

Policy recommendations for ending the lockdown and the approach to take

13th April 2020: A policy paper by Gerard Lyons and Paul Ormerod ¹

Overview

This paper examines the options for ending the lockdown and outlines the approach the Government should take.

This lockdown has been successful at saving lives and reducing the infection rate and spread of the virus. Unlocking allows the economy to come out of recession.

The longer the lockdown, the more likely it is that a temporary hit to the economy results in a permanent loss of firms and jobs. The scale of permanent loss will rise in a non-linear way with the length of the lockdown.

But the virus must also be kept under control. Unlocking should therefore happen gradually, in predictable stages.

Regardless of the exit strategy followed, it is essential that behaviour continues to be different to what it was pre-crisis.

The government's slogan on behaviour ("Stay home, protect the NHS, save lives") has been very effective. It emphasises that the most important thing is not whether you yourself get the virus, but that you act in ways which reduce the risk to others. *Responsible behaviour is the key to a successful exit strategy.*

In particular, large gatherings must be avoided. It is in such gatherings that an infected person might infect many others.

We favour unlocking based on economic activity, as this is the only way that is guaranteed to help the economy and the most likely way to ensure that people behave cautiously and keep the virus under control.

We advocate a traffic light approach – Red, Amber, Green. This is easy to understand and gives a clear sense of direction, with economic activity, schools and shops opening in stages in a gradual and predictable way.

The trigger to unlock would be influenced by medical data. In some of the countries that are already starting, or are about to ease lockdown, such as Spain, Austria and Denmark reported new cases are now below half their peak value. This seems a good metric to use in the timing of the first phase of relaxation.

Any unlocking must also have two critical technical components: enhanced testing and using technology to improve tracking and tracing'. These will be part of any exit route.

Main points and Policy recommendations:

- The government must continue with clear and strong messages that behaviour needs to continue to be responsible. People must act to protect others. These changes to behaviour need to continue whatever exit route is chosen until either a vaccine is available, or population wide testing and tracing is in place.
- We rule out two options. These are: continuing with the economy locked until a vaccine is available; or a lockdown followed by an immediate exit, as was the case in Wuhan. In addition, it is important to note the continued rapid progress in the global search for antivirals to treat this virus, and this should, if anything, strengthen the argument for ending the lockdown sooner.
- We recommend that four options for unlocking the economy are considered: a traffic light approach based on economic activity; unlocking based on age; unlocking based on geography; and unlocking

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based on immunisation. It may be possible to combine different elements of each, such as economic activity and age by focusing on nurseries, schools and universities; or improve immunisation as part of ongoing testing and tracking.

- *We do not support releasing based on age groups and certainly not by beginning with 20-year-olds.* This would not be the best route to kick-start the economy and would risk embedding the virus and its return as the infection rate among this group would rise. The argument that 20-year-olds would be immune and not infect others would require not only impeccable behaviour but also considerable time, months perhaps, as each member of this cohort would have to contract the virus and be tested for immunity from it.
- Our favoured option is to unlock based on economic activity, including schools, and that the best way to do so is gradually and in a predictable way. We advocate a traffic light approach as it is easy to understand and provides a clear sense of direction.
- *Traffic lights:*
 - In the Red Phase people must still stop doing many things they did before the crisis, but a number of economic activities (listed below) are opened.
 - Then the Amber Phase, where caution is still required, but more economic activities are unlocked.
 - Finally, the Green Phase where all activities are open.
- *The Red and Amber phases last three weeks, allowing time for the effectiveness and safety of each phase to be assessed, before proceeding to the next one.*
 - Lockdown extended from Monday 13th April to Monday 4th May
 - Red phase: three weeks Monday 4th May to Monday 25th May
 - Amber phase: three weeks Monday 25th May to Monday 15th June
 - Green phase: from Monday 15th June
- We recommend that during any unlocking that increased testing and utilising technology to enhance tracking are essential. The ideal should be mass testing using antibodies to see who has had the virus, to influence decision making, not to determine who should be released. There too needs to be use of technology whether NHSX aiming to develop Singapore's tracing approach or using latest apps from the technology firms. To enhance transparency, the UK regulatory authorities should explain why any treatments used in any other countries are not available here.

