



Psychological and Behavioural Science

**Saving the Planet: Translating Degrowth into Everyday Life by
Reframing Consumption as Savings Toward Meaningful Goals**

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Table of Contents

1.0 Context: A Tale of Two Crises	4
1.1 Environmental Crisis and Concern	4
1.2 Degrowth presents a potential solution to climate crisis	6
1.3 Savings Crisis	6
2.0 Introduction	8
3.0 Problem Exploration: Degrowth and Consumerism	9
3.1 Limits to Degrowth	9
3.2 Consumerism is Driving Both the Climate and Savings Crisis	9
3.3 Degrowth in Everyday Life: Reframing Reduced Consumption as Meaningful Savings	11
4.0 Psychological Foundations: Consumerism and Barriers to Savings	13
4.1 Roots of Consumerism: Commodity Fetishism as a Marxist Critique	13
4.2 Barriers to Savings	15
5.0 Solution Framework: Psychological Toolkit	18
5.1 Cognitive Dissonance	18
5.2 Commodity Fetishism: Maslow's Hierarchy and Experiential Utility	18
5.3 Goal-setting and Attainment	Error! Bookmark not defined.
5.4 Information Presentation: Goal-setting and Progress Measurement	21
5.5 Summary	22
6.0 Proposal	23
6.1 Existing Solutions and Limitations	23
6.2 Proposal	24
Tier 1: Impact Savings	24
Tier 2: Save Toward Meaningful Goals	26
Rollout	27
7.0 Discussion	29
7.1 Limitations	29
7.2 Conclusion	30
8.0 References	30
9.0 Appendix A: Context—Overconsumption, Savings Crisis, and Degrowth	38
10.0 Appendix B: Proposal Mock-Ups	40

1.0 Context: A Tale of Two Crises

1.1 Environmental Crisis and Concern

The current economic growth model is on track toward societal collapse. In 1972 the Club of Rome released a report predicting that, under intense environmental strain, the current economic growth model would exceed planetary limits resulting in societal collapse at some point in the 21st century (Meadows, Meadows, Randers, & Behrens, 1972). Historical data from 1970 and 2000, the 30 years following the Club of Rome report, confirms that current rates of consumption are on track toward predicted global collapse (Turner, 2008). Bounded by the Earth's limited and exhaustible natural resources, humankind's current consumption-driven environmental footprint is not sustainable (Hoekstra & Wiedmann, 2014). The average ecological footprint in 2012 was 2.8 global hectares per person, a unit measurement of ecological footprint per Earth's biocapacity per person, despite the Earth's total biocapacity being only 1.7 hectares per person (World Wildlife Foundation [WWF], 2016). A more recent report estimates 1.6 Earths would be necessary to sustain 2016 consumption levels (WWF, 2016).

High-income countries are disproportionately responsible for per capita ecological footprint relative to that of low- and middle-income countries (see 9.0 Appendix A Figures 1 & 2). The majority of consumption has remained within OECD countries who in 2010 accounted for 74% of the global GDP but represented only 18% of the global population (Steffan, Broadgate, Deutsch, Gaffney, & Ludwig, 2015). Within this group the United States plays a disproportionate role, responsible for using 21% of the Earth's biocapacity in 2007 (Global Footprint Network, 2010; see 9.0 Appendix A Figure 3). The Global Footprint Network (2015) estimates that in 2015, the

United States had the second largest share of the world's overall ecological footprint just behind that of China despite China's population being more than four times that of the United States. This placed the United States' total ecological footprint at almost twice that of India's, despite having only quarter the population. This meant that the average American used more than twice and about seven times the per capita ecological footprint of a Chinese and Indian citizen, respectively.

Americans are increasingly concerned about the climate crisis. Simultaneously, concern for pending environmental crisis has become increasingly important. In a 2019 Pew Research Center poll, 56% of respondents reported that protecting the environment should be a top priority while 44% of respondents reported that “dealing with global climate change” should be a top priority, up from 26% in 2011 (Pew Research Center 2019; see 9.0 Appendix A Figure 5). According to Leiserowitz, Maibach, Rosenthal, Kotcher, Ballew, Goldberg, & Gustafson (2018), in 2018, 72% of Americans reported global warming as “personally important” to them, and 86% believed that positive action could avert disaster, agreeing with the statement that “it is not too late to take action regarding global warming.”

Americans remain unsure how their actions affect the environment. Despite increasing concern for the environment, existing tools are insufficient to help Americans understand how their individual actions affect the environment. This increased interest has led to a boom in web-based tools to calculate individual footprint. For example, the Global Footprint Network has one of the most popular ecological footprint calculation tools, boasting an average of 3 million users per year in 2017 (Global Footprint Network, 2019). That said, the tool is overcomplicated in that it requires

users to complete their information again each time and disconnected from everyday life in that users must actively seek out the website each time they want to understand their footprint.

1.2 Degrowth presents a potential solution to climate crisis

Sustainable degrowth can be defined as a “downscaling of production and consumption that increases human wellbeing and enhances ecological conditions and equity on the planet” (Research & Degrowth, 2019). This model provides a promising path toward preventing global societal collapse (see 1.0 Context) by directly addressing overconsumption (Rogers & Daly, 1996). By proposing a “macroeconomics beyond growth” (Alexander, 2012), proponents of degrowth envision a world in which “material accumulation [no longer holds] a prime position in the population’s cultural [imagination]” (Research & Degrowth, 2019).

1.3 Savings Crisis

Americans are facing a personal savings crisis. Simultaneously, many countries are facing a personal savings “crisis” (Benartzi & Thaler, 2013; Kotlikoff, 1990). In the United States, a decline in personal savings meant that 53% of workers were at risk of inadequate funds for retirement in 2010 as compared to 31% in 1983 (Benartzi & Thaler, 2013). This is important because post-retirement, financial stability is dependent on savings to help weather unexpected expenses and emergencies such as illness, job loss, and utility repairs (Federal Deposit Insurance Corporation [FDIC], 2017).

Despite positive attitudes toward savings, the crisis cannot be explained by institutional factors alone. The cause of this savings crisis remains a puzzle; despite serious institutional constraints on personal savings, this decline cannot be blamed solely on shifts in prices, which have not

uniformly increased, or on shifts in real income, which has not on average decreased (McArdle, 2018). Most Americans are still relatively well positioned to save more. In 2017 the vast majority of American (87.1% of households in 2017) have access to a bank account and 59% of Americans reported enjoying savings over spending (FDIC, 2017; Gallup, 2017). As such, solutions that leverage psychological barriers should be considered as a compliment to larger institutional changes targeting increased savings.

2.0 Introduction

Current economic models threaten societal collapse due to environmental strain (see 1.0 Context). Degrowth presents a promising solution by addressing the root problem of economic models predicated on growth: overconsumption. That said, degrowth is currently explained by macro-level frameworks that are unclear how to implement at the individual level.

This essay addresses this question of how to translate degrowth into everyday life. We propose avoiding the loss-frame evoked by degrowth by reframing reduced consumption as savings. We present a psychologically grounded budget and savings tool that enables users to identify sustainably aligned savings goals, align those goals with savings in high-consumption categories using clear visual language and timely feedback, establish patterns of reduced consumption by celebrating small wins, and encourage users to save toward experience-oriented goals. This tool leverages the cognitive dissonance between desired and actual behaviors to align spending behavior with sustainable savings goals. In so doing, it links the broad theoretical degrowth framework to individual behavior.

First, we explore limits to the degrowth framework and implications of overconsumption. Next, we outline psychological foundations of consumerism and barriers to savings. We then present a psychologically grounded solutions toolkit, reviewing existing solutions before outlining our proposal. We conclude with a discussion of potential limitations.

3.0 Problem Exploration: Degrowth and Consumerism

3.1 Limits to Degrowth

Despite providing a promising solution to environmental crisis by directly targeting consumption (see 1.0 Context), how to achieve degrowth is debated (Kallis, 2011). Because degrowth is discussed in economy-level terms, it remains particularly unclear how to actually implement it at the individual level. Latouche (2007) critiques degrowth as a political and large-scale project that, despite deriving its collective outcome from individual actions, fails to elaborate on individual actions. As such degrowth is “not as a concrete project but a keyword” (Latouche, 2004). How degrowth can be approached from the perspective of the individual then remains a crucial yet underexplored area of research.

