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Fighting Covid-19 In Malaysia: Mass Testing And Other Reasonable Proposals

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I. Executive Summary

The present paper is an attempt to analyse the dynamic of COVID-19 in Malaysia and to provide a comprehensive, implementable policy plan to reverse the emergency, while allowing the economy to get back on a growth path. Such a plan is based on the superior outcomes produced by decentralized decision processes, and is thus centred on *mass, frequent and affordable* testing and on targeted protection, in the light of a balanced trade-off analysis.

Main Findings.

1. Medical perspective.

a. General.

- SARS-CoV2 is an RNA virus, i.e. a virus with a positive strand of RNA, which causes COVID-19.
- Recent pathogenetic research showed that it may not have exactly an airway-inflammatory etiology, as does the flu, but rather an endothelial dysfunction with pro-thrombogenic events and multi-organ damage.
- SARS-CoV2 seems to be confirmed as a cardiovascular disease.
- COVID-19 has a syndemic character, such that the presence of other non-communicable diseases increase the chance of developing serious symptoms.

b. Malaysia.

- As of 17 June, Malaysia had recorded 673,026 COVID-19 infections and 4,142 deaths linked to COVID-19 (2% of the population has tested positive and 0.61% of the positive cases – or 0.012% of the population – have lost their lives from complications due to the virus).
- Survival rate is 99.39% (98% worldwide).
- The average age of death was 65.8 and the median age of death was 67.
- 71.18% of deaths were recorded among individuals aged 60 and above.

- Almost 86% of the COVID-19 deaths happened in the presence of at least one comorbidity.
- The most common recorded illnesses were high blood pressure and diabetes.

2. ***Economic perspective.***
   - The policy response has been based on the assumption of super-knowledge possessed by the State.
   - This has produced poor policy results, mainly based on blind faith in lockdowns.
   - The main focus has been to minimize infections, when scientific literature supports the idea that we should increase infections, but in a targeted way, in order to accelerate the transformation of the pandemic into an endemic phenomenon. A constantly low R0 will prolong the pandemic up to 20 years.
   - A balanced trade-off analysis has been missing.
   - Affecting mostly the poor, generalized movement restrictions have considerably increased unemployment, underemployment and poverty: currently the number of those struggling to make ends meet is more than 700 times higher than the number of people who succumbed to COVID-19.
   - The estimated cost of treating people infected with the virus so far is RM 8 billion, against an annual lockdown cost of RM 170 billion (12-13% of GDP).
   - A more balanced trade-off analysis would have suggested investing (and saving) resources into treatments, equipment and temporary hospitals: the cost would have been a fraction of those generated by lockdowns (which furthermore generated no actual medical benefit).
   - Expansionary fiscal and monetary policies, made necessary by movement restrictions, and supply-side shocks are triggering inflationary processes which may become out of control after the COVID-19 emergency is over, laying the foundation for a deeper economic crisis.
   - This course needs to be reversed now, together with

restoring the rule of law to increase confidence domestically and internationally.

Policy Proposals.

- Lockdowns do not work and can make the situation even worse by prolonging the pandemic duration and compromising the physical and mental health of a much higher number of individuals. Lockdowns should be immediately abandoned, together with other questionable measures, such as the distinction between essential and non-essential services.
- Because of variants, limited time efficacy and supply-side constraints, vaccination cannot be the sole practical response.
- The first change should be to move from generalized restrictions to focused protection by protecting vulnerable categories (the elderly and sick) and allowing targeted infections for faster immunity development.
- Pharmaceutical and medical research should be enhanced for long-term treatment. At the same time, healthy behaviours to strengthen the immune system (physical activity, supplement consumption, meditation…) should be incentivized.
- The gold standard for returning to normal personal and economic lives while allowing the virus to circulate in the community and develop herd immunity is mass, frequent and *affordable* testing. This means allowing firms and schools to test individuals on a weekly basis, making possible early detection and avoidance of asymptomatic spread. For this to happen, rapid test kits need to be liberalized. While the cost of tests can be borne by businesses, the amounts should be made tax deductible.
- Increasing testing and tracing will require investments in additional hospitals and medical equipment, as well as entrepreneurial innovation based on the cooperation between private and public healthcare.
- Competing groups of experts should be allowed to dialogue with institutions and to give the public open advice, on the basis of which individuals can make informed decisions.

How To Finance The Plan.

- A *Special Purpose Tax* of 5% on profits above a certain threshold. This should be clearly temporary and based on the promise of no further lockdowns. Furthermore, the collected revenue should be linked to anti-COVID investments in the medical field.
- Reintroduction of a targeted and multi-layer GST, to be collected at the state rather than the federal level; the excess collection over the previous SST should be invested to medically fight COVID-19.
- Percentage Tax Designation Institutions: businesses and individuals should be given the occasion to allocate a percentage of their taxes (max 2%) to investments to fight COVID-19.

Friedrich August Hayek

> Emergencies have always been the pretext on which the safeguards of individual liberty have been eroded – and once they are suspended it is not difficult for anyone who has assumed such emergency powers to see to it that the emergency will persist.
>
> **Friedrich A. von Hayek (1979, p. 124).**

1. Introduction

Carmelo Ferlito

At the time of writing this introduction, Malaysia is experiencing a full lockdown, which will last at least, and in different degrees, until December 2021, as the semi-full lockdown did not produce any good effect on the spread of COVID-19.The lack of effectiveness of the so-called MCO 2.0 and MCO 3.0 (Movement Control Order) came as no surprise.What is surprising is the stubbornness in dealing with a virus by non-medical interventions (namely, lockdowns), whose efficacy has been proven questionable, at the very least, as one of the sections in the present paper demonstrates. Indeed, the direction we should follow is precisely the opposite, as will be explained. However, sixteen months of experience and dozens of academic papers have not convinced the Malaysian government, and many others around the world, that there are more efficient ways to deal with the pandemic, unless we aim to make it last for the next 10 or 20 years.

We are convinced that the insistence on non-medical interventions is due, as with certain types of fiscal and monetary policies, not on their actual efficacy, but on the fact that they are politically appealing: they give the impression that the government is doing something with courage, while at the same time those in charge get a taste of absolute control over other people's lives – and they like it. It is

simply a mass social engineering experiment. This is clearly visible in the unprecedented domestic and international movement restrictions which have been introduced in many countries in a way never before experienced in human history; Leviathan-style approaches flourished and will be very difficult to retract, even in liberal democracies[1].

Our present effort should not be dismissed as a "denier paper". We do believe in the existence of COVID-19 and its complexity; we also know that, according to official data, the recovery rate is extremely high: 98% worldwide (99.3% in Malaysia). We also believe in its complexity as a medical phenomenon, and therefore we suggest that the best way to tackle it is indeed to begin by recognizing that complexity and the medical nature of the phenomenon. What the reader will find here is not that we should do nothing; quite the contrary, we must do more, but we should act in the right direction and with the proper instruments: research, affordable and frequent mass testing for early detection, investments in healthcare (and in territorial healthcare in particular), and targeted protection.

It is possible, we argue, to deal with COVID-19 without recourse to asking the population to renounce a normal life: between (useless) lockdowns and doing nothing there is a whole spectrum of possibilities that needs to be considered. This is all the more urgent considering the uncertainties about vaccination as new variants may limit the efficacy of the vaccines currently available, and the limited duration of their efficacy may pose logistical challenges. Furthermore, it is important for their effectiveness to implement a set of policies that, based on appropriate communication, can incur people's favour and co-participation[2].

The first and most important point of our strategy should be awareness about the complexity of COVID-19. One of the important elements of this complexity is that COVID-19 is not merely a pandemic, but a syndemic[3]. As Horton (2020) explained,

[1] *Finn and Jakobson (2021, p. 117).*
[2] *Rayamajhee, Shrestha and Paniagua (2021).*
[3] *Horton (2020) and Agenzia regionale di sanità Toscana (2020).*

«a syndemic approach reveals biological and social interactions that are important for prognosis, treatment, and health policy. Limiting the harm caused by SARS-CoV-2 will demand far greater attention to NCDs [non-communicable diseases] and socioeconomic inequality than has hitherto been admitted. A syndemic is not merely a comorbidity. Syndemics are characterised by biological and social interactions between conditions and states, interactions that increase a person's susceptibility to harm or worsen their health outcomes. In the case of COVID-19, attacking NCDs will be a prerequisite for successful containment».

In a nutshell: not all subjects are equally vulnerable to the disease; the presence of NCDs and disadvantaged social conditions play a crucial role.

Another very important point is that «COVID-19 is a vascular disease»; recognizing this allows demonstrating "exactly how the SARS-CoV-2 virus damages and attacks the vascular system on a cellular level. The findings help explain COVID-19's wide variety of seemingly unconnected complications, and could open the door for new research into more effective therapies"[4] It is quite interesting that the cardiovascular nature of the disease was confirmed only in May 2021, when papers from 2015 were already explaining the virus's mechanism.

This complexity calls for a proper trade-off analysis, which should be grounded as much as possible on the medical and statistical evidence we have collected so far. The most important element is the extremely high recovery rate (98%), which points in the direction that mass and frequent testing is crucial for early detection and therefore for tackling the disease when it is still manageable.

[4] *Salk (2021) and Lei et al. (2021).x*

Figure 1: COVID-19 active and closed cases as per 17 June 2021 (World).

Source: https://www.worldometers.info/coronavirus/

The detailed situation in Malaysia will be analysed later in this paper, which will begin with a medical analysis of the virus know as Sars-CoV-2 (section 2). This section will be followed by an analysis of the pandemic from a political economy perspective (section 3). In section 4, the current situation in Malaysia will be presented and placed into the World and Southeast Asian contexts. Section 5 will attempt to elaborate a realistic and effective anti-COVID strategy for Malaysia, and will be centred on several aspects: lockdowns do not work, the importance of prevention (i.e., the immune system), affordable frequent mass testing for early detection, targeted isolations, focused protection and strengthening the healthcare system. We will also present proposals on how to finance the actions we propose.

2. Covid-19 Pandemic: What's New?

Salvatore Chirumbolo

2.1. Introduction

SARS-CoV2 is an RNA virus, i.e. a virus with a positive strand of RNA, which caused COVID-19, namely the coronavirus disease that broke out in 2019, resulting in an awful worldwide pandemic outbreak and causing, to date, 169 million cases and 3.51 million deaths. The SARS-CoV2 virus belongs to the subgenus Sarbecovirus (genus Betacoronavirus), together with SARS-Cov1, which caused SARS in 2003[5]; they cause a fatal pneumonia with systemic complications, usually under the umbrella definition of ARDS (acute respiratory distress syndrome)[6]. Actually, very recent pathogenetic research on the complex multisystemic pathology known as COVID-19 has shown that it may not have exactly an airway inflammatory etiology, as does the flu, but rather an endothelial dysfunction with pro-thrombogenic events and multi-organ damage[7]. As SARS-CoV2 enters cells by mimicking the angiotensin II converting enzyme (ACE2) by linking to the ACE2 receptors, its major target organ is represented by endothelial cells (the tissue of the vascular system and blood vessels) and platelets, which express ACE2 receptors.

Once it is highlighted that the etiopathogenetic cause of COVID-19 is severe damage at the microcirculation level, with possible major venous thrombosis, pneumonia could be caused by inflammation associated with endothelial dysfunction. This puts the spotlight on the way in which people should be treated when they become infected with SARS-CoV2 and have the early, mild symptoms of infection, such as muscle pain and fever. Acetaminophen (i.e. paracetamol or Tylenol) might be particularly dangerous in early COVID-19, especially if taken at home without a physician's advice and if patients are elderly.

[5] *Woo, Huang, Lau and Yuen (2010); Woo, Lau, Huang and Yuen (2009); Abdelghany et al. (2021); Petrosillo et al. (2020); Ramphul et al. (2021); Boehm et al. (2021).*
[6] *Barbeta et al. (2020).*
[7] *Bonaventura et al. (2021).*

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2.2 Pandemic emergency and home caregiving: may Tylenol (paracetamol) even be dangerous in early COVID-19?

In October 2020, Sestili and Fimognari (2020) reported that acetaminophen (N-acetyl-para-aminophenol), commonly known as paracetamol, induces or worsens the depletion of glutathione (GSH) in elderly patients affected by COVID-19 with early symptoms, thus greatly enhancing the risk of COVID-19 exacerbation in these patients. Reduction of GSH is a particularly severe condition for the individual's anti-oxidant and anti-inflammatory response, and it is understandable that its reduction is crucial to worsening COVID-19. Moreover, Zhang et al. (2021) recently showed that SARS-CoV2 hijacks folate and one-carbon metabolism in the infected cell, by remodelling their biochemical turnover at the post-transcriptional level and proceeding with in de novo synthesis of purines. SARS-CoV2 uses the cytosolic serine hydroxymethyltransferase-1 (SHMT1) to activate the one-carbon metabolism for de novo synthesis of purines[8] and subtracting serine, and its precursor folic acid hijacks serine from producing cystathionine and therefore GSH. Reduction in GSH levels is typical in elderly patients[9], particularly if affected by metabolic syndrome[10]; therefore, if Sestili and Fimognari (2020) are right, elderly patients with a prodromic COVID-19 symptomatology should not be treated with N-acetyl-para-aminophenol.

[8] *Zhang et al. (2021).*
[9] *Sekhar et al. (2011a).*
[10] *Sekhar et al. (2011b).*

In addition, Sestili and Fimognari (2020) considered the hypothesis that COVID-19 severity may be caused via a glucose-6-phosphate dehydrogenase (G6PD) deficiency, which parallels GSH decrease[11]. Actually, in those cases, a warning was published about the use of paracetamol, which ultimately is not recommended[12]. Despite some wise recommendations, Linda Geddes (2020) wrote about *The fever paradox*, reporting how much paracetamol was abused in the healthcare market to address the early symptoms of COVID-19 and prevent crowding in hospitals. In Italy, a public outcry from some physicians, practitioners and family doctors is expanding the debate, even in politics, about how to best treat COVID-19 at home. The civil legal action of these professionals was arranged in order to prevent very high concern by elderly people who were treated with paracetamol alone and counselled to wait for reduced symptoms during paracetamol therapy, who still underwent rapid exacerbation and in many cases even death while hospitalized.

Suter et al. (2021) recently developed an algorithmic approach to finding the best and simplest home therapy for mild symptoms in early COVID-19, in order to prevent hospitalization. In their retrospective observational study, the control cohort (45 patients out of 77, or 58.44%) received paracetamol as home therapy, whereas in the cohort of patients following a recommended protocol only 6 out of 86 (6.98%) took paracetamol as the leading therapy. The rate of hospitalization was 1.2% for patients following the recommended protocol and 13.1% ($p = 0.007$) for patients using predominantly paracetamol, i.e. 44 cumulative days of hospitalization for those following the recommended protocol vs 481 for the control group. Assessing this evidence indicates that using paracetamol at home to treat mild COVID-19 symptoms, particularly in older adults with comorbidity, greatly enhances the risk of being hospitalized for dispnoea from interstitial pneumonia, thus increasing the already high concern of overcrowding Intensive Care Units (ICUs). Hospitalization also includes the additional risk of worsening COVID-19 pneumonia due to hospital-acquired infections, increasing the mortality rate[13].

[11] *Aydermir and Ulusu (2020); Abdel Hafez (2020).*
[12] *Richardson and O'Malley (2021).*
[13] *Sekhar et al. (2011b).*

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The use of paracetamol to reduce fever should be considered particularly safe if mild COVID-19 has not yet been diagnosed, at least in the professional opinion of the majority of physicians. On the other hand, fever is one of the early symptoms of a possible SARS-CoV2 infection. Fever is usually associated with inflammation symptomatology (asthenia, muscular pain, cough; if more correct therapy information were widespread among healthcare professionals, additional therapies, such as non-steroidal anti-inflammatory drugs, should take priority in their recommendations .The use of paracetamol to reduce fever should be considered particularly safe if mild COVID-19 has not yet been diagnosed, at least in the professional opinion of the majority of physicians. On the other hand, fever is one of the early symptoms of a possible SARS-CoV2 infection. Fever is usually associated with inflammation symptomatology (asthenia, muscular pain, cough; if more correct therapy information were widespread among healthcare professionals, additional therapies, such as non-steroidal anti-inflammatory drugs, should take priority in their recommendations[14].

In 2019, according to the Italian Agency for Therapeutic Drugs (AIFA), paracetamol (single active principle) represented 11.4% of the total economic burden for therapeutic drugs in Italy and the top drug purchased by local healthcare units in the country that purchase for themselves. This rank increased significantly in 2020, reaching an increase of about 50 packages/day for every

[14] *Suter at al. (2021).*

10,000 inhabitants in January-February 2020, with respect to 16-20 packages purchased in December 2019. These data are easily retrievable from the AIFA website. Certainly, it would be particularly awkward to state that the enormous increase in elderly patients entering ITUs, or that the number of deaths for acute and severe respiratory distress (ARDS) from COVID-19, may have been caused by taking paracetamol alone while staying at home, waiting for further medical advice or hoping for the painful symptoms to disappear. However, it appears to be undoubtedly confirmed that patients taking paracetamol as their elective home therapy in the early stage of SARS-CoV2 infection had a higher risk of being hospitalized[15].

The guidelines provided by the Italian Ministry of Health on November 30th, 2020, for managing patients with COVID-19 at home and discouraging them from being hospitalized, suggested "a watchful waiting attitude" and "paracetamol for treating symptoms" (Note 1). As of the indicated date, on the basis of data reported by the Ministry of Health in Italy on November 30th, 2020, the relative risk (RR) we calculated of being hospitalized following these recommendations may not be far from 1.7981 (CI95 = 1.7234-1.8760, $p<0.001$), odds ratio (OR) = 1.8283 (CI95 = 1.7507-1.9094, $p<0.001$, considering also the trend reported by others [17]. Moreover, the probability of being hospitalized in an ITU within 10 days of "watchful waiting" may be higher that 65% (65.18%) in a Bayesian calculation. Therefore, on the basis of this estimation, there is only one possible conclusion to be reached. The pharmacological reasons for this failure have been introduced in this manuscript and should be seriously and fully taken into consideration in order to formulate new therapy protocols and approved guidelines.

This warning must be taken into account when considering paracetamol in elderly people with a symptomatology that is presumably due to SARS-CoV2 infection, prior to be confirmed

[15] *Suter et al. (2021).*
[16] *Suter et al. (2021).*

by a swab. While the initial recommendations from AIFA in 2020 included paracetamol as an elective, practical home therapy to reduce symptoms of COVID-19 and loosen the vice on hospitals, as reported in Suter et al. (2021), the new recommended protocols, proposed by a group of physicians, may create criticism of the management of the pandemic by political and academic expertise in Italy[16].

Scientific research must always lead the debate to improve any good proposal and extinguish this worrisome emergency. It should be further debated among the medical community whether patients with mild COVID-19 should also be treated with thrombosis inhibitors and anti-coagulants or be reinforced with GSH supplementation.

2.3. Pandemic emergency: Face masks and air-spread virus particles

The various reports showing that virus particles are widespread on any surface and at any place, including open spaces, should be thoroughly reappraised and deeply revised. Apart from very crowded limited spaces, the possibility for SARS-CoV2 to be spread in outdoor places (open air spaces) is negligible[17]. The evidence that SARS-CoV2 may be borne by particulate matter (PM10) dispersed in air currents[18] was completely negated by further research[19]. Furthermore, the content and half-life of SARS-CoV2 virions on surfaces is particularly weak, regarding only RNA and with flawed RT-PCR techniques[20]. On the basis of these reports and evidence, face masks should be preferentially used in indoor places, particularly if crowded and with swabbed SARS-CoV2 positive subjects. Their use in outdoor places is useless and may generate concerns regarding skin bacterial microflora, with possible pneumonia due to impaired lung microbiome.

