

# Change and status quo in decisions with defaults: The effect of incidental emotions depends on the type of default

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## Abstract

Affective states can change how people react to measures aimed at influencing their decisions such as providing a default option. Previous research has shown that when defaults maintain the status quo positive mood increases reliance on the default and negative mood decreases it. Similarly, it has been demonstrated that positive mood enhances the preference for inaction. We extend this research by investigating how mood states influence reliance on the default if the default leads to a change, thus pitting preference for status quo against a preference for inaction. Specifically, we tested in an online study how happiness and sadness influenced reliance on two types of default (1) a default maintaining status quo and (2) a default inducing change. Our results suggest that the effect of emotions depends on the type of default: people in a happy mood were more likely than sad people to follow a default when it maintained status quo but less likely to follow a default when it introduced change. These results are in line with mood maintenance theory.

Keywords: default bias, incidental emotions, status quo, mood induction.

## 1 Introduction

When introducing a new product, for instance a new cell-phone plan, marketing companies have different strategies at hand to influence customers. One powerful instrument to influence people towards making a specific decision is to provide a default option (Goldstein, Johnson, Herrmann, & Heitmann, 2008; Johnson, Bellman, & Lohse, 2002). Default options are automatically chosen when individuals make no active choice (Brown & Krishna, 2004). Defaults are sometimes considered as nudges because they exert a substantial influence on choice without restricting decision makers' freedom to choose (Sunstein & Thaler, 2003). The differing rates of organ donation across European countries provide an impressive example of the power of defaults (Davidai, Gilovich, & Ross, 2012; Johnson, & Goldstein, 2003). Although Germany, the Netherlands, Belgium and Austria all grant their citizens the right to freely decide whether they are willing to donate their organs in the case of a fatal accident, the countries differ if the default is to be an organ donor (opt-out) or if the default is not to donate (opt-in). In countries such as Ger-

many and the Netherlands that have an opt-in policy, organ donation rates are around 20% (Johnson & Goldstein, 2003). In contrast, in Austria and Belgium where there is an opt-out policy, donation rates frequently exceed 90% (Davidai et al., 2012; Johnson & Goldstein, 2003).

Although the power of defaults has been demonstrated in many areas ranging from choices about retirement investments (Cronqvist & Thaler, 2004; Madrian & Shea, 2001) to energy suppliers (Pichert & Katsikopoulos, 2008) and consumer goods (Goldstein et al., 2008), they do not always lead to the desired outcome. For instance, in 2007 Facebook launched a program that displayed members' purchases by default, forcing users to "opt-out" if they did not want to share their shopping history. However, after an immense backlash from irate users, only nine days after the program's inception Facebook had to change the default so that users would have to actively choose to participate (Goldstein et al., 2008).

Several theoretical explanations have been offered to account for the power of defaults and that may provide insight into when people decide against a default. For one, it has been suggested that default options are preferred because they are interpreted as recommendations of the policy makers, suggesting a socially desired behavior (McKenzie, Liersch, & Finkelstein, 2006) or a choice designed to meet the requirements of the average customer (Irwin & Baron, 2001). Secondly, defaults frequently preserve the status quo. Research shows that people often make choices such that the current state of the world remains intact. This preference has been named the status quo bias (Masatlioglu & Ok, 2005; Samuelson & Zeck-

This research was supported by a Swiss Government Scholarship awarded to the first author (ESKAS-Nr: 2012.0104), a Swiss National Science Foundation Research Grant (No. 100014\_146169) to the second author, and a Swiss National Science Foundation Research Grant (No. 100014\_130149) to the third author. We would like to thank Laura Wiles for editing the manuscript.

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hauser, 1988). For instance, Hartman, Doane, and Woo (1991) found that people preferred their current electricity service provider to other providers, even if these would provide a more reliable or cheaper service. Thirdly, defaults are usually associated with absence of physical or mental efforts. Making a decision can be effortful, particularly when people do not have a preexisting preference (Tversky & Kahneman, 1974). Thus people may use defaults heuristically to reduce the cognitive effort required to reach a decision. In line with this, most people prefer options that do not require action as compared to options they have to actively pursue, and a negative result that occurs as the consequence of an action is often perceived as more reprehensible than a negative result caused by an omission (Baron & Ritov, 1994; Prentice & Koehler, 2002; Ritov & Baron, 1992).

All these theories can explain why people follow a default if it maintains the current state of the world. However, if the default introduces a change, as in the Facebook example, the status quo bias suggests that people should decide against the default. In contrast, explaining a default choice in terms of a policy recommendation or a preference for an omission suggests that people should follow the default even if it induces change. Thus, depending on the mechanisms underlying the default choice, the effectiveness of a default may hinge on whether it promotes the status quo or introduces a change. Schweitzer (1994) provided evidence that the omission and the status quo bias provide an independent, but similarly sized, influence on behavior (see also Baron & Ritov, 1994). This suggests that defaults that introduce change should be less effective than defaults that maintain the status quo. However, when pitting both biases against each other Ritov and Baron (1992) found that people only preferred an option that upheld the status quo as long as it was the result of inaction, but opted for change when upholding the status quo required action. This suggests that the effectiveness of a default option does not depend on whether it maintains or changes the current state of the world. Following up on this issue, the first goal of the current work is to investigate whether the effect of defaults is reduced when the default introduces a change or maintains the status quo when the task involves real decisions.