This leads to the key question addressed in this paper: *How can we translate degrowth into everyday life?* This requires a deeper understanding of consumerist attitudes, as outlined below.

3.2 Consumerism is Driving Both the Climate and Savings Crisis

Overconsumption is rooted in a culture of consumerism. Many authors have attributed overconsumption to an intensification of a global culture of consumerism. This culture is particularly prevalent in the United States where Ivanova (2011) attributes rising consumption levels to a philosophy which moves consumption ideology and social practice to “the center state of human existence” as “the focus and playground of individual freedom.” She points out that consumer debt increased by 47% between 2000 and 2011. This echoes previous research by Shor (1997) who attributes this “new consumerism” to a “relentless ratcheting up of standards” across

all income levels, noting in 1997 that 27% of households earning over \$100,000 still reported being unable to buy everything they really need, and 39% of households earning between \$50,000–\$100,000 reported “spending nearly all of their incomes on... basic necessities.”

This perception exists despite consistent improvements in actual quality of life. In reality, quality of life has been consistently on the rise. By any measured outcome, quality of life for the average person in the West was better in 1970 compared to 1920, (Banerjee & Duflo, 2019). Similarly, a measure of economic welfare that combines data between 1984 and 2007 on consumption, working time, life expectancy, and inequality shows that Americans continue to enjoy a higher level of economic welfare relative to most other countries, and that wellbeing has continued to improve despite the financial crisis (Jones & Klenow, 2016; Bernanke & Olson, 2016).

Understanding the psychological foundations of consumerism is important to address environmental crisis. This disconnect between perceived and actual quality of life means *perceptions* of consumption are crucial, with “over half of the population of the richest country in the world [saying] they cannot afford everything they really need” (Schor, 1997). Curran & Hill (2019) show that individuals in industrialized countries have recently become preoccupied with upward social comparison, that they experience considerable status anxiety, and that they “adopt materialism as a means of perfecting their lives in relation to others.” They find that this increase in materialism is most evident in the shifting values of young people, with 81% of Americans born in the 1980s reporting “getting materially rich” as one of their “most important life goals,” 20% higher than the rate reported by those born in the 1960s and 1970s. Addressing the psychological foundations of consumerism is then crucial to solve the environmental crisis.

This culture of consumerism may further provide a key to the savings crisis puzzle. This decline in personal savings is widely attributed to shifting consumerist attitudes and increasing dependency on credit, with recent generations borrowing more heavily than previous generations at the same period in life and, on average, spending a far greater proportion of their income on “status possession and image goods” (Curran & Hill, 2019). For example, national American household expenditure for non-necessities jumped from just over 20% in 1901 to just under 50% in 2002 (Bureau of Labor Statistics, 2006; see 9.0 Appendix A Figure 4). Understanding the psychological roots of consumerism may also aid in addressing the savings crisis.

Consumerism-centered solutions may impact low-income individuals indirectly. It is beyond the scope of this essay either to address the complex institutional challenges to savings facing low-income populations, or to target the relatively small percentage of households that do not have access to formal savings. That said, there is some evidence suggesting that those further down the socioeconomic ladder may experience the most intense pressure to overconsume. A 2016 study found elevated levels of conspicuous consumption on non-necessary goods in low-income minority groups, speculating that this finding could be attributed to those groups’ experience of inequality (Charles, Hurst, & Roussanov, 2008). Solutions that address the root culture of consumerism could plausibly create positive spillovers to low-income groups.

3.3 Degrowth in Everyday Life: Reframing Reduced Consumption as Meaningful Savings

Sustainable degrowth provides a promising theoretical solution to the environmental crisis. However, degrowth has yet to be clearly articulated at the individual level. Personal savings

provide a clear path to decrease or delay consumption. The savings crisis is rooted in the same consumerist culture, and barriers to savings are widely researched at the individual-level. As such, addressing consumerism at the individual level via savings may provide a potential route for translating degrowth into everyday life. This approach is particularly appealing because high rates of individual material consumption creates two disconnects. First, individuals increasingly want to do something to address global climate change despite creating a larger ecological footprint, and second, individuals have positive attitudes toward savings and greater ability to save despite saving less (see 1.0 Context).

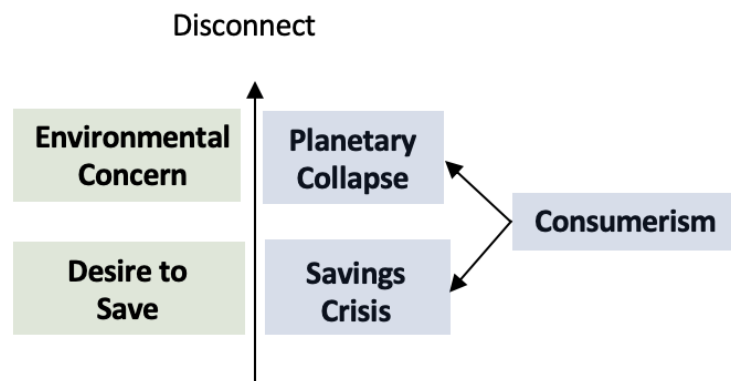


Figure 3.1: Problem Context

4.0 Psychological Foundations: Consumerism and Barriers to Savings

To formulate a solution, we first consider psychological drivers of consumerism and barriers to savings.

4.1 Roots of Consumerism: Commodity Fetishism as a Marxist Critique

Consumerism Makes Us Unhappy

Most studies show that income past a minimum threshold has no effect on wellbeing (Lane, 2008). This means only a minimum level of consumption is required to meet our basic needs. In fact, material consumption may actually make us unhappy. In a 12-year longitudinal study of 1,136 Californian participants between 1985 and 1997, Smith (2010) found a significant association between high levels of materialism and lower levels of self-reported wellbeing. Across four experiments, Bauer et al. (2012) consistently document that materialistic thinking adversely affects personal and social wellbeing by orienting individuals toward competition and relative standing, thereby producing feelings of anxiety, dissatisfaction, and decreased trust (Fromm, 1955/2008, pp. 130–135).

Unlike the pleasure derived from social bonds which increases with experience, pleasure from material consumption is more satiable, and individuals quickly adjust to higher levels of material consumption (Lane, 2008). Thus despite delivering more immediate payoffs, material consumerism dooms individuals to Durkheim's "hedonic treadmill that will never satisfy" (Lane, 2008; Elster, 1986, p. 45).

A Marxist framework: Self-realization, Alienation, and Commodity Fetishism

If consumerism makes us unhappy, then why is it on the rise? A Marxist critique of capitalism considers consumerism to be the product of alienation and commodity fetishism.

Key to this understanding is the concept of **self-realization**, the full and free actualization and externalization of the powers and abilities of the individual. For Marx, capitalism denies self-realization to the majority by separating meaning from labor (Elster, 1986). By making labor a means to an end (Marx, 1867/2003), workers feel powerless (Seeman, 1959, p. 784) and meaningless (Dolan, 1971, p. 1088), leading to **alienation**, a self-estrangement in which a worker becomes instrument and cannot satisfy their higher-order needs (Marx, 1932/1964, p. 31). Work itself becomes a means to an end, the consumption of commodities.

Within this framework consumers, detached from the production of and meaning of goods, instead look for satisfaction through purchasing and spending. Because this consumption craving has “lost all connection with the real needs of man,” it cannot actually result in satisfaction, thereby creating a cyclical pattern of an “ever-increasing need” for “more consumption” (Fromm, 1955/2008, pp. 130–131). Rather than being a means to achieving a happier, more satisfied life, consumption “now has become an aim in itself” (Fromm, 1955/2008, pp. 130–131). Thus **commodity fetishism**, a “cognitive illusion arising from market transactions” (Elster, 1986, p. 58), results when individuals react to a “[loss of] meaning as a result of loss of control of their own lives” by then “[turning] to commodities to find the qualities they have lost” (Firat, 2018, p. 20). Despite making them less happy, commodity fetishism then yokes these individuals to a never-ending, futile search for meaning through consumption.

