



Addressing Consumerism and the Planetary Health Crisis: Behavioral Economics Approach in Public Policy

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A pervasive sense of dissatisfaction is driving an unstoppable longing for materialistic things, resulting in anthropogenic disruptions of the earth's natural systems. Behavioral economics integrates insights from psychological research into economic science. This policy brief explores how behavioral economics can be a practical approach citizens can use to adopt pro-environmental behavior without significant economic interference. It is worth examining why some people maintain the status quo by not embracing green options despite knowing their positive environmental impacts and even after financial incentives are offered for such options. Human decision anomalies are often driven by simple intuition, with decisions made by mental shortcuts known as *heuristics*. *Nudging* people and setting up a choice architecture may be a better way to alter people's behavior to adopt a pro-environment lifestyle.

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INTRODUCTION

The Triad of Planetary Health Crises

The triad of planetary crises: climate change, environmental contamination and biodiversity loss are widely blamed for the unprecedented threats facing humanity (Andersen, 2021). Planetary health is a new field focused on characterizing the human health impacts of anthropogenic disruptions of the earth's natural systems (PHA, 2021). The triad of planetary crises has wreaked havoc on health care delivery systems (UNEP, 2020). The rising number and intensity of extreme weather events, the spread of vector-borne infectious diseases due to the expansion of invasive arthropods to erstwhile cold-climatic regions, cancer, and hormonal diseases due to exposure to a mixture of environmental pollutants and mental illness are threatening humans in every part of the globe (Pogribny and Rusyn, 2013; Smith et al., 2014; Cianconi et al., 2020; Swan and Colino, 2021). International treaties and agreements such as the Rio Earth Summit (1992), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1992), the Stockholm Convention on Persistent Organic Pollutants (2004), and the Kyoto Protocol on emissions of greenhouse gases (2005) have made some progress, for example, a decrease (or complete ban) in the production of hazardous chemicals such as persistent organic pollutants, the rapid growth of renewables, and pledging to stop promoting coal-based power plants.

Still, no international treaties have emphasized curbing "unnecessary" consumption at the individual level. Consumption is the main pulling factor for high energy demands and depletion of the earth's finite resources, and industries are constantly increasing production to meet rising demands. In this regard, rich countries (as well as emerging economies) cannot deny their share of

responsibility in controlling current levels of consumption. Year after year, the Conference of the Parties (or COP) organized by the United Nations Framework Convention on Climate Change ends with a list of promises without any appropriate direction for curbing rising consumption. In the last several years, the promotion of electric vehicles (EVs) has been considered the most crucial step to curbing greenhouse gases. According to the International Energy Agency (IEA) 2020 report, in 2019, the EVs in operation globally reduced oil consumption by almost 0.6 million barrels/day. By following the current growth trend (of EVs), this figure will be 2.5 mb/d in 2030 (a four-fold decline). The same report also mentions that by 2030, global electricity demand from EVs will reach 550 TW h (about a six-fold rise from 2019 levels) (IEA, 2020). It is worth noting that rising energy demands cannot be met by renewables only, even in best-case scenarios of their projected growth in the coming decades. The IEA's 2021 report suggests that even if the major economies have pledged to meet net-zero emissions targets in COP26, the energy produced by solar PV and wind power will only reach 500 GW by 2030 (IEA, 2021). In fact, a study shows that renewables are adding to the net energy consumption instead of reducing it (York and Bell, 2019). Renewables provide clean energy but produce vast amounts of toxic waste, and many people are not aware of this dark secret. The International Renewable Energy Agency has projected that by 2050, 78 million metric tons of hazardous solar panel waste will be generated globally (IRENA, 2016). Therefore, the evidence makes it amply clear that the success of tackling planetary health crises hinges on how successfully we address our consumption.

