

Nudge is all around

– but what is around the nudge?

by

Leon Nudel and Emilia Wiik

Nudge theory has become widely popular and influences a variety of fields and policy decisions. Most research done on nudging has focused on the task structure, the environment where the decision is made, and its behavioral effect. The task structure surplus (i.e. for example who is nudging, what factors influence a nudge and how certain personal characteristics affect attitudes toward nudges) on the other hand has typically been ignored. In an initial study, we mapped out the development of the field of nudging by looking at 507 articles and summarized the findings from studies that had been conducted on attitudes toward nudging. In a second study, we used a within-subject design (n=199) to examine attitudes toward: nudging, transparent and nontransparent nudges, and different choice architects. The consistency between attitude and behavior was investigated through an experimental design (n=508) in a final study. In summary, respondents had a strong general support for the studied nudges, and transparent nudges were preferred over nontransparent ones. Companies were preferred as choice architects behind nudges rather than public authorities. People with hierarchical and individualistic characteristics were less supportive of nudges. Furthermore, our results showed no difference in effect between transparent and nontransparent nudges, and between companies and public authorities as choice architects. These findings indicate that attitude is not reflected in behavior, an attitude-behavior gap, and that the task structure surplus of nudges influence their perceptibility.

Keywords: Nudge, Choice architect, Attitudes, Decision-making, Task structure surplus

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Prologue

Imagine a world where all human behavior has been mapped out. Everything from small peculiarities such as what we eat for dinner to larger decisions such as pension savings – why we do them, the reasons behind them – are mechanically analyzed and researched. In this mechanical world, we know why we invest \$169 billion worldwide on state lotteries every year although the chance of winning the jackpot is almost zero, instead of saving that same money for our pensions. We also know why we often fail to donate to charity even though our intention is the opposite.

In this world, it is also possible to understand how human beings can predict a ball's loop without ever having learned mathematics or how come consumers can make the best choice regarding high-involvement purchases, such as cars and housing, using mental shortcuts rather than collecting all information before the decision is made.

Now, imagine that you are the most powerful person in the world. Let say that you are the President of the United States, or the CEO of the world's biggest company. In front of you there is a machine. If you enter it you will gain all this knowledge about human behavior. You will have the ability to create and design solutions for all human kind to make them wealthier, healthier and happier, without restricting any of their choices. This all comes at a minimal cost.

Would you enter the machine?

There is just one hitch. What if the knowledge becomes useless if you reveal your new super powers, or if you ask your citizens or consumers what they think about you using them.

Would you still enter?

Chapter 1

1. Introduction

“For a hundred years, marketers have collected data on what, how and why consumers buy what they buy. The data is there. The only conclusion we can draw is that behavioral economics is, ironically, another word for marketing. Marketers have been the behavioral economists!”

- Philip Kotler, 2016

1.1 Background

The 15th September 2015 the president of the United States, Barack Obama, issued Executive Order 13707: Using Behavioral Science Insights to Better Serve the American People (Obama, 2015). Numerous countries around the world have implemented similar policies, especially in Europe. In fact, 135 countries have seen their public policy developed by behavioral science (Whitehead, Jones, Howell, Lilley, & Pykett, 2014).

It all started with the buzzword *nudge*, based on the book with the same name (Thaler & Sunstein, 2008). The main concept is to map out and understand human behavior to steer individuals toward a preferred outcome, without enforcing restrictions or changing their incentives (Thaler & Sunstein, 2008). Classic examples of nudges are to use order and salience of groceries in store promoting healthy choices, one-click donations to charity at checkout in store, and graphic warnings on cigarette packages (Jung & Mellers, 2016).

The interest for using behavioral science in targeting individuals' decision-making is not only growing within public policy but also in areas such as marketing, advertising, and design (Ly & Soman, 2013; Sunstein, 2016a). According to Sutherland (2011), vice-chairman at Ogilvy & Mather UK, planners and creatives in advertising use the clear framework of behavioral science to legitimize their business. He also argues, in accordance with others within the marketing field (e.g. Goodwin, 2012; Kotler, 1998), that using psychology and the understanding of human behavior to affect consumers has been present in marketing and advertising for decades. Retail stores are meticulously planned to make the best use of the store space to maximize profits. Everything from store design and shelf placement to the use of music and scents affect the consumer's choice (Nordfält, 2011). The advertising industry has a tradition of making use of emotions, social norms, and framing to better reach through to consumers (e.g. Demásio, 1994; Goldstein, Cialdini, & Griskevicius,

2008; Loewenstein & Lerner, 2003). These techniques have also been used to serve public causes, a field often called social marketing (Kotler & Zaltman, 1971).

Ethical concerns in relation to advertising and marketing have been raised for a long time, due to its intention of influencing behavior. McChesney (2008) argued that advertising and marketing are the greatest concerted attempts at psychological manipulation in all human history. Nudges – also intended to influence human behavior – have been faced with similar criticism. The British House of Lords (2011) published a report stating that nudges aimed at influencing citizens at a subconscious level should be used with caution, and that the “extent to which an intervention is overt” should be the main criteria for a nudge to be defensible. Some do however argue that this constitutes a contradiction, saying that there are indications that the behavioral change of nudging only works in the dark when not revealing its intention, and that transparency might reduce its effectiveness (Bovens, 2008; House of Lords, 2011). There are few studies, to our knowledge only two published articles, that have investigated the link between effectiveness and transparency (Loewenstein, Bryce, Hagmann, & Rajpal, 2015; Steffel, Williams, & Pogacar, 2016).

Even though the concept of nudging is widespread today, most studies on the topic have relied heavily on the actual nudge and the environment in which the nudge takes place, i.e. the task structure of the nudge (Gigerenzer, 1991; Simon, 1955; Simon, 1990). By doing so, other factors than the environmental ones, which also influence the behavior and could be vital for a specific decision, have largely been ignored. Marketing, advertising and psychology all have long traditions of investigating attitudes, consumer segments, and personal characteristics. These factors are certainly vital within a decision-making context, what Gigerenzer (1991) calls the task structure surplus. This thesis seeks to investigate the task structure surplus of nudging, more specifically, what Swedish consumers and citizens think about nudges and how degree of transparency and the nudge implementer, from now on called choice architect (Thaler & Sunstein, 2008), affect the attitude toward and effect of the nudges.

1.2 Scientific relevance

The scientific relevance of understanding nudging, consumers’ and citizens’ attitudes toward nudges, and the effect of transparency degree and different choice architects is high.

First, this thesis gathers all current scientific research about nudging, explores the development of this interdisciplinary research field, and provides a thorough examination of studies on attitudes toward nudges. The latter niche, attitude studies, is new and growing, with only twelve published articles, and

no published report has up until this day¹ taken an overall perspective on the findings. The closest is an article by Reisch and Sunstein (2016) who mention nine of the thirteen articles. This thesis offers academic relevance by adding four more articles, including forthcoming ones and working papers, and providing a summary of the status of the field. As 83% of the articles have been published since 2015 this thesis continues at the frontier.

Second, this thesis adds the choice architect and the degree of transparency, and study the two aspects both independently and in relation to each other. The aim is to investigate how transparent a nudge can be before it might cross a line where the effectiveness of the nudge is reduced, and whether different choice architects affect the attitude toward and effect of nudges. This responds to Sunstein's (2016b) requests for investigating the effect of disclosing the psychological mechanism behind a nudge, and whether different choice architects affect its effectiveness.

Third, we aim to provide new knowledge on how different types of individuals react on different types of nudges. Thus, this thesis responds to the call for more studies on the psychological insights about people and their beliefs (Jung & Mellers, 2016; Reisch, Sunstein, & Gwozdz, 2016). By investigating other personal characteristics more of the variation of attitudes toward nudges could be explained.

Lastly, this thesis makes a methodological contribution by replicating one of the latest and most extensive articles about attitudes toward nudging, written by Jung and Mellers (2016).

1.3 Practical Relevance

The scientific relevance of studying attitudes toward and effectiveness of nudges might be enough to motivate research on the topic, but there are nevertheless some additional reasons to highlight.

It is problematic if policies involving nudges are rolled out in a democratic society without understanding citizens' opinions about them. Many studies suggest that there is a high support for nudges in general, but only one article has investigated this in a Swedish context (Hagman, Andersson, Västfjäll, & Tinghög, 2015).

Nudging is breaking ground as a public policy and marketing tool today, and studying and providing guidance on how certain personal characteristics affect individuals' attitudes toward certain nudges will be valuable in the planning and execution process for politicians, advertisers, and marketers. The review of literature provides a structured overview of the scientific frontline research on attitudes toward and

¹ December 12th 2016.

effectiveness of different nudges, which is useful for any choice architect aiming to implement a nudge effectively.

Furthermore, society today requires businesses to be more socially responsible and consumers are willing to invest more in companies committed to positive social and environmental impact (Nielsen, 2014). There is also a growing trend in advertising to produce purpose-driven advertising and for agencies to do pro bono work. The nudge toolbox could be a way not only to increase sales for their customers but also to increase brand value and improve everyday life of consumers.

Lastly, nudges rely heavily on the psychological dimension and ethical concerns have therefore been raised. If the influencing attempt is revealed there is a possibility that the wished-for effect disappears. If that is the case one could argue that effective nudges rely on a questionable ground, only working in the dark.

1.4 Aim of the thesis

The first aim of this thesis is to map out the development of the research within the interdisciplinary field of nudging. The second aim is to investigate the task structure surplus of a nudge, more specifically a) attitudes toward nudging in a Swedish context and how individuals with different personal characteristics react to different nudges, b) how perceptions differ between transparent and nontransparent nudges, c) how perceptions differ depending on whether a company or a public authority is the choice architect and d) how those perceptions are affecting the outcome of a nudge. A content analysis, Study 1, and two empirical studies, Study 2 and 3, are conducted to test this. The second study explores attitudes toward nudges, transparency, and choice architects, through a survey. The third one examines the effect of transparency and choice architect through an experiment. The joint picture emerging from the studies indicates how individuals generally view nudging, how some aspects affect it, and gives directions for future research.

1.5 Delimitations

The content analysis of nudge articles is based on Scopus and not on other databases, which means that it might not be exhaustive. Furthermore, not all types of nudges are used in the studies, the selection is based on the ones used by Jung and Mellers (2016). Focused primarily on nudges which would improve welfare on an individual or a societal level, nudges aimed to increase sales, gaining customers or advertising campaigns used by companies or other organizations have not been studied.

No distinction has been made between System 1 (automatic system) and System 2 (analytical system) nudges. Jung and Mellers (2016) use this distinction in their article, but we chose to not apply it due to other researchers' expressed ambivalence toward the distinction (Gigerenzer & Gaissmaier, 2011; Gigerenzer & Regier, 1996). This will be discussed further in Chapter 2, page 14-15.

This thesis will not conclude on arguments in favor or against the philosophical aspect of a nudge; whether it is ethical or not to nudge individuals. We provide empirical evidence for how different interventions are received as well as further guidance regarding transparency and choice architect.

1.6 Outline of the thesis

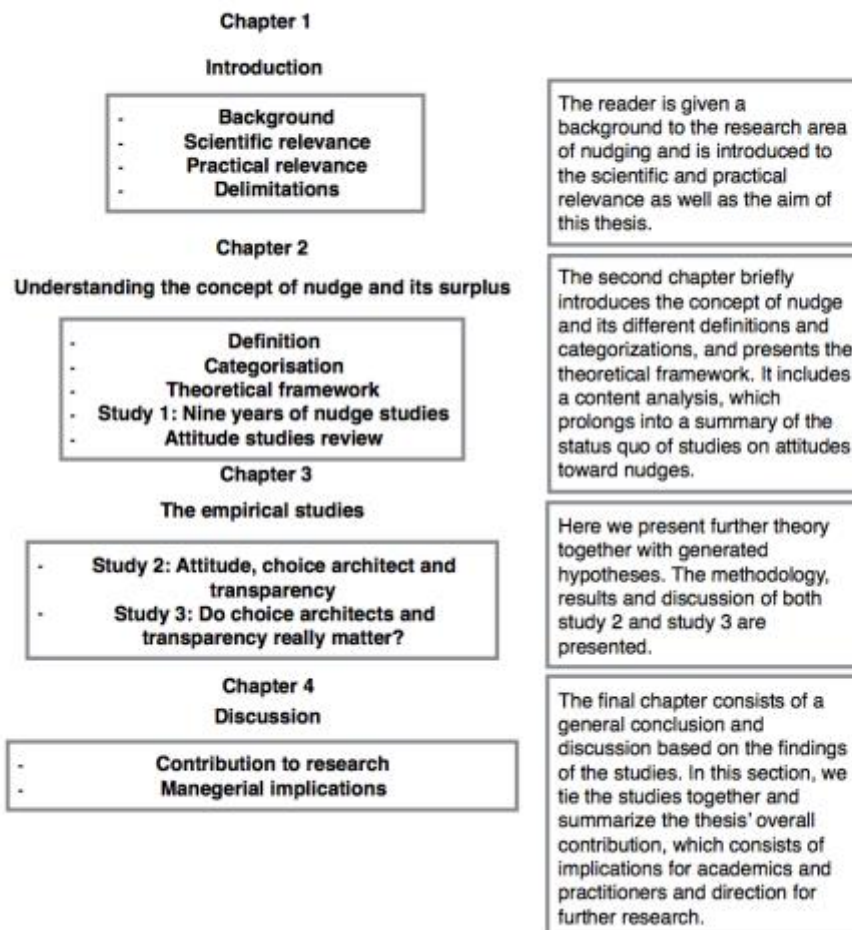


Figure 2: outline of thesis

Chapter 2

2. Understanding the concept of nudge and its surplus

Nudge theory was founded by Thaler and Sunstein (2008), as they published their book *Nudge: Improving Decisions about Health, Wealth and Happiness*. The book builds on Tversky's and Kahneman's research in psychology and behavioral economics (Tversky & Kahneman, 1974). The behavioral approach is an understanding that humans are not rational agents with stable preferences who maximize their utility (Simon, 1996), are self-interested, and self-controlled. Instead it considers that decisions could be misled by imperfect judgment and flexible preferences and behaviors, made by individuals due to inherent heuristics and biases. Nudging is a way to achieve non-forced compliance, by actively designing the decision-making context with the aim of improving people's lives by making them "healthier, wealthier and happier" (Thaler & Sunstein, 2008).

2.1. Definitions of nudge

Several definitions of the concept of nudge can be found. The definition of the word "nudge" is according to Oxford dictionaries to "coax or gently encourage (someone) to do something". Thaler and Sunstein (2008) put more meaning into the word when they coined it as a concept within decision-making. The definition reads: "... 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" (p. 6).

Thaler and Sunstein's (2008) definition has been the core of other scholars' definitions (e.g. Hansen, 2015; Hausman & Welch, 2010). Two things are important to highlight, as they constitute a common ground for several scholars' definitions. First, *choice architecture* refers to the decision-making context, i.e. how different options are presented. Second, a nudge is proper if it influences a decision *without using economic incentives* (Thaler & Sunstein, 2008).

By stating that a rational agent does not only respond to economic incentives, Hausman and Welch (2010) underline that the payoff function is determined by the prospect of pain as well as penalties. Trying to influence someone by putting a gun against their head would count as a nudge if interpreting Thaler and Sunstein's (2008) definition literally. To avoid such an interpretation, Hausman and Welch (2010) formulated a definition that incorporates other types of incentives as well. Their definition is

that “nudges are ways of influencing choice without limiting the choice set or making alternatives appreciably more costly in terms of time, trouble, social sanctions, and so forth.” To make a point of the heuristics and biases underlying the effects of nudges they added that “they [nudges] are called for because of flaws in individual decision-making, and work by making use of those flaws”.

A further development of the definition is made by Hansen (2015). This definition provides the least ambiguity compared to previous ones, although it holds ambiguity on one point. There is a growing trend toward using nudges for the common good, such as collecting taxes or implementing one-click donations to charity in stores. These would not undoubtedly be categorized as nudges using Hansen’s definition, as, according to neoclassical economic theory, contributions to the welfare of society do not lie in individuals’ own declared self-interest. Consequently, this thesis will add a factor of societal welfare to Hansen’s (2015) definition:

A nudge is a function of (I) any attempt at influencing people’s judgment, choice or behavior in a predictable way (1) that is made possible because of cognitive boundaries, biases, routines and habits in individual and social decision-making posing barriers for people to perform rationally in their own declared self-interests **or the interest of society** and which (2) works by making use of those boundaries, biases, routines, and habits as integral parts of such attempts.²

2.2. Nudge categorization

Different ways of categorizing nudges have emerged, and the most relevant categorizations are presented below.

Cognitive mechanisms. This categorization builds on the cognitive mechanisms that are activated when being nudged. Kahneman (2003) popularized the dichotomy between “System 1” and “System 2”, first conceptualized as the dual process theory (Stanovich & West, 2000). These are two separate mental processes of decision-making. System 1, commonly referred to as “gut feeling”, is rapid and automatic, controlled by habits, and decisions are made quickly. Examples of system 1 nudges are one-click donations to charity at checkout in stores and graphic warnings on cigarette packages. System 2 is slower, connects the reflexive system, and often operates when a decision maker needs to process complex information. System 2 nudges are for example credit card providers sending spending alerts when reaching the limit and reminders sent by email or text message before public elections with

²This definition could exclude some advertising and marketing attempts to impact consumers to buy a company’s product and services, as the purchase of such offerings could be seen as not being in line with an individual’s declared self-interest. Though, one could argue that one core function of marketing is to make individuals understand that they want something they did not know they wanted and therefore it could still be applicable to our chosen definition.

information on how to get to the polls. Hansen and Jespersen (Hansen & Jespersen, 2013) distinguish between type 1 and type 2 nudges, which is like the System 1/System 2 division.