## 2 The influence of emotions on default decisions

Emotions have been shown to exert an important influence on decision making in general (Aspinwall, 1998; Cohen, Pham, & Andrade, 2007; Scheibehenne & von Helversen, 2014) and on decisions involving a default specifically (Yen & Chuang, 2008; Garg, Inman & Mittal, 2005). Yen and Chuang (2008) showed that the probability with

which people choose an option that upheld the status quo increased with positive affect and decreased with negative affect. The same held true for the option of choosing neither of two offered options (e.g., two apartments). In a similar vein, Garg and colleagues (2005) showed that, in decisions with emotionally difficult trade-offs, angry participants showed a stronger preference for the status quo than sad participants. Here, we aim to extend their research by testing how positive and negative affect influence how frequently a default is accepted if the default introduces a change and thus pits the preference for the status quo against the preference for inaction.

Two prominent theories, directly related to the present research, provide an explanation of how emotions influence decision-making: the “affect-as-information” theory and the “mood-maintenance” theory. These theories yield predictions on how affect will interact with the two types of defaults.

### 2.1 Affect-as-information theory

The affect-as-information theory predicts how emotions and moods influence information processing. Specifically, it suggests that people use their current affective condition to evaluate the state of the world and if their current mode of thinking is appropriate (Hunsinger, Isbell & Clore, 2012; Schwarz & Clore, 1983). For example, negative affect may signal that the situation is problematic and therefore the current dominant response should be abandoned in favor of a more careful and systematic processing of the available information (Bless et al., 1996). In support of this theory, people in a negative mood have been found to rely less on strategies that are often triggered automatically such as scripts and stereotypes (Bless et al., 1996; Bodenhausen, Kramer, & Süsler, 1994) and to process substantive information more carefully (Sinclair, Mark, & Clore, 1994). In this vein, Garg and colleagues (2005) suggested that individuals in a sad mood tend to consider options more closely and show relatively little bias towards the status quo.

According to the affect-as-information theory, positive affect may signal that the situation is benign, which permits to follow the currently dominant course of action. In line with this, past research has found that positive mood induces a less effortful and more superficial processing of information (Bless, Bohner, Schwarz, & Strack, 1990; Bohner, Chaiken, & Hunyadi, 1994; Park & Banaji, 2000). Furthermore, positive emotions have been shown to increase reliance on global knowledge structures such as scripts (Bless et al., 1996), stereotypes (Bodenhausen et al., 1994), and judgmental heuristics (Ruder & Bless, 2003) and decrease the depth with which people process substantive information in persuasion and attitude formation (Batra & Stayman, 1990; Mackie & Worth, 1989).

In some situations, the default option may induce a strong emotional reaction that could serve as a dominant response. However, research suggests that relying on the default is usually the dominant course of action (e.g. Goldstein, et al., 2008; Johnson, et al., 2002; Ritov & Baron, 1992), and thus may serve as a global knowledge structure or script people can follow (Yen & Chuang, 2008). In contrast, deciding against a default is generally perceived as a decision against the dominant response and has been characterized as requiring more systematic processing of information and more effort (Garg, et al. 2005; McKenzie et al., 2006; Tversky & Kahneman, 1974; Yen & Chuang, 2008). Thus, to the degree that going with the default is the dominant response in the task, according to the affect-as-information theory, positive affect should increase reliance on defaults, independent of whether the default is maintaining the status quo or introducing a change.

## 2.2 Mood-maintenance theory

In contrast, the “mood-maintenance” theory emphasizes the importance of emotion regulation and its influence on decision-making. Specifically, it posits that people are motivated to experience positive affect (Aspinwall, 1998; Clark & Isen, 1982; Isen, 1984). Accordingly, people in a positive mood may strive to maintain this affective state by choosing options that promise positive consequences (Wegener & Petty, 1994) and by avoiding losses and high-risk options (Arkes, Herren, & Isen, 1988; Isen & Geva, 1987). People in a negative mood may be motivated to “repair” their mood, for example by choosing options that they believe will improve their mood, such as hedonic goods (Garg, Wansink, & Inman, 2007, but see Wegener & Petty, 1994). This suggests that people in a positive mood may prefer options that maintain the status quo, because they are seen as less threatening (Riis & Schwarz, 2003) and thus allow maintaining positive affect. In contrast, people in a negative mood may prefer a new option to the status quo because it has the potential to uplift their emotional state. For instance, Lin and Lin (2009) found that when choosing between hedonic goods such as food items, people show more variety-seeking behavior during a negative than a positive mood. This also resonates with the finding by Yen & Chuang (2008) that people in a negative mood are less willing to choose a status quo option, whereas people in a positive mood are more likely to choose a status quo option.

Correspondingly, the mood-maintenance theory predicts that people in a positive mood should rely more on a default if it leads to upholding the current state of the world, but rely less on a default when it involves change. In contrast, in a negative mood people should rely more on a default that involves change and less on a default that leads to maintaining the status quo.

Table 1: Number of participants in each condition.