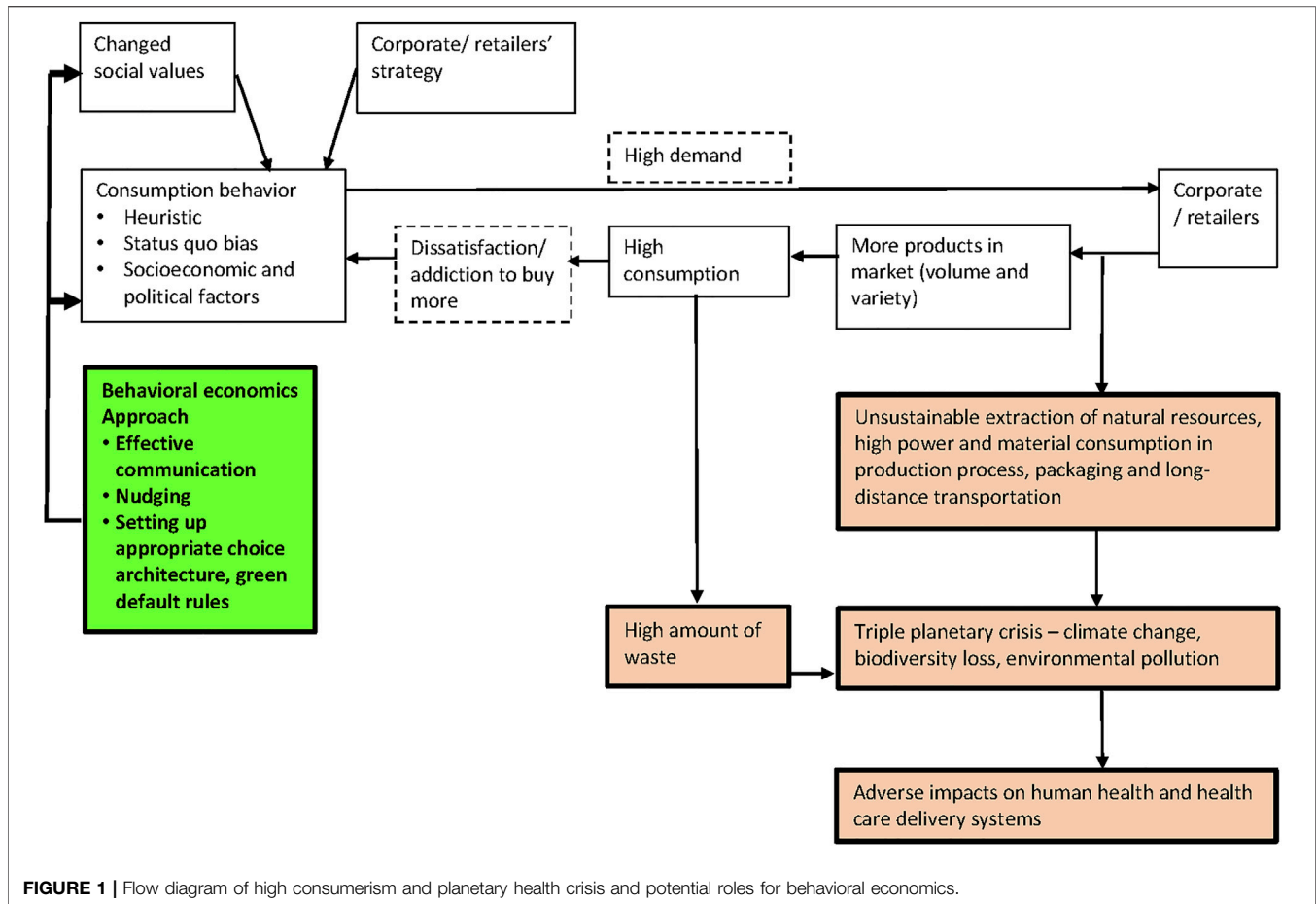
In normative waste hierarchy policy, management is linked with reduction, reuse, recycling, and recovery, with a strong preference for recycling materials. However, a global study showed that only a tiny fraction (9%) of plastic waste is recycled, and around 80% is accumulated in landfills (Geyer et al., 2017) and eventually contaminates the terrestrial and aquatic ecosystem. The circular economy is a novel discipline that aims to keep waste out of the system by focusing on using resources within closed-loop systems, reducing pollution, and avoiding the leakage of resources while sustaining economic growth (Barros et al., 2021; Fitch-Roy et al., 2021). The system is called "circular" because it aims to include *reducing*, *reusing*, *recycling*, and *recovering* in traditional systems (cradle-to-cradle), eventually extending the useful life of materials and taking the conservation of natural resources as a starting point (Barros et al., 2021). However, the circular economy has been criticized for having a limited conceptual grounding and a lack of consistency in terms of how it can contribute to sustainable development (Velenturf and Purnell, 2021). For example, recycling itself is very energy intensive. Without integrating sustainable development, the circular economy perpetuates a belief in indefinite economic growth based on limitless production and consumption without questioning the role of the neoclassical economic growth philosophy (Korhonen et al., 2018).