A key question then is how to disrupt this cycle by directing consumption to meaningful, self-actualizing activities.

4.2 Barriers to Savings

Economic theories of savings, such as the life-cycle hypothesis (LCH) by Ando & Modigliani (1963), describe rational individuals as those who plan money and savings behavior across their lifetime. Psychological studies, however, provide a more accurate model of human savings behavior. There is a wide range of research addressing psychological barriers to personal savings (Wärneryd, 1989). Across these studies a few cognitive biases, mechanistic errors due to lack of processing capacity (Tversky & Kahnemann, 1974), are widely credited for playing a role in human deviation from “rational” economic behavior. These can be summarized by three foundational concepts: bounded rationality, limited self-control, and loss aversion.

Bounded rationality is a behavioral theory that implies individuals make choices despite their computational ability being limited by the information, time, and mental resources at hand. This in turn demands “modest and realistic demands on the knowledge and computational abilities of human agents” (Simon, 1979, p. 476). As applied to savings, individuals may struggle with important analytical calculations, for example failing to compute correct savings rates (Thaler & Benartzi, 2007).

Barriers to self-control are widely attributed to three main biases:

1. **Hyperbolic discounting** implies humans display time-inconsistent behavior, “weighing current and near-term consumption” more heavily and discounting future rewards (Ainslie & Haslam, 1992). Baumeister, Vohs, & Tice (2007) attributed such issues as overeating, overspending, and smoking to a failure to control present-biased impulses.
2. This time-inconsistent bias toward present consumption is exacerbated by **status quo bias**, the strong tendency to “remain at the status quo, because the disadvantages of leaving it loom larger than advantages” (Kahneman, Knetsch, & Thaler, 1991).
3. Individuals are similarly prone to **procrastination**, the tendency to postpone unpleasant tasks (Thaler & Benartzi 2007).

Taken together, these biases mean that even when individuals want to save more they tend to postpone positive action, instead overweighting the value of current consumption and ultimately falling short of their goals, thereby perpetuating the status quo.

Last, **loss aversion** has important implications for both environmental and savings behavior. Loss aversion can be defined as the asymmetry of value in which “the disutility of giving up an object is greater than the utility associated with acquiring it” (Kahneman, Knetsch, & Thaler, 1991). Because individuals have a tendency to weigh losses more heavily than gains (Benartzi & Thaler, 2013), it matters whether a choice is framed as a potential loss or a potential gain.

In the context of consumption, we interpret the status quo to be the current (average monthly) level of consumption, from which an increase would be financially stressful and a decrease could be

perceived as an opportunity cost of material objects and experiences. This creates inertia in established consumption habits that are in line with social norms. Degrowth’s current framing risks triggering a loss frame as semantically “degrowth” can be interpreted negatively (*de-* as loss, *growth* as generally positive). Potential solutions should seek both to flip “decreasing consumption” to positive spending and to reframe degrowth from a loss to a gain frame.

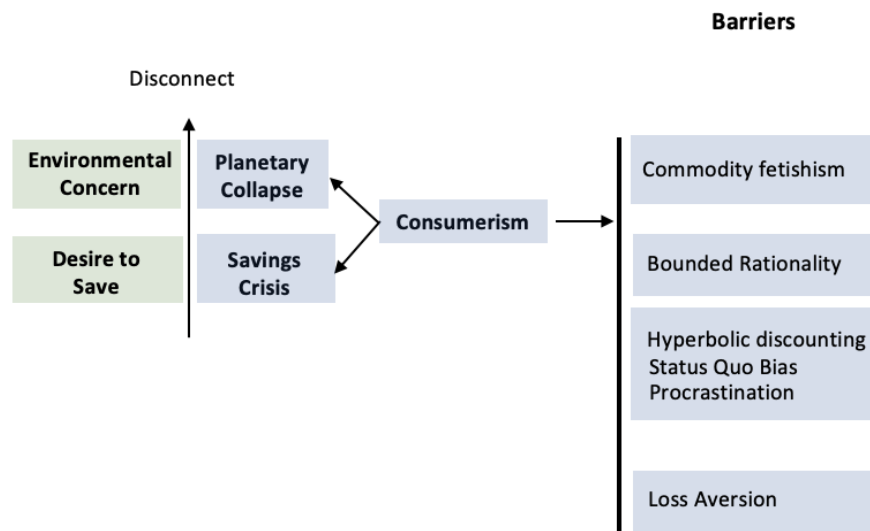


Figure 4.1: *Psychological foundations of consumerism and barriers to savings*

5.0 Solution Framework: Psychological Toolkit

To address these barriers we review psychological foundations that inform our suggested solution.

5.1 Cognitive Dissonance

Centrally, we aim to leverage the misalignment between what consumers want to do, act in an environmentally friendly and savings-responsible way, and what they actually do, prioritize present, environmentally-damaging consumption. This can be understood through the concept of **cognitive dissonance**, an emotional state perceived as unpleasant (Festinger, 1962) arising from the incompatibility of cognitions with the perception of one's own actions (Festinger, 1962). This dissonance is a “motivating state of affairs,” that “impels a person to change his opinions or his behaviour” (Festinger, 1962).

5.2 Commodity Fetishism: Maslow's Hierarchy and Experiential Utility

Next, we explore how to disrupt a cycle of meaning-searching through material consumption by instead directing their efforts toward meaningful, self-actualizing activities.

Maslow's hierarchy provides a framework for understanding more successful paths toward meaning. According to Maslow (1943), motivational needs are ordered by the rank they represent; as a given level of need is fulfilled, the next higher level activates and motivates the individual. As outlined by Zavestoski (2002), lower-order physiological and safety needs must be satisfied before high-order needs such as belongingness and esteem. The highest-level needs help achieve “self-actualization”, similar to self-realization as within a Marxist framework (see 4.0 Psychological Foundations).

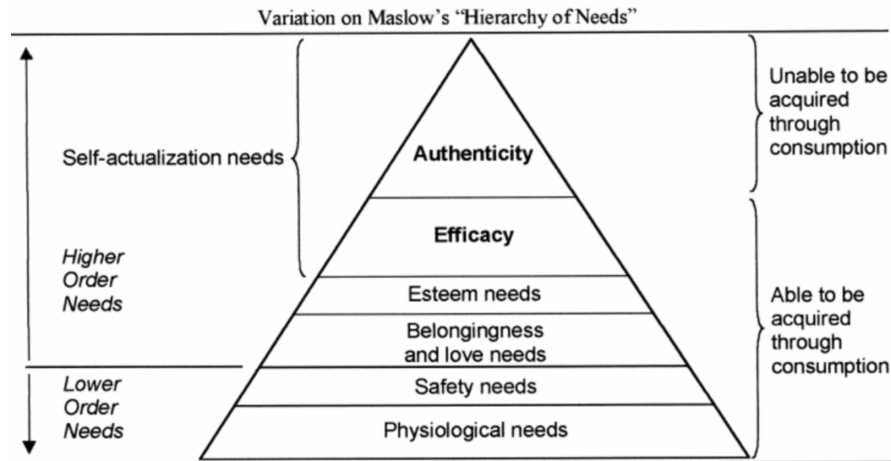


Figure 5.1: *Variations on Maslow's hierarchy of needs (Zavestoski, 2002)*

As previously discussed in terms of income and wellbeing (see 4.0 Psychological Foundations), after lower-order needs have been met, the relationship between income and happiness is small (Howell & Guevarra, 2013, citing Howell & Howell, 2008). This leads to the question of how to satisfy higher-order needs.

Recent research suggests that one way to do this is to focus on experiential rather than material hedonic goods. Here hedonic goods can be categorized into **experiential** and **material purchases**. Howell & Guevarra (2013) find considerable empirical evidence to show that experiential purchases result in more positive emotion as compared to material purchases. They specifically find experiential purchases contribute to greater remembered wellbeing by aligning experiences with identity and enhancing social experiences. As opposed to material purchases which promote social comparison, activities tend to be shared with others thereby satisfying immediate needs for relatedness and facilitating future social interactions through storytelling. Individuals also tend to reinterpret experiences more positively as they reflect on them over time. The authors conclude

that experiential consumption allows individuals to focus on intrinsic values of the experience itself (Howell & Guevarra, 2013).