[16] *Suter at al. (2021).*
[17] *Chirizzi et al. (2021).*
[18] *Setti et al. (2020a); Setti et al. (2020b); Setti et al. (2020c).*
[19] *Linillos-Pradillo et al. (2021); Chirumbolo (2021a).*
[20] *Di Carlo et al. (2020); Moreno et al. (2021); van Doremalen et al. (2020).*

2.4. Pandemic emergency, "social distance" and people gathering: The lockdown issue

A certain debate and uproar emerged about "social distance" and gatherings of people. Political leaders must be aware that the most crowded places are homes, which are indoor places where, among family members and relatives, face masks are not obligatory. Therefore, whereas public crowds are forbidden, SARS-CoV2 can spread easily in homes and apartment or condominial buildings, besides hospitals and shopping malls. Consequently, criticisms against lockdowns arose[21]. The lockdown policy is an empirical (or experimental) way to escape from the pandemic, and its efficacy will be further discussed in the present paper.

2.5. Pandemic emergency: Mass vaccination and therapy against COVID-19

Is there an effective therapy against COVID-19? First, very few post-mortem legal and anatomo-pathological surveys were conducted to ascertain the COVID-19 pathogenesis. A great many proposals in the therapeutical field on COVID-19 were advanced, from the antivirals such as remdesivir, to hydroxychloroquine, monoclonal antibodies, tolicizumab, hyperimmune plasmas, low molecular weight heparin, NSAIDs, hydroxycortisone (in severe forms of COVID-19), antimicrobials, and finally oxygen-ozone autohemotherapy, a very promising tool against ARDS in COVID-19[22].

The broadest and much more widely acknowledged and agreed policy bases its soundness on mass vaccination, considered the only solution against COVID-19. Many people have long been reluctant or hesitant about vaccines, and although discussion may be held within the scientific community[23], governments should encourage the publication of the best information about vaccination in order to allow people to make properly informed decisions.

[21] *Melnick and Ioannidis (2020).*
[22] *Franzini et al. (2020); Chirumbolo (2021b).*
[23] *Chirumbolo (2021c, 2021d).*

2.6. Pandemic emergency: Deaths by COVID or with COVID?

People deceased due to COVID-19 are merged with people infected with SARS-CoV2 who died due to severe complications from hospital acquired infections, usually due to antimicrobial-resistant strains[24]. Disinfecting intensive therapy units (ITUs) and COVID-19 healthcare services with ozone and UV is fundamental to dramatically reducing the mortality rate in these structures due to bacterial co-infection with coronavirus. Furthermore, a wise policy of controlling air pollutants should reduce the impact of pneumonia (interstitial pneumonia is caused by the pollutant NO2) and severe forms of COVID-19.

[24] *Chirumbolo et al. (2021b).*

3. The Political Economy Of Covid-19

Carmelo Ferlito

3.1. Trade-offs and the need for humility in policymaking

The emergence of COVID-19 not only called for a medical response, but it brought to the fore the question about the best way for public policy to deal with infectious diseases[25]. In fact, while epidemiology cannot but ontologically focus on the *technical* nature of the phenomenon under investigation, economics, as a science of human action and interaction – and of their consequences, intended and unintended[26] – is better placed to inspire a political economy response.

So far, in most cases around the world, the State response to the current infectious disease emergency has been that of a *benevolent social planner*, which is assumed to be able to identify the «divergence between individual choices and the socially optimal outcome and [to intervene] to maximize social welfare»[27]. This means assuming that «a benevolent social planner [the public health brain] has the knowledge necessary to identify the nature of the infection externality and the optimal response to maximize social welfare. [However, such an approach] neglects the multiple epistemic challenges facing health planners that result from the nuances of the economic problem»[28].

The pandemic seems to have revealed a higher degree of people's trust in the ability of governments to face complex problems in a centralized manner[29]. Unfortunately for us, policymakers, like any other decision maker, must face their own ignorance; the objectives that can actually be realized are limited by the extent of this

[25] *Coyne, Duncan and Hall (2021, p. 1120).*
[26] *Ferlito (2020a).*
[27] *Coyne, Duncan and Hall (2021, p. 1120).*
[28] *Coyne, Duncan and Hall (2021, p. 1121).*
[29] *Gulker and Magness (2021, p. 38).*

ignorance, and influenced by luck and other spontaneous forces[30]. Thus, while segments of the population ask for more intervention, the limits of centralized policymaking dictated by the knowledge problem[31] and by expert failure[32] become more evident[33].

Such a dichotomy, between the social planner's pretence of knowledge, and the epistemic nature of the economic problem[34], is clearly visible when analysing, for example, the distinction between essential and non-essential businesses[35] that was introduced almost everywhere in the world; this indeed poses a lot of problems, as testified by the polemic surrounding senior minister Mohamed Azmin bin Ali (current Minister of International Trade and Industry) on the number of operation authorizations issued by his ministry during MCO 3.0[36].

In fact, Azmin Ali, and all ministers in his position, can easily realize how difficult the distinction is to identify and implement both from a moral and an economic perspective. There are two ethical concerns surrounding the division of businesses into essential and non-essential. The first is that the political authority takes on itself the right to decide what is essential for each individual to consume, «that they can decide in advance which goods and services […] consumers will find necessary and most valuable»[37]. This level of pretence of knowledge is dangerous because it can create a precedent in assuming that emergency situations can make it possible for policy makers to decide what is most valuable for millions of different individuals; the ethical implications of "you do not need to drink alcohol" can be much more far-reaching than what we can imagine now. The second ethical concern shifts the focus from consumers to suppliers: in fact, while the government can eventually decide that an individual does not need to cut his or her own hair for an indefinite amount of time (and this decision is already ethically dangerous), how can the political authority tell

[30] *Scheall and Crutchfield (2021, p. 20).*
[31] *Hayek (1937 and 1945).*
[32] *Koppl (2018).*
[33] *Gulker and Magness (2021, p. 38).*
[34] *Explained in detail in Phaneuf (2020b).*
[35] *Ferlito (2021a).*
[36] *Jaypragas (2021).*
[37] *Storr, Haeffele, Lofthouse and Grube (2021, p. 1230).*

barbers that they do not need to earn money (and therefore to feed their families) for the same indefinite amount of time? This means deciding that for certain categories of people earning a living is less essential than for others. It becomes immediately clear that the distinction – often presented in Malaysia – between lives and livelihoods is misleading, while here choosing which lives need to be protected over others[38] is in play; yes, lockdowns can kill lives too, not just livelihoods[39].

The identification of essential businesses is also made problematic by the complexity of the economic system; assuming that one is able to identify what is essential is really a sign of deep ignorance of how the economic system works. An example will help make this clear. Nobody would argue that a hatchery (where day-old chicks come to life) is a non-essential business: we need chicken! Well, one of the most prominent chicken incubator producers has a spare parts list of 3,500 SKUs; this means that, in order to keep a hatchery in operation, we need to ensure that all 3,500 providers of different parts are allowed to operate. But, how can we tell these producers that they can manufacture only those items that are destined to chicken hatcheries? To this we need to add the items related to logistics, but also the workers' clothes, the disinfectants used in the hatcheries, and so on and so forth. A clear distinction between black and white situations is impossible; and this is normal in any complex economy, where all stages of production are deeply interconnected.

Similarly, nobody would argue that eggs are non-essential. But eggs need packaging, trucks, accountants, drivers, repair tools related to transportation, packaging and storage. And so on and so forth. Really, comprehensive reflection on this distinction can only bring one to realize that the dividing line is impossible to draw.

The same poor understanding of complexity has driven many governments, including that of Malaysia, to issue standard operating

[38] *Lee (2021, p. 59).*
[39] *Phaneuf (2020a).*

procedures (SOPs) which are meaningless in the fight against the virus. Among others, one is the impossibility for kids below 12 years of age to leave their homes[40]; as we know, not only kids are the less affected by the pandemic, but the impossibility of having proper physical activity and exposure to social life, together with 16 months of online education, can create important mental and physical issues for the future[41]. And what about the closure of public parks, when it is recognized that lack of vitamin D is seriously associated with a higher risk of COVID death[42]? And, again, why are deliveries and takeaways safe until 8pm but not afterwards, while an early business closure curfew surely compromises the dinner business for many restaurants already on the verge of collapse?

Similar troubles are experienced by central planners when, in order to face the health crisis, they try to centralize production of "essential" items, such as ventilators. Even if the central planner were able to identify an eventual social optimum and produce the products that are in demand, this does not mean that it will be able to employ the output efficiently[43]. To put it simply: because of the dispersed, tacit and ever-changing nature of the information necessary to implement sound entrepreneurial plans (guided by market prices and profit-and-loss calculations), the State can, at best, be technically able to make a pizza, but it will never be able to know if the inputs are used efficiently or if the plan is successful[44].

Furthermore, bureaucratic management and conflicts between different levels of the administration, together with the absence of the profit-and-loss system generated by market prices which usually drives private entrepreneurship, make the governments blind in trying to achieve the social optimum they have in mind[45]

This is just the realm of policy action where the knowledge and calculation problems emphasized by Mises (1920) and Hayek (1937, 1945) becomes evident[46]. «The knowledge about what goods are

[40] *Tee (2021).*
[41] *See Lim, Sazuki, Weerasena and Ferlito (2021).*
[42] *Weerasena, Ferlito and Bellavite (2021, p. 12).*
[43] *Coyne, Duncan and Hall (2021, p. 1124).*
[44] *Ferlito (2021c).*
[45] *Coyne, Duncan and Hall (2021, pp. 1127-1128).*
[46] *Storr, Haeffele, Lofthouse and Grube (2021).*

essential must be generated through a social learning process, and the market provides a mechanism by which dispersed and tacit knowledge can be discovered, aggregated, and communicated»[47].

The first consequence emerging from what we have seen so far is the recognition, for policymakers, that their actions can produce externalities too, and therefore humility and an accurate trade-off analysis are very much necessary in developing realistic and non-harmful policies. One of the first steps in this direction should be «to avoid essentialness designations altogether. Because policymakers cannot accurately predict which goods and services will be essential over such an extended crisis […], policymakers should presume that a business is performing an essential service until proven otherwise. They could simply allow consumers and producers to decide which goods, services, occupations, and business functions are in fact essential, which can be provided or performed remotely, and which are non-essential and could be foregone until conditions improve. Consumers and producers make these kinds of determinations all of the time, weighing risks […] against rewards»[48].

Similarly, it becomes clear that confusing and contradictory policies, arising from the complexity of the essential/non-essential dichotomy, should be avoided. In fact, conflicting regulations make it difficult for businesses to plan for the future, in turn creating troubles and bottlenecks along the supply and value chains[49].

The same recognition of the limits that a central planner faces – let's not forget that policymakers are human beings, not superhumans – should drive policy toward a balanced analysis of the trade-offs. More about the medical issues created by stay-at-home orders is analysed later in the paper, while here we can mention some of the economic effects produced by anti-COVID policies.

In October 2020, the World Bank pointed out that global extreme poverty was on the rise in 2020 for the first time in 20 years, thanks

[47] *Storr, Haeffele, Lofthouse and Grube (2021).*
[48] *Storr, Haeffele, Lofthouse and Grube (2021, p. 1242).*
[49] *Storr, Haeffele, Lofthouse and Grube (2021, p. 1246).*

to the issues created by lockdowns. «The COVID-19 pandemic is estimated to push an additional 88 million to 115 million people into extreme poverty this year, with the total rising to as many as 150 million by 2021, depending on the severity of the economic contraction. Extreme poverty, defined as living on less than $1.90 a day, is likely to affect between 9.1% and 9.4% of the world's population in 2020, according to the biennial Poverty and Shared Prosperity Report. This would represent a regression to the rate of 9.2% in 2017. Had the pandemic not convulsed the globe, the poverty rate was expected to drop to 7.9% in 2020»[50]. Professor Sunetra Gupta (a theoretical epidemiologist at Oxford) often explained that lockdowns are a luxury of the affluent[51].

In the case of Malaysia, Unicef pointed out that even before the implementation of MCO 2.0 and MCO 3.0 (which means, before the second and third round of severe movement restrictions), unemployment rates among low-income urban households in Malaysia had increased two-fold in the Klang Valley, from 7% in September 2020 to 15% in December 2020, with one in three adults in these households being without a job. The Unicef report showed that 63% of the households were experiencing difficulties in meeting their basic needs and purchasing daily essentials, despite government and zakat financial aid[52].

In general, unemployment in Malaysia remains at a historically high level, well above the figures recorded during the 1997-1998 financial crisis, oscillating between 4.5 and 5.5%.

[50] https://www.worldbank.org/en/news/press-release/2020/10/07/covid-19-to-add-as-many-as-150-million-extreme-poor-by-2021.
[51] https://www.facebook.com/watch/?v=2091184874821 22.
[52] Kwan (2021).

Figure 2: Unemployment rate in Malaysia – 1996-2021.

Source: https://tradingeconomics.com/malaysia/unemployment-rate.

Beyond unemployment, moreover, there is underemployment, the analysis of which reveals deeper wounds in the economic system. While as of March 2021 estimations of skill-related underemployment, which comprises those with tertiary education but working in semi-skilled and low-skilled occupations, accounted for 1.89 million persons, or 37.4% of the total of employed persons with tertiary education[53], more recent data following MCO 2.0 and MCO 3.0 show that there are 2.1 million people underemployed, with 310,000 on short-time and 2.1 million taking jobs below their skill levels at lower pay; if we add this figure to the 771,000 fully unemployed, there are 3.1 million people (19.4% of the workforce) struggling to make a living[54]: the number is 762 times higher than the 4,069 COVID-19 related deaths reported up to June 15. Meanwhile, the poverty rate in Malaysia rose to 8.4% in 2020 from 5.6% in 2019[55].

The point here is not to analyse in detail the negative consequences of stay-at-home orders, but to emphasize the knowledge problem that policymakers encounter when making choices. Recognizing the epistemic problem within the complexity of the economic system must lead to humility in policymaking, a humility which needs to guide toward achievable outcomes and, above all, to implement trade-off analyses where the unintended consequences of political decisions are recognized and properly evaluated[56].

[53] *Azman (2021).*
[54] *Casadio and Williams (2021).*
[55] *FMT (2021c).*
[56] *Ferlito (2019b).*

Elinor Ostrom (2009, pp. 664-665) emphasized how the main effort of political economy has been to nudge individuals to achieve better outcomes (or – to change people), while «a core goal of public policy should be to facilitate the development of institutions that bring out the best in humans». Similarly, Nobel Laureate F.A. von Hayek (1989, p. 7), noted that individuals – and policymakers are individuals – must learn that, by dealing with complexity, it is impossible to master all possible events, and thus knowledge cannot be used to shape reality as if it were a piece of handiwork. Therefore, a «healthy approach to policymaking and policy analysis requires humility and acknowledgment of the challenges policymakers face when intervening in society»[57].

These considerations bring us to recognize the superiority of decentralized decision processes over central planning, and in particular when dealing with complex phenomena. The policy suggestions presented later in this paper will attempt to respect this search for humility and emphasize the role that decentralized decisions can play in solving the emergency. Our argument is consistent with the analysis made by Candela and Geloso (2021, p. 1262) with regard to past pandemics, in which the authors found that less free economies are more vulnerable when a pandemic happens, and, at the same time, the «the likelihood of a pandemic happening (and exposing their vulnerabilities) is reduced thanks to freer economies».

To summarize: the key prerequisites to successfully face the current emergency are a balanced trade-off analysis and mechanisms for decentralized decision processes to emerge. In fact, it is thanks to these decentralized decision processes that experimentation can flourish and generate creative responses to the pandemic; this may be the result of a distribution of intelligence and knowledge that is able to respond to the crisis without damaging liberal institutions, while building on voluntaristic interactions[58].

[57] *Haeffele and Hobson (2019, p. xiii).*
[58] *Novak (2021, p. 91). For an analysis of community response to COVID-19 see Storr, Haeffele, Grube and Lofthouse (2021).*

Photo by Diana Polekhina on Unsplash

3.2. The path to vaccination: A perspective from economics

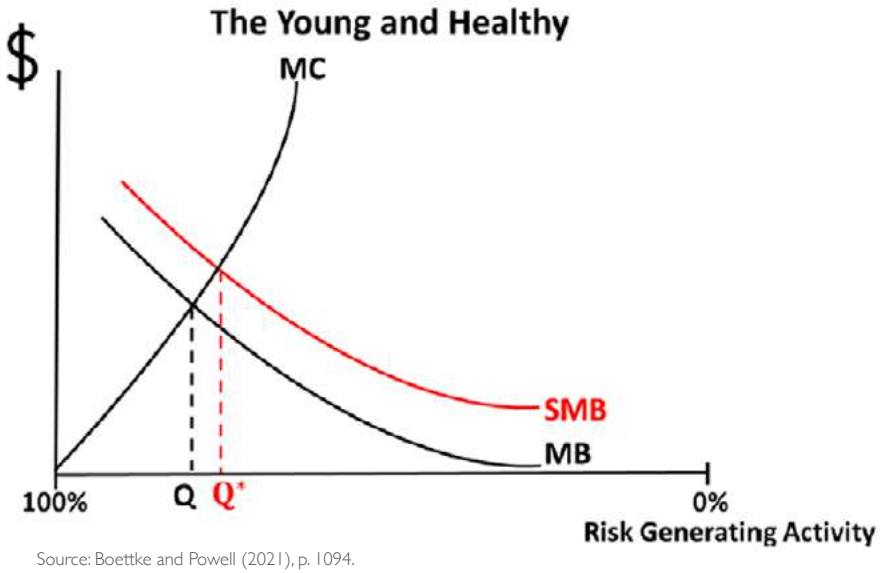
While vaccination will not be discussed in the policy recommendations, here we will attempt to highlight some considerations arising from economics with regard to what the discipline would suggest doing amid the relative scarcity of available vaccines.

Due to the logistics and supply-side issues related to vaccination, it is important to understand what economics would suggest in terms of vaccination priorities. The reasoning proposed here is in line with the "targeted approach" discussed later in the paper.

As was done by Boettke and Powell (2021) for simplifying the analysis, we can divide the population into the young and healthy working segment and the old and vulnerable retired segment. Looking at the effects of movement restrictions, the first group encounters a very high marginal cost, because the people in this group need to work to earn an income. By limiting their activities, however, we also create negative externalities (social cost): we reduce the national output (making everybody poorer); on the other hand, if we do not introduce restrictions, we face different externalities: we increase the health risk for the individuals in the second group. When facing movement restrictions, the marginal cost for the second group is much lower, so they can face a higher level of restrictions. But if greater restrictions are imposed, negative externalities would be transferred to the first group, which would have to renounce earning a living, while at the same time the national income would be reduced. It is important to always look at externalities in both directions.

The different trade-offs between marginal cost and individual marginal benefit and social marginal benefit for the two groups is shown in the graphs below.

Figure 3: Marginal cost, marginal benefit and social marginal benefit for the young and healthy.

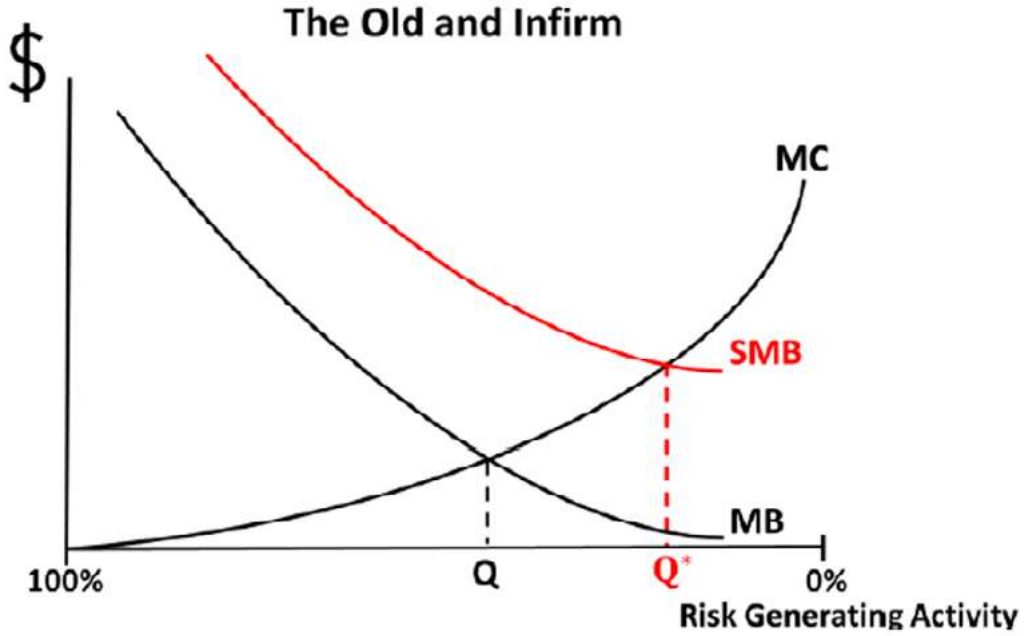


Source: Boettke and Powell (2021), p. 1094.

