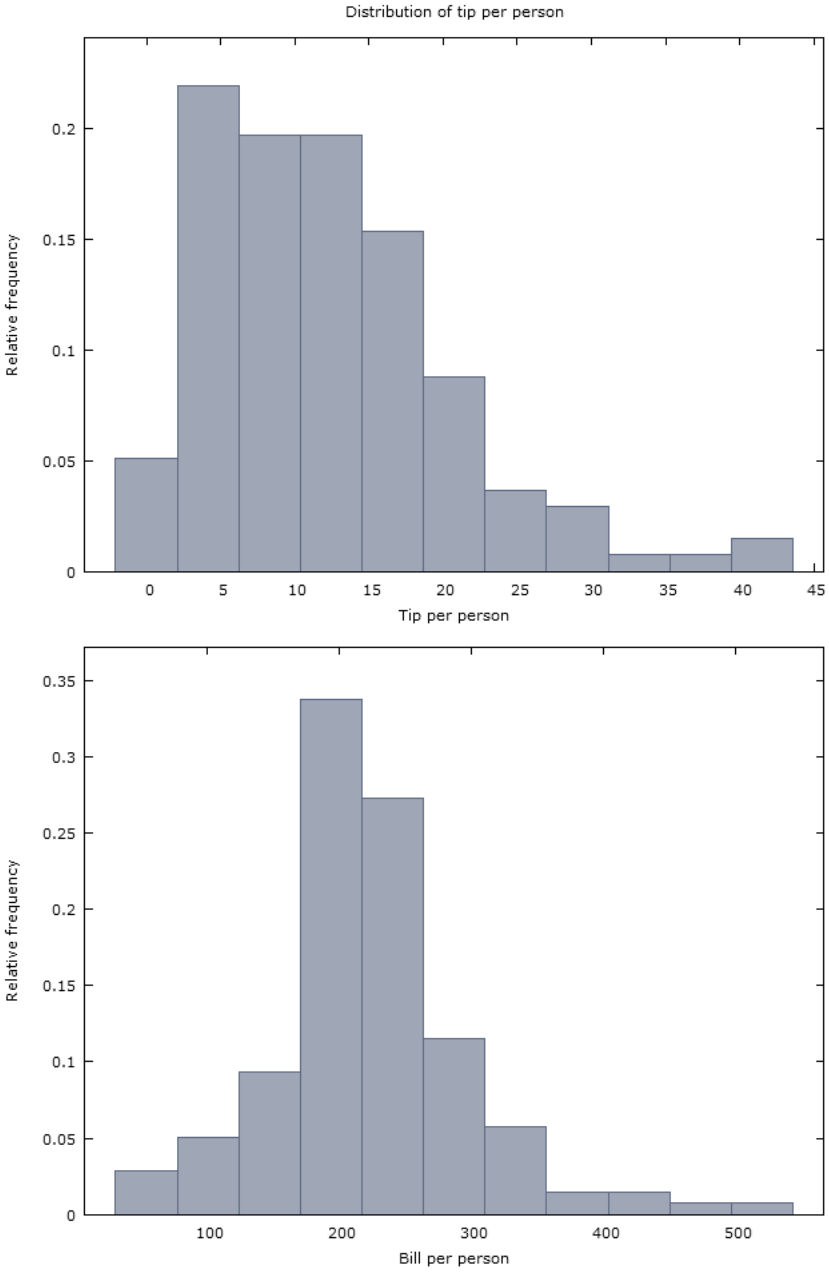

Figure 5.4: Distribution of tip per person and bill per person

Treatment with personalized card

The effect of personalized card is non-significant. It looks that Czech customers are not influenced by non-monetary incentives. It is possible that the message on the card was not personalized enough. The sentence "Thank you for your visit" is quite usual and non-specific, so customers might not appreciate it too much. Maybe some more personal message signed with a name of the

server could have a bigger effect. The hand-drawn picture of the smiley face could be also substituted with a different and unusual picture to attract more attention to it. Probably, the usage of smiley faces is very regular and do not influence the mood of the customers.

Another explanation can be that Czech customers do not like all types of cards but the hand-drawn picture uplifts their mood a bit, so that the overall result is zero. Or, maybe, Czechs are not interested in non-monetary incentives in general, because it is not as powerful as monetary incentives for them. It is very likely that the effect of monetary incentives would be different.

Treatment with an altruistic and neutral cards

The effect of altruistic and neutral treatments is negative, which is not in line with previous evidence. I hypothesize that the explanation for a negative effect of the altruistic quotation ("A good turn never goes amiss"[3]) is that Czech customers feel obliged to do something after receiving a card with a quotation, so they show their dissatisfaction by giving lower tip. Another reason could be that this quotation is not clear enough for Czech population. Maybe, the statement should be stronger to fulfill its altruistic function. For instance, it could be a quotation "The secret to happiness is helping others". Another possibility is not to use a negative clause to make a statement more pleasant for customers. A sentence "Good deeds are always rewarded" might sound more positively, so that it could influence customers more.

