Why don't we insure more: Behavioural Principles

Literature review of behavioural science research

PIDM
Perbadanan Insurans Deposit Malaysia
Protecting Your Insurance And Deposits In Malaysia

THE BEHAVIOURAL INSIGHTS TEAM

Scope

This is a review of the behavioural science literature on insurance.

We base this review around five key behavioural principles driving insurance decisions. For each we discuss the underlying biases, interventions that have tried to counter these biases, and their relevance for Malaysia. The focus of our project overall is the long-term insurance e.g. life and health) decisions of Millennials. We draw on research specific to this focus wherever possible, but our search was broader; we include all insurance types (and all ages) as this greatly increases the research we can draw on and leads to a richer review.

The document is structured as follows:

- **Background and Context:** An introduction to the insurance market in Malaysia and the importance of behavioural science in understanding insurance decisions.

- **Behavioural Principles:** We draw out five principles that are important in understanding our insurance behaviour. For each, we provide an overview of the principle, examples of how it applies to insurance and interventions intended to improve insurance decisions based on the principle. We then review any research that has been conducted in Malaysia or culturally relevant contexts. The five principles we highlight are:
    1. **We are bad at assessing risk**
    2. **We avoid decisions, particularly difficult ones**
    3. **We take our cues from others**
    4. **We are guided by key timepoints**
    5. **We value the present more than the future**

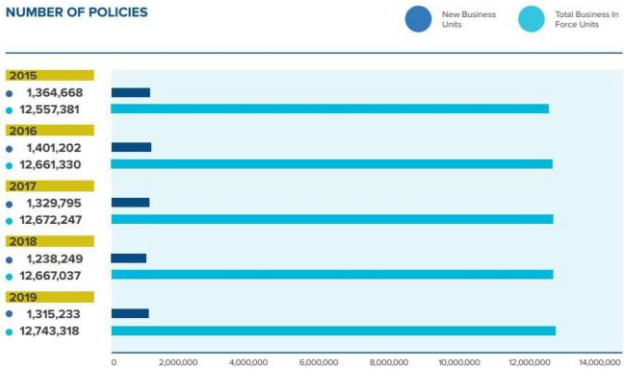
- **Where next?** We conclude by setting out the next steps in our work together understanding Millennials insurance behaviour. We briefly describe the next two phases of the project (a survey and an experiment) and how this review of the behavioural science literature on insurance feeds into the next phases.

Background and context

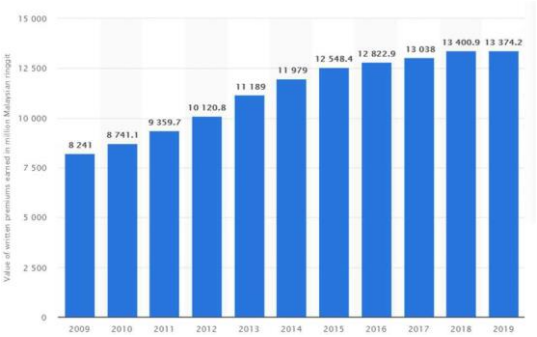
Less than half of Malaysians have life insurance, and, despite growing incomes, this figure has remained almost unchanged in the past five years.[1] The figures for health insurance are similar, with 54% of Malaysians covered.[2] [3] In addition, not everyone is equally unprotected: Malaysians aged 25-34 are the least well covered for a health shock or death of a partner.[4] [5]

We can see this flattening off in insurance growth in the number of life insurance policies (below left) and the total premiums in the general insurance market[6] (below right).

Number of life insurance policies (2015-2019)[7]



General insurance earned premiums (2009-2019, Million Ringgit)[8]



Insurance and Millennials

Low levels of insurance amongst young adults are not unique to Malaysia. In the US, for example, only 10 percent of Millennials have the life insurance coverage they say they need.[9] Young Americans (19-34) are also 50% more likely to be uninsured than older adults,[10] and only 20% of secondary earners (20-39) had sufficient life insurance to avoid severe financial consequences were they to die.[11]

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[1] Krishnan, D. (2020). LIAM urges Malaysians to get life insurance coverage. *New Straits Times*. www.nst.com.my/news/nation/2020/09/623238/liam-urges-malaysians-get-life-insurance-coverage [2] Ministry of Health Malaysia. (2019). *National Health and Morbidity Study 2019*.

[3] Although this may underestimate coverage as some groups (e.g. older public servants) receive free medical care in public hospitals.

[4] Redzuan, H., Yakob, R., & Isa, Z. (2016). Underinsurance in Malaysia: The application of the Monte Carlo simulation. *Jurnal Pengurusan (UKM Journal of Management)*, *47*.

[5] Although this may be partly driven by health insurance offered by employers increasing with age.

[6] Includes fire, motor, personal accident, marine aviation and transit (MAT) as well as medical.

[7] Life Insurance Association of Malaysia (LIAM) Annual Report 2019, see here www.liam.org.my/pdf/AnnualReport2019_LIAM.pdf

[8] Persatuan Insurans Am Malaysia (PIAM) yearbook 2019, see here www.piam.org.my/wp-content/uploads/2020/07/3b_PIAM_year-book-2019_14_LowRes_spreadFA.pdf

[9] New York Life's Life Insurance Gap survey (2018)

[10] Conway, D. (2020). Uninsured Rates Highest For Young Adults Aged 19 to 34. www.census.gov/library/stories/2020/10/uninsured-rates-highest-for-young-adults-aged-19-to-34.html

[11] Bernheim, B. D., Carman, K. G., Gokhale, J., & Kotlikoff, L. J. (2003). Are life insurance holdings related to financial vulnerabilities? Economic Inquiry, 41(4), 531-554.

Some Malaysian providers are responding by explicitly targeting “Millennials” with their advertising.[12] Although, as in this example from CIMB, the motivations being spoken to are broadly the same as with other customer segments: protection for loved ones, tax relief, and so on. Whether these same approaches still work for younger customers remains to be seen. However, it does identify one potentially significant purchase barrier for Millennials in price expectations: in 2020, 50% of Millennials surveyed in the US overestimated the price of insurance by a factor of 6.[13] Targeting Millennials by targeting barriers to purchasing insurance that are specific to Millennials, could be an effective strategy.

Insurance and digitalisation

Across the wider financial industry there has been a push towards digitalisation that may capture a larger share of young persons, simply due to their preferences for digital. Research from Swiss Re identified that, whilst 64% of Malaysian consumers bought insurance from traditional offline sources, “frequent usage of digital platforms can increase the possibility of online insurance purchase [intentions] by 2% to 28%”.[14] The digitalisation of the industry may well lead to greater take-up from Millennials without necessarily targeting them explicitly.

However it is worth noting that traditional providers – which have high customer loyalty as well as greater perceived credibility[15] - may benefit more easily than purely digital providers, such as fi.life, given that consumer’s confidence remains a barrier to purchase. Swiss Re concluded that the insurers would be best to partner with e-payment and e-commerce platforms to secure success,[16] which similarly speaks to loyalty and credibility considerations.

Digitalisation has been accelerated by the COVID-19 pandemic, and this is a key part of the current context that cannot be ignored. One survey during the pandemic reported that 29% of Malaysians are anxious about their financial future.[17] Although there has been less take-up of new policies in Malaysia than neighbouring countries,[18] this may be in part because existing coverage is slightly higher. It is still unclear what long-term effects the pandemic will have.

Avoiding insurance may be rational

For some young people, there may not be a compelling reason to take out certain types of long-term insurance; the value offered by insurance may not be attractive enough.

For example, a key driver for take up of life insurance is “bequest motives”, i.e. the desire to ensure that dependents have financial resources if a person passes away. Evidence suggests that those who are married, and have children, are more likely to take up life

[12] See here: www.cimb.com.my/en/personal/life-goals/planning-for-my-future/4-reasons-to-get-life-insurance-if-youre-a-millennial.html
[13] See here: lifehappens.org/blog/is-life-insurance-tomorrows-problem-findings-from-the-2020-insurance-barometer-study/
[14] Guo, J. (2020). Going digital: Insights to optimise consumer appetite for online insurance in Indonesia and Malaysia.
[15] ibid
[16] ibid
[17] COVID-19 Consumer Survey Malaysia. Retrieved 12th January 2021, from www.swissre.com/dam/jcr:f5aab51a-3308-47d4-8919-ca87d227d0c6/ZRH-20-05609-P1_Consumer-Survey_Covid-19_Infographic_A4_MYS.pdf
[18] Guo, J. (2020). Going digital: Insights to optimise consumer appetite for online insurance in Indonesia and Malaysia.

insurance.[19] This is supported by studies in Malaysia, with households that have more children exhibiting a higher probability of taking out life insurance.[20] Hence, younger people may be less likely to take up life insurance because they do not have a "bequest motive", i.e. they do not have a spouse or children, and so a need for life insurance.

