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Book review: review of “behavioral economics and healthy behaviors: key concepts and current research”, edited by Yaniv Hanoch, Andrew J. Barnes, and Thomas Rice (2017)

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Review of “**Behavioral Economics and Healthy Behaviors: Key Concepts and Current Research**”, edited by **Yaniv Hanoch, Andrew J. Barnes, and Thomas Rice (2017)**. Routledge, Oxon, 236 pages, £25.59 (paperback), £76.00 (hardback).

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(Accepted for publication in *Journal of Economic Psychology*).

The book edited by Yaniv Hanoch (Professor of Decision Science at University of Plymouth, UK), Andrew J. Barnes (Associate Professor of Health Behavior and Policy at Virginia Commonwealth University, USA), and Thomas Rice (Professor of Health Economics and Policy at University of California Los Angeles, USA) is an excellent and updated overview of the current research applying behavioral economics to a range of health-related areas.

The book nicely complements other books on the topic, such as Roberto and Kawachi (2016), for instance. The book is timely in catering to the growing interest in applying methods and principles from behavioral economics to research and policy efforts to understand and change health-related behaviors. The growing interest is witnessed by the launch of behavioral economics units in health policy-making institutions (e.g. Public Health England in the UK, the European Commission, the OECD), and by the fast-growing community of researchers working at the intersection of health and behavioral economics (e.g. the Behavioural Experiments in Health Network,¹ of which Hanoch is a distinguished member).

The book is structured in four parts, with the first part containing some “Background material” and the other three parts dealing with “Shaping health behaviors”, “Detecting and managing diseases”, and “The role of providers, insurers, and government”, respectively. Each chapter in every part focuses on one specific health-related behavior: smoking, alcohol/drug use, physical activity, diet (part 2); medication adherence, cancer screening, HIV, health behaviors in developing countries (part 3); clinical quality improvement, health insurance, health policies (part 4). As such, the book follows an original approach which makes it a self-contained guide to readers of both general and specialist interests in this area.

¹ BEH-net: <http://www.beh-net.org/>

I find the book generally well-designed, comprehensive, and insightful. As almost inevitable with a collection of independently drafted chapters, I find some chapters more convincing than others.

The “Introduction” (chapter 1) and the “Brief overview of behavioral economics” (chapter 2), both by the editors, are very well-thought and coherent. It is great to see discussed both “traditional and behavioral” “economic solutions” in the introduction (pages 4-5) because, in practice, it is often difficult to draw a clear line on whether some health policy tools belong to either conventional or behavioral economics: think for example at “behaviorally super-charged” incentives, that is, incentives designed around behavioral economics principles. If anything, it would have been useful to include explicit operational definitions of “traditional” and “behavioural” economics. It is excellent to see a mention of the pioneering work by Herbert Simon that “would later be followed by other economists and psychologists” (page 15). There is also a generally comprehensive discussion of the cognitive biases, one of which (“present bias”, page 17) would have probably required a more detailed discussion of how it relates to standard versus behavioral accounts of time preferences. More generally, the whole discussion on the cognitive biases would have been enriched by an explicit reference to the distinction between “biases” and “errors”. I really like the detailed discussion, early on in the book (page 23), about the “limitation of behavioral economics”, and, in particular, the important considerations that behavioral economics “is not a panacea” and that its “interventions are not meant to replace traditional economics and regulatory tools” (page 23). The “Glossary” of behavioral economics biases (pages 24-27) is a very useful toolkit.

I find chapter 3 on “The behavioral economics of tobacco products”, by Bickel, Moody, Snider, Mellis, Stein and Quisenberry, less convincing. The chapter raises very good points such as the current disruptive market innovation represented by e-cigarettes. However, I do not find it particularly insightful on illustrating how behavioral economics can be used to understand or change smoking behaviors. Most of the material covered in the chapter is about standard concepts in traditional economics, and about well-consolidated methods and findings in experimental economics, such as the study of own-price elasticity of demand (pages 35-36), cross-price elasticity of demand (pages 36-37), preferences for alternatives (38-40), demand assessment (42-44), tobacco marketplaces (44-46). Moreover, I disagree with claims such as “standard economics typically retrospectively examines a limited range of prices that have occurred in the natural economy. Therefore, standard economics analyses can only examine historical phenomena and cannot prospectively contribute to tobacco regulatory science. In contrast, behavioral economics laboratory studies permit examination of a broad range of prices in the presence of alternative products” (page 34): the use of carefully designed laboratory studies to examine the impact of a range of prices is a core contribution of experimental economics, which is an integral part of standard economics. Another key contribution from experimental economics is the evidence about the “hypothetical bias” when preferences and evaluations of goods are elicited using hypothetical scenarios; therefore I do not find it accurate to define “behavioural economics 2.0” as “hypothetical purchase task” in the header in page 40.