Consumerism: Delusional Craving for Materialistic Things

In present-day society, a pervasive sense of dissatisfaction is driving humans to have an unstoppable longing for materialistic things and their rapid disposal, resulting in buying sprees for newer products. We now buy 4–5 times more clothes than 20–30 years ago, leaving behind astounding environmental impacts in terms of carbon emissions, water usage, land degradation and contamination. Globally, every year the fashion industry produces almost 90 million tons of waste and consumes at least 80 trillion liters of water (Niinimäki et al., 2020). In 2019, a record 54 million metric tons (Mt) of electronic waste was generated (up 21% in 5 years), and this is expected to reach 74 Mt by 2030 fueled by higher consumption rates, shorter lifecycles and limited repair options (Forti et al., 2020). In high-income countries, one-third of waste is generated from food, and non-adherence to cosmetic standards (visual quality) is one of the most important reasons for why food is wasted (Kaza et al., 2018; GoC, 2019).

Any initiative that aims to reduce consumption is counterintuitively considered opposed to economic growth and potentially detrimental to prosperity by hindering industrial development, leading to job losses and low tax revenue. Not surprisingly, fossil fuel-based companies always warn of potential job losses and economic collapse due to the aggressive promotion of renewables and banning of plastic products. Large agriculture corporations justify their heavy inputs of agrochemicals, GMOs, and automation in production to make sufficient food to feed the seven billion-plus global population, and manufacturing companies and retailers justify outsourcing their production facilities to low-income countries to cheaply make products and keep production-related pollution out of rich countries. However, the most pertinent but unanswered question is what will happen if an economy grows beyond its maximum sustainable scale. In other words, the costs of growing an economy eventually exceed the benefits to the society at large. According to ecological economic thought, economic growth beyond a certain point is no longer a net benefit to society (termed "uneconomic growth"). Uneconomic growth is a condition in which the marginal disutility of growth goes beyond the level of the marginal utility of growth and economic stimulus does more societal harm than good (Czech and Hudson, 2009). In fact, the planetary health crisis is an obvious reflection of uneconomic growth. **Figure 1** shows a conceptual framework of high consumerism and the planetary health crisis and potential roles for behavioral economics.

Corporate marketing campaigns can significantly influence consumer behaviors because they elicit strong reactions by utilizing imagery and word associations tied to emotional responses. Nowadays, industries use a scientific approach to persuasion by focusing on behavior, motivations, and psychology, such as advertisement campaigns by targeting specific demographic and social groups (Sulakatko, 2014). The term "planned obsolescence" entered our lexicon and was portrayed as a path to economic prosperity by encouraging mass consumption. However, planned obsolescence has long



been questioned in regard to environmental sustainability and the reluctance of legislators to address the issue. A movement focusing on consumers' "right to repair" their products has emerged in response to planned obsolescence and challenged restrictive end-user agreements (Little, 2019). A Canadian study showed that four-fifths of respondents purchased their household appliances and electronics new, suggesting a low propensity for reuse, and six out of seven respondents said these products were deliberately designed to have a short lifespan (Équiterre, 2018).

Behavioral Economics as a Potential Effective Approach for Sustainable Development

Behavioral economics is a discipline of economics that integrates economics and human psychology to understand the way we behave in the real world (Witynski, 2022). Its approach delineates theories, makes hypotheses and predictions, and eventually tests them. It strives to understand how real economic behavior and irrational behavior can be corrected through experiential learning (Corr and Plagnol, 2018). Evidence shows that humans demonstrate decision anomalies and do not make rational decisions (*homo economicus*) (Beckenbach et al., 2016). Even if some households behave in socially responsible ways, there is no guarantee others will do the same; instead, various forms of

behavioral bias and social influence may be shown (Baddeley et al., 2016). Global tourism is partly responsible for significant environmental degradation, and it is a challenge for local environmental protection bodies to preserve the ecosystem without hurting the economy and culture. Studies show that residents' place attachment, engagement, and pro-environmental behavior can promote sustainable tourism by maintaining biodiversity and protecting the ecosystem (Ramkissoon et al., 2013; Ramkissoon, 2020a). Active engagement of local authorities with the visitors, promoting residents' support, incorporating personal values, cultural worldviews, awareness, comprehensive understanding of human behavior, and their influential antecedents are essential for protecting fragile and sensitive ecological resources (Ramkissoon, 2020b; Megeirhi et al., 2020; Rezapourghdam et al., 2021). Thus, behavioral economics can be a practical approach for citizens to adopt pro-environmental behavior.

It is worth exploring why some buyers continuously pay extra for plastic bags at grocery stores despite knowing their environmental impacts or why some prefer to visit large grocery stores to buy imported, packaged produce instead of going to local farmers' markets (even if the prices of the produce are almost the same and fresh). Human decision anomalies are often driven by intuitively available simplification, making the decision easier (mental shortcut) to reach (known as a *heuristic*).

In a *heuristic*, the person reduces their cognitive effort in decision making, partly in a conscious manner and partly automatically. Typically, heuristic routine decisions are made by memorizing activity patterns after unconsciously recognizing the situation and developing a series of similar patterns of activities (Artinger et al., 2016).

More information or computation can be detrimental to accuracy and confusing to the public. Humans mostly rely on fast and frugal *heuristics* rather than decision strategies that are loaded with information and require more time. So, a simple message (*less is more* effect) about stopping buying and using non-biodegradable products (such as plastics) and shifting to environmentally friendly alternatives, buying energy-efficient products (compact fluorescent lamps, electrical gadgets with higher-energy efficient marks), recycled or reused materials (clothes, using one's own coffee mugs, not using plastic pipes/straws for juice/soft drinks), and local agriculture produce and locally made household products will be more effective. Humans are influenced by social norms (*social heuristics*) and the behavior of the majority (*imitate-the-majority heuristic*) when exposed to similar situations. For final decisions, the consumers use *heuristics* to determine quality and contextual stimuli when any product provides mixed prospects (cost and benefit). For example, whether consumers are willing to pay for green benefits depends both on the expected and immediate benefits from energy efficiency and the utility of money. For low-income households, green choices will be made only if there is a high level of utility from energy conservation (Panzone et al., 2016).

Taxing and tax relief/subsidies (for example, for local produce) may work well in some domains of life in a typical cost-benefit analysis. However, simple economic incentives do not necessarily work; for instance, nominal charging for plastic carry bags in grocery stores does not stop shoppers from using them. On the other hand, despite knowledge and financial incentives, some may not adopt green technology or behaviors, reflecting *status quo bias* or *familiarity bias*. In assessing pro-environmental behavior, the households' political affiliation, personal economic interests, ethnicity and lack of a sense of ownership need to be factored in. For example, Republican households (in the US) may use more energy than Democrat households, people living in areas that rely on an oil-based economy (such as Texas in the US or Alberta in Canada) may not accept climate change, people from tropical countries living in temperate countries may turn their room heating higher than locals, and tenants may not care about wasting electricity if the power bill is included in their fixed monthly rent. The temporal dimension in various decision-making processes is reflected by a preference for short-term outcomes over long-term consequences (Baddeley et al., 2016; Wittmann et al., 2016). Therefore, carbon taxes rarely get public support due to their perceived uncertainty with regard to environmental gains; instead, instant rebates for buying power-saving materials and the promotion of renewables and EVs receive more favorable responses. Some consumers may be more inclined to bear environmental costs simply for hedonistic satisfaction through the benefits of the product. The perceived risks of extreme climatic conditions in a region may not lead the residents to adapt a low-carbon lifestyle since they may not see

any direct benefits; rather, the local people (even if they accept climate change) are more likely to opt for economic growth.

Nudging people and setting up a choice architecture are considered better ways to influence people to adopt a pro-environment lifestyle. *Nudging* is based on the notion that people may not make the right decision in terms of their own welfare and societal welfare and therefore fail to maximize their utility (Thaler and Sunstein, 2008). Therefore, *nudging* allows people to act rationally in terms of their own self-declared interests, and people should not see it as a dubious application of psychological science (Artinger et al., 2016). Well-planned and effective *nudging* policies can overcome various cognitive biases resulting from poorly designed choice architecture. For example, as a part of *nudging* policies in restaurants, placing vegetarian items on the front page of menus, making special mention of local produce, and including more attractive pictures of vegetarian meals and items containing local produce may attract customers, while providing smaller plates and serving spoons in hotel buffets may control food wastage (Kallbekken and Sælen, 2013; Gravert and Kurz, 2017). The World Resources Institute (WRI) recently conducted a study to explore the roles of *nudge* interventions on the sales of climate-friendly food in various restaurants in the US. The WRI tested 10 different sustainability messages in favor of vegetarian foods while displaying menus online. Some of the messages almost doubled the percentage of vegetarian dishes the participants ordered, and they were more likely to order a vegetarian dish the next time they ate out (Blondin, 2022).