However, criticism toward the dichotomy has been presented. Gigerenzer and Regier (1996) were first to highlight the difficulties of addressing a separate two-system model as the separation is slippery and conceptually unclear. Even Kahneman (2011) states “System 1 and System 2 are not systems in the standard sense of entities with interacting aspects or parts. And there is no one part of the brain that either of the systems would call home” (p. 29), although he later explicitly relates amygdala activation to System 1 (p. 301). Criticism has also been directed toward the notion that heuristics often lead to weaker and irrational decisions (Gigerenzer & Gaissmaier, 2011). Gigerenzer (2005) says that it rather is the opposite; the use of heuristics can yield accurate decisions, what he refers to as a *less-is-more effect*. Instead of focusing on heuristic cues leading to mistakes, the tradition in experimental nudge studies, Gigerenzer (2000) suggests that studying contexts in which heuristics produce both good and bad decisions would yield a better outcome. Based on the above dilemma, this thesis will not include the System 1/System 2 distinction.

The target of the nudge. Hagman et al. (2015) distinguish between pro-self and pro-social nudges. A pro-self nudge is a nudge that aims to focus on the welfare of the individual, such as monetary savings and better health through e.g. food choices. A pro-social nudge is focused on the welfare of society and can include facilitating donations to charity and savings for society. A similar approach is taken by Lepenies and Lepecka (2015) who distinguish between nudges that steer the behavior into rational decisions for the individual and nudges that aim to achieve outcomes desirable for the society.

Features of nudge. Felsen, Castelo, and Reiner (2013) categorize nudges as overt or covert. Overt nudges target conscious decision-making and covert ones target subconscious decision-making. This distinction between nudges is similar to the System 1 and System 2 approach, which Sunstein (2016b) has confirmed.

A second way of categorizing by feature is to look at the degree of transparency of the nudge. A nudge is transparent if it is “provided in such a way that the intention behind it, as well as the means by which behavioral change is pursued, could reasonably be expected to be transparent to the agent being nudged as a result of the intervention” (Hansen & Jespersen, 2013 p.17). Graphic warnings on cigarette packages is transparent according to this definition. Individuals can reasonably understand the intention behind the nudge, without explicit explanations. Contrarily, a nudge is nontransparent if individuals cannot understand the intentions behind it or which behavior change that is targeted (Hansen & Jespersen, 2013). Promoting healthy choices by the order and salience of options in a cafeteria or

grocery store would be nontransparent nudges. However, Rebonato (2014) argues that for a nudge to be transparent it should be disclosed to individuals being exposed to it, and the mechanism or bias creating the effect of the nudge should be clearly stated as well. This definition of transparency, here named “full transparency”, is the one applied in this thesis, to investigate how transparency to this stretched degree affects nudges.

2.3. Structure of the task environment and task structure surplus

Traditional marketing and economics are grounded in the theory of consumers’ rational choice (Simon, 1956; Kotler, Saliba, & Wrenn, 1991). There is however lack of evidence that individuals could perform the complex computations needed for rationality, as they lack the cognitive and computable ability (Simon, 1955). Instead, individuals have an approximate rationality, which Simon (1972) named *bounded rationality*. To understand how it works, it is important to consider the *structure of the task environment* (STE) at the point of making a decision, an environment that individuals adapt to as it changes. Within the environment, individuals use clues (Simon, 1955) or cues (Brunswik, 1955) to help their decision, something that later would be well known as heuristics (Tversky & Kahneman, 1974) and rules of thumb (Newell & Simon, 1972). These help to reduce the complexity of assessing probabilities and predicting values, to simplify decision-making.

Simon (1990) compares decision-making to a pair of scissors with two blades, where one blade is the STE and the other is the computational capabilities of the individual. As you cannot understand how a pair of scissors work by just seeing one blade, you cannot understand how decision-making works by either just seeing the STE or the individual’s computational capabilities. Gigerenzer (1991) means that a theory should not be based on only one task environment, instead it needs to be studied in a variety of task environments. The STE should be analyzed from context to context since some situations could be rather stable and some could not be (Gigerenzer, 1991). Solving a problem approximately will therefore land on different solutions depending on what approximations need to be done (Simon, 1990).

To sum up, individuals are not acting fully rationally, instead they are making decisions approximately and are bounded in their rationality. To understand how these decisions take place under uncertainty the STE is vital, and each environment, with its certain circumstances, needs to be investigated. From here, STE will refer to the psychological environment where a decision is made. In nudge theory, this is called *choice architecture*, which could be the number of choices presented to an individual and whether a default is presented.

Solely analyzing the STE is one way of looking at the task, but the natural environment often has something called a surplus structure, in this thesis called a *task structure surplus* (TSS) (Gigerenzer,

1991). It includes everything from space and time (Björkman, 1984), cheating options, social contracts, and perspectives (Cosmides, 1989). Gigerenzer (1991) states that the surplus structures are the reason that structural isomorphism has limited value, in other words – it can differ – in every task structure – in every context. In a nudging domain, it means that the same heuristics and biases (Tversky & Kahneman, 1974) with the same statistical reasoning are used to explain all behavior and all task structures – not accounting for the surplus. This could be misleading, as the following example shows.

A small town in Wales has a village idiot. He once was offered the choice between a pound and a shilling, and he took the shilling. People came from everywhere to witness this phenomenon. They repeatedly offered him a choice between a pound and a shilling. He always took the shilling. (Gigerenzer, 1991)

Only looking at the STE his choice seems irrational, as the shilling has less value than the pound. However, adding the TSS and its social context it becomes clear that his choice increased the probability of getting the same offer again and again, making the decision rational (Gigerenzer, 1991). Gigerenzer (1991) writes that this aspect has been acknowledged but never integrated in the judgement and decision-making literature.

Our theoretical framework in this thesis will be a conceptual model focusing mainly on the under-researched topic of TSS, to account for a broader perspective, and not necessarily assume, as Ariely (2008) does, that individuals are predictably irrational.

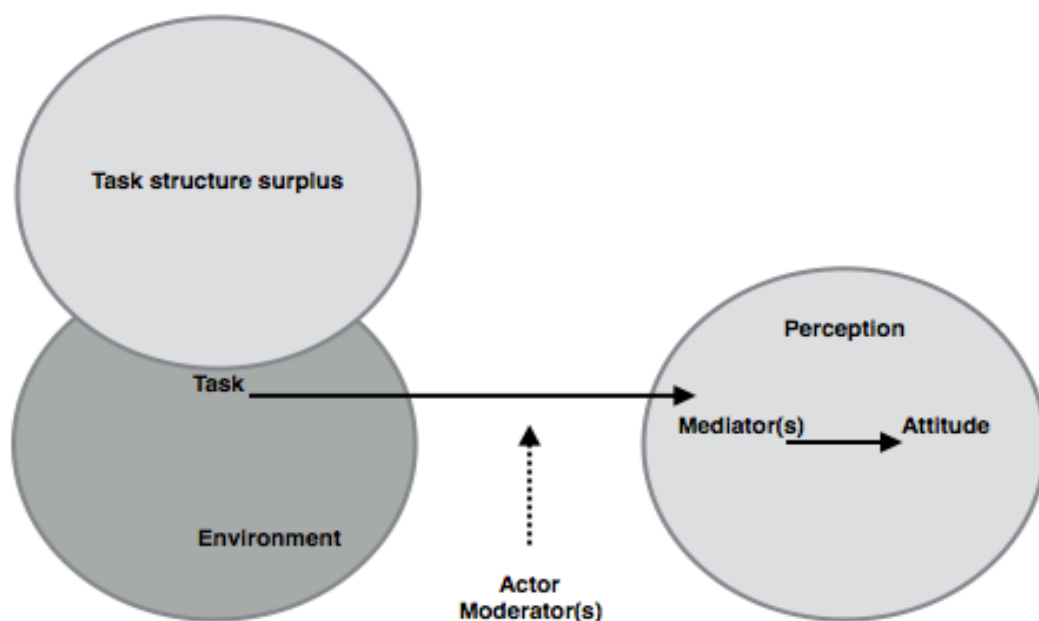


Figure 2. Conceptual model

2.4. Nine years of nudge studies: Development of an interdisciplinary field from task environment structure to task structure surplus

To investigate the research field and set a direction for this thesis, a content analysis of all academic articles addressing nudging up to this date³, found in the database Scopus, was conducted. Scopus incorporates a larger collection of journals than WOS (Mongeon & Paul-Hus, 2016) and provides an easier tool to manage keywords. The keywords nudge/nudges/nudging/, choice architecture/choice architect/choice architects and libertarian paternalism were searched for in titles, abstracts and keywords of the articles. The search generated a list of 2,267 articles in total. After excluding articles applying the terms out of line with our definition, the list narrowed down to 507 studies covering nudge.

2.4.1. Overview

The following review is based on 507 academic papers from 2008, when the book “Nudge” was released, to 2016. Articles from press, books, or book chapters were excluded. The first published article mentioning the word “nudge” in the right context of decision making, after Thaler and Sunstein’s (2008) book was released, was DiCenzo and Frostin (2008), published in EBRI.

The number of articles published per year has increased notably; 0.07% of the articles (n=4) were published 2008 and 21.89% of the articles in 2016 (n=111, see table 1). The average page count has increased over time, from 10.11 (2010) to 13.06 (2016), as well as the average reference count, from 11 (2009) to 48.56 (2016). The amount of multi-authored articles has increased as well; from 2.17

Table 1
Descriptive for publications about nudge from 2008 to 2016

	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Articles	4	7	20	34	46	91	92	102	111	507
Page count (5 % truncated mean)	20.28	10.76	10.11	11.92	8.70	11.21	15.44	11.20	13.06	12.52
Reference count (5 % truncated mean)	-	11	22.86	41.83	41.79	41.30	52.42	39.43	48.56	37.40
Author count (5 % truncated mean)	4.11	2.10	2.17	2.41	2.18	1.94	2.34	2.59	2.99	2.54
Percentage of single-author articles	25 %	43 %	40 %	35 %	41 %	44 %	29 %	29 %	20 %	34 %

Categorization of publications about nudge from 2008 to 2016

authors on average in 2010 to 2.99 in 2016. This is like Kirchler and Hölzl’s (2006) findings, who saw the page count increase from 16.47 to 17.51 (1981-2005) and the reference count from 23.22 to 38.35 (1981-2005) investigating the development over 20 years in *Journal of Economic Psychology*.

³ December 4th, 2016.

Quiñones-Vidal, Loópez-García, Peñaranda-Ortega, and Tortosa-Gil (2004) investigated *Journal of Personality and Social Psychology*, and found that the number of single-author articles decreased.

Articles were most frequently published in *American Journal of Bioethics* (n=29; 6%), followed by *Review of Psychology and Philosophy* (n=10; 2%), which dedicated a special issue to the subject in 2015. The top 20 most popular journals accounted for 33.5% (n=170) of the sample.

Table 2
Top 20 journals with articles published about nudge

	2008-2016
American Journal of Bioethics	29
Review of Philosophy and Psychology	10
BMC Public Health	8
Judgment and Decision Making	8
Journal of Consumer Policy	7
Plos One	7
Applied Economic Perspectives and Policys	6
Journal of Economic Psychology	6
Journal of Marketing Research	6
European Journal of Risk Regulation	5
Lecture Notes in Computer Science	5
Tocqueville Review	5
Appetite	4
Food Quality and Preference	4
Health Affairs	4
Law and Policy	4
Social Science and Medicine	4
Cambridge Journal of Economics	3
Conference On Human Factors In Computing Systems – Proceedings	3
Economia Politica	3
Economics Letters	3
Frontiers in Psychology	3
Health Psychology	3
Journal of Consumer Research	3
Journal of Economic Behavior and Organization	3
Journal of Public Health United Kingdom	3
Management Science	3
Nutrients	3
Policy and Politics	3
Proceedings of the National Academy of Sciences of the United States of America	3
Social Choice and Welfare	3
Yale Law Journal	3
Note: The table contains 32 journals to account for ties in frequency.	167

Following, the different authors published in the journals were listed (see table 3). The author that had published the most papers was Sunstein.

Table 3
Top 20 published authors within nudging

	2008 - 2016
Sunstein, C.R.	9
Acquisti, A.	7
Pykett, J.	6
Vlaev, I.	6
Wansink, B.	6
Darzi, A.	5
Johnson, E.J.	5
Jones, R.	5
Ploug, T.	5
Whitehead, M.	5
Cranor, L. F.	5
Alemanna, A.	4
Just, D.R.	4
King, D.	4
Rogers, Y.	4
Selinger, E.	4
Stoker, G.	4
Agarwal, S.	3
Bothos, E.	3
Bucher, T.	3
Eslambolchilar, P.	3
Goldstein, D.G.	3
Grüne-Yanoff, T.	3
Hanks, A.S.	3
Holm, S.	3
John, P.	3
Leon, P.G.	3
Mentzas, G.	3
Riis, J.	3
Roberto, C.A.	3
Sadeh, N.	3
Schnellenbaum, J.	3
Note: The table contains 32 authors to account for ties in frequency.	
	133

2.4.2.Sources of Nudging

The sample of 507 articles generated a total of 18,275 references. First, we looked at which journals the references came from, based on frequency. The list gives an indication of where its influences are coming from. The pattern is similar to that of what journals the articles have been published in (table 4).

The most frequently cited journals were: *American Economic Review* ($n=206$), *Journal of Personality and Social Psychology* ($n=179$) and *Journal of Consumer Research* ($n=106$) (See table 4).

Table 4
Top 20 journals cited within nudging

	2008- 2016
American Economic Review	206
Journal of Personality and Social Psychology	179
Journal of Consumer Research	164
Appetite	124
Journal of Marketing Research	106
Quarterly Journal of Economics	99
Science	88
Psychological Science	86
Psychological Review	81
New England Journal of Medicine	79
Health Affairs	72
Organizational Behavior and Human Decision Processes	64
Psychological Bulletin	64
American Journal of Public Health	60
Journal of Economic Perspectives	60
American Journal of Preventive Medicine	58
Journal of Marketing	55
Public Health Nutrition	54
Journal of Political Economy	51
Journal of Public Economics	48

Following, the authors behind the references were mapped out. The most frequently cited author was Sunstein (n=191; 1%), followed by Thaler (n=136; 0.8%). Most cited articles were mentioned once or twice⁴ (see table 5).

Table 5
Top 20 cited authors in nudging 2008-2016

	Times cited
Sunstein, C.R.	191
Thaler, R.H.	150
Loewenstein, G.	117
Wansink, B.	107
Kahneman, D.	94
Gigerenzer, G.	78
Tversky, A.	61
Acquisti, A.	60
Laibson, D.	57
Ariely, D.	48
Cranor, L.F.	47
Slovic, P.	46
Johnson, E.J.	45
Mullainathan, S.	44
Madrian, B.C.	42
Just, D.R.	38
Choi, J.J.	35
Fehr, E.	33
Brownell, K.D.	32
Hertwig, R.	32
Sugden, R.	32

Note: The table contains 21 authors to account for ties in frequency.

⁴ The top fifty most cited researchers account for 20% of the cited articles (n=3,721).

2.4.3. Summary

The content analysis offers a snapshot of the contemporary research on nudging. As expected, the most prominent researchers within the field of behavioral science were most frequently referenced. Thaler and Sunstein were the most cited researchers where the latter published the most articles. Nudging is becoming increasingly popular, reflected in the increasing number of: published articles, pages, authors, and references. The field has also evolved and covers a broad range of disciplines. Since the beginning, the concept has attracted researchers from a range of fields, such as marketing, economics, psychology, and biomedicine. However, Scopus might have a bias favoring biomedical research to the impairment of social sciences (Mongeon & Paul-Hus, 2016). The diversity has increased, which is shown in the increasing number of articles published in diverse types of journals every year. The increasing diversity is also reflected in practice, where nudging is becoming increasingly popular in for example marketing and public policy.

The wide popularity comes with advantages, challenges, and opportunities. One advantage is that it bridges multidisciplinary theories since it attracts researchers from a wide range of fields. Another advantage is that the evidence-based strategies have increased. Conducting the content analysis some articles were omitted, due to them not fitting with our definition of nudge. Several articles, such as Gupta et al. (2016) and Paloyo et al. (2015), were excluded as they call regulations using financial incentives nudges. This is also shown in practice, where companies and politicians have claimed that they are using nudging, while the concerned interventions do not go in line with the established definition of nudge⁵. There is no guarantee for nudging to stay at peak. Several critics have argued for the limited effects of nudging, as well as the narrow focus transferring it into practice (Dholakia, 2016).

The content analysis did not distinguish the research aims of the articles, but a review of the articles indicates that the main focus lies on the STE of the nudge and not the TSS. Looking at *Judgement and Decision Making* from 2016, 25% of the articles (2 out of 8 articles; Jung & Mellers, 2016; Reisch & Sunstein, 2016), investigated attitudes toward nudging. 46% of the articles studying attitudes toward nudging were published in 2016 (n=6) and analyzing our total sample of 507 articles, attitude articles account for 3% (n=13). Our analysis gives an indication that there is a research gap about the TSS, which would go in line with where the field has taken inspiration from.

2.5. Direction in nudge attitudes

Nudging has gained momentum, although the knowledge of what consumers and citizens think about nudges is lacking. The first article about individuals' attitudes toward nudging was authored by Felsen

⁵ Former New York Mayor Bloomberg said in 2012 that he was banning oversized sodas, which he claimed to be a “nudge promoting healthy behavior”.

et al. (2013). Since then, 13 articles have been published, peaking in 2016 (n=6). Few of these articles have used a comprehensive approach, as they are often focused on few nudges or a certain area, such as health (Appendix 1).

2.5.1. General attitudes

There is support for nudges in general, as can be seen in three articles that have conducted broad studies on attitudes toward nudges. Hagman et al. (2015) conducted a survey with 952 respondents from the US and Sweden and found high support in both countries, although Swedes were slightly more supportive. Jung and Mellers (2016) surveyed 250 respondents from the US in their first study and 800 in their second one, and found support for most of their tested nudges. Reisch and Sunstein (2016) made the most extensive study to this date, surveying approximately 1,000 individuals each from Denmark, France, Germany, Hungary, Italy, and approximately 2,000 individuals from the UK. Overall, they found high support in all countries, especially for nudges that had already been adopted or were under consideration. However, the support was remarkably lower in Hungary and Denmark. In the case of Hungary, the authors explained the low support with low trust in government, but faced difficulties explaining why Danish citizens rejected nudges more than others.

Nudges tend to get higher support if their goal is perceived as legit or if they align with one's values (Hagman et al., 2015; Jung & Mellers, 2016; Sunstein, 2016). Nudges that entail attempts at taking away money without asking, e.g. default systems for savings, are the ones mainly rejected. Also, nudges that are subliminal could be rejected to a greater extent (Felsen et al., 2013; Jung & Mellers, 2016; Sunstein, 2016).

