

Department of Psychological and Behavioural Science

**COURSEWORK SUBMISSION FORM AND
PLAGIARISM/ACADEMIC HONESTY DECLARATION**

Please ensure that a completed copy of this form is uploaded as part of your coursework submission.

Candidate Number: 35612

Course code: PB405

Word-count: 2200

Date: 12.12.2023

The Department wishes to draw your attention to the School Calendar Regulations on Assessment Offences and Plagiarism:

<https://info.lse.ac.uk/Staff/Divisions/Academic-Registrars-Division/Teaching-Quality-Assurance-and-Review-Office/Assets/Documents/Calendar/RegulationsAssessmentOffences-Plagiarism.pdf>

All work submitted as part of the requirements for any assessment of the School (e.g., examinations, essays, dissertations, and any other work, including computer programs), whether submitted for formative or summative assessment, must be expressed in your own words and incorporate your own ideas and judgments. Plagiarism must be avoided in all such work. Plagiarism can involve the presentation of another person's thoughts or words as if they were your own. However, please note that plagiarism also includes self-plagiarism, which is where you as the author re-use your own previously submitted work or data in a "new" written piece of work without letting the reader know that this material has appeared elsewhere. The definition of "your own work" also includes work produced by collaboration or group-work expressly permitted by the Department.

Please also note that plagiarism as defined by the School above, need not be deliberate or intentional for it to constitute an assessment offence.

Declaration (without signature, to preserve anonymity): Having read and understood LSE's guidelines on plagiarism/academic honesty, I hereby confirm by completing and attaching this form that the work submitted is my own. By submitting this form I hereby confirm I understand the Department's policy on summative assessment, and that I have read the relevant parts of the MSc programme handbook.

A Dual-Process Model of Self-Defeating Behaviors

Dual-process models have emerged as foundational frameworks and are widely used in social psychology and cognitive sciences. Despite variations in specific definitions across different disciplines, the fundamental distinction between autonomous, unconscious (System 1) and reflective, conscious (System 2) processes appears as a robust and applicable model (Evans & Stanovich, 2013). While System 1 processes function as rapid defaults, System 2 may intervene and adjust for biases (Kahneman & Frederick, 2002). Those fast, defaulting associations may be described as a pattern completion mechanism based on automatic connections between a current stimulus and past ones, thereby shaped by previous experiences and memories (Smith and DeCoster, 1999). In contrast, reflective processes are slow and require cognitive effort and limited working memory resources (Evans and Stanovich, 2013), yet can be more powerful as they offer the ability for correction.

Employing this framework to analyze cognitive vulnerabilities in self-defeating behaviors holds significant value for understanding individual and situational determinants. The American Psychological Association defines self-defeating behaviors as “repetitive actions by an individual that invite failure or misfortune and thus prevent them from attaining goals or fulfilling desires”, which encompasses impulsive behaviors like overspending, drug abuse, and binge-eating, alongside behaviors influenced by self-criticism and low self-esteem, such as the avoidance of challenging tasks. This essay aims to conceptualize self-defeating behaviors into a theoretical framework based on self-control issues and negatively biased self-reflecting and subsequently analyzes it from a dual-process perspective.

According to dual-process models, self-control is explained by the interplay between impulsive and reflective processing (Smith & DeCoster, 2000), or as Thaler and Shefrin (1981) phrase it,

the dynamic between “the doer” and “the planner”. Here, the doer seeks immediate satisfaction while the planner tries to optimize long-term outcomes. Reflective processes (the planner) function to monitor and modulate impulsive tendencies (Gunn & Finn, 2015), thereby may help to overcome self-defeating behaviors. In the context of overspending, achieving long-term financial goals requires a disciplined savings approach. However, impulsive tendencies (the doer) might lead to spending the monthly savings for immediate gratifications in a situation driven by low executive working memory capacity (Gunn & Finn, 2015), limiting the ability of the planner to intervene and adjust.