As explained by Boettke and Powell (2021, p. 1093), the figure above «illustrates the private and social marginal benefits and the private marginal costs of lowering the amount of activities that people engage in that generate a risk of COVID transmission, in a market where all people are young and healthy. The origin of the graph indicates a situation where no risk mitigation is taken and the far right of the graph illustrates a situation where zero risks are taken. Individual decision-making leads to some risk mitigation, but less than the socially optimal amount. However, given that the negative externality is small, the difference between the socially optimal amount of mitigation and the privately chosen amount is also small». On the contrary, the figure below «illustrates a market where everyone is old and/or infirm. In this market, the private marginal benefits of decreasing activities that increase the risk of COVID transmission are much greater. Also, since the old or infirm are less likely to be in the workforce, or obtaining their education, the marginal costs of decreasing risky activity increase much more slowly […]. However, in this case, since the health consequences of spreading COVID-19 to others are much higher than in a market of young and healthy people, the social marginal benefits of decreased activity that risks spreading COVID are substantially greater. As a result, private decision making leaves the market far from the socially optimal amount of risk mitigation»[59].

[59] *Boettke and Powell (2021, pp. 1093-1094).*

Figure 4: Marginal cost, marginal benefit and social marginal benefit for the old and infirm.

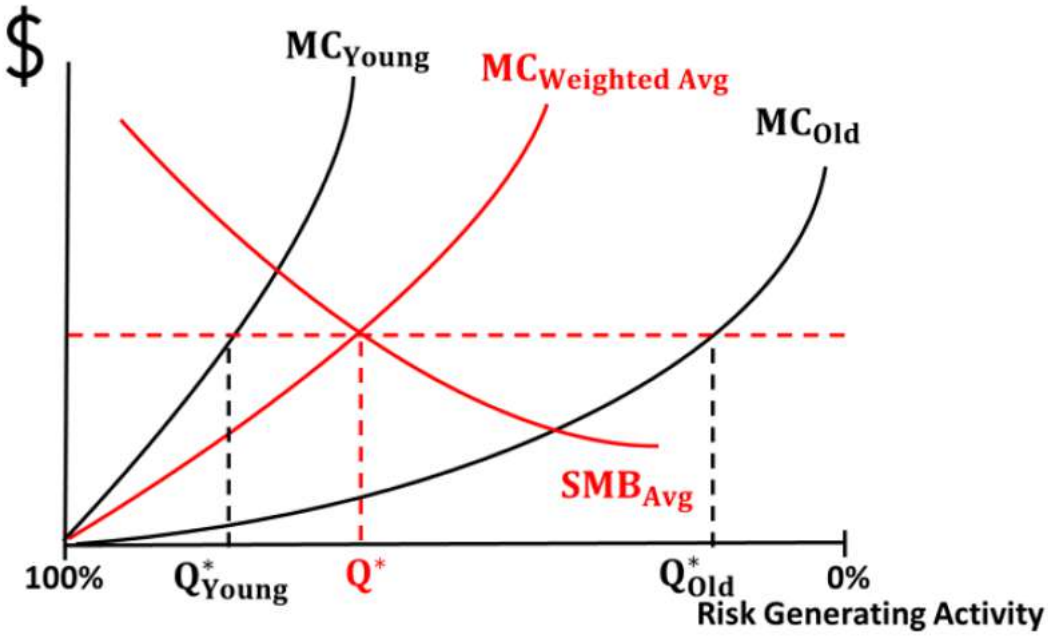


Source: Boettke and Powell (2021), p. 1094.

To summarize: a small level of restrictions would limit the cost to the young and healthy part of the population, but it would transfer externalities to the elderly in terms of health risk; on the contrary, harder lockdowns would reduce the risk for the elderly but would increase the marginal social cost by creating poverty among the working population and reducing the national level of income.

From this analysis it immediately emerges that a generalized policy of movement restrictions is hardly likely to achieve what is called the social optimum (Q* in the graph below). A solution should be found to equalize the risk among the different population groups, and therefore the age composition of a certain country plays an important role in choosing the right policy.

Figure 5: Balancing marginal cost and benefit in a differentiated population.



Source: Boettke and Powell (2021), p. 1096.

Because of the heterogeneity of individual preferences, and thus the impossibility for a central planner to rationally take into account a myriad of different evaluations and risk assessments, the best suggestion an economist would give is to leave people free to choose their different actions while at the same time providing updated information that is as complete as possible. At the same time, because individuals respond to incentives, activities which are confirmed (and not merely supposed to be) vehicles of disease transmission could be discouraged via taxation.

This analysis suggests that vaccines should be allocated first to those who bear the higher cost of staying at home, the young and healthy[60], and this is precisely the opposite direction that most of the world's governments are heading.

3.3. The post-COVID economic crisis

As mentioned earlier, policies have consequences, intended and – often – unintended. One of the main tasks of economics is precisely to study human actions and interactions with their intended and unintended consequences.

[59] *Boettke and Powell (2021).*

We have estimated that, up to 31 March 2021, the different Movement Control Orders (MCOs) cost the country almost RM 200 billion (RM 175 billion in 2020 alone), while school closures may come to add an additional RM 80 billion per year[61].

Table 1: Estimated losses from different MCOs – March 2020-March 2021.

PHASE	TYPE	DURATION	DAYS	ECONOMIC LOSSES/ DAY (RM BILLION)	TOTAL ECONOMIC LOSSES (RM BILLION)	REMARK
1	MCO 1.0	18IH March- 3rd May 2020	45	(2.4)	(108)	
2	CMCO	4th May – 9th June 2020	36	(0.7)	(25.2)	
3	RMCO	10th June – 31st Dec 2020	182	(0.2)	(34.01)	Take out **Selangor, FT, Johor, Penang, Sabah, Malacca
4	CMCO in states with High Covid-19 cases	14th Dec – 31st Dec 2020	18	(0.7)	(8.35)	**Selangor, FT, Johor, Penang, Sabah, Malacca
5	RMCO	RMCO nationwide from 1st Jan 2021 - 31st March 2021	89	(0.2)	(17.8)	
Total					(193.367)	

Economic Losses for 2020 : ***RM -175.567 Billion***

Source: Author's elaborations on Ministry of Finance data.

The current MCO 3.0 losses could be estimated – conservatively, being government estimates – to be RM 1 billion per day[62] Casadio and Williams (2021) estimated that the total cost of the various lockdowns, including the full lockdown from June 1 to 14, would be around RM 107 billion; they added that the "exit strategy" presented on June 15 will cost additional RM 170 billion, or 12.7% of the gross domestic product including earlier lockdown costs. Therefore, the different lockdowns are costing the country approximately 12-13% of GDP each year.

From a trade-off analysis perspective, it is interesting to observe that, using estimated treatment costs reported by the Galen Centre, Casadio and Williams (2021) calculated that it would have cost around RM 8 billion to treat the 668,000 people who have tested positive for COVID-19 so far, or around RM 12,000 per person, while the cost per citizen, spread over a population of around 32,000,000,

[61] *Lim, Sazuki, Weerasena and Ferlito (2021).*
[62] *Malay Mail (2021).*

would go down to RM 250; however, the lockdown cost amounts to RM 5,500 per person per year. Even if we add the necessary construction of temporary hospital beds and ICU units which would be required with a higher number of detected infections, the cost for treating and curing people would be disproportionately lower than the cost borne by the country with the lockdown.

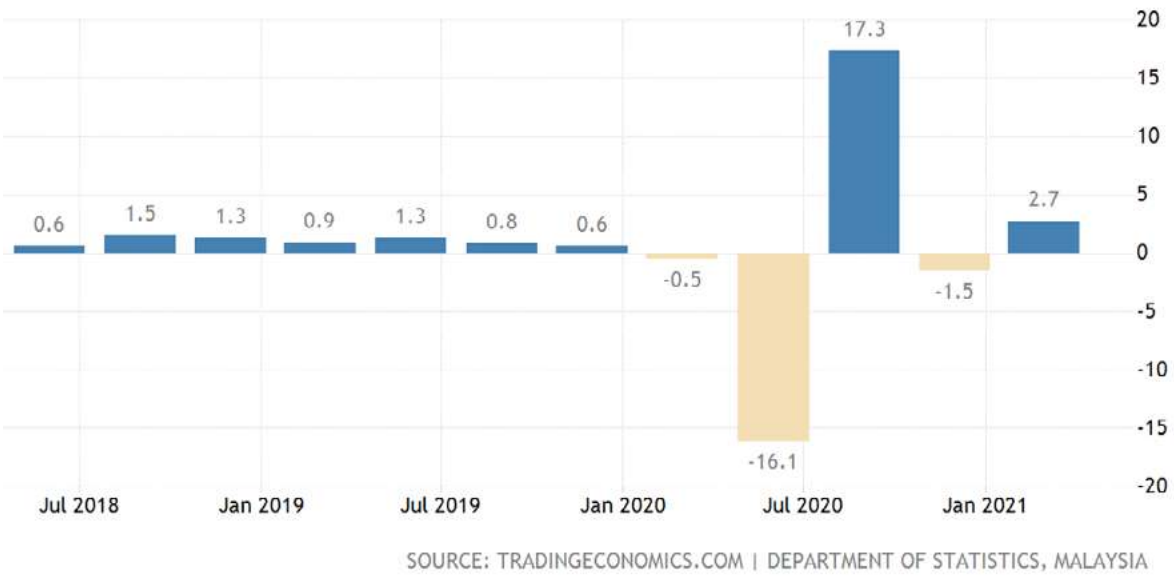
The poor trade-off work done so far is evident in the official figures from the department of statistics. While the government struggled to identify a consistent and effective strategy to address the healthcare emergency, the consequences of lockdowns have been heavily weighing on the economic performance of the country, both in terms of Gross Domestic Product (GDP) and Foreign Direct Investments. Malaysia's economy contracted by 0.5% y-o-y in Q1 of 2021, after a 3.4% decline in Q4 2020 and better than market expectations of a 2.0% fall, due to the reopening of more economic activities in the wake of the Movement Control Order and following various massive stimulus packages by the government and central bank to support the recovery.

Figure 6: Malaysia's GDP annual growth rate – 2018-2021.

Source: https://tradingeconomics.com/malaysia/gdp-growth-annual.

For 2020 as a whole, the economy shrank by 5.6%, the steepest contraction since the 1998 Asian financial crisis, reversing from a 4.3% expansion in 2019.

Figure 7: Malaysia's GDP quarterly growth rate – 2018-2021.



Source: https://tradingeconomics.com/malaysia/gdp-growth.

Despite the fact that the economy grew by 2.7% in Q1-2021 when compared to the previous quarter, expectations are rising about a negative performance in Q2-2021, due to the prolonged movement restrictions and business shut down orders. In fact, despite Bank Negara Malaysia remaining convinced that the country is on the right track to achieve an annual growth of between 6.5 and 7.5% in 2021[63],, the Minister in the Prime Minister's Department (Economy) Datuk Seri Mustapa Mohamed stated that the forecasts may be revised soon[64].This is in line with what the Center for Market Education has declared on several occasions since the end of 2020; in fact, CME CEO Dr Carmelo Ferlito judged Budget 2021 as overly optimistic already in November 2020[65], and he asked for a forecast revision in January 2021 after the implementation of MCO 2.0[66].

These data have a direct cost in terms of human lives, reflected in the unemployment figures. COVID-19-related stay-at-home orders produced one of the worst economic crises since 1929[67]. Unemployment in Malaysia reached a peak of 5.3%, while it is now between 4.5 and 5%. Malaysia's unemployment rate reached "only" 4.5% at the peak of the 1998 financial crisis, while it was around 3.3% before the COVID-19 emergency exploded. Indeed, Arthur Melvin Okun (1962) – with the famous Okun's law, or rule of thumb – explained that a 1 percent decrease in GDP

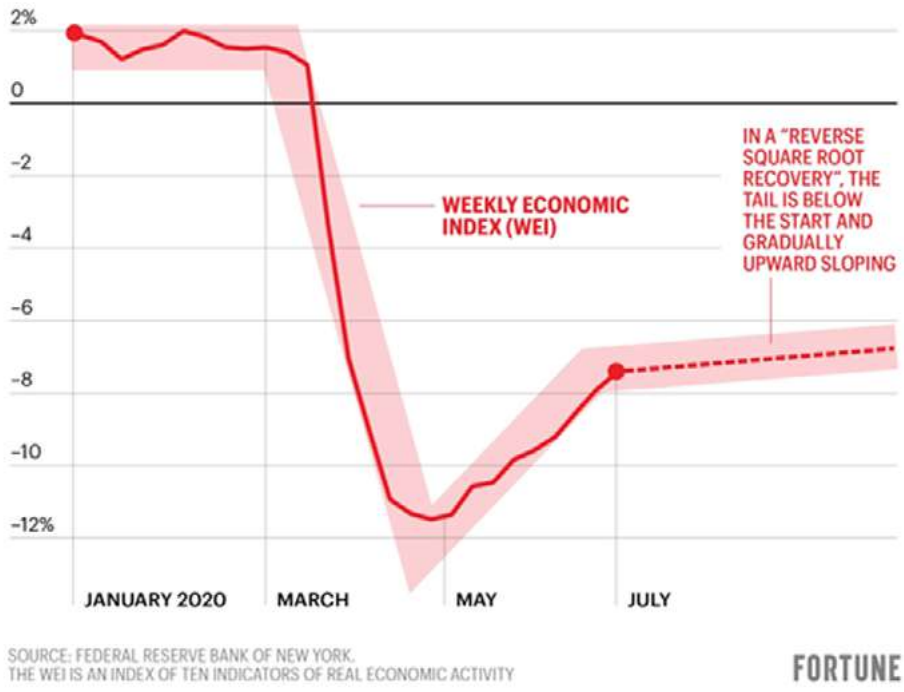
[63] *The Star (2021).*
[64] *NST (2021).*
[65] *Kaur (2020).*
[66] *Chung (2021).*
[67] *Ferlito (2021b).*

is associated with a slightly less than 2 percent increase in the unemployment rate; the post Great Recession data, furthermore, showed that the relationship may have even worsened[68].

Similarly, data coming from Foreign Direct Investments (FDIs) are not encouraging, and Malaysia seems not too concerned about the lost appeal among foreign investors. According to UNCTAD, Malaysia's FDI last year was down 68% from 2019, amounting to just US$2.5 billion (RM10.1 billion), the worst performance in Southeast Asia. In comparison, the whole of the ASEAN region only lost 31% on average last year while globally, all FDI contracted by 42%. The total FDI for ASEAN countries last year was US$107 billion while global FDI stood at US$859 billion. While FDI in the Philippines grew by 29% to US$6.4 billion, other countries in ASEAN reported declines in the range of 50% and below. Thailand's FDI contracted by 50% to US$1.5 billion, Singapore registered a decline of 37%, Indonesia recorded a contraction of 24%, and Vietnam's FDI declined by 10%[69].

In such a scenario, we have argued in several circumstances that the more realistic prediction is to expect a "reverse square root recovery", described in the figure here below.

Figure 8: The "reverse square root recovery".



Source: Sraders (2020).

[68] *Sanchez and Liborio (2012).*
[69] *Tan (2020).*

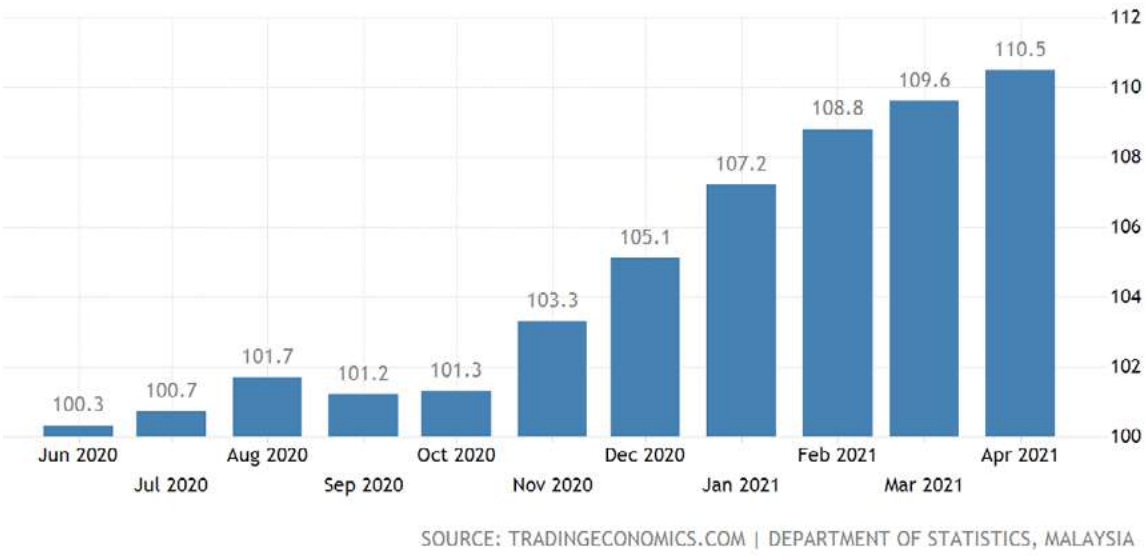
In fact, BNM forecasts would have been realistic only by assuming an immediate end of the pandemic and the reopening of international borders. The main message that the reverse square root shape conveys can be described as it follows:

- A sharp economic decline caused by the containment measures;
- A physiological rebound following the reopening of economic activities, or at least of part of them;
- A stabilization process around a new structural dimension of the economy, re-adapted to take into account life with the virus;
- Flat or moderate growth for a certain period of time, equivalent to the time required for the health emergency to be over, confidence to be re-established, and the production structure to re-adapt to a new situation from the demand side.

The last two stages can last years, according to the evolution of the different variables to be taken into account, among which overcoming the virus's power is only one of them. Ignoring time and its importance for expectations adaptation and production system restructuring is misleading.

Furthermore, however, we need to add to the current analysis the effects created by the expansive fiscal and monetary policies implemented by the Malaysian government and by the Central Bank, policies which also have unintended consequences. We believe that an economic crisis may hit Malaysia and the world precisely in the moment when we think we will be at the inversion point. Such considerations arise from the uncomfortable news we have about inflation and the emerging stagflation as a mix of rising unemployment and rising prices. The pressure on producer prices is already visible in Malaysia, where they grew by 10 percent since June 2020.

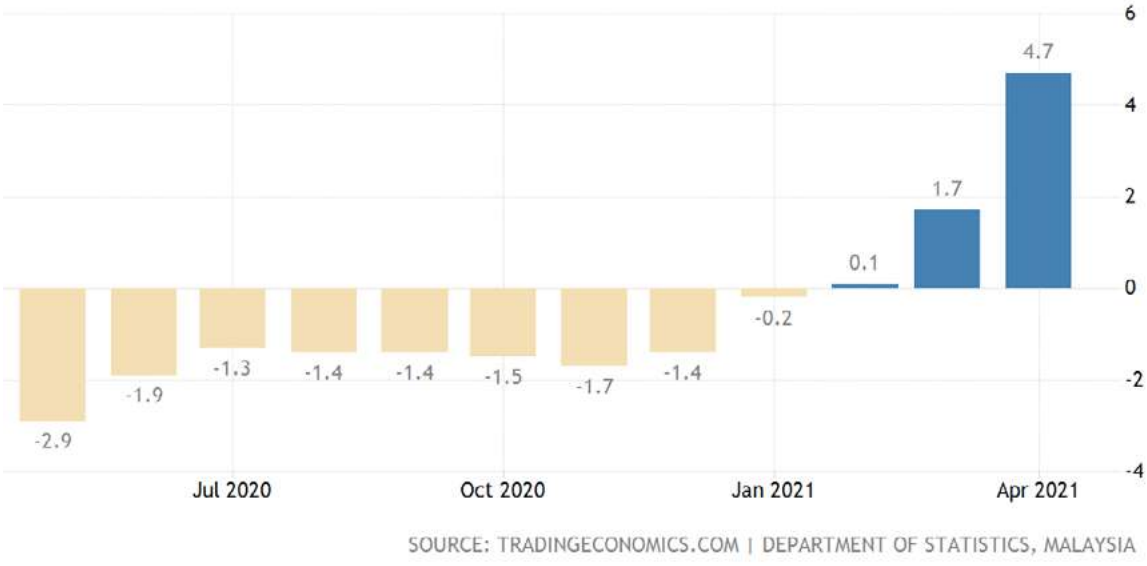
Figure 9: Malaysia Producer Prices – 2020-2021.