Categorization. Sunstein (2014; 2015) and Jung and Mellers (2016) found empirical evidence that System 2 nudges were preferred over System 1 nudges. Felsen et al. (2013) showed that overt nudges were more acceptable than covert ones. When a nudge was perceived as more overt, the respondents thought that their decision was more authentic. Hagman et al. (2015) found pro-social nudges to be less accepted than pro-self ones.

Personal characteristics. Some studies have investigated how personal characteristics affect attitudes toward nudging. First, several studies have shown a negative relationship between *individualism* and attitude (Hagman et al., 2015; Jung & Mellers, 2016; Tannenbaum et al., 2015). The articles provide different interpretations of the extent to which individualism affects attitudes. Jung and Mellers (2016) found it to be the strongest predictor while Tannenbaum et al. (2015) the weakest predictor. Second, people who want the state *to help others* or are more *emphatic* support nudges in some cases (Jung & Mellers, 2016; Pedersen, Koch, & Nafziger, 2014). Third, Hagman et al. (2015) found that those with

analytical mindsets found nudges less intrusive than those with intuitive ones did. Finally, Jung and Mellers (2016) found that *reactance* and *desirability of control* tended to affect support negatively⁶.

Demographic variables. The results for *political affiliation* are twofold. Sunstein (2015) found no evidence that political affiliation did affect attitudes. Pedersen et al.'s (2014) study showed that people who want a *bigger state* favor nudges more. Reisch and Sunstein (2016) found that political party affiliation did not correlate with nudge attitudes and highlighted it as a main finding. However, voting for a populist party or other than the traditional ones lowered attitudes, and people who voted for green parties tended to favor nudges focused on the environment. Jung and Mellers (2016) found that conservatives tended to be more negative toward nudges than liberals did. However, according to Tannenbaum et al. (2015) democrats, or liberals per se, were not more supportive than republicans. Rather, they found that it concerns the context; whether the objectives align with one's view or if the nudges are implemented by trusted policymakers or choice architects. Their main finding was *partisan nudge bias*, whereby partisans confuse their attitudes toward policy tools with their attitudes toward policy objectives.

The results are scattered on whether *gender* affects attitudes. Arad and Rubinstein (2015) found no difference, except in one of their experiment conditions where women tended to opt in more to a savings arrangement than men did. Other studies have showed indications that women support nudges more than men do (e.g. Junghans, Marchiori, & de Ritter, 2016; Pedersen et al., 2014).

Most of the studies did not find any correlation between *age* and attitude. Two studies found some correlation but it could not be generalized for all investigated nudges (Hagman et al., 2015; Reisch & Sunstein, 2016). Other demographic variables such as *level of income*, *occupation*, and *educational level* have either not been studied or not presented. Arad and Rubinstein (2015) showed that respondents studying a policy-related field tended to be more negative toward a couple of nudges in two out of 15 cases.

2.5.2. Summary

There is support for nudges in general in countries where studies have been conducted. The main reason for support is alignment with one's values or goals, and that nudges already have been implemented. Some personal characteristics, such as individualism, correlate negatively with attitudes toward nudges, and different nudges are supported to different extents. Political party affiliation does not seem to matter to a great extent. All studies conducted within this field point to a clear indication that there is an

⁶ When results were not significant across both studies but pointed to the same direction, they referred to the findings as an effect "tending" to occur.

opportunity to further investigate what and how personal characteristics and other elements of the TSS affect the attitude toward and effectiveness of nudges.

Chapter 3

3. The empirical studies

“Swedes are used to public authorities interfering in a much stronger way than nudging. Nudges in a Swedish context should not be a problem if it is done in a transparent way, but it is also a tool that could be used for political purposes.”

Mikael Elinder, associate professor at Uppsala University

3.1. Study 2: Attitudes toward nudging, choice architects, and transparency

The analysis in the previous chapter shows that few studies have investigated attitudes toward nudging, which is surprising due to the high number of published articles addressing nudging. Input from the public could, according Hagman et al. (2015), be both an obstacle and a facilitator when implementing policies involving nudges. Sunstein (2016c) argues that public authorities should be cautious when launching nudges. Governments should attend to their citizens’ opinions, and strong objections against a certain policy implementation should lead the government to hesitate. This scenario could be compared to a business having high interest in investigating markets and (potential) customers’ opinions before introducing new products, or to advertisers testing campaigns before launch.

Two studies that have looked at attitudes toward nudging have done so in a Swedish context. Hagman et al. (2015) found broad majority support for nudges and Branson, Duffy, Perry, & Wellings (2011) found high support for public nudges. Sweden has a large welfare state that uses choice architecture in diverse ways to influence citizens, for example by implementing default pension savings and one-click tax declaration. Swedish citizens seem to have a high degree of trust for public authorities (MedieAkademin, 2017), which according to Sunstein (2016b) can correlate with stronger support for nudges.

When implementing nudges, there is no guarantee that one fits all. The opposite has rather been proved (e.g. Hagman et al., 2015; Jung & Mellers, 2016). An explanation could be cultural differences between individuals or between countries (Hofstede, Hofstede & Minkov, 2010). Research indicates that consumers’ attitudes toward marketing vary among demographic, psychographic, and ethical concerns (Crellin, 1998; Treise et al., 1994). It is reasonable to argue that this is true for nudging as well. Hence,

personal characteristics should be investigated to match certain nudges with specific countries or characteristics.

A specific nudge could be perceived differently depending on who the choice architect is and how the public perceives it; whether it is trusted and whether their values are aligned (Sunstein, 2016b). Additionally, transparency has been discussed by scholars, concerning which nudges are transparent and which are not. It is reasonable to argue that attitudes toward a nudge could differ depending on the transparency of the nudge and of the psychological mechanism it depends on. Transparency could lead to the emergence of reactance in the individual being targeted with the nudge (Arad & Rubinstein, 2015), which in turn could lead to poorer attitudes toward the nudge. Generally, consumers tend to be skeptical about persuasion tactics (Friestad & Wright, 1994; Petty and Cacioppo, 1986), and Felsen et al. (2013) showed that overt nudges were more preferable than covert ones.

By largely replicating Jung and Mellers (2016), this study will address the above identified questions empirically. General attitudes toward nudges among Swedish consumers are investigated. Also, whether a transparent nudge is preferable compared to a nontransparent nudge, as well as how attitudes differ depending on the choice architect behind a nudge, in this case a public authority or a company, is examined. Finally, which personal characteristics have an impact on attitudes toward nudges is studied.

3.2. Theory and hypotheses

Before developing hypotheses to answer the above posed questions, relevant theory is presented.

3.2.1. Nudge in relation to transparency

Many scholars unify around the notion that a nudge is transparent if the expected behavioral change is obvious to the person being nudged (Hansen & Jespersen 2013; Thaler 2015). Reckwitz (2002, p.254) states that if it is desired to change a social practice, people affected by that practice must understand the intention behind the change for it to be effective. However, there is no guarantee that everyone will understand a seemingly transparent nudge. A certain nudge could be transparent to some but not to others.

According to Rebonatos' (2014) definition, a choice architect must express that a nudge is present, that it intends to influence a choice, and state the psychological mechanism behind it for a nudge to be transparent. Bovens (2008) concludes that many famous nudges have been implemented without them

being transparent, such as rearranging food order in cafeterias for dietary purposes, and that the effectiveness of the nudges could have been reduced if telling the reason behind them.

Loewenstein et al. (2015) informed participants in a laboratory experiment about an end-of-life medical care setting with a default option. Being pre-informed about the default did not influence the effectiveness of the default. Sunstein (2016b) believes that the transparency might not have affected the results of Loewenstein et al.'s (2015) experiment as the psychological mechanism was not presented. He reasons that people might have rebelled if the rationale behind the default mechanism was explained.

Kroeze, Marchiori, & De Ridder (2016) conducted a field experiment where healthy food was put in front of the cashier with a sign claiming: "We help you make healthier choices". The sign did not diminish the effect of the nudge. Bruns, Kantorowicz-Reznichenko, Klement, Luistro Jonsson, & Rahali (2016) revealed that a nudge was present and its potential influence to affect the consumer's choice in their study, but the results generated no significant difference. Also, Steffel et al. (2016) found transparency to not affect the effectiveness of a default in six laboratory experiments.

Taking the previous studies into account, there is potential to stretch the transparency aspect even further, and apply Rebonato's (2014) extended definition of it, where the intention and used psychological mechanism of the nudge is disclosed.

Transparency generates more support. To our knowledge, only one study has investigated how degree of transparency affects attitudes toward nudges (Steffel et al., 2016). Steffel et al. (2016) disclosed that there was a default and its intended effect, compared it to the condition where it was not disclosed, and found that consumers perceived a default nudge as fairer if it was transparent. Felsen et al. (2013) investigated a related feature – overt or covert – and found that individuals had less acceptance toward nudges perceived as covert. Sunstein (2014) stresses that nudges could be worrying if they rely on subconscious processing, feelings, or both, as shown in several studies. Consumers are generally skeptical and defensive to persuasion attempts (Darke & Ritchie, 2007). This is also shown in the persuasion knowledge model, where consumer skepticism is a key part, centered around the notion that consumers are aware that companies use persuasion attempts (Friestad & Wright, 1994), which is particularly true regarding advertising (Darke & Ritchie, 2007).

Transparency infers that the choice architect will take measures to ensure that an individual is informed. The consumer will reward the choice architect for the additional effort, which increases the possibility for support and the willingness to pay, and induces an overall more positive rating (Morales, 2005). Wei, Fischer, and Main (2008) showed that covert marketing tactics were perceived more favorably

when being disclosed explicitly. Consequences of lacking transparency of a persuasion attempt could be a decrease of: brand trust, brand commitment, emotional attachment, purchase intention (Ashley & Leonard, 2009) and attitude toward the brand (Cowley & Barron, 2008; Wei et al., 2008).

According to salience theory (Bordalo, Gennaioli, & Shleifer, 2012), a more salient attribute will be overweighted when making a decision. Highlighting that a nudge is present in a transparent way could prime people to believe that the transparency aspect is relevant, even though they would not have noticed it otherwise. Asking individuals about their attitude toward a nudge and its transparency, they will respond to the setting in a “cooling-off period” (Loewenstein, O'Donoghue, and Rabin 2003), meaning that the cognitive mechanism is not active when asked to reason about the nudge and a more informed decision could therefore be made, instead of in the heat of the moment when being nudged.

Awareness of a nudge could evoke the perception of one's freedom being threatened, leading individuals to refuse the persuasion attempt, a psychological phenomenon called reactance (Brehm & Brehm, 2013). Thus, the feeling of reactance could be activated just by knowing that there is a potential to be nudged, meaning that there could be no difference between a transparent and nontransparent nudge when presented in a survey.

A nudge could be classified as an attempt to pursue an individual to act according to a specific pattern, and individuals could favor choice architects being honest with their persuasion attempts. Adding that the highlighting of transparency could lead to the overweighting of its importance in a comparison, acting as a mental cue, a nudge should be favored if it is transparent. Therefore, we hypothesize:

H1: A fully transparent nudge will be more supported than a nontransparent nudge.

3.2.2.Choice architects matter

People have different opinions about different choice architects and do not trust all of them to the same extent (Sunstein, 2016b). Brown and Krishna (2004) found that default options in retail settings could signal what the retailer prefers, and thus be interpreted as marketing tools to manipulate the consumer to choose the retailer's preferred option. There is evidence from a public goods game showing the opposite, where defaults did not work as recommendations, but rather as information provision (Cappelletti, Mittone, & Ploner, 2014). As people trust choice architects to different extents, they will also trust their recommendations and information provisions to different extents, meaning that the attitude toward a nudge could be dependent on the choice architect. Jung & Mellers (2016) found support for nudges by a company and reasoned that there could be a spillover effect from liking nudges in general.

Tannenbaum and Ditto (2014) showed that people were less likely to use a default setting when having low trust in the policy maker. Goswami and Urminsky (2016) suggested that compliance with a default would be particularly reduced if organizations were less trusted. In fact, the relationship between trust and attitude is well established in the marketing literature (Kumar, 2008). It is often used as a variable that mediates the relationship between attitude and loyalty (Agustin & Singh, 2005; Wiener & Mowen, 1986).

Branson et al. (2011) studied attitudes toward governments as choice architects across cultures, and found high acceptance toward public nudges in general. Swedish citizens had higher acceptance toward them than US citizens had, which was also the case in Hagman et al.'s (2015) study. This is in line with yearly trust surveys that repeatedly have found Swedish citizens to, in general, have higher trust in public authorities than in companies (MedieAkademin, 2017). Another reason for the high acceptance is that, as mentioned previously, certain nudges have already been adopted in Sweden, which increases the attitudes (Reisch & Sunstein, 2016). Low trust in the state, as the case of Hungary, lowers attitude toward nudges (Reisch & Sunstein, 2016).

However, even though Swedish citizens seem to have high trust in governmental policies in general, concerns could be raised about several aspects of governmental nudging. Some nudges could be perceived as less suitable for a government to implement. The government, as a choice architect, could be perceived as having unclear incentives for certain behavioral changes, appearing as lack of trust in nudges (Sunstein, 2016b). Using nudging as a policy tool could entail even higher transparency demands, where it could be considered an adequacy. Citizens expect clarity from their elected representatives, at best leading them to not being dissatisfied with the persuasion attempt (Grimmelikhuijsen & Meijer, 2014). Even though Swedes are accustomed to governmental nudges, few attempts at influencing human behavior through psychological insights come from public policy.

Consumers have a tradition of being aware of – and having a more accepting approach to – companies using various forms of persuasion which might affect their behavior (Friestad & Wright, 1994). Many interviewed subjects in Junghans, Cheung, & De Ridder's (2015) study were not aware of the concept of nudging but thought, after getting a description, that it was a marketing tool. Companies have clearer incentives for using nudging, as they are mainly driven by profit (Junghans et al., 2015). Nudges suitable for marketers could therefore be retailers creating certain context in store, cafés selling coffee with a decoy or advertisers appealing on social proof in a campaign. However, nudges aiming at increased sustainability implemented by a company could be met with skepticism, as it could be seen as greenwashing (Dahl, 2010).

With that in mind, different choice architects could be viewed differently and be more suitable in different contexts regarding nudges. Therefore, we choose to use an open hypothesis:

H2: There will be a relationship between the choice architect and attitude toward the nudge.

3.3. Personal characteristics

Apart from degree of transparency and the choice architect, personal characteristics could also affect attitude toward nudges (e.g. Hagman et al., 2015; Jung & Mellers, 2016). In the following section, we present the personal characteristics we have chosen to study.

1.1.1. Individualist

Political affiliation has been criticized by cultural theorists as a tool to assess people's opinion, as most people lack the time and capacity to form opinions on specific questions based on abstract ideological principles (Wildavsky, 1987; Braman, Grimmelmann, and Kahan, 2005). Instead, Braman et al. (2005) found that cultural orientation could explain how people view policy questions, such as environmental issues and gay marriage. Kahan (2007) found that adding the cultural cognition scale into a regression increased the explanatory power of political questions with approximately 20%. Individualism is one part of what constitutes cultural cognition, and communitarianism is the antithetical (Kahan, 2011). Individualism involves “the right of the individual to freedom and self-realization”, and the thought that people should secure their own welfare (Wood, 1972). It is closely related to libertarianism, which values independence and emphasizes the right to personal freedom (Nozick, 1974). Libertarians oppose anything that could count as state paternalism (Dworkin, 1978), in which nudges in terms of “libertarian paternalism” could be included. Communitarians, contrarily, believe that the government is responsible for the overall welfare in the society (Kahan, 2011), which has developed as one aim of nudges, such as collecting taxes more effectively, promoting environmental awareness, and increasing long- and short-term health.

In light of the above, we hypothesize:

H3: Individualists will be less supportive of nudges than communitarians.

3.3.1. Hierarchical

Another personal characteristic which could affect attitudes toward nudges is the extent to which an individual is egalitarian or hierarchical (Kahan, 2009). An egalitarian individual favors equality and fears development that could increase differences between groups of people. Egalitarians view nature

as fragile and vulnerable and therefore worry about pollution and modern technologies that affect it. Hierarchical individuals emphasize the “natural order” of the society and care little about inequalities. They fear things as social commotion and demonstrations and they tend to trust expert knowledge (Kahan, 2009).

An individual with egalitarian ideals could view nudges as a means to help people make better decisions for themselves and others, while hierarchical individuals could interpret nudges as disruptions of the natural order and as such be disturbed by them. Therefore, we hypothesize:

H4: Hierarchical individuals will be less supportive of nudges than egalitarian individuals.

3.3.2. Reactance

If someone perceives that they are being restricted or having alternatives taken away, a behavioral counter-response, reactance, could occur. According to the theory of reactance, an individual wants to conserve and restore their personal freedom (Brehm, 1966). Clee and Wiklund (1980) state that reactance occurs when “someone else wants to exert control or influence one’s behavior” (p. 401). Individuals are reactant to different extents, and reactant individuals become indignant and resentful when others attempt to impose actions and goals on them (Chartrand, Dalton, & Fitzsimons, 2007; Clee & Wicklund, 1980; Fitzsimons, 2000).

Several studies regarding nudging have discussed how it relates to the concept of reactance (e.g. Goswami & Urminsky, 2016; Loewenstein et al. 2015). Arad and Rubinstein (2015) investigated attitudes toward a specific government policy, which was presented as a default savings program in one case, and as an opt-in savings program in another. They found that respondents opposed the program more often if it was offered by default. Haggag and Paci (2014) provided similar evidence in a study of taxicabs in New York, where default tipping increased the average tip amount but reduced the participation rate. When a higher default tipping rate was set, the likelihood to receive a zero-valued tip increased with 50% compared to a lower set default.

However, some studies conclude that nudging is a way to avoid reactance, if the nudges are designed in a smart fashion where individuals never feel that their choice is being restricted (Just & Wansink, 2009; Just & Hanks, 2015). Brehm (1966) describes that individuals can make cognitive reorganizations to counter the feeling of lost freedom. Such cognitive reorganization may occur to devalue their strong feelings against the source of threat (the choice architect), which could increase the liking of the restricted freedom (Dillard & Slen, 2005).

