Overweight and Self-Control Failure: Is There a Way Out?

Thomas Rudolph, University of St.Gallen, Switzerland
Alexandra Glas, University of St.Gallen, Switzerland
Peter Kenning, Zeppelin University, Germany

Although consumers pursue long-term health objectives, often short-term temptations affect individuals’ food choices, which cause a self-control dilemma. Instead of following their own intentions, consumers find themselves guided by deep-rooted habits. This research examines whether it is possible to stimulate better food choices by combining economic and psychological approaches.

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**Extended Abstract**

Persuading people to eat healthier is a major challenge in modern societies. To prevent diet-related diseases, there are to the best of our knowledge two research approaches being discussed. One approach applies powerful economic mechanisms, e.g. higher taxes for unhealthy food products. Studies showed that the demand for sugar-sweetened beverages can be reduced significantly by increasing prices (Epstein et al. 2010; Brownell and Frieden 2009). The other approach under discussion uses instruments that are grounded in psychology (Garg, Wansink, and Inman 2007; Chandon and Wansink 2007). However, both ways are often discussed unrelated to each other. This is astonishing assuming that a combination of both ways might positively affect the power of prevention. This holds particularly true considering that taxes might have serious consequences for markets and competition and are insofar second best. Against this background the aim of our study is to shed light on the interaction between economic and psychological approaches.

Literature both in psychology and economics ties habits and self-control. A pivotal tenet of economics is that incentives promote effort and performance (Gibbons 1997; Laezar 2000). In other words, rewards serve as positive reinforcers for the desired behavior (Bénabou and Tirole 2004). For psychologists, in contrast, the effect of rewards is more controversial (Deci, Koester, and Ryan 1999). They rather argue that self-regulatory strategies promote the initiation of goal-directed behaviors (Gollwitzer 1999; Baumeister and Heatherton 1996).

In this research we test whether implementation intention as a self-regulation mechanism and monetary incentives can be used in combination to overcome the self-control dilemma and to foster healthy eating behavior. Furthermore we aim to examine which of these approaches have a stronger influence and whether interactions might accrue. Thus comparing the two interventions provides insight into the interplay between psychological and economic processes underlying the healthy eating behavior.

To achieve this aim we conducted a controlled field experiment using a 2 (Implementation Intention: Formed/Not Formed) x 2 (Monetary Incentive: Available/Not Available) between-subjects design.

The study was conducted in three sequences with 176 Swiss consumers. Firstly, participants completed a baseline questionnaire which was combined with the implementation intention manipulation. The second sequence contained the incentive manipulation followed by the redemption of the voucher which measured actual eating behavior. Participants could choose between high-calorie, unhealthy snacks (croissants) and low-calorie, healthy snacks (mandarins/grapes). We counted the number of snacks chosen and converted the amount into calories (kcal). One week later, all participants completed a follow-up questionnaire being asked for the amount of unhealthy snacks they had consumed during the manipulation week.

Following this setup we are able to observe eating behavior before, during, and for one week after the intervention. Our main predictions are strongly confirmed. Firstly, the short-term interventions “implementation intention” and “monetary incentives” foster to choose the healthy snack. Secondly, participants are dynamically inconsistent: they chose more unhealthy snacks for immediate than for advance choice.

Analyses were conducted with SPSS. In a first step, we checked randomization and intercorrelations between all antecedents, as postulated by the theory of planned behavior as well as whether these antecedents predicted behavioral intention. Therefore, a multivariate analysis (MANOVA) was conducted between participants in the experimental and control groups with respect to the antecedent variables. The Levene’s test for each variable was not significant (p>.05), suggesting that the randomization had been successful.

Secondly, healthy eating behavior correlated significantly (p<.01) with all antecedent variables, except subjective norm. As expected, habits correlated negatively (r=-.238, p<.01) with healthy behavior. To test whether the antecedents predicted behavioral intention, we regressed behavioral intention on all antecedents. In the regression analysis (R²=.45) both the beta weights of attitude and perceived behavioral control were highly significant, β=.56, p<.01, and β=.19, p<.01, respectively, demonstrating that both variables contributed uniquely to the prediction of intention.

In a second step, we analyzed the interventions. Overall, 131 of 176 participants redeemed their voucher. As expected, the percentage of participants redeeming their voucher for a healthy snack in the control group was low-only 50%. In the experimental group “implementation intention” this percentage rises to 78.1%. In the experimental group “monetary incentive” 85.3% choose a healthy snack and in the combined experimental group this percentage is 82.9%. A chi-square-test shows high significance among the observed frequencies (p<.05).

