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Research Intelligence

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How does Thailand reopen safely?

Progress is being made globally against the Covid-19 pandemic thanks to the impact of controls on permitted activities, the rollout of vaccination programs, and changing behaviors among the public, and this is as true in Thailand as anywhere else. Particularly important have been the restrictions imposed on some economic activities and the accompanying public health measures, but the benefits arising from these policies have come at the cost of inflicting considerable collateral damage on the wider economy. Thus, **given the current decline in both caseloads and fatalities in Thailand, the country now needs to address the question of how best to move forward and to ease restrictions in a way that balances the interests of the economy with the risk of provoking a reemergence of the disease.**

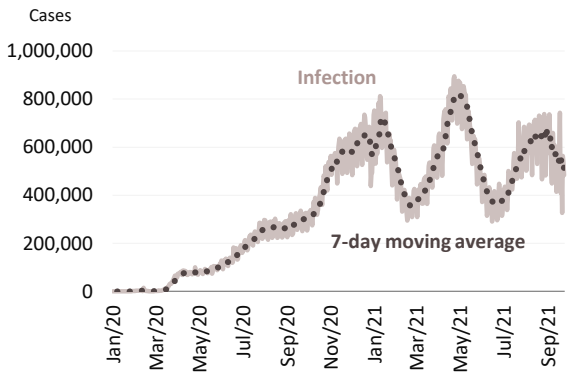
Krungsri Research has thus built the model to calculate implied stringency index. This is for finding the effectiveness of the various non-pharmaceutical interventions (NPIs) and the impacts of these measures on overall economy. The results of this modeling indicate that widespread masking, the effective communication of public health information, and the prohibition on large-scale gatherings have produced the greatest benefits, whereas closing worksites, restricting international travel, and enforcing stay-at-home orders have imposed the greatest economic costs. Given this ranking, it is logical to first lift restrictions that are both the least effective and the costliest, and the analysis shows that this includes stay-at-home mandates, the closure of workplaces, and restrictions on the use of public transport. **Our results show that starting this September (2021), lockdowns should be eased in four distinct stages that will run into 2022, though the authorities will need to step very carefully as they move through this process, especially during the first two months. More broadly, preparing for Covid-19's transition from a pandemic threat to an endemic illness, and indeed trying to accelerate this process, will also have an important role to play in reducing economic losses and putting Thai businesses back on a solid growth track.**

Officially enforced NPIs, the rapid rollout of vaccinations, and the lifestyle changes made by the public are the three primary means by which the rising curve of new caseloads has been brought back down again, but this success has been paid for with almost unprecedented harm to the economy, most obviously reflected in 2020's -6.1% loss to Thai GDP. Now that the rate of new cases and deaths from Covid-19 appear to be in a sustained decline, the country needs to decide how to wind back the restrictions that currently weigh on the economy in a manner that meets the need to encourage economic growth while minimizing the risk of provoking a new eruption in infections. To help frame an answer to this question, **Krungsri Research has investigated the relationship between the effectiveness of individual control measures and the economic costs that these imply. The results of this will then help policy makers come to a more informed decision over which measures to relax, having considered both the timescale of this easing and the severity of each measure.**

Both new caseloads and Covid-19 fatalities are on a downward trend

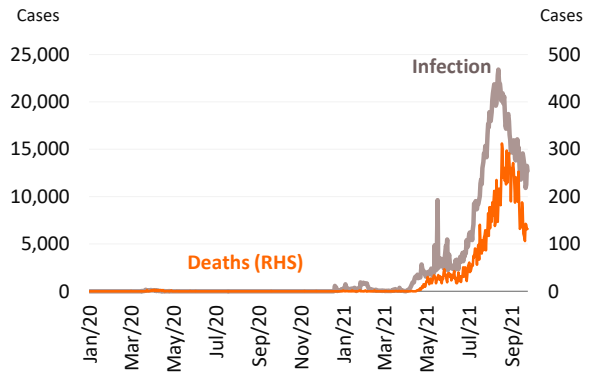
Worldwide, new infections reported during the 3rd wave of Covid-19 have started to decline from a peak of around 600,000 per day, which is significantly lower than the 800,000 reached during the 2nd wave of the illness. It thus appears that many countries are becoming better at suppressing the spread of Covid-19, though perhaps more importantly, mortality rates are also clearly in decline. (Figure 1)