	Happy (N=105)	Neutral (N=101)	Sad (N=107)
Status quo by default (N=105)	34	35	36
Change by default (N=103)	36	32	35
No default (N=105)	35	34	36

## 2.3 The present research

The lack of empirical evidence how mood influences decisions in situations where the status quo bias and the omission bias are pitted against each other prompted us to conduct an experiment that involved real choices in which we manipulated participants’ mood and then presented them with a choice situation where following a default either maintained the status quo or introduced a change.

## 3 Method

### 3.1 Participants

A total of 336 participants residing in the US were recruited from the online labor market Amazon Mechanical Turk (MTurk) in exchange for a payment of \$1. Previous studies ascertained the reliability of Mturk to obtain high-quality data (Buhrmester, Kwang, Gosling, 2011; Paolacci, Chandler, Ipeirotis, 2010). Completing the study required approximately 15 minutes. Twenty-three participants did not pass the control questions that checked whether they had read the instructions and thus were excluded from the analysis. The final sample consisted of 179 men and 134 women, with a mean age of  $M = 33.75$  years (range 18–66). The majority of participants (about 80%) were White American, with the remaining 20% indicating Hispanic (6%), African American (6%), Asian, and Native American origins. All research was conducted in compliance with APA ethical standards.

### 3.2 Design and Procedure

The study used a 3 x 3 between-subjects experimental design varying induced affect (happy, neutral, and sad) and the type of default (“Status quo by default”, “Change by default”, and “No default”). The type of default was manipulated by presenting participants with a choice between two visual perception tasks. Specifically, participants could choose whether they would like to work on a task they had worked on before or work on a new task. Participants were randomly assigned to one of the nine conditions, resulting in about 30 participants in each condition (see Table 1).

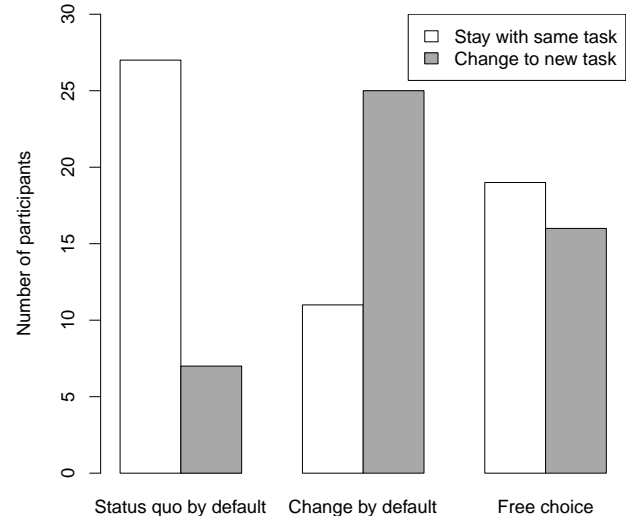
After giving their consent to participate in the study, participants received instructions about the experimental task and filled out a questionnaire measuring demographics and their current mood. Additionally, we included control questions to ensure that participants were paying attention to the instructions. Next, participants were randomly assigned to one of the two visual perception tasks. Once they had completed 15 items of the first task, we manipulated participants' mood state by showing them a 3 min movie clip, a standard procedure to induce different affective states (Schaefer, Nils, Sanchez, & Philippot, 2010; Westermann, Spies, Stahl, & Hesse, 1996). After watching the movie clip, participants were asked to answer a few questions regarding the content of the movie and to again rate their current mood. Next, participants had to choose whether they wanted to continue working on the same task as before or on a new task. This choice was our main dependent variable. Instructions for that choice differed depending on the experimental condition. In the "no default" control condition, participants were presented with the two options next to each other and had to select the option they preferred before they could move on by pressing the "continue" button. The order in which the options were presented was counterbalanced. In the "status quo by default" condition, participants were told that they would work on the same task as before if they pressed the "continue" button but that they could opt out and work on a new task if they checked a box before they pressed "continue". In the "change by default" condition, participants were told that they would work on a new task if they pressed the "continue" button but that they could opt out and work on the same task as before if they checked a box before they pressed "continue". After they had completed the second visual perception task, participants were again asked to rate their mood.

### 3.3 Materials

**Tasks.** Both tasks involved the visual processing of information. We chose visual perception problems because they are comparable to tasks that are offered on Amazon Mechanical Turks. One task involved counting trees. In this task, participants had to indicate how many trees were shown on a series of the photos depicting nature scenes. In the other task, participants saw photos of different types of buildings (i.e., churches, restaurants, shops) and they had to provide a one-word "tag" for each photo that best described the type of building shown. Both tasks were counterbalanced to allow us to control the relative preference for the two tasks.

**Mood induction.** Mood was induced through short video clips taken from Youtube.com. Participants in the neutral condition saw a 3 min clip from a documentary

Figure 1: Number of participants in neutral mood condition ( $N=101$ ) that choose to stay with the same task or to change to the new task in the three "type of default" conditions.



about Norway informing about historical facts and local customs, in the positive condition they saw a clip with a compilation of the funniest moments in the comedy movie *Ice Age 2: The Meltdown* (2006), and in the negative condition they saw a clip from the film *City of Angels* (1998, 01:38–01:41) depicting the death of the main character.