Behaviours matter and are key to understanding policy impacts

We use the analytical framework of epidemiological models alongside the key behavioural insight from economics.² For the optimum exit strategy to be chosen, it is important to include the views of economists and social scientists, not epidemiologists alone.

The lockdown has already led to a significant change in behaviour by the British public³. This adherence to the lockdown appears to have taken senior politicians by surprise – in part because it appeared to take the authors of the epidemiological models by surprise. It highlights why behaviours should have been factored into the modelling exercise already – and why they must be taken into account in exit strategy decisions.

This is ever more important as the nature of epidemiology models is that they will usually show that if one person is infected then the virus will re-emerge. However, this could be mitigated to a very considerable extent if people react to incentives and do not revert to pre-virus behaviour.⁴

Thus, the focus must be about how people influence others and not just about whether they catch the virus themselves.

The importance of behaviours has a significant bearing on the exit route - not supporting unlocking by geography or by age cohort - but supporting unlocking by economic activity.

The economic cost of the lockdown

Locking down the country has a considerable economic cost. It is hard to analyse yet how much of the temporary hit will become permanent, but that the economic cost becomes greater over time, not just to the government but to businesses themselves. That is, permanent damage suffered by the economy will likely be a non-linear function of the length of the lockdown.

It is very difficult to form a precise estimate. Dr Gudgin calculated⁵ that one in six people work in sectors that are directly impacted by the virus and shutdown. In addition, is the issue of how many might be indirectly impacted, through second round effects. Overall, early estimates suggest that total output in the UK seems to have fallen by at least 15 per cent and possibly as much as 30 per cent since the introduction of lockdown. The UK economy is currently around £2.2 trillion. This is about £42 billion a week. The cost in lost output may be between £6 billion - £13 billion per week, as it is hard to be precise about this figure. Our own estimate is the economy contracted 25% in the second quarter, or around £10 billion per week in lost output. The overall cost may prove higher than this.

² We explained this in our earlier discussion paper, cited in The traffic-light route to ending the economic lockdown – 5 April 2020.

³ We note the evidence provided at the daily press conference on Friday 10th April, highlighting the significant fall in use of private cars and public transport, and the general decline in traffic. It was also a point referenced in many press comments.

⁴ See an adjoining technical paper, “SIR Models with endogenous behavioural response”, by Ormerod and Prof Robert Rowthorn of King’s College, Cambridge and Dr Rickard Nyman of UCL. Department of Computer Science, University College London and Algorithmic Economics Ltd. They have combined the central insight of economics, that agents respond to changes in incentives, with a standard SIR model of epidemiology. They show that introducing endogenous behaviour by Susceptibles into a standard SIR model influences the solution paths of the models in ways which are highly relevant to current policy debates over the release of lockdown. They look at three scenarios and their impact on a future virus reappearing. For instance, if people adjust their behaviour based on the information contained in infection rates, the proportion of the population which eventually gets the virus is reduced substantially and the peak infection rate is reduced to about one-third of that reached with no behavioural response

⁵ See Policy Exchange ‘Limiting the economic impact of the Covid-19 virus’, 27/03/2020
<https://policyexchange.org.uk/publication/limiting-the-econaoomic-impact-of-the-covid-19-virus/>

Unlocking

Right to think in 2 to 3-week phases

It appears appropriate to assess the progress of different interventions in two to three-week phases. As noted, for instance, in the MRC Centre for Global Infectious Disease Analysis⁶, “Given the lag of 2-3 weeks between when transmission changes occur and when their impact can be observed in trends in mortality, for most of the countries considered here it remains too early to be certain that recent interventions have been effective.” That is, as is often the case, it is necessary to allow for the lags over which policy will be effective. The need for policy effectiveness to be reviewed after two to three-week periods is reflected in the time periods, we have allocated to our traffic light approach.

What then are the options to consider for a gradual unlocking of the country?

There are then six options, two of which we would rule out immediately.