In addition, young people may feel their insurance (partly) subsidises others. All insurance involves spreading risk over a large population with varying levels of individual risk. However, with car insurance, an individual is unlikely to know their relative risk compared to the broader population. This is not the case for health insurance. In general, young people are healthier and therefore may believe they are more likely to end up subsidising older people, meaning young people will be less inclined to take out health insurance.

Rational response is unlikely to fully explain insurance uptake

Whilst avoiding some types of insurance is more likely to be a rational choice for young people, the evidence suggests this is unlikely to explain low uptake of insurance entirely. Even relative to their risk exposure, older families have more insurance relative to younger families. For example, the likelihood of owning life insurance (in the US) peaks at 60, but it delivers the greatest value at age 30.[21]

It may simply be that younger adults cannot afford insurance, or have a higher tolerance for risk that makes the benefits of insurance less attractive -- younger adults certainly tend to have lower earnings[22] and higher risk preferences.[23] However, young adults (in the UK) are the age group most likely to have mobile phone insurance, suggesting that financial constraints and risk preferences do not fully explain insurance decisions.[24]

There are, however, also behavioural factors that influence insurance uptake. Insurance decisions are complicated. They require us to make predictions about a large number of improbable (but highly significant) events. And, if we are lucky, there will be very few moments in which those predictions are realised, so we have little feedback on our decision. These are conditions under which we would expect our behavioural biases to have a big influence on our decision-making.

In this review we explore five behavioural principles which have important implications for insurance uptake, and how they are likely to translate to the Malaysian context.

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[19] Inkmann, J., & Michaelides, A. (2012). Can the life insurance market provide evidence for a bequest motive? Journal of Risk and Insurance, 79(3), 671-695.
[20] Tan, H. B., Wong, M. F., & Law, S. H. (2009). The effect of consumer factors and firm efficiency on Malaysian life insurance expenditure. *International Journal of Business and Society*, *10*(1), 59.
[21] Chambers, M., Schlagenhauf, D., & Young, E. R. (2011). Why aren't more families buying life insurance? *Center for Retirement Research at Boston College Working Paper*, (2011-7).
[22] Malaysia | 2019/20 Average Salary Survey. (2020). Retrieved 8 December 2020, from https://www.averagesalarysurvey.com/malaysia
[23] Albert, S. M., & Duffy, J. (2012). Differences in risk aversion between young and older adults. *Neuroscience and neuroeconomics*, *2012*(1).
[24] Adults with mobile phone insurance by age 2017 | Statista. (2020). Retrieved 8 December 2020, from https://www.statista.com/statistics/793581/share-of-adults-with-mobile-phone-insurance-uk/

Behavioural Principles for insurance uptake

Below we outline five behavioural principles and how they apply to insurance uptake:

1. **We are bad at assessing risk**
2. **We avoid decisions, particularly difficult ones**
3. **We take our cues from others**
4. **We are guided by key timepoints**
5. **We value the present more than the future**

For each, we provide an overview of the behavioural principle and give examples of how they influence decisions around insurance. We then provide examples of how these principles have been applied to increase insurance uptake. Finally, we explore existing evidence from Malaysia or culturally similar contexts. If we could not find research from Malaysia specifically, we broadened our search to include the following regions (in order of priority):

- Indonesia
- South East Asia (ASEAN)
- East Asia
- Muslim majority countries not already covered

Principle 1: We are bad at assessing risk

Ultimately, insurance purchases are based on an assessment of risk. However, we are generally poor at making accurate assessments of risk, instead systematically misestimating them, and therefore misestimating the value of insurance.

The consensus amongst psychologists historically has been that we overestimate small risks. For example, when told that an event will occur with 5% probability, we act as though that improbable event will occur more often.[25] Given that insurance - particularly life and health insurance - protects from small risks, this should lead people to over insure. Individuals do appear to be more likely to purchase insurance for low-risk but high-cost events rather than more moderate risks.

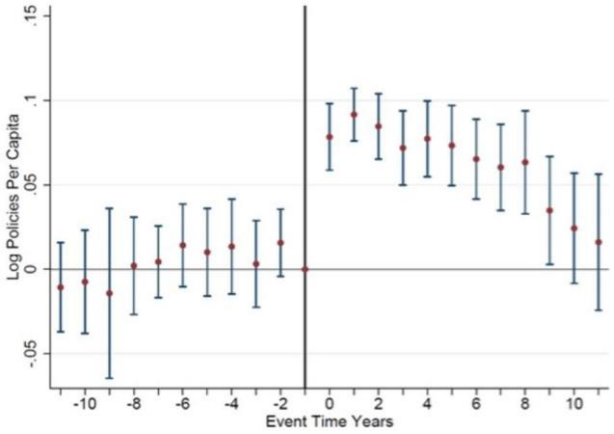
However, this does not fit with observed data, which show a tendency to under-insure low probability events relative to high probability events.[26] For example, many people do not take up disaster insurance even though premiums are often subsidised,[27] whilst people over-insure modest risks - such as through extended warranties, cell phone insurance or low deductibles for home insurance - at highly loaded premiums.[28] A better explanation comes from more recent studies that have looked at how people assess probability when they experience it, rather than being told what it is. For example, being told that the number two

[25] Gonzalez, R., & Wu, G. (1999). On the shape of the probability weighting function. Cognitive psychology, 38(1), 129-166.
[26] Browne, M. J., Knoller, C., & Richter, A. (2015). Behavioral bias and the demand for bicycle and flood insurance. Journal of Risk and Uncertainty, 50, 141–160.
[27] Kunreuther, H., & Pauly, M. (2004). Neglecting disaster: Why don't people insure against large losses?. Journal of Risk and Uncertainty, 28(1), 5-21.
[28] Sydnor, J. (2010). (Over) insuring modest risks. *American Economic Journal: Applied Economics*.

will appear 5% of the time, turns out to be quite different from the experience pressing a button multiple times and seeing the number two appear 5% of the time. Experiments that allow people to experience probabilities, reach the opposite conclusion: we underestimate small risks.[29] When observing the number two 10 out of 200 times (5%), individuals will generally estimate that they saw it fewer than 10 times and that there is a very small chance of a two occurring. When incentivised to make decisions based on the probability of different outcomes, they continue to underweight small probabilities.[30]

One explanation for the difference in how we respond to specified vs. experienced probabilities may be the availability heuristic[31] -- we assess the likelihood of an event based on how easily we can recall an example of it happening. When a two occurs only 10 in 200 tries, we may struggle to recount it happening and therefore take it to be very uncommon; not the case when we are simply told that it occurred 5% of the time. More generally the availability heuristic is used to describe the fact that we overweight the probability of highly salient (or recent) events. This would suggest we are more open to insurance at this point. For example, one study found that flood insurance spikes after a flood event in a community - but then gradually declines.[32]

Flood Insurance take-up for communities hit by a flood (1990-2007)[33]



Most notably, however, flood insurance *also* increases in non-flooded communities in the same television media rate (albeit at one-third the rate) after a flood event. This suggests that a key driver of risk perception is simply the salience of the relevant risk - when people are reminded of a risk, they are more likely to consider it as potentially threatening to them, and therefore more likely to take out insurance in response.