Source: https://tradingeconomics.com/malaysia/producer-prices.

The trend is already translated into consumer prices, with inflation reaching 4.7 percent with a radical inversion from the deflationary tendencies produced by the economic crisis related to COVID and the lockdowns.

Figure 10: Malaysia inflation – 2020-2021.



Source: https://tradingeconomics.com/malaysia/inflation-cpi.

As previously mentioned, in the attempt to slow the spread of the virus the Malaysian government (together with most of the world's ruling classes) imposed movement restrictions which have, in turn, worsened the economic conditions of the nation. In order to address the damage created by the lockdowns, the government intervened in the economy with expansive fiscal policies (this is not the place to debate that). At the same time, Bank Negara has maintained a low interest policy in the belief that such a policy would be beneficial for the economy (although we do not believe in the automatic and magical powers of low interest rates[70]). The vicious circle often created by government with the deficit-debts-inflation combination was already highlighted by Adam Smith (1776) 250 years ago.

Unfortunately for us, economic policies do have consequences, intended and unintended. The main problem generated by these expansive policies is that they created a dichotomy between the real economy and the monetary or financial situation. In fact, on one side we have a real economy in trouble: jobs destroyed, capital investments abandoned, businesses closed for good; these phenomena create deflationary tendencies. On the other hand, instead, fiscal stimuli and low rates created an excess of financial means available in the market, in contradiction with the situation of the real economy (or, as it is more appropriate, of the production structure); this is creating inflationary pressures.

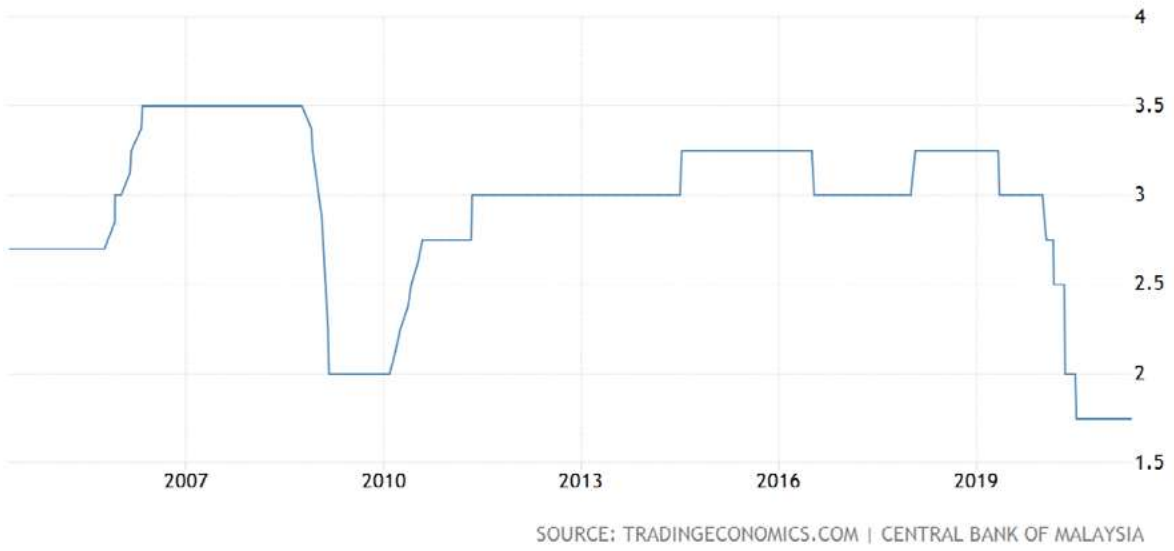
Such a dichotomy is clearly visible in the basic monetary aggregate – M1 – trend and in the reference interest rate behaviour. Such an expansionary approach has been made possible by the recent trend considering *discretion* as the main tool of monetary policy, while an alternative view explains that monetary authorities should also be limited in their discretionary power and central bankers should be bound by rules, in order for a higher degree of predictability to be available to economic actors[71].

[70] *Ferlito (2020b).*
[71] *Boettke, Salter and Smith (2021).*

Figure 11: Malaysia Money Supply M1 – 2016-2021.

Source: https://tradingeconomics.com/malaysia/money-supply-m1.

Figure 12: Malaysia Interest Rate – 1996-2021.



Source: https://tradingeconomics.com/malaysia/interest-rate.

This dichotomy is what is creating the premises for the next economic crisis, which will hit Malaysia and the world *after* the pandemic, when the deflationary tendencies created by the lockdowns are over. In fact, the artificial creation of financial means will impede the deflationary process, which we need in this moment. First of all, the availability of financial resources will drive entrepreneurs toward investments that would had not happened otherwise. However, consumers will

not necessarily save more to finance the new investment decisions (their purchasing power is still compromised and further weakened by inflation). At the same time, however, entrepreneurs regard the present supply of capital and the present rate of interest as an indication that approximately the same situation will continue to exist for some time.

As we have been observing for ten months now, this situation initially brings about an increase in prices of raw materials and of the capital goods produced with them. At the same time, demand for labour increases, to attract workers towards the new investments, making relative wages increase: this in turn encourages demand for consumer goods, and their prices also increase. The inflation initially seen only for raw materials spreads toward consumer prices.

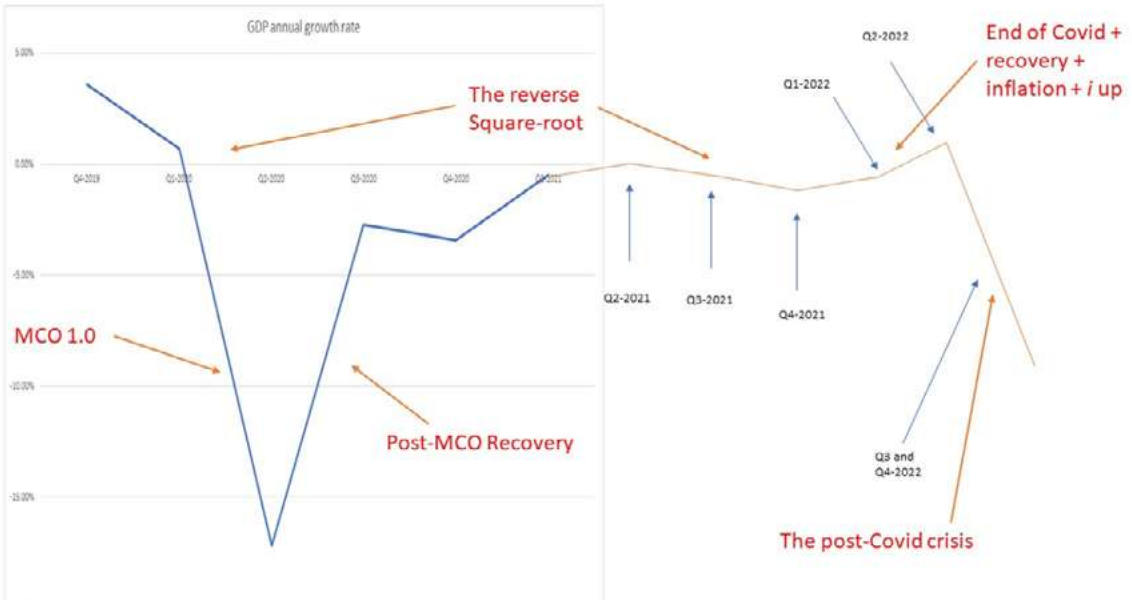
In order to be sustained, this process requires further credit expansion, which would bring about a cumulative increase in prices that sooner or later would exceed every limit. At a certain point, the interest rate cannot but rise, forcing investment projects to be abandoned (capital destruction). It should not be forgotten that monetary policy discretion played a pivotal role in the emergence of the 2007-2008 crisis, among others[72].

We may find ourselves in the situation that, at the peak of the recovery, the economy discovers that it is unable to sustain production oriented beyond its possibilities (because it is on artificial support). Demand for capital goods runs out. Many economic initiatives set up that rely on excess liquidity cannot be completed, although the debts still must be paid. Many companies must be expelled from the system. Capital is scarce and banks raise interest rates. The period of readjustment that follows is called an economic crisis or depression.

[72] *Horwitz (2012); Ferlito (2010); Horwitz and Luther (2010).*

The economic trajectory that we can imagine beyond the reverse square-root path is, therefore, even more unstable. The way in which we see the future economic path of Malaysia is per the following graph[73].

Figure 13: The post-COVID economic crisis.



This will add tension to the fragile situation of Malaysian households, whose debt has already reached 93.3% of GDP. During the recovery, furthermore, innovative debt practices and speculative excesses are encouraged and an unrecognised system fragility can emerge.

Our economy is consequently on the verge of a perilous turn. If inflationary tendencies are not taken seriously and instead the dichotomy between the production structure and the financial system is further incentivised, we may experience a severe economic crisis precisely when the post-COVID recovery will seem to be walking on solid ground.

We need to allow deflation to happen in order to restore purchasing power and to rebalance the financial situation with the real economy. This will allow investments to be driven by consistent savings decisions and the recovery to move onto more stable territory.

[73] *The graph is not intended to give an exact estimation of the GDP figures, but to identify the future trend given the current policy path.*

Such a strategy would need to be combined with a sound economic plan for a true recovery, and not just based on the vicious combinations of lockdowns and subsidies. Such a plan must be built on the necessary restoration of the rule of law, which was suspended with the emergency declaration; in fact, «[c]onstitutional rules and laws which guarantee the ability to communicate allow for better long-term planning and unleash the human creativity necessary to handle unpredictable crises. Recognition of the importance of the rules of reason makes a strong case that rules should be favorable over expediency in times of crisis». Similarly, a true reopening of the economy needs governments to commit to rules which are the preconditions for the market economy to properly work; among them are private property and freedom of contract under the rule of law[74].

A sound economic recovery cannot but be grounded on the importance that private investments have for a country's economy. And investments are mainly driven by profit expectations[75], rather than by the level of the interest rate, whose role is often overemphasized when thinking about economic growth[76]. It is important for entrepreneurs to expect positive returns within a stable and reasonably predictable price framework in order for them to generate new combinations of capital goods that can drive the economic system on a new development path[77]. Thus, in this regard the role of political stability and the rule of law is much more crucial than any stimulus package or subsidy.

[74] *Candela and Jacobsen (2021, p. 52).*
[75] *Hayek, (1939, p. 3); Ferlito (2014, p. 211).*
[76] *Ferlito (2020b).*
[77] *Ferlito (2016 and 2018).*

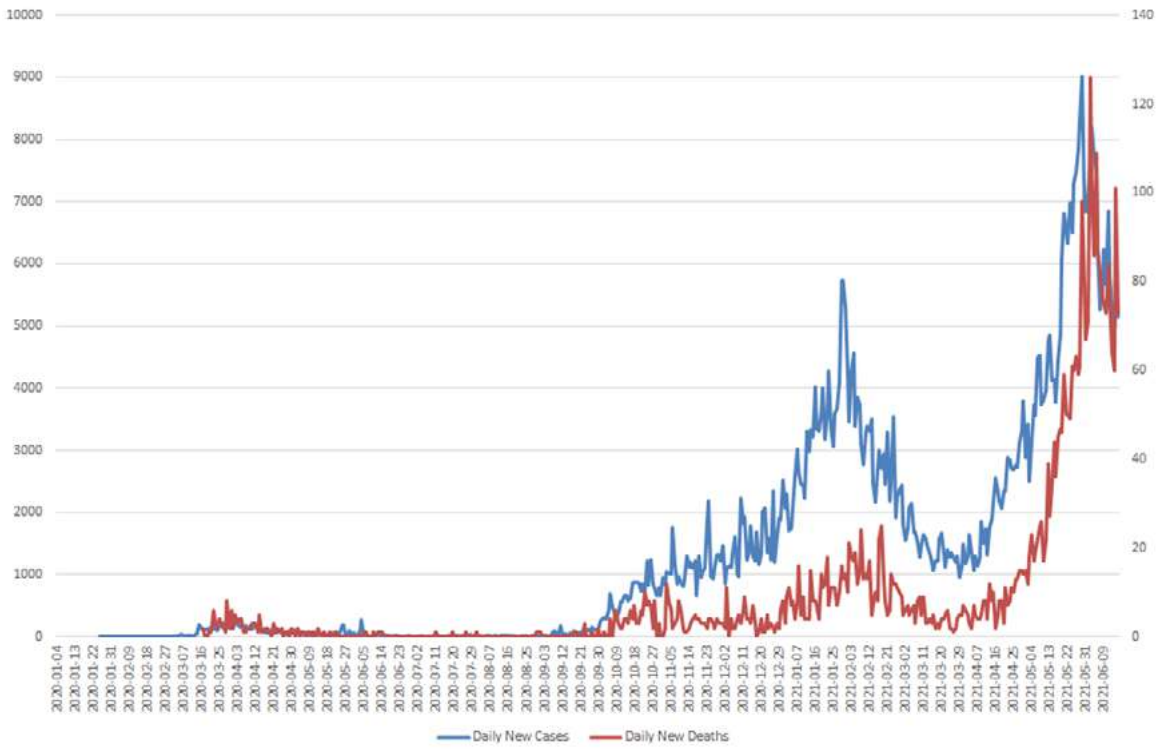
4. Covid-19 In Malaysia: The Numbers

Carmelo Ferlito, Carmine Iavazzo and Yow Chuan Lee

As of 17 June, Malaysia had recorded 673,026 COVID-19 infections and 4,142 deaths linked to COVID-19[78]: so far, thus, around 2% of the population has tested positive to the SARS-CoV-2 virus, and 0.61% of the positive cases (or 0.012% of the population) have lost their lives from complications due to the virus. This means that 99.39% of the detected positive cases have survived. With 0.42% of the world population, Malaysia recorded 0.38% of the world COVID-19 cases and 0.11% of the COVID-19 deaths, meaning that the survival rate in Malaysia is higher than the world average (98%).

However, the behaviour of the pandemic in the country was very different in 2020, when the Southeast Asia country was barely touched and recorded more or less 100 deaths in one year, and in 2021, when instead the figures became more similar to the ones experienced in the West one year earlier.

Figure 14: Malaysia's COVID-19 daily new cases and new deaths.



Source: Our World in Data.

[78] https://www.worldometers.info/coronavirus/.

The graph above shows that at the beginning of the pandemic Malaysia, like other Southeast Asian countries, was hit very mildly by the novel coronavirus. Indeed, in 2020 Malaysia did not report anomalies in its general mortality rate. It would be interesting to observe the figures recorded in 2021.

Table 2: Mortality rate in Malaysia, 2010-2020.

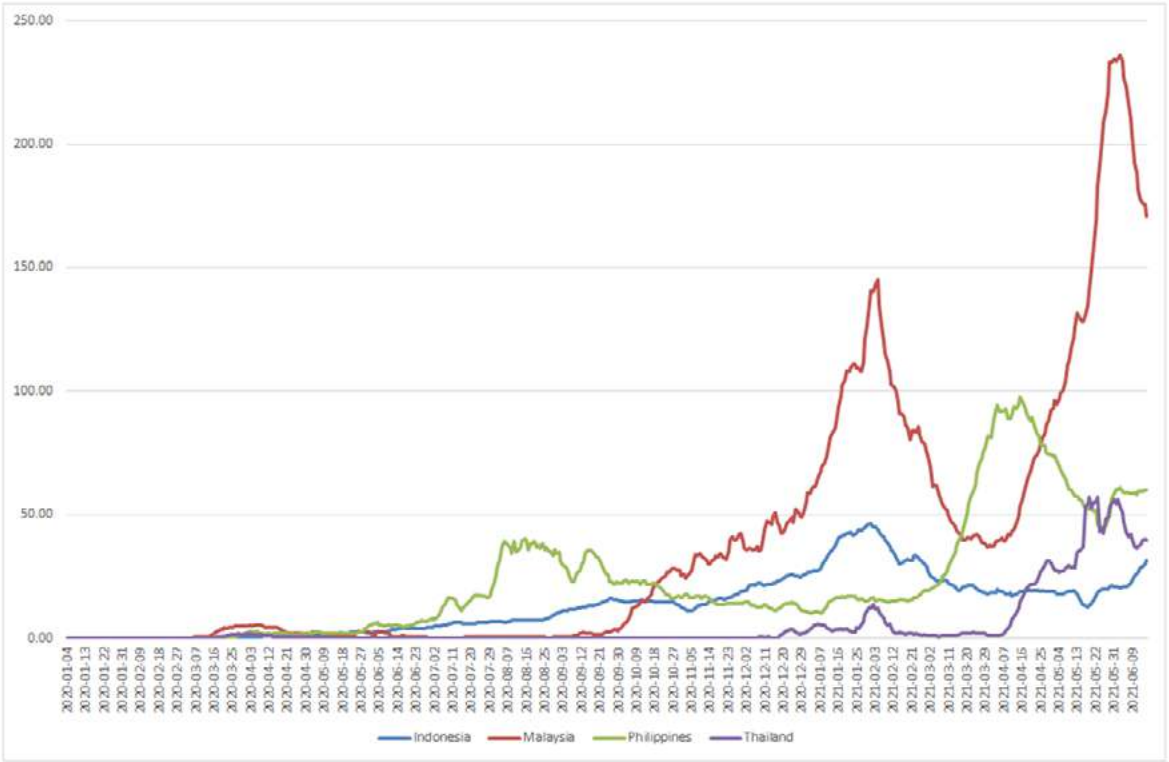
		Total Crude Deaths			Population		Mortality Rate
2021	Q4		43,545				
	Q3						
	Q2						
	Q1	43,545					
2020	Q4	44,390	174,313	0.33%	32,657,300	0.41%	5.3
	Q3	43,178					
	Q2	43,519					
	Q1	43,226					
2019			173,746	1.00%	32,523,000	0.43%	5.3
2018			172,031	2.30%	32,382,300	1.12%	5.3
2017			168,168	3.68%	32,022,600	1.23%	5.3
2016			162,201	4.12%	31,633,500	1.43%	5.1
2015			155,786	3.64%	31,186,100	1.56%	5.0
2014			150,318	5.71%	30,708,500	1.64%	4.9
2013			142,202	2.53%	30,213,700	2.38%	4.7
2012			138,692	2.38%	29,510,000	3.22%	4.7
2011			135,463	3.42%	29,062,000	1.66%	4.7
2010			130,978	-0.27%	28,588,600	1.81%	4.6
2009			131,328	3.33%	28,081,500	1.86%	4.7
2008			127,098	5.33%	27,567,600	1.88%	4.6
2007			120,670	2.46%	27,058,400	1.92%	4.5
2006			117,778	2.03%	26,549,900	1.94%	4.4
2005			115,436	1.98%	26,045,500	1.97%	4.4
2004			113,192	0.40%	25,541,500	2.01%	4.4
2003			112,744	2.15%	25,038,100	2.02%	4.5
2002			110,367	5.58%	24,542,500	2.13%	4.5
2001			104,531	3.80%	24,030,500	2.28%	4.3
2000			100,707		23,494,900		4.3

Source: Department of Statistics Malaysia

It is evident from the data that in 2020 there was no significant increase in the total number of deaths. On the contrary, it saw the lowest increment for the past 10 years at 0.33%. Breaking down 2020 into 4 quarters, we can also see that there were not any spikes in Q2 (April to June) as the first MCO went into effect on 18th Mar 2020. It is very similar to pre-lockdown Q1 (Jan to Mar), which could suggest that non-pharmaceutical interventions such as face masks and lockdowns did not have any significant impact on mortality. Any backlogs or lags in death reporting in Q2 would also reflect in Q3 and Q4, but that is not the case.