Applied to a Marxist framework, in order to disrupt the cycle of meaning-searching through material consumption individuals should instead look to experiential consumption to fulfill higher-order needs. This redirection has the potential to effectively address both the ecological and savings crisis in everyday life: By reducing unnecessary material consumption and instead redirecting consumption toward less ecologically impactful experiential goods, individuals have the opportunity to better align what they want to do and what they actually do.

That said, as previously noted (see 4.0 Psychological Foundations), it may be easier to pursue material consumption because, unlike experiential consumption which produces meaning over time through repeated experience, material consumption resolves more immediate cravings. Experiential consumption then requires a longer-term view to goal achievement as compared to material consumption, leading to the next section.

5.3 Goal-setting and Attainment

Good environmental and savings behaviors both require setting and achieving goals. Two frameworks are useful in helping individuals with goal attainment.

Converting Hopeful Thoughts into Goal Commitments

Oettingen, & Gollwitzer (2002) propose a framework shown to be effective as a self-regulatory tool for converting hopeful thoughts into goal commitments. First **high-agency related hope thoughts** are identified, beliefs that one can effectively strive for and attain one's goals. Then these

thoughts are set into goals using **mental contrasting**, a process in which a desired future is compared to aspects of reality impeding that future. Last, **implementation intentions** are formed, clear statements in which plans are articulated for how to overcome potential barriers to achieving goals.

The Progress Principle: Creating a Positive Feedback Loops by Celebrating Small Wins

To sustain a habit of progress, Amabile & Kramer (2011) present the progress principle. Analyzing extensive diaries kept by knowledge workers, they conclude that the single most important element toward successful work and goal achievement is a frequent experience of progress. They identify **minor milestones** toward ordinary, incremental processes as being equally if not more important than long-term goals and major breakthroughs, which are relatively rare. They suggest complementing big wins with the celebration of **small wins** to best motivate performance toward meaningful work. Positive feedback encourages motivation, ultimately creating a **progress loop** with self-reinforcing benefits.

5.4 Information Presentation: Goal-setting and Progress Measurement

The last component of our psychological toolkit involves how best to present information to enable individuals to both set informed goals and to take better decisions based on progress feedback.

Mental Accounting

First, **mental accounting** is a theory in which people divide financial transactions into mental accounts and treat them differently depending on the account (Thaler, 1985). Mental accounting is often discussed as a cognitive bias that leads people to make irrational decisions resulting in financial disadvantage. That said, mentally separating money toward savings goals can also be a

powerful tool to encourage savings. Field studies demonstrate that “earmarking” money toward a savings goals significantly increases savings amount by creating a precommitment that increases self-control (Soman & Cheema, 2011). Savings goals should then be formed as a precommitment against predefined spending categories.

Experiential System

Second, contrary to traditional models in which individuals process information analytically, relying on abstract symbols, words, and numbers to make logical connections, Slovic et al., (2004, p. 3) present an **experiential system** mental model in which individuals instead rely on images, narratives and metaphors to make associonistic connections. One immediate application of this model is that individuals better understand information and take better decisions if the information is visually presented to facilitate easy pattern comparison rather than numerical calculation.

5.5 Summary

Replacing material with experiential consumption is not only more fulfilling of higher-level needs in the long-run, but also has the potential to address the environmental and savings crisis by decreasing the environmental footprint and increasing savings. Because experiential benefits are slower to pay off as compared to material benefits, high-agency hope thoughts, mental contrasting and implementation intentions can all be used to create strong goal commitments. Progress toward these goals can then be encouraged by creating a positive feedback loop by celebrating small wins. Last, to best enable individuals to set goals and measure progress, savings should be earmarked early and should be presented visually.

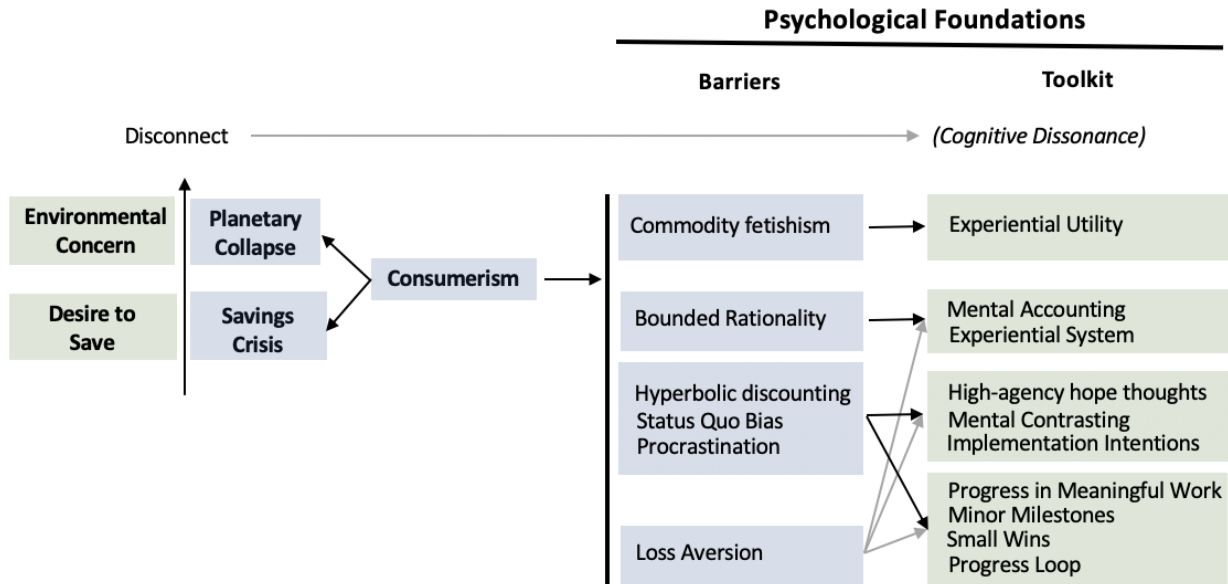


Figure 5.2: Psychological Barriers and Solutions Framework

6.0 Proposal

First, we briefly overview existing solutions and their limitations. We then combine the best of current solutions with our psychologically-grounded toolkit to formulate our proposal.

6.1 Existing Solutions and Limitations

Current savings and budgeting solutions such as Mint or Yolt leverage psychological literature on goal-attainment and provide good templates for mental accounting with clear visual feedback on spending. They are limited, however, in that they fail to address fundamental issues of consumption framed within a larger degrowth context. They do not give ecological-footprint informed feedback, and thus likely delay rather than redirect high-footprint consumption. This may hamper their effectiveness for ecologically minded users by not aligning user goal-setting and spending feedback with environmental goals.

Current degrowth solutions provide useful impact calculators, but they tend to not leverage a strong goal-attainment framework, and they primarily target corporate rather than individual customers. For example, self-assessment tools such as OLIO, Tomorrow, and the World Wildlife Foundation Footprint Calculator survey enable users to calculate the CO₂, water, meals, and money saved, but they do not allow users to set clear goals. Similarly, Aspiration and Mastercard both offer products with ecological footprint tracking. Aspiration Impact Measurement, a tool that calculates user sustainability scores based on their checking account transactions, caters to the “unprecedented demand” among customers in their 30s for eco-friendly, socially conscious solutions (Zerucha, 2018). While both Aspiration and Mastercard point to demand for conscientious solutions, both are business-centric, tying the scoring to the actions of companies rather than individuals, and neither frame the product as an empowerment tool toward sustainable consumption.

6.2 Proposal

We propose creating a mobile app that flips the negative, loss-aversion triggering “degrowth” framing to the positive, high-agency, goal-related framing of “savings.” The application ties savings to high-hierarchy goals to enable individuals to translate degrowth into their everyday lives by saving toward meaningful experiences. It combines the best elements of existing savings and degrowth applications to both address the problem of overconsumption and to overcome psychological barriers to savings through a two-step process.