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[29] Ungemach, C., Chater, N., & Stewart, N. (2009). Are Probabilities Overweighted or Underweighted When Rare Outcomes Are Experienced (Rarely)? Psychological Science, 20(4), 473–479.
[30] Hertwig, R., Barron, G., Weber, E. U., & Erev, I. (2004). Decisions from experience and the effect of rare events in risky choice. *Psychological science*, *15*(8), 534-539.
[31] Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. Cognitive psychology, 5(2), 207-232.
[32] Gallagher, J. (2014). Learning about an infrequent event: evidence from flood insurance take-up in the United States. *American Economic Journal: Applied Economics*, 206-233.
[33] Flood insurance take-up in 10,841 communities hit by a Presidential Disaster Declaration Flood. Time is normalized relative to the flood. The dots remove year effects and community fixed effects and the bars represent the 95% confidence interval. Data source: National Flood Insurance Program.

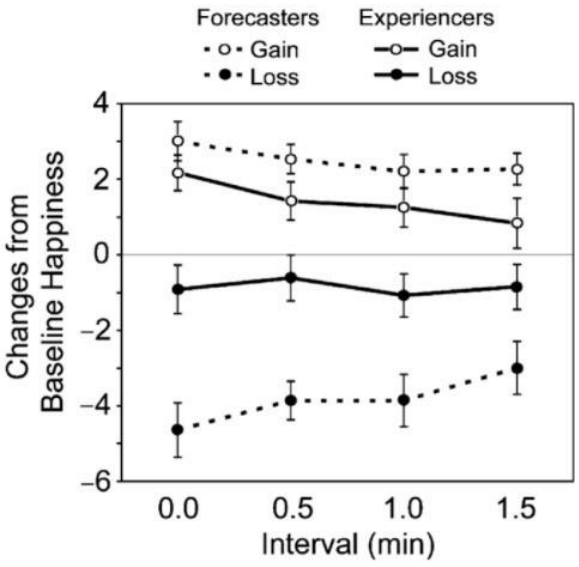
As well as fitting our real-world observations better, it seems more likely that our behaviour should follow experienced probabilities (which are influenced by availability) rather than stated probabilities.[34] True probabilities are rarely known by consumers and, even if included in marketing materials by insurers, would need to overcome years of lived experience - for example having never had a serious medical incident - which shape the salience of events and our perceptions of probability.

Whilst, on average, low risks are underestimated, some have suggested that a fraction of individuals overestimate them, whilst others ignore them completely.[35] For example, in experiments on insurance demand, there was a continuous distribution of willingness to pay to avoid most risks -- some people were willing to pay more than others, but as the price of insurance came down there was a steady increase in the number of people willing to pay. For risks as low as 1 in 100 though, this changed. Now nearly a quarter of participants were not willing to pay anything, whilst over 40% would pay at least twice the expected value of the loss.[36] A similar study on hypothetical flood insurance found that as many as 75% of respondents were unwilling to insure at any price when the risk was less than 1 in 1000.[37]

One thing that is clear across all these studies is that estimating risk is hard and, by extension, so are decisions over insurance. The next section, on our tendency to avoid difficult decisions, highlights why this difficulty in itself is likely to be a barrier to uptake.

'Loss aversion' is our tendency to feel losses more strongly than gains of the same size; the emotional reaction of losing RM100 being stronger than the pleasure of finding RM100. For example, people feel better about taxes that are taken straight out of their pay than ones they need to pay themselves – they end up with the same amount of money, but if they never see the money, they never feel the loss.

Importantly for insurance, our aversion is partly due to people overestimating how much they will be affected by losses. We predict that losing money on a coin toss will negatively affect happiness much more than what we actually experience.[38] We also overestimate how happy winning will make us, but not by nearly as much (see right from Kermer et al. (2006)).



[34] My familiarity with the situation is also likely to be important. For example, when considering flood insurance, I will lean on my experience (even if my experience is zero floods). However, if I am moving to a new country, where I have no experience, I may look more at stated probabilities.
[35] Camerer, C. F., & Kunreuther, H. (1989). Decision processes for low probability events: Policy implications. *Journal of policy analysis and management*, *8*(4), 565-592.
[36] McClelland, G. H., Schulze, W. D., & Coursey, D. L. (1993). Insurance for low-probability hazards: A bimodal response to unlikely events. In *Making decisions about liability and insurance* (pp. 95-116). Springer, Dordrecht.
[37] Botzen, W. J. W., & van den Bergh, J. C. J. M. (2012). *Risk attitudes to low-probability climate change risks: WTP for flood insurance. Journal of Economic Behavior & Organization, 82(1), 151–166.*
[38] Kermer, D. A., Driver-Linn, E., Wilson, T. D., & Gilbert, D. T. (2006). Loss aversion is an affective forecasting error. Psychological science, 17(8), 649-653.

But if people are so averse to losses, wouldn't insurance take-up be high to avoid them? Isn't the core purpose of insurance to alleviate the impact of losses?

The relationship between loss aversion and buying insurance is not a clear one. One challenge is that buying insurance also involves a loss. I have to give up my money now to buy the insurance (and so lose a little now) to avoid the prospect of larger losses down the line. The impact of loss aversion depends on how people trade-off the benefit of avoiding future losses with the loss of paying the premium. Which dominates?

Hwang (2016) studies this in the US, using American Life Panel data, and finds loss aversion reduces insurance demand.[39] Loss-averse individuals own less private health insurance, long-term care insurance and supplemental disability insurance. Loss averse individuals also health insurance less and are less willing to purchase health insurance in a hypothetical experiment.

Why? To evaluate a loss, we need a reference point – are we up or down relative to that point? The impact on insurance depends on the reference point people are using. If people's reference point is their current wealth (i.e. without buying insurance), insurance is risky as you "lose" premiums if the insured event doesn't occur. This is consistent with the US findings.

Gottlieb and Mitchell (2015) find this "narrow" view – seeing insurance as a bad investment if you do not collect on the premiums you paid – is important. Individuals who have this narrow view of insurance are between 25 and 66 percent less likely to buy insurance.[40]

Relatedly, people's understanding of insurance may underpin the impact of loss aversion. Lampe and Würtenberger (2019) find the impact of loss aversion farmer's demand for insurance depends on their awareness of the loss-hedging benefit of insurance. For farmers with a better understanding of hedging, demand increases with loss aversion, whereas the effect is the opposite for farmers with a worse understanding.[41] However, it is not possible in the data to separate the effect of loss aversion from that of risk aversion, so further research is needed to explore insurance understand as a mitigating factor (and so possible solution).

Indeed Hwang (2016) also provides suggestive evidence that loss-aversion can increase insurance demand under a different reference point. It shows that, in the case of auto insurance, loss-averse individuals have a slightly higher ownership of insurance. The difference is that auto insurance is compulsory, although uptake is 85%, and so holding insurance is the reference point. Under such a reference point, 'not purchasing insurance' is regarded as a risky choice that can cause losses (or legal consequences if caught).

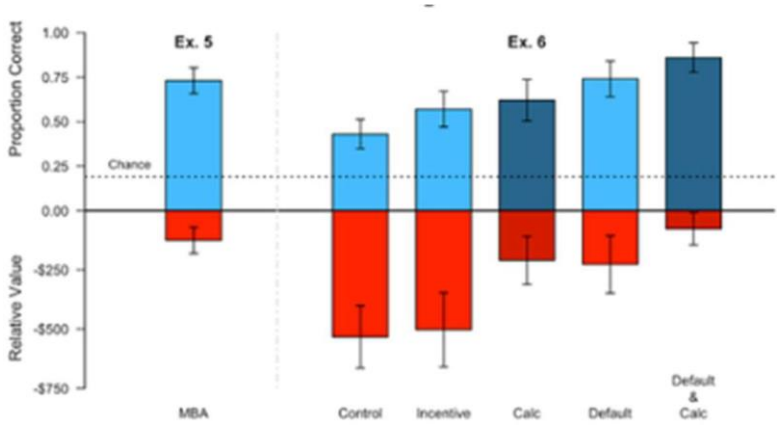
How strong is loss aversion in Malaysia? Wang et al (2016) surveyed 53 countries[42] and estimate scores of 1.5 for Malaysian, suggesting a clear aversion to losses (1 indicates no loss aversion), but less than the worldwide average of 2.[43]

[39] Hwang, I. D. (2016). Prospect theory and insurance demand.
[40] Gottlieb and Mitchell (2020). Narrow framing and long-term care insurance. Journal of Risk and Insurance
[41] Lampe, I., & Würtenberger, D. (2020). Loss aversion and the demand for index insurance. Journal of Economic Behavior & Organization, 180, 678-693.
[42] Wang, M., Rieger, M. O., & Hens, T. (2016). The Impact of Culture on Loss aversion. Journal of Behavioral Decision Making, 30(2), 270-281
[43] Loss aversion is defined as the ratio between a gain X and a loss L such that a 50–50 lottery between X and L is as attractive as an outcome of zero - in line with Tversky and Kahneman (1992).