Even more negative (and more significant) effect of a card with neutral quotation does not support my initial hypothesis that tells that its effect should be neutral (according to previous experiments) or even positive (according to reciprocity effect). A suitable explanation for this impact is that this type of card makes people to feel bothered and destroys their good mood. The quotation "Practice makes perfect"[4] might intensify negative thinking of people who are not satisfied with themselves. If customers start to think that they do not practise enough, they might feel attacked by this type of quote.

Another reason for this negative influence could be a simple overload with information which is one more source of bad mood of customers. Everybody gets too many fliers, coupons, offers and sales promotions. Consumers are

[3]The Czech variant is: "Dobré skutky nikdy nezůstanou neodměněny".
[4]The Czech variant is: "Cvik dělá mistra".

already tired of it and when they receive some piece of paper, they think that it is some kind of advertising again. Many people can get angry even after seeing something that just reminds a sales offer. But, probably, the best explanation for this reaction is one's confusion. A customer who does not understand the purpose of the card might feel puzzled and start to expect some bluff in the restaurant. Naturally, suspicious customers are not very generous and might tip less to "protect" themselves in this obscure situation.

Quantile regression

I used a quantile regression (see Appendix C: Field experiment) to see if there is some special pattern in my results. Quantile regression helped me to identify whether predictor variables influence tip percentage differently in a specified quantiles. I cannot make conclusions about the effect of different cards for dining parties with a different tipping percentage on the basis of quantile regression because there is just a little power for it caused by the lack of data, but I found a pattern in a gender and a group size. People who pay the highest tips (highest 5%) belong to smaller groups (only groups of two people) and their mean tip is 13.4%. The tipping behavior of these customers is also affected by a gender of a server, because then they give 2.55% higher tips than for male servers.

Another interesting finding is that the tip percentage decreases with a higher bill amount. One potential explanation could be that Czech people care about the amount they pay a lot, so, when the bill is higher, they want to "save" some money at least on gratuity. Another option is that there is some social norm to round up bills in the Czech Republic, so Czechs simply follow this norm automatically and do not think about tip as a percentage.

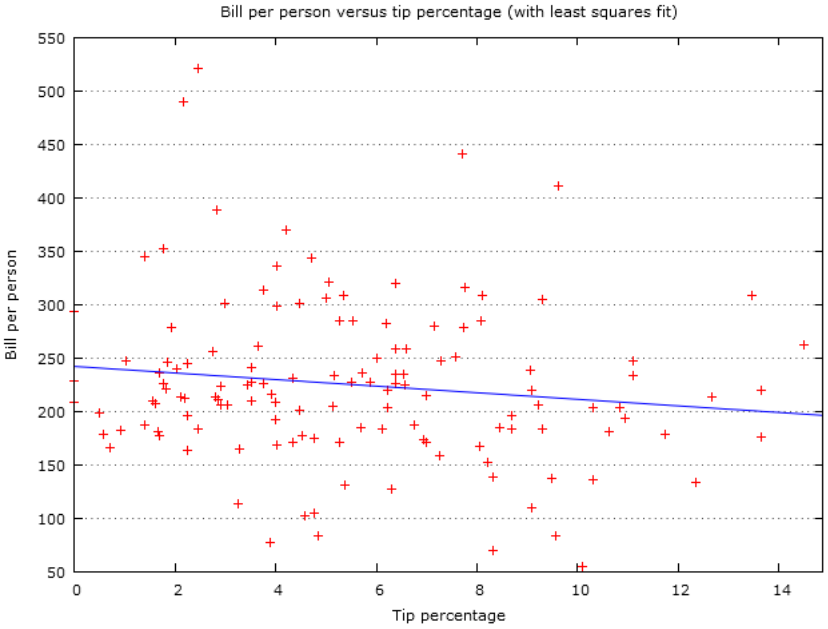

Figure 5.5: Customers tip less when their bill is higher

Chapter 6
Discussion

In this chapter, I discuss the results of my field experiment. First, I check if the hypotheses stated before are valid and then I discuss possible explanations for such outcomes. Later, I also provide some recommendations for a future investigation of tipping behavior.

6.1 Hypotheses

The results of the field experiment are unanticipated because they do not confirm the hypotheses I stated first. Better to say, some of the hypotheses are valid, but the sign of the effect is the opposite than I expected. Here is a comparison of my hypotheses and the actual findings of the experiment.

H1: Non-monetary incentives have an effect on tipping behavior.