When instead the virus situation started to become more serious in September 2020, the haphazard lockdown strategies failed to achieve the hoped-for results for different reasons: lack of a comprehensive strategy *beyond* lockdowns, seclusion exhaustion by citizens (who became unable to self-constrain when the restrictions were eased precisely because of the haphazard strategy), and weakened immune systems produced by seclusion. Unfortunately, from being praised as one of the most effective COVID fighters, Malaysia is currently the country recording the highest number of infections and deaths per million people in the region.

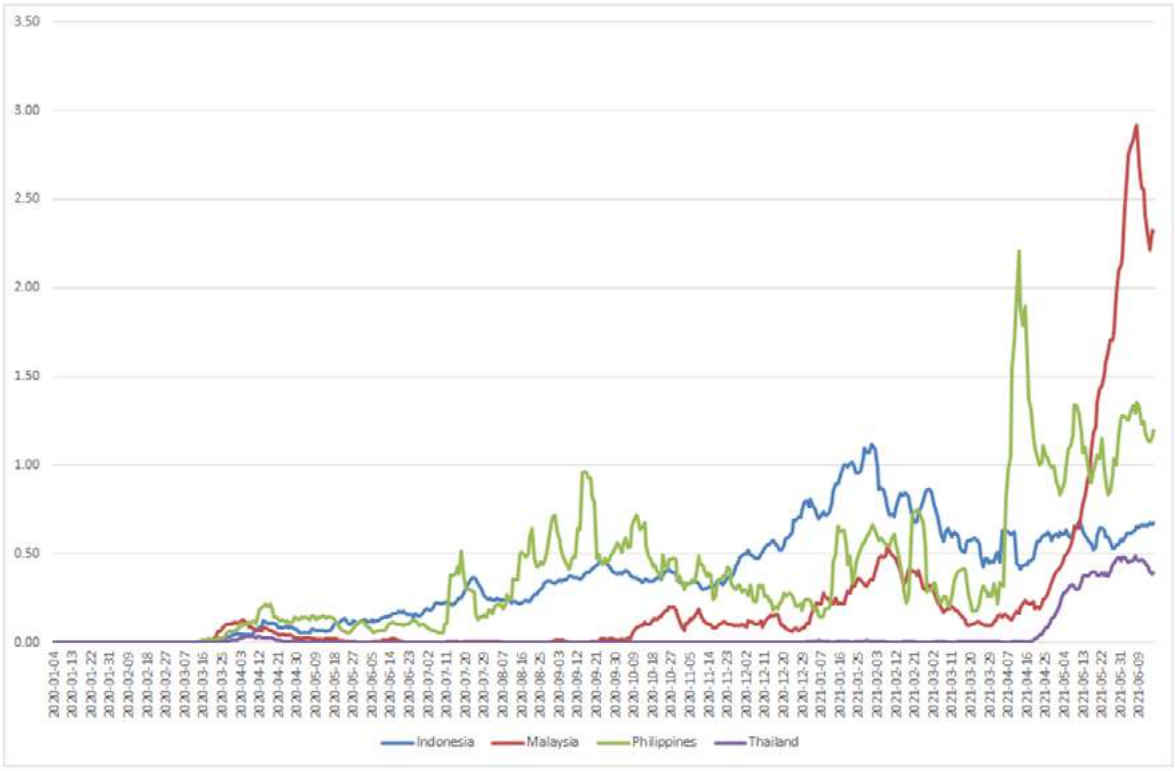
Figure 15: Daily new infections per million people in Indonesia, Malaysia, Thailand and The Philippines (7-day average).



Source: Our World in Data.

While the number of cases may be affected by testing, Malaysia is unfortunately also leading the data in deaths per million people.

Figure 16: Daily new deaths per million people in Indonesia, Malaysia, Thailand and The Philippines (7-day average).



Source: Our World in Data.

What the graph shows is that countries which adopted a more relaxed approach in terms of movement restrictions have been able to minimize their economic losses, while at the same time they have not experienced the dramatic mortality that some analysts predicted. The case of Indonesia, in this regard, is paradigmatic. It is likely that the circulation of the virus among the population has accelerated the transformation of the pandemic into an endemic, and it has indeed stabilized the number of deaths; if Indonesia had also adopted a strategy of targeted protection like the one we advocate below, together with mass testing, it could have become a very successful case study in the region.

While the number of daily cases and deaths are readily available, what we need for a more targeted strategy, as advocated in the next section, is demographic information with regard to mortality in particular. Unfortunately, the Malaysian authorities started to publish detailed information about COVID-19 fatalities only on 21 May 2021. We have elaborated this information in the hope that the

results may be used not only for statistical purposes but for the implementation of more targeted approaches, which better fit the disease we are fighting. Since 21 May, then, Malaysia has recorded 2,103 COVID-19 deaths, which represent slightly more than 50% of the total fatalities recorded up to 17 June; this figure is important in itself, as it shows how the situation rapidly worsened over the past month.

Within the sample analysed, 897 individuals (42.65%) were female and 1206 (57.35%) were male. The average age was 65.8 and the median age 67. In fact, 71.18% of the deaths were recorded among individuals aged 60 and above; the complete age distribution was as per the table below.

Table 3: COVID-19 deaths in Malaysia by age distribution, 21 May – 17 June 2021.

Age Group	Deaths	%
Over 60	1497	71.18%
50-59	350	16.64%
40-49	137	6.51%
30-39	80	3.80%
20-29	35	1.66%
0-19	4	0.19%
Total	**2103**	**100.00%**

Furthermore, 300 of the recorded deaths, or 14.27% of the sample, did not present any previous illness, while 1803 (85.73%) had previous conditions. Instead, 418 subjects (19.88%) had one comorbidity, 533 (25.34%) had two, 538 (25.58%) had three, and 314 deaths (14.93%) were reported among individuals with four co-existing illnesses. The following table shows the age distribution and the number of comorbidities.

Table 4: Age distribution and number of comorbidities.

			Number of Comorbidities					
Age Group	Without Previous Conditions	%	1	2	3	4	Total w/comorbidities	%
Over 60	182	12.16%	260	396	418	241	1315	87.84%
50-59	60	17.14%	62	79	90	59	290	82.86%
40-49	28	20.44%	45	36	18	10	109	79.56%
30-39	20	25.00%	35	13	10	2	60	75.00%
20-29	10	28.57%	13	8	2	2	25	71.43%
0-19	0	0.00%	3	1	0	0	4	100.00%
Total	300	14.27%	418	533	538	314	1803	85.73%
Percentage			**19.88%**	**25.34%**	25.58%	14.93%		

While the government is still reporting the number of present comorbidities, it has stopped specifying the kinds of illnesses; in our sample of 2,103 deaths, therefore, 1,605 present diseases are specified, and 2,7449 are not. The table below gives the distribution of present conditions among patients who died of COVID-19. High blood pressure (31.28%) and diabetes (25.55%) are the most frequent comorbidities, followed by chronic kidney disease (9.47%), dyslipidemia (9.16%) and heart disease (8.72%).

Table 5: Comorbidities among COVID-19 deaths by type and number.

Comorbidity	Number	%
Alzheimer	2	0.12%
Asthma	17	1.06%
Cancer	31	1.93%
Chronic Kidney Disease	152	9.47%
Diabetes	410	25.55%
Dyslipidemia	147	9.16%
Gout	27	1.68%
Heart Disease	140	8.72%
High Blood Pressure	502	31.28%
Hypertension	12	0.75%
Hypothyroid	10	0.62%
Leukemia	5	0.31%
Liver Disease	12	0.75%
Lung Deseas	23	1.43%
Obesity	33	2.06%
Parkinson	8	0.50%
Stroke	64	3.99%
Thalassemia	6	0.37%
Thymoma	1	0.06%
Turberculosis	3	0.19%

These data, now publicly available, should be used to develop targeted protections for the categories which are more at risk. It is clear that a focused approach should be directed toward people aged 60 and above with multiple comorbidities,

while for other age groups early detection is the best way to avoid development of severe symptoms. Similarly, data clearly point in the direction that school closures are an unnecessary measure, as will be further discussed in the next section.

For improving the scope of action, it is also interesting to observe the distribution of cases and deaths among the different states as a percentage of the population.

Table 6: Regional distribution of COVID-19 cases and deaths in Malaysia.

State	Population	Cases	Cases/Pop	Deaths	Deaths/ Cases	Death/Pop
Selangor	6,541,700	222,249	3.40%	1213	0.55%	0.019%
Sabah	3,932,000	66,978	1.70%	514	0.77%	0.013%
Johor	3,776,200	66,276	1.76%	481	0.73%	0.013%
Kuala Lumpur	1,796,700	69,490	3.87%	415	0.60%	0.023%
Sarawak	2,811,400	58,034	2.06%	366	0.63%	0.013%
P Pinang	1,783,600	32,644	1.83%	113	0.35%	0.006%
Kelantan	1,904,900	32,896	1.73%	187	0.57%	0.010%
N Sembilan	1,142,200	36,194	3.17%	243	0.67%	0.021%
Perak	2,513,600	23,946	0.95%	117	0.49%	0.005%
Kedah	2,178,900	22,747	1.04%	189	0.83%	0.009%
Melaka	936,900	15,460	1.65%	113	0.73%	0.012%
Pahang	1,679,700	11,818	0.70%	82	0.69%	0.005%
Terengganu	1,247,300	10,829	0.87%	69	0.64%	0.006%
Labuan	100,500	6,491	6.46%	82	1.26%	0.082%
Putrajaya	92,600	2,144	2.32%	12	0.56%	0.013%
Perlis	255,200	568	0.22%	6	1.06%	0.002%
Total	**32,693,400**	**678,764**	**2.08%**	**4202**	**0.62%**	**0.013%**

Interesting considerations may be further drawn from how differently the states weigh in the Malaysian total in terms of population, total cases and total deaths.

Table 7: States' contribution to total population, total cases and total deaths.

State	Pop. %	Cases %	Deaths %
Selangor	20.01%	32.74%	28.87%
Sabah	12.03%	9.87%	12.23%
Johor	11.55%	9.76%	11.45%
Kuala Lumpur	5.50%	10.24%	9.88%
Sarawak	8.60%	8.55%	8.71%
P Pinang	5.46%	4.81%	2.69%
Kelantan	5.83%	4.85%	4.45%
N Sembilan	3.49%	5.33%	5.78%
Perak	7.69%	3.53%	2.78%
Kedah	6.66%	3.35%	4.50%
Melaka	2.87%	2.28%	2.69%
Pahang	5.14%	1.74%	1.95%
Terengganu	3.82%	1.60%	1.64%
Labuan	0.31%	0.96%	1.95%
Putrajaya	0.28%	0.32%	0.29%
Perlis	0.78%	0.08%	0.14%
Total	**100.00%**	**100.00%**	**100.00%**

Selangor and Kuala Lumpur, among others, contribute to total cases and deaths proportionally more than their percentage of the total population, while Perak and Pahang move in the opposite direction. Further investigating the source of these trends, beyond population density, could produce further interesting results for better targeted actions.

5. A Comprehensive Plan to Fight Covid-19 in Malaysia

Carmelo Ferlito, Consilz Tan, Jochen Fries and Steven Sieff

One of the most striking things during the evolution of the pandemic in Malaysia was the total lack of a clear strategy to tackle the emergency. In fact, despite the situation today being very different from the one analysed in 2020[79] a strategy – which could be evolutionary – is needed to address such a complex phenomenon.

Instead, the behaviour of the Malaysian government has been one of a fideistic approach in the power of lockdowns, while waiting – with similarly fideistic expectations – for the vaccination to become available. Therefore, lockdowns have been implemented on different occasions, following relaxations and the natural re-increase in cases, which in turn brought new lockdowns. As we write, the strategy seems not to have evolved, and the government is waiting for the lockdown to play its magic trick in order to reopen a bit of the economy[80]. But what will happen when cases start to rise again? It goes without saying, moreover, that the numbers of total infections can be easily manipulated by playing with the number of and the targets for testing[81]

Meanwhile, what the government announced on June 15 to be the "exit strategy" proved to be just another "wait and see", in the hope that COVID-19 cases miraculously might go down by 90% in the space of six months and then remain low forever. How this is going to happen, the prime minister failed to explain[82]. Just a few hours before the announcement, only a statement by the former minister of Finance, Dato Johari Abdul Ghani, brought to light that someone has a clear strategy in mind[83], but it seems that the current government is not open to listening to different proposals.

In this section we will attempt to fill in the gap by highlighting what we believe to be a reasonable and effective strategy, grounded on the respect of human liberties and on an attempt to properly weigh the trade-offs of the case.

[79] *See, in example, Ferlito and Perone (2020).*
[80] *Shah (2021).*
[81] *CME (2021).*
[82] *Kaur (2021).*
[83] *FMT (2021b).*

5.1. Evidence about lockdowns

The outbreak of COVID-19 at the beginning of 2020 as a worldwide phenomenon pushed most of the world governments to implement non-medical interventions to try to contain the phenomenon, despite the fact that on several occasions in the past the World Health Organization (WHO) had discouraged implementing movement restrictions as an effective way to contain pandemics. WHO (2019) also warned about ethical concerns and disproportionate costs implicit in compulsory mass isolations, together with limited evidence about feasibility and effectiveness. It is not surprising, then, that stay-at-home orders were issued and implemented faster in states which economically are relatively less free[84].

Nonetheless, when Ferguson et al. (2020) published their infamous non-pharmaceutical recommendations, advocating for lockdowns in order to avoid hundreds of millions of deaths, despite no other paper from the past pointing in that direction, worldwide rulers rushed in following those recommendations. In all likelihood, the authors did not aim to contribute to the most massive social control experiment ever tried in human history; they only intended to suggest an emergency measure to be adopted while waiting for a more comprehensive strategy. The blame should not be on Ferguson and his team, who tried to make estimations which must always be presented as a range, but on those who used those estimations for political purposes, making them a kind of absolute truth which cannot exist in science.

When lockdowns were initially implemented (and it is worth recalling that China never did a total lockdown), everybody was thinking that they would help flatten the curve, but nobody really thought that they could be the way to break the chain of infections, as instead we have heard several times in Malaysia. One of the first academic voices to raise concerns about the heavy costs of lockdowns was Martin Kulldorff (2020), a professor of medicine at Harvard Medical School. He is among the original signatories of the Great Barrington Declaration, discussed below, and still a sound voice on the heavy costs that stay-at-home orders have, in particular on the most socially and economically vulnerable segments of the population[85].

[84] *McCannon and Hall (2021).*
[85] *Kulldorff (2021).*

Photo by Kelly Sikkema on Unsplash

Unfortunately, after 15 months, lockdowns are more fashionable than ever and it seems that in many cases official authorities adopted a fideistic approach to them, believing not that they can help buy time while a sounder strategy is implemented, but rather that they really feature thaumaturgical or miraculous properties. Unfortunately, as statistics have demonstrated, lockdowns can, at best, help buy time while indeed something else, and possibly a medical strategy, is put in place. Without that strategy, they are a mere waste of time. A review of the literature seems to support our vision.

In fact, a lockdown as a containment measure cannot be socioeconomically effective and efficient compared to other measures, such as detection and isolation of infected individuals, contact-tracing, physical distancing, and several other strategies to curb the spread.

Significant results on the efficacy of lockdowns are presented in Bendavid et al. (2021). The authors analysed the most restrictive nonpharmaceutical interventions (NPIs) for controlling the spread of COVID-19, such as mandatory stay-at-home orders and business closures. They evaluated the effects on epidemic case growth of more restrictive NPIs (mrNPIs), above and beyond those of less-restrictive NPIs (lrNPIs). In the study it was found that the implementation of different kinds of NPIs was associated with reductions in case growth in nine out of ten countries. However, after an analysis of the effects of lrNPI, there was «no clear, significant beneficial effect of mrNPIs on case growth in any country». The

authors concluded that, while «small benefits cannot be excluded, we do not find significant benefits on case growth of more restrictive NPIs. Similar reductions in case growth may be achievable with less-restrictive interventions».

In the study conducted by Chaudry et al. (2021), low levels of national preparedness and scale of testing were associated with increased national case load and overall mortality. According to their research, the level of national preparedness was assessed using the global health security (GHS) index. This index consists of six categories:

1. Prevention of the emergence or release of pathogens;
2. Early detection and reporting of epidemics of potential international concern;
3. Rapid response to and mitigation of the spread of an epidemic;
4. Sufficient and robust health system to treat the sick and protect health workers;
5. Compliance with international norms;
6. Overall risk environment and country vulnerability to biological threats.

Chaudry et al. (2021) found that full lockdowns may slow down the transmission of an epidemic, which in turn lightens up the overcapacity of a country's health system[86]. This would also lead to increase of recovery rates. Nonetheless, there is no association between the death rate and the stringency of the measures to fight the epidemic, including lockdowns[87]. Other and more important factors are associated with the COVID-19 mortality rate.

Atkeson, Kopecky and Zha (2020) also suggested that there are several other factor(s) that led to reduced rates of early and rapid transmission, and that we have overstated the importance of lockdowns[88]. With that, the political measures that were aimed to fight the virus seem to not be entirely effective, and we can see that full lockdowns have more harm on our face-to-face social interaction and economic activities.

There are studies on the effect of lockdowns on infection rates using complex epidemiological models. However, Loewenthal et al. (2020) examined the association between mobility and COVID-19 mortality, as well as the lockdown response time, duration, and strictness. As is evident from their research, lockdown

[86] *See also Rice et al. (2020).*
[87] *De Larochelambert et al. (2020).*
[88] *See also Chin et al. (2020); Kuhbandner et al. (2020).*

duration and strictness were not significantly correlated with the COVID-19 death rates. Rather, the lockdown response time is essential in impacting the mortality rates. In other words, tight lockdowns and longer duration lockdowns have been unnecessary. The difference between the start date of distancing and the first day in which ten deaths were recorded, or the response time, was the most important attribute.

Notably, strategies to curb the spread of the virus include herd immunity and the resilience of the community. De Larochelambert et al. (2020) highlighted that political intervention, such as restricting physical activity, will not be good for a population's collective immune system. In addition, a strict or prolonged lockdown could bring about more severe socioeconomic damage[89]. As we have seen, similar conclusions are reached by Bendavid et al. (2021), that there are no significant benefits on COVID-19 case growth with more restrictive lockdowns. They emphasized that more restrictive lockdowns are creating other harmful health effects on society, such as missed vaccinations, domestic abuse, mental health, economic consequences with health implications, and so forth.

Along similar lines, staying at home only has a temporary positive externality in curbing the spread of the virus. It turns into a prolonged negative externality when the disease worsens. Households did not or could not afford to implement a wide range of prevention protocols, as was done in schools, businesses, and organizations, and this in turn placed households at a higher risk of being infected with the virus[90].

Kuhbandner et al. (2020) also suggested that school and kindergarten closures are not helping reduce the spread of the virus, and their findings are supported by other research[91]. Rice et al. (2020) employed the CovidSim model and predicted that «school closures and isolation of younger people would increase the total number of deaths», even though a lockdown postponed the rise of subsequent waves and reduced the overcapacity of intensive care unit (ICU) beds. Similar results on the inefficacy of school closures are documented in Lim, Sazuki, Weerasena and Ferlito (2021, p. 10), in which the authors also estimated that prolonged disruptions in education are costing Malaysia RM 80 billion per year[92]

[89] *Loewenthal et al. (2020).*
[90] *Mulligan (2021); see also Madewell et al. (2020) and Thompson et al. (2021).*
[91] *Danis et al. (2020); Davies et al. (2020); Viner et al. (2020).*
[92] *Lim, Sazuki, Weerasena and Ferlito (2021, p. 16).*

Similarly, curfew measures have also proven unable to play a decisive role in containing the spread of COVID-19. With reference to Germany, de Haas, Götz and Heim (2021) suggested «that night curfews are not an effective measure to limit virus transmission when various other NPIs are already imposed. At the same time, there is no indication that the night curfews from 9 pm to 5 am worsen the epidemic. They do not seem to increase incidences». Apicella and Gandini (2021) also mentioned a study with regard to France, where curfew measures worsened the virus situation by concentrating more people in the same places within a more limited time window. The authors quoted more studies with similar results for different countries and noted that these measures may be associated more as governments attempt to extend paternalistic and moral controls rather than those that are efficacious in the fight against COVID-19.

So far, we have seen that lockdowns and other NPIs, such as school closures and curfews, are, at the very least, questionable measures for preventing the spread of COVID-19. Positive outcomes, if any, can be temporary at best, and easily lost if a more comprehensive strategy (which can only be medical) is not implemented. But there is more: lockdowns can even be harmful, not only in the terms we have seen in the trade-off analysis proposed earlier in this paper, but also from a purely medical perspective.

Several studies have been devoted to demonstrating how lockdowns can worsen medical conditions, and mental health is an issue we will have to face in the very near future. To remain in the realm of physical illnesses, and just as an example, Katsoulis et al. (2021) estimated that in England 97,755 to 434,104 individuals would be at a higher risk for COVID-19 over one year simply because during lockdowns they transition from normal weight to overweight, from overweight to obese, and from obese to severely obese. Increased obesity problems, in turn, can increase the risk of developing other non-transmissible diseases, such as diabetes[93] and cardiovascular diseases[94], strengthening the syndemic effect we discussed above.

Furthermore, we should not disregard the possible association between the increased stress that a prolonged situation of seclusion (lockdown) can create and its linkage with cancer, at least with the possibility of cancer patients worsening their conditions. There is agreement in science that being in a constant state of

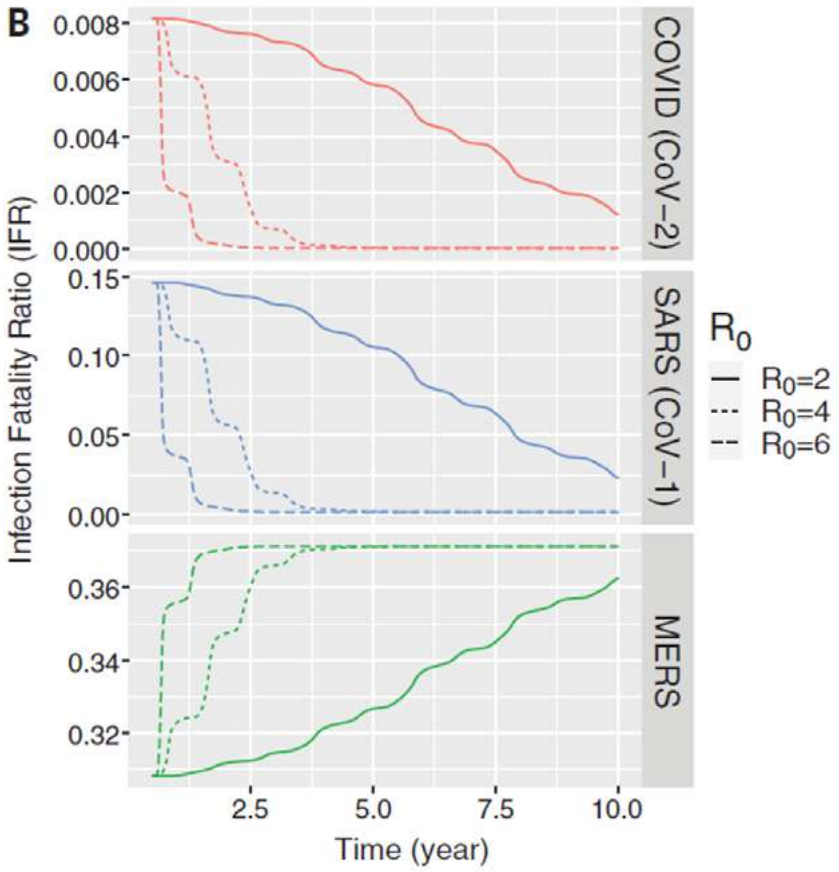
[93] *See, among others, Smith Barnes (2011).*
[94] *See, among others, Carbone et al. (2019).*

stress is a risk factor for cancer and its progression, and that inflammation is likely to blame. When we are stressed, our body releases a surge of hormones, including adrenaline and cortisol, that triggers various inflammatory responses; when we are in a constant state of psychological stress, those triggers do not shut off, which could lead to chronic inflammation and, potentially, cancer growth or cancer metastasis (CTCA, 2019). In patients who already have cancer, studies have found that stress is linked to tumour growth (CTCA, 2019). We should not forget that cancer kills almost 10 million people *every year*, and it is the second cause of death worldwide, second only to cardiovascular diseases (almost 18 million)[95]. In Malaysia, cancer killed 29,530 individuals in 2020[96].

The fact which is instead a source of high concern is the prolonged duration of the pandemic that can be generated by lockdowns; indeed, prolonged movement restrictions are a way to increase the emergency length rather than to shorten it. Lavine, Bjornstad and Antia (2021) analysed the possibility for SARS-CoV-2 to transition from a pandemic to an endemic, like several other human coronaviruses that cause multiple reinfections and generate sufficient immunity to protect against severe developments in adult subjects. The authors explained that, in order for such a transition to happen, we need a shift in the age distribution of primary infections to younger age groups, and this is possible by allowing the virus to spread at a faster rate. Therefore, all the measures that aim to reduce the rate of transmission R0, like lockdowns, by reducing exposure to limit immune system responses, will likely slow the transition to endemicity. In fact, the paper concluded that by aiming to keep a low R0, the infection fatality rate (IFR) will take more than 10 years to reach endemicity levels[97]. The graph below shows precisely how IFR can be reduced at a higher rate only with a higher R0. These conclusions are in line with the targeted protection we advocate for in the next section.

[95] https://ourworldindata.org/cancer.
[96] *Globocan 2020.*
[97] *Lavine, Bjornstad and Antia (2021, p. 744).*

Figure 17: IFR and R0 for different coronaviruses.



Source: Lavine, Bjornstad and Antia (2021, p. 744).

In light of these considerations, which policymakers know, the question arises why «have policymakers not learned that these policies are ineffective means of minimizing physical suffering from the health effects of the virus and adapted accordingly, especially given the fact – which has always been obvious – of their deleterious societal effects? Why do policymakers continue to try the same lockdown measures over and over again, rather than looking for potentially more effective alternatives?»[98]. While some politicians may have fallen in love with these measures and continue believing in their effectiveness despite scientific evidence pointing in the opposite direction, others may simply find it attractive to pursue the same policy because doing otherwise would mean recognizing an earlier mistake; therefore, changing policy would add to the trade-off analysis the difficult task of acknowledging an error, something never appealing in politics[99].

However, here we cannot but look for a different strategy.

[98] *Scheall and Crutchfield (2021, pp. 23-24).*
[99] *Scheall and Crutchfield (2021, p. 20).*

5.2. Targeted protection

The analysis conducted so far points in the direction of the need for a targeted protection approach, aiming to achieving herd immunity while at the same time safeguarding those categories of people that are more vulnerable to the disease under examination. The first organized group of doctors pointing policy makers in this direction was the one united under the Great Barrington Declaration (https://gbdeclaration.org/) launched by Martin Kulldorff[100], Sunetra Gupta[101] and Jay Bhattacharya[102], and co-signed by 44 other scientists worldwide.

As a reaction to current pandemic policies, the Great Barrington Declaration was established by a network of epidemiologists and health scientists who had serious concerns about the consequences on physical and mental health of specific groups within the population, based on current COVID-19 policies. So far, these policies have caused devastating and irreparable damage both to young and elderly people such as physical and mental health, lower childhood vaccination rates, worsening cardiovascular disease outcomes, and fewer cancer screenings, which will lead to excess mortality in the years to come. The current restrictions especially impact the underprivileged (working class people and young people) and the quality of life of elderly people today, but they also undermine the quality of life for our young generations in the future. The declaration was established to inform policymakers and to give them the opportunity to take responsibility and readdress these issues now.

One result of targeted protection would be to achieve herd immunity more quickly. In order to develop a natural level of herd immunity, an approach where uniform policies are applicable to all is not justifiable given the unnecessary damage caused to the elderly and children. Therefore, as the needs of elderly and more vulnerable people are different from the needs of children and young people, different policies should be in place to address the needs of different groups of the population. Giving special, focused protection to elderly people while allowing young people and less vulnerable people to continue their lives with a different set of adequate measures would be more effective in serving different needs.

[100] SProfessor of medicine at Harvard University, a biostatistician, and epidemiologist with expertise in detecting and monitoring infectious disease outbreaks and vaccine safety evaluations.
[101] Professor at Oxford University, an epidemiologist with expertise in immunology, vaccine development, and mathematical modelling of infectious diseases.
[102] Professor at Stanford University Medical School, a physician, epidemiologist, health economist, and public health policy expert focusing on infectious diseases and vulnerable populations.

In this section we will describe a few aspects which should be taken into account while implementing those targeted protective measurements. For example, at what cost and to what extent is focused protection justifiable considering scarce time resources and our precious freedom? If measures were implemented correctly, acquired immunity levels would increase over time, which would eventually result in an infection rate decrease. Finally, the status where infection rates are organically stabilized – herd immunity – should be the main focus of all policymakers. Vaccination programs can be implemented simultaneously to further support and accelerate this process.

The goal of this approach is to minimize mortality (rather than infections), as well as social and mental harm until herd immunity is established, while maximizing the beneficial effects to those who have the most to gain (capacity to benefit), those who suffer the most (severity of condition) and those who would suffer the most over time. The approach is two-fold: On the one hand this approach would allow less vulnerable people and people exposed to a minimal risk of death to continue their lives in a "normal" way by implementing an organically grown immunity. Supported by minimal and basic implementable measures, such as washing hands or using PPE, these people could continue going to work in their offices without the need for working at home, children would be free to continue to go to school, and sports activities would be allowed to take place. On the other hand, policies should focus more on the most vulnerable categories of the population, such as elderly people, and implement adequate protective measurements in their environments, such as only allowing acquired immunity staff members in nursing homes, having food delivery systems in place for retirees, and putting policies in place for elderly people to meet outside to maximize their life quality and comfort.

This approach of allowing those who are at minimal risk of death to live their lives normally to build up immunity to the virus through natural infection, while better protecting those who are at highest risk, is called "Focused Protection".

One could argue that the current lockdown policies for all, thus also in care homes, could be considered as unreasonable or not necessary, as not serving the goal of what effective measurements should be. Focused protection with adequate measurements rather than purely restrictive measurements would be more reasonable. Of course, there is a need for some sort of restrictive measurements

but to what extend are they justifiable, and at what cost should we accept them? Is life duration more important than life quality, and who decides this? These are critical questions that have been avoided so far, showing a frightening trend in the will of people to have crucial decisions for their lives made by politicians; this trend has been more worrying in Asia.

Guibilini (2021a) warned about the gap between the reasonability of restrictions and state paternalism. Referring to scarcity of resources (time), wasting time for elderly generations can be tragic, especially knowing that it is not their choice but a State imposition. Not being allowed to see one's relatives and beloved ones, or being denied the company of a beloved one during the last moments of one's life, is cruel. Yet, in addition to physical and mental health costs, many elderly people spend the last days of their lives in loneliness and even die alone under the current pandemic restrictions. The right balance between the length of life and quality of life is a matter of personal assessment and can therefore never be imposed by any medical expert, government, or other individual. Deciding on behalf of someone else that certain risks are not worth taking because living longer would be more important than living well is simply not justifiable, because it takes away the freedom of choice of each individual.

In the UK, after 60% of the population was vaccinated, people in care homes still had to wait months to see their loved ones, and then only under very strict restrictions limiting the number of visits, no hugging or physical contact, and requirements to wear PPE. As a result, these restrictions diminish significantly the meaningfulness of these meetings and do not actually make up for the lost period in isolation. With an average of two more years to live, of which one year of freedom, connections, and meaningfulness is taken away, is hard if not impossible to justify, and certainly to impose on any human being. The freedom and opportunity to decide what is meaningful in life matters a lot the elderly, because of their time scarcity and because it reflects their true personalities. Thus, before taking freedom of choice away from elderly people, policy makers should realize the value of this freedom.

The current policies of lockdowns for all are devastating policies, including for young people and children. With schools closed, quarantine measures, and the removal of social support and safety nets, the mental health of youngsters is damaged, not only now but hypothesizing about their future. Let our children be our future! Ellen Townsend (2021) pointed out the effects of loneliness or social

isolation suffered by children, which are impacting the overall health and well-being of children and are leading to anxiety and sleep disorders and depressions; suicide rates are spiking, and hysteria is another rising symptom. Furthermore, she claimed that the impact of loneliness on children is as severe as obesity. Cases who need clinical support have increased from one in nine to one in six, which is about five children in a class of 30. Closing schools not only reduces children's cognitive skills and is linked to behavioural risks such as criminality, but it also increases the risk of a shortened life expectation and reduced chances of success in life. Last but not least, domestic violence and child abuse has increased by 43%. Townsend continued that we learned from history to always prioritise women and children, the most vulnerable in society, because our children are our future. Current policies – we believe - are not adequate simply because children are not exposed to a high risk of COVID-19. Pandemic transmissions in schools are not higher than elsewhere and teachers are not more exposed in schools than elsewhere. As such, current policy makers seem to neglect the UN Convention on the Rights of the Child (Art. 3), which basically emphasizes the importance and the right of a proper education and a social life with friends and family in an environment that encourages development.

Alberto Giubilini (2021b) stated that current pandemic restrictions are especially unfair to young people. Policies of "equal treatments" are not necessarily fair. Children are the ones who do not really benefit from current policies, yet they are the ones losing the most from lockdowns. Educational gaps, mental health, poor job prospects and a lack of work-parenting balance are a few areas causing heavy impact. So far policy makers have been focusing on COVID-19 vulnerability but not on COVID-19 restrictions. He also pointed out that historical practices teach us to prioritise women and children first, a practice which is not respected by current policymakers. As an alternative to treating everyone "equally", a more sophisticated approach would be where policies shielding vulnerable and elderly people are in place and where young people can continue their lives at the same time. The idea of sacrificing our youngsters as a "mere" means to the benefit of the rest of the population would only be fair if a significant or sufficient benefit were gained, which unfortunately has not materialized so far. Moreover, and most importantly, since our young generations have not given their consent, considering the cost to their lives of the benefit for the rest of society, who can consent but refuse to consider, fairness is compromised.

Paul Dolan (2021) went one step further in pointing out that efficient use of resources in general has not happened in current policies, stating that quality of life rather than pure longevity is often underestimated. One would expect that policy makers would prioritise those who have the most to gain (capacity to benefit), those who are suffering the most (severity of condition), and those who will suffer the most over their entire lifespan. Based on these assumptions, he concluded that in general young people should be given priority, while giving different benefits and a focused approach to the elderly. He stated that some people value life experience over life expectancy, and vice versa, meaning that not only how long we live but how well we thrive matters. People who suffered most over time should be treated better than people who have already lived a comfortable life. As such young people with pre-existing conditions at high risk from COVID-19 must be the top priority. Thus, policymakers' priorities should not be determined by COVID-19 per se, or by any other virus or threat, but by the impact on the well-being over the lifetimes of those affected by it and their responses to it.

5.3. Pharmaceutical research

While targeted approaches are developed, more effort also needs to be put into research for an effective long-term treatment that may make the population less dependent on vaccine developments and roll-out. This paper does not want to take a stand for or against controversial medicines like hydroxychloroquine or ivermectin. We simply aim to stress that further medical research is important if we want to have a chance of winning over COVID-19 for good: a medical problem needs a medical (pharmaceutical) response.

A particular interesting research group is the international network of medical doctors, researchers, healthcare workers, and social workers, also known as the Ippocrate Group. They are famous for their advocacy of hydroxychloroquine (HCQ), a drug used for treatment of malaria and rheumatological diseases, which seems it could be used as an effective drug to treat COVID-19 because trials are giving positive results.

Due to a publication by *The Lancet* in 2020[103], which was withdrawn shortly after publication, followed by a recovery trial where a medico-clinical approach was totally absent, HCQ has not been approved by the WHO. Yet, clinical trials

[103] *Mehra et al. (2020).*

should be encouraged in order to clearly identify the potential benefits of the treatment. Some tests with hydroxychloroquine have produced good results. Out of 102 studies carried out so far, 75% have shown positive effects. In a report published by *The Lancet* (based on US data) in September 2020, HCQ has been proven to reduce mortality while showing no increase in cardiac toxicity. In Sept 2020 the *International Journal of Infectious Diseases* explained that hospitalized patients treated with HCQ had a 53% reduced risk to be transferred to intensive care. Also, Italian studies have shown its effectiveness. In the *European Journal of International Medicine*, a 30% mortality reduction has been proven with HCQ treatment. The Society of Pharmacology stated that in 2 million patients who took HCQ for over 20 years to treat rheumatoid arthritis, a 7-day combination with the antibiotic azithromycin did not increase any risk for adverse effects. Moreover, in India treatment using HCQ has proven its evidence as well. To conclude, when used properly, with the right dosage, and in combination with the right mix of other drugs, HCQ is proven to be safe and has proven effectiveness in the initial stage of the disease[104].

Ivermectin also merits further investigation. While no conclusive evidence is available yet, and different opinions are in conflict on this, it seems that the use of Ivermectin helped cases and mortality drop in Mexico and India[105], while a group of Malaysian scientists recently advocated for its use in the country, quoting an impressive list of scientific studies backing the use of the drug and showing its effectiveness in reducing mortality up to 83% . Finally, Malaysia has now decided to start a clinical trial[107].

Other promising research is coming from monoclonal antibodies[108]. Passariello et al. (2021) found that «monoclonal Antibodies (mAbs) targeting the Spike glycoprotein represent good candidates to interfere in the Spike/ACE2 interaction, preventing virus cell entry. […] The novel antibodies specifically bind to RBD in a nanomolar range and interfere in the interaction of Spike with ACE2 receptor, either used as purified protein or when expressed on cells in its native conformation. Furthermore, some of them have neutralizing activity for virus infection in cell cultures by using two different SARS-CoV-2 isolates including the

[104] https://ippocrateorg.org/en/2020/10/25/italian-doctors-vow-to-keep-using-hydroxy-despite-ban-petition-launched/.
[105] Lifson, (2021).
[106] Wong et al. (2021).
[107] FMT (2021a).
[108] Barlozzari and Benignetti (2021).
[109] Franzini et al. (2020).

highly contagious VOC 202012/01 variant and could become useful therapeutic tools to fight against the SARS-CoV-2 virus». Promising results are also coming from oxygen-ozone therapy[109].

These are just a few examples that help support the idea that further effort should be made in looking for a long-term pharmaceutical treatment for COVID-19. Logistical issues, new variants, and limited efficacy over time may make vaccination insufficient, ineffective and inefficient in the long run, while the goal should be to make the virus an illness manageable in the same way we handle seasonal influenza.

5.4. Frequent mass testing, with homecare

We have mentioned that, from a policy perspective, better outcomes are usually generated by decentralized decision processes, when compared with the ones produced by central planners. In this regard, the best way to implement focused protection and to develop targeted immunity, is the use of *frequent, affordable mass* testing. Our way of viewing this is more radical than how it is usually conceived; in fact, we have in mind not simply testing large numbers of individuals, but to work to achieve the possibility of testing all workers and students at the beginning of each week (on Monday) *(mass and frequent);* to make this possible, tests need to be *affordable*, and this target is achievable by opening doors to alternative rapid test systems, which have not yet found their way into the Malaysian market. Such a method would allow officials to detect infections at an early stage and to isolate positive subjects before they have the chance of either extensively spreading the disease or developing severe symptoms. Some examples of internationally available rapid tests are reported in the table below.

Table 8: Examples of rapid test kit available in the international markets.

Test type	Result time	Sensitivity	Specificity	Specimen
RTK Antigen Test Kit	15 minutes	96%	98%	Nasopharyngeal and Oropharyngeal Swabs
Neutralizing Antibody (NAB) Test Kit	20 minutes	91%	92%	Serum, Plasma or Whole Blood
Ultrafast QPCR Device	30 minutes	n.a.	n.a.	Nasopharyngeal and Oropharyngeal Swabs
Home Test Kit	15 minutes	96%	100%	Nasal Swab and Saliva Sample
Saliva-based Antibody Test	15 minutes	97.6%	98.8%	Saliva Sample

Source: CME market research.