Options to rule out

- **To wait until there is a vaccine.** There is a vaccine gap. Tremendous progress is being made on closing this vaccine gap. There is speculation a vaccine could be in place this year, although mass production would take considerably longer. It is not credible to wait until a vaccine is available before ending the lockdown. Large swathes of the economy would be wiped out. People will die because of non-detection of cancers and other serious health conditions. The pace of advance in the search for antivirals to overcome this virus also strengthens the argument in favour of ending the lockdown sooner.
- **To have a long lockdown followed by an immediate exit.** Immediacy is an instant end to the lockdown once the trigger is given. This might encourage too long a lockdown phase. In Wuhan, for instance, complete lockdown lasted eleven weeks.

This leaves four options for a gradual unlocking:

Option one: Unlock based on economic activity - our favoured approach

This is the best way to bring the economy back to life while keeping medical risks to a minimum.

It has to be easy to understand, hence the traffic light approach. The aim is to allow each phase to last three weeks, thus allowing time to assess its effectiveness both in economic and medical terms.

A key thing is to avoid both large gatherings, and smaller gatherings where people are close together, for instance bars or clubs in city centres. Although an infected person might only pass the virus on to a couple of people in each group in which he/she spends time, in such settings an infected person can easily spend time with several different groups in the course of an outing.

Unlimited use of private cars (except to crowded destinations) is low risk.

As noted above, we would suggest that lockdown is followed by three phases, as in a traffic lights, from red to amber to green. Then everyone is clear about the sense of direction. It will reduce the risk that Lord King⁷ warned of, where lockdown might cause rebellion. It should ease the pressures on mental health, loneliness and fears about domestic abuse that have risen during the lockdown.

The message is that *everyone* needs to continue to be vigilant in the red and amber phases. Increased activity and travel increases the risks of accidents and poses increased capacity pressures on an NHS that, while by this stage passed the peak of the virus, is still likely to be stretched. For instance, restricted speed limits of 50mph

⁶ MRC Centre for Global Infectious Disease Analysis, ‘Report 13 - Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries’ <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-13-europe-npi-impact/>

⁷ Mervyn King made comments related to this during a Policy Exchange Webinar on 1 April 2020. The speakers were Lords King, Darling and Macpherson and Gerard Lyons, chaired by Juliet Samuel.

might remain in place on all motorways and dual carriageways until the green phase. As public behaviour and adherence is critical to success, unlocking controls that the public do not see as logical makes sense.

Red Phase:

The first phase would deliberately be called red, to ensure people stopped to think before they did things. The message is that we must still stop doing many things compared with before the crisis.

- All small shops reopen, and they would have to exercise strict social distancing, as most supermarkets do now.
- All local shops reopen in villages.
- Personal activities that are seen as low risk, such as beauty salons or hairdressers reopen but masks must be worn.
- Take-aways from restaurants and pubs, as now.
- All parks should be open and those that are closed, reopen. In urban areas, privately held green spaces such as golf clubs, school playing grounds should be made available to the public.
- Swimming pools open for primary school children.
- Nurseries should re-open and schools for key workers and at-risk children should remain open as now. Some discretion is needed regarding schools in order that they can cope, so allow back pupils who are sitting public exams this summer.
- Travel should still be discouraged, and most international flights still banned as now.

Amber Phase:

The second phase is called Amber to encourage people to still be careful.

- Unlimited private car journeys should be allowed. People may in fact substitute this for public transport. It is important not to allow this in the red phase as increased accidents would put strain on the NHS at an inappropriate time.
- People should be able to visit their families but should – naturally – be asked to act sensibly – especially when visiting at risk groups.
- No parties, or large gatherings.
- Schools reopen, also colleges and universities to hold exams.
- Small firms, employing up to 50 staff, to reopen.
- In order to minimise pressure on public transport, and crowds, there would have to be attempts to vary the rush-hour, with different opening and closing times.
- Wearing masks and disposable gloves should be compulsory when using public transport.
- Restaurants could reopen but with strict seating demarcations, to uphold social distancing.
- We would still be reluctant to reopen large department stores, particularly as they will hold excess stocks and feel incentivised to host sales that may attract crowds.
- More public services like libraries reopen.

Green Phase:

- It would only be in the green phase that sporