



In conjunction with today's forum topic, CSC would like to surface a recent article we have written on Behavioural Economics for your reading pleasure.

Behavioural Economics and its Applications for Social Security Policy

For a long time, the lifecycle theory of consumption developed in the 1950s served as the dominant economics model for understanding savings and consumption behaviour. The model's central assumption, typical of neoclassical economic theory, was that human beings are rational economic agents. It assumed three things: first, that human beings are fully capable of calculating the amount they would earn over the course of their working lives; second, that they can figure out what they would need for their retirement; and finally, that they would have the discipline to save enough to maintain a stable level of consumption in retirement. If these assumptions were true, people would live out their retirement years very much in accordance with how they had planned for it, and they would be able to maintain a standard of living close to what they had in their productive years. Yet, the reality is that people usually under-save for the future. Why is this so?

Conventional economic theory offers some explanation to this puzzle. First, people are liquidity-constrained, and therefore do not save as much as the life-cycle theory suggests. Second, capital markets are usually not as well-developed as the theory assumes. Consequently, people with less financial resources may lack the savings and investment opportunities that wealthier individuals can avail themselves too. This would also suggest that lower and middle-income individuals are far less able to smooth out consumption over their lifetime.

In recent years, there has been a growing recognition that standard economic models are inadequate for understanding and predicting human economic behaviour. In the light of this, behavioural economics as a multi-disciplinary sub-field of economics has emerged to provide better explanations for human economic decision-making. Combining economic analysis with an understanding of human psychology, behavioural economics questions long-held assumptions about rational agency—assumptions that are foundational to neoclassical economic analyses. By suspending the assumption of rational agency, behavioural economics offers a richer explanation of real-world human behaviour.

Key Concepts in Behavioural Economics

Bounded Rationality

Standard economic models assume that people, being rational economic agents, would not make decisions that violate their own preferences. In the 1950s, the political scientist Herbert Simon suggested that people make sub-optimal choices, despite all the available information, because there is a natural limit to the human ability to process data and handle complicated computations. We may therefore end up under-saving simply because we underestimate or miscalculate the amount we need for retirement.

A related concept is that of hyperbolic discounting—the tendency to disregard the distant future by much more than the prevailing discount rate. As the future is distant and unpredictable, we tend to apply much higher discount rates to the distant future than we do to the near-future. This tendency to disregard the longer-term consequences of our actions in favour of present-day or near-term gains would result in significant under-saving for retirement in one's early years in work. Inadequate savings for retirement is therefore largely the result of people choosing short-term gratification (current consumption) over longer-term rewards (more savings for their retirement years).

The implication of bounded rationality for social security policy is that individuals, left to themselves, will often fail to make sensible decisions for their own retirement security even if they have the financial means to do so. They lack the computational ability to save and invest optimally for the future, as well as the ability to compare among different savings plans offering different combinations of risk and reward. All this points towards some form of government intervention—either to require individuals to save at a certain rate or at the very least, to prod them into doing so.

Bounded Willpower

We sometimes fail to make rational and optimal choices because we succumb to temptation and procrastination. The primary cause of insufficient savings, for example, appears to be a lack of self-control on the part of households to reduce current consumption in favour of future consumption. In the United States, forced savings plans and home ownership rules are in place to help individuals overcome this lack of willpower. Social security and mandatory defined-benefit pension plans require little willpower on the part of participants, while monthly mortgage bills force homeowners to put aside part of their monthly incomes to service their mortgage loans.

Similarly in Singapore's context, the CPF system circumvents people's bounded willpower by mandating contributions from employees. These systems are important in helping individuals accumulate retirement wealth, as any disposable income not immediately locked away or channelled into forced savings plans tend to be quickly spent away.

Loss Aversion

People are also naturally loss-averse. Once a person takes ownership of something (money, material objects, even other people), he attaches a premium to his ownership of it, and would tend to be reluctant to let it go. Letting it go would be seen as a loss, which is felt more keenly than a gain of similar value. Neoclassical economic theory generally assumes that people are neutral to losses and gains — that is they would expend the same amount of effort to avoid a loss as they would a gain of similar amount.

Behavioural studies however have shown that people attach a higher value to losses and are thus more willing to take risks to avoid losses than to make gains. This often translates into a difference between their willingness-to-pay (for a good) and their willingness-to-accept (compensation for a loss). For example, if residents were asked the same question in two different ways — how much they are willing to pay to maintain the public park in their neighbourhood versus how much they demand to be paid to give up that park — the answer to the latter question tends to be much higher. Loss aversion also suggests that penalties and disincentives would have a stronger effect than incentives of the same value.

Status Quo Bias

Closely related to loss aversion is that people often have a strong status quo bias, or the human tendency to stick with what we have. This could explain why students tend to sit in the same seats in class even when there is no pre-defined seating arrangement, and why people continue to subscribe to magazines they no longer read — because taking action to choose a different seat or cancel our magazine subscriptions requires effort.

In the 1990s, when many companies in the United States switched from defined-benefit plans to defined-contribution plans, the take-up rates among employees were unusually low. Many eligible employees did not sign up, even if enrolment meant that they could enjoy sizeable cash benefits from the government or employer — benefits that greatly outweighed whatever transaction costs they may incur. Behavioural economics suggests that the opt-in feature in typical savings plans, which required employees to actively join the programme, deterred positive action. Most employees simply stuck with the default option (non-enrolment) and never got round to signing up.

The implications of loss aversion and status quo bias for social security policy are significant. For one, it means that people are far more willing to be enrolled in a retirement savings plan if automatic participation was the default option than if they were asked to enroll voluntarily. The use of defaults — in which people are automatically enrolled in a programme unless they choose to opt-out — is sometimes referred to as “libertarian paternalism” (Thaler and Sunstein). It is paternalistic because the state has a preference for what’s good for individuals, but it is also libertarian in that people still have the right to opt out of the programme. Thaler and Sunstein argue that by getting the “choice architecture” right — or by presenting choices in such a

way that people are more likely to choose wisely — governments can improve policy outcomes and citizen satisfaction without excessive reliance on mandates (or regulations) or financial incentives or disincentives. “Nudging” people to choose wisely, they argue, is superior to forcing people or paying people to do so.

The use of defaults — harnessing people’s loss aversion and status quo bias — is found in many of Singapore’s public policies. CPF members are automatically enrolled in MediShield unless they opt out. We are all presumed to have given consent to having our organs harvested in the event of accidental death — again, unless we opt out. We are all automatically signed up to contribute to our own ethnic self-help group unless we choose to opt out.

Application of Behaviour Economics: The Save More Tomorrow Programme

Professors Richard Thaler and Shlomo Benartzi were able to use the insights from behavioural economics to design a prescriptive employee savings programme to help people increase the size of their personal savings. Their goal was to help employees who expressed a desire to save more, but lacked the human willpower to do so. The features of the Save More Tomorrow programme were carefully crafted to address the behavioural tendencies described above. Save More Tomorrow was piloted at a mid-sized American manufacturing company to great success, and there are plans to explore the adoption of the plan at a national level.

Thaler and Benartzi’s Save More Tomorrow programme has four main features:

1. Contribution to the plan is increased beginning with the first pay cheque *after* a raise. As employees do not suffer a cut in take-home pay, this feature effectively mitigates the perceived loss-aversion.
2. Employees are approached about increasing their contribution rates a considerable time before their scheduled pay increase. This feature takes advantage of the tendency for hyperbolic discounting. The take-up rate is significantly higher as people will discount the loss as the loss will take place many months later.
3. The contribution rate continues to increase on each scheduled raise until the contribution rate reaches a maximum rate which is preset and agreed upon in advance. In this way, inertia and status quo bias work to keep employees on the plan.
4. Employees can opt out of the plan at any time. This feature makes people more comfortable about joining.

Behavioural Economics in the Singapore Context

A keen appreciation of some key principles of behavioural economics has guided policymaking in Singapore for decades. The Central Provident Fund (CPF) system is a prime example of this. It was started in 1955 to ensure that workers saved to support themselves in retirement and old age. Concepts of behavioural economics are shown in the following ways:

- **Bounded Rationality and Bounded Willpower:** Making individual savings compulsory addressed people's tendency to underestimate their post-retirement needs. It also addressed people's lack of discipline and inability to commit to a long-term savings programme.
- **Hyperbolic Discounting:** The Minimum Sum Scheme addresses people's tendency to value short-term utility significantly over their longer-term needs. By locking up part of the individual's CPF savings until his retirement age and then disbursing the monies as annuity payments, the scheme constrains the individual's ability to over-consume in his early years of retirement.
- **Loss Aversion:** As the employee contribution element is deducted at source (i.e., directly from the employee's income before he is paid each month), this reduces the feeling of loss, making the deduction more palatable to CPF members.
- **Status Quo Bias:** The CPF Medishield Programme was designed as an opt-out scheme, which circumvented the problem of inertia and increased the participation rate. A high enrolment rate is particularly crucial for the success of insurance schemes, which rely on effective risk-pooling across a large participant base. The status quo bias is also reinforced by loss aversion, as an individual would tend to feel that he is losing something if he were to opt out of an opt-out scheme (as opposed to gaining something when opting into an opt-in scheme).

The policy design of CPF LIFE also reflected many important behavioural considerations. For instance, following the Prime Minister's announcement of a "longevity insurance scheme" in the 2007 National Day Rally, many Singaporeans expressed unhappiness that their contributions into the scheme would not be refunded. Taking into account people's loss aversion, the CPF LIFE scheme provided refundable options. Indeed the default option that people are automatically put on is the Refund-80 option.

In the presentation of CPF Life, the government also recognised that how the problem is "framed" can significantly impact how it is received and perceived. At NDR 2007, the Prime Minister had argued that the impetus to introduce the scheme was that half of Singaporeans who lived to 65 would be expected to live beyond 85. Many Singaporeans also could not imagine themselves living beyond 85 regardless of what the statistics said. To behavioural economists, this is an example of the "availability fallacy", or the tendency of people to assess their own risks based on the experience available to them, rather than on objective data. Consequently, the default option was set at one in which the insurance premiums would only kick in after age 80, an age that is was more congruent with Singaporeans' own estimations of their life expectancy.

There are other aspects of CPF LIFE and more broadly old age financial security in which behavioural economics offers new insights. For instance, to help older Singaporeans cope with the computational difficulties of comparing among a dozen CPF LIFE plans, CPF Board could develop a simple self-assessment questionnaire that asked CPF members turning 55 a few basic questions such as what their risk preferences were (say cautious, moderate, aggressive) and whether they intended to leave a bequest for their loved ones. Based on their responses, an automated programme can suggest the plan that is most appropriate for the individual.

To encourage individuals to save more for retirement, can we not harness the power of defaults more aggressively to get more Singaporeans to enroll in the Supplementary Retirement Scheme (SRS)? For instance, employers could be required to automatically put the 13th month salary of their employees into their SRS accounts with employees having the choice to opt out.

Conclusion

Behavioural economics is, however, not without its detractors. The most common refrain among critics is that behavioural economic theories are largely derived from experiments. Critics contend that behaviour exhibited and observed during experiments may not mirror real-life situations in the marketplace which are more complex and multi-dimensional. Furthermore, in the real world, people learn from their mistakes and become better at decision-making as they go along. Experiments, being one-off exercises, do not allow for this learning and improvisation behaviour to be captured.

Still, it cannot be denied that behavioural economics lends an important dimension to traditional economics. By recognising the flaws within the rational man assumption, and factoring this into the policy-design process, the use of behavioural economic insights injects a degree of realism into policy-making, allowing for better social and economic outcomes.

Suggested Further Reading

Ariely, Dan. *Predictably Irrational: The Hidden Forces that Shape our Decisions*. New York, NY: HarperCollins, 2008.

Brafman, Ori and Brafman, Rom. *Sway: The Irresistible Pull of Irrational Behaviour*. New York, NY: DoubleDay, 2008.

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Lambert, Craig. "The Marketplace of Perceptions". *Harvard Magazine*, March-April 2006: 50-57, 93-95.

Thaler, Richard and Benartzi, Shlomo. "Save More Tomorrow: Using Behavioural Economics to Increase Employee Saving". *Journal of Political Economy* 112 (2004): S164-S187.

Thaler, Richard and Sunstein, Cass. *Nudge: Influencing Decisions About Health, Wealth, and Happiness*. New Haven and London: Yale University Press, 2008.