**Mood questionnaire.** To measure participants' mood state we asked them to rate their current mood on 10 items taken from the expanded version of the "Positive and Negative Affect Schedule" (PANAS-X, Watson & Clark, 1999) and the "Differential Emotions Scale" (DES-IV; Izard, Libero, Putnam, & Haynes, 1993) using a 5-point answer scale (1=very slightly, 5=extremely). Specifically, we used 3 items to measure happiness (glad, happy and joyful), 3 items to measure sadness (downhearted, sad and gloomy) and 4 further items to measure anger, anxiety, curiosity and excitement (angry, jittery, curious, and excited). Participants rated their mood states 3 times: at the beginning of the experiment, after the mood induction, and at the end of the experiment.

## 4 Results

A chi-square test indicated that the random assignment to one of the two visual perception tasks at the beginning of the experiment had no significant influence on choice,  $\chi^2(1, 313) = 0.27, p = .60$ . Therefore, we merged the two conditions for the subsequent data analyses.

Figure 2: Level of happiness and sadness for each mood condition and for each of the three measurement time points: at the beginning of the experiment, after the mood induction and at the end of the experiment. Error bars represent standard errors of the mean.



#### 4.1 Influence of different types of defaults

As an initial test to see whether the default was more effective when it maintained the status quo than when it introduced a change, we focused only on participants in the neutral condition ( $N = 101$ ). For this group, the default condition had a strong influence on choice as indicated by a chi-square test:  $\chi^2(1, 101) = 33.42, p < .001$ . As illustrated in Figure 1, in the “status quo by default” condition 83% of participants chose to stay with the same task, whereas only 13% did so in the “change by default” condition. This suggests that the default was effective regardless of whether it maintained the status quo or introduced a change. In the “no default” condition, participants were equally likely to choose the same task as before (44%) or to choose a new task (56%), showing no evidence for a status quo bias.

#### 4.2 Influence of incidental emotions on participants’ choices

In a next step we analyzed the influence of mood state on participants’ choices. We first report results of the manipulation check of the mood induction and then how mood influenced participants’ choices when presented with different types of defaults.

**Manipulation check.** We created two scales to determine participants’ happiness and sadness by averaging

the ratings of the respective items at the three measurement points (Cronbach’s  $\alpha > .82$  for both scales at all time points).

As illustrated in Figure 2, after the mood induction participants in the happy condition were happy ( $M = 3.27$ ;  $SD = 0.95$ ) and not sad ( $M = 1.12$ ;  $SD = 0.37$ ), participants in the neutral condition were somewhat less happy ( $M = 2.78$ ;  $SD = 0.94$ ) and also not sad ( $M = 1.2$ ;  $SD = 0.45$ ), and participants in the sad condition were not very happy ( $M = 1.72$ ;  $SD = 0.83$ ) and moderately sad ( $M = 2.52$ ;  $SD = 1.10$ ). These data are in line with the intended manipulation of mood although in absolute terms, no extreme levels of emotions were induced.

To test for differences among the experimental conditions, we ran a repeated-measures analysis of variance with mood condition as a between-subjects factor and measurement time as a within-subject factor on the happiness and sadness ratings, using Greenhouse–Geisser corrections of the degrees of freedom if necessary. This analysis indicated a significant main effect of mood condition for happiness,  $F(2, 310) = 27.77, p < .001$ , and for sadness,  $F(2, 310) = 59.08, p < .001$ . Post hoc Tukey’s HSD tests revealed that participants in the happy condition were happier than participants in the sad condition, ( $p < .001$ ), and in the neutral condition, ( $p = .003$ ). In the same vein, participants in the sad condition were sadder than participants in the happy condition ( $p < .001$ ), and the neutral condition ( $p < .001$ ). Significant interactions of mood with measurement time indicated that ratings of happiness,  $F(3.56, 551.26) = 50.33, p < .01$ , and of sadness,  $F(3.73, 578.54) = 67.05, p < .01$ , changed over time depending on the mood condition. Importantly, follow up analyses showed that in the happy condition participants became more happy,  $F(1, 104) = 10.71, p = .001$ , and less sad,  $F(1, 104) = 12.50, p = .001$ , after the mood manipulation. In contrast, in the sad condition, participants became less happy,  $F(1, 106) = 112.78, p < .001$ , and more sad ( $F(1, 106) = 115.61, p < .001$ ), whereas in the neutral condition mood did not change ( $ps > .18$ ). Pairwise contrasts after the mood induction confirmed that participants were happier in the happy condition as compared to the sad condition,  $Contrast = 1.55, SE = 0.12, p < .001$ , and the neutral condition,  $Contrast = 0.49, SE = 0.13, p < .001$ . Similarly, participants in the sad condition were sadder as compared to the happy condition,  $Contrast = 1.40, SE = 0.10, p < .001$ , and the neutral condition,  $Contrast = 1.31, SE = 0.10, p < .001$ . These results suggest that the mood manipulation was successful.

The mood induction also influenced excitement and anger. Post hoc Scheffé tests comparing the three mood conditions after the mood induction showed that participants in the sad condition reported being less excited ( $ps < .001$ ) and curious ( $ps < .001$ ), but more angry ( $ps < .001$ ) than participants in the neutral or happy condition. Par-

Table 2: Logistic regression analyses predicting following default behavior.