For environmental policy, *green default* options are stipulated courses of action that can make *nudging* effective if people endure inaction with regard to pro-environment behavior and adhere to status quo bias, particularly when the suggested choices are complex and need strong motivation to implement at the individual level (Hale, 2018). Mandatory mentions of the caloric values in all processed and semi-processed food (including on restaurant menus); information on carbon and water footprints as well as the country of origin; a full list of the chemical composition (for cosmetics and food preservatives) and potential harm; statutory warnings on processed food labels (similar to tobacco products); banning the promotion of children in advertisements for fast food, known unhealthy foods and potentially hazardous cosmetics; banning cars in popular city tourist spots to promote biking or walking; building dedicated bike lanes in major streets, including in business districts; mentioning power consumption in corresponding months of previous years in monthly power bills; using motivational colors on the font of labels (green if consumption is reduced or red if it is increased); and the inclusion of home economics (teaching cooking, nutritional assessment, sewing, vegetable gardening and other basic skills) in school curricula are a few examples of *green default*. Potential choices can be framed in more positive or negative ways to attract people to accept, for example, printing messages on a box of compact fluorescent lights about saving money (in \$ value) by comparing it with equal light-emitting incandescent bulbs, the promotion of apps to auto-calculate the carbon emissions caused by burning each liter or gallon of gas, and the calories burned by each kilometer or mile of biking.

The world's most successful environmental treaty is probably the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), which led to the phasing out of nearly 100 such chemicals. The impacts of the treaty have been rapid and positive. Within 30 years, almost 99% of ozone-depleting substances were phased out. In 2019, the ozone hole was the smallest on record since its discovery. The Antarctic ozone hole is expected to close by the 2060s, and the rest of the world will return to pre-1980s values. It is estimated that 2 million people are saved from skin cancer each year as a result of these efforts (UNEP, 2021). The strategies of curbing ozone-depleting substances included 1) *green default* rules, such as phasing out such chemicals, 2) encouraging customers to buy safer products through green tags, financial incentives, and public awareness, and 3) increased public investment in developing alternative green technologies. In some countries, consumers became more proactive by boycotting products and companies that used ozone-depleting substances, even before the government introduced bans on those chemicals (Cook, 1990; UNEP, 2021).

The application of behavioral economics to address unsustainable consumption cannot be successful without government intervention. However, this requires an interdisciplinary approach by incorporating experts in behavioral economics, environmental science, and public health as well as industry representatives and policymakers. These teams can form “nudge units” specifically for the planetary health crisis. Forming a “nudge unit” is not a unique approach, as various national governments like the UK, US, and Australian governments already have fully functioning nudge units (Marron, 2015; IFG, 2020; AG, 2022). Several non-government agencies operate their nudge units, such as in Canada (Bi.team, 2019; Delacourt, 2021). Developing countries like India and Brazil have nudge units that promote various government initiatives (Nair, 2019; Johnson, 2020).

Ethical Perspectives of Nudging

Nudging has received criticism for the supposed use of *intentional* choice architecture, manipulation, and power abuse as well as excessive paternalism. The critics of *nudging* state that it taps into *heuristics* and *biases* and claim that paternalist *nudges* condescend and infantilize humans (Schmidt and Engelen, 2020). Some critics are concerned that when choice architecture is put in place by corporations, the public has no scope to choose between *intentional* and *unintentional* choice architecture (Schmidt and Engelen, 2020). Data-driven *nudges* from smartphones, social networks, and websites create *intentional* digital choice architecture, which is highly influential in today's world. Companies can also collect user data and use algorithms to shape users' behavior (Hausman and Welch, 2010; Schmidt and Engelen, 2020).

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Private companies successfully use choice architecture to influence customers' decision-making by the systematic triggering and exploitation of their psychological tendencies to overspend. For example, food companies secretly encourage public overeating, and manufacturers of consumer durables and electronic gadgets promote planned obsolescence to boost profits, both of which are detrimental to planetary health (Barclay, 2016; Hadhazy, 2016). Hence, the proponents of *nudging* argue in favor of public policy *nudging* (preferably by the government) for correcting harmful steps (Schmidt, 2019). Compared to public policy *nudges*, private *nudges* are certainly less transparent and less democratically controlled. So, supporters can argue that if public policy *nudging* is done democratically, it can reduce the imposition of problematic uncontrolled power, and it can have comparative advantages over other public policies such as taxes, incentives, and prohibitions (Schmidt, 2017). Our planet is facing unprecedented existential challenges mainly due to corporate-driven unsustainable consumption, and public policy *nudging* can be a practical approach to counter these challenges.

CONCLUSION

Behavioral economics have the potential to address the current nature of consumerism and can slow the rapid deterioration of our planet's health (Figure 1). Financial incentives alone will not necessarily contribute to individual and shared responsibility. Therefore, environmental policy from the local to the national level should draw on non-materialistic aspects of human nature and focus on broader facets of human behavior such as, greed, egoism, and altruism. Encouraging people to be socially responsible rarely succeeds in promoting pro-environmental behavior. Therefore, a paradigm shift in motivating and driving people to a pro-environmental path needs to take place through effective social learning, prolonged communication campaigns and appropriate choice architecture. For the larger interests of humanity, choice architecture should include green default options.

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