I found that two non-monetary incentives (altruistic and personalized cards) had significant and negative effect on tipping behavior, but personalized card had no significant effect on tipping behavior of customers.

H2: Altruistic quotes have a positive effect on tipping behavior.

I found that altruistic quote had slightly negative effect on tipping percentage. The application of an altruistic treatment causes 1.57% decrease in a resulting tipping percentage.

H3: Personalization has a positive effect on tipping behavior, and this effect is lower than for the treatment with an altruistic quote.

I found that personalized card did not have an effect on tipping amount. The usage of personalized card causes a decrease in a tipping percentage, but this effect is not significant.

H4: The effect of reciprocity appear for the group with a neutral quote condition, this effect is positive but smaller than the effects of altruistic and personalized treatments.

I found that neutral quote condition had the biggest effect on tipping behavior among all the applied treatments. This effect is negative (-2.18%) and highly significant which is not in the line with a hypothesis about reciprocity effect.

6.2 Consequences

According to the standard theory, people should not tip, but, in reality, it is not true. I showed that consumers tip even if they are not asked for it. The range of voluntary tips varies with many different factors. Appearance of the waiters, party size, activation of altruism, songs with prosocial lyrics, offering a candy, complimenting customers – everything can influence one's tipping amount.

From the results above, we can see that, in fact, it is not easy to estimate the outcomes which are based on the human behavior. On one hand, behavioral economics warns us about possible important aspects that we do not include in the standard economic predictions, but, on the other hand, it is hard to make some global and permanent change in standard theory models. Regardless the fact that some treatments were described as effective in the literature, we see that we cannot automatically use them everywhere. In my experiment, I did not confirm the findings from the previous research.

The findings mentioned above show that non-monetary incentives have a negative impact on the gratuity, and that the overall effect of non-monetary incentives is quite small. This discovery is surprising, especially if we compare it with experiments created by Guéguen & Legoherel (2000); Jacob et al. (2013); Rind & Strohmetz (1999); Rind & Bordia (1995). Jacob et al. (2013) showed the positive effect of altruism quotes in France, Guéguen & Legoherel (2000) described 7.3% rise in tip percentage after the sun was drawn on a bill (also in

France), Rind & Strohmetz (1999) confirmed that helpful message on checks can increase tip percentage too (in the northeastern United States, 2.96% rise). In my study, none of these effects from the previous literature appeared.

Not necessary, but the negative outcome of non-monetary incentives in my research might be influenced by the location of the experiment. No study about the influence of various treatments on tipping percentage was created in the Czech Republic. It means that we need more data to be sure whether location has really key power here. The participants of my experiment spent much less money on tips with comparison to mentioned experiments in other countries. Surprisingly, they decided to spend even less money when altruistic or neutral treatments were applied.

6.3 Further recommendations

According to my opinion, it would be beneficial to run the same field experiment, as is described in this work, in few more restaurants in the Czech Republic. Then, it would be useful to compare the results from different cities in the country to reconfirm the results from my experiment.

For further investigation of potential tipping leverages in the Czech Republic, the more powerful experiment can be created as well. Based on my research, I show that slight nudges toward higher tipping do not work for Czech customers. Therefore, I would conduct next experiment to be stronger in order to get robust results. My suggestion is to conduct an experiment based on the principle of default options, call for reciprocity and a power of suggestion in order to make underlying mechanisms as explicit as possible. I propose to ask dining parties to rate their satisfaction with a meal and with a service provided by a waitperson after finishing their dish, and to ask them about their own suggestion for an appropriate tip percentage.

It was discovered that many customers in the experiment do not give even generally fair 10% tip. The possible reasons for this behavior are as follows:

1. Customers in the restaurant were not satisfied with their service/meals.
2. Czech people do not know what is an appropriate tip percentage.
3. Czech people are too stingy to give a tip “for nothing/no special service or offer”.

Conclusion

Rationality is a core in the standard economic theory, along with some other assumptions. Regardless the fact that this theory does not assume possible irrational decision-making, it is still efficient in making general predictions about human choice behavior. Nevertheless, in some cases, we need to pay a closer attention to other factors that affect consumer decisions but are not included in the standard model.

In this master thesis, I described how a mechanism behind making decisions works. I explained that the assumption of rationality from standard economic theory might be violated because there are many different factors influencing our choice behavior that are not included in standard models. I explained what is irrational decision-making, then I showed the way we make our decisions and, moreover, I introduced various cognitive biases that are part of our common behavior.

Further, I explained that our actions can have extrinsic and intrinsic motivations (Ryan & Deci, 2000) and that, sometimes, numerous external interventions can crowd out or crowd in our initial motivation (Frey, 1994). I showed that the motivation behind our decision-making can be also guided by many nudges. Big contribution to the existing literature is that I summarized and described numerous studies that have influenced the field of irrational behavior with the accent to the tipping behavior of ordinary people and this can be changed with simple but effective tricks.