Moreover, self-reflective processes driven by negatively biased associations may lead to low self-esteem and an avoidance of undertaking new challenges. Ultimately, this may prevent progress towards achieving one’s goals. As argued above, System 1 factors illustrate a pattern completion mechanism, reliant on past experiences. When confronted with a new goal, an individual may initially associate themselves with anticipated failure, thereby initiating a pattern of following associations reinforcing this pessimistic view, which ultimately may lead to avoidance behaviors. Callan et al. (2014) demonstrate how past negative outcomes can decrease self-esteem and foster the adoption of self-defeating beliefs and behaviors. Failures to reflect and correct such associative processes may lead to a potential downward spiral, where the pattern completion mechanism maintains further associative processing and intensifies the initial bias (Beevers, 2005). System 2 factors, reflective thoughts, may have the potential to intervene and adjust, assuming the availability of sufficient working memory capacity and an individual’s motivation to engage in such correction.

Employing the understanding of dual-process factors in self-defeating behaviors may enable us to formulate cost-effective interventions and policies that target impulsive behavior and encourage reflective thoughts. Self-defeating behaviors are instrumental to various policy

concerns, including retirement savings (Benartzi & Thaler, 2013), obesity (VanEpps et al., 2016), and individual well-being (Wiese et al., 2018). While conventional therapeutic approaches have been demonstrated to be effective in reducing self-defeating behaviors, large-scale implementations seem unfeasible in many parts of the world. Building on Duckworth et al. 2018, this essay proposes to categorize promising cost-effective policies and interventions into other-deployed and self-deployed approaches.

Impulsive behavior may be prevented through (libertarian) paternalistic other-deployed approaches such as defaults, taxes and bans by reducing the reliance on reflective processing. Automatic enrollments in pension plans, for instance, relieve the responsibility of the planner, leverage status-quo bias, and result in increased retirement savings (Madrian & Shea, 2001). Similarly, taxing or banning addictive behaviors, such as tobacco or excessive sugar consumption, reduces or eliminates immediate gratification, which may promote a shift towards long-term maximization and well-being (e.g. Gruber & Mullainathan, 2006). Utilizing the understanding of the dynamic between impulsive and reflective processes carries, therefore, significant value in formulating policies aimed at preventing self-defeating impulsive behaviors.

Contrarily, self-deployed strategies, such as mindfulness meditation or mental contrasting, aim to promote agency and may increase the capabilities of System 2 factors. Recent findings from a meta-analysis indicate that Mindfulness-Based Interventions (MBI), for example, have a significant positive effect on executive control (Yakobi et al., 2021). Notably, mindfulness meditation has been correlated with reduced activity in the amygdala (Desbordes et al., 2012), a region associated with automatic processing and linked to negative self-reflecting processes in individuals with depression (Alarcón et al., 2019). Furthermore, mindfulness meditation has been shown to reduce mind wandering and to increase working memory capacity (Mrazek et

al., 2013), potentially being beneficial in intervening negatively biased self-reflecting associations. Endowing the population with self-deployed strategies via both physical and digital educational initiatives holds, therefore, an immense potential to increase agency and reduce self-defeating behaviors. These programs may be physically implemented within institutional settings such as schools and universities and extended through the development of mobile applications. For instance, through a government-funded application focusing on mindfulness and mental contrasting.

Influencing behavior is generally connected to ethical considerations. While self-deployed interventions mainly focus on enhancing autonomy and individual well-being through the strengthening of System 2, other-deployed interventions often target System 1, thereby reducing autonomy to increase well-being. The justification for reducing autonomy in self-defeating behaviors is either based on the presence of externalities, for example, the effects of second-hand cigarette smoke on bystanders (Duckworth et al., 2019), or on the acknowledgement that individuals make imperfect choices under incomplete information and limited cognitive abilities (Thaler & Sunstein, 2003). Paternalistic approaches may be socially optimal in cases of externalities, and even in behaviors that are only self-defeating (Duckworth et al., 2019). Gruber and Mullainathan (2006), for instance, demonstrated that tobacco taxes increase the well-being of smokers. While it is still controversial to reduce agency, libertarian paternalism, for example, demonstrated through automatic enrollment in pension plans with an opt-out option, offers an approach without coercion (Thaler & Sunstein, 2003). In conclusion, prioritizing System 2 factors in addressing self-defeating behaviors is more ethical, as it may improve welfare without decreasing freedom. Nevertheless, in specific instances such as drug abuse, relying on System 2 interventions may not be feasible, making it socially optimal to target System 1.