Reactant people could respond not only to obvious and direct threats, but also to discrete and subliminal ones (Chartrand et al., 2007). Jung and Mellers (2016) investigated if reactance affected attitudes toward nudges and showed that individuals who were reactant opposed nudges more than less reactant individuals did in some instances.

Nudges are aimed at influencing the target's behavior, but without restriction the choice. Previous research shows that nudging could summon reactance in individuals, but that is not always the case. However, individuals with a strong tendency to feel reactance should then oppose nudging more than others, as they do not want to feel restricted. Thus, we hypothesize:

H5: More reactant individuals will be less supportive of nudges than less reactant individuals.

3.3.3.Desirability of control

Desirability of control is classified as a personal trait that defines the need to take control or charge of one's life (Frederick, Loewenstein, & O'Donoghue, 2002). This could be anything from not smoking, making better food choices, and keeping track of spending. Consumers prefer instant rewards over delayed ones, even when the future reward is better than the instant one. This is due to a notion behavioral economists call hyperbolic discounting, where individuals discount the value of a later reward, which makes self-control more difficult (Laibson, 1997).

While nudging is a facilitator of self-control, nudges could also evoke the feeling of not being fully in control of one's own decision. They could be seen as a threat to individuals with a strong desirability of control and for this reason such individuals should oppose nudges more than others. Jung and Mellers' (2016) results showed that individuals with a higher desirability of control tended to oppose nudges more than others.

Based on the above reasoning we hypothesize:

H6: Individuals with stronger desirability of control will be less supportive of nudges than individuals with less strong desirability of control.

3.3.4.Self-efficacy

The concept of self-efficacy refers to the extent to which individuals' beliefs about their own ability to complete tasks and reach goals influence their behavior (Bandura & Adams, 1977). According to Bandura and Adams (1977), individuals with high self-efficacy will not avoid difficult tasks and they are sure to produce their own future. Nudging is about compensating individuals with low self-efficacy,

by helping them with efforts such as savings, quitting smoking and eating healthier food. A person with high self-efficacy should not consider him- or herself in need of nudges to the same extent, as they have a high belief in their own capacity. This reasoning leads us to the hypothesis:

H7: Individuals with higher self-efficacy will be less supportive of nudges than individuals with lower self-efficacy.

3.3.5. Empathy

Davis (1983) defines empathy as a cluster of emotions that includes compassion, sympathy, and tenderness, elicited by the observed experiences of others. Studies have shown that a priming empathic feeling encourages green behavior (Czap, Czap, Lynne, & Burbach, 2015), leads to higher generosity regarding donations (Fehr & Camerer, 2007; Singer, Fehr, Laibson, Camerer, & McCabe, 2005), and more tax compliance (Calvet, Christian, & Alm, 2014) – behaviors several nudges try to influence.

Soutschek, Ruff, Strombach, Kalenscher, & Tobler (2016) found that the area in the brain where empathy is connected is the same spot as self-control. In relation to nudging this could be interpreted as an ability to imagine your future self's needs and thereby want to switch behavior, a temporal selflessness. The present self wants to favor its future self. Much of the nudging research has focused on helping people with their own self-control (Moffitt, Poulton, & Caspi, 2013).

Empathic feelings encourage the same behavior that several nudges try to influence, and empathy is connected to self-control, which is related to nudging as discussed above. Therefore, we hypothesize:

H8: Individuals with greater empathic concerns will be more supportive of nudges than individuals with less empathic concerns.

3.4. Method

3.4.1. Initial work

This study is influenced by previous studies on attitudes toward nudges (Hagman et al., 2016, Jung & Mellers, 2016). One of our aims is to replicate some parts of Jung and Mellers' (2016) study, to be able to compare the results to theirs and increase the validity of the findings. To bridge the research gaps we have identified and to deepen the knowledge about nudging further, we add on a number of dimensions: transparency, choice architects, and some additional personal characteristics.

3.4.2. Scientific approach

This study is based on two approaches. First, an explorative approach is applied, as the research field has not been studied thoroughly before and as we aim to explore some previously unstudied aspects of the TSS. Second, a hypothetical deductive approach is also applied, as the theories that do exist are used to form hypotheses that are tested empirically (Ghauri & Grønhaug, 2005; Bryman & Bell, 2003). Whether the use of a qualitative or a quantitative study is appropriate is determined by the purpose of the study (Olsson & Sörensson, 2011). In this case, although we use two types of approaches, we mainly design hypotheses and draw general conclusions based on small groups, and therefore a quantitative approach is more appropriate (Eliasson, 2010).

3.4.3. Research design

Our selection of nudges was based on those used by Jung and Mellers (2016), which they chose from the book “Simpler” (Sunstein 2013, p. 10). While Jung and Mellers (2016) tested 12 nudges, we use eight of them. Nudges which were not suitable for a Swedish context⁷ or already applied and widely accepted in Sweden⁸ were removed. We also removed one nudge that was difficult for our test-respondents to understand clearly⁹. One of our chosen nudges, election reminders by email or text message, was removed from the analysis regarding choice architect and transparency, as we made a mistake when naming the choice architect in our survey, which made it incomparable to the other nudges.

It is important to keep in mind that Jung and Mellers (2016) made a distinction between System 1 and System 2 nudges, and that they did find some differences in support of the two types. While eliminating some of the nudges, we made sure to keep the balance between the two types of nudges to maintain comparability, even though we chose not to analyze the difference between System 1 and System 2. In their study, 33% (4 of 12) of the nudges were labelled as System 2 nudges, while 38% (3 of 8) were System 2 nudges in our study.

All nudges were translated into Swedish for the survey. The translations were tested on both professionals within the field as well as novice people. In some cases, it was necessary to change the phrasing for the nudges to be fully understood. We also adapted the nudges where it was clear by their phrasing that a public authority was the choice architect, as we wanted to make them neutral.

⁷ Automatic enrollment into a medical plan for students, which is superfluous as there is public health insurance in Sweden

⁸ Regulations stating that retirement programs must provide customers with clear information about their projected monthly income at specific ages of retirement and default initiative that people obtaining drivers licenses will become organ donors under hopeless medical conditions (unless they choose to opt out).

⁹ Increasingly narrower white lines on roadways to create visual illusions of speeding.

The eight nudges in our study are the following:

1. In order to increase integrity online the default settings on social network websites (e.g. Facebook and Instagram) is that posts and photos are displayed to friends and not the public at large (unless people choose to display them to the public).
2. School cafeterias has salads and other healthy alternatives coming first to promote healthy choices.
3. Grocery store display healthy foods especially noticeable and easier to reach on shelves and in aisles in order to make it easier for consumers to choose such items.
4. At payment in stores/online stores it is possible to add a donation to charity in a simple way.
5. Use of graphic warnings with photographs of the effects of smoking on cigarette packages.
6. In order to keep track of spending individuals can track their energy usage, credit card bills, cell phone bills, and more through a website which gathers that information.
7. Credit card companies provide customers with spending alerts (via mail, email, or text message) if they are close to a spending limit.
8. Individuals qualified to vote get notifications sent by email or text message right before elections to tell them exactly how to get to the polls.

1.1.2. Survey design

The first part of the survey consisted of eight blocks with 16 questions or statements, one block per nudge used in the survey. The second part of the survey consisted of eight personal characteristics scales. Finally, six demographic questions were asked. To avoid order effects, we randomized all nudges in the first part and the appearance of the personal characteristics scales in the second part.

For each of the nudges, the respondents indicated both if they would support the nudge, as in Jung and Mellers' (2016) study, and what their attitude toward the nudge was. Thereafter, we posed questions about support of the nudge in different cases. First, we asked to what degree they were certain that they would or would not support the nudge if the choice architect was a public authority and if it was a company. In the next step, we asked to what degree they were certain that they would or would not support the nudge if the choice architect was a public authority and the intention behind the nudge was transparent and if it was nontransparent. The same question was repeated using a company as choice architect. The choice architect was included in the transparency questions as the respondents had already been introduced to the concept of the different choice architects. In our pretest, the respondents were confused when the transparency questions were posed, and they did not know which choice

architect to keep in mind while answering the question. To make the question as clear as possible, we included the choice architect.

The generic term “public authority” was used to present the public choice architect. Each nudge could have had a specific authority, such as the public health authority, as choice architect, which could have made the question more realistic. However, different public authorities are trusted to different extents and these differences could have had an impact on our results (MedieAkademin, 2017). However, the fact that the respondents had specific authorities in mind when answering the questions, and thereby were influenced by their opinions about them, cannot be ruled out. The same reasoning goes for the companies.

Following, inspired by Jung and Mellers’ (2016) study, the respondents rated their perceptions of each nudge on whether they believed it was paternalistic, a threat to autonomy, effective for better decision-making, a behavior necessary to change, having the “right” aim, and signaling that individuals are capable of making their own decisions. Each respondent made in total 128 ratings (8 nudges x 16 variables) on a 7-degree Likert scale.

When analyzing the results, it is important to note that the within-subject setting could cause a biasing frame, where the comparison between different options could yield different results compared to if the study was made in a between-subject setting with control and treatment conditions.

3.4.4. Scales and measures

In our survey, we used structured questions, as unstructured questions are not suitable for web-based surveys, and to decrease interviewer bias and coding time (Malhotra, 2010).

All questions, except the demographic ones, were answered using 7-degree Likert scales, even though the original personal characteristics scales originally had fewer degrees in some cases. There are pros and cons of using different numbers of scale steps, specifically regarding whether to use a neutral midpoint or not – in this case the value four. Some argue that it has positive effects on reliability and validity of measurement (e.g. Adelson & McCoach, 2010; Courtenay & Weidemann, 1985), while others suggest that it could impair the validity (e.g. Johns, 2005). We chose to have a neutral midpoint as our nudges touch politics and ethics, which are complex issues, and as our survey as a whole was extensive. A demanding survey may increase the response burden and lead to “satisfying” answers, which in turn causes bias. We labeled all steps in our Likert scales, as full labeling of scales assists the respondents to fully understand what the questions mean and makes the questions less burdensome (e.g. Johnson, Kulesa, Cho, & Shavitt, 2005; Weng, 2004). It is twofold whether full labeling of scales

increases or decreases validity (e.g. Andrews, 1984; Weijters, Cabooter, & Schillewaert, 2010). Weijters (2010) found that labeling scales could induce more acquiescence response style (ARS), tendency to agree, and less extreme response style (ERS). However, Lau (2007) found no significant effect regarding end labeling and full labeling on ERS.

For the main question about support of the nudges, Jung and Mellers (2016) asked the respondents to first indicate if they supported the nudge by answering “Yes”, “No”, or “Maybe”. In a second step, the respondents were asked to indicate how sure they were that they would or would not support the nudge, depending on their answer in the first question, on a scale from -3 (Certain not to support) to 0 (Not sure), or 0 to 3 (Certain to support). We made it one question with a 7-degree Likert scale ranging from “Certain not to support” to “Certain to support”. This means that we could code the answers in the same way as Jung and Mellers (2016) and keep the comparability to their study, while making the question simpler for the respondent and the survey more efficient. The weakest support-attitude correlation was positive ($r = .86, p < .01$), indicating that an index of the two could be used as the dependent variable. The same scale was used for the questions regarding choice architects and transparency. For the rating of perceptions the 7-degree Likert scale ranged from “Definitely not correct” to “Definitely correct”.

To test if different personal characteristics affected support of nudges, several established scales were used. We found already existing translations into Swedish of the Cultural Cognition Scale (Bergfelt & Öqvist, 2015), the Interpersonal Reactivity Scale (Cliffordson, 2001) and the General Self-Efficacy Scale (Löve, Moore, & Hensing, 2011). In the other cases, the scales were carefully translated and then tested on a number of people to make sure that they were understood correctly.

Individualist. To measure how individualistic the respondents were, a short version of the corresponding subscale of the Cultural Cognition Scale (Kahan, 2012) was used. The short version included six items, while the original scale holds 17, such as “*The government interferes far too much in our everyday lives*” and “*It's not the government's business to try to protect people from themselves*”. The scale uses a 6-degree Likert scale originally. We ran a Cronbach’s alpha test, which gave 0.787 for the individualist-communitarian scale, which in turn means that an index could be made (Bearden, Netemeyer, and Haws, 2011).

Hierarchical. To measure how hierarchical respondents were, another short version of the subscale of the Cultural Cognition Scale (Kahan, 2012) was used; the hierarchical-egalitarian one. We included six items from this subscale – the original one has 13 items – for example “*We have gone too far in pushing equal rights in this country (reverse-scored)*” and “*Our society would be better off if the distribution of wealth was more equal*”. The Cronbach’s alpha for creating one index for hierarchical was 0.770.

Reactance. To measure reactance, we used Hong and Page's (1989) scale. It is made up of 11 items, of which we used ten, for example *"I become frustrated when I am unable to make free and independent decisions"* and *"When something is prohibited, I usually think 'that's exactly what I am going to do'"*. The Cronbach's alpha for creating one index for reactance was 0.773.

Desirability of control. We used a scale developed by Burger and Cooper (1980) to measure the respondent's' desirability of control. The original scale includes 20 items, whereas we chose six of them based on factor loading, such as *"I prefer a job where I have a lot of control over what I do and when I do it"* and *"I would prefer to be a leader than a follower"*. The Cronbach's alpha for creating one index for desirability of control was 0.802.

Self-efficacy. To measure the degree of self-efficacy in our respondents' we used the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). The original scale has 10 items and we used all of them. It includes items such as *"I can always manage to solve difficult problems if I try hard enough"* and *"I can remain calm when facing difficulties because I can rely on my coping abilities"*. The Cronbach's alpha for creating one index for self-efficacy was 0.892.

Empathy. To measure the degree of empathy in the respondents, the Interpersonal Reactivity Scale's subscale for empathic concern was used (Davis, 1983). We applied five out of seven original items, two of them being *"When I see someone being taken advantage of, I feel kind of protective toward them"* and *"When I see someone being treated unfairly, I sometimes don't feel very much pity for them (reverse-scored)"*. The Cronbach's alpha for creating one index of empathy was 0.738.

Political orientation. We used two bipolar scales to capture respondents' political orientation, one left-right and one progressive-conservative. Jung and Mellers (2016) used one bipolar scale stretching from liberal to conservative. In a Swedish context, such a scale could be misleading, as the meaning behind the word liberal could differ somewhat between Sweden and the US. To capture political orientation in a more proper way we chose the two scales.

Demographic variables. At the end of the survey, we posed questions about the demography of the respondents; namely gender, age, education, living area, occupation, and income. Those variables were chosen to see how our sample is composed and how it differs from the general population and from other studies' samples. The formulation of the questions and the alternative answers were taken from Sjöberg (2000).

3.4.5.Procedure and respondents

A mix of convenience sampling and snowball sampling (Bryman & Bell, 2011) was used to gather data for this study. We shared the link to the survey through Facebook and Twitter and asked others to share it too. These sampling methods are not ideal for quantitative studies, as they cannot guarantee a sample representative of the population (Bryman & Bell, 2011). A representative sample would have been optimal, as this study aims to investigate Swedish attitudes toward nudge.

The data was collected between March 22nd and April 4th 2016. Respondents were attracted by the chance to win one lottery ticket (value: 30 SEK). In total, 199 respondents answered the survey. Given our sampling method, we do not know how many were reached by the survey link, and can therefore not estimate the response rate.

Respondents who had spent more than one hour or less than 10 minutes taking the survey were removed, to ensure the quality of the answers. We also checked for straight-liners, i.e. respondents who indicated the same number on all scales, but found none. We ended up with 172 final respondents (table 6). The sample has a larger share of women, is younger, and has a higher degree of education than the Swedish population has. These deviations hinder the generalization of the results for the larger population.

Table 6
Composition of sample

		% sample
Sex	Female	58 %
	Male	42 %
Age	16-34	64 %
	35-54	15 %
	55 +	21 %
Highest finished level of education	High school or lower	16 %
	Higher education, < three years	12 %
	Higher education =>three years	70 %
	Doctoral degree	2 %

N=172

3.4.6.Data quality

This whole chapter has in detail and when relevant presented methodological decisions which have consequences for the reliability and validity. Therefore, we will not repeat ourselves but briefly mention again some choices that have been made and the reasons behind them.

Reliability and validity

Reliability refers to the repeatability of results, i.e. if the study would yield the same results if it were repeated (Eliasson, 2010). Validity concerns the accuracy of measures, and a high degree of validity means that the study measures what it is expected to measure (Bryman & Bell, 2011).

We chose to replicate Jung and Mellers (2016), as it is one of the most extensive attitude studies in this research stream, and the latest published when we initiated this thesis. A couple of pretests of the survey were done with smaller groups of respondents, to make sure that all nudges and questions were clear and interpreted in the intended way. The questionnaire was extensive, which yields a higher dropout rate and it could lead to tiredness for respondents and them choosing indifferent answer alternatives. The survey was sent out and reminded of at different days and various times of day, to make sure that time and day could not have any effect on the responses. As the survey was conducted online there is no information regarding the environment in which the respondents were answering.

All scales are well known and have been researched and tested. In those cases where Swedish translations of the scales were available we used them. In the other cases we translated them carefully, just as we did with the descriptions of the nudges. This increases the reliability as well as the internal consistency. Using well-established scales strengthens measurement validity, which means that a measurement reflects what it intends to measure. The external validity refers to whether studies could be transferred to the real-world population. Most of the nudge cases in our study are realistic, although hypothetical.

3.5. Results

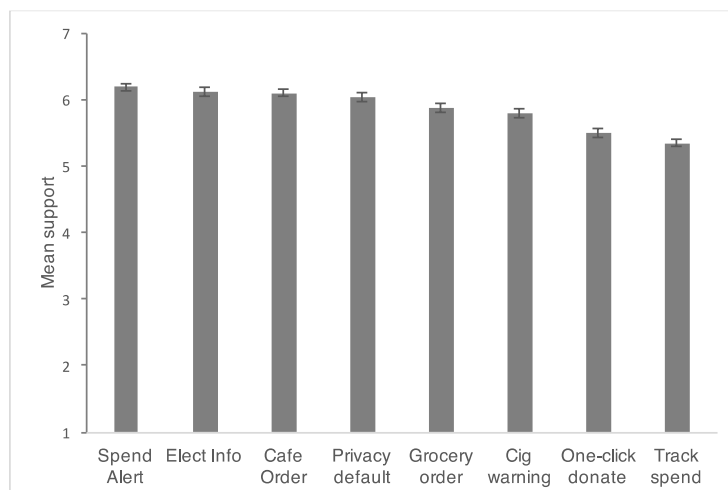
This chapter will present, report, and analyze the results based on hypotheses testing, to investigate individuals' attitudes toward different nudges. This will be complemented by testing how different personal characteristics affect the attitudes. The dependent variable was degree of support and attitude combined.