Predictors	B (SE)	95% CI for odds ratio			p-value
		Lower	Odds ratio	Upper	
Constant	0.88 (0.55)				.11
Mood	1.26 (0.67)	0.95	3.51	12.98	.06
Default type	0.35 (0.36)	0.70	1.42	2.91	.33
Default type by mood	-0.97 (0.44)	0.16	0.38	0.90	.03

Note:  $N=208$ ,  $R^2(\text{Nagelkerke}) = .05$ . Model  $\chi^2(1) = 6.12$ ,  $p = .11$ .

Figure 3: Proportion of participants following the default by type of default and mood condition. Error bars represent standard errors of the mean.



Participants in the happy condition were more excited than participants in the neutral condition ( $p = .004$ ), but did not differ from them in their ratings of anger and curiosity. There were no differences in how jittery participants felt. Mean and standard deviations of all affect measures can be found in the Appendix.

**Influence of incidental emotions on following a default.**

To analyze whether participants' mood states influenced their choices of defaults preserving the status quo and defaults introducing a change, we ran a logistic regression on participants' choices with mood condition (happy, neutral and sad), type of default ("status quo by default" and "change by default"), and their interaction as predictors.

As shown in Figure 3, we found a main effect of mood on the likelihood to follow a default, qualified by a significant interaction between the type of default and the induced mood,  $b = -0.97$ , Wald  $\chi^2(1, 208) = 4.8$ ,  $p = .03$

(see also Table 2), suggesting that the effect of mood depended on the type of default: Participants in a positive mood were more likely to follow a default maintaining the status quo, whereas sad participants were more likely to follow a default introducing change. Additional analyses for each type of default showed that mood affected whether participants followed the default in the change by default condition,  $b = -0.68$ ,  $SE = 0.33$ , Wald  $\chi^2(1,103) = 4.12$ ,  $p = .04$ , but not in the status quo by default condition,  $b = 0.29$ ,  $SE = 0.29$ , Wald  $\chi^2(1,105) = 1.01$ ,  $p = .32$ .

A follow-up analysis showed that participants in the neutral condition did not differ from participants in the sad condition (default status quo:  $\chi^2(1, 71) = 1.75$ ,  $p = .19$ , default change:  $\chi^2(1, 67) = 0.02$ ,  $p = .89$ ) or participants in the positive condition (default status quo:  $\chi^2(1, 61) = 0.13$ ,  $p = .71$ ; default change:  $\chi^2(1, 68) = 3.21$ ,  $p = .07$ ).

**5 Discussion**

The main goal of this paper was to investigate how the choice to follow different types of defaults is affected by incidental affect. We found that the effect of mood depended on the type of default. In particular, when defaults introduced a change, participants were more likely to follow it when in a sad mood than when in a happy mood. In contrast, when the default maintained the status quo the opposite pattern was found.

These results extend the research by Yen and Chuang (2008) and Garg et al. (2005) to a situation where the status quo bias and the omission bias are pitted against each other and real consequences follow — even if the consequences are of relatively little importance. Yen and Chuang (2008) reported that positive mood increased the status quo and the tendency not to choose either of the offered options, whereas sadness decreased both effects. When the default maintained the status quo and thus a preference for an omission and a preference for the status quo were aligned, we found a similar pattern. However, when the default induced a change, we found that people

in the happy condition were more likely to continue with the old task than sad participants — even though it forced them to go against the default. This suggests that the effect of mood on status quo may persist in the face of more effortful processing.

Participants in a positive and a negative mood did not differ significantly from participants in a neutral mood. In particular, neither participants in the happy condition were more likely to follow a default introducing a status quo nor were sad participants more likely to follow a default that induced a change than participants in a neutral mood. However, the percentage of people following a default in the neutral condition was already very high, suggesting that the lack of difference could be caused by a ceiling effect.

Overall, our results are in line with the idea that mood-maintenance considerations influence choices involving defaults. Specifically they resonate with the idea that people make decisions to reach or maintain a positive affective state (e.g., Garg et al., 2007; Isen, 1984). In line with Lin and Lin (2009) who showed that people in a sad mood are more willing to try out new alternatives than people in a positive mood, we found that sad people more frequently chose to follow the default when it introduced a new option. These results extend the research by Lin and Lin (2009) and Garg et al. (2007) by showing that a mood related preference for new alternatives can even be found in the presence of defaults, one of the most potent nudges identified in the literature. Furthermore, they suggest that mood maintenance concerns can also influence decisions involving options with a low hedonic value.

The degree to which mood-maintenance concerns determine participants' choices may, however, depend on the options that are introduced by a default. When the default introduced a change in our task participants would work on a new task on which they had only little information and thus could hope that it would improve their mood. In contrast, if the default would introduce a change to a familiar but undesirable option, mood-maintenance concerns should not increase reliance on the default.