References

- Alarcón, G., Sauder, M., Teoh, J. Y., Forbes, E. E., & Quevedo, K. (2019). Amygdala Functional Connectivity During Self-Face Processing in Depressed Adolescents With Recent Suicide Attempt. *Journal of the American Academy of Child & Adolescent Psychiatry*, 58(2), 221–231. <https://doi.org/10.1016/j.jaac.2018.06.036>
- APA Dictionary of Psychology. (2023, November 15). Retrieved December 11, 2023, from dictionary.apa.org website: <https://dictionary.apa.org/self-defeating-behavior>
- Beevers, C. (2005). Cognitive vulnerability to depression: A dual process model. *Clinical Psychology Review*, 25(7), 975–1002. <https://doi.org/10.1016/j.cpr.2005.03.003>
- Benartzi, S., & Thaler, R. H. (2013). Behavioral Economics and the Retirement Savings Crisis. *Science*, 339(6124), 1152–1153. <https://doi.org/10.1126/science.1231320>
- Callan, M. J., Kay, A. C., & Dawtry, R. J. (2014). Making sense of misfortune: Deservingness, self-esteem, and patterns of self-defeat. *Journal of Personality and Social Psychology*, 107(1), 142–162. <https://doi.org/10.1037/a0036640>
- Desbordes, G., Negi, L. T., Pace, T. W. W., Wallace, B. A., Raison, C. L., & Schwartz, E. L. (2012). Effects of mindful-attention and compassion meditation training on amygdala response to emotional stimuli in an ordinary, non-meditative state. *Frontiers in Human Neuroscience*, 6. <https://doi.org/10.3389/fnhum.2012.00292>
- Duckworth, A. L., Milkman, K. L., & Laibson, D. (2018). Beyond Willpower: Strategies for Reducing Failures of Self-Control. *Psychological Science in the Public Interest*, 19(3), 102–129. <https://doi.org/10.1177/1529100618821893>
- Evans, J. St. B. T., & Stanovich, K. E. (2013). Dual-Process Theories of Higher Cognition. *Perspectives on Psychological Science*, 8(3), 223–241. <https://doi.org/10.1177/1745691612460685>
- Gruber, J. H., & Mullainathan, S. (2005). Do Cigarette Taxes Make Smokers Happier. *Advances in Economic Analysis & Policy*, 5(1). <https://doi.org/10.2202/1538-0637.1412>
- Gunn, R. L., & Finn, P. R. (2015). Applying a dual process model of self-regulation: The association between executive working memory capacity, negative urgency, and negative mood induction

on pre-potent response inhibition. *Personality and Individual Differences*, 75, 210–215.

<https://doi.org/10.1016/j.paid.2014.11.033>

Kahneman, D., & Frederick, S. (2002). Representativeness Revisited: Attribute Substitution in Intuitive Judgment. *Heuristics and Biases*, 49–81.

<https://doi.org/10.1017/cbo9780511808098.004>

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(4), 1149–1187.

<https://doi.org/10.1162/003355301753265543>

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., ... Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, 108(7), 2693–2698.

<https://doi.org/10.1073/pnas.1010076108>

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness Training Improves Working Memory Capacity and GRE Performance While Reducing Mind Wandering. *Psychological Science*, 24(5), 776–781.

<https://doi.org/10.1177/0956797612459659>

Smith, E. R., & DeCoster, J. (1999). *Associative and rule-based processing: A connectionist interpretation of dual-process models*.

Smith, E. R., & DeCoster, J. (2000). Dual-Process Models in Social and Cognitive Psychology: Conceptual Integration and Links to Underlying Memory Systems. *Personality and Social Psychology Review*, 4(2), 108–131. https://doi.org/10.1207/s15327957pspr0402_01

Thaler, R. H., & Shefrin, H. M. (1981). An Economic Theory of Self-Control. *Journal of Political Economy*, 89(2), 392–406. <https://doi.org/10.1086/260971>

Thaler, R. H., & Sunstein, C. R. (2003). Libertarian Paternalism. *American Economic Review*, 93(2), 175–179. <https://doi.org/10.1257/00028280321947001>

VanEpps, E. M., Downs, J. S., & Loewenstein, G. (2016). Calorie Label Formats: Using Numeric and Traffic Light Calorie Labels to Reduce Lunch Calories. *Journal of Public Policy & Marketing*, 35(1), 26–36. <https://doi.org/10.1509/jppm.14.112>