3.5.1.General attitudes

As every respondent was exposed to and answered questions about the eight different nudges within the same session, the analysis was done with a one-way repeated measure ANOVA.

The one-way repeated measures ANOVA with a Greenhouse-Geisser correction showed that the mean scores for nudges differed significantly ($F(5.942, 1016.039) = 11.558, p < .001$)¹⁰. The most supported nudge was credit card spending alerts and the least supported was website tracking bills and spending (figure 2 & appendix 2).

Figure 2: Mean support for nudges



Note: Error bars \pm SEM

Although there was an overall significance in differences in means between the nudges ($p < .001$), it is relevant to examine where these differences occur. A Bonferroni adjustment post hoc test was realized, as it is an appropriate adjustment for making multiple post hoc comparisons for the one-way repeated measures ANOVA (Maxwell & Delaney, 2004). See appendix 2.

First, the largest statistically significant difference in mean value was between credit card spending alerts ($M = 6.18, SD = 1.16$) and website tracking bills and spending ($M = 5.34, SD = 1.75, p < .001$). The smallest significant difference in mean value was between website tracking bills and spending ($M = 5.34, SD = 1.75$) and order and salience of groceries in store ($M = 5.87, SD = 1.24, p < .001$). Second, websites tracking bills and spending differed significantly ($M = 5.34, SD = 1.75, p < .01$) from five out of the eight nudges. Lastly, one-click donations to charity was significantly different ($M = 5.49, SD = 1.46, p < .01$) from half of the nudges. Noteworthy is that graphic warnings on cigarette packages did not differ significantly from any of the other nudges.

¹⁰ An alternative model, where the three extreme outliers were removed showed equivalent results. ($F(5.910, 999.895) = 13.044, p < .001$). In Bonferroni adjustment post hoc test the difference in mean between grocery order ($M = 5.89$) and spending alert ($M = 6.26, p < .01$) became statistically significant when the extreme outliers were removed.

There were some violations of assumptions present in the model. The first violation was the presence of significant outliers for all nudges except two, one-click donation to charity and website tracking bills and spending. Three of the outliers were extreme ones; three box lengths away from the edge of their box. As we determined that the outliers were neither results of data entry or measurement errors, they were most probably genuinely unusual data points and should be considered valid. Also, there was no reason to believe that these outliers would affect the results and in accordance to Weisberg's (2014) suggestions we decided to proceed with the results.

The second assumption, normality distribution, was violated for each nudge. However, non-normality does not affect the type I error rate considerably, due to the one-way repeated measures ANOVA being sufficiently "robust" (Giloni, Simonoff, & Sengupta, 2006).

The final assumption that was violated was sphericity. Mauchly's Test of Sphericity showed that the variances of the differences between all combinations of related groups were not equal ($\chi^2(2) = 121.739$, $p < .001$). This was expected, as sphericity normally is violated when there are more than two levels of the within-subjects factor (Weinfurt, 2000), and there were eight in this case. Violation of sphericity increases the chances of type I error, meaning that it could detect statistically significant results even if there are none.

As one of the aims of this study was to examine the support of the different nudges, it could be appropriate to see the percentage support instead of mean support (Jung & Mellers, 2016). The support of the nudges ranged from 78% to 92%. The least supported nudge was website tracking bills and

spending, however almost 30% of the respondents supported it fully¹¹. The most supported nudge was credit card spending alerts (table 7).

Table 7
Percentages of support, nonsupport and neutrality

	Support	Nonsupport	Neutral
Spend alert	92 (71)	5 (16)	3 (13)
Privacy default	90 (58)	5 (31)	6 (11)
Cafe order	90 (58)	5 (25)	5 (17)
Elect info	90 (60)	6 (23)	5 (17)
Grocery order	88 (58)	6 (20)	6 (22)
Cig warning	84 (48)	12 (32)	4 (20)
One-click donate	82 (28)	10 (61)	8 (11)
Track spend	78 (26)	17 (51)	5 (23)

Note: Respondents with $M > 4$ Support, $M < 4$ Nonsupport, $M = 4$ Neutral.
Jung and Mellers' (2016) results are presented in parenthesis.

3.5.2. Transparency

Transparency was tested in two cases; with a public authority and with a company as the choice architect. First the findings with the public choice architect are presented and then compared to the results with the company as the choice architect.

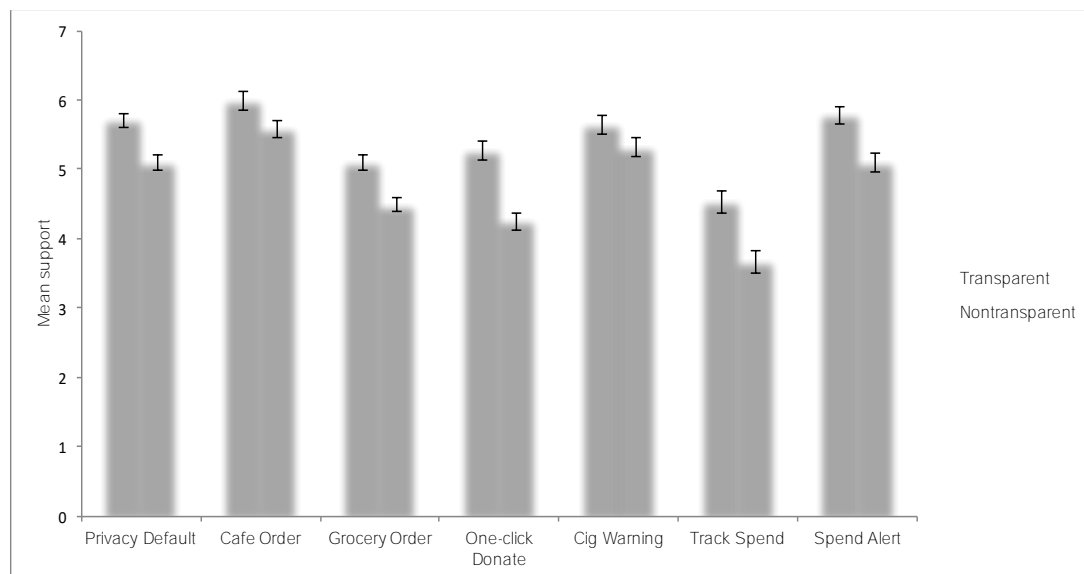
A paired t-test was conducted showing that all seven nudges were statistically separated from zero ($p < .001$), and all respondents were more positive toward the transparent nudge than the nontransparent one (see Figure 2). The least difference between the two versions of the nudges was found on order of options in cafeteria ($M = 5.6$, $SD = 1.73$ for transparent nudge, $M = 5.15$, $SD = 1.89$ for nontransparent nudge, $p < .01$) and graphic warnings on cigarette packages ($M = 5.76$, $SD = 1.78$ for transparent nudge, $M = 5.29$, $SD = 1.97$ for nontransparent nudge, $p < .01$). The same analysis using the company as choice architect yield the same results; the respondents were more positive toward the transparent nudge than the nontransparent one in all cases ($p < .01$).

¹¹ 51 individuals, or 29.7% of the sample, answered 7 on both attitude and support on a 7-degree Likert scale.

One of the assumptions of the paired t-test was violated as several extreme outliers were found, and they were neither due to data entry nor measurement errors and therefore most probably genuinely unusual data points. We chose to run the tests without the extreme outliers, to see if there were any noteworthy differences, but found none. The assumption of normal distribution, which was assessed by a visual inspection of Normal Q-Q Plots, was not violated.

Given that the results showed that the transparent nudge was preferred over the nontransparent one in all seven cases, Hypothesis 1 was supported.

Figure 4: Mean support for transparent/nontransparent nudges



Note: Error bars \pm SEM

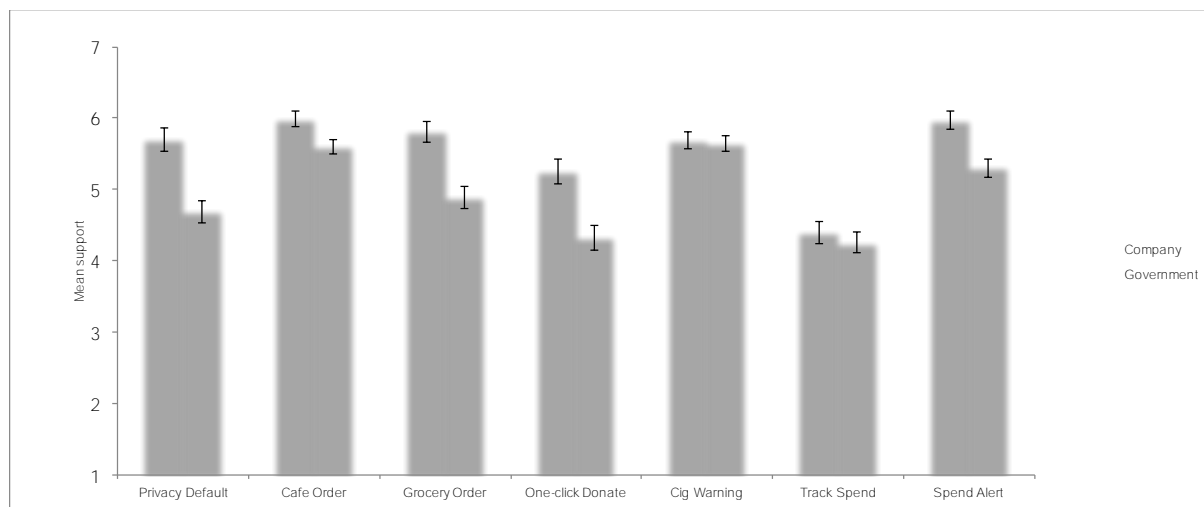
3.5.3.Choice architect

A paired t-test was conducted, which showed that the company was more supported as the choice architect compared to the public authority in five out of the seven nudges ($p < .01$). See figure 3. The mean difference was the largest for one-click donations to charity ($M = 3.76$, $SD = 2.05$ for the public choice architect, $M = 5.26$, $SD = 1.77$ for the company as choice architect). In two cases, website tracking bills and spending and graphic warnings on cigarette packages, there were no significant differences.

Just like in the analysis on transparency, several extreme outliers were found, which were determined to most probably be genuinely unusual data points. All tests were rerun without extreme outliers, and no noteworthy differences were found. The assumption of normal distribution, assessed by a visual inspection of Normal Q-Q Plots, was not violated.

In six of seven cases, there was a difference in preference of choice architect. In one case, the public authority was the preferred architect, and in the other five cases the company was preferred. These results mean that H2 was supported.

Figure 5: Mean support for transparent/nontransparent nudges



Note: Error bars \pm SEM

3.5.4. Personal characteristics

Hypotheses 3-8 suggested that consumers who were individualist, hierarchical, reactant, having a stronger desirability of control and a higher self-efficacy would support nudges to a lesser extent and that emphatic people would support nudges to a higher extent.

First, we conducted a correlation analysis between the different scales and nudges. Individualism correlated negatively with five nudges, and hierarchy with seven nudges ($p < .001$). Individualism correlated significantly negatively with default privacy setting in social media ($r = -.250, p < .01$), order of options in cafeteria ($r = -.326, p < .01$), order and salience of groceries in store ($r = -.233, p < .01$), graphic warnings on cigarette packages ($r = -.330, p < .01$) and credit card spending alerts ($r = -.218, p < .01$). Hierarchy correlated significantly negatively with default privacy setting in social media ($r = -.173, p < .05$), order of options in cafeteria ($r = -.322, p < .01$), order and salience of groceries in store ($r = -.229, p < .01$), one-click donation to charity ($r = -.345, p < .01$), spending and graphic warnings on cigarette packages ($r = -.167, p < .05$), website tracking bills and spending ($r = -.205, p < .01$) and reminders sent by text or email before elections ($r = -.266, p < .01$).

Strong desirability of control, reactance and self-efficacy did not correlate significantly with any of the nudges. Empathy correlated positively with the election reminders nudge ($r = -.217, p < .01$), but showed no statistical significance for the rest of the seven cases.

3.5.5. Dimensions of nudge support

Second, a multiple regression analysis was run, where all personal characteristics scales were independent variables to nudge support and attitude¹². This was done to control all scales simultaneously and to be able to discuss a potential causal relationship (Table 8 and 9).

Table 8
Regressions

Variable	Privacy default		Cafe order		Grocery order		One-click donation	
	Std. beta	Statistics	Std. beta	Statistics	Std. beta	Statistics	Std. beta	Statistics
Individualism	-0.195	t=-2.30, p < 0.05	-0.319	t=-3.93, p < 0.01	-0.266	t=-3.14, p < 0.01	0.040	NS
Reactance	-0.210	NS	0.013	NS	0.088	NS	-0.113	NS
Conservative	-0.136	NS	-0.154	NS	-0.052	NS	-0.206	t=-2.35, p < 0.05
Right-wing	-0.066	NS	0.155	NS	0.194	NS	0.202	t=2.15, p < 0.05
Self-efficacy	-0.055	NS	-0.045	NS	0.416	NS	0.129	NS
Empathy	0.005	NS	-0.059	NS	-0.089	NS	-0.108	NS
Hierarchical	0.033	NS	-0.196	t=-2.15, p < 0.05	-0.211	t=-2.22, p < 0.05	-0.428	t=-4.70, p < 0.01
Desirability of control	0.121	NS	0.062	NS	-0.012	NS	0.040	NS
Female (dummy)	0.172	t=2.20, p < 0.05	0.190	t=2.55, p < 0.05	0.155	t=1.96, p < 0.05	-0.075	NS
Adjusted R ²	0.090		0.165		0.087		0.163	

Table 9
Regressions cont.

Variable	Cig warning		Track spend		Spend alert		Elect info	
	Std. beta	Statistics	Std. beta	Statistics	Std. beta	Statistics	Std. Beta	Statistics
Individualism	-0.316	t=-2.30, p < 0.05	-0.072	NS	-0.190	t=-2.17, p < 0.05	-0.039	NS
Reactance	-0.142	NS	0.025	NS	-0.088	NS	-0.204	t=-2.58, p < 0.05
Conservative	-0.97	NS	-0.060	NS	0.036	NS	-0.108	NS
Right-wing	0.078	NS	0.115	NS	0.030	NS	0.008	NS
Self-efficacy	-0.138	NS	0.065	NS	0.105	NS	0.014	NS
Empathy	-0.007	NS	-0.162	NS	-0.065	NS	0.086	NS
Hierarchical	-0.007	NS	-0.268	t=-2.72, p < 0.05	-0.114	NS	-0.162	NS
Desirability of control	0.083	NS	-0.030	NS	-0.074	NS	0.041	NS
Female (dummy)	0.189	t=2.48, p < 0.05	0.021	NS	0.024	NS	0.068	NS
Adjusted R ²	0.131		0.024		0.023		0.085	

¹² In Study 1 we estimated the following linear model:

$$Nudge_{attitude}_{ij} = a + b_1 individualism_i + b_2 hierarchical_j + b_3 reactance_i + b_4 desirability\ of\ control_i + b_5 self-efficacy_i + b_6 empathy_i + b_7 right\ wing_i + b_8 female + e_{ij}$$

Individualism. Individualists found nudges less acceptable in five out of eight cases: default privacy setting in social media ($b = -.195, p < .05$), order of options in cafeteria ($b = -.319, p < .01$), order and salience of groceries in store ($b = -.266, p < .01$), graphic warnings on cigarette packages ($b = -.316, p < .01$) and credit card spending alerts ($b = -.190, p < .05$). There is therefore partial empirical support in our findings that individualists support nudges less than communitarians do.

Hierarchy. Hierarchists supported nudges less in four cases: order of options in cafeteria ($\beta = -.196, p < .05$), order and salience of groceries in store ($b = -.211, p < .05$), one-click donations to charity ($b = -.428, p < .01$) and website tracking bills and spending ($b = -.268, p < .05$). There is therefore partial empirical support in our findings that hierarchical individuals support nudges less than egalitarians.

Other personal characteristics. The results showed no evidence that reactance, desirability of control, self-efficacy and empathy affected attitudes toward the nudges.

Gender. Females supported nudges more than males in four cases: default privacy setting in social media ($b = .172, p < .05$), order of options in cafeteria ($b = .190, p < .05$), order and salience of groceries in store ($b = .155, p < .05$), and graphic warnings on cigarette packages ($b = .189, p < .05$).

Political opinion. Right wing-inclination was significantly negatively correlated with privacy default setting in social media ($r = -.211, p < .01$) and order of options in cafeteria ($r = -.165, p < .01$). Conservatism was significantly negatively correlated with privacy default setting in social media ($r = -.154, p < .01$), order of options in cafeteria ($r = -.198, p < .01$) and one-click donation to charity ($r = -.326, p < .01$). In the regression model right wing correlated positive with one click donation to charity ($b = .202, p < .05$), and conservative correlated negatively $b = -.204, p < .05$).

3.5.6. Additional findings

Mediator effects. Above presentation of the results indicated that attitudes differ with different personal characteristics. To further examine the reasons why individuals with certain personal characteristics support nudges or not, a mediation analysis was conducted, as recommended by Baron and Kenny (1986). Simple regressions were made separately for each nudge, using the characteristics affected support. In the following analysis, only significant effects will be reported. One should have in mind that Baron and Kenny (1986) is viewed as liberal (high Type 1 error).

The results indicated that individualism was a significant predictor of better decision ($b = -.238$, $SE = .098$, $p < .01$) which in turn was a significant predictor of support of the nudge grocery order ($b = .615$, $SE = .052$, $p < .01$). These results support a mediation effect. Individualism was no longer a significant variable for support when adding the mediator better decision ($b = -.092$, $SE = .070$, ns), consistent with full mediation. Approximately 37.9% of the variance in satisfaction was accounted for by the predictors ($R^2 = .379$).