In terms of the affect-as-information theory, our results suggest that mood states did not influence how much people relied on the default as a global heuristic to make the decision. On the one hand this could suggest that the "affect-as-information" theory played only a minor role in participants' decisions. According to this theory, positive affect signals that the current environment is safe and it is possible to rely on the currently active thinking mode, whereas negative affect signals that a careful analysis of provided information is required and the currently active thinking style should be abandoned (Bless & Fiedler, 2006; Hunsinger et al., 2012). Thus, to the degree that defaults are the dominant response, happy participants should have a stronger preference for the default

option than sad participants regardless of the type of default. However, in our study we found that when the default introduced change, sad participants were more likely to follow the default than happy participants. On the other hand, it is possible that people used other affective cues than the default to guide their choices. For instance, mood and emotions can influence how much people rely on task related affect (e.g. Garg et al., 2005). Thus, if the task itself provides a strong negative cue and people rely more on affective cues in positive mood, this could influence participants' choices against the default in positive mood. In our task this seems not very likely though because in the condition without a default likely participants were equally likely to switch tasks, suggesting that both tasks were similar attractive or tedious. Nevertheless, in future it would be useful to measure task related affect such as how difficult, tedious, or attractive the tasks were perceived. This would allow ruling out this hypothesis and to test more directly whether participants switched tasks in order to improve their mood.

Our results indicate a strong effect of the default that was independent on the specific type of default. Eighty-three percent of subjects chose the default option when it promoted the status quo and 87% subjects chose the default when it promoted change. These results suggest that the status quo bias played no or only a minor role for choices involving defaults. This resonates with research showing that people often prefer inaction over action when making decisions (e.g., Asch et al., 1994; DeScioli, Christner, & Kurzban, 2011). Our results also provide further evidence to support the idea that the omission bias is largely responsible for the effect of defaults on choice (Baron & Ritov, 1994; Ritov & Baron, 1992). One reason that participants followed the default to such a strong degree could be that both tasks were similarly attractive. Indeed, when no default was provided participants were roughly equally likely to choose the same task as before or to choose the new task. Furthermore, participants only had to work on the tasks for a short time, which could have decreased the importance of the decision. This relatively low importance of the task may have hindered the development of a status quo bias and it may have increased reliance on the default. Future research should replicate our results with more consequential and emotionally involving decisions.

In sum, our results suggest that defaults have a strong influence on choice even if they are used to introduce a change; however, this influence may differ depending on decision makers' emotional state. Whereas, defaults maintaining the status quo are chosen more frequently in a positive mood, defaults inducing a change may be more easily accepted in a sad mood.

## References

- Arkes, H. R., Herren, L. T., & Isen, A. M. (1988). The role of potential loss in the influence of affect on risk-taking behavior. *Organizational Behavior and Human Decision Processes*, 42(2), 181–193. [http://dx.doi.org/10.1016/0749-5978\(88\)90011-8](http://dx.doi.org/10.1016/0749-5978(88)90011-8).
- Asch, D. A., Baron, J., Hershey, J. C., Kunreuther, H., Meszaros, J., Ritov, I., & Spranca, M. (1994). Omission bias and pertussis vaccination. *Medical Decision Making*, 14, 118–123. <http://dx.doi.org/10.1177/0272989X9401400204>.
- Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, 22, 1–32. <http://dx.doi.org/10.1023/A:1023080224401>.
- Baron, J., & Ritov, I. (1994). Reference points and omission bias. *Organizational Behavior and Human Decision Processes*, 59, 475–475. <http://dx.doi.org/10.1006/obhd.1994.1070>.
- Batra, R., & Stayman, D. M. (1990). The role of mood in advertising effectiveness. *Journal of Consumer Research*, 17, 203–214. <http://dx.doi.org/10.1086/208550>.
- Bless, H., Bohner, G., Schwarz, N., & Strack, F. (1990). Mood and persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin*, 16, 331–345. <http://dx.doi.org/10.1177/0146167290162013>.
- Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology*, 71, 665–679. <http://dx.doi.org/10.1037//0022-3514.71.4.665>.
- Bless, H., & Fiedler, K. (2006). Mood and the regulation of information processing. In J.P. Forgas (Ed.), *Affect in social cognition and behavior* (pp. 65–84). New York: Psychology Press.
- Bodenhausen, G. V., Kramer, G. P., & Süsner, K. (1994). Happiness and stereotypic thinking social judgment. *Journal of Personality and Social Psychology*, 66, 621–632. <http://dx.doi.org/10.1037/0022-3514.66.4.621>.
- Bohner, G., Chaiken, S., & Hunyadi, P. (1994). The role of mood and message ambiguity in the interplay of heuristic and systematic processing. *European Journal of Social Psychology*, 24, 207–221. <http://dx.doi.org/10.1002/ejsp.2420240115>.
- Brown, C. L., & Krishna, A. (2004). The skeptical shopper: A metacognitive account for the effects of default options on choice. *Journal of Consumer Research*, 31, 529–539. <http://dx.doi.org/10.1086/425087>.
- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data?. *Perspectives on Psychological Science*, 6(1), 3–5. <http://dx.doi.org/10.1177/1745691610393980>.
- Cohen, J. B., Pham, M. T., & Andrade, E. B. (2007). The nature and role of affect in consumer judgment and decision making. In C. P. Haugtvedt, P. M. Herr, & F. R. Kardes (Eds.), *Handbook of consumer psychology* (pp. 297–348). Mahwah, NJ: Erlbaum.
- Clark, M. S., & Isen, A. M. (1982). Toward understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73–108). New York: Elsevier.
- Cronqvist, H., & Thaler, R. H. (2004). Design choices in privatized social-security systems: Learning from the Swedish experience. *The American Economic Review*, 94, 424–428. <http://dx.doi.org/10.1257/0002828041301632>.
- Davidai, S., Gilovich, T., & Ross, L. D. (2012). The meaning of default options for potential organ donors. *Proceedings of the National Academy of Sciences*, 109, 15201–15205. <http://dx.doi.org/10.1073/pnas.1211695109>.
- DeScioli, P., Christner, J., & Kurzban, R. (2011). The omission strategy. *Psychological Science*, 22, 442–446. <http://dx.doi.org/10.1177/0956797611400616>.
- Garg, N., Inman, J. J., & Mittal, V. (2005). Incidental and task-related affect: A re-inquiry and extension of the influence of affect on choice. *Journal of Consumer Research*, 32, 154–159. <http://dx.doi.org/10.1086/426624>.
- Garg, N., Wansink, B., & Inman, J. J. (2007). The influence of incidental affect on consumers' food intake. *Journal of Marketing*, 71, 194–206. <http://dx.doi.org/10.1509/jmkg.71.1.194>.
- Goldstein, D. G., Johnson, E. J., Herrmann, A., & Heitmann, M. (2008). Nudge your customers toward better choices. *Harvard Business Review*, 86, 99–105.
- Hartman, R. S., Doane, M. J., & Woo, C.-K. (1991). Consumer rationality and the status quo. *The Quarterly Journal of Economics*, 106, 141–162. <http://dx.doi.org/10.2307/2937910>.
- Hunsinger, M., Isbell, L. M., & Clore, G. L. (2012). Sometimes happy people focus on the trees and sad people focus on the forest: Context-dependent effects of mood in impression formation. *Personality and Social Psychology Bulletin*, 38, 220–232. <http://dx.doi.org/10.1177/0146167211424166>.
- Irwin, J. R., & Baron, J. (2001). Response mode effects and moral values. *Organizational Behavior and Human Decision Processes*, 84, 177–197. <http://dx.doi.org/10.1006/obhd.2000.2920>.
- Isen, A. M. (1984). Toward understanding the role of affect in cognition. In R. S. Wyer, Jr. & T. Srull (Eds.), *Handbook of social cognition* (pp. 179–236). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Isen, A. M., & Geva, N. (1987). The influence of positive affect on acceptable level of risk: The person with a large canoe has a large worry. *Organizational Behavior*