The main contribution of my work is an executed field experiment on gratuity where different motives influencing the tipping manners have been studied and rigorously described. I conducted this experiment based on the previous research on tipping behavior (Guéguen & Legoherel, 2000; Jacob et al., 2013; Rind & Strohmetz, 1999; Rind & Bordia, 1995, 1996; Strohmetz et al., 2002). The results of my experiment did not confirm the hypotheses I stated

first. Therefore, I tried to find explanations for unanticipated effects of used treatments.

No effect of personalized treatment in my experiment might be caused by insufficient level of personalization. The presence of the hand-drawn picture of the smiley face also did not influence tipping behavior of customers. It might be that the mood of customers was not uplifted enough to generate higher gratuity. The negative effect of altruistic treatment could be explained by Czech attitude toward altruistic quotes. Czech customers might feel forced to show their altruism, so their reaction was to lower tipping amount instead of raising it. On the other hand, the altruistic message used in my experiment might be neither positive nor clear enough to nudge customers to be more generous. It means that a different altruistic quote could probably have a positive impact on Czech costumers. This is left for others researchers to give it a try and find out what messages can influence Czech nation to tip more.

The most negative effect was observed for a neutral treatment. The card used in this treatment expected to have a neutral or positive outcome based on the reciprocity effect. In fact, reciprocity effect did not appear here. A decrease in a tipping percentage in this case might be explained by confused reaction of dining parties who did not understand the purpose of the card. Another possible explanation is that the quotation on the card had a negative effect on the mood of the customers which lowered the average gratuity.

I also investigated some basic pattern in Czech tipping behavior. I found out that Czech customers tip almost twice less than it is suggested by general public opinion as well as etiquette (5.52% instead of 10% tip requirement used in many countries). I also discovered that the size of the group is relevant for the tipping percentage. According to econometric results, the highest tips are given by smaller dining parties, whereas the higher bill amount is associated with lower tip percentage.

The experiment presented in my thesis can work as a motivation for further research in tipping area. The controversial results which are not in conformity with previous research need to be confirmed by more experiments. Additional experiments could confirm the difference in tipping motives between Czech and foreign consumers. It would be interesting to investigate whether suggested explanations for negative effect of non-monetary incentives are sufficient and valid also for other restaurants in the Czech Republic.

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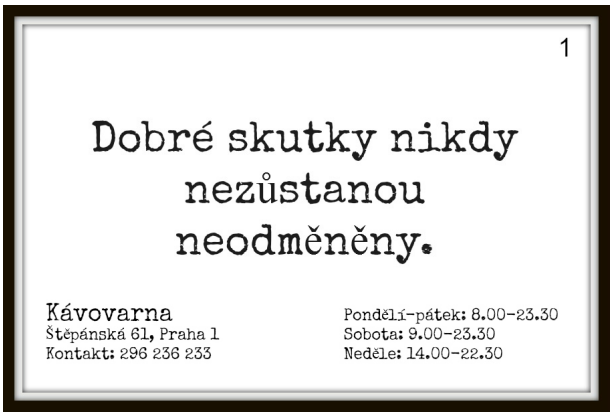
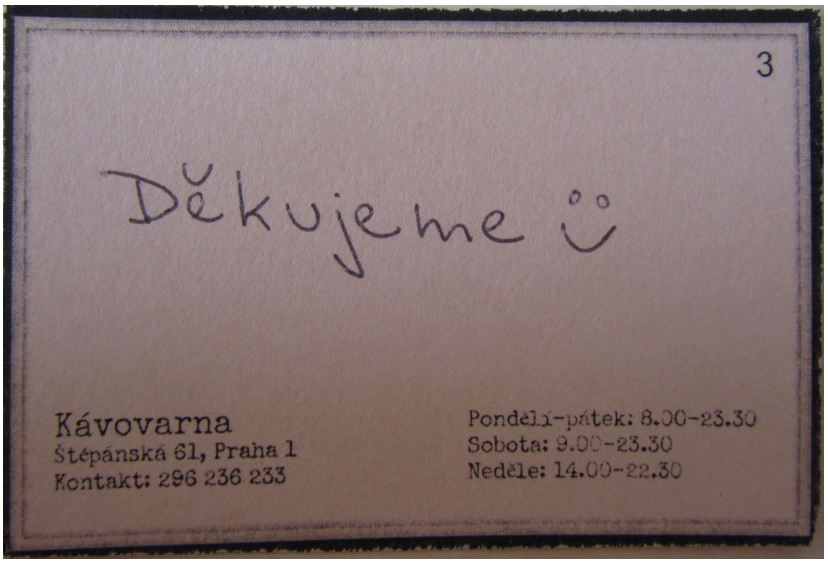
A screenshot of e-payment software Square. Available from: http://www.slate.com/ [cit. December 15, 2015])

Appendix A: Experiment details

The contact details showed on these cards are not real contact details of the restaurant where the experiment was conducted. The pictures of the cards used in the experiment are illustrative.