Individualism was further regressed on necessary change ($b = -.344$, $SE = .094$, $p < .001$), and necessary change was a significant predictor for support ($b = .579$, $SE = .054$, $p < .001$). When using both variables in the same model simultaneously on support, individualism did not yield a significant result ($b = -.049$, $SE = .076$, ns), denoting a mediation effect. The indirect effect was $b = .565$ $SE = .058$, $p < .001$. In this setting, approximately 32.8% of the variance in support was accounted for by the predictors ($R^2 = .328$).

Continuing, individualism was regressed on right aim ($b = -.298$, $SE = .100$, $p < .001$), and right aim on support ($b = .695$, $SE = .460$, $p < .001$). Individualism was no longer a significant variable inserting right aim as a mediator ($b = -.028$, $SE = .066$, ns). Here, approximately 47.8% of the variance in attitude was explained ($R^2 = .478$). This suggests that the indirect effect for thinking that the aim of the nudge is wrong was $b = .687$ $SE = .048$, $p < .001$.

Another independent predictor, hierarchy, was regressed on support of the nudge grocery order, where it correlated negatively with necessary change ($b = -.285$, $SE = .089$, $p < .05$), which in turn was a significant predictor of support of the nudge grocery order ($b = -.579$, $SE = .054$, $p < .05$). These results support a mediation effect. Hierarchy was no longer a significant predictor of support of the nudge after controlling for the mediator effectiveness ($b = -.069$, $SE = .069$, ns), consistent with full mediation. Approximately 33.2% of the variance in support was accounted for by the predictors ($R^2 = .332$). These results indicated that the indirect coefficient was significant ($b = .559$, $SE = .057$, $p < .05$).

The last setting for grocery order was hierarchy regressed on right aim and the results showed that hierarchy was a significant predictor of the nudge grocery order ($b = -.230$, $SE = .095$, $p < .05$), and that right aim was a significant predictor of support ($b = .679$, $SE = .047$, $p < .05$). Hierarchy was no longer a significant predictor of support after controlling for the mediator effectiveness ($b = -.073$, $SE = .060$, ns), consistent with full mediation. These results imply that an indirect coefficient was significant ($b = .679$, $SE = .047$, $p < .05$). Approximately 48.2% of the variance in support was accounted for by the predictors ($R^2 = .442$).

To sum up, individualists were associated with approximately .593 points lower support for the nudge grocery order as mediated by not being effective for better decision-making, .565 lower support mediated by the nudge not being a behavior necessary to change, and .687 lower support as mediated by not having the right aim. Hierarchists were associated with approximately .559 points lower support mediated by the grocery order nudge not being a behavior necessary to change, and .679 lower support score mediated by the nudge not having the right aim. See figure 6 for a simplified model.

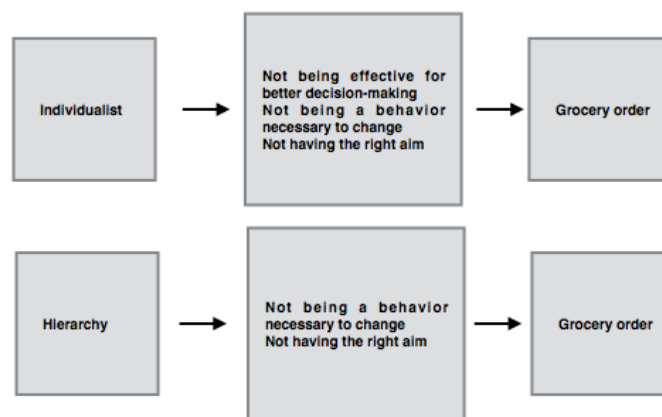


Figure 6: Summary of personal characteristics, mediation, and support for nudges

Personal characteristics and gender on choice architects. To see how the personal characteristics affected support of the two choice architects, an aggregated measure was constructed (company Cronbachs' alpha = 0.6 and public authority Cronbachs' alpha = 0.783). The personal characteristics were regressed on mean support for public authorities ($F=14.309$, $p < .01$, $R^2 = .357$) and the analysis indicated that individualism ($b = -.450$, $p < .01$) and reactance ($b = -.151$, $p < .01$) had negative impact on public authorities as choice architects, while females ($b = .186$, $p < .01$) had a positive view on public choice architects. The same variables were regressed on mean support for companies ($F=3.299$, $p < .01$, $R^2 = .085$), where hierarchical individuals ($b = -.345$, $p < .01$) were shown to have a more negative view on companies as choice architects.

Consequence. Furthermore, it is interesting to look at the extreme cases, since our respondents in general showed a high support, to see what differed the consequently negative respondents from the consequently positive ones¹³. Consequently negative respondents were regressed on the personal characteristics, and both hierarchy ($F=7.528$, $p < .01$, $R^2 = .049$) and individualism ($F=7.177$, $p < .01$,

¹³ Std < 1.5 was coded as consequent, $m < 5.5$ negative =1, $m > 6$ as positive=0.

$R^2 = .046$) correlated positively with being consequently negative ($b = .237, p < .01$ respectively $b = .231, p < .01$).

3.5.7. Discussion and summary

The results in Study 2 were in line with our hypotheses in some cases, but most hypotheses were rejected. More specifically, fully transparent nudges were more supported than nontransparent ones. Individuals prefer to know that they are being nudged and that their choice is being influenced, which goes in line with Wei et al.'s (2008) results. Individualism correlated negatively with five of the eight nudges and hierarchy with seven nudges, and when controlling for all personal characteristics simultaneously individualism correlated negatively with five nudges (privacy default, cafe order, grocery order, cig warning and spend alert) and hierarchy with four nudges (cafe order, grocery order, one-click donations and track spend).

When testing for mediation, individualists oppose the nudge grocery order, as they do not believe that it is effective for better decision-making, a necessary behavior to change and that it does not have the right aim. Individualists dislike government interference with daily life and therefore oppose nudges from public authorities. However, our data gives us an indication that they oppose the same nudges coming from a company, suggesting a spillover effect, in line with Jung & Mellers' (2016) results.

Hierarchists have three reasons for not supporting nudges; they are not effective for better decision-making, the behavior is not necessary to change, and they do not have the right aim. This prolongs into the different cases of transparency and choice architects, suggesting spillover effects.

It is important to bear in mind that the data also suggests that there are different explanations why different nudges together with different TSS elements are opposed, such as changing the choice architect or the degree of transparency as well as different mediations. This is in line Gigerenzer's (1991) reasoning about analyzing every case separately.

In other words, individualists and hierarchists oppose nudges more than others and they both also seem to apply similar reasoning for neglecting them.

Lastly, women in our sample support nudges, which is in line with some studies (e.g. Reisch & Sunstein, 2016). However, they oppose one nudge, cafe order, mediated by the perception of threat to autonomy. There might be exogenous factors affecting this case, such as norms and ideals.

To sum up, Study 2 suggests that there is high support for the studied nudges, which is consistent with previous studies about nudge attitudes (see appendix 1) Our data also shows indication that there could be a difference in attitude depending on choice architect and degree of transparency. However, the relationship between attitude and behavior is no guarantee for an actual behavior change. Our next study suggests that transparency and choice architect do not matter for participants when it comes to action.

3.6. Study 3 – Do transparency and choice architects matter for real?

In the previous study, attitudes toward nudges as well as underlying personal characteristics that could affect opposition or support of certain nudges were investigated. To deepen the findings and extend the most important results, a third study is conducted. In this study, the previous findings are translated into an experimental setting to test a potential impact on the effectiveness of nudges. While the second study showed that there is a difference in attitude between different degrees of transparency and choice architects, the results of the experiment suggest that those aspects do not matter.

3.6.1. Background

Although criticism has been raised regarding nudges being nontransparent and manipulative, few have addressed the transparency aspect of nudges empirically (Loewenstein et al., 2015; Steffel et al., 2016). The results of Study 2 show that the sample was more positive toward fully transparent nudges than toward nontransparent ones. However, doubts have been raised regarding how effective transparent nudges are, as revealing that there is an attempt to influence someone's decision could reduce the effect of that attempt (Bovens, 2008; Hausman & Welch, 2010; House of Lords, 2011). A nudge can be transparent to different extents. First, there are nudges that are completely nontransparent, where not even the nudge in itself discloses its attempt at influencing the user. Rearranging the order and salience of food in a cafeteria could be an example of a completely nontransparent nudge. Second, there are nudges that are somewhat transparent in themselves, such as one-click donations to charity, where it is reasonable to believe that the majority would understand why the option to donate to charity is given (Hansen & Jespersen, 2013). However, it cannot be sure that all will understand the nudge even though it is seemingly transparent. Last, the level of full transparency, which is applied in this thesis, means that the nudge and the psychological mechanism or bias creating the effect of the nudge is clearly stated in connection to the nudge (Rebonato, 2014). The question is if there is a line when the degree of transparency diminishes the effect of the nudge.

Investigating a potential diminishing effect of transparency is interesting for several reasons. First, it addresses the potential concern that nudges only work in the dark (Bovens, 2008). Second, nudging has been widely accepted as a public policy tool and Sunstein (2016c) argues that public officials should inform their citizens about their activities. Third, to our knowledge only a couple of studies have tested this (Loewenstein et al., 2015; Steffel et al., 2016).

What if, contrary to what several critics believe, choice architects could be fully transparent about the nudge and its underlying mechanisms and still have it work effectively? If that is the case, it goes in line with Thaler and Sunstein's (2008, p. 244) initial intention when they introduced the concept, referring to Rawl's publicity principle: "this principle bans government from selecting a policy that it would not be able or willing to defend publicly to its own citizens". It also suggests that marketers or advertisers could be open with their influencing attempts and even generate more positive attitudes.

3.7. Method

3.7.1. Scientific approach

This study is a continuation of Study 2, as we seek to prolong the investigation of H1 and H2. Therefore, this study is based on a hypothetical deductive approach (Bryman & Bell, 2011; Ghauri & Grønhaug, 2005), using a quantitative method.

3.7.2. Research design

While Study 2 was designed to examine attitudes toward nudging in a within-subject setting, Study 3 is designed as a between-subject experiment to see if individuals' behavior is consistent with their attitudes. This study employs a controlled experimental design, or a role play experimental design, where participants were asked to read a scenario and imagine themselves in the specific situation (Söderlund, 2010). Two factors were manipulated in the experiment – transparency and choice architect. The main advantage of a controlled experiment is that it tests for causal relationships and thus makes it easier to hold everything else equal (Keppel, Saufley, & Tokunaga, 1992, pp. 5–6).

The nudge one-click donation to charity was used as the basis for our experiment for several reasons. First, to keep the consistency between the studies by using a nudge from our second study. Second, it was feasible to build a clear scenario around that nudge in a survey, whereas it would be more difficult to create realistic scenarios regarding most other nudges. Third, it was the second to least supported of all nudges in the second study, why it would be interesting to see how it was received in an experiment. Fourth, the nudge is not based on a default, while most other effect studies are based on defaults

(Goswami & Urminsky, 2016). Lastly, the nudge is widely used. In the US, more than \$390 million were raised by one-click donations at checkout in stores in 2014 (Cause Marketing Forum, 2015).

In the experiment, a scenario regarding a similar nudge was added, where the donation to charity was added by default at checkout, but could easily be removed. This nudge was used to compare against all four variations of the one-click donation nudges. A pretest of the experiment showed that participants were less inclined to donate if the sum was added automatically. For that reason, we wanted to see if this alternative could be used as a “most intrusive alternative”.

3.7.3. Survey design

Five different scenarios were created and randomly allocated to participants. The core of the scenarios was the same:

“Imagine that you are about to buy a t-shirt and a knitted sweater in an online store. The t-shirt is black and the knitted sweater dark blue. In total the items cost 398 SEK, including shipping fee.”

In a study done by Dibs (2015), clothing was the second most common category to shop online among consumers who spent up to 899 SEK online the past three months, and the most common category among consumers who spent 900-4499 SEK online the past three months. The sum 398 SEK was chosen to not let 10 SEK be a too small nor too large part of the total amount. Some details regarding the purchase were included to disguise the purpose of the study, i.e. to make the manipulation variable stand out less. If participants realize the purpose of a study, their answers will become affected and the quality will decrease (Söderlund, 2010).

In addition to the standard scenario, each group was presented with two different degrees of transparency information. Two groups were presented with the different choice architects – the online store and the public authority. After the scenario was presented, the participants indicated their willingness to donate or not donate the 10 SEK on a 7-degree Likert scale.

Table 10
Experimental design

Experimental group	Transparency information
1: Default	“When you are about to pay a donation of 10 SEK to a charity you support has been added to your shopping basket.”
2: Control	“When you are about to pay you can add a donation of 10 SEK to a charity you support to your shopping basket by checking a box.”
3: Transparency	“When you are about to pay you can add a donation of 10 SEK to a charity you support to your shopping basket by checking a box. Next to the box it says: ‘Research has shown that people donate more to charity if they are given the opportunity to do so through a single click, as many forget to donate as often as they want to. This is the reason you are given the possibility to donate 10 SEK to a chart by checking this box.’”
4: Transparency + company	“When you are about to pay you can add a donation of 10 SEK to a charity you support to your shopping basket by checking a box. Next to the box it says: ‘Research has shown that people donate more to charity if they are given the opportunity to do so through a single click, as many forget to donate as often as they want to. This online store has for this reason given you the possibility to donate 10 SEK to a chart by checking this box.’”
5: Transparency + government agency	“When you are about to pay you can add a donation of 10 SEK to a charity you support to your shopping basket by checking a box. Next to the box it says: ‘Research has shown that people donate more to charity if they are given the opportunity to do so through a single click, as many forget to donate as often as they want to. A government agency has for this reason given you the possibility to donate 10 SEK to a chart by checking this box.’”

3.7.4. Scales and measures

Structured questions and 7-degree Likert scales with full labeling were used in the experiment. For reasoning behind the decision, see the previous method chapter (page 35).

For the four one-click scenarios participants were asked to indicate whether they would donate to charity or not by checking a box (the one-click mechanism). The Likert scale ranged from “Certain to not check the box” to “Certain to check the box”. For the default scenario, the scale ranged from “Certain to not pay the donation of 10 SEK” to “Certain to pay the donation of 10 SEK”.

3.7.5. Control questions

Several control questions were added to check the quality of the responses. It is likely to believe that participants read the survey quickly and maybe even carelessly, especially as we could not control for the environment they were in when answering. Tests using both all participants and removing participants who gave unsatisfying answers on our control questions were run, to investigate if the participants who gave unsatisfying answers had an impact on the results or not.

First, participants who thought that they knew the aim of the study were asked to write down their guess, to single out participants who understood the aim. Several participants indicated potential explanations of what the experiment was about, and even though the most preferable case is where participants have no clue about the purpose (Söderlund, 2010), participants who guessed other purposes of the study were kept. 3.9% (20 of 508 participants) indicated correct explanations of the purpose of the study.

Second, we checked if the manipulations were successful. For the choice architect case, the participants were asked who had been the choice architect in the scenario they were presented to. In total 28% (57 of 204 participants) did not know or gave the wrong answer. For the transparency case, the participants answered a question regarding whether they had been presented with the reason for the donation box at the time of their decision or after their decision was made. In total, 46% (95 of 205 participants) gave the wrong answer or indicated that they did not know.

Third, a question was asked to investigate whether the participants believed that the scenario was realistic. 34.4% (175 of 508 participants) indicated that the scenario they were presented with was not realistic.

In addition to the control questions, the participants were asked regarding their habit of donating and their attitude toward donations. At the end of the survey, some questions about demography were posed, namely gender, age, education, living area, occupation, and income (Sjöberg, 2000).

3.7.6. Procedure and participants

A mix of convenience sampling and snowball sampling (Bryman & Bell, 2011) was used to gather data. The link to the experiment was shared through Facebook and Twitter, and we asked people to share it with others. The survey was also spread to students at Södertörn University. Respondents in the second study were asked not to participate in the experiment, to avoid bias from understanding the purpose. The five different scenarios were randomly allocated to participants.

The data collection lasted from May 3rd to May 10th 2016. Participants were attracted by the chance to win one lottery ticket (30 SEK). Due to our sampling method, we do not know how many were reached by the survey, and can therefore not calculate the response rate. The experiment had 508 participants (N=508; 259 women and 249 men; $M_{age}= 27.6$).

3.7.7.Data Quality

Throughout this methodological section, we have brought up procedures that affect the reliability and validity of the experiment. Below is a summary, together with some additional reflections.

Reliability and validity

Reliability refers to the repeatability of results, i.e. if the study would yield the same results if it were repeated (Eliasson, 2010). Validity concerns the accuracy of measures, and a high degree of validity means that the study measures what it is expected to measure (Bryman & Bell, 2011).

A pretest of the experiment was done, to make sure that the scenarios were understandable and interpreted as intended. Several control questions were posed in the main experiment to check if the participants understood the scenarios.

Only one nudge was used in the experiment, which means that the results cannot be generalized, which in turn lowers the external validity. Furthermore, the nudge is not based on a well explored bias, as many other nudges are.

The participants were randomly allocated into the groups of the experiment and the link to the experiment was sent out and reminded of at different days and different times of day, to make sure that timing would not effect on the responses. This increases the validity. No real money was used in the experiment, which lowers the ecological validity. The experiment was kept short, which increases the internal validity as it prevented the participants from becoming tired and answer indifferently. Sampling bias lowers the external validity but since the study aims to investigate psychological mechanism that should be somewhat consistent among humans.

3.8. Results

The results and findings are presented as follows: First, the main findings regarding the effect of transparency and choice architect on the intended donation rate are discussed. Second, we look at the option as binary; whether the participants intend to donate or not.

3.8.1.Overall donations

As each participant was randomly allocated into one of the five groups, the analysis was done with a one-way ANOVA.

The one-way ANOVA, post hoc Scheffe, was conducted to determine whether the donation rate different between groups with different treatments: transparent/nontransparent and public authority/company as choice architect. Even though the data was not normally distributed for each group, the skewness was similar and could therefore still be robust (Maxwell & Delaney, 2004). There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p > .05$). Overall, the donations were statistically significantly different for the different experiment conditions $F(4,503) = 2,718, p < .01$.