Early detection is in fact key if we want to properly tackle the spread of the virus. At the current stage of research, the prevalence of asymptomatic cases is not precisely established. Despite early studies reporting that asymptomatic cases accounted for 30 to 80% of infections, more recent data suggest a rate of asymptomatic cases between 17 and 30%[110]. With regard to the infectivity of symptomless individuals, instead, the findings of various sources of data are quite conflicting: while one study suggested that at least 65% of transmissions occur prior to the onset of symptoms, another recorded only 12.6% of cases resulting from asymptomatic transmission[111]. These results are making more it difficult to implement effective widespread prevention measures. Such a challenge can be mitigated only by scaling up testing activity. In this regard, it is important to stress that testing is also crucial to *support* the vaccination program, not only because it helps manage the situation in case of supply-side constraints, but also because it is crucial to test people before they are vaccinated in order to avoid providing vaccines to people who are asymptomatically infected, and therefore risk compromising their immune response.

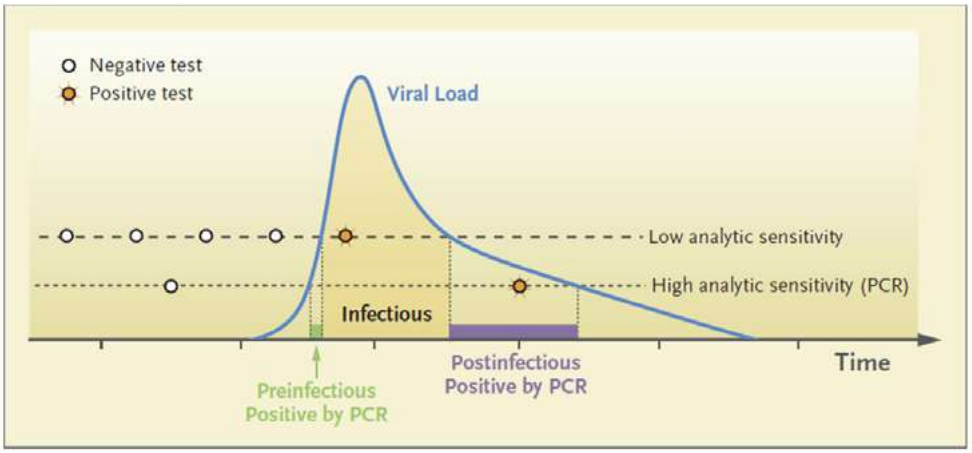
However, to step up testing activity, it is necessary to adopt a change in perspective with regard to the general strategy and to the tests themselves. In terms of general strategy, as should be clear from the analysis developed so far, minimizing the number of infections – while being a political appealing target – is not a scientifically based method of tackling the spread of the virus; instead, infections need to be increased in a targeted manner. With regard to testing, the clinical tests currently being used are designed for use with symptomatic people, they are not cheap (and they do not need to be), and they require high analytical sensitivity to return a definitive clinical diagnosis[112]. On the contrary, to properly fight asymptomatic spread, tests need to produce results quickly and be cheap and easy to perform[113]. As explained by Mina, Parker and Larremore (2020, e120(2)-e120(3)):

[110] *Rasmussen and Popescu (2021, p. 1206).*
[111] *Rasmussen and Popescu (2021, p. 1206).*
[112] *Mina, Parker and Larremore (2020, e120(1)).*
[112] *Mina, Parker and Larremore (2020, e120(1)-e120(2)).*

«By several criteria, the benchmark standard clinical polymerase-chain-reaction (PCR) test fails when used in a surveillance regimen.
[…]
For an effective COVID filter that will stop this pandemic, we need tests that can enable regimens that will capture most infections while they are still infectious. These tests exist today in the form of rapid lateral-flow antigen tests, and rapid lateral-flow tests based on CRISPR gene-editing technology are on the horizon. Such tests are cheap (<$5), can be produced in the tens of millions or more per week, and could be performed at home, opening the door to effective COVID filter regimens. Lateral-flow antigen tests do not have an amplification step, so their analytic limits of detection are 100 or 1000 times higher than that of the benchmark test, but that is largely inconsequential if the goal is to identify people who are currently transmitting virus. SARS-CoV-2 is a virus that grows quickly inside the body, so by the time a benchmark PCR test becomes positive, the virus is well into exponential growth. At that point, it is probably hours, not days, before the virus grows by orders of magnitude, reaching the detection thresholds of currently available cheap and rapid point-of-care tests. It is after this point, when people would have positive results on both tests, that they would be expected to become infectious».

Figure 18 below illustrates the point.

Figure 18: High-Frequency Testing with Low Analytical Sensitivity versus Low-Frequency Testing with High Analytical Sensitivity.



Source: Guglielmi (2021, p. 203).

In the graph, a person's infection trajectory (blue line) is shown in the context of two surveillance regimens (circles) with different analytic sensitivity. «The low-analytic-sensitivity assay is administered frequently and the high-analytic-sensitivity assay infrequently. Both testing regimens detect the infection (orange circles), but only the high-frequency test detects it during the transmission window (shading), in spite of its lower analytic sensitivity, which makes it a more effective filter. The window during which polymerase chain reaction (PCR) detects infections before infectivity (green) is short, whereas the corresponding postinfectious but PCR-detectable window (purple) is long»[114].

Furthermore, since uncontrolled spread drives new strains, mass testing with rapid tests would reduce opportunities for the virus to mutate and improve our ability to detect emerging strains quickly. Such an ability remains crucial since we cannot wait for the vaccination rollout to be completed, and since the efficacy of the current vaccines against the new strains has yet to be proven[115]

An international group of scholars recently stressed that it «is imperative to recognize the unique utility of rapid testing as a tool that can prevent and reverse uncontrolled spread, reduce harm, and promote equity. Alongside protective measures, complementary testing approaches, and immunizations, universal access to frequent rapid COVID-19 self-testing and community-based testing—coupled with support to isolate—must be part of a comprehensive strategy to end the pandemic as soon as possible. Countries that acted decisively, such as Ghana, New Zealand, and Vietnam, deployed available tools quickly to effectively meet the pandemic threat. In the face of historic and evolving challenges, it is not too late to pursue our own bold approaches using all the tools we now have so that we can not only imagine, but also actualize, a world without the constant uncertainty of whether we are infected or are infecting others. Once success in containing or eliminating COVID-19 has been achieved through comprehensive, sustained strategies, widespread frequent rapid testing will be just one more tool that can be safely stowed away»[116].

Among others, population-wide rapid antigen testing has been used in Slovakia in late 2020. The observed prevalence decreased by 58% within one week in the 45 counties that were subject to two rounds of mass testing; the figure, when adjusted

[114] *Mina, Parker and Larremore (2020, e120(2)).*
[115] *Sparrow (2021).*
[116] *Johnson-León et al. (2021, p. 2).*

for an epidemic growth of 4.4% per day preceding the mass testing campaign, increased to 70%[117]. A subsidized program of mass testing was introduced in Switzerland at the beginning of 2021[118], while the practice of in-campus life based on a twice-a-week testing system was successfully adopted by the prestigious Massachusetts Institute of Technology (MIT), which is now experiencing a return to normal life[119]. Similarly, China has managed to better control the spread of COVID-19 by introducing mass testing whenever a little cluster was detected[120].

The Rockefeller Foundation (2020, p. 15) was also advocating for mass testing as the key element in order to keep schools, workplaces and communities open, recognizing that the development of rapid tests is key for effective and affordable screening. Furthermore, among the strong advocates for mass and rapid testing we find Economics Nobel Laureate Paul Romer, who clearly explained how we should indeed move toward weekly testing and isolating those who test positive while allowing others to return to their normal lives[121]. This is the best way for achieving targeted immunity and avoiding further economic losses.

Paul Romer (2020a) did a simulation to show the differences between a policy of mass isolation (lockdown) and one of targeted isolations achieved via mass testing. «What the simulations show is that if we use a test to determine who gets put into isolation the fraction of the population that needs to be confined and isolated is dramatically smaller. These benefits are available even with an imperfect test and without doing any contact tracing. It does take frequent testing, with each person being tested roughly every two weeks. […] This comparison shows that isolation based on test results requires much less disruption to normal patterns of social interaction. An economy can survive with 10% of the population insolation. It can't survive when 50% of the population is in isolation»[122] Without mass testing, targeted isolations would not be possible and policies of mass confinement would be necessary. Similar results are confirmed even in the case of tests with a high percentage of false-negatives . Therefore – the Nobel laureate argued – testing becomes crucial in order to limit isolations and allow the economic system to avoid a dramatic collapse. The decline in infections is achieved with both policies, but the mass testing policy is much less costly and disruptive to social life.

[117] *Pavelka et al. (2021).*
[118] *The Local (2021).*
[119] *http://covidapps.mit.edu/medical-testing-information.*
[120] *CNA (2021); Kwok (2021).*
[121] *Romer and Garber (2020); Chotiner (2020).*
[122] *Romer (2020a).*

In conclusion, mass and frequent testing can be a way for businesses and schools to internalize the cost of externalities related to infectious disease[124]. As infectious disease-related externalities occur on sites that are owned privately and visited voluntarily, the introduction of mass and frequent testing can be the outcome of a market transaction, in which businesses – by introducing testing – pay the cost of a specific product (safety) and in exchange they obtain the required labourers or customers.

If businesses and schools were allowed to use this system for safeguarding their operations and the safety of their people, this would be the perfect example of an efficient market response to the current pandemic. While businesses would commit to responsibly testing their workers and paying for it, government should commit to keeping them open, further pushing to reopen the economy, and making the costs for testing tax deductible.

To make this possible, however, a step toward liberalization is necessary; accessing the necessary products in Malaysia is currently blocked by the need for licenses and distribution permits. The red tape encountered by rapid test kits are delaying their adoption, therefore impeding the implementation of programs that have been proven successful elsewhere: this is truly costing lives. It is important for the government not only to allow individuals, businesses and associations to implement programs of mass, frequent and affordable testing, but also to make this possible by removing all the current red tape and introducing the freedom of import, sales and distribution. To implement this point in a centralized manner would take far too long, while the market, thanks to the price mechanism, can speed up the adoption of these programs, saving both lives and money for the country.

Moving to to mass testing, and thus being able to progress along the path of early detection of COVID-19 infections, would make it possible to use more at-home isolation and care, rather than hospitalization, and therefore clusters generated in hospitals or quarantine centres would be avoided. Gaspar et al. (2020) found that homecare is indeed a safe alternative for COVID-19 containment, while Suter et al. (2021) were able to identify a home-therapy algorithm to prevent hospitalisation for COVID-19 patients, as explained earlier in this paper.

[124] *Leeson and Rouanet (2021).*

5.5. Other suggestions

5.5.1. Strengthening the immune system

Given the syndemic character of COVID-19, one of the important steps to be taken is good prevention in order to maintain a strong immune system. The fact that the Malaysian government decided to keep public parks closed, despite scientific evidence suggesting that outdoor transmission is almost impossible, makes it difficult to maintain an adequate level of physical activity, which impedes individuals from remaining healthy. Therefore, exposure to sunlight or additional intake of vitamin D and other supplements may become crucial to preserve the strength of the immune system. Additionally, traditional medicine may be useful in the current scenario, together with meditation and breathing techniques.

Specifically with reference to COVID-19, vitamin D deficiency on admission to hospital was associated with a 3.7-fold increase in the odds of dying from COVID-19 (McCall, 2020). Similarly, Radjukovic et al. (2020), demonstrated an association between vitamin D deficiency and severity of COVID-19; in particular, vitamin D-deficient patients had a higher hospitalization rate and required more (intensive) oxygen therapy. According to the authors, when adjusted for age, gender, and comorbidities, vitamin D deficiency was associated with a six-fold higher hazard of a severe course of disease and an approximately 15-fold higher risk of death. Similar observations were reported for Indonesia by Pinzon, Angela and Pradana (2020). Studies referring to Switzerland have also shown that vitamin D reduced the risk for acute respiratory tract infections by 42%[125].

Furthermore, the role nutrition plays in supporting the immune system is well-established[126]. Some groups of foods have influence on total mortality from infectious diseases. This is the case, for example, of whole grains and nuts[127], fruit and vegetables[129]8, and tea[129]. The laboratory effect of tea catechins shows inhibition of flu virus absorption, suppression of neuraminidase replication and activity, as well as being effective against cold viruses[130].

[125] *SGE (2020, p. 2).*
[126] *Calder et al. (2020); Iddir et al. (2020); Donzelli and Giudicatti (2020).*
[127] *Aune et al. (2016).*
[128] *Aune et al. (2017); Li and Werler (2010).*
[129] *Yi et al. (2019).*
[130] *Furushima, Ide and Yamada (2018).*

Various computer research to simulate the effect on COVID-19 of drugs or natural substances with antiviral activity has shown that hesperidin, present in citrus fruits, especially in the peel and white part (albedo), has a link to the central part of the Spike and the main protease of the virus that is much stronger than conventional antivirals[131]. Micromolar doses of hesperidin and quercetin can inhibit the enzymatic activity of the main protease of SARS-CoV-2, with an effect in theory also on the plasma of those who take medium-high amounts of citrus (hesperidin) and vegetables such as onions (quercetin)[132]. Citrus flavanones can be also important for the health of the intestine, which is an organ where viral infections tend to be found, and it is also fundamental because the release of endotoxins (LPS) due to an increased mucosa permeability or intestinal dysmicrobism could enhance systemic inflammatory reactions[133].

In conclusion, a nutrition model rich in omega-3 fatty acids from marine (or vegetable) sources, in whole grains, vegetables and fresh and dried oily fruits, vitamins D and C, and phytonutrients (e.g. anthocyanins, flavonoids), properly integrated with suitable food supplements, is recommended to strengthen the immune system and increase the level of protection against infectious diseases and COVID-19[134].

In addition to dietary supplements, other suggestions may come from alternative medicines, as also recognized by the World Health Organization[135.] Further investigation on the potential role of herbal medicine as a complementary treatment against COVID-19 is also supported by scientific literature[136]. Similarly, a comprehensive review by Badakhsh et al. (2021) on several complementary and alternative medicines (CAM) to treat COVID-19 showed that different CAM interventions (acupuncture, Traditional Chinese medicine [TCM], relaxation, Qigong) significantly improved various psychological symptoms (depression, anxiety, stress, sleep quality, negative emotions, quality of life) and physical symptoms (inflammatory factors, physical activity, chest pain, and respiratory function) in COVID-19 patients.

[131] *Bellavite and Donzelli (2020).*
[132] *Bellavite (2021).*
[133] *Stevens et al. (2019).*
[134] *Weerasena, Ferlito and Bellavite (2021).*
[135] *WHO (2020).*
[136] *Nugraha et al. (2020).*

5.5.2. Freedom with respect: *green-band-red-band*

Greenbandredband is a system designed to assist regions emerge from lockdown. The system is based on three fundamental premises. These are:

1. The SARS-COV-2 virus is capable of very rapid transmission if no measures are taken to arrest its spread.
2. The threat posed by COVID-19 is heavily linked to age and/or the presence of underlying health conditions.
3. Some of the non-pharmaceutical interventions ('NPI') designed to break transmission which have been favoured by public health authorities around the world (e.g. distancing, face coverings, ventilation, surface sanitisation) have some degree of efficacy in disrupting transmission of the virus.

Of these three premises it is the final one that is most questioned, as there are many people who do not believe it is possible to disrupt transmission of an airborne virus using the methods currently employed. If this is the case then all interventions short of preventing contact between people would fail to have any effect. The logical conclusion would be that only an extremely strict lockdown would be effective, and this would need to be maintained until the virus was no longer present. This is effectively the position of many of those pushing for elimination of the virus as opposed to an acceptance that it has become endemic. In most regions, the level of virus currently in circulation, coupled with the need to maintain 'essential' services, means that a lockdown of this level of severity would be difficult or impossible to maintain.

The third premise appears to be accepted by the majority of public health authorities, who have chosen to recommend a combination of the non-pharmaceutical intervention measures mentioned above as a means to either avoid or to exit lockdown in their various regions. So, the system is positioned to help with that goal. As a result, it does not appeal to those who believe that no public health response is required to COVID-19 (a position commonly presented as 'let it rip'), and it does not appeal to those who are looking for a full suppression policy on the back of draconian lockdowns (commonly presented as 'Zero COVID').

The system itself is extremely simple. It asks people to decide if they wish to benefit from protective NPI measures such as those outlined above in order to reduce their risk of exposure to the virus. Those who wish to be protected indicate this to other people who adopt the recommended protective measures around them. On the other hand those who do not require protective measures will not require any measures to be taken for their benefit. The system gets its name because it suggests use of a green wristband/logo for those not requiring protection, and a red equivalent for those who do require protection.

There are a number of important points to stress.

1. One's assessment of risk may be based on one's wider lifestyle. So a person who themselves would opt for no protection, may choose to require protection because they live with or care for people who are vulnerable and they feel that they cannot apply sufficient protective measures around those vulnerable individuals. This is essentially the idea of 'bubbles'. It is to be expected that people within a certain bubble will opt for protective measures if one of their number requires protection. The number of people choosing red would therefore be likely to be higher than the number of identifiably vulnerable people.
2. It is a choice-based system. There is no requirement that – for example – a 90 year-old choose protection or that a healthy 20 year old choose to forego protection. So there are no arbitrary cut-offs or imposed restrictions. Each person is free to assess their own risk and choose their own path.
3. Choices can change. As befits a risk-based system, it is entirely possible that as the prevalence of the virus drops or as vaccination becomes available, a person will move from requiring protection to feeling comfortable without protective measures. Or if a person knows that they are going to be in contact with vulnerable people at a one-off event, they may choose to switch to requiring protection in the period before the event to minimise the chances of being infected and of transmitting the virus onwards. People's risk assessment may also be affected by the state of health services in a particular region. Many feel a sense of responsibility not to potentially contribute towards a drain on the resources of health services, so these people may decide to opt to require protection at times when they perceive the health service to be under pressure.

4. The system applies to those who are not showing symptoms. It still requires those who are symptomatic or have received positive tests to self-isolate. There is an appreciable difference between being prepared to run the risk of infection and willingly being infected. This system is not an attempt to encourage circulation of the virus at all costs. It is a system designed to mitigate the negative consequences of the fact that the virus is in circulation.
5. The system is designed to work relying on people to co-operate with each other, without need for government intervention. However, some regions may feel that those ignoring the request for protection are behaving anti-socially, and may wish to enforce legal sanctions against such behaviour. In most cases this would fit within the existing framework of anti-social behaviour legislation without requiring substantial changes to legislation which pre-existed the pandemic.
6. The system is designed to promote clear communication. The suggested route is via wrist bands and logos on clothing, but any form of communication is fine, including an oral explanation of what people's position is. Clearly adaptations will be needed for those with eyesight problems.

There are a number of reasons why a public health authority might recommend and a governmental authority might implement the greenbandredband system.

1. The system is sustainable. Many regions have witnessed an on/off cycle of lockdowns. The only prospect of release from this cycle would be a zero COVID world or a fully vaccinated population. Even the latter would not satisfy everyone, as some people will be unable to receive a vaccine, and no vaccine has full efficacy. Greenbandredband can remain in place until such time as a government considers that COVID-19 no longer warrants any special measures. By this point presumably the vast majority of the population would be choosing green.
2. There is minimal cost of implementation. Greenbandredband costs very little to put in place and immediately enables the economy of a region to return in a way that keeps its citizens comfortable.