- and Human Decision Processes, 39, 145–154. [http://dx.doi.org/10.1016/0749-5978\(87\)90034-3](http://dx.doi.org/10.1016/0749-5978(87)90034-3).
- Izard, C. E., Libero, D. Z., Putnam, P., & Haynes, O. M. (1993). Stability of emotion experiences and their relations to traits of personality. *Journal of Personality and Social Psychology*, 64, 847–860. <http://dx.doi.org/10.1037/0022-3514.64.5.847>.
- Johnson, E. J., Bellman, S., & Lohse, G. L. (2002). Defaults, framing and privacy: Why opting in-opting out. *Marketing Letters*, 13, 5–15. <http://dx.doi.org/10.1023/A:1015044207315>.
- Johnson, E., & Goldstein, D. (2003). Do defaults save lives? *Science*, 302, 1338–1339. <http://dx.doi.org/10.1126/science.1091721>.
- Lin, C. H., & Lin, H. C. (2009). The effect of mood states on variety-seeking behavior: The moderating role of price promotion. *Social Behavior and Personality: An International Journal*, 37, 1307–1311. <http://dx.doi.org/10.2224/sbp.2009.37.10.1307>.
- Mackie, D. M., & Worth, L. T. (1989). Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology*, 57, 27–40. <http://dx.doi.org/10.1037/0022-3514.57.1.27>.
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401 (k) participation and savings behavior. *The Quarterly Journal of Economics*, 116, 1149–1187. <http://dx.doi.org/10.1162/003355301753265543>.
- Masatlioglu, Y., & Ok, E. A. (2005). Rational choice with status quo bias. *Journal of Economic Theory*, 121, 1–29. <http://dx.doi.org/10.1016/j.jet.2004.03.007>.
- McKenzie, C. R., Liersch, M. J., & Finkelstein, S. R. (2006). Recommendations implicit in policy defaults. *Psychological Science*, 17, 414–420. <http://dx.doi.org/10.1111/j.1467-9280.2006.01721.x>.
- Paolacci, G., Chandler, J., & Ipeirotis, P. (2010). Running experiments on amazon mechanical turk. *Judgment and Decision Making*, 5(5), 411–419.
- Park, J., & Banaji, M. R. (2000). Mood and heuristics: The influence of happy and sad states on sensitivity and bias in stereotyping. *Journal of Personality and Social Psychology*, 78, 1005–1023. <http://dx.doi.org/10.1037/0022-3514.78.6.1005>.
- Pichert, D., & Katsikopoulos, K. V. (2008). Green defaults: Information presentation and pro-environmental behaviour. *Journal of Environmental Psychology*, 28, 63–73. <http://dx.doi.org/10.1016/j.jenvp.2007.09.004>.
- Prentice, R. A., & Koehler, J. J. (2002). Normality bias in legal decision making. *Cornell Law Review*, 88, 583–650.
- Riis, J., & Schwarz, N. (2003). Approaching and avoiding Linda: Motor signals influence the conjunction fallacy. *Social Cognition*, 21, 247–262. <http://dx.doi.org/10.1521/soco.21.4.247.27004>.
- Ritov, I., & Baron, J. (1992). Status-quo and omission biases. *Journal of Risk and Uncertainty*, 5, 49–61.
- Ruder, M., & Bless, H. (2003). Mood and the reliance on the ease of retrieval heuristic. *Journal of Personality and Social Psychology*, 85, 20–32. <http://dx.doi.org/10.1037/0022-3514.85.1.20>.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1, 7–59. <http://dx.doi.org/10.1007/BF00055564>.
- Schaefer, A., Nils, F., Sanchez, X., & Philippot, P. (2010). Assessing the effectiveness of a large database of emotion-eliciting films: A new tool for emotion researchers. *Cognition and Emotion*, 24, 1153–1172. <http://dx.doi.org/10.1080/02699930903274322>.
- Scheibehenne, B. & von Helversen, B. (2014). Selecting decision strategies: The differential role of affect. *Cognition & Emotion*. Advance online publication: <http://dx.doi.org/10.1080/02699931.2014.896318>.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513–523. <http://dx.doi.org/10.1037/0022-3514.45.3.513>.
- Schweitzer, M. (1994). Disentangling status quo and omission effects: An experimental analysis. *Organizational Behavior and Human Decision Processes*, 58, 457–476. <http://dx.doi.org/10.1006/obhd.1994.1046>.
- Sinclair, R. C., Mark, M. M., & Clore, G. L. (1994). Mood-related persuasion depends on (mis) attributions. *Social Cognition*, 12, 309–326. <http://dx.doi.org/10.1521/soco.1994.12.4.309>.
- Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *The University of Chicago Law Review*, 70, 1159–1202. <http://dx.doi.org/10.2307/1600573>.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124–1131. <http://dx.doi.org/10.1126/science.185.4157.1124>.
- Watson, D., & Clark, L. A. (1999). *The PANAS-X: Manual for the positive and negative affect schedule-expanded form*. Iowa City, IA: The University of Iowa.
- Wegener, D. T., & Petty, R. E. (1994). Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality and Social Psychology*, 66, 1034–1048. <http://dx.doi.org/10.1037/0022-3514.66.6.1034>.
- Westermann, R., Spies, K., Stahl, G., & Hesse, F. W. (1996). Relative effectiveness and validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology*, 26, 557–580. [http://dx.doi.org/10.1002/\(SICI\)1099-0992\(199607\)26:4<557::AID-EJSP769>3.0.CO;2-4](http://dx.doi.org/10.1002/(SICI)1099-0992(199607)26:4<557::AID-EJSP769>3.0.CO;2-4).