The overall donation rates are shown in table 11. Some things are worth mentioning. The average indication that a consumer was willing to contribute was 3.81, i.e. a positioning slightly negative to make the donations. All groups, except when a company was the choice architect, had a broader support for not donating money to charity than to donate.

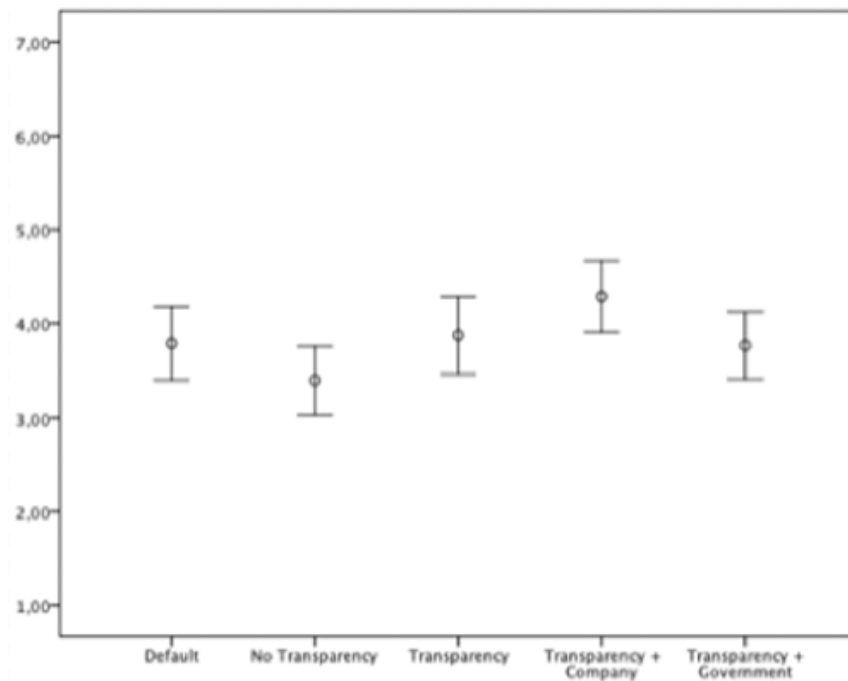
Table 11
Contribution

Experimental Group	Mean	SD	Donation (%)	No donation (%)	N
Default	3.79	1.97	37.4	44.4	99
Control	3.39	1.92	28.4	54.1	109
Control + transparency	3.88	2.05	39.6	44.8	96
Control + transparency + company	4.29	1.85	52.7	35.5	93
Control + transparency + government agency	3.77	1.92	40.5	44.1	111
Average contribution	3.81				508

However, when looking at the different conditions compared to each other with post hoc tests (Scheffe), there was overall a lack of significance for the different groups (see Figure 3) However, the participants donating money without transparency donated less ($M=3.39, SD=1.92$) than in the transparency group with a company as the choice architect ($M=4.29; SD=1.85; F(3,14) = 2.718, p < .05$)¹⁴. Thereby, there was no empirical support for the prolonging of hypotheses H1 and H2, i.e. the results did not show that transparency reduced the effect or that there was a difference between the choice architects.

Figure 7: One way anova comparison, contribution rate

¹⁴ When controlling if the scenario, respondents who thought the scenario was realistic we get equivalent results $F(3, 13)=2.471, p<0.05$. This was also the case where we removed the respondents who guessed what the experiment was about. However, when controlling for all control factors simultaneously.



Note: 95 % confidence interval

3.8.2. Discussion and summary

Study 3 provides results that contradict H1 and H2 and the results from Study 2, but a better understanding of the TSS for nudges. There was no significant difference in donations regarding whether the nudge was transparent or not. More clearly, the study did not find empirical evidence regarding consumers' willingness to donate more when the nudge was fully transparent. Furthermore, there was no difference in donation rates when a public authority and when a company was the choice architect. Using a controlled experimental setting and randomizing the participants allowed us to create conditions by reducing the biasing frame to further test transparency and choice architect.

Chapter 4

4. General discussion

The aim of this thesis was to contribute to the understanding of attitudes toward nudging. More specifically, this thesis has addressed how different personal characteristics, degree of transparency, and choice architects affect the support of several nudges. The results contribute to the growing literature on attitudes toward nudging and transparency by extending prior research (e.g. Jung & Mellers, 2016; Reisch & Sunstein, 2016; Steffell et al., 2016). By conducting an attitude survey and a complementing experiment, existing theories were confirmed and new insights on the TSS of nudges added. The main contribution is that hierarchical individuals are more negative toward nudges, and that companies rather than public authorities are preferred as choice architects. Thus, we can link certain political elements, something that many scholars have suggested not being a significant factor¹⁵.

4.1. Contribution to research

Consumers' attitudes have been a central part of marketing and advertising as a predictor for intention and behavior (Engel, Blackwell, & Miniard, 1995; Schifter & Ajzen, 1985). Surprisingly few studies have concerned attitudes toward nudging, e.g. in relation to the choice architect, transparency, and different personal characteristics, as the content analysis shows. This thesis answers these calls and seeks to contribute to the growing stream of research within this field.

4.1.1. Describing nudge development and summarizing nudge attitudes

The terminus a quo for nudging was Thaler and Sunstein's (2008) book *Nudge* and the first published article mentioning the word in this context was DiCenzo and Frostin (2008), published in EBRI. Since then, 506 published, forthcoming, or working papers have been produced, and the number is growing. The content analysis in this thesis took a cumulative approach on the research field of nudging, which no one, as far as we know, had done previously. This study showed empirically that nudge theory has extended into several different disciplines and that it is an expanding field. We further encourage a similar content review with complementary databases such as WOS or Google Scholar, as their cover could differ (Mongeon & Paul-Hus, 2016). Even though nudge research is heavily popular, the analysis gives a hint that the field has predominantly been focusing on the STE of nudges and not on the TSS. Considering studies about judgment and decision making, a field largely developed by the heuristics-

¹⁵ A follow up study with a representative sample (n=6000), currently being conducted, shows in the initial phase that party affiliation is a significant factor.

and-biases program (Tversky & Kahneman, 1974), in 2016, this thesis found indication that attitudes toward nudging is a growing field. Prominent researchers within marketing and behavioral science have published nudge attitude studies during a short time frame in the journal *Judgement and Decision Making* (Jung & Mellers, 2016; Reisch & Sunstein, 2016).

Additionally, this thesis has summarized the studies investigating attitudes toward nudges until this date¹⁶, both published, forthcoming, and working papers (n=13). Four additional articles were included into a more comprehensive overview than has previously been done (Sunstein & Reisch, 2016).

4.1.2. Transparency and choice architects matter and do not matter

In our second study, we find that there is an overall high support for the chosen nudges, echoing previous studies (See chapter 2 and appendix 1). Although there is strong internal consistency (Cronbach's $\alpha=0.745$) in the support of the different nudges, there are differences that indicate that all nudges are not perceived equally. Compared to Jung and Mellers (2016), there are some things worth highlighting. First, the respondents support the same nudges more than Americans do (Jung and Mellers, 2016), which Hagman et al. (2015) also found using other nudges. One reason for those results could be that Sweden has an established welfare state, in contrast to the US where there is a legacy to value individualism and freedom of choice and to not want anyone infringing in one's personal affairs (Hagman et al., 2015). Also, several nudges are already adopted in Sweden, such as a default pension scheme and one-click tax declaration, so familiarity with similar solutions could have increased the support (Sunstein, 2016b). Second, the least favored nudge was election reminders (78% support), which was Jung and Mellers' (2016) third most popular nudge (60% support). The difference in ranking could be explained by the fact that Sweden has one of the highest voter turnout rates (85.8% 2014) and the United States has a lower rate (~ 55% 2016), i.e. there might be a more urgent need to increase voter turnout in the US.

This thesis aimed to investigate how transparency affects nudges stretching the transparency to a degree here called full transparency, that only few articles have done before (e.g. Steffel et al., 2016). By highlighting that first, a nudge is present, second, its aim is to affect your choice, and third, the rationale behind it, the individual is provided with more information than in most studies. Our results showed that fully transparent nudges were more supported than nontransparent ones, which is comparable to Steffel et al.'s (2016) results, who found fully transparent nudges to be perceived as fairer. When the transparency aspect was tested on one nudge, one-click donation to charity, in a between-subject experiment, full transparency did not lessen the effect significantly. These findings contribute to the growing literature on transparency in relation to nudging by providing empirical evidence (e.g. Bruns et al., 2016; Loewenstein et al., 2015; Steffel et al., 2016). Further research could test different types of

¹⁶ December 4, 2016

nudges, such as nudges aimed at influencing more profound habits and behaviors, and other types of biases commonly used by marketers, for example anchoring, social norms or decoys.

Furthermore, companies were more supported than public authorities as choice architects. Previous research has shown that level of trust matters when implementing nudges (Tannenbaum et al., 2015), although no other study has, to our knowledge to this date, addressed this explicitly. The high degree of individualism in Sweden indicates that consumers accept that a company has the freedom to implement what measures they want, within legal boundaries, while the state is measured by higher standards, thereby the high trust in it. However, our experiment could not show that the choice architect had any significant effect on the nudge. Further studies could investigate how individuals react to other types of choice architects, as several of the nudges could be implemented by others, e.g. a mother or a colleague.

It is important to note that the results on how transparency and choice architect affect attitudes could potentially have a methodological issue, induced by a framing bias having transparency and nontransparency in the first case and a company and the government in the second case next to each other.

The difference in results between Study 2 and Study 3 could be explained by an attitude-behavior gap, which has been seen in several research fields such as health and marketing and is an inconsistency that nudging addresses. However, nudge theory itself seems to have an issue with not being able to bridge the gap between individuals' attitudes toward a nudge with its corresponding behavior. The difference could between the results of the studies could also potentially be explained by the hypotheticality of the studies. Further research could investigate effect of transparency and different choice architects in field experiments in a variety of different settings. Also, we want to highlight that a substantial part of our participants in Study 3 did not answer the control questions regarding whether the nudge had been transparent and which choice architect was the decision maker behind the nudge correctly, which limits the reliability of the results.

4.1.3. Personal characteristics

We hypothesized that individualism would correlate negatively with attitude toward nudges. This was the case in five of the eight nudges, which is in line with Jung and Mellers' (2016) and Hagman et al.'s (2015) finding. Having hierarchical values also correlated negatively with attitude toward nudges in five of eight cases. These results could be explained by Kahan (2006), who found that cultural cognition could explain a bigger fraction of the variance toward public policies than just measuring people's attitude on a political scale or political affiliation. By this we could add having a hierarchical worldview as an additional predicting variable explaining nudge attitudes. Our results could not conclude any

relationship between whether an individual sees him- or herself as left or right or progressive or conservative, which is also in line with previous studies that could not link a political party to nudge support. However, we could see that individualism and reactance correlated negatively with public authority as choice architect, while females correlate positively with public authorities being choice architects. Hierarchy correlates negatively with companies as choice architects. Furthermore, several mediation variables about the nudge perceptibility together with the personal characteristics shows that each separate nudge has its unique TSS, although similarities were found. Mediators have partly answered why individuals' attitudes toward different nudges differ. Notwithstanding the global research progress in this field, we encourage further research to focus on other potential mediators effects regarding attitudes. There could also be more personal characteristics affecting perception of nudges. For example, hierarchists tend to be more skeptical and underestimate environmental issues and other risk factors while egalitarians do the opposite (Kahan 2009). Further research could continue on the field of risk and investigate psychometric risk scales; consumers with different risk perception could react differently to certain types of nudging. We want to highlight that analyzing nudge attitudes should be done with caution since it could be misleading to think on an aggregate level, in accordance with Gigerenzer (1991).

4.2. Managerial implications

Consumers' attitudes could be both an advantage and a barrier to a marketer. No product, service, or campaign would get leverage by ignoring consumers' attitudes. Our empirical studies have resulted in implications for marketers, advertisers, and policy makers.

4.2.1. Nudge attitudes as a marketing strategy and policy strategy

Swedes are in general supportive of nudges, meaning that nudges often should be received well by both consumers and citizens. A practitioner could use the summary of studies on attitudes toward nudges as a toolbox when implementing a nudge, to easily make use of existing research. As the field is growing, a more advanced statistical meta-analysis of scientific attitude studies concerning nudging would further develop the toolbox and determine its robustness and strength.

Purpose-driven communication is trending in advertising (Resumé 2016). As nudges are aimed at improving social responsibility as well as helping individuals pursue their goal, the concept of nudging fits well within this area and could be a valuable tool for both marketers, advertisers, and PR-agencies. The results of this thesis indicate that the purpose of a nudge could be disclosed without the nudge losing its effectiveness, which further indicates that companies could use nudging openly, both with the traditional aim of the nudge but also to signal awareness and social responsibility. Many international agencies have indeed already incorporated behavioral theory into their portfolio, but Swedish agencies are lagging and could benefit from more nudge knowledge. Our results suggest that the respondents

think that a company is more suitable for nudging than a government, and it could therefore be a unique opportunity for them.

Understand your target audience before rolling out

Both research and anecdotal evidence has shown that there is a risk of nudges backfiring, even though consumers seem to appreciate nudging in general. First, all nudges are not perceived in the same way, meaning that just having a good purpose and a well-conceptualized nudge might not be enough. Second, different types of persons react to different types of nudges, while some types of personal characteristics seem to disfavor nudges more. Therefore, it is important to understand the target group, both for public authorities and for companies. It is reasonable to believe that certain companies could have customer groups which are well-represented by individualistic or hierarchical consumers who therefore not support nudges to the same extent. On April 29th, 2017, Donald Trump had past his first 100 days in office as President of the United States. There are indications that Trump supporters tend to be more hierarchical (Lakoff, 2016), a measure captured by the cultural cognition scale. Also, Reisch and Sunstein (2016) found that voting for a populist party correlated negatively with support of nudges. At the same time, the behavioral insight team in United States is still operating. How this matches with the President's supporters can further studies show. They might continue as usual without any disruption of their effect. Or Trump could fire the department. Anyhow, it will be vital for the President to investigate his audience's attitudes, as they seem to not uncritically applause the phenomenon. Nudge, Nudge, Wink, Wink.

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Appendix 1 – Attitudes towards nudge

AUTHOR	YEAR	JOURNAL	TITLE	COUNTRIES	SAMPLE	VARIABLES	NUDGES	RESULTS
Felsen, G., Castelo, N., Reiner, P.B.	2012	Judgment and Decision Making	Decisional enhancement and autonomy: public attitudes towards overt and covert nudges	USA & Canada	2,275 adults	1. Healthy eating 2. Prudent purchasing 3. Increased exercise 4. Prudent investing 5. Productivity at work	Unconscious decision making Conscious decision making	People prefer conscious decisional enhancement. Respondents who perceived the influence of the program as more conscious than subconscious reported that their decisions under the program would be more "authentic"
Pedersen, S.K., Koch, A.K., Nafziger, J.	2014	Bulletin of Economic Research	Who wants paternalism?	Denmark	473 students	1. Text or picture on cigarette packages 2. Highlighting calories 3. Exclude yourself from gambling	Self control Paternalism Role of the state Need for paternalism	No evidence linking self-control to attitudes towards weak forms of paternalism Respondents with good self-control are significantly more favourable towards strong paternalism Respondents generally are positive towards paternalism. Paternalism is viewed more favourably by respondents who see a bigger role for the state to intervene
Hagman, W., Andersson, D., Västfjäll, D., Tinghög, G.	2015	Review of Philosophy and Psychology	Public views on policies involving nudges	Sweden & USA	552 respondents	1. Opt in organ donation 2. Opt in climate compensation 3. Tax paying message 4. Smoking cessation 5. Smoking discouragement 6. Cafeteria re-design 7. Food labeling	Cultural Cognition Rational-Experiential Inventory scale	Attitudes toward nudge-policies were more positive in Sweden than United States A majority of the respondents perceived the presented nudge interventions as intrusive to freedom of choice Pro-social had a lower acceptance rate compared to pro-self nudges Individuals with a more individualistic worldview were less likely to perceive nudges as acceptable Individuals more prone to analytical thinking were less likely to perceive nudges as intrusive to freedom of choice
Jungmans, A.F., Cheung, T.T., De Ridder, D.D.	2015	BMC Public Health	Under consumers' scrutiny - an investigation into consumers' attitudes and concerns about nudging in the realm of health behavior	UK	20 semi-structured interviews	Healthy nudges in general Exercise Healthy eating	Knowledge Individual differences Self target General target Origin behavior Freedom of choice Cognition	Respondents are largely unfamiliar with the concept of nudging altogether Most respondents approve of the concept Nudges should be designed for benefiting individuals and society Respondents comprehend the decision-making context and the reasoning behind the promotion of the targeted behavior Respondents revealed very limited concerns with manipulative aspects of nudges.
Arad, A., Rubinstein A.	2015	Unpublished manuscript	People's Perspective on Libertarian-Paternalistic Policies	Germany, Israel & USA	Study 1: 1,152 university students Study 2: 1,889 university students	1. Default saving arrangement 2. Ordering food on a menu from healthiest to unhealthiest 3. Information campaigns	Country Field of study Interest in savings	Study 1: Studying a policy-related field in the US increase the chances The interest in saving had a large and significant positive effect on the attitude Study 2: Studying a policy-related field is more likely to prefer tax only in T1 in Germany and in T1 in Israel Studying a policy-related field is more likely to prefer tax only in T3 in Germany and in T1 in Israel
Sunstein, C.R.	2015	Administrative Law Review forthcoming	Do People Like Nudges?	USA	Study 1: 563 respondents Study 2: 309 participants	34 nudges	Political affiliation	Respondents reflects a partisan nudge bias Attitudes toward policy goals or policymakers distort feelings about policy interventions
Tannenbaum, D., Fox C.R., Rogers T.	2015	Working Paper	On the misplaced politics of behavioral policy interventions	USA	Study 1: 379 respondents Study 2: 503 respondents Study 3A: 110 government bureau- crats Study 3B: 48 U.S. city mayors	1. Automatic enrollment 2. Planning prompts 3. Leveraging loss aversion 4. Public prompt commitments 5. Descriptive social norms	Political affiliation	Liberals tended to favor nudges under Obama compared to Bush, when it was applicable to liberal policies not Conservative, when it was illustrated to supplement the poor and not tax break for the wealthy and application for increasing safe sex education compared to intelligent design educa- tion. Conservatives showed the opposite tendency
Petrescu, D.C., Hollands, G.J., Costumier, D.-L., Ng, Y.-L., Marteau, T.M.	2016	PLoS ONE	Public Acceptability in the UK and USA of Nudging to Reduce Obesity: The Example of Reducing Sugar-Sweetened Beverag- es Consumption	UK & USA	UK 1,693 respondents USA 1,082 respondents	1. Reducing portion Size 2. Changing the Shape of the drink containers 3. Changing their shelf location	Conscious processes Non-conscious processes	Levels of acceptability for four of the five interventions did not differ significantly between the UK and US samples; Nudges via non-conscious processes did not decrease their acceptability in either the UK or US samples. Perceived effectiveness was the strongest predictor of acceptability for all interventions across the two samples.