Chapter 4, on “Understanding alcohol and other drug use via behavioral economics” by Amlung, Gray and MacKillop offers many excellent insights such as: the discussion about contingency reinforcement approach (CRA) and contingency management (CM); the observation that delay discounting (DD) may be an underlying mechanism mediating “the relationship between CRA and CM and positive outcome” (page 60); the fact that the literature to date only uses abbreviated measures of DD with 5-8 questions (page 61); the focus of existing studies on “one type of addictive disorder” only (page 62), without considering the overall set of disorders and their ramifications; and the typical cross-sectional designs of the studies to date, which do not yet engage in “longitudinal research” (page 62). Some key questions are whether the studies cited there elicit DD and impulsivity using incentive-compatible or hypothetical tests; and whether the finding of a correlation between steeper DD and “poor addiction treatment outcomes” (page 58) comes from systematic reviews of the literature. From this perspective it is excellent that the chapter refers to a meta-analysis for the links between DD and “higher addiction severity” (page 53) - also mentioning the potential “publication bias” (page 54); and that it openly acknowledges the hypothetical bias from self-reported and hypothetical measures (page 61).

Chapter 5 on “Behavioral economics: tools for promotion of physical activity” by Leonard and Shuval, and chapter 6 on “Using behavioral economics to improve dietary intake” by Bragg and Elbel, tackle from two different angles (“calories out” and “calories in”, respectively) the challenges related to the most recent “pandemic” among risky health behaviors: obesity. Both chapters are balanced and pragmatic in reckoning that the dramatic surge of obesity is a too complex and multifaceted problem to be effectively dealt with behavioral economics tools only. The excellent discussion in chapter 6 about “nudges”, such as “mass defaults” and “personalized defaults” (pages 92-98) for example, sees these behavioral economics tools as complementary, rather than as substitute, to other, more structural, policy tools, such as taxes (page 91), labelling regulations (page 91), portion restrictions (page 95), and voluntary pledges (pages 98-99). Chapter 5 explicitly warns about the “compensatory effects” of behavioral interventions intervening on physical activity only (page 77), something that Dolan and Galizzi (2015) call “permitting behavioral spillovers” (page 5). The same chapter makes the other point that risk and time preferences are key underlying mechanisms moderating the effects of incentives (pages 76-79). I completely agree on the need to integrate the two phases of i) the measurement of behavioral economics constructs (e.g. risk and time preferences), and ii) the behavioral interventions (e.g. incentives, nudges) tested in randomized controlled experiments (pages 82-83): only by systematically integrating these too often disconnected phases (in what I call a “behavioral data linking” approach: Galizzi, 2017; Galizzi and Wiesen, 2018), policy-makers and researchers will be able to finally gather insights on the heterogeneous effects of behavioral interventions.

The following chapters 7-10 (which form part 3 of the book) take the innovative perspective on how we can use behavioral economics to detect and manage specific diseases in clinical applications. These chapters are original in both the approach (disease-oriented) and the content (based on state-of-the-art evidence on specific clinical applications). Chapter 7 on “Improving medication adherence with behavioral economics” by Meredith and Petry