Interventions

- **Provide calculation aids to help people calculate risk.** Even when explicitly asked to identify the most cost-effective policy from a range of insurance options, consumers barely do better than random chance.[44] This can be improved. Giving consumers a short tutorial on computing annual cost of insurance plans and then providing them with an online calculator substantially reduced the difference in value between the plan they chose and the best plan[45] (see below). Combining this with a smart default, which pre-selected the best deal (but they could change), resulted in improvements equivalent to the decision-making of MBA students.

Proportion identifying the best insurance deal, and average value gap between the deal chosen and the best deal[46]



However, an online calculator is not a perfect quick fix. Two further experiments by the same authors found that the calculator alone (without the short tutorial) had only a moderate impact on insurance decisions, improving decisions in one study but having no discernible effect in the other.[47]

- **Use images and examples to make risks more salient.** Our assessment of risk is based more on an emotional response around salience than statements about numeric risk, and focusing on this emotional response is likely to increase insurance uptake. For example, a study on individuals' willingness to pay (WTP) for flood insurance tested different ways of presenting risk information. All participants were told there was a 1% chance in any given year that they would experience flooding, resulting in roughly $75,000 in damages. However, some also received information describing damages from famous recent cyclones, specific at-risk populations and

[44] Johnson, E. J., Hassin, R., Baker, T., Bajger, A. T., & Treuer, G. (2013). Can consumers make affordable care affordable? The value of choice architecture. *PloS one*, *8*(12), e81521.
[45] Ibid.
[46] All participants received a short tutorial on computing the annual cost of plans. The incentive group received higher payments for choosing the correct option. The calculator group was provided with an online calculator to facilitate annual cost calculations.
[47] Ibid.

images of flooding. This additional information increased the willingness to pay by nearly 25%.[48]

This is a relatively small study based on hypothetical decision-making, and results are not significant at conventional levels.[49] However, the conclusions echo what we would expect to happen in real world scenarios, given the wider literature discussed above.

- **Help people to experience insurance trade-offs.** We are bad at estimating risk, and we also have few opportunities to do it where we receive feedback on our decision, making learning hard. A study with Chinese farmers invited them to participate in a laboratory experiment on insurance decisions.[50] There were several rounds, and each round they chose whether to purchase insurance and received a payoff depending on whether flooding occurred in that year or not.

  A few days after the experiment, they were offered the chance to buy (real) crop insurance. Those that participated in the game were 46% more likely to purchase insurance. This increase is not explained by increases in risk preferences, the perceived probability of future disaster, or increased knowledge of insurance benefits. Instead, it comes from the game experience, with farmers that complete more rounds having a higher chance of insurance take-up. The lesson here may be that we need to give people more opportunities to practice insurance decisions.

- **Highlight the losses people may face:** Highlighting potential losses has been effective in driving insurance uptake. Near the beginning of 2017, the US Internal Revenue Service (IRS) sent letters to taxpayers who had previously paid an income tax penalty for lacking health insurance coverage under the Affordable Care Act in a randomised experiment.[51] This increased the probability of coverage by 1.8 percentage points, a 6.7% increase relative to the control (although even more impressively, this in turn reduced mortality among middle-aged adults). Bringing out the many costly outcomes people may face if they are not insured may help increase take up - for example, the adverts on the right from GoPetplan.com - particularly if these are situations people can readily imagine, as they will want to try and avoid those losses.

[48] Bradt, J. (2019). Comparing the effects of behaviorally informed interventions on flood insurance demand: an experimental analysis of 'boosts' and 'nudges'. Behavioural Public Policy, 1-31.
[49] p = 0.109 and there were around 80 participants per arm.
[50] Cai, J., & Song, C. (2017). Do disaster experience and knowledge affect insurance take-up decisions? *Journal of Development Economics*, *124*, 83-94.
[51] Goldin, J., Lurie, I. Z., & McCubbin, J. (2021). Health insurance and mortality: Experimental evidence from taxpayer outreach. The Quarterly Journal of Economics, 136(1), 1-49.

Contextually relevant studies

There is little research on biases in risk perception for either Malaysia or culturally similar countries. However, one study conducted in Johor State, sought to understand the factors that led to the take-up of flood insurance. Notably, one of the key drivers for taking up flood insurance was the subjective perception of the risk of flooding, with higher risk perception associated with a greater likelihood of taking up flood insurance. Similarly, one of the most common reasons cited for *not* taking insurance was the fact that the resident had not experienced a flood in their area.[52]

A separate study, in China, used a series of hypothetical scenarios about typhoons to test the role of biases (including the availability heuristic) in estimating risk and decisions over insurance. They found that the Chinese participants exhibited similar behaviours to an equivalent study with US participants, except that in China there was slightly *more* susceptibility to the availability bias.[53]

Finally, a study on decision biases amongst institutional and retail investors in Malaysia found that both groups were vulnerable to the representativeness heuristic when making investment decisions.[54] The representativeness heuristic implies that we estimate the probability of something happening in a certain context based on how well it fits our image of that event, but ignoring the underlying frequency.[55] For example, we believe that someone described as “quiet and studious” is more likely to be a librarian than a builder, despite the fact that there are many more builders than librarians. Whilst not discussed in the main text, above, the representativeness heuristic is similar to the availability heuristic in that it implies we estimate probabilities based on instinct and salience, rather than on reflective calculation.

So what? Whilst there are no studies that perfectly translate these recommendations to the Malaysian context, the related studies available suggest that the underlying biases and their effects on insurance decisions are likely still applicable to Malaysians.

[52] Aliagha, U. G., Jin, T. E., Choong, W. W., Nadzri Jaafar, M., & Ali, H. M. (2014). Factors affecting flood insurance purchase in residential properties in Johor, Malaysia. *Natural Hazards & Earth System Sciences*, 14(12).
[53] Yin, H., Chen, J., Kunreuther, H., & Michel-Kerjan, E. (2016). Availability Heuristic and Gambler's Fallacy over Time in a Natural Disaster Insurance Choice Setting. *Available at SSRN 2798371*.
[54] Jaiyeoba, H. B., Abdullah, M. A., & Ibrahim, K. (2019). Institutional investors vs retail investors: Are psychological biases equally applicable to investor divides in Malaysia? *The International Journal of Bank Marketing*, *38*(3), 671-691.
[55] Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science.*

Principle 2: We avoid decisions, particularly difficult ones

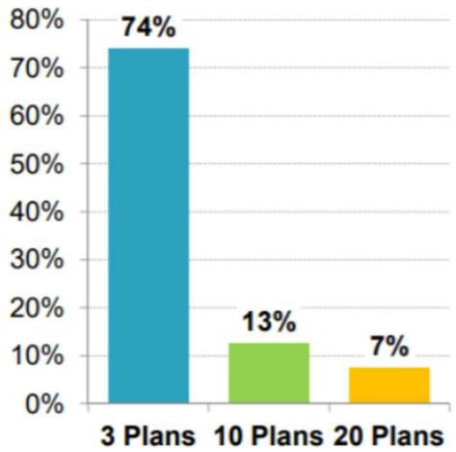
When considering insurance - as with savings and many other financial decisions - we tend to follow the path of least resistance. We avoid decisions, particularly when they are difficult, as insurance decisions often are (or at least feel).

The path of least resistance is often to do nothing. Avoiding decisions leads to inertia or our bias for the status quo. Alternatively, we make a decision, but just stick with the default option - even where there may be benefits to a different decision.[56] The default effect is also driven by a desire to avoid the effort of a decision. Worryingly in the case of insurance, the default for many people, particularly Millennials, is not to have insurance.