3
Kávovarna
Štěpánská 61, Praha 1
Kontakt: 296 236 233
Pondělí-pátek: 8.00-23.30
Sobota: 9.00-23.30
Neděle: 14.00-22.30


3
Děkujeme
Kávovarna
Štěpánská 61, Praha 1
Kontakt: 296 236 233
Pondělí-pátek: 8.00-23.30
Sobota: 9.00-23.30
Neděle: 14.00-22.30

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Experiment: Ovlivnění spropitného pomocí nepeněžních faktorů

Předmět výzkumu: Tento výzkum si klade za cíl zjistit, zda a do jaké míry lze ovlivnit výši spropitného pomocí nepeněžních faktorů.

Metoda výzkumu: Pro tento experiment chceme použít metodu, která již byla úspěšná v několika zahraničních výzkumech. Jedná se o použití kartiček s altruistickými výroky, které by se měly stát podnětem pro vyšší spropitné. Tyto kartičky se budou předkládat až na konci návštěvy zákazníka, a to společně s jeho účtem. Velkým plusem je, že tento experiment téměř nezasahuje do běžného obsluhování zákazníků.

Průběh výzkumu: Každý číšník bude mít formulář (viz Příloha), kam doplní základní údaje o zákazníkovi, částku, kterou zákazník musel zaplatit (ta, co byla na účtence) a částku, kterou zaplatil (včetně spropitného). K dispozici bude mít také kartičky, které budou rozděleny na několik typů – neutrální, altruistické a prázdné. Před tím než číšník odnese zákazníkovi účet, zcela náhodně vylosuje kartičku z balíku. Pokud na ní bude výrok, poznamená si jeho číslo do formuláře a následně předá zákazníkovi účet společně s touto kartičkou. Pokud kartička bude prázdná, do formuláře napíše nulu, poté kartičku vyhodí a zákazníkovi předloží pouze samotný účet.

Organizace výzkumu: Výzkum bude probíhat ve stravovacích zařízeních v ČR. Jednoduchý průběh experimentu umožňuje obvyklý chod zařízení bez zvláštního zatížení. Pro obdržení relevantních výsledků výzkum musí probíhat vždy ve stejném časovém úseku a jeho účastníci (zákazníci i číšníci) o něm nesmí být informováni. Předpokládaný časový úsek je 16:00-22:00, abychom nezasahovali do poledního provozu zařízení. Výzkum je zaměřen na chování místních zákazníků, a proto nesmí být aplikován na turisty.

Výstupy: Výsledky výzkumného projektu budou prezentovány v diplomové práci, a tak budou přístupné širší veřejnosti. Řešitelé výzkumu se zavazují, že všechny výsledky budou naprosto anonymní. V případě zájmu budou výsledky výzkumu poskytnuty podnikům, které se zúčastnili daného experimentu.

Výzkumný tým:

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PhDr. Václav Korbel – výzkumný pracovník a vyučující na Institutu ekonomických studií Fakulty sociálních věd Univerzity Karlovy v Praze

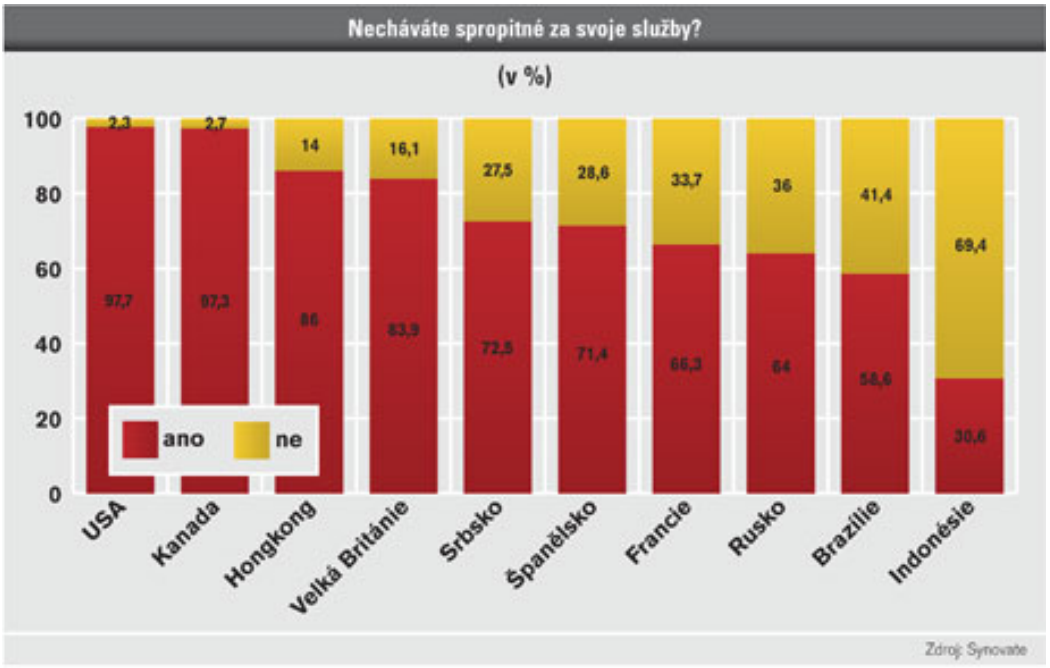
Děkujeme za Vaši spolupráci.

Obsluha (žena/muž)	Počet lidí u stolu	Číslo kartičky	Částka k úhradě	Zaplacená částka

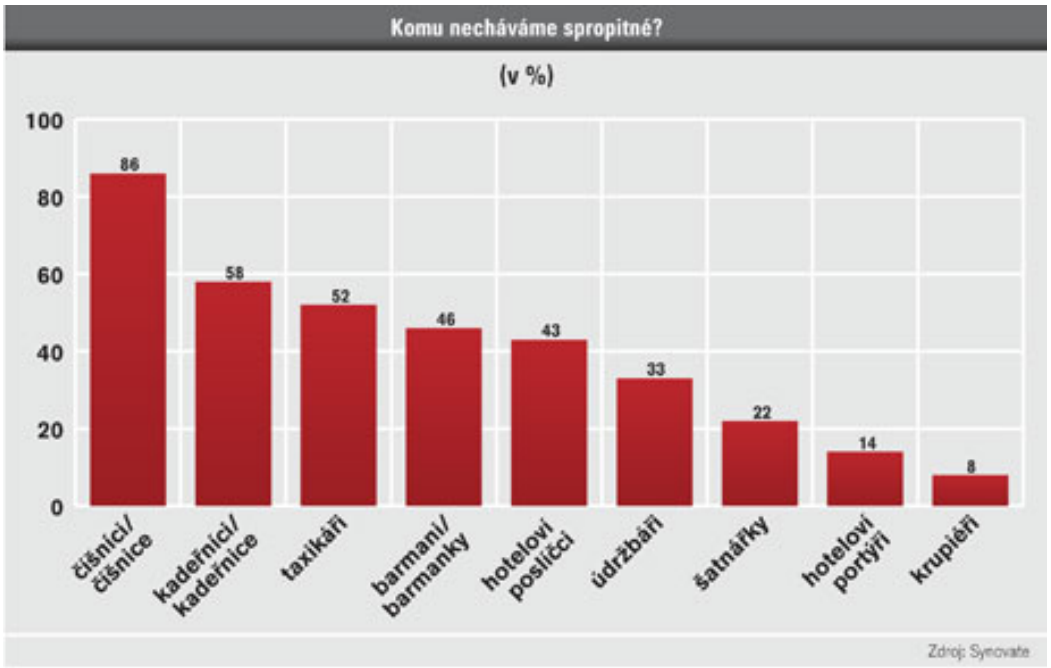
Appendix B: Tipping behavior

Country	Overall (%)
Asia Pacific	**40%**
Thailand	84%
Bangladesh	80%
India	78%
Philippines	73%
Hong Kong	56%
Australia	46%
Myanmar	42%
Indonesia	33%
Malaysia	31%
Singapore	20%
Vietnam	20%
China	15%
New Zealand	12%
Taiwan	12%
South Korea	10%
Japan	4%

Available from: `http://newsroom.mastercard.com/asia-pacific/press-releases/thailand-overtakes-bangladesh-and-claims-title-as-top-tippers-in-asia-pacific-mastercard/` [cit. 2015-01-03]



Available from: `http://mam.ihned.cz/c1-21710040-spropitne-casto-jenom-ze-zvyku` [cit. 2015-01-03]



Available from: `http://mam.ihned.cz/c1-21710040-spropitne-casto-jenom-ze-zvyku` [cit. 2015-01-03]

Appendix C: Field experiment

Analysis of Variance, response = tip_percentage, treatment = card:

	Sum of squares	df	Mean square
Treatment	116.425	3	38.8084
Residual	1367.03	133	10.2784
Total	1483.45	136	10.9077

F(3, 133) = 38.8084 / 10.2784 = 3.77572 [p-value 0.0122]

Level	n	mean	std. dev
0	32	6.71077	3.2604
1	33	4.82824	2.9601
2	38	4.50553	2.9692
3	34	6.20926	3.6134

Grand mean = 5.52118

Figure 6.1: ANOVA

```
Model with outliers: OLS, using observations 1-139
Dependent variable: tip_percentage

              coefficient   std. error   t-ratio   p-value
  ---------------------------------------------------------
  const          5.91685     0.941981     6.281    4.36e-09 ***
  female         0.907336    0.807885     1.123    0.2634
  altruistic    -1.38687     0.874745    -1.585    0.1152
  neutral       -1.92230     0.840938    -2.286    0.0238   **
  personal      -0.401434    0.871997    -0.4604   0.6460

Mean dependent var   5.690745   S.D. dependent var   3.568415
Sum squared resid    1662.116   S.E. of regression   3.521910
R-squared            0.054130   Adjusted R-squared   0.025895
F(4, 134)            1.917128   P-value(F)           0.111168
Log-likelihood      -369.6879   Akaike criterion     749.3757
Schwarz criterion    764.0481   Hannan-Quinn         755.3382

Excluding the constant, p-value was highest for variable 13 (personal)

Breusch-Pagan test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 0.558744
  with p-value = P(Chi-square(4) > 0.558744) = 0.967536
```

Figure 6.2: OLS with outliers (small model)

```
Model with outliers: OLS, using observations 1-139
Dependent variable: tip_percentage
Heteroskedasticity-robust standard errors, variant HC1

               coefficient   std. error   t-ratio   p-value
  ------------------------------------------------------------
  const          7.18636      1.36248      5.274    5.30e-07 ***
  female         0.661152     0.826347     0.8001   0.4251
  small_group    0.886746     0.587215     1.510    0.1334
  bill_pp       -0.00771968   0.00417453  -1.849    0.0667   *
  altruistic    -1.12672      0.853756    -1.320    0.1892
  neutral       -1.71285      0.849680    -2.016    0.0458   **
  personal      -0.385286     0.855187    -0.4505   0.6531

Mean dependent var   5.690745   S.D. dependent var   3.568415
Sum squared resid    1584.964   S.E. of regression   3.465156
R-squared            0.098035   Adjusted R-squared   0.057037
F(6, 132)            3.577906   P-value(F)           0.002565
Log-likelihood      -366.3845   Akaike criterion     746.7691
Schwarz criterion    767.3104   Hannan-Quinn         755.1165

Excluding the constant, p-value was highest for variable 13 (personal)
```

Figure 6.3: OLS with outliers (big model)

```
Breusch-Pagan test for heteroskedasticity
OLS, using observations 1-139
Dependent variable: scaled uhat^2

               coefficient   std. error   t-ratio   p-value
  ------------------------------------------------------------
  const          1.67972      0.607555     2.765    0.0065   ***
  female        -0.213616     0.364570    -0.5859   0.5589
  small_group    0.648090     0.278015     2.331    0.0213   **
  bill_pp       -0.00447950   0.00178144  -2.515    0.0131   **
  altruistic     0.192221     0.394827     0.4868   0.6272
  neutral        0.133835     0.378888     0.3532   0.7245
  personal       0.100151     0.390301     0.2566   0.7979

  Explained sum of squares = 31.656

Test statistic: LM = 15.827978,
with p-value = P(Chi-square(6) > 15.827978) = 0.014708
```

Figure 6.4: Breusch-Pagan test for OLS with outliers (big model)

```
Model 8: OLS, using observations 1-139
Dependent variable: tip_percentage
Heteroskedasticity-robust standard errors, variant HC1

               coefficient   std. error   t-ratio   p-value
  ------------------------------------------------------------
  const          7.18636     1.36248       5.274    5.30e-07 ***
  female         0.661152    0.826347      0.8001   0.4251
  small_group    0.886746    0.587215      1.510    0.1334
  bill_pp       -0.00771968  0.00417453   -1.849    0.0667   *
  altruistic    -1.12672     0.853756     -1.320    0.1892
  neutral       -1.71285     0.849680     -2.016    0.0458   **
  personal      -0.385286    0.855187     -0.4505   0.6531

Mean dependent var   5.690745   S.D. dependent var   3.568415
Sum squared resid    1584.964   S.E. of regression   3.465156
R-squared            0.098035   Adjusted R-squared   0.057037
F(6, 132)            3.577906   P-value(F)           0.002565
Log-likelihood      -366.3845   Akaike criterion     746.7691
Schwarz criterion    767.3104   Hannan-Quinn         755.1165

Excluding the constant, p-value was highest for variable 13 (personal)
```