3. Governments can move from an enforcement to an advisory role. Rather than create a tension between civil liberties and public health, greenbandredband allows the maximum amount of personal freedom by allowing people to choose their own status. The restrictions which remain in place around those who require protection are not imposed by the authorities but manifestly desired and requested by the individuals in question. The Government would continue to actively advise people on the realistic levels of risk that exist, but from there the disease would be managed by communities themselves, rather than by police or judicial interventions in the name of public health. Only where individuals directly chose to ignore the requests of their fellow citizens would there be a need for the authorities to become involved.
4. There are corollary benefits. By allowing those who choose green to freely associate, the negative effects of lockdowns and restrictions would be considerably lessened. The corresponding uplift in sentiment would make it far easier for people to tolerate the restrictions which do remain in place around those who require them. For those who are understandably nervous about abandoning lockdowns or protective measures, the system would allow them to emerge at their own pace and to take comfort from seeing others choose green without disaster occurring.
5. Although the virus would continue to circulate amongst those who had chosen green, it would be circulating amongst groups who are unlikely to suffer serious symptoms. Population immunity is not a goal of the system, but if a society contains a large enough proportion of people not requiring protection then population immunity would happen faster, allowing vaccines to be targeted at those most in need in that region – and indeed worldwide.

One of the objections encountered most commonly is that the system – while well meaning – would increase the rate of spread (the R0 rate). This is seen as inherently undesirable. This attitude arises from a mindset that we must suppress the virus across all segments of society at all costs. But, as was argued earlier in the paper, we should instead focus our efforts on suppressing the virus amongst the vulnerable – or those who identify as needing protection. One might use the analogy of a chain with links to explain this. Instead of attempting to shatter the chain of transmission at every possible point, we would allow transmission through those links of the chain where transmission is unlikely to cause any detriment. But we would still break the links of transmission to those who are vulnerable and require it.

There are many practical questions about how the system would be applied in practice. These largely concentrate on how particular indoor environments could implement the system. Some of these are addressed at www.greenbandredband.com and in the articles linked to on that website. Essentially it would be assessed on a case-by-case basis. In the worst-case scenario, an indoor environment would need to insist on protective measures applying throughout, as it might be impossible to maintain distance or to communicate preference quickly enough. Public transport is one example where this might be required. However, this 'worst case scenario' is no worse than the current measures used to come out of lockdown, and would be more than balanced out by the environments where more flexibility could be introduced.

5.6. Public and private hospitals

It goes without saying, we cannot imagine implementing a strategy based on mass and frequent testing, which will most likely reveal more infections than commonly known, without increasing hospital capacity in terms of temporary beds and ICU units, and involving both government and private healthcare systems.

Our proposal in this regard is very simple: strengthen the public healthcare system with investments in additional equipment, but also take advantage of the mixed public-private system that made Malaysia a very important medical tourism hub, both regionally and internationally. To this end it is necessary not only to invest money, but also to unleash the entrepreneurial forces of creative destruction[137] to allow innovation to enter the healthcare system and to generate economies of scale which make services more affordable.

As an example, the Nayarana system in India is a success story generated by the creation of a virtuous cycle of economy of scale, maximum infrastructure utilization, and processes to offer low-cost health insurance plans for the poor[138]. Dr Devi Prasad Shetty explained that his idea was to build a different model of hospital which learns much from the Western healthcare systems, but that mixes that expertise with knowledge acquired from running hospitals in a country like India, merging the two models and offering a better experience to the patients at an affordable price.

[137] *Schumpeter (1911); Ferlito (2020c).*
[138] *Graboye (2021).*

Further innovation could come by finding inspiration in the sharing economy: think about how Grab and similar services improved consumers' lives by providing better and more affordable services. Some of the similarities between healthcare and taxi industries, and how these similarities could help reshape national healthcare, are listed in Graboyes and Feldstein (2021). As an example, «[m]any decisions in treatment depend on the physician's knowledge, alertness and memory, when these decisions could be automated and reinforced, just as Uber has automated route choice and payment procedures. Navigating unexpected events in the course of treatment relies on the alertness of patients and doctors, rather than making use of the remote monitoring systems that are now available—and more that could be available. The process of making medical appointments is unnecessarily arduous, with patients filling in the same information time and time again. Medical reimbursement rates are static, meaning that periods of peak demand are marked by shortages and long delays in getting appointments. There is generally no Uber-style "surge pricing" to induce doctors to work longer hours and weekends when demand rises. Doctors' hours are generally inflexible, whether the doctor likes it or not. In contrast to the readily available information about Uber drivers and riders, information sources on the quality of doctors and their institutions can be unreliable and arduous to navigate. Billing, payment and bookkeeping are onerous processes for both patients and providers. A great deal of information still flows via antiquated fax machines».

5.7. The need for a task force

The current management of COVID-19 in Malaysia has raised more voices in favour of shifting responsibilities from politicians to *experts*. In general, we agree with the recommendation, but with a caveat: experts are not infallible[139]. Experts, like policymakers, must face the knowledge problem analysed earlier in the paper, and therefore cannot be treated as idealized individuals who can intervene in our lives[140].

An important fact to be recognized is that, following Koppl (2018, p. 154), experts are not simply specialized persons, but individuals who are paid for their opinion[141]. Furthermore, their judgements are subjective as well as objective: they make qualitative choices based on the relevant literature, what to reveal, and so

[139] *Murphy, Devereaux, Goodman and Koppl (2021, p. 7).*
[140] *Murphy, Devereaux, Goodman and Koppl (2021, p. 8).*
[141] *See also https://www.youtube.com/watch?v=oOrsxlS92x4&t=499s.*

on; bearing this in mind, nonexperts need to be able to protect themselves from expert failure[142].

The best protection for ordinary citizens is the existence of a proper institutional framework to protect them from expert failure; in this sense, expert failure is more likely to occur when there is a monopoly on expert opinion or the isolation and stigmatization of dissenting and critical voices[143]. For example, a clinic was recently raided in Malaysia because it was offering Ivermectin to COVID-19 patients[144]; in such a scenario it is more likely that Ivermectin research and use will suffer from negative incentives, and therefore its potential benefits may be permanently lost.

Another situation that should be avoided to prevent expert failure is the "rule of experts", whereby experts choose on behalf of nonexperts, rather than giving advice[145].

Therefore, while we welcome the discussion about the creation of a pool of experts who could guide Malaysia out of the emergency, we also invite creating the conditions to prevent a sort of dictatorship of experts characterized by too high a degree of homogeneity of opinions. This is why it is important that experts face competition: the group of experts needs to be heterogeneous and open to external "threats" from competing experts[146] Therefore, pools of competing experts should be preferred to a monolithic commission. Similarly, the role of these experts should be that of advisors and not of final decision makers; individuals should try to draw their own conclusions from the opinions offered.

[142] *Murphy, Devereaux, Goodman and Koppl (2021, p. 9).*
[143] *Murphy, Devereaux, Goodman and Koppl (2021, p. 9).*
[144] *Mahpar (2021).*
[145] *Murphy, Devereaux, Goodman and Koppl (2021, p. 10).*
[146] *Murphy, Devereaux, Goodman and Koppl (2021, p. 13).*

6. How to Pay for the War

Veerinderjeet Singh and Carmelo Ferlito

6.1. The Special Purpose Tax

Given the fiscal deficit that has increased substantially due to the necessary allocations required for the COVID pandemic, we propose a *Special Purpose Tax* (SPT). The logic of a Special Purpose Tax (SPT) of 5% to be imposed in Malaysia on taxable profits of corporations above a specified threshold would certainly be timely. Such a tax should be imposed for a two-year period for the assessment years 2021 and 2022 and removed after that. The limited temporal framework needs to be clearly defined as part of a sort of new social pact between the State and its citizens: the State demands special effort from some of its tax-payers, but it commits to fighting COVID-19 with these additional revenues and allowing businesses to operate without additional lockdowns.

The objective would be to channel this SPT to a specific medical fund that would allow hospitals to immediately (within the short term) enhance their medical resources and capacity so that more ICU beds/units can be set up and more medical equipment can be acquired to manage the huge number of cases being reported. However, as the funding is needed now, as an interim measure we suggest that corporations which generated taxable profits exceeding the specified threshold for fiscal year 2020 be encouraged to contribute to the specific medical fund this year (from now and over the next few months) and be given a specific tax deduction if the corporations decide to provide assistance in kind.

What is absolutely crucial is that the Government needs to state the commencement date, the objective and the end date clearly in its communication narrative. Failure to consistently do so will lead to presumptions of a permanent corporate tax rate increase, and that will have an effect on foreign investors who may become concerned about further changes being made to the general corporate tax regime.

Is this adequate? We have chosen not to suggest a deduction for cash donations (though the law is quite clear that any cash donation to the Government is tax deductible); we have only suggested a special deduction for assistance in kind. The issue here is always that a deduction lowers taxable profits and the tax revenue

collected will be lower, further widening the fiscal deficits, so this is more about humanitarian assistance. However, in the first MCO, many corporations did make cash and in-kind donations to the Government; now we hardly hear any more about such donations. This is probably because there may be the impression of a less clear strategy in fighting the pandemic and trying to avoid lockdowns; political uncertainty may have further discouraged this.

6.2. A new role for the Good and Service Tax

Compared with the present Sales and Service Tax, many have recognized that the old Good and Service Tax (GST) was designed more efficiently both in terms of implementation from the business side and of collection by the government. Moreover, being a fiscal credit for purchasers at each stage except the last one, it had a lighter effect on final prices. Our proposal, therefore, is along the lines of re-introducing the GST, but with some differences[147]. At the same time, the SST should be abolished.

From our perspective, the case for a consumption tax mainly lies in the possibility of stimulating household saving in a country – Malaysia – burdened by very high household debt.

Against this proposal it may be argued that taxing consumption could have a regressive effect, meaning that the relative burden would be higher on the lower income citizens. This would be all the more true with regard to those basic goods which constitute the purchasing basket of the low-income population. Therefore, we suggest a progressive consumption tax; however, such a progression should be designed in such a way so as not to frustrate productive initiatives and luxury consumption, which are key elements for economic growth. The unintended consequence of an overly progressive approach would be to discourage consumption behaviours which benefit the entire economic system; we should not forget that 'punishing' certain types of consumption would affect the production of the goods involved, bringing harm to the relative value chain and its workers.

[147] *As proposed in Ferlito (2019a).*

Our proposal is as follows:

1. exempted goods: items related to the basic consumption habits of the lower-income population, such as rice;
2. low-rate GST (3%): key development items such as culture and education related goods;
3. middle-rate GST (6%): all goods not identifiable as part of the other three categories;
4. high-rate GST (10%): luxury goods.

The rates indicated above should be intended as a suggestion, indicating the direction we believe to be beneficial; such a suggestion remains open for discussion.

In the current emergency context, reintroducing the GST can become an occasion to test the possibility of a higher degree of tax devolution, with the local states more involved in tax collection so that they may have more direct access to funds that can be used to support the territory.

We propose that, as long as the COVID-19 emergency is in place, the GST should be collected by the individual states in order to implement sound plans to strengthen territorial healthcare and homecare. Specifically, the difference between the current SST revenues and the additional GST revenues should be devoted to these kinds of plans. When the COVID-19 emergency is over, how much of the tax revenues remain in the local funds and how much is transferred to the federal government can be open for discussion.

6.3. Percentage Tax Designation Institutions

Beyond the usual way of conceiving of taxes as a sum of money that citizens pay to the State in order "to do something", there are fiscal instruments which allow taxpayers the freedom to choose how to spend a share of their tax money, that is, where to allocate it or to whom to give it. These instruments are in line with the approach taken in this paper of a decentralized approach to the COVID crisis that emphasizes the role of individuals and their social cooperation.

Silvestri (2021) properly explained the case of tax percentage designation institutions, known in Italy as 'Otto per mille' and 'Cinque per mille', fiscal tools which are in line with the voluntary exchange tradition developed by Wicksell (1896), Lindhal (1919) and Buchanan (1963). *Percentage Tax Designation Institutions* (PTDIs), also known as 'Percentage Philanthropy Laws', «are fiscal institutions through which taxpayers can freely designate a certain percentage of their income tax to entities whose main activity is of public interest: religious organizations, worship places, third-sector organizations, political parties, etc. PTDIs

came into force in some Southern and Central-Eastern European countries – Italy, Spain, Portugal, Hungary, Romania, Poland, Slovakia and others – several decades ago»[148].

This particular tax institution is one of those forms of regulation that would be justified as ways of expanding opportunities for mutually beneficial transactions and, more particularly, as a liberal and contractarian approach to the provision of public goods.

If we take Italy as our reference example, we note that in that country there are three different institutions through which taxpayers can allocate their taxes to public utility purposes: 1) 8x1000: designation to the State or a religious confession; 2) 5x1000: designation to the third sector and many other entities pursuing public utility purposes; 3) 2x1000: designation to political parties. Taxpayers can express their choice by signing a specific section of their tax returns where they can also indicate the specific beneficiary of their tax money.

The way that the choice can be made is regulated by a few basic rules which form what could be called the 'taxpayer's opportunity set'. This in turn can be understood as a decision-making process subdivided into several levels and sub-levels.

First, taxpayers are faced with three binary choices: to give or not to give the 0.8%, 0.5% or 0.2% of their income tax. It is important to specify that these three choices do not mutually exclude each other, so that taxpayers can allocate up to 1.5% (i.e., 0.8% + 0.5% + 0.2%) of their income tax.

Our proposal here is to introduce such an instrument in order to ask citizens to voluntarily designate a certain percentage of their taxes to a special fund specifically designed to fight COVID-19 by investing in temporary hospitals, ICU units and pharmaceutical research. Therefore, taxpayers are not asked to pay more taxes, but to decide to voluntarily divert part of them toward a specific destination.

Contrary to what happens in Italy, where this freedom of choice is limited to individual taxpayers, we propose to extend this instrument to corporate taxes too.

[148] *Silvestri (2021).*

7. Open Questions

Carmelo Ferlito and Sergio Maria Calzolari

7.1. On the 2014-2015 experiments

It was not necessary to wait for the emergence of the *Fauci-leaks*[149] to know that, for quite a number of years, the United States of America and China cooperated on an experiment that created a hybrid version of a bat coronavirus — one related to the virus that causes SARS (severe acute respiratory syndrome) – triggering the debate over whether engineering lab variants of viruses with possible pandemic potential is worth the risks. It is enough to go through the Nature archives to find out that thel

> «emergence of severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome (MERS)-CoV underscores the threat of cross-species transmission events leading to outbreaks in humans. Here we examine the disease potential of a SARS-like virus, SHC014-CoV, which is currently circulating in Chinese horseshoe bat populations1. Using the SARS-CoV reverse genetics system2, we generated and characterized a chimeric virus expressing the spike of bat coronavirus SHC014 in a mouse-adapted SARS-CoV backbone. The results indicate that group 2b viruses encoding the SHC014 spike in a wild-type backbone can efficiently use multiple orthologs of the SARS receptor human angiotensin converting enzyme II (ACE2), replicate efficiently in primary human airway cells and achieve in vitro titers equivalent to epidemic strains of SARS-CoV.Additionally, in vivo experiments demonstrate replication of the chimeric virus in mouse lung with notable pathogenesis. Evaluation of available SARS-based immune-therapeutic and prophylactic modalities revealed poor efficacy; both monoclonal antibody and vaccine approaches failed to neutralize and protect from infection with CoVs using the novel spike protein. On the basis of these findings, we synthetically re-derived an infectious full-length SHC014 recombinant virus and demonstrate robust viral replication both in vitro and in vivo. Our work suggests a potential risk of SARS-CoV re-emergence from viruses currently circulating in bat populations»[150].

[149] *Paletta and Abutaleb (2021).*
[150] *Menachery et al. (2021, p. 1508).*

In a nutshell, in 2014 a Sino-American cooperation created SHC014-CoV, the "father" of SARS-CoV-2, working with the same mechanism (the spike protein, as explained below), and – as the report stated – «Evaluation of available SARS-based immune-therapeutic and prophylactic modalities revealed poor efficacy; both monoclonal antibody and vaccine approaches failed to neutralize and protect from infection with CoVs using the novel spike protein»; this is not what a conspiracy theory argues, but what the creators of the virus were claiming: monoclonal antibody and vaccine approaches are not effective in dealing with this virus.

In 2014, the US decided to stop financing these kind of experiments, which were conducted in Wuhan[151], while Butler (2015) reported about the emerging debate about risks for humans driven by this kind of research. However, Newsweek reported in April 2020 (which means, at the very beginning of the outbreak) that US financing was still active in 2019 via Dr Fauci:

> «But just last year, the National Institute for Allergy and Infectious Diseases, the organization led by Dr. Fauci, funded scientists at the Wuhan Institute of Virology and other institutions for work on gain-of-function research on bat coronaviruses.
>
> In 2019, with the backing of NIAID, the National Institutes of Health committed $3.7 million over six years for research that included some gain-of-function work. The program followed another $3.7 million, 5-year project for collecting and studying bat coronaviruses, which ended in 2019, bringing the total to $7.4 million»[152].

Thus what happened at the beginning of 2020 did not belong to the realm of the unknown – quite the contrary, as reconstructed in detail by Basu (2021).

[151] *Reardon (2014).*
[152] *Guterl (2020).*

7.2. The 2019 WHO guidelines

Curiously enough, in 2019, just months before the COVID-19 outbreak, the World Health Organization released a document titled *Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza*; in it, all the non-pharmaceutical measures later suggested to fight the pandemic can be found: closing borders, stay-at-home orders, face masks and even the aberrant expression "social distancing"[153]. It is also quite curious that in the document all these measures, despite being recommended in certain cases, are declared to be backed by "very poor" or "no" evidence. And yet, here we are, after 16 months, confined at home in the messianic hope that mass isolation will liberate us from a virus that even its creators doubt can be defeated with a vaccine.

7.3. *Social* distancing

A final reflection needs to focus on the term *social* distancing, which, already present in the WHO document (2019), has been widely adopted worldwide without being questioned; in this regard, Malaysia is a laudable exception, as the expression was quite early replaced with the more appropriate *physical* distance[154].

Yet, it is not difficult to walk into a public park (when allowed) and encounter signboards saying to keep a "two-meter social distance". How can something like social distance be measured in meters, or feet? Indeed, only physical distance can be measured with the tools and parameters we are accustomed to. To be socially distant is something completely different and means not to care about each other; I can sit next to my colleague and be socially distant if I do not care about that person, while at the same time I can be 10,000 km away from my family (physically distant), but, thanks to modern technologies, we can be socially close by calling each other every day.

The use of social rather than physical distancing as part of the official jargon of the pandemic opens several reflections that are beyond the scope of the present paper; its universal acceptance, on the other hand, is a frightening signal of how the social semantic can be easily manipulated by the elites in power. A stronger sense of resistance and critical thinking is something we hope for the future.

[153] *WHO (2019).*
[154] *NST (2020).*

8. Conclusions

In the present paper we have attempted to deeply analyse the dynamic of COVID-19 in Malaysia and to provide a comprehensive and implementable policy plan to reverse the emergency, which would allow the economy to get back on a growth path and human lives to be restored. Our plan is based on the superior outcomes produced by decentralized decision processes; it is thus centred on *mass, frequent and affordable* testing and on targeted protection, in the light of a balanced trade-off analysis. Centrally planned decisions, in fact, have proven to drive the country in the wrong direction, as was predictable.

Malaysia has recorded a 99.39% survival rate from COVID-19, and this points in the direction of focusing on protecting the vulnerable (who need to be identified by further data analysis). Similarly, curing those infected so far has cost much less than lockdowns, and developing a sound medical plan to handle an eventual increase in cases would cost a fraction of stay-at-home orders.

Further investments are needed to strengthen the healthcare system by enhancing both a virtuous public-private partnership and pharmaceutical research. Lockdowns should be avoided: they do not solve the issue, and they delay the end of the pandemic and its transformation into an endemic phenomenon. At the same time, healthy behaviours to strengthen the immune system (physical activity, supplements consumption, meditation…) should be incentivized.

Vaccination alone also will not suffice as an answer; the key tool at our disposal is now the introduction of *frequent, mass and affordable* testing, in order to allow businesses to operate as much as possible, to achieve early detection of infections, and to further drive down the mortality rate; to do so, rapid test kits need to be liberalized.

We have also proposed a reasonable set of recommendations to finance the plan we advocate. It is not too late to act differently, while not naïvely waiting for lockdown miracles. We believe that our plan, together with the restoration of the rule of law in the country, could be a solid contribution towards a faster path to recovery which could also avoid a further post-COVID economic crisis.

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