makes several insightful points on the reinforcement-based interventions for adherence to medications, such as the huge scope for linking medical records to such behavioral interventions (page 122): in line with the “behavioral data linking” approach (Galizzi, 2017; Galizzi and Wiesen, 2018), this will allow not only to integrate randomized controlled experiments with cost-benefit and cost-utility analyses, but also to systematically map all the “post-treatment” (i.e. “carryover”) effects (page 122), that would otherwise be missed. The integration of cost-effectiveness analysis is also mentioned by Li, Wilson, Villareal and Pagan in their chapter 8 on “Integrating principles from behavioral economics into patient navigation programs targeting cancer screening” (page 132-138). Linnemayr in his chapter 9 on “Behavioral economics and HIV” convincingly argues that “it is not always possible to draw a clear line between ‘traditional’ and ‘behavioral’ economics approaches underlying programs using monetary incentives to influence health behaviors” (page 147), and distinguishes between traditional incentives and “interventions that explicitly target specific behavioral biases, and/or use incentives that are designed based on behavioral economics principles” (the above mentioned “behaviorally super-charged incentives”) (page 148). His discussion of financial incentives designed as lotteries (pages 149-150) confirms the promise of integrating the measurement of behavioral economics constructs – such as risk and time preferences - with the behavioral interventions (page 151). I absolutely agree with his final note on the promise of using a mobile health (mHealth) approach (pages 151-152), which, among other things, could help keeping track of the carryover and spillover effects of interventions. Rather than focusing on a specific disease, Luoto focuses on developing countries, in her chapter 10 on “Behavioral economics and health behaviors among the poor”. She also distinguishes between traditional and behavioral economics incentives (pages 164-165), and reiterates the point that behavioral economics “should not alone be the final solution” of all health-related problems (page 169): while it can help improving “demand-side health behavior” (page 169), other policy tools, such as taxation, regulation, and redistribution, should also be used to structurally address supply-side issues. Also in developing countries, she argues, the literature to date lacks i) a systematic approach, focusing instead on “small-scale” “boutique” pilot studies whose results are not systematically combined and analysed (page 168); ii) a longitudinal dimension to track all “carryover” effects, that is of the “long-term” sustained effects in behavior change (page 168); iii) a broadly defined range of outcomes capturing all ramifications and “behavioral spillover” effects of the initial intervention, including “perverse incentives” (page 161); and iv) an integrated approach to “isolate singular behavioral channels” as mechanisms and moderators of the behavioral change (page 168).

The last part is also innovative as it focuses on the role of providers, insurers, and policy-makers. These are all under-explored areas of investigation. It is often argued that behavioral “anomalies” (Kahneman, Knetsch, and Thaler, 1991) only arise among not-proficient decision-makers, such as patients and consumers for example; or when the stakes are low, such as for trivial and seemingly innocuous food and shopping decisions, for instance. However, chapter 11 on “Applications of behavioral economics to clinical quality improvement”, by Meeker and Doctor, documents a variety of situations where the behavior by physicians and other medical professionals are also affected by subtle changes

in the choice architecture, such as in the prescriptions of antibiotics (pages 180-181), of generic or branded drugs (page 183), and of opioids (page 184). Similarly, chapter 12 on “Using behavioral economics to improve people’s decisions about purchasing health insurance” by the editors shows how the choice architecture can dramatically affect also the purchase of health insurance, arguably one of the decisions with highest possible stakes in terms of both monetary and healthcare outcomes. The chapter makes numerous excellent points, for example when it discusses the multiple ways in which choice architectures and “smart defaults” can improve decisions about health insurance, for instance by: reducing information and choice overload (pages 194, 196-197, 202-203); increasing salience (page 194, 200); reducing status quo, inertia, and loss aversion (pages 194, 198-199); counterbalancing overconfidence bias, and over- or under-weighting of costs (pages 194, 198-199); reducing comparison frictions using plain language, symbolic and standardized information (pages 200-201); using “just-in-time education”, that is informational interventions delivered right at the times when consumers make their health insurance purchasing decisions (page 203). The chapter also discusses the limitations of the research to date, such as the hypothetical bias, and the trade-off between “comprehensiveness and comprehensibility” of choice architectures (page 204). The final chapter 13 on “The role of government” by Sen and Frank contains an excellent discussion of “behavioral market failures” (page 212) that, in the case of health, can justify public interventions through policy, in the same way as public policies are typically justified to tackle other widely recognized market failures (e.g. externalities, asymmetric information, incomplete markets). “Behavioral market failures” are thus reminiscent of the “internalities” discussed by Herrnstein, Loewenstein, Prelec and Vaughan (1993) (page 150). These “behavioral market failures”, in turn, can come from non-standard beliefs (e.g. overconfidence), non-standard decision-making (e.g. framing, anchoring effects), and non-standard preferences (e.g. present-biased and time-inconsistent preferences) (pages 218). The chapter interestingly sees the policy process as a Stackelberg (1934) game where the policy-makers should correctly anticipate such individual “behavioral” responses and adjust policies accordingly (pages 215, 219-220). It also reiterates the important points that behavioral economics should complement traditional regulation, and that a combination of traditional and behavioural interventions is the optimal policy approach to account for the heterogeneity of preferences and to achieve maximum well-being (pages 223-225).

Finally, the book is engagingly and concisely written. Besides being of major interest, it is also a pleasure to read and consult. For what it matters, the book is already in the reading list of my graduate courses on “*Behavioral Science for Health*” at the London School of Economics and, I hope, it will be soon in the reading lists of similar courses around the world.

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