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## Understanding smart lockdowns

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A model developed by a group of scientists recommends an intermittent lockdown



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Lately, the term 'smart lockdown' has been thrown around by many for mechanisms that are neither smart nor define a lockdown. For a range of reasons, a complete lockdown is opposite of combating the Covid-19 outbreak. This necessitates the need to find an alternative that can help reduce the pressure on economy, personal and national, without putting lives in danger. This alternative can be a 'smart lockdown', one that is conceptualised well enough to balance between lives and livelihoods.

Lockdowns cannot continue indefinitely, but if they are lifted the existing infections would cause a surge in the numbers forcing another lockdown. This is the yo-yo effect, with the number of infected people going up and down with every new lockdown.

A model of a smart lockdown developed by a group of scientists, including molecular cell biologists, economists and health system managers, recommends an intermittent lockdown: ten days of lockdown and four days of work per fortnight. The basic notion is that, "In this way, the virus replication number, the number of people infected by each infectious person, drops below one – the magic number that causes the epidemic to decline". The model suggests that after several such cycles, the number of those infected will begin to drop.

The model is built on the basic principle of epidemiology that when  $R_0$  – the reproduction rate defined as the number of infections an infected person can cause – is below 1, the number of infected people declines exponentially. The cycle provided by the smart lockdown lowers the reproduction number ( $R_0$ ) through a reduced time of exposure and an "anti-phasing effect in which those infected during work-days reach peak infectiousness during lockdown days".

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To drive  $R_0$  below 1, the model proposes a cyclic schedule with four days of work followed by 10 days of lockdown. With a staggered/rotational duty of employees some level of productivity can be achieved. The cyclic strategies help in reducing the  $R_0$  by two mechanisms: restriction and anti-phasing.

Covid-19 has a latent period of three days, in which it is non-infectious. The suggested 14-day cycle helps people be away from workplace, and hence spreading infection, as their lockdown days begin when they reach the infectious state. Even if someone gets infected on Day 1 of the cycle, their peak infection period would be during the lockdown days, reducing the number of secondary infections, the  $R_0$ , they can cause.

Coming to the situation in Pakistan, in recent days, the increasing volume of traffic on the roads and voices heard on the media tell us that people want lockdown to end. Heavy losses are certain to be incurred on the economy and individuals in the form of loss in GDP through trade disruptions and increasing unemployment and poverty.

In this scenario, Pakistan can opt for a much adapted version of the smart lockdown. Wearing of gloves and masks has been found to reduce the transmission of infection, and should be made mandatory for everyone leaving home. Those who can work remotely (from home), should continue to do so, including online classes.

All big firms should plan for a two-week work schedule as discussed above. It will allow managers and employees to plan ahead and stay productive, while minimising the chance of spreading infection.

There should be extra emphasis on following strict SOPs at workplace. This strategy needs to be adopted not as an alternative but in addition to all the epidemiological measures, including hygiene, physical distancing and testing, tracing and isolating the infected.

Big businesses should be allowed to continue with protocols that they preannounce and maintain. There should be certain penalties if they show up to be a hub of contagion. Same goes for SMEs.

Local shopping centres can be opened but with their associations announcing clear protocols such as neighbouring shops choosing different days to open; each shop displaying visibly the number of people that can enter and ensuring that only that number which can maintain social distance is allowed entry. Restaurants may be allowed only for take away and delivery.

Local government and police can develop monitoring mechanisms in collaboration with reputed civil society enterprises. Electronic surveillance will be useful in this regard. The strategy should continuously adapt and fine-tune the number of workdays or rotation of staff according to the results achieved.

Risky? Yes, it is risky. Our analysis suggests that the economic cost is huge and perhaps more than our debt-ridden, IMF-strangled economy can afford. People are testing the lockdown because of their own needs every day. The government is finding it hard to deliver support. Signs of food rations being raided and social unrest are beginning to appear. So yes, risks are becoming apparent every day.

Covid-19 is an existential war – perhaps, the worst we have seen in our existence. We are exposed to very large risks. Our approach to beating this must be novel.

No strategy can or should remain static. With experience and evidence all strategies must change and develop. We are merely suggesting a

lockdown approach that can be fine-tuned with experience willfully rather the current approach of people developing informal approaches to beat it.

The world is perplexed with this Black Swan event. No one has an advantage over knowledge and information. There should be a far more public interface (virtual not physical) in this effort to combat the problem. People need to see the guidelines, SOPs and other information that will guide as well as educate them on behaviour and public health.

Covid-19 is an existential war – perhaps, the worst we have seen in our existence. We are exposed to very large risks. Our approach to beating it has to be novel. It is time to meet these risks in collaboration with our best talent and innovation. Designing a lockdown mechanism that is actually smart, fully implemented and diligently monitored can help us get out of this situation. In its absence, a complete lockdown, with all its negative consequences, is the only option.

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