Avoid decisions and sticking with the default effects is common in insurance decisions. A US study examined health insurance choices for employees at a large company, comparing choices in the year employees were forced to choose between five plans (removing inertia) with those in subsequent years when they could stick with their default choice (creating inertia). Despite the costs and provisions of each plan changing over time, employees rarely changed their plan. Inertia caused the average employee to forego $2,032 annually (out of an average spend of $4,500).[57]

Our preference to avoid difficult decisions is exacerbated when a decision is difficult to optimise - this is partly due to “choice overload”.[58] That is, when faced with a choice that involves a number of options, consumers may opt simply not to make a choice, and maintain the status quo, or make bad choices. For example, one US study looked at how the number of choices in a Medicare plan (federal health insurance programme) affects choice performance.[59] As shown below, people perform much better when only considering 3 plans.

Share of people answering 3 or 4 questions correctly



[56] Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of risk and uncertainty*, *1*(1), 7-59.
[57] Handel, B. R. (2013). Adverse selection and inertia in health insurance markets: When nudging hurts. *American Economic Review*, *103*(7), 2643-82.
[58] Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing?. *Journal of personality and social psychology*, *79*(6), 995.
[59] Hanoch Y, Rice T, Cummings J. Wood S. How Much Choice Is Too Much? The Case of the Medicare Prescription Drug Benefit. Health Services Research. 2009;44(4):1157–68.

Choice overload is exacerbated when consumers are faced with time constraints, complex sets of choices, and lack expertise in evaluating the relative cost and benefits of the different options.[60] Notably, these last two factors are likely to be especially relevant in the case of insurance - the features of health and life insurance plans can be complex and are poorly understood by consumers; and consumers rarely make decisions about these products, meaning they lack experience and expertise. For example, combining results across 6 experiments asking people to pick the best insurance policies, one research study found that respondents performed at near chance levels.[61]

Whilst in most contexts encouraging people to make decisions is unequivocally beneficial (because it leads to better choices) there is debate over whether some inertia can be positive in an insurance market. Purchasers of insurance know more about their health than insurance companies, leading to adverse selection -- the only people buying high coverage plans will be those with high expected health costs, making that plan untenable for insurance companies. By reducing inertia, these selection effects are increased, and *if* insurers pass these costs onto consumers, consumer benefits from insurance can fall.[62] However, these concerns mostly relate to choices between different insurance products -- for individuals starting from a point of no insurance at all, inertia is unlikely to have any benefits.

Interventions

- **Use subsidies to overcome status-quo bias.** Because we tend to stick with our existing decision, it is more tempting to use incentives to increase insurance sign-up, given many customers staying on the plan once the discount is removed. Two separate studies, in Indonesia and the Philippines respectively, found that temporary incentives to join an insurance scheme had long-run effects on enrolment.

  In the Philippines, a 50% premium subsidy increased health insurance enrolment by 5.5 percentage points on average. Three years after the subsidy was withdrawn, four-fifths of new sign-ups were still enrolled.[63] In Indonesia, a full subsidy led to a 19 percentage point increase in enrolment.[64] Whilst more than half left immediately after the subsidy was removed, eight months later enrolment rates were still around 50% higher amongst those that were offered a full-price subsidy compared to those offered no subsidy. Some participants had also been offered a 50% subsidy, which had some impact but substantially less than the full subsidy.

- **Help individuals to sign-up to insurance schemes.** Incentives are not the only way to encourage initial enrolment. Helping individuals to sign-up can also improve initial

[60] Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, *25*(2), 333-358.
[61] Johnson, E. J., Hassin, R., Baker, T., Bajger, A. T., & Treuer, G. (2013). Can consumers make affordable care affordable? The value of choice architecture. PloS one, 8(12), e81521.
[62] Ibid.
[63] Baillon, A., Capuno, J. J., O'Donnell, O., Tan, J. C. R., & van Wilgenburg, K. (2019). Persistent Effects of Temporary Incentives: Evidence from a Nationwide Health Insurance Experiment.
[64] Banerjee, A., Finkelstein, A., Hanna, R., Olken, B. A., Ornaghi, A., & Sumarto, S. (2019). *The challenges of universal health insurance in developing countries: Evidence from a large-scale randomized experiment in Indonesia* (No. w26204). National Bureau of Economic Research.

enrolment by reducing friction costs, with effects being sustained in the long run. This application assistance was also tested in both the studies cited above.

In the Philippines, half of those that had not enrolled nine months after receiving the subsidy were offered assistance applying for the insurance scheme. This had a much bigger effect than the subsidy alone. The combined effect of the subsidy followed by assistance for those who had not signed-up led to a 36 percentage point increase in enrolments -- six times the effect of the subsidy alone.[65] Only a quarter of this effect was maintained three years later, much less than the subsidy, but it still resulted in twice as many people in the programme than a pure subsidy. In Indonesia assistance alone (via the option of internet-based registration at home) increased enrolment by 3.5 percentage points (41 percent), and in combination with a full subsidy it increased enrolment by 22 percentage points (275 percent). Roughly half of this impact had dropped off eight months after the offer ended, but this was less than the drop-off from subsidies alone.[66]

- **Provide tailored information on costs and benefits.** We avoid complex decisions, in part because of default effects. Giving consumers generic information on insurance options may be too much for consumers to fully process, leading them to avoid the decision altogether rather than facilitating it. Instead, personalised information can help to reduce this complexity. In one study, elderly Americans were surveyed to find out more about their medical prescriptions and personal characteristics. Half were sent a (generic) letter directing them to more information about the Medicare programmes available to them, whilst half received a personalised letter highlighting the costs of their current programme for the last year, compared to the costs if they had been on the cheapest available plan. Switching rates were nearly two-thirds higher (17% to 28%) amongst those receiving the personalised letter, saving people around $100 a year.[67]

Contextually relevant studies

Whilst there have been no studies, to our knowledge, that specifically look at status quo bias in Malaysia, two of the studies above were conducted in nearby countries (Indonesia and the Philippines). These are both large-scale and robust evaluations, evidencing that status quo bias in the context of insurance decisions holds for other Southeast Asian countries, including Malaysia. In addition, some products are bundled with life insurance, perhaps because these are appealing given I will not take the decision myself, for example see the credit card below.

OCBC offer a credit card in Malaysia with complimentary RM100,000 life insurance coverage

[65] Baillon, A., Capuno, J. J., O'Donnell, O., Tan, J. C. R., & van Wilgenburg, K. (2019). Persistent Effects of Temporary Incentives: Evidence from a Nationwide Health Insurance Experiment.
[66] Banerjee, A., Finkelstein, A., Hanna, R., Olken, B. A., Ornaghi, A., & Sumarto, S. (2019). The challenges of universal health insurance in developing countries: Evidence from a large-scale randomized experiment in Indonesia (No. w26204). National Bureau of Economic Research.
[67] Kling, J. R., Mullainathan, S., Shafir, E., Vermeulen, L. C., & Wrobel, M. V. (2012). Comparison friction: Experimental evidence from Medicare drug plans. *The quarterly journal of economics*, *127*(1).

Principle 3: We take our cues from others

We judge how we should act based on what others are doing -- the *descriptive social norm*. This is often sensible. If everyone is running in one direction, for example, it is a good indication that you should do the same. However, similarly if lots of people do not have insurance coverage, it indicates to us that it isn't that helpful -- even in cases where insurance coverage would be wise.

This is likely to reduce insurance take-up. Insurance take-up in Malaysia is low, particularly amongst Millennials.[68] We are more influenced by the actions of people we consider similar to us, so Millennial Malaysians are likely to look to their peers and conclude that insurance is not necessary.

This is exacerbated because insurance take-up is not generally something we see or know -- even if we did consider whether our peers had insurance, we would often not know the answer. In the absence of this information, we are more likely to be influenced by *false consensus effects* -- assuming that other people behave like us.[69] In sum, Millennials without insurance are likely to underestimate the already low rates of insurance coverage amongst their peers, and conclude that coverage is neither normal nor necessary.

In some cases, following the crowd may not be the *best* approach, but copying others can help ensure that we will not end up worse off than them. As we care about our relative standing (and care more about doing worse than doing better)[70], following the crowd can help us to avoid doing badly. This aspect of social norms has been used to explain low insurance of correlated risks[71] -- I care less about my house being flooded, for example, if all my neighbours are flooded at the same time and my relative position in society is unchanged. This seems to be borne out by initial evidence, with one study finding individuals were less likely to pay for insurance when losses would affect their whole group[72] and another finding that individuals are more likely to take the safe option in a bet (the equivalent of the decision to insure) when the risky option means they would lose relative to their peer (rather than when the only risk is that they fall to their peer's level).[73] Interestingly, this final result is the opposite of individuals' risk behaviours with conventional reference points -- if we compare our potential wealth to our current wealth we are risk-seeking if we can only stand to lose, but if we compare our potential wealth to a peer the opposite effect is true.

High insurance coverage amongst our peers can also make its benefits more visible. For example, a study of households in India found that households were 25-50% more likely to purchase rainfall insurance in the year following pay-outs for a flood. Whilst this could be due to availability bias increasing the perceived risk income loss due to flooding (see Principle 1), the effects were not explained by individuals' crop losses. Instead, it appears to be driven by

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[68] See here: https://www.newyorklife.com/newsroom/2018/life-gap-survey-millenials-at-risk

[69] Ross, L., Greene, D., & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of experimental social psychology*, *13*(3), 279-301.

[70] Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition and cooperation. *Quarterly Journal of Economics, 114*, 817–868.

[71] Friedl, A., De Miranda, K. L., & Schmidt, U. (2014). Insurance demand and social comparison: An experimental analysis. *Journal of Risk and Uncertainty*, *48*(2), 97-109.

[72] Ibid.

[73] Linde, J., & Sonnemans, J. (2012). Social comparison and risky choices. *Journal of Risk and Uncertainty*, *44*(1), 45-72.

the visibility of pay-outs -- the more individuals in the village that received a pay-out, the more likely others in that village will buy insurance the following year.[74]

Social influence does not only occur through observing the decisions of others. In many cases, our peers will convey expectations for how we should act -- an *injunctive social norm* -- or directly share information that informs our decisions. For example, a study of insurance uptake amongst farmers in China found that providing intensive information sessions on insurance to a small number of farmers had substantial spillover effects to their peers. The effect of having a friend receive the information on uptake was equivalent to being offered a 15% reduction in the insurance premium.[75] The effect was driven primarily by the diffusion of insurance knowledge within social groups.

Whilst there are several different ways in which social information and influence affects our behaviour, there are two common themes. Firstly, social influences primarily drive us towards behaving like others, increasing similarity. Secondly, we are most influenced by those close to us -- where 'close' could reflect physical proximity (those we are more likely to interact with) or identity (those we consider ourselves similar to). As a result, individuals within a group will tend to make similar decisions. Staff at a US university, for example, were more likely to choose the same health insurance as their immediate colleagues, and the influence was stronger in smaller (tight-knit) departments than larger ones.[76]

As is true for many of the biases discussed in this review, the effects are most pronounced when a decision is difficult, time-pressured, or we lack information (see Principle 2: Avoiding decisions). In line with this, university employees who chose to switch plans during their employment (where there was no time pressure to do so, and knowledge of the plans is likely to be greater) were less influenced by social information than those choosing plans when they started employment. Switching, whilst relatively uncommon (around 5% a year), is roughly twice as likely if the initial plan chosen is a bad match for the individual's characteristics.[77]

Interventions

- **Intensively target key individuals.** Because we are disproportionately influenced by those close to us, it may be better to focus resources on encouraging a few people with lots of social links to buy insurance (and recruit their friends) than taking a broader targeting approach. For example, as described above, insurance information sessions for farmers had substantial impacts on the insurance uptake of their friends, as well as on the attendee themselves.[78]

  Not only could farmers with more social connections influence a greater number of people, those who were more central to the social network in the village also had a

[74] Cole, S., Stein, D., & Tobacman, J. (2014). Dynamics of demand for index insurance: Evidence from a long-run field experiment. *American Economic Review*, *104*(5), 284-90.
[75] Cai, J., De Janvry, A., & Sadoulet, E. (2015). Social networks and the decision to insure. *American Economic Journal: Applied Economics*, *7*(2), 81-108.
[76] Sorensen, A. T. (2006). Social learning and health plan choice. *The Rand journal of economics*, *37*(4), 929-945.
[77] Ibid.
[78] Cai, J., De Janvry, A., & Sadoulet, E. (2015). Social networks and the decision to insure. *American Economic Journal: Applied Economics*, *7*(2), 81-108.

greater impact on others' behaviour. Those with fewer friends, meanwhile, were more likely to be influenced by others. This echoes a similar study, on vaccination information and uptake, which found that giving detailed information to well-connected local 'gossips' led to more vaccine uptake than choosing information spreaders at random, or even choosing based on social status.[79]

- **Prompt conversations about insurance.** Receiving information from peers who already insure is likely to increase uptake. A study in Kenya provided information on a health insurance plan at meetings of existing social groups, to encourage insurers within the group to share their experience. 12 percent of group members registered following the presentations, whilst a wide range of alternative interventions (including information from community leaders, subsidies of up to 30%, and alternative payment plans) had no effect.[80] The intervention only worked within pre-existing social groups -- artificially creating groups for the information sessions had little to no effect on uptake. This could be adapted in Malaysia to prompt parents who can be a strong influence but also are themselves be more likely to have insurance.

  Conversations may be more impactful when multiple members of a group receive information at the same time. A separate study in Kenya, for example, found that providing financial literacy materials to farmers was 65% more effective when at least 60% of farmers received the materials at once, compared to when less than 40% of farmers received them. This could be particularly effective in Malaysia if what unites the group has some related risk attached, for example a car club may help promote health insurance and an extreme sports Facebook group for life insurance.

- **Use mandates to shift the social norm.** Because our insurance purchases are influenced by societal norms, soft mandates for a basic level of insurance coverage could have a larger impact on take-up than the penalties alone would suggest.[81] Whilst this approach has not been robustly tested, it is true in other contexts, such as income tax compliance.[82] However, mandating a basic level of insurance does risk – given our preference for sticking with the status-quo – people never obtain more coverage than the minimum.

Contextually relevant studies

The majority of the studies above have been based on rural communities in low-income countries. However, a survey-based study of consumers in Kuala Lumpur validated the relationship between injunctive norms and insurance purchase decisions. They found that Malay Muslims who had encountered more media coverage around the importance of takaful schemes were more likely to believe that those around them would think it was important to

[79] Banerjee, A., Chandrasekhar, A. G., Duflo, E., & Jackson, M. O. (2019). Using gossips to spread information: Theory and evidence from two randomized controlled trials. The Review of Economic Studies, 86(6), 2453-2490.
[80] Chemin, M. (2018). Informal groups and health insurance take-up evidence from a field experiment. *World Development*, *101*, 54-72.
[81] Baicker, K., Congdon, W. J., & Mullainathan, S. (2012). Health insurance coverage and take-up: Lessons from behavioral economics. *The Milbank Quarterly*, *90*(1), 107-134.
[82] Frey, B.S., and B. Torgler. 2007. Tax Morale and Conditional Cooperation. Journal of Comparative Economics 35(1):136–59.

join a takaful scheme, and that these perceptions also predicted the individuals' intentions to purchase takaful insurance.[83]

So what? This study supports the view that injunctive norms influence insurance uptake in urban Malay populations.

In addition, although social influence has been observed in global studies, it is generally stronger in collectivist cultures than in individualistic cultures. For example, individuals in collectivist cultures are more likely to involve others in their decisions,[84] and more influenced by the actions of others.[85] Overall, Malaysia is considered a relatively collectivist society, scoring 26 out of 120 in the Hofstede individualism scale[86]. Given that social influence has been shown to have substantial impacts across many contexts in western (individualistic) countries, we might expect the effects to be even greater in the Malaysian context.

So what? These studies suggest that social influence may be, if anything, more important in Malaysia than in the majority of countries where the studies are drawn from.

[83] Md Husin, M., Ismail, N., & Ab Rahman, A. (2016). *The roles of mass media, word of mouth and subjective norm in family takaful purchase intention. Journal of Islamic Marketing, 7(1), 59–73.* doi:10.1108/jima-03-2015-0020

[84] Nayeem, T. (2012). Cultural influences on consumer behaviour. *International journal of Business and management*, *7*(21), 78.