Tier 1: Impact Savings

The first-tier goal the application is to form habits of reduced consumption and to lay the groundwork for the second tier, savings toward meaningful goals. Building off existing impact calculators, customers first complete a brief 5- to 10-minute survey to help calculate the impact of

their purchases. The last 5 questions of this survey will ask users to think about their savings goals, guiding users toward identifying what they most value among high-hierarchy experiential goals such as education, fitness, and creative expression. These questions aim to cultivate a high-agency goal mindset by identifying experience-based activities that are meaningful to the user. This will encourage users to diminish cognitive dissonance later by first visualizing their ideal goals, preparing a clear contrast to desired and current behaviors in the next step.

Next, users complete a mental contrasting exercise by connecting their credit and debit cards. Similarly to Mint, the app will visually present information for easier comparison and decision-making. For example, it will automatically suggest categorization for transactions into categories such as Gas & Fuel. However these categories will be more specifically aligned with impact calculator categories such that high-footprint activities are more transparent. For example, Bills & Utilities would be subdivided such that Utilities from water and electricity consumption (as opposed to rent) could be more easily displayed.¹ Because data will be automatically available for the last 2–3 months of transactions, users will then be able to immediately visualize current spending levels and to set goals for savings by category. Here the app will guide users to prioritize reduction in high-footprint categories. This activity is highly grounded in Oettingen & Gollwitzer's (2002) goal-setting model in that after having identified a high-agency and hopeful goal, users then mentally contrast that goal to existing behaviors and set implementation intentions by category. It also leverages mental accounting by precommitting to earmarking some of their income toward a savings goal, and then by prioritizing where they would like to decrease spending by identifying “mental accounts” aligned with their environmental and savings intentions.

¹ Similarly to Mint, this first categorization would be tentative and require user confirmation and minimal recategorization; however, this would only need to be completed once and user-confirmed categorizations would subsequently be applied to future purchases by vendor. If, for example, utility bills are grouped together and cannot be subdivided, users could adjust their categories to reflect the actual data available to them.

Next, the app will then send (1) timely reminder notifications if the user approaches the spending limit for a category and (2) weekly reports highlighting a user's savings successes, suggesting self-actualizing events and interactions as a reward based on the user's stated preferences (more on this in Tier 2). These reports will celebrate user successes, aiming to generate a sense of accomplishment and to build toward habits of decreased consumption.

Tier 1 then creates habits of reduced consumption by setting informed milestones and creating a progress loop by celebrating small wins. Throughout, this information will be presented in visually intelligible manner aligned with the experiential system such that users can quickly identify patterns and take good decisions.

Tier 2: Save Toward Meaningful Goals

The second tier of the app aims to further ensure high-footprint consumption is avoided, not simply delayed, by converting savings into high-hierarchy, low-footprint experiences. As a user achieves medium-to-large wins around stated savings goals, the app will celebrate those successes by sending a message of congratulations when a user reaches a savings goal. It will then prompt users to tie rewards to self-actualization events. Returning to the self-actualization categories pre-identified by the user, the app will encourage users to set up a savings account linked to those goals. Similarly to Mint, the app would include the option to enable automatic deposits into that account upon the achievement of subsequent savings. A user could also opt for the app to prompt manual deposits from achieved savings at set time intervals (weekly, monthly).

This tier furthers the progress loop by celebrating milestones. It also seeks to disrupt the cycle of commodity fetishism by enabling users to fulfill higher-level needs through encouragement of long-term experiential goals.

Rollout

We propose to target our app toward a similar demographic as identified by Aspiration: young, ecologically and socially conscious users who have familiarity with mobile banking. We will begin product rollout in the American market because American consumers account for a disproportionate share of per capita ecological footprint, because they increasingly want to be aligned with environmental goals, because they have the capacity to save more than they do (see 1.0 Context). They also have high rates of mobile banking usage; in 2017 the FDIC (2017) estimated that the proportion of banked households that used mobile banking in the past 12 months had jumped to 40.4% (up from 23.2% in 2013). Because 87% of American households had access to a formal bank account in 2017 (FDIC, 2017), this represents an important share of the market.

We will then aim to partner with BITx, Behavioural Insights Team's product development arm. BITx has several mission-driven active ventures with large user pools across industries and sectors, including operations in the United States. Their mission-alignment, expertise and reputation in combination with our research could make for a convincing partnership pitch.

Alternatively to BITx, we could also aim to partner with a financial-industry partner. While we have discounted directly partnering with banks because they benefit from increased consumption such that their values may clash with our proposal, socially-minded apps such as Mint might want to partner so as to provide an enhanced experience for ecologically and socially conscious users.

This strategy would provide access to an app that already has widespread brand recognition and a robust user base, but it may necessitate compromises with a large corporation who unlike BITx is ultimately interested ultimately in profit rather than impact.

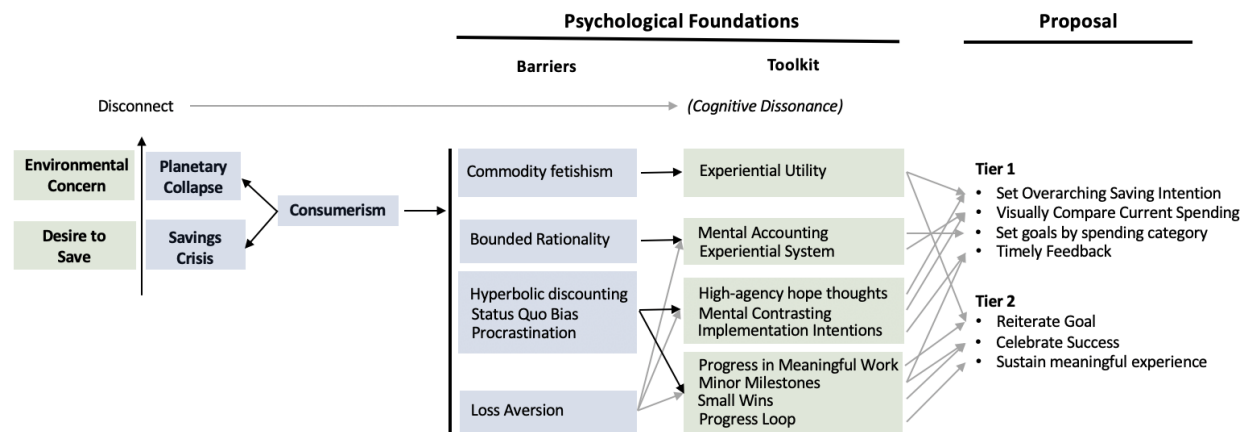


Figure 6.1: Proposal

7.0 Discussion

7.1 Limitations

Our solution attempts to disrupt a powerful culture of consumerism by applying a degrowth framework the everyday lives of individuals. While important, disrupting this pervasive culture may be difficult. Marx, for instance believed that only revolution can disrupt the race to the bottom of capitalism. Short of proposing revolution, we recognize that by relying on the actions of individuals, progress toward decreased consumption at a large scale may be slow.

Furthermore, the impact of our solution may be difficult to measure. By relying on an app that users seek out themselves, this solution might cater to users who are already motivated to reduce their environmental footprint. While we hope that the app will also be seen as a valuable tool by a wider population who wish to save more and to achieve meaningful goals, it may still be difficult to measure the impact of our solution given that these users might have reduced their consumption even absent our product. Similarly, while Tier 2 is designed to shift consumption to meaningful experiences, we cannot be sure that our solution will not delay rather than shift materialist consumption.

Our solution also relies on several psychological mechanisms for which research has shown mixed results. For example, some experiments on loss aversion find that punishment as opposed to reward can be more effective at motivating behavior change (Gächter, Orzen, Renner, & Starmer, 2009) and that loss aversion differs cross-culturally (Wang, Rieger, & Hens, 2017). For example, Stikk's goal-setting product is more in line with punishment-motivation, requiring users who fail to meet their goal to donate to a charity they do not support.

Last, our solution relies on the support of a partner with expertise to build the app. Ideally this partner would also already have access to our target user base. BITx may have a smaller potential user base, thereby decreasing our potential impact. Inversely because industry partners like Mint still rely on consumerism to survive, it may be that they disagree with the ultimate purpose of the app. That said, the advent of pro-environmental platforms such as Aspiration, Mastercard's ventures, and other apps promoting mindfulness and experiential wellbeing such as Balance, a meditation app, make us hopeful that organizations like BITx and Mint would be interested in partnering with us.

7.2 Conclusion

In this paper, we established the incorporation of degrowth into everyday life through the reduction of a materialistic, environmentally threatening consumption. This proposal first aims to address the cognitive dissonance of Americans who want to consume less and save more. That said, if successful in an American market, we envision a broader roll-out to countries with a high per capita environmental footprint. By enabling individuals to measure their environmental footprint, define saving goals, redirect spending toward experiential activities, and celebrate achievements, we aim to not only to enable individuals to live more meaningful lives, but also to avert climate collapse.

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9.0 Appendix A: Context—Overconsumption, Savings Crisis, and Degrowth

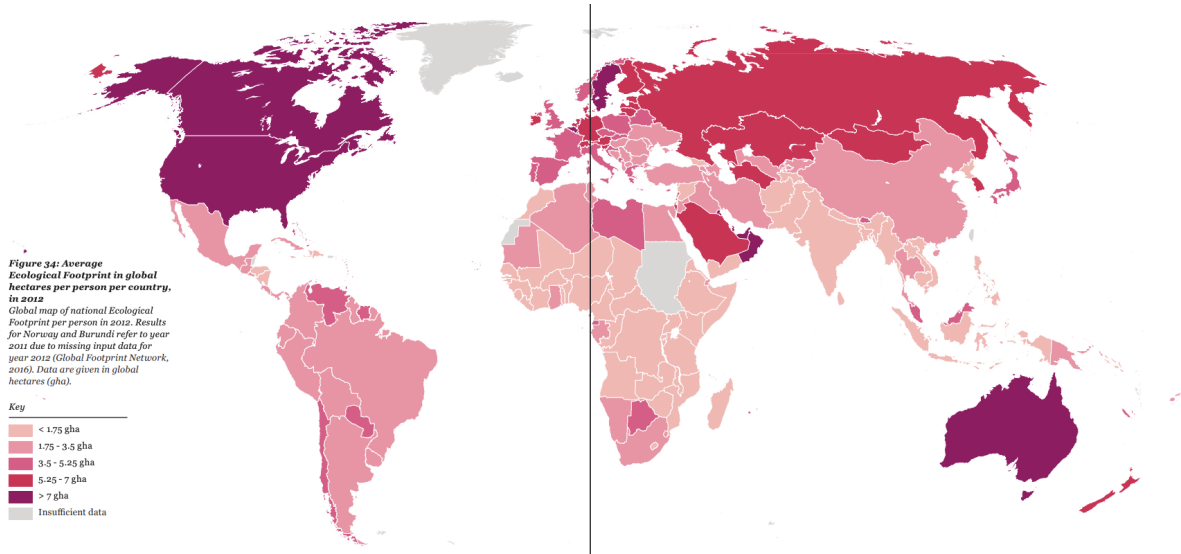


Figure 9.1: Average ecological footprint in global hectares per person per country in 2012 (WWF, 2016)

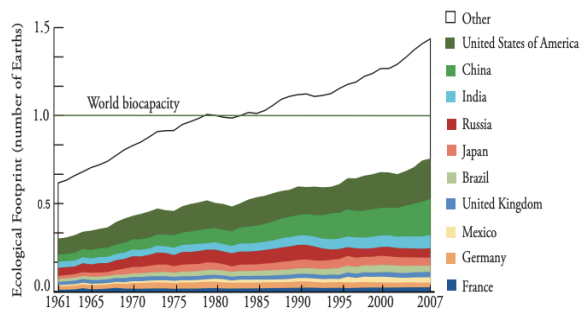


Figure 9.2: Per capita average ecological footprint for high-, middle- and low-income countries, by demand category, in 1961, 1985, and 2012 (WWF, 2016)

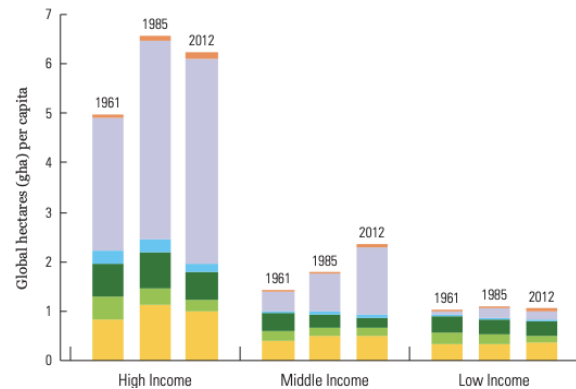


Figure 9.3: Humanity's ecological footprint by country, 1961–2007 (Global Footprint Network, 2010)

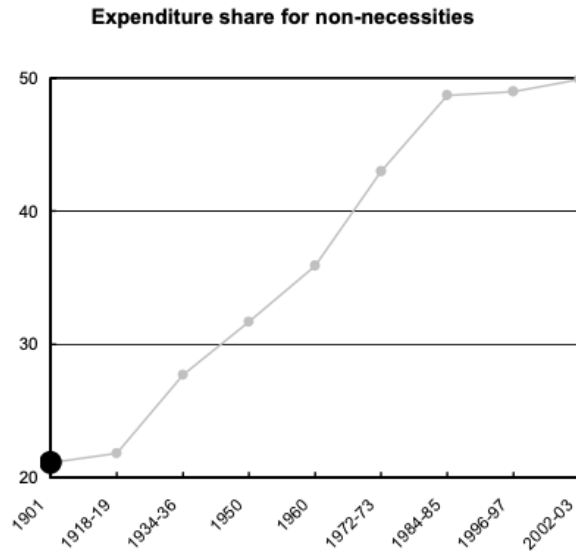


Figure 9.4: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, and U.S. Census Bureau, Statistical Abstract of the United States²

Public's policy priorities: 2011-2019

% who say ____ should be a top priority for the president and Congress

	8 years ago Jan 2011 %	4 years ago Jan 2015 %	1 year ago Jan 2018 %	Now Jan 2019 %	8-year chg '11-'19	1-year chg '18-'19
Strengthening nation's economy	87	75	71	70	-17	-1
Reducing health care costs	61	64	68	69	+8	+1
Improving education	66	67	72	68	+2	-4
Defending against terrorism	73	76	73	67	-6	-6
Securing Social Security	66	66	67	67	+1	0
Securing Medicare	61	61	66	67	+6	+1
Problems of poor and needy	52	55	58	60	+8	+2
Protecting environment	40	51	62	56	+16	-6
Dealing with immigration	46	52	47	51	+5	+4
Improving job situation	84	67	62	50	-34	-12
Reducing crime	44	57	56	50	+6	-6
Dealing with drug addiction	-	-	49	49	-	0
Reducing budget deficit	64	64	48	48	-16	0
Addressing race relations	-	49	52	46	-	-6
Strengthening the military	43	52	46	45	+2	-1
Improving transportation	33	42	49	45	+12	-4
Dealing with climate change	26	34	46	44	+18	-2
Dealing with global trade	34	30	38	39	+5	+1

Notes: In 2013 and earlier, the item "dealing with the issue of immigration" asked about "illegal immigration." In 2015 and earlier, the item "Dealing with global climate change" asked about "global warming." Significant changes in **bold**.

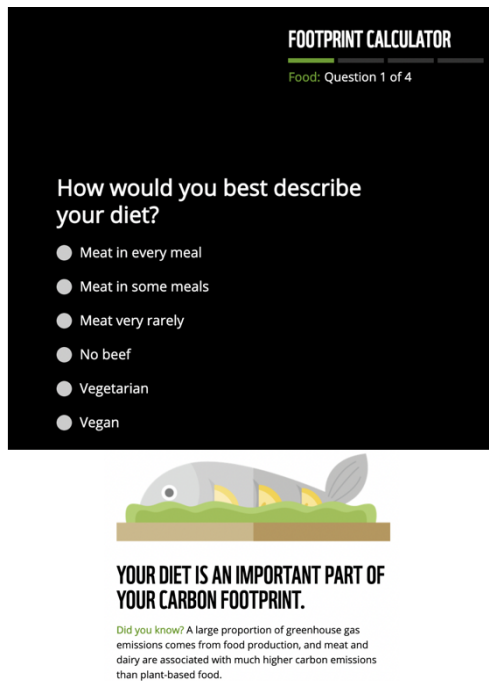
Source: Survey of U.S. adults conducted Jan. 9-14, 2019.

PEW RESEARCH CENTER

Figure 9.5: American public's policy priorities: 2011–2019 (Pew Research Center, 2019)

² Source: <https://www.bls.gov/cex/>

10.0 Appendix B: Proposal Mock-Ups



FOOTPRINT CALCULATOR
Food: Question 1 of 4

How would you best describe your diet?

- ☐ Meat in every meal
- ☐ Meat in some meals
- ☐ Meat very rarely
- ☐ No beef
- ☐ Vegetarian
- ☐ Vegan



YOUR DIET IS AN IMPORTANT PART OF YOUR CARBON FOOTPRINT.

Did you know? A large proportion of greenhouse gas emissions comes from food production, and meat and dairy are associated with much higher carbon emissions than plant-based food.

Figure 10.1: Sample Impact Calculator, modeled after the World Wildlife Foundation Footprint Calculator.³



MAKE YOUR TIME MATTER

Did you know? Research shows that when people do activities that are meaningful to them they live happier, healthier lives.

Which of the activities below are meaningful to you?
(Feel free to select more than one)

			
Art	Music	Exercise	Learning
Create	Enjoy	Center	Expand

Figure 10.2: Sample question to identify meaningful activities.

³ Image source: <https://footprint.wwf.org.uk/#/questionnaire>

Set a budget

Choose a category

Utilities

When will this happen?

☐ Every month ☒ Every few months ☐ Once

What's your spending cycle like?

I spend \$450 every 3 months (2-12 months)

My next is in Mar 2

We'll set aside **\$150** each month and expect expenses of **\$450** every **3 months** for **Utilities**. Your first payment is this month.

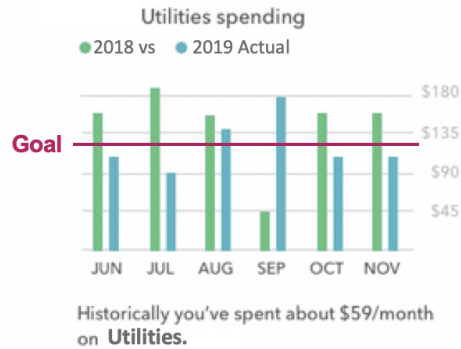


Figure 10.3: Sample budget-setting against current spending by category. Based on Mint budgeting tool.⁴

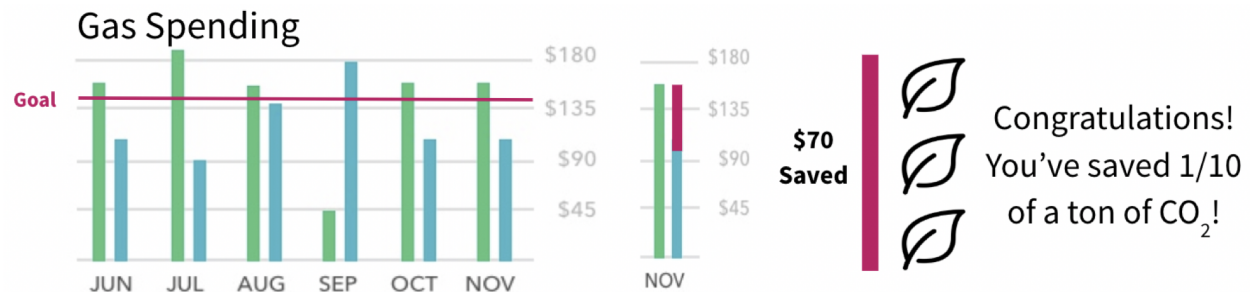
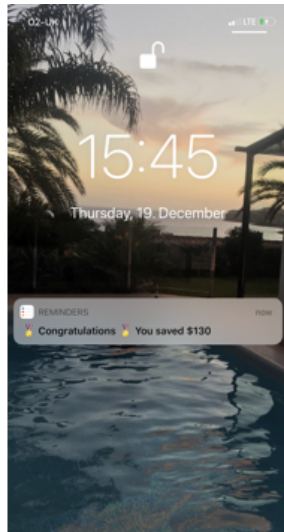


Figure 10.3: Sample milestone report for Gas spending. Based on Mint budgeting tool⁵.

⁴ Image source: <https://www.mint.com/>

⁵ Image source: <https://www.mint.com/>



Congratulations, you saved \$130!
 You made a difference by:
 🏆 Saving 1000 liters of water
 🏆 Saving 1/10 of a ton of CO₂

Figure 10.4: Sample of phone notifications celebrating small wins.

Celebrate yourself!

Let your neighborhood reward you by

Going to Central Park for a free YOGA CLASS...

[Click here for more information](#)

Going to the Harlem Jazz Festival...

[Click here for more information](#)

Taking an online class at Brooklyn Academy of Arts...

[Click here for more information](#)

Seeing a free concert in Prospect Park...

[Click here for more information](#)

Congratulations! You've reached an important milestone.

Make this moment matter by putting your savings towards something meaningful.

Enable automatic deposits towards savings account for your bike trip through the Rocky Mountains.



Figure 10.5: Sample of different activity option.⁶

Figure 10.6: Linking savings to activity goals

Is it sustainable to be self-interested and/or rational in economic life? classic and current cases

This essay is composed of two sections. First, a brief delineation of the main concepts is given. Then, the question is answered with an example to conclude that in some cases, like entrepreneurship, it can be sustainable to be self-interested and/or rational in economic life.

Delineation of concepts

In this essay, sustainability is, as the United Nations established in 1987, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

On the other hand, the definition of rationality is that of Smith’s (2008) constructivist rationality: individuals use reason to decide the best action between its different options. In addition, it is considered that rationality depends also on the context and the agents’ emotions; consequently, utility maximization may vary and not easily translatable into its money equivalent (Levin & Milgrom, 2004). Furthermore, in this essay, the concept of rationality is not completely aligned to

the one of the economic theory, rather than that, agents' behaviour is based on context and cannot be predicted as economics intend (Thaler, 2000).

Meanwhile, self-interest is when an individual promotes his/her/its/their own gains without intentionally aiming to affect the public interest (Smith, 2003). In this paper Hayek's (2012) idea that "(...) men, while following their own interests, whether wholly egotistical or highly altruistic, will further the aims of many others, most of whom they will never know, that it is as an overall order so superior to any deliberate organization: in the Great Society the different members benefit from each other's efforts not only in spite of but often even because of their several aims being different." Is a key definition to understand the conclusion of this work, because his means that in the end our actions that we believe are promoting our objectives are eventually, and at the same time, serving someone else's goal.

Additionally, since entrepreneurship will be the supporting element of this essay's premise, it must be defined. Entrepreneurship represents allocating resources with an innovative approach to pursue an opportunity (Stevenson & Jarillo, 2007). One of its main goals is to fulfil needs and wants (Stevenson, 2007), for which an entrepreneur must undergo a process of analysis to address this opportunity and satisfy those needs (Salami, 2011). It must be mentioned that, for this paper, entrepreneurship does not necessarily represent creating of new products and production processes. For example, Allawadi's (2010) "creative imitation" refers to take an innovation, understand it and adapt/imitate it to satisfy the local market. This last approach is common for developing countries (Allawadi, 2010).

Also, the concept of alienation will be used in this essay as one relevant negative externality of rational and self-interested decisions. Specifically, employee alienation is addressed throughout the essay. The jobs created by the new firms could lead employees to feel powerless and meaningless. When an employee does not feel entitled to make decisions regarding their work, they feel powerlessness (Seeman, 1959; Shantz, 2015). At the same time, if the employees do not have full comprehension of their activities and the organization, they feel meaningless (Dolan, 1971). The combination of powerlessness and meaninglessness leads to alienation of the workers from their job. This means that the workers do not feel satisfaction from their job and only perceive work as a mean to satisfy other necessities (Fromm, 2008).

Finally, economic life refers to the production, consumption and distribution of goods and services. In this paper, the unintentional effects of agents' decisions are used to show how economic life could be unintentionally sustainable when being self-interested and/or rational. Therefore, the main intention of this work is to illustrate how self-interested and rational entrepreneurship activities could be sustainable.

Answer to the question

In this section, I answer the question using entrepreneurship to demonstrate that a self-interested and/or rational decision could turn out to be sustainable for the economic life. For this, I address different types of entrepreneurship to illustrate how each of them despite their apparent intentions will lead to a greater sustainable outcome.

Entrepreneurship

There are several reasons why a person might want to start a business: survival (Garcia-Lorenzo, Donnelly, Sell-Trujillo, & Imas, 2018), enrichment (Quince & Whittaker, 2003), independence (Block & Koellinger, 2009), contribution (Cohen, Smith and Mitchell, 2008), etc. Despite the reason, it is a self-interested and/or rational decision that aims to satisfy the entrepreneur's goal (Rodriguez, 2013). Baumol (1990) established that entrepreneurs are being rational, because they make the decision of starting a business based on the economic circumstances and the payoff it will represent.

Economic Entrepreneurship

When a business is created based on the generation of wealth it is considered **economic entrepreneurship** (Tilley & Young, 2006). According to Hayek (2012), an entrepreneur could reach the largest profit by focusing on satisfying the needs of the people and this will unintentionally benefit other individuals as well. This means that the decision to start a business based on a market opportunity will have positive externalities.

If the business is successful, some of its externalities will contribute to some extent to sustainability. One of these positive externalities is job creation (Malchow-Møller, Schjerning, & Sørensen, 2011). Most of the OECD countries job creation comes from small and medium enterprises and not from the large firms (Observer, O. E. C. D., 2000). This means that as new

companies are created, the current and future job market is being affected positively with more career options and employability, which is also linked to positive economic growth (De Kok, Vroonhof, Verhoeven, Timmermans, Kwaak, Snijders, & Westhof, 2011). Therefore, the self-interested and rational decision to create a company could lead to a better situation for current and future generations.

Nevertheless, it is also possible that establishing an enterprise can lead to negative externalities like alienation (Fromm, 2008) and environmental degradation (Hall, Daneke, & Lenox, 2010). In that case, entrepreneurship, as a general concept, might not lead entirely to sustainability.

Green/environmental entrepreneurship

Starting a business that will work under some of the principles of sustainability and offer green products or services, also known as **green/environmental entrepreneurship** (Silajdžić, Kurtagić, & Vučijak, 2015), makes positive externalities more attainable. In addition to the positive externalities already mentioned, green entrepreneurs contribute to the economy with the introduction of green innovation (Farinelli, Bottini, Akkoyunlu, & Aerni, 2011) that allows a constant sustainable development (Sarkar, 2013), create eco-friendly niches that may scale to new industries (Silajdžić, Kurtagić, & Vučijak, 2015) and enhances green growth (Sarkar, 2013). Despite increasing competition, wealth, innovation, and change (Perren & Jennings, 2005), an economic entrepreneurship might not generate the same externalities that a green enterprise will. Following the example used above about the negative externalities, with green entrepreneurship, environmental damage should not occur. However, employees' alienation could persist.

Green entrepreneurship might be normally considered as determined by the yearn for collective benefit. In some cases, green enterprises might be the result of a strong alignment of values and concerns of the entrepreneur with sustainability (Allen & Malin, 2008).

However, green entrepreneurship is not necessarily driven by commitment for the current and future generations (Anderson & Leal, 2001). It has been previously described as “the process of defining, evaluating, and exploiting economic opportunities that are present in environmentally relevant market failures” (Dean & McMullen, 2007). Thus, green entrepreneurship is also defined as a response to governmental inefficiency and lack of vision towards its profitability (Anderson & Leal, 2001). Either the case, its can be concluded that green entrepreneurship, whether the entrepreneur’s vision is aligned with sustainability or not, is self-interested and it is also involves rational decisions, that will contribute somehow to certain sustainability goals.

Sustainable Entrepreneurship

When an entrepreneur creates a business that is future orientated by balancing economic, social and environmental factors, then **sustainable entrepreneurship** is occurring. For Tilley & Young (2006) this is the only route to fulfil sustainability; “economic, social and environmental entrepreneurs may partially contribute towards sustainability goals and just as other forms of entrepreneurship, represents an opportunity to adequate personal values to work. However, on their own they do not fully, or consistency address all aspects of sustainable development” (Tilley & Young, 2006).

Sustainable entrepreneurship must consistently commit to ethics and economic development while also enhancing the quality of life of its workers, their families, the local and global community, and the future generations (Crals & Vereeck, 2004). This means that a perfect sustainable entrepreneurship will not have any of the negative externalities generated by economic and green entrepreneurship, such as employees' alienation and environmental damage.

Nevertheless, it is not a simple task to have a sustainable start-up from the beginning (Crals & Vereeck, 2004). Commitment towards sustainability will be attainable once the business has reached certain financial stability. Therefore, sustainable entrepreneurship is a process that must also be led by rational decisions and, as it was mentioned before, it is driven by the entrepreneur's opportunistic moves towards aligning personal values with their work (Tilley & Young, 2006).

Even though, achieving the strict definition of a sustainable business is hard to accomplish. Hayek (2012) said it is not possible to know all the causes and consequences of our actions. Therefore, it cannot be negated that in the end, despite of the entrepreneur's intention, positive and negative externalities, aside from the ones discussed in this essay, might occur out all the discussed types of entrepreneurship. Nevertheless, it is expected that the negative externalities will eventually end once the endowment to achieve sustainability is reached.

Moreover, Hayek's premise of "while following their own interests, ..., will further the aims of many others, most of whom they will never know" can be applied to this entrepreneurship example. As it was discussed, all types of entrepreneurship have shown to be driven by self-interest

and rational decisions; and contrary to the common thought that self-interest will lead to unsustainability, self-interested entrepreneurship is unintentionally leading to a more sustainable state. To illustrate this, the importance to the positive externalities of the different types of entrepreneurship is emphasised and the perpetual occurrence of the negative externalities is questioned, to show how entrepreneurship will contribute unintentionally to a more sustainable outcome.

Conclusion

Entrepreneurship, aside from the conventional attributions it has, can be considered an unintended enabler to reach a greater level of sustainability. Some research has shown that that even though firm creation is a self-interested decision and seeks to exploit markets (Venkataraman, 2019) it can generate environmental, social and economic benefits (Hall, Daneke, & Lenox, 2010).

Based on the positive and negative externalities that emerge from economic decisions (Silberberg & Ellis, 1995), this essay seeks to illustrate how in some cases it could be sustainable to be self-interested in economic life in a sense that it could even unintentionally lead to sustainability. By using economic, green and sustainable entrepreneurship as examples it was illustrated that by aiming to a self-interested and/or rational objective, sustainable gains can occur.

For each type of entrepreneurship, it was shown that both type of externalities may occur, however, the positive externalities that contribute to certain sustainability goals can not be ignored, and based on Hayek's idea that one's self-interest-driven behaviours can lead to the fulfilment of other

individuals's goals, it can be concluded eventually these self-interest and rational decisions can be sustainable in economic life.

It must be mentioned that perfect sustainability is a complicated goal, because it is understood that homo-sapiens has limited knowledge (Hayek, 2012) and is not rational as homo-economics to reach perfect states (Thaler, 200). Furthermore, human knowledge depends on perception (Hayek, 2012) which makes reaching sustainability (a balance between ethics, social, environmental and economic development) a complicated even when knowledge is shared (Hayek,2012) because there can be cultural differences on the perception of priorities. Furthermore, it is difficult to explain how these externalities, as Hayek (2012) established, will eventually represent benefits for other people aside from the decision maker. Thus, this work considers the possibility that negative externalities might occur.

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