The relative power of the three experimental manipulations was tested with an ANOVA. The overall F-test of this ANOVA is significant, F(3,131)=4.101, p<.05. The multiple mean comparisons (Student-Newman-Keuls-test) show a significant difference between...
the behavioral reaction of the control group and that of all three experimental groups. For the behavioral differences between the three experimental groups the multiple mean comparisons show no statistically significant differences.

To test whether the two interventions reduced the self-reported snack behavior during the follow-up week, we conducted an ANOVA. The main effect of the interventions was not significant $F(3,160)=1.72$. Following a Wilcoxon-test there was a highly significant ($p<.05$) effect of “Time” for the combined experimental group. Thus, those subjects who received both interventions reduced their snack consumption significantly during the follow-up compared to the baseline week ($M_{\text{baseline}}=7.81; M_{\text{follow-up}}=6.45$).

To conclude, our study provides first insights about the effect of the combination of economic and psychological interventions on consumers’ food choices. Our data reveal that incentives and self-regulation mechanisms encourage consumers to engage in healthy snack behavior. Incentives seem to have the strongest power. Moreover, the result provides evidence that the combined effect is more overlapping than additive. This finding initiates the discussion of how independent psychological and economic processes are. It could be argued that in daily life strong incentives encourage consumers to engage in self-regulation activities. From the food industry’s point of view, such a combined approach may be more attractive--in contrast to taxation-because it gives leeway for communication activities rather than just following policies. Further research should determine details about the long-term effects of combined interventions.

Selected References

The Boomerang Effect of Mandatory Sanitary Messages to Prevent Obesity
Caroline Cuny, Grenoble Ecole de Management, France
Carolina Werle, Grenoble Ecole de Management, France

The prevalence of overweight and obesity increases in a tremendous way in France, especially since the beginning of the 1990s. To counter this problem, French authorities establish new guidelines and, since 2007, companies are obliged to include health sanitary messages on their advertisements for foods and beverages. Four health message (“For your health, eat at least five fruit and vegetables a day”; “For your health, avoid foods that are too fatty, too salty or too sweet”; “For your health, avoid snacking between meals”; and “For your health, practice a regular physical activity”). These health messages must “be presented in a way they are easily readable and clearly differentiated from the advertising message” and must occupy at least 7% of the advertising space.

The inclusion of sanitary messages on advertisements is based on the assumption that food advertisements vulgarize obesity among children. Previous studies emphasized the influence of advertisements on the gain of weight among children (Pécheux, Derbaix and Charruy, 2006). The objective of the inclusion of sanitary messages in the food advertisements was to prevent obesity and to easily disseminate health messages to the population.

However, the presence of sanitary messages can have a different effect on consumers’ perception of a hedonic product. Indeed, the consumption of hedonic products is associated with a need for justification and feelings of guilt (Kivetz and Simonson, 2002). Although hedonic products’ consumption generates positive emotions (Chitturi, Raghunathan and Mahajan, 2007), this choice is difficult to justify (Okada, 2005) and may have negative consequences in the long run, increasing guilt (Hoch and Loewenstein, 1991). The policy makers’ objective including sanitary messages in advertisements for foods is to increase the guilt associated with the product, reducing its consumption. Nevertheless, the presence of the health message can be a justification for the hedonic choice. Previous research indicates that presenting a justification for the choice of a hedonic product increases its consumption (Kivetz and Simonson, 2002; Lee, Shavitt, 2009). Making a hedonic decision and claiming to do something good for your health just after it reduces the feeling of guilt and finally encourages the hedonic choice (Strahilevitz and Myers, 1998). Here, presenting a hedonic food simultaneously with the solution to face the consequences of its consumption (sanitary message) may have an unexpected opposite effect.

The objective of this article is to verify the effects of the sanitary messages on the explicit and implicit attitudes towards hedonic foods. Following the conceptualization above, we propose that attitudes towards the product will be more positive when the sanitary message is present in the advertisement than when it is absent, because the message provide a justification for the hedonic consumption.

One-hundred thirty-one students (average age 20 years old) participated in the study. A single health message was tested in the present study: “For your health, eat at least five fruit and vegetables per day”. This message was chosen because it is the best recalled