[85] Cialdini, R. B., Wosinska, W., Barrett, D. W., Butner, J., & Gornik-Durose, M. (1999). Compliance with a request in two cultures: The differential influence of social proof and commitment/consistency on collectivists and individualists. *Personality and Social Psychology Bulletin*, *25*(10), 1242-1253.

[86] https://clearlycultural.com/geert-hofstede-cultural-dimensions/individualism/

Principle 4: We are guided by key timepoints

It is difficult for us to constantly review our decisions - as noted above, our tendency to stick with the default means that we have a tendency not to make decisions, or not to revisit them once made. However, certain key timepoints can act as drivers for behaviour change. These timepoints act as temporal landmarks that separate the passage of time into notionally separate segments.[87] These different time segments are viewed differently - a new time segment represents a new opportunity to commence or re-evaluate a behaviour, particularly if that behaviour is aspirational. For example, many aspirational behaviours such as the pursuit of goals and positive health behaviours appear to spike after key landmarks such as the start of the year, the start of the month, or birthdays. For example, see the clear patterns below in searches for the term diet, spiking around the start of the calendar year but also often at the start of the month.[88]

Global google searches for "diet"

Similarly, externally imposed deadlines can spur behaviour, as they create the motivation to complete a task.[89] Notably, the closer the deadline is, the more likely people are to complete the task - a longer deadline can inadvertently signal that a task is more difficult, leading to a greater perceived barrier to completion.[90] Hence, a proximate deadline to take action such as taking up insurance, or a time-limited offer (such as a discount or subsidy) can spur action.

In the absence of a key timepoint or deadline, it can be hard to shift behaviour - but in these situations, reminders can be an effective tool to drive behaviour change. In fact, there is some evidence that reminders can also be used to increase the power of key timepoints or deadline effects. For example, one study found that a reminder close to the deadline for enrolment increased health insurance take-up by 1.3 percentage points (a relative increase of 16 per cent), in a population that typically has quite low take-up.[91]

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[87] Dai, H., Milkman, K. L., & Riis, J. (2014). The fresh start effect: Temporal landmarks motivate aspirational behavior. *Management Science*, *60*(10), 2563-2582.
[88] Taken from Google Trends (2016-2019)
[89] Amabile, T. M., DeJong, W., & Lepper, M. R. (1976). Effects of externally imposed deadlines on subsequent intrinsic motivation. *Journal of personality and social psychology*, *34*(1), 92.
[90] Zhu, M., Bagchi, R., & Hock, S. J. (2019). The mere deadline effect: Why more time might sabotage goal pursuit. *Journal of consumer research*, *45*(5), 1068-1084.
[91] Domurat, R., Menashe, I., & Yin, W. (2019). The Role of Behavioral Frictions in Health Insurance Marketplace Enrollment and Risk: Evidence from a Field Experiment (No. w26153). National Bureau of Economic Research.

Interventions

- **Provide reminders, especially at key moments.** Reminders can be an effective way of increasing uptake, and can work at any time. Two related studies from the Philippines found that providing information about insurance in the form of a survey, followed by door-to-door sales contact increased take up of insurance by around 16%.[92] In this instance, the sales contact acted as a reminder and an opportunity to purchase insurance, after the initial messaging through the survey.

  This could be enhanced further - we often view key temporal milestones as an opportunity to take a fresh approach or commence a new behaviour. Hence, prompting people at the start of the calendar or financial year, or around their birthday, may be an effective way to encourage the uptake of insurance. Or when someone's ability to purchase insurance increases, e.g. using the government's tax data to prompt people whose salary has recently increased.

  Given life insurance, in particular, is generally linked to having dependents, it may also be fruitful to prompt young people when they gain dependents - that is, when they marry or have children. Finding a way to target individuals who have recently married or had children, and reminding them of the benefits of life insurance, could help to increase take up. For health insurance, retirement could be an important time if that means people's employer-provided health insurance lapses.

- **Use deadlines to spur behaviour.** Creating deadlines, particularly for the take up of special offers, can drive behaviour. One study from Indonesia found that the existence of a deadline attached to a full-subsidy offer may actually have helped to offset the cost of the subsidy entirely.[93] This is because those in the full-subsidy group tended to be healthier and to make fewer claims than no-subsidy group. The researchers hypothesised that the time-limited nature of the subsidy encouraged healthy individuals to enrol even though they did not foresee needing to make a claim any time soon. By contrast, those without a subsidy may have waited until they foresaw needing to make a claim before enrolling in the programme.

Contextually relevant studies

We are not aware of any studies that focus on temporal interventions or reminders that are specific to the insurance market in Malaysia. However, similar to many other countries, evidence from Malaysia suggests that life insurance is more prevalent in those with children.[94] And, firms in the region are trying to target these key timepoints and groups with dependents. For example, the screenshot below a Singaporean advertisement, specifically

[92] Zwane, A. P., Zinman, J., Van Dusen, E., Pariente, W., Null, C., Miguel, E., ... & Duflo, E. (2011). Being surveyed can change later behavior and related parameter estimates. *Proceedings of the National Academy of Sciences*, *108*(5), 1821-1826.

[93] Banerjee, A., Finkelstein, A., Hanna, R., Olken, B. A., Ornaghi, A., & Sumarto, S. (2020). Subsidies and the dynamics of selection: Experimental evidence from Indonesia's National Health Insurance. Cambridge, MA: Abdul Latif Jameel Poverty Action Lab.

[94] Tan, H. B., Wong, M. F., & Law, S. H. (2009). The effect of consumer factors and firm efficiency on Malaysian life insurance expenditure. *International Journal of Business and Society*, *10*(1), 59.

targeting new parents to encourage them to take out life insurance, and a Malaysia advert talking of “turning your back towards parents, wife, children…”

Singapore Life advertisement (left) and Malaysia life insurance agent (right)

So What? This evidence suggests that reminders focus at key timepoints could be an effective tool for encouraging young Malaysians to take out life insurance - particularly those who have recently married or had children.

Principle 5: We value the present more than the future

When faced with a decision, we tend to put more emphasis on the costs and the benefits incurred today, than those in the future. Financially, this makes sense, given I can save my money and receive interest; I should prefer RM20 today rather than RM20 in a year's time. However, our preference for the future goes beyond this. As well as discounting payoffs in proportion to how far into the future they will happen, we also discount anything that is not immediate -- an effect known as *present bias*.[95] [96] We might, for example, take RM20 instead of RM25 tomorrow (we need a big payoff to wait one day), even though we would take RM27 in a year rather than RM25 tomorrow (a small payoff to wait 364 days).

With insurance policies, the consumer pays for insurance today in order to receive a (possible) payoff in the future. Because we are present biased, we are likely to place more emphasis on the costs they pay today, and discount the benefits that insurance can provide in the future, making insurance offers seem less favourable, shifting consumers to lower-coverage options. A study of Medicare plan choices showed exactly this -- the plans consumers chose showed that they placed more value on plan premiums than on the expected out-of-pocket costs from a given plan.[97] Consumers also placed almost no value on the extent to which a plan smoothed out their risk by reducing the variance in possible out-of-pocket costs. On average, consumers could improve their payoffs by 27% by choosing a different plan.

However, if people are aware of their bias towards the preference, people may take up insurance to commit themself to making this trade-off. For example, a paper on microinsurance uptake in India found that people who were more present-biased (higher hyperbolic discounting) were more likely to purchase insurance.[98] This behaviour was consistent with the authors prediction that households take up microinsurance, in part, as a commitment device.

Present bias appears to be exacerbated by poverty. When we are under financial pressure, we focus even more on what is needed to get through that day, and put even less emphasis on future payoffs.[99] This could explain the lower take-up of insurance amongst low-income groups.[100] However, some choices that appear to be driven by present bias in cases of poverty may simply be the result of liquidity constraints. For example, present bias means that there is a sharp drop in the value of something realised today compared to tomorrow, but a much smaller drop between one day and the next when both days are in the future.

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[95] Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65*(3), 272-292.