Yen, H. R., & Chuang, S. C. (2008). The effect of incidental affect on preference for the status quo. *Journal of the Academy of Marketing Science*, 36(4), 522–537. <http://dx.doi.org/10.1007/s11747-008-0084-2>.

## Appendix: Overview of the affect measures

Means and Standard Deviations (SD) for the affect measures in the three mood conditions: at the Beginning of the experiment – after the mood induction – at the end of the experiment.

Scale	Statistics	Happy (N=105)	Neutral (N=101)	Sad (N=107)
Happiness	Means	3.05 – 3.27 – 2.97	2.73 – 2.78 – 2.58	2.77 – 1.72 – 2.17
	SD	1.02 – 0.95 – 1.06	0.89 – 0.94 – 1.01	1.00 – 0.83 – 0.84
Sadness	Means	1.25 – 1.12 – 1.12	1.25 – 1.20 – 1.17	1.51 – 2.52 – 1.80
	SD	0.55 – 0.37 – 0.36	0.54 – 0.45 – 0.47	0.84 – 1.10 – 0.90
Angry	Means	1.14 – 1.11 – 1.10	1.11 – 1.13 – 1.08	1.28 – 1.44 – 1.30
	SD	0.54 – 0.42 – 0.44	0.45 – 0.44 – 0.37	0.80 – 0.86 – 0.77
Jittery	Means	1.45 – 1.30 – 1.38	1.33 – 1.29 – 1.27	1.50 – 1.41 – 1.40
	SD	0.78 – 0.59 – 0.75	0.62 – 0.65 – 0.65	0.91 – 0.81 – 0.80
Curios	Means	2.86 – 2.65 – 2.44	2.74 – 2.93 – 2.46	2.92 – 2.01 – 2.06
	SD	1.14 – 1.21 – 1.13	1.01 – 1.15 – 1.15	1.09 – 1.03 – 1.04
Excited	Means	2.46 – 2.70 – 2.33	2.22 – 2.24 – 1.99	2.38 – 1.55 – 1.67
	SD	1.11 – 1.17 – 1.17	1.07 – 1.10 – 1.09	1.00 – 0.72 – 0.86