Figure 1: Global COVID-19 infections



Source: WHO

Figure 2: Covid-19 infections and fatalities in Thailand



Source: WHO

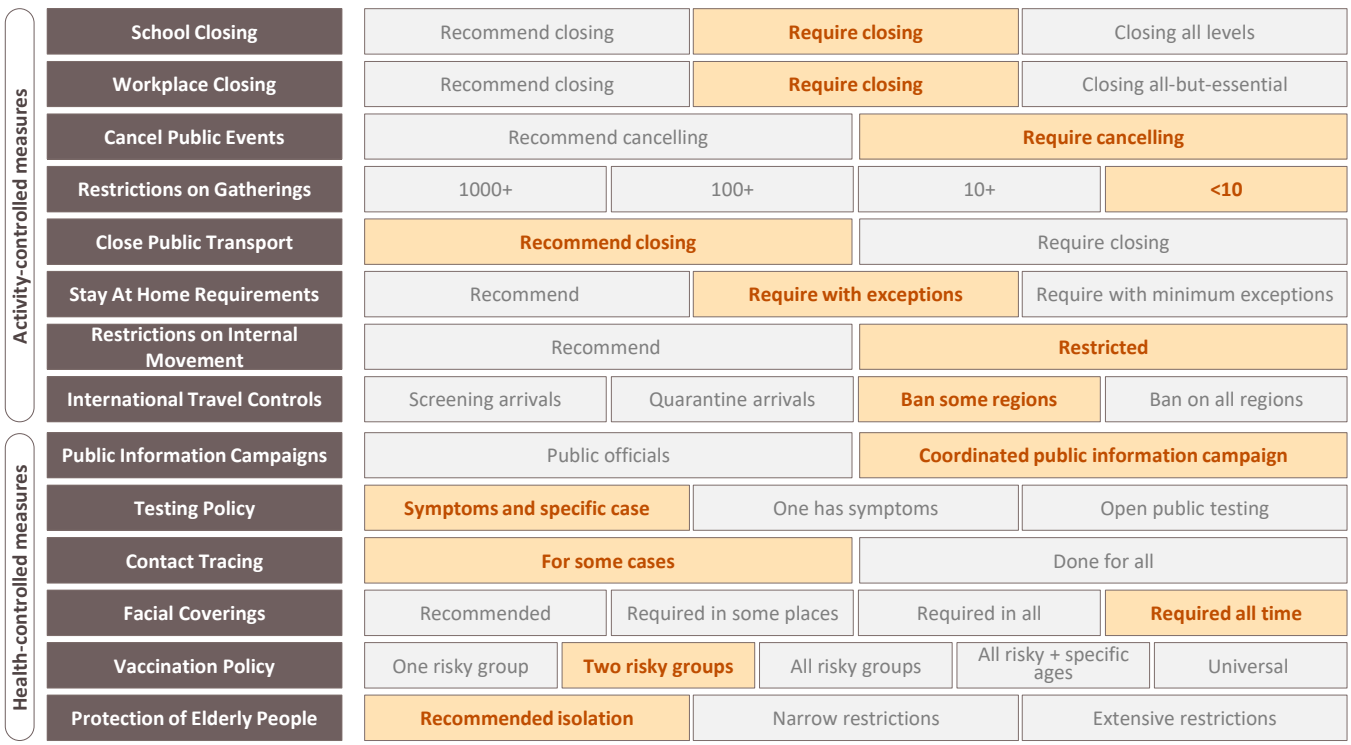
The situation in Thailand mirrors developments unfolding at the global level, and from the mid-August high of 23,418, the number of new cases reported daily has now dropped to somewhere in the average range of 13,000, while deaths have also dipped below 200 per day. This success has been achieved by a combination of officially enforced NPIs, the ever wider reach of the vaccination program, and changes to behavior made by the public themselves, but now that the impact of the epidemic is beginning to be significantly blunted, the authorities are moving to relax the lockdown and to restart the economy. This process has been especially evident in developed economies, where the number of serious infections is falling sharply, and so in Britain and Sweden, the easing of lockdowns has progressed through 4-5 stages that have been spread out over as many months, though despite this, overall infection rates have in fact climbed back up again. Given these mixed outcomes, Thailand needs to find a path that will balance the dangers of moving too fast and provoking a resurgence in Covid-19 infections with those of moving too slowly and further damaging the economy.

Since the start of the pandemic in 2020, the Thai authorities have had some success in combating Covid-19 through a mix of controls on economic activities and public health measures

Thailand has attempted to suppress the spread of Covid-19 through a blend of activity-control and health-control measures. Quantifying the severity of these NPIs is somewhat complicated but this can now be achieved using the University of Oxford's 'containment stringency index', which provides a weighted assessment of 14 of the most important policies, 8 of which are activity-control and 6 health-control measures (Figure 3). Using this scale, as of 19 September 2021, Thailand's lockdown earned a stringency rating of 60.77%, down from 71.43% in July. At that point, the severity of official measures was approximately as restrictive as they were in April 2020, when they had a rating of 69.35%.

When choosing between these two approaches, the Thai authorities decided to rely more heavily on activity-control than on health-control NPIs, and so the government banned a range of public activities, restricted people's ability to gather in groups, tightened controls on movement within the country, and placed a broad halt on international travel. On the other hand, Thailand's use of health-control measures has been relatively slight, being largely limited to a patchy test and tracing system and the mass vaccination program. The stringency for activity-controlled measures were around 88.5%, compared to 75% of health-controlled stringency, during lockdown in July-August.

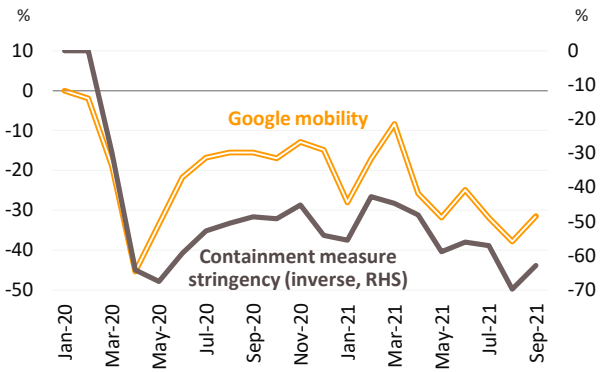
Figure 3: Containment measures in Thailand during July-August Lockdown



Source: University of Oxford

These measures appear to have helped to significantly restrict the spread of Covid-19 by reducing movement and mixing within the population. Figure 4 shows clearly that data from the Google Mobility Index correlates fairly closely with changes in the severity of containment measures, though this relationship is not fixed and over time, wider gaps have emerged between controls and actual behavior. It is theorized that this divergence may appear and develop as the public becomes acclimatized to control measures and fear over infection declines.

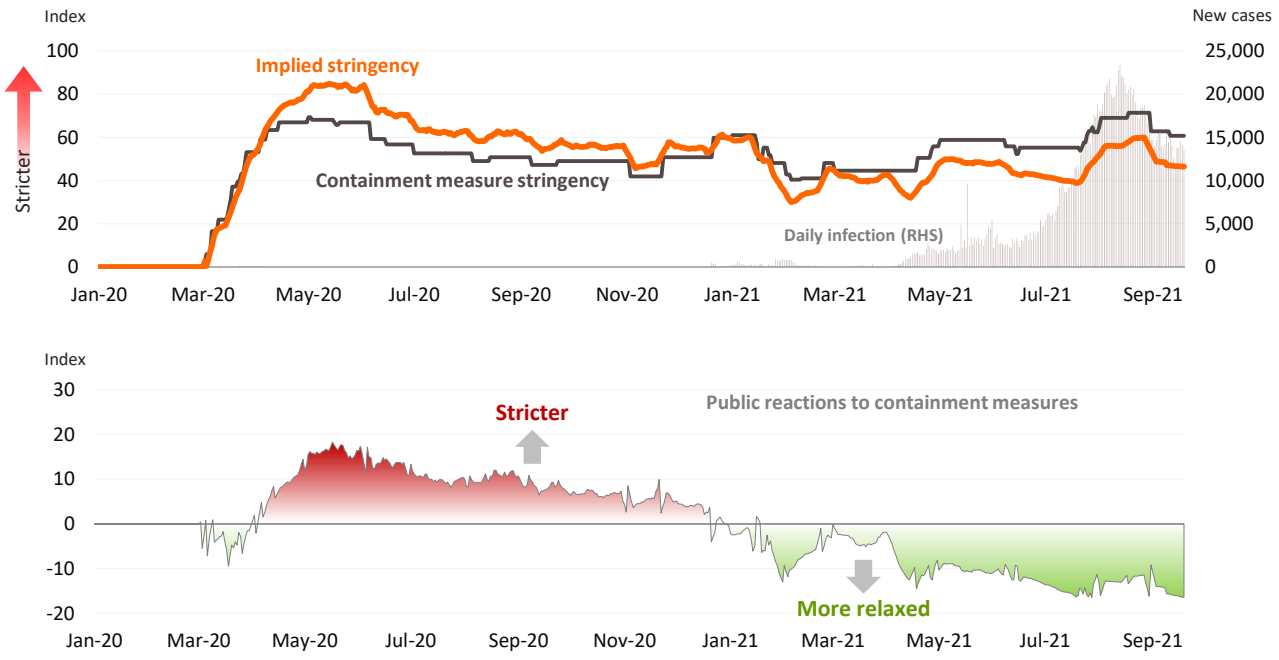
Figure 4: Containment Stringency and Mobility Indices



Source: University of Oxford, Google

To further understand this phenomenon of evolving public behavior, Krungsri Research has calculated an 'implied stringency index' based on modeling of infection rates within Thailand. The implied stringency index indicates how much imposed measures and changes in social behaviors could contain infection. So, the gap between this and the official containment measure stringency index can be interpreted as indicative of the public response to official measures. **An inspection of the data shows that in fact, through 2021, the public has been relatively slack about obeying the official requirements compared to their behavior in 2020, and this is believed to be for two reasons: the public have become increasingly used to the threat from Covid-19, and public health messaging remains confused.** These factors have come to the fore during the relaxation of the lockdown in September, when the gap between official and implied stringency returned to a level that was close to the maximum recorded, even though infection rates remain high.

Figure 5: Stringency index, implied stringency, and public reactions to containment measures

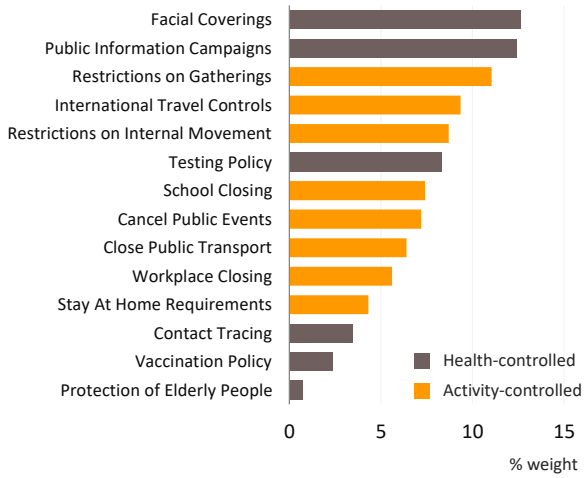


Source: University of Oxford, calculated by Krungsri Research, data as of Sep 19, 2021

In addition to the severity of the NPIs used, their effectiveness also changed over time, though again, this varied with different measures. Analysis of the relationship between the extent to which these were enforced or observed by constrained regression method, and it shows that wearing masks, providing public health information, and prohibiting large gatherings had a strong influence on the implied stringency index. These therefore improved the efficiency of the overall pandemic control efforts (Figure 6).

Beyond the 14 measures described above, the speed of vaccination programs and the efficacy of individual vaccines are clearly also very important factors in lowering infection rates, and Krungsri Research believes that the acceleration in vaccinations over the past 2-3 months has been a major contributor to the improved outlook and the fact that it is now possible to begin discussing how best to begin relaxing the lockdown.

Figure 6: Impacts of containment measures on implied stringency



Source: University of Oxford, calculated by Krungsri Research

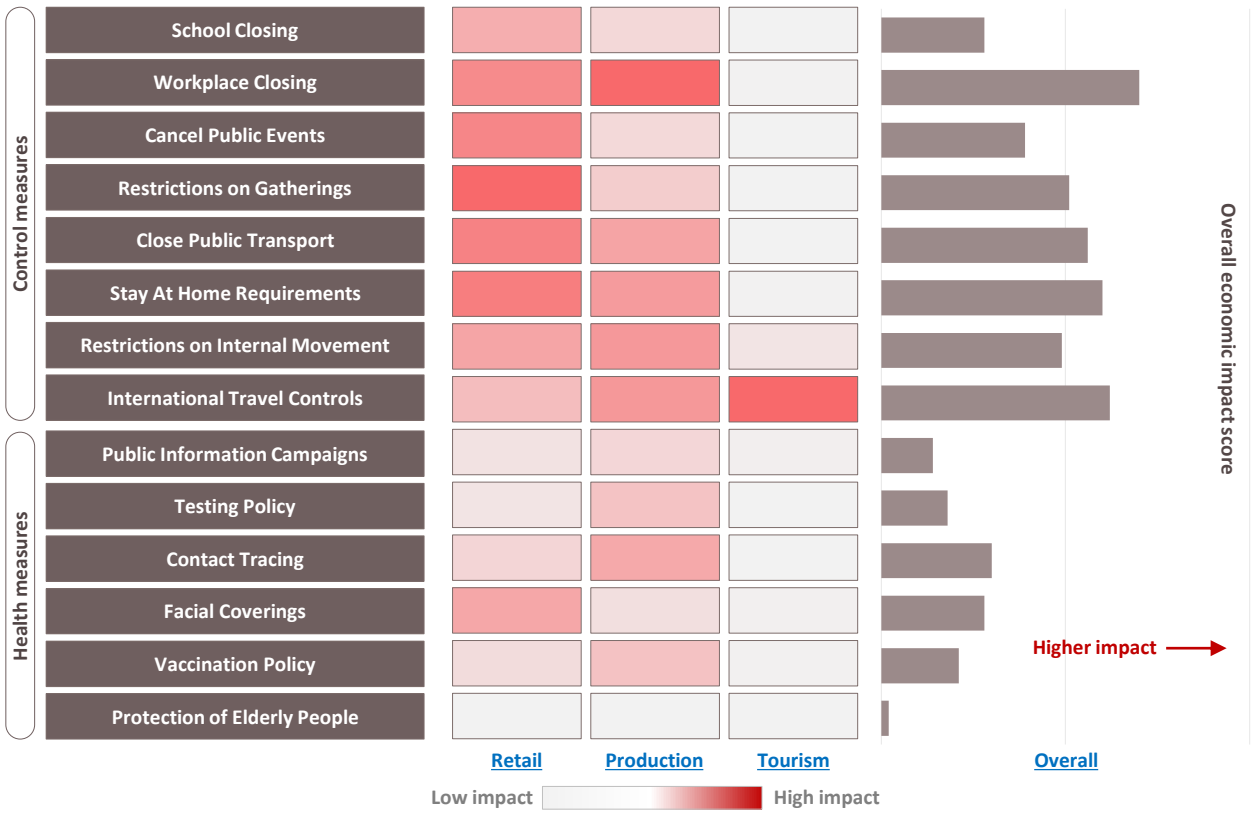
The strict lockdown helped to suppress infection rates, but this came at the cost of major economic dislocation

Strict government mandated measures, the closure of worksites, the falloff in travel, and widespread fear over infection among the general public all had negative effects on the economy, and partly because this damage was inflicted through contractions on both the supply and demand sides of the market, its effects were widespread. Krungsri Research has attempted to assess the extent of the damage generated by the 14 measures under consideration through an evaluation of three important economic variables, namely, retail sales, industrial output, and international travel. The results of this analysis indicate that the effects of individual control measures varied from one to the next.

- **Retail sales:** The volume of retail sales reflects the overall level of economic activity, consumers' willingness to spend and the health of the service sector. This analysis shows that prohibiting large gatherings, issuing stay-at-home orders, and closing public transport have had the greatest impact on retail sales, though the effects are particularly pronounced on sales of goods and services that rely on face-to-face or in-person interaction, such as restaurants, hairdressers, gyms and fitness centers, and shopping malls and department stores.
- **Industrial output:** Industrial output can be read as a proxy for the health of the manufacturing sector, and this was most seriously affected by the closure of workplaces, restrictions on travel, and stay-at-home orders. This is because manufacturing is so labor-intensive, and it is generally not possible to work from home instead of in a factory.
- **Travel and tourism:** As one would expect, the ban on international arrivals and departures had the most pronounced effect on travel, followed by restrictions on domestic movement.

Using principal component analysis (PCA) to analyze the combined economic impacts of control measures on these three factors reveals that the most economically damaging NPIs were shutting workplaces, halting international travel, and stay-at-home orders. At the other end of the economic spectrum, shielding the elderly, public health information campaigns, and mass testing imposed the lowest costs on the economy (Figure 7).

Figure 7: Impacts of containment measures on the economy



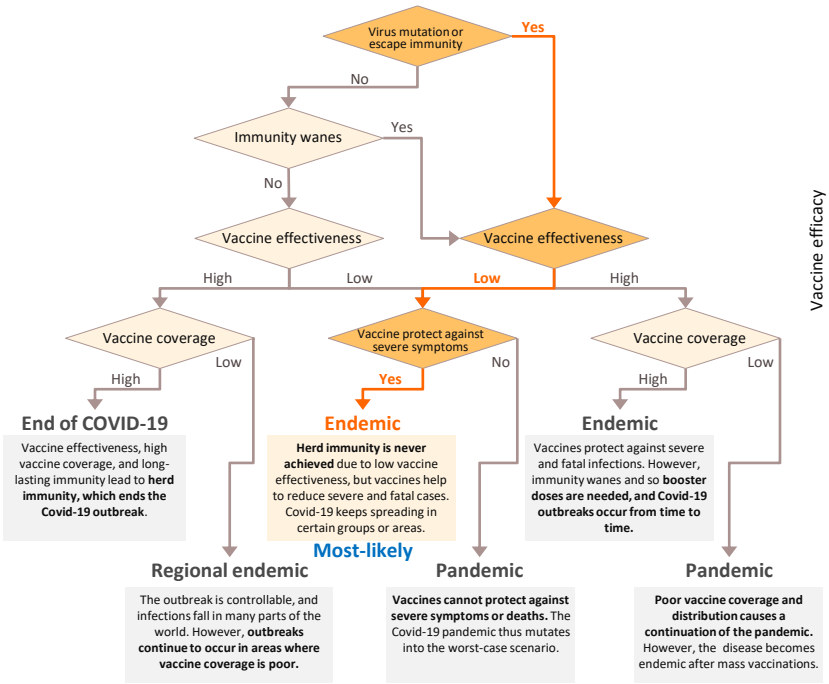
Source: University of Oxford, CEIC, calculated by Krungsri Research

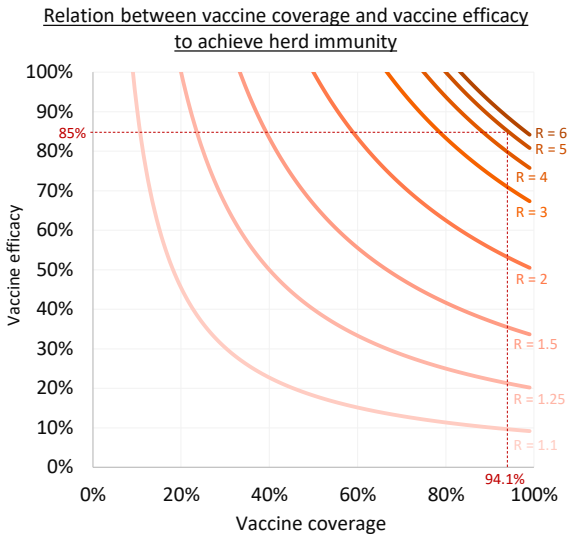
Covid-19 will become flu-like endemic, and so it is important that Thailand learns to adapt to the disease and to bring its responses into line with an evolving situation

The aggressive spread of the Delta variant means that widespread vaccinations may not lead to herd immunity in the near future. Unlike the original Wuhan strain, the Delta strain of Covid-19 has a basic reproductive rate, or R0, of 4-6 (compared to 0.9-2.1 for influenza, 1.0-2.8 for SARS and 1.5-2.5 for Ebola), which means that on average and in the absence of any mitigating factors, each infected individual will in turn infect a further 4-6 people. This has important consequences for the ability of societies to develop herd immunity since calculating at what level of vaccination this will occur involves the complex interaction of vaccine efficacy, the disease's R0 and the general vaccination take up rate. In the particular case of Delta, assuming an R0 of 5 and a vaccine efficacy rate of 85%, herd immunity would theoretically be reached when 94.1% of the population is vaccinated. Unfortunately, at present none of the Covid-19 vaccines offers this level of protection against the Delta variant, making it essentially impossible to achieve herd immunity at present.

Beyond this, the rapid evolution of Covid-19 may help the virus acquire the ability to escape the immune system, and over the longer term, it is likely that the illness will become endemic. At present, at least, four major mutations have emerged (Alpha, Beta, Gamma and Delta), and this ability of the virus to evolve rapidly makes it more difficult to build and maintain long-term vaccination-based immunity, which in turn implies that as time goes by, the risk of reinfection will likely rise. In addition, changes in the virus's genetic profile mean that it may also become more difficult to diagnose and to treat the disease. In light of this, Krungsri Research believes that Covid-19 will eventually become endemic, but although herd immunity may remain permanently out of reach, improving vaccines and treatments should help to dramatically reduce the number of serious and fatal infections.

Figure 8: Possible scenario for a post-COVID world





Given the high transmission rate of the delta variant [its R0 is around 5], herd immunity requires an 85% effective vaccine and that 94.1% of the population are vaccinated.

Source: Krungsri Research

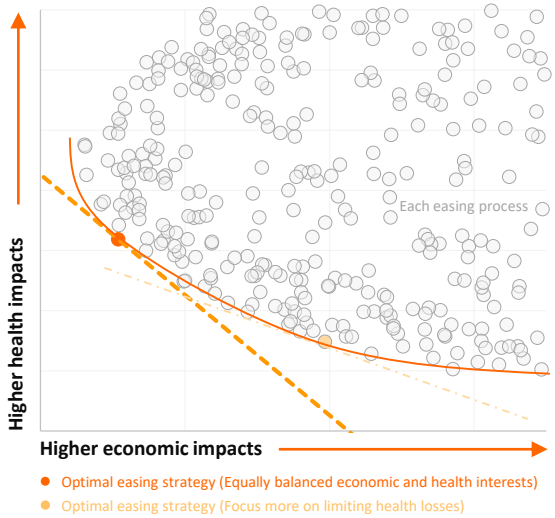
If the world does need to accommodate itself to the permanent presence of Covid-19, then it is imperative that Thailand finds and then moves towards an equilibrium point where the need to relax controls is balanced by an understanding of the level of risk of illness that society can tolerate. Now that infection rates are in decline, a rethinking of the approach to Covid-19 is thus warranted, though while excessively strict and extended controls will further damage the economy, winding these up too quickly could very well precipitate a 4th wave of infections, and it will be no easy task to navigate between these two potential pitfalls.

The authorities will need to be extremely careful when easing lockdowns, especially during the first few months of this process

To identify the most effective procedure for lifting the current control measures, Krungsri Research has estimated the effects on the economy and on public health of lifting each of the 14 NPIs under consideration. This, though, is based on several assumptions, namely that: (i) on average, vaccines are 50-60% effective against infection and 80-85% effective against serious illness and death; (ii) the health authorities will administer an average of 460,000 doses per day across Thailand, meaning that by the end of 2021, 37.3 million people will be double-jabbed (or more) and a further 15.7 million will be single-jabbed; (iii) if caseloads increase again, control measures will be reintroduced; and (iv) through the period of the analysis, the effective reproductive rate of Covid-19 will stay below 1 (i.e., caseloads remain on a downward trend).

To help identify the ideal policy, the Krungsri lockdown model was run 500 times (Figure 9). Each variation in the easing of the lockdown had slightly different impacts on the economy and public health, but overall, moving too slowly raised risks to the economy, while moving too rapidly provoked a new outbreak of Covid-19 and forced the reintroduction of the control measures that had just been lifted, which then increased economic losses. Clearly, the optimal policy would minimize risks to both sides of the equation (i.e., to public health and to the economy), though what this would mean in practice will depend on how the relative importance of economic and health issues are weighted. Krungsri Research has given these two an equal importance, resulting in a path for relaxing controls indicated by the orange in Figure 9, though if health concerns dominated over the economy and so were weighted more heavily, a different outcome would be more appropriate, as is the case with that indicated in yellow in Figure 9. Naturally, though, the tradeoff for following the path in yellow would be to improve health outcomes at the expense of a worsening economic outlook.

Figure 9: Result of simulation runs



Source: Krungsri Research

The results of this analysis show that the most appropriate way to relax the current control measures is to slowly lift these, taking particular care during September and October. The Optimal Stringency Index shown in Figure 10 indicates that even with a tentative initial relaxation, the number of new cases will not fall sharply and under this analysis, the effective reproductive rate in fact increases, though crucially, it stays below 1. Following this, in November and December, it becomes possible to be somewhat more aggressive in reducing controls, and during this period, the effective reproductive rate will drop and with this, case numbers will decline more sharply. However, some control measures will need to be kept in place as we move into 2022, and towards and then beyond the New Year, declines in caseloads will slow as the effective reproductive rate increases to slightly below 1.

Figure 10: Optimal stringency index and expected effective reproductive rate

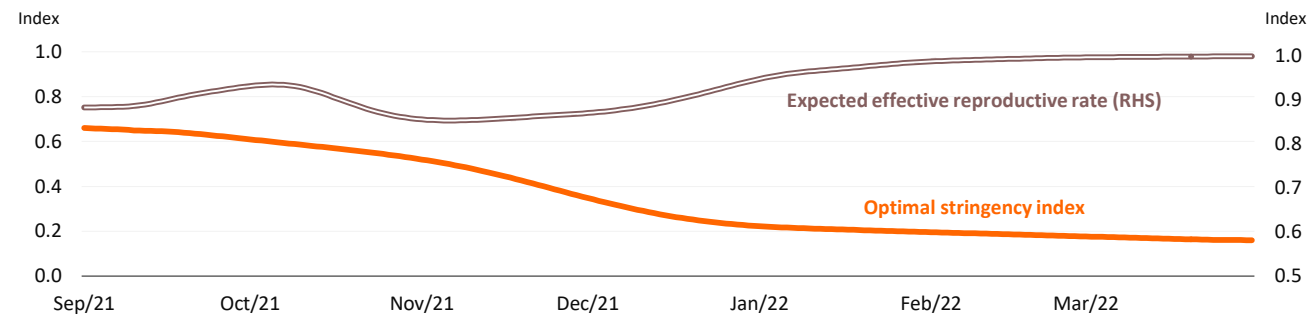
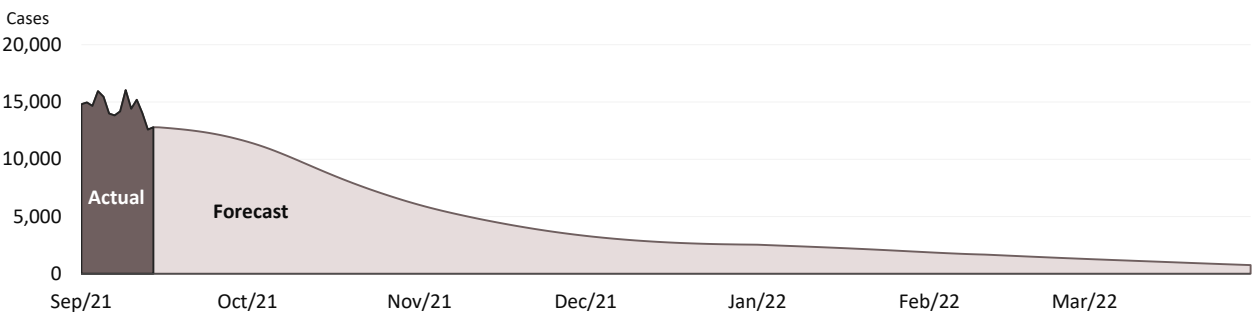


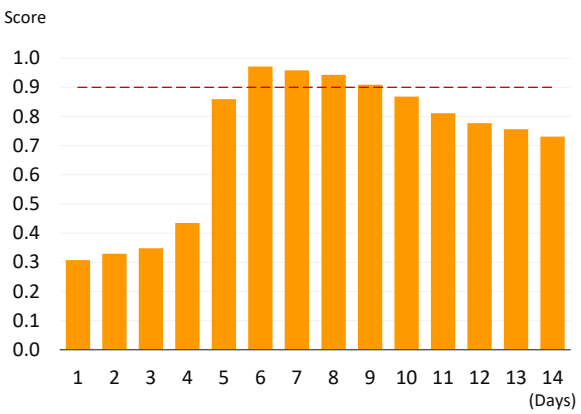
Figure 11: Forecast of new daily cases



Source: WHO, University of Oxford, Krungsri Research

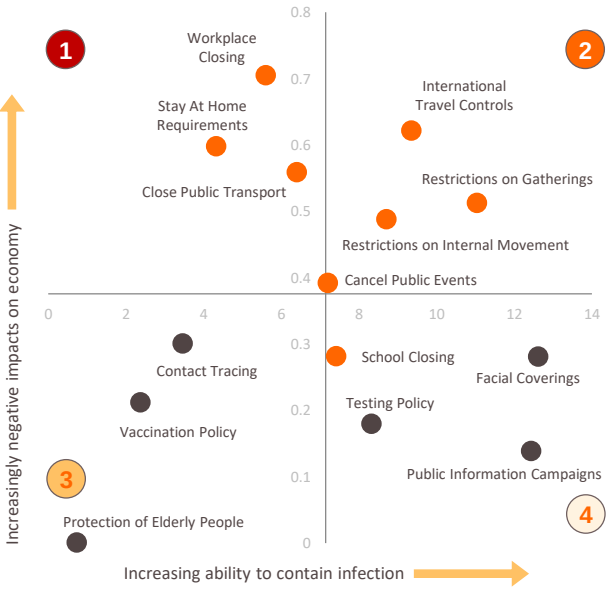
At any given moment in time, the NPIs currently in place will have an influence over infection rates for the following several days to weeks, and so as the authorities move to lift the lockdown, they will need to do so in stages and only after having carefully analyzed the results of the previous step. Research on the relationship between lockdown measures and infection rates shows that this is strongest in a period 6-9 days after the introduction of the measure but that after this, the relationship slowly weakens (Figure 12). However, because Covid-19 can have an incubation period of up to 14 days, a period of at least 2-3 weeks is more appropriate for each stage of the lifting of the lockdown since this would allow the results of each step to become apparent before moving to the next stage.

Figure 12: Impacts of containment measures on infection



Source: WHO, University of Oxford, Krungsri Research

Figure 13: Impacts of containment measures on economy



Source: Krungsri Research

The first controls to be lifted should be those that carry the highest economic cost, but which yield the lowest public health benefits, which in the Thai context are stay-at-home mandates, the closure of workplaces, and restrictions on the use of public transport (the upper left quadrant of Figure 13). Following this, the authorities should then ease measures that are economically costly, but which bring high public health benefits. Finally, control measures that are relatively sparing of the economy but that are effective in controlling the spread of Covid-19 may be maintained into 2022 because doing so will help to reduce the risk of additional damage to the economy that may arise from a resurgence in Covid-19 infections.

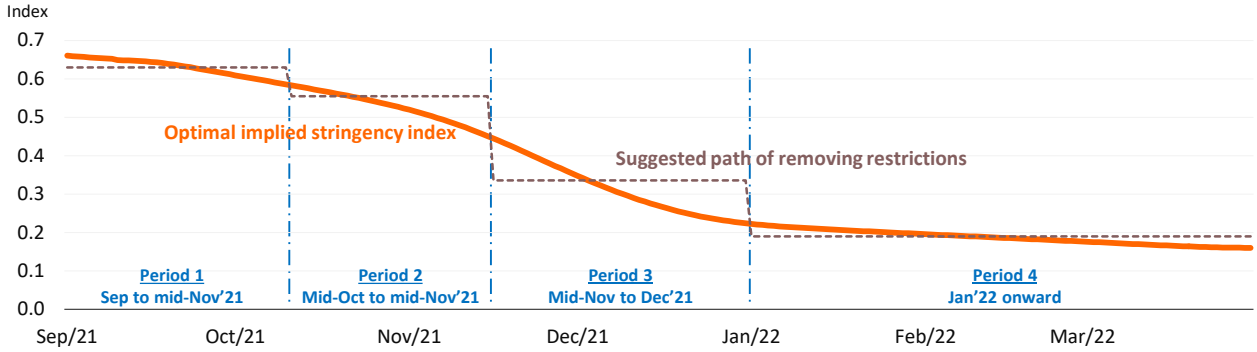
◣ Control measures will be eased slowly

Krungsri Research has taken the insights gained from the above analysis and used this to split the relaxation of control measures into 4 broad stages. These are outlined below.

Stage 1 (September to mid-October 2021)

- **Controls to be relaxed:** To reduce strictness of some measures including school closures, prohibitions on large gatherings, and restrictions on the use of public transport
- **Conditions to be met for the relaxation to go ahead:**
  - There should be a decline in the number of new cases and fatalities reported daily.
  - At a minimum, 40% of the population should have received at least 1 jab.
- **Examples**
  - Diners will be allowed to eat-in in restaurants.
  - Services that are provided to limited numbers of people at any given time (e.g., hairdressers and traditional masseurs) will be allowed to reopen.
  - Some in-class education will restart.
  - Some public transport (e.g., trains and buses) will resume normal services.

Figure 14: Current containment measures in Thailand



		Period 1	Period 2	Period 3	Period 4
Activity-controlled measures	School Closing	Require closing	Require closing	Recommend closing	-
	Workplace Closing	Require closing	Recommend closing	Recommend closing	-
	Cancel Public Events	Require cancelling	Require cancelling	Recommend cancelling	-
	Restrictions on Gatherings	10+	50+	100+	Recommend
	Close Public Transport	Recommend closing	Recommend closing	Recommend closing	-
	Stay At Home Requirements	Require with exceptions	Recommend	Recommend	-
	Restrictions on Internal Movement	Restricted	Restricted	Recommend	-
	International Travel Controls	Ban some regions	Ban some regions	Quarantine arrivals	Quarantine arrivals
Health-controlled measures	Public Information Campaigns	Coordinated public information campaign	Coordinated public information campaign	Coordinated public information campaign	Coordinated public information campaign
	Testing Policy	Symptoms and specific case	Symptoms and specific case	Symptoms and specific case	Symptoms and specific case
	Contact Tracing	For some cases	For some cases	For some cases	for specific cases
	Facial Coverings	Required all time	Required all time	Required all time	Required in some places
	Vaccination Policy	Two risky groups	Two risky groups	Two risky groups	-
	Protection of Elderly People	Recommended isolation	Recommended isolation	Recommended isolation	Recommended isolation

Source: University of Oxford, Krungsri Research

Stage 2 (mid-October to mid-November 2021)

- **Controls to be relaxed:** Restrictions on gatherings, the closure of workplaces and stay-at-home orders
- **Conditions to be met for the relaxation to go ahead:**
  - Caseloads should be under 10,000 per day and daily deaths should be fewer than 150 per day.
  - Daily caseloads should be continuing to fall despite the easing of measures already implemented in stage 1. The effective reproductive rate should also be below 0.8.
  - Workplaces should be fully prepared for the return of staff. Example measures to be implemented will include the following:
    - Workplaces should be suitably adapted, for example by increasing ventilation and enforcing social distancing.
    - At least 80% of staff working on-site should be vaccinated.
    - Covid-19 testing facilities should be available to all equally, and a system for alerting and managing staff when tests return positive should be in place.
- **Examples**
  - The maximum allowed size of public gatherings should be raised from 50 to 100 people, which will then allow for a wider range of activities to take place (e.g., dine-in, using open air sports facilities, and visiting parks).
  - Workplaces will be able to reopen, although the recommendation will still be for staff to WFH where possible.
  - Stay-at-home orders will be rescinded but the authorities will still request that the public avoid areas that are crowded or enclosed.

Stage 3 (mid-November to December 2021)

- **Controls to be relaxed:** School closures, the ban on public activities, restrictions on gatherings, the ban on overseas travel and restrictions on domestic movement will all be eased.
- **Conditions to be met for the relaxation to go ahead:**
  - At least 65% of the public should be single-jabbed and 35% should be double-jabbed, though this should rise to 80% for high-risk groups.
  - Daily caseloads should remain on a downward trend, despite stage 2 of the reopening having been implemented. Additionally, the average effective reproductive rate should be no higher than 0.8.
  - There should be no major outbreaks and no new clusters should have emerged in particular areas or activities as a result of phase 2 of the easing of the lockdown.
- **Examples**
  - Educational institutions will be permitted to reopen, although the authorities' preference will remain for education to take place off-site.
  - Public events will be permitted, though restrictions will remain, especially for activities that take place in enclosed spaces (e.g., going to the cinema or attending a concert).
  - Gatherings will be permitted regardless of the size of the group (at the previous stage, this was limited to 100 people). This will then allow the public to engage in a wider range of activities.
  - All restrictions on domestic travel will be lifted.
  - Restrictions on foreign arrivals from high-risk countries will be removed, although the need to quarantine on arrival will still be strictly enforced.

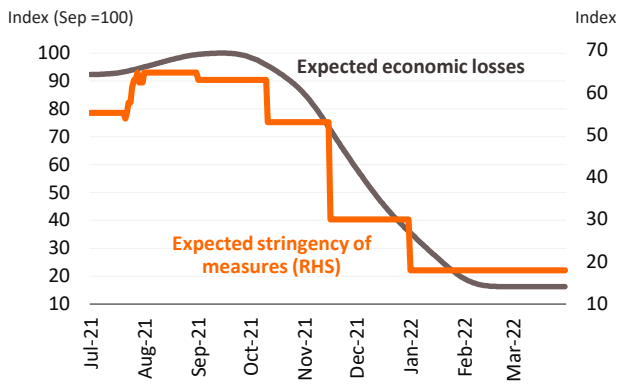
Phase 4 (January 2022 onwards)

- **Controls to be relaxed:** All restrictions on economic activity and universal mask wearing, together with the mass vaccination program.
- **Conditions to be met for the relaxation to go ahead:**
  - At least 70% of the public should be single-jabbed and 50% should be double-jabbed, this proportion rising to 85% for high-risk groups.
  - Daily caseloads should remain on a downward trend, despite stage 3 of the reopening having been implemented. Additionally, the average effective reproductive rate should remain below 1 and there should be no more than 50 deaths daily from Covid-19.
  - There should be no major outbreaks and no new clusters of infections should have emerged in particular areas or activities as a result of phase 3 of the easing of the lockdown.
- **Examples**
  - The majority of economic activities will return to normal under phase 4 of the relaxation, though the authorities will still issue recommendations, e.g., that at least 80% of those participating in events should be vaccinated and the public should still abide by social distancing guidelines.
  - International travel will still be controlled, and quarantines will still be required.
  - Public health measures such as public information campaigns, wearing masks, and Covid-19 tests will stay in place, especially for activities that occur in enclosed or crowded spaces since these may seed new clusters of infection.

The impacts to the economy during Covid-19's transition from a pandemic to an endemic disease may be significant and so accelerating this process will help to minimize losses

Having identified the best way to proceed with the lifting of the lockdown, Krungsri Research has then estimated the accompanying economic costs of moving forward with this (Figure 15). This shows that the lockdown ordered in July-August had the greatest impact on the economy in the period from the end of August to the beginning of September, but that easing control measures will also feed into a decline in the pressure of these on the economy. Nevertheless, these improvements will materialize only slowly and although by the end of 2021, almost all controls on the economy would be lifted under these proposals, the costs that they impose on the economy would still be at 40% of the level of those resulting from July's lockdown. By contrast, these fall to 18% of the July maximum under an analysis of the likely impacts of Covid-19 once it has become endemic.

Figure 15: Expected economic losses



Source: Krungsri Research

This research thus shows that even if the Thai authorities ease restrictions in the most appropriate way, the economy will still be seriously disrupted, especially during the period when the virus is becoming endemic (i.e., between July's lockdown and stage 4 of the winding up of this). However, the analysis also indicates that the faster the country moves into the last stage of lifting controls, the greater the savings to the economy and to public health, and so shortening the period of this transition and encouraging the rapid adoption of new norms should be the primary policy goal. To this end, Krungsri Research has identified 6 factors or behaviors that will be important in the coming period.

- **Effective public health messaging:** The research outlined above identifies the gap that has opened up between the theoretical containment measure stringency and the implied containment measure stringency, though it is the latter that has the greater impact over the spread of the disease and that imposes the lower economic costs. Thus, effective messaging over control measures should help both to increase the impact of these and to lessen their negative consequences for the economy.
- **Ensuring the rapid and efficient administration of the vaccine program and providing a range of vaccine choices:** The vaccine program clearly has an extremely important role to play in reducing caseloads and fatalities, and an effective program that ensures broad coverage will help to accelerate the transition to the post-lockdown environment.
- **Developing new protocols to minimize the risk of transmission in schools, workplaces, and retail environments:** If the world is going to learn to live with Covid-19 as an endemic illness, it will be necessary to adopt new practices that reduce as far as possible transmission in high-risk locations. This is especially so for workplaces and shops because although the research indicates that closing these does indeed help to throttle back infection rates, this may also generate extremely significant economic costs. It is therefore imperative that stakeholders develop new standards for managing risks in these locations, for example by reducing crowding through a change in work practices, or by investing in new hygiene measures.
- **Developing a system to protect against/alert individuals to the risk of infection:** Although Krungsri Research envisages the relaxation of the lockdown moving forward only carefully and slowly, there is still a risk that this may lead to the emergence of new clusters of Covid-19. However, access to a system that helped to protect against or to alert users to the risk of new infections would help to increase the public's ability to manage this unpredictable situation.

- **An increase in the health authorities' capacity to manage new outbreaks:** This includes the development and implementation of improved treatments, which will then feed into lower fatality rates. This is a major determinant of how far it will be possible to treat the illness as endemic, and Krungsri Research believes that the ability to manage large patient numbers, develop effective treatments that do not have long-term health consequences, guarantee easy access to healthcare services, and ensure low treatment costs will all be important factors in determining how rapidly and how far the public can adapt to co-existing with Covid-19.
- **Business adaptation:** Business has a major role to play in ensuring that society is successful in moving successfully towards a world where Covid-19 is part of the background state of affairs. This will involve immediate responses, such as ensuring that staff are safe and that crowding is reduced for, e.g., customers accessing a business's services, but will also extend to include much broader considerations, such as how demand for goods and services will evolve, how transactions will tend to move from offline to online channels, and how digitalization will affect a broad swath of activities. These adaptations by businesses to a changing environment will then not just help to reduce economic losses by shortening the timeframe for Covid-19's transition from pandemic to endemic but will also help to sustain business recovery and growth as the world moves into the next stage of the Covid-19 era.

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