[96] Thaler, R. (1981). Some empirical evidence on dynamic inconsistency. *Economics Letters.*

[97] Abaluck, Jason, and Jonathan Gruber. 2011. "Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program." *American Economic Review.*

[98] Ito, S., & Kono, H. (2010). Why is the take-up of microinsurance so low? Evidence from a health insurance scheme in India. The Developing Economies, 48(1), 74-101.

[99] Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. *Science, 341*(6149), 976-980.

[100] Newport, F., 2020. Health Insurance Coverage Varies Widely By Age And Income. Gallup.com. Available at: https://news.gallup.com/poll/126143/health-insurance-coverage-varies-widely-age-income.aspx [Accessed 3 December 2020].

Based on this, we would expect that if insurance payments can be delayed a small amount so that they, too, are a future cost, insurance would be more attractive. However, whilst a preference for delayed payments may result from present bias, they can also be explained by someone being unable to make a payment today (i.e. liquidity constrained).

The evidence suggests that both factors play a role. For example, farmers in Kenya were more than 14 times more likely to purchase crop insurance when they could delay payment until harvest time rather than upfront. This difference could be driven by both liquidity constraints (they will have more money after harvest) and present bias. However, a follow-up tried to understand the impact of each effect. The study offered farmers insurance paid upfront or insurance paid in a month (testing present bias, but not liquidity constraints, as they would have no crop income). Farmers were four times more likely to buy in the delayed payment option -- present bias still influenced their choices, but less than combining present bias and liquidity effects.[101]

Although it is easy to view liquidity constraints as a primarily low-income country problem, this is not the case. The same paper looked at changes in US Federal Crop Insurance uptake after changes in the payment date. This too showed that farmers were more likely to buy insurance shortly after their harvest, even though all payment options were future payments.[102]

Interventions

- **Provide delayed or incremental payment options.** Present bias applies when some costs or payoffs happen in the present, and others in the future. If all costs and payoffs are accrued in the future, this bias does not apply. For example, the study with Kenyan farmers cited above found uptake of insurance increased four-fold when the payment for insurance was due one month after the decision to sign-up.[103] An alternative would be to offer smaller monthly payments, rather than an upfront cost, so that more of the cost is accrued in the future.
- **Frame insurance as an opportunity to commit.** If people are present biased, but they are also aware that they are, they may seek opportunities to commit to giving up money now for benefits in the future. Insurance offers such an opportunity but is typically not framed as such. As we say in the Indian microinsurance paper described above, this may be one reason why some groups already take-up insurance; it is possible that making this “commitment device” feature more apparent is an effective way of increasing insurance uptake.

Contextual studies

We did not find any studies that specifically addressed present bias in the Malaysian context. However, a cross-country study of time preferences (encompassing both bias and more general time discounts) found that the time preferences of Malaysians were close to the

[101] Casaburi, L., & Willis, J. (2018). Time versus state in insurance: Experimental evidence from contract farming in Kenya. *American Economic Review*, *108*(12), 3778-3813.
[102] Ibid.
[103] Ibid.

average.[104] Given a choice between a payment now and in the future, with both values designed to be equivalent for each country of study, 38% of Malaysians chose the smaller but immediate payment. This is only one percentage point away from the median of the 52 countries in the study, and is exactly the same proportion as in China, and similar to the US (32%) where several of these studies were conducted.

So what? On average, the time preferences in Malaysia closely match the world as a whole, and those of countries where many of our insights are drawn from.

Looking at measures of present bias specifically, one study used a survey to measure the extent of present bias in Turkey. As well as being a predominantly Muslim country, Turkey had similar time preferences to Malaysia in the cross-country study cited above (36% chose the immediate payment).[105] This Turkish study estimated a present bias parameter of ~0.8, suggesting that individuals reduce the value of something by 20% if it occurs the following day[106] -- more than twice the effect found in a meta-analysis of present-bias studies conducted across the world.[107] This meta-analysis also found that average estimates of present bias were higher in Asia than in any other continent.

So what? Although no studies we found measured present bias amongst Malaysians, there is some evidence that Muslim majority countries and Asian countries have larger present bias effects than the global average, suggesting that this bias may play an even greater role in insurance choice.

Finally, a study specifically looking at Millennials in Sri Lanka, looked at how present bias related to insurance uptake. They found that individuals with a high preference for instant gratification (an indication of strong present bias) were less likely to purchase life insurance.[108]

So what? The link between present bias and insurance take-up is apparent in our specific population of interest: Millennials.

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"Mortality salience" and insurance

When assessing health or life insurance, a key question is how likely we are to face serious ill-health or death. In fact, attempting to make these *more* salient is one way to increase insurance coverage. However, increasing the salience of death, may have other (unintended) consequences.

One reaction to mortality salience (being actively aware of death) is *initial avoidance* -- we simply avoid decisions and situations that encourage us to contemplate death.[109] For example, in a series of studies participants wrote about either dental pain or their own death, before taking (hypothetical) decisions about finances in old age. Across the studies, those who had written about death were less likely to choose financing options that had clearer reminders of death -- preferring not to buy annuities, or choosing annuities with less explicit references to death.[110]

Whilst writing about death might seem abstract, other studies have induced mortality salience by asking participants to think about their life insurance coverage,[111] or showing them life insurance brands.[112] In short, thinking about life insurance is likely to make death more salient, and that is likely to encourage us to avoid death-related decisions (such as purchasing life insurance).

Mortality salience may also interact with other biases, often increasing our appetite for insurance:

- Mortality salience tends to increase the value we place on the future,[113] suggesting higher preference for insurance (see Principle 5: We value the present). And, whilst mortality salience is often associated with more risk-seeking behaviours, this is only when we feel events are out of our control and risk-taking is connected to our identity or self-esteem.[114]
- When this is not the case, which we expect is the case with insurance decisions, we are more risk-averse. This again suggests that mortality salience would favour insurance uptake (see Principle 1: We are bad at assessing risk).
- One way mortality salience affects us is through our sense of identity,[115] so the interaction with social norms is important -- but it is also more complex. When we are more conscious of death, we are more influenced by people we identify with.[116] This should exacerbate social influences on our decisions which, given the low prevalence of insurance coverage, and so reduce coverage (see Principle 3: We take our cues from others). However, the same group identity fostered by mortality salience, makes us more prosocial and willing to help others.[117] Given life insurance is often purchased to provide for others, this too could increase uptake.

An important caveat is that this research is Western focused, and there is evidence mortality salience is culturally specific. Firstly, a study comparing mortality salience in China (more collectivist) and Australia (more individualistic) found different responses. Chinese participants were more likely to respond by bolstering their self-esteem in relation to others whilst Australians were more likely to bolster their personal self-esteem.[118] This would imply that social norm impacts of mortality salience would be greater in Malaysia compared to more individualistic responses (such as an appetite for risk-taking behaviours). Secondly however, individuals with strong intrinsic religious views tend to be less responsive to mortality salience.[119] Given the strength of religion in Malaysia, this would suggest the effects of mortality salience in general may be weaker.

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Where next?

We conclude by setting out the next steps in our work together researching Millennials insurance behaviour. Our project – a collaboration between PIDM and BIT – aims to understand how behavioural biases are likely to affect insurance uptake for urban Millennials in Malaysia and what approaches may be effective at countering these biases.

This review has looked at existing research to achieve this aim, but this is just a start. Whereas this review summarises the current research, the next two phases of the project will add to the existing research, plugging some of the current gaps. The table below summarises the three phases of the project:

Phase	Objective
1. Review	Understand why Malaysian Millennials don't insure more by reviewing behavioural factors and possible solutions
2. Survey	Understand insurance behaviours and behavioural biases
3. Experiment	Conduct initial online testing of some possible behavioural solutions

The next phase will be a survey of urban Millennials (approximately 1000) to understand their insurance behaviours and behavioural biases. The design of the survey questions will be informed by this review. For example, the behavioural biases we are interested in exploring will be a sub-set of the biases identified in this review (we will not be able to explore all of them without the survey becoming unwieldly and so testing the participants' attention).

In the final phase will test possible behavioural solutions in an online experiment. Again, this will be informed by this review. Most simply, we may test the impact of some of the possible interventions set out in this review under each principle. We will be testing these approaches with Malaysia Millennials, but the testing will be conducted online, and so we are likely to test the impact of their attitudes or intentions, not actual insurance purchases.

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