Figure 6.5: OLS with outliers, robust stand.errors (big model)

```
Model without outliers: OLS, using observations 1-137
Dependent variable: tip_percentage

              coefficient   std. error   t-ratio   p-value
  ---------------------------------------------------------
  const          5.50150      0.856839     6.421    2.25e-09 ***
  female         1.38202      0.739667     1.868    0.0639   *
  altruistic    -1.72025      0.792830    -2.170    0.0318   **
  neutral       -2.26888      0.762867    -2.974    0.0035   ***
  personal      -0.349079     0.786574    -0.4438   0.6579

Mean dependent var   5.521177   S.D. dependent var   3.302687
Sum squared resid    1331.805   S.E. of regression   3.176387
R-squared            0.102226   Adjusted R-squared   0.075021
F(4, 132)            3.757590   P-value(F)           0.006283
Log-likelihood      -350.1848   Akaike criterion     710.3696
Schwarz criterion    724.9695   Hannan-Quinn         716.3026

Excluding the constant, p-value was highest for variable 13 (personal)

Breusch-Pagan test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 3.69408
  with p-value = P(Chi-square(4) > 3.69408) = 0.448987
```

Figure 6.6: OLS without outliers (small model)

```
Model without outliers: OLS, using observations 1-137
Dependent variable: tip_percentage

               coefficient   std. error   t-ratio   p-value
  ---------------------------------------------------------
  const          6.06147      1.18065      5.134    1.01e-06 ***
  female         0.974192     0.737350     1.321    0.1888
  small_group    1.46777      0.543557     2.700    0.0078   ***
  bill_pp       -0.00420487   0.00361856  -1.162    0.2474
  altruistic    -1.57199      0.778302    -2.020    0.0455   **
  neutral       -2.17761      0.752943    -2.892    0.0045   ***
  personal      -0.348648     0.768779    -0.4535   0.6509

Mean dependent var   5.521177   S.D. dependent var   3.302687
Sum squared resid    1252.915   S.E. of regression   3.104482
R-squared            0.155406   Adjusted R-squared   0.116425
F(6, 130)            3.986681   P-value(F)           0.001074
Log-likelihood      -346.0020   Akaike criterion     706.0041
Schwarz criterion    726.4439   Hannan-Quinn         714.3103

Excluding the constant, p-value was highest for variable 13 (personal)

Breusch-Pagan test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 7.37432
  with p-value = P(Chi-square(6) > 7.37432) = 0.287613
```

Figure 6.7: OLS without outliers, (big model)

Model: Quantile estimates, using observations 1-137
Dependent variable: tip_percentage
Robust (sandwich) standard errors

	tau	coefficient	std. error	t-ratio
const	0.050	0.890930	0.773457	1.15188
	0.250	4.11701	1.30319	3.15918
	0.500	6.73096	1.31962	5.10069
	0.750	8.81046	1.41154	6.24173
	0.950	10.6701	1.12038	9.52368
female	0.050	0.189217	0.351140	0.538865
	0.250	0.0850621	0.573714	0.148266
	0.500	0.563127	0.713092	0.789698
	0.750	1.21069	0.893092	1.35561
	0.950	2.54675	0.548569	4.64253
small_group	0.050	0.283000	0.606092	0.466926
	0.250	1.33752	0.648964	2.06101
	0.500	1.32720	0.697569	1.90261
	0.750	0.949653	1.02339	0.927948
	0.950	3.46397	0.572161	6.05418
bill_pp	0.050	0.00257785	0.00280713	0.918324
	0.250	-0.000969946	0.00409146	-0.237066
	0.500	-0.00683300	0.00379297	-1.80149
	0.750	-0.00726409	0.00333777	-2.17633
	0.950	-0.00830920	0.00425673	-1.95202
altruistic	0.050	-0.175830	0.447701	-0.392740
	0.250	-1.92890	0.823532	-2.34223
	0.500	-1.78410	0.973926	-1.83186
	0.750	-1.60102	1.09206	-1.46606
	0.950	-2.95990	1.10908	-2.66879
neutral	0.050	-1.90192	0.489065	-3.88889
	0.250	-1.79519	0.817892	-2.19489
	0.500	-2.31009	0.933626	-2.47432
	0.750	-2.56392	1.19707	-2.14184
	0.950	-1.58204	0.946779	-1.67098
personal	0.050	-0.801847	1.09734	-0.730722
	0.250	-1.14964	0.920463	-1.24898
	0.500	0.353917	1.07041	0.330638
	0.750	0.129847	1.20410	0.107837
	0.950	-0.665251	0.613752	-1.08391

Median depend. var 5.134474 S.D. dependent var 3.302687

Figure 6.8: Quantile regression