AUTHOR	YEAR	JOURNAL	TITLE	COUNTRIES	SAMPLE	VARIABLES	NUDGES	RESULTS
Jung, J.Y., Mellers, B.A.	2016	Judgment and Decision Making	American attitudes toward nudges	USA	800 representative respondents	1. Automatic enrollment 2. Increasingly narrower 3. White lines on roadways 4. One click donations 5. Graphical warnings on 6. Cigarette packages 7. Government websites that allow people to track their bills 8. Regulations that credit card companies provides customers with spending alerts 9. Notifications sent to voters by mail, email announcements, or text messages before elections to tell them how to get to the polls 10. Regulations stating that retirement programs must provide customers with clear information about their projected monthly income	Empathy System 1 & System 2 Cultural Cognition Political affiliation Desire to control Reactance	Most nudges were supported System 1 nudges were viewed less favorably than System 2 nudges System 1 nudges were perceived as more autonomy threatening System 2 nudges were viewed as more effective for better decision making and more necessary for changing behavior. People with greater empathetic concern tended to support both types of nudges Individualists opposed both types of nudges, and conserva- tives tended to oppose both types. Reactant people and those with a strong desire for control opposed System 1 nudges. Empathetic people were more supportive when framing highlighted societal costs or benefits Reactant people were more opposed to nudges when frames highlighted the personal costs of rejection.
Reisch, L.A., Sunstein, C.R.	2016	Judgment and Decision Making	Do Europeans Like Nudges?	Denmark, France, Germany, Hungary, Italy, and the United Kingdom	All countries 1,000 representative respondents Great Britain 2,000	1. Calorie labels in chain restaurants 2. Traffic light labels signaling healthiness of food 2. Default into green energy providers, 3. Active choice regarding organ donation 4. Supportive choice architecture for healthy food in grocery stores 5. Education campaign with vivid pictures against distracted driving 6. Education campaign promoting healthier food for children 7. Subliminal advertising in movie theatres against smoking and overeating 8. Airlines charging their customers a carbon emission compensation fee 9. Warning labels on food with high salt content 10. Default to donate 50 Euro for the Red Cross on tax return 12. Sweet-free cashier zones in supermarkets 13. One meat-free day in public canteens	Age Gender Political affiliation	Strong majority support for nudges of the sort that have been adopted Markedly lower levels of support for nudges in two nations: Hungary and Denmark. Connect support for nudges with distinct party affiliations
Kongshuk, L., Skov, L.R., Nielsen, B.K., Nielsen, T., R Wichmann, M., Pérez-Cuevas, F.J.A.	2016	Family and Con- sumer Sciences	Attitudes and Acceptability of Behavior Change Techniques to Pro- mote Healthy Food Choices Among Danish Adolescents	Denmark	409 respondents between 13 and 19 years	Nudging in the Promotion of Vegetable 1. Celebrities informing 2. Competition 3. Score campaign 4. Social norms comparing 5. Defaulting green salad 6. Posters informing 7. Asking if wanting vegetables 8. Switching names on dishes 9. Sign up for vegetable club 10. Posters on happy teenagers eating vegetables	Social norms Self-estimated health Self-efficacy Self-estimated intake Self-estimated health Responsibility Healthy buffet habits Eco conscious buffet habits	Positive toward less intrusive interventions Negative attitudes toward targeting their self-image Self-reported level of vegetable intake, healthy food habits, and eco-consciousness had the strongest positive association. Respondents considered it to be acceptable for the school to attempt to intervene with their health-related behavior
Petrescu, D.C., Hollands, G.J., Costurier, D.-L., Ng, Y.-L., Marreau, T.M.	2016	PLoS ONE	Public Acceptability in the UK and USA of Nudging to Reduce Obesity: The Example of Reducing Sugar- Sweetened Beverages Consumption	UK & USA	Respondents 1093 UK Respondents 1082 USA	1. Reducing portion Size 2. Shape of the drink containers 3. Changing their shelf changing the 4. Education 5. Taxation	1. conscious processes 2. non-conscious processes;	1. Levels of acceptability for did not differ significantly be- tween UK and US samples; 2. Education was rated as most acceptable and Taxation the least 3. Non-conscious processes did not decrease their accepta- bility 4. Perceived effectiveness was the strongest predictor of acceptability for all interventions across the two samples.
Reisch, Sun- stein, Gwenedz	2016	Journal of Mar- keting Behavior Forthcoming	Better Than A Whip? European Attitudes Toward Health Nudges	Denmark, France, Germany, Hunga- ry, Italy, and UK	All countries 1,000 representative respondents Great Britain 2,000	1. Governmental campaigns to educate individuals 2. Disclosure of nutritional value and health risks of food 3. Mandatory defaults and choice architecture for retailers to support healthy foods 4. Meat-free days in public cafeterias 5. Subliminal advertising, imposed by government on movie theaters, to discourage individuals from smoking and overeating.	Age, gender and political affiliation	On average, approval is quite high Women approve more of all the health nudges Differences between countries Intrusive nudges, lower approval, although a majority of countries > 50 %

Appendix 2 – Difference in mean between nudges

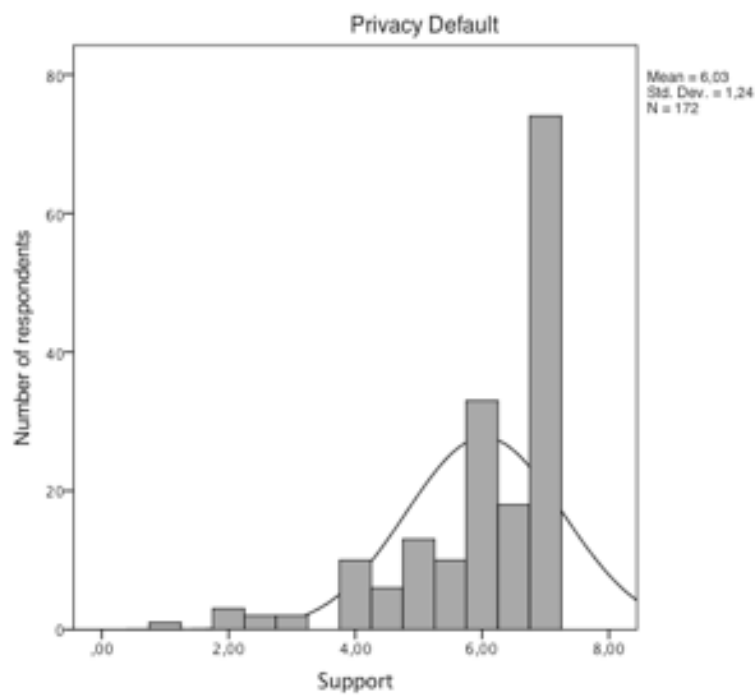
Table 7
Bonferroni post hoc adjustment

	Privacy default	Cafe order	Grocery order	One-click donate	Cig warning	Track spend	Spend alert	Elect info
Privacy default	1	-.06	.16	.54*	.24	.70*	-.15	-.08
Cafe order	.06	1	.22	.60*	.31	.76*	-.08	-.01
Grocery order	-.16	-.22	1	.38	.08	.54*	-.31	-.24
One-click donate	-.54*	-.60*	-.38	1	-.30	.16	-.69*	-.62*
Cig warning	-.24	-.31	-.08	.30	1	.45	-.39	-.32
Track spend	-.70*	-.76*	-.54*	-.16	-.45	1	-.84*	-.77*
Spend alert	.15	.08	.31	.69*	.39	.84*	1	.07
Elect info	.08	.01	.24	.62*	.32	.77*	-.07	1

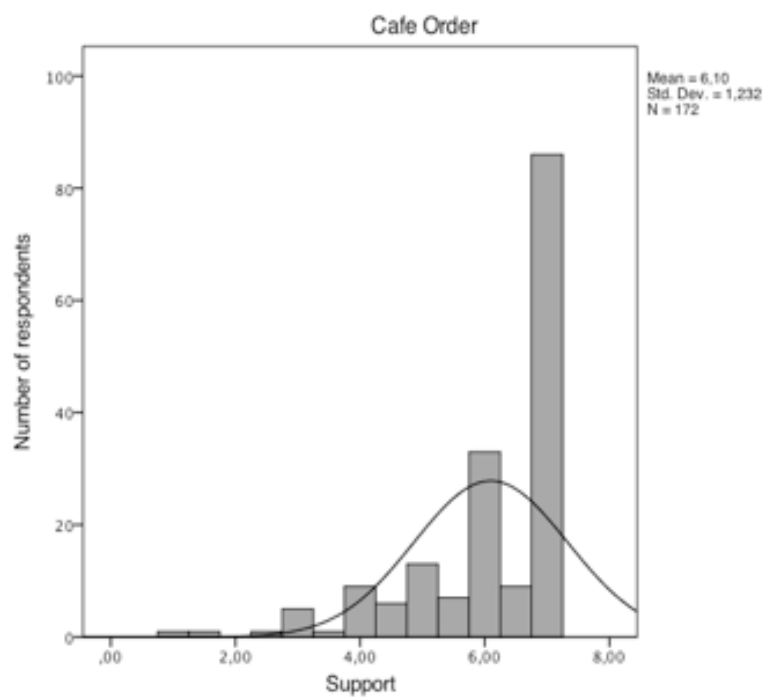
Note: n=172. Significance: * p < .01

Appendix 3 – Distribution of nudges

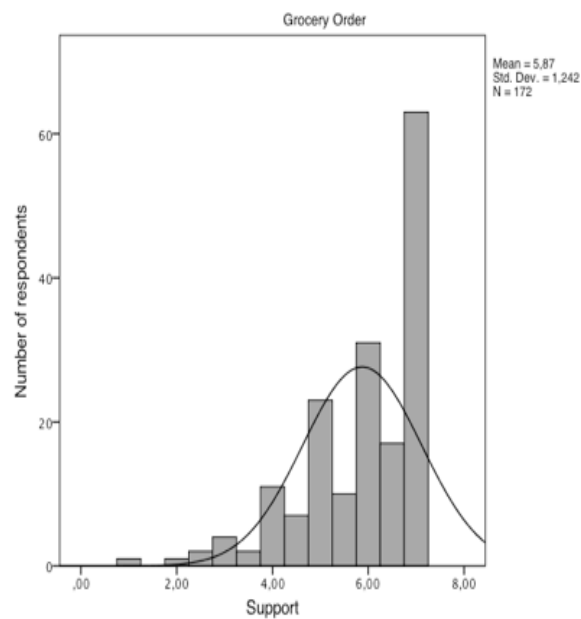
In order to increase integrity online the default settings on social network websites (e.g. Facebook and Instagram) is that posts and photos are displayed to friends and not the public at large (unless people choose to display them to the public)



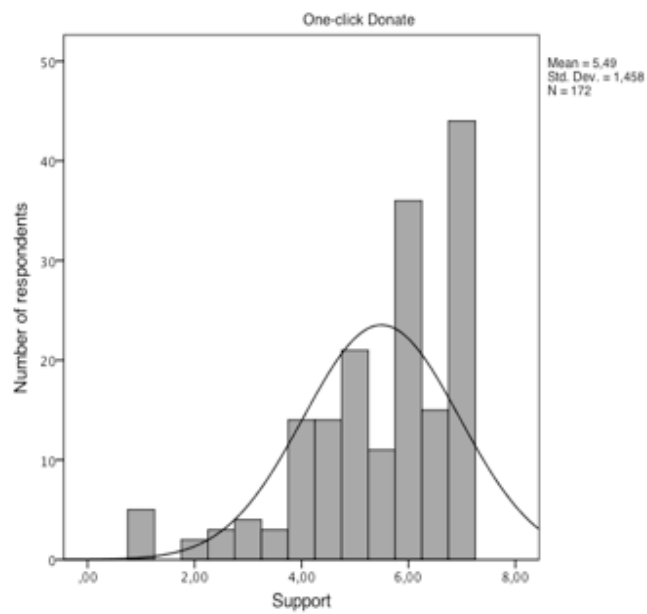
School cafeterias has salads and other healthy alternatives coming first to promote healthy choices.



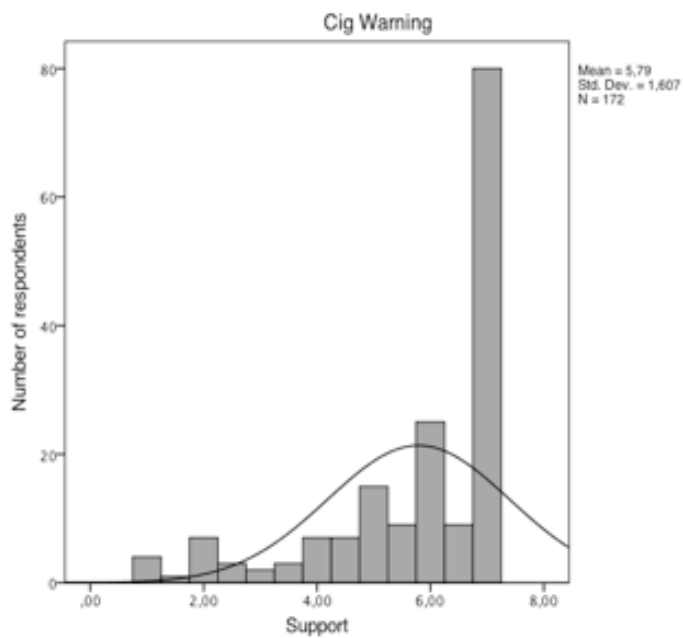
Grocery store display healthy foods especially noticeable and easier to reach on shelves and in aisles in order to make it easier for consumers to choose such items.



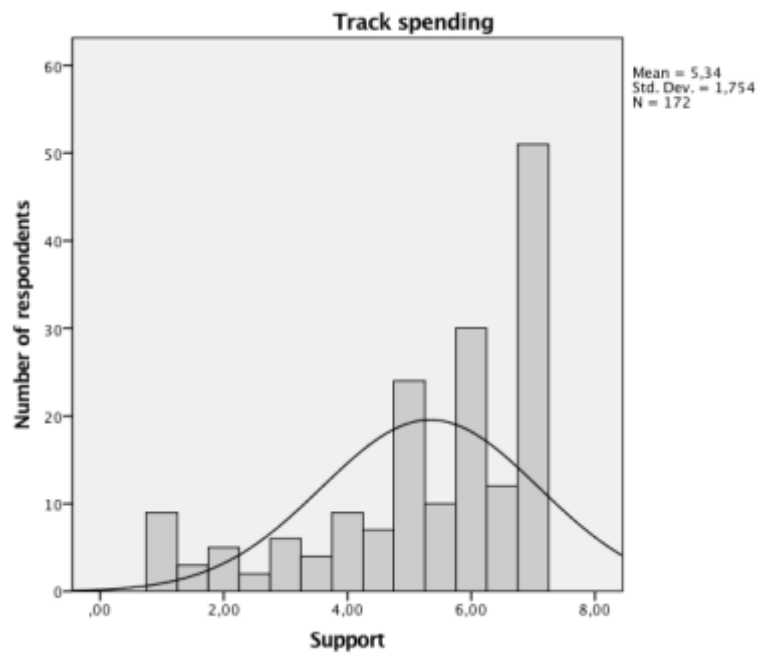
At payment in stores/online stores it is possible to add donation to charity in a simple way.



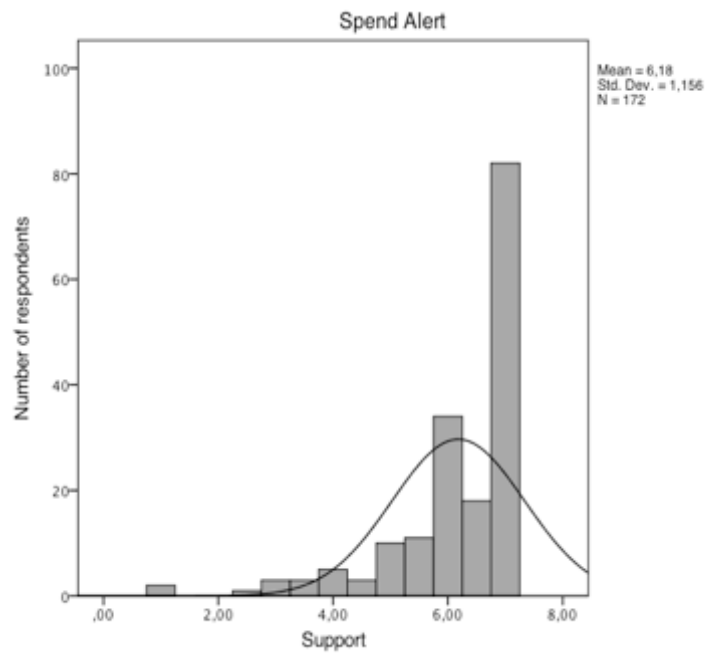
Use of graphic warnings with photographs of the effects of smoking on cigarette packages.



In order to keep track of spending individuals can track their energy usage, credit card bill cell phone bills, and more through a website which gathers that information.



Credit card companies provide customers with spending alerts (via mail, email, or text message) if they are close to a spending limit.



Individuals qualified to vote get notifications sent by email or text message right before elections to tell them exactly how to get to the polls.

