

# Transiting to the New Normal – Evidence and Insights to Address COVID-19 and Post-COVID-19 Challenges

2 and 6 August 2021, Civil Service College

## Symposium Notes, Part 1

### Keynote Lectures and Panel Discussion

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## Keynote Lecture 1: Managing COVID-19: Lessons from Behavioural Economics

By Professor Ho Teck Hua

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*Professor Ho Teck Hua is the senior deputy president and provost of the National University of Singapore (NUS), where he is a Tan Chin Tuan Centennial Professor. He is also the executive chairman of AI Singapore, a national research and development programme, and chairman of the Singapore Data Science Consortium. He has had many significant works published in peer-reviewed journals in the areas of behavioural economics, management science, and marketing.*

### STANDARD ECONOMICS VS BEHAVIOURAL ECONOMICS

Professor Ho said that standard economics makes certain assumptions about human behaviours:

1. Humans are Homo economicus, who make rational decisions.
  2. People only care about their own payoff and ignore others' payoffs.
  3. People are only concerned with the final outcomes of the decisions.
  4. People have unlimited attention.
- Behavioural economics, on the other hand, offers contrasting views to standard economics' assumptions:
    1. Humans are Homo sapiens rather than Homo economicus, who make decisions based not only on rationale, but who also consider cultural and social factors etc.
    2. People care about their own *and* others' payoffs. For example, people care about the "fairness" of their salaries by comparing it against their colleagues' or peers' earnings.
    3. People care about the final outcomes, as well as the changes relative to a reference point. Using school results as an example, a child or parent might have been satisfied initially with their grades. However, after comparing with students who scored better, they might become more dissatisfied.
    4. People have limited attention. For example, most people feel bombarded by information on the social media daily and are unable to process them all.

### BEHAVIOURAL ECONOMIC CONCEPTS IN THE CONTEXT OF COVID-19

- He said that there are four Behavioural Economics concepts that are of relevance in dealing with COVID-19:
  1. Prosocial behaviours refer to people taking actions to benefit others, which can be understood as having the desire to increase others' payoffs, for e.g.:

- Helping others by donating masks and sanitisers
- Following rules by observing safe distancing measures
- Conforming to a new behaviour such as wearing a face mask

People are more likely to engage in prosocial behaviour if the behaviour does not reduce their own payoff too much.

2. Status Quo Bias refers to people's preference to remain with current options due to loss aversion, where any change from the status quo is perceived as a loss. For example, people might not wish to take messenger RNA (mRNA) COVID-19 vaccines as they are not familiar with this new vaccine technology, compared to more familiar inactivated virus vaccine technology. To address status quo bias, we can proactively offer people the right default options, such as working-from-home as default during heightened alerts and wearing a mask at all times.
3. Herd Behaviour refers to people's tendency to make decisions based on the behaviours or choices of others around them. Individuals tend to imitate their peers' behaviours and choices. This simplifies decision making for the individual, regardless of whether the behaviour or decision imitated is the right one. During COVID-19, one way to nudge people to take up COVID-19 vaccines is for people to see that their peers have been vaccinated.
4. Limited attention refers to humans' ability to only process very limited amount of information at any given time. When their attention is stretched, people have difficulty weighing the costs and benefits of each option. In this context, one way to help people make decisions and follow instructions is to communicate using simple and memorable phrases (For example: "Stay Home, Save Lives").

## LEVERS OF BEHAVIOURAL CHANGE IN THE CONTEXT OF COVID-19

- Professor Ho listed three broad levers of behavioural change to achieve desired or target behaviours:
  1. Environment could be impacted by availability of options or social norms.
    - By making something unavailable, it makes it harder for people to carry out "undesired" behaviours. For example, during Phase II (Heightened Alert) on 14<sup>th</sup> May 2021, numerous high-risk activities were suspended, including dining-in at food and beverage (F&B) establishments.
    - Good social norms are created when there is a critical mass of people who choose the "desired" behaviour. Once social norms are created, it increases the costs of deviation, which could be in the form of discomfort or embarrassment for those who do not comply with the norm. In addition, the average citizens are empowered to "nudge" others who do not comply with the new norm, such as safe distancing measures. Endorsement by celebrities or influential people (e.g. well-regarded politicians) is a powerful way to kick start the social norming process. For example, the vaccination programme in Singapore has a few endorsements from high profile people such as Prime Minister Lee Hsien Loong and local celebrities.
  2. Knowledge or awareness can also influence achieving target behaviours. People sometimes lack knowledge on target behaviours, do not understand the costs of engaging in undesired behaviours or hold onto mistaken beliefs. They may also not know how to start to change their behaviour. Hence, one way to nudge people towards target

behaviours is to correct their mistaken beliefs by providing the correct information and a specific path on how to change their behaviour.

3. Incentives as a lever could in the form of rewards/penalties or convenience. Rewards and penalties can incentivise target behaviours while imposing costs on undesired behaviours. Using a combination of rewards/convenience and penalties/friction, it makes it easier for people to adopt the target behaviours and harder to engage in undesired behaviours. For example, an organisation could nudge its staff to be vaccinated by implementing different frequencies of COVID-19 swab test for people who are fully vaccinated (once a month) and those who are not vaccinated (once a week).

## APPLICATIONS OF BEHAVIOURIAL ECONOMICS IN THE COVID-19 PANDEMIC

- Professor Ho mentioned four areas where behavioural economics can be applied to manage COVID-19 as we transit into an endemic state.

### Preventive behaviours

- Preventive behaviours, such as social distancing, help to limit or slow down the spread of COVID-19. These behaviours can be difficult for people to adhere to, especially if they were not the norm. However, research showed that people are willing to adopt preventive behaviours because:
  1. people care about the welfare of others;
  2. the personal cost to adopt preventive behaviours is not too high; and
  3. people are sensitive to social norms when preventive behaviours are also pro-social behaviours.
- In a study<sup>1</sup> by Jillian, Erez and Rand to evaluate the influence of messaging on intentions to engage in COVID-19 preventive behaviours in the USA, people responded more strongly to messages that emphasise public benefits, or a mix of public and personal benefits, over personal benefits. This observation could be due to humans' pro-social tendency and low cost of adopting the preventive behaviours such as frequent hand washing and signing up for contact tracing apps.

### Predicting number of COVID-19 cases

- Forecasting the number of COVID-19 cases is important to help public healthcare officials make better decisions to respond to the pandemic<sup>2</sup>. Rather than relying solely on a small group of experts for prediction, it is useful to tap on the "wisdom of the crowd" by aggregating information from a large group of diverse individuals. More accurate predictions tend to be produced by a large diverse group of individuals making independent decisions, because issues such as individual biases, limited attention to information and herd behaviour are eliminated.
- Prediction market is a tool to facilitate the sharing of information and forecasts among a large group of diverse individuals, who participate on a voluntary basis. This tool allows everyone to learn from others and update their beliefs to develop better forecasts.

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<sup>1</sup> Jordan, Jillian, Erez Yoeli, and David G. Rand. "Don't Get It or Don't Spread It: Comparing Self-interested Versus Prosocial Motivations for COVID-19 Prevention Behaviors." PsyArXiv. 3 April 2020. [doi:10.31234/osf.io/yuq7x](https://doi.org/10.31234/osf.io/yuq7x).

<sup>2</sup> National Center for Immunization and Respiratory Disease. "COVID-19 Forecasting: Background Information". 6 October 2020. Accessed 4 October, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/science/forecasting/forecasting.html>.

- Professor Ho, Dr Jin and Dr Kim did a study<sup>3</sup> on using prediction market to predict the number of COVID-19 cases in Mexico, Turkey, Singapore and the USA. It was found that the forecast accuracy made by the prediction market was better than the one that relied on incentivised survey.

### **Nudging vaccinations**

- The benefits of mRNA COVID-19 vaccines are evident when comparing the likelihoods of requiring oxygen supplementation and the severity of symptoms between vaccinated and unvaccinated COVID-19 patients. However, despite this information, some people are still nervous about mRNA vaccines and remain unconvinced about its effectiveness.
- In an online experiment with more than 35,000 adults across nine countries<sup>4</sup>, subjects were asked to rate their willingness to accept conventional or mRNA vaccines based on a hypothetical population inoculation rate (0%, 20%, 40%, 60% or 80%). They found that:
  1. There was greater hesitancy about the mRNA vaccine compared to the conventional vaccine. This might be due to status quo bias behaviour, where people prefer to stick with known solutions and are apprehensive about new technologies.
  2. After 20% of the population have been inoculated, people are more likely get the mRNA vaccine. This could be due to herd behaviour, where people imitate others' choices.
  3. A study<sup>5</sup> was conducted on University of California, Los Angeles (UCLA) Health patients on the effects of messaging and ease of scheduling vaccinations on take-up rate. Patients who received the messaging and schedule links were almost twice as likely to make the vaccination appointment, and they were also significantly more likely to be vaccinated compared to patients who did not receive any messages from UCLA Health. Short simple messages and convenience of making appointments are low-cost yet effective nudges to increase vaccination rates.

### **Fighting misinformation**

- To fight misinformation about COVID-19, it is important to understand why people believe and share information. People tend to share misinformation due to inattention (i.e. forwarding information without reading in detail) or for social media outcomes that is independent of the accuracy of the information (e.g. to generate reactions from peers).
- In a study<sup>6</sup> conducted in the USA, it was found that when presented with some false and true news headlines, the participants were generally able to discern between true and false content, but they were less discerning when deciding whether they would share the content on social media. In a second study, it was found that when participants were asked to rate the accuracy of news headline before deciding whether to share the content on social media, they were more likely to share true headlines than false headlines, compared to participants who were not asked to rate

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<sup>3</sup> Ho, Teck Hua, Lawrence Jin and Kim Dayoung. "Using Wisdom of the Crowd to Predict COVID-19 Cases and Deaths". (Working Paper, 2021).

<sup>4</sup> Ching, Leong, Lawrence Jin, Dayong Kim, Jeongbin Kim, Yik Ying Teo, and Teck-Hua Ho, "Novelty Penalty: An Assessment of Public Hesitancy on mRNA Vaccine" (Working Paper, 2021).

<sup>5</sup> Dai, Hengchen, Silvia Saccardo, Maria A. Han, Lily Roh, Naveen Raja, Sitaram Vangala, Hardikkumar Modi, Shital Pandya, Michael Sloyan and Daniel M. Croymans. "Behavioral Nudges Increase COVID-19 Vaccinations: Two Randomized Controlled Trials". *Nature* 597 404-409 (2021). <https://www.nature.com/articles/s41586-021-03843-2#citeas>

<sup>6</sup> Pennycook, Gordon, Jonathon McPhetres, Yunhao Zhang, Jackson G. Lu, and David G. Rand. "Fighting COVID-19 Misinformation on Social Media: Experimental Evidence for a Scalable Accuracy-Nudge Intervention." *Psychological Science*, 31, no. 7 (July 2020): 770-80. <https://journals.sagepub.com/doi/full/10.1177/0956797620939054>

the accuracy of news before sharing. Hence, nudging people to think about the accuracy of information could be a simple way to help people share only accurate information.

### **Conclusion**

- Professor Ho concluded by highlighting that an understanding of behavioural economics concepts can help design nudges to influence behaviours in the COVID-19 pandemic. Multiple levers of behavioural change might be required to nudge behaviour. Although not all humans will respond to nudges in the same way, once a tipping point is reached, herd behaviour and social norming can lead to more people adopting the target behaviours, leading to more permanent changes in behaviours.

[Link to Prof Ho's slides](#)