- Wiese, C. W., Tay, L., Duckworth, A. L., D'Mello, S., Kuykendall, L., Hofmann, W., ... Vohs, K. D. (2017). Too much of a good thing? Exploring the inverted-U relationship between self-control and happiness. *Journal of Personality*, 86(3), 380–396. <https://doi.org/10.1111/jopy.12322>
- Yakobi, O., Smilek, D., & Danckert, J. (2021). The Effects of Mindfulness Meditation on Attention, Executive Control and Working Memory in Healthy Adults: A Meta-analysis of Randomized Controlled Trials. *Cognitive Therapy and Research*. <https://doi.org/10.1007/s10608-020-10177-2>

An Evaluation of the Effectiveness of the Save More Tomorrow (SMarT) Program

As the United States transitioned from defined-benefit to defined-contributions plans, responsibility and decision freedom enhanced, resulting in retirement savings below the normative life cycle savings due to bounded rationality and deficiencies in self-control. Following the underlying assumption that low-saving households may appreciate external guidance, Thaler and Benartzi (2004) addressed this problem by conceptualizing a prescriptive savings plan: SMarT. The core objective lies in easing savings planning and actions, with the essence of pre-committing to future incremental increases in savings. SMarT builds on five essential ingredients, employing a choice-architecture grounded in behavioral economics insights. Bounded rationality is acknowledged through recommended or defaulted savings rates, while hyperbolic discounting (Ainslie, 1975) is leveraged through a delay between the commitment and increases in savings. This aligns with the understanding that saving in the future is perceived as more manageable. Additionally, nominal loss aversion (Shafir et al., 1997; Kahneman et al. 1990) is countered by synchronizing pay raises with incremental savings rate increases. Finally, inertia and status-quo bias are deployed through automatic increases, with an opt-out option ensuring comfort and libertarian paternalism (Thaler & Sunstein, 2003).

To evaluate the objective of aiding low-saving households to overcome bounded rationality and self-control challenges involves the assessment of four main indicators: savings rates, participation rates, target group, and net savings. The authors provide evidence of three distinct field studies, each executed differently, which complicates direct comparison. The first study provides the most evidence, as it collected data over four pay raises, while the following two implementations only recorded the effect of the first pay raise. Furthermore, Thaler and Benartzi had limited influence over specific details, mainly reflecting the firms' preferences, thus limiting experimental control. Additionally, none of the studies was conducted as a randomized

control trial, and thus only provide descriptive effects; self-selection plays a crucial role in Thaler's and Benartzi's study, which should be addressed in further research.

Increases in savings rates are essential to align low- and non-savers with the normative life cycle rate. In the initial implementation, most participants stayed with SMarT over four pay raises and increased the rate from 3.5% to 13.6%. Only 19.75% opted out to hinder the following increase. Automatic increases, exploiting inertia and procrastination, seem to be very effective. Notably, this contrasts with an option where employees chose an immediate 5% increase and slightly reduced it over the four raises. Additionally, participants who did not accept either option also reduced their savings marginally.

Moreover, SMarT's effectiveness is determined through its participation rates. Throughout the three implementations, SMarT achieved acceptance rates of 78% (first study, anonymous midsize company), 13.4% (second study, Ispat Inland), and 16.9% (third study, Philips Electronics) in its first division, escalating to 38.3% in its second division. This variance may be best explained by the possibility of meeting a consultant, which indicates the impact of clear program descriptions. High uptake, particularly when the program is explained, suggests the effectiveness of deploying hyperbolic discounting through pre-commitment with a combination of countering nominal loss aversion through the synchronization of pay and savings increases. This compares to a 27.62% uptake for the alternative of instantly increasing the savings by 5%.

While overall participation rates are helpful to determine its effectiveness, particularly the take-ups among low- and non-savers are crucial. The initial implementation demonstrates that those who accepted SMarT were previously saving 0.9% less than those who accepted the direct increase of 5%. Different invitation formats in the following two implementations make

comparison difficult, yet combining SMarT with automatic enrollment may present an increased efficacy in targeting low- and non-savers (Madrian & Shea, 2001).

The fourth and most important indicator of SMarT's effectiveness is measured by its impact on net savings. While Thaler and Benartzi calculated relatively high replacement rates of 90%-108% for hypothetical low-income households joining SMarT under the age of 35, the authors did not provide information about potential correlations between increased savings and elevated debt.

This prompts an investigation into compensatory financial behaviors, where increased savings may lead to heightened debt-taking, known as a permitting spillover (Dolan & Galizzi, 2015). The underlying motive for funds for leisure spending could result in elevated consumer debt, especially when the costs and agency for increasing savings are low (Gneezy et al. 2012). Another compensatory behavior, an extinguishing spillunder (Krpan et al. 2019), may occur through moral licensing, where participants anticipate a "good" action, i.e. raising their savings rate and therefore engaging in a "bad" behavior beforehand, i.e. increased leisure spending.

To investigate long-term debt spillovers, this essay proposes partnering with a company to implement SMarT for a natural field experiment. Contrary to the author's studies, the use of between-subject randomization for treatment and control is recommended to address self-selection. The outcome variable is average debt intake, with SMarT as a binary independent variable. Debt intake will be measured through yearly self-reports, which provide detailed information on consumer debt. Collaborating with a companywide credit card provider would be ideal to eliminate social-desirability biases in self-reports. Long-term debt spillovers will be analyzed using panel data regression, controlling for covariates such as age, income, previous savings, and gender, to assess if SMarT has a significant positive impact on average debt intake.

In order to examine the presence and impact of moral licensing spillover effects, an online laboratory experiment using between-subject randomization and a novel economics game may be used. The treatment group receives a hypothetical scenario with SMarT enrollment and an anticipated savings increase, while the control group faces the same situation without a savings increase. The savings increase will be framed as a “good” action: “You finally committed to increase your savings next month”. Afterwards, probands will be given the option to buy a weekend vacation with costs from \$0 to \$200 and matching utility from 0 to 200 units. Unlike a field experiment, this online laboratory setup allows for a large, diverse sample size across different cultures. Ideally, potential covariates such as BIG-5 personality traits are surveyed after the experiment. An Ordinary Least Squares regression will be used to analyze the effect of the savings increase (independent variable) on leisure spending (dependent variable). This approach allows for the inclusion of controls, such as personality traits, age, and socioeconomic factors, and to test for the presence and impact of moral licensing effects.

In conclusion, Thaler’s and Benartzi’s descriptive evidence suggests that deploying hyperbolic discounting and automatic increases in a prescriptive savings plan is more effective than previous defined-contributions plans without being more costly to implement. However, comprehensive assessment through randomized controlled trials, examination of compensating behaviors and cross-cultural testing is still necessary.

References

- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4), 463–496. <https://doi.org/10.1037/h0076860>
- Dolan, P., & Galizzi, M. M. (2015). Like ripples on a pond: Behavioral spillovers and their implications for research and policy. *Journal of Economic Psychology*, 47, 1–16. <https://doi.org/10.1016/j.joep.2014.12.003>
- Gneezy, A., Imas, A., Brown, A., Nelson, L. D., & Norton, M. I. (2012). Paying to Be Nice: Consistency and Costly Prosocial Behavior. *Management Science*, 58(1), 179–187. <https://doi.org/10.1287/mnsc.1110.1437>
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1990). Experimental Tests of the Endowment Effect and the Coase Theorem. *Journal of Political Economy*, 98(6), 1325–1348. <https://doi.org/10.1086/261737>
- Krpan, D., Galizzi, M. M. M., & Dolan, P. (2019). Looking at Spillovers in the Mirror: Making a Case for “Behavioral Spillunders.” *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.01142>
- 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(4), 1149–1187. <https://doi.org/10.1162/003355301753265543>
- Shafir, E., Diamond, P., & Tversky, A. (1997). Money Illusion. *The Quarterly Journal of Economics*, 112(2), 341–374. <https://doi.org/10.1162/003355397555208>
- Thaler, R. H., & Benartzi, S. (2004). Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving. *Journal of Political Economy*, 112(S1), S164–S187. <https://doi.org/10.1086/380085>
- Thaler, R. H., & Sunstein, C. R. (2003). Libertarian Paternalism. *American Economic Review*, 93(2), 175–179. <https://doi.org/10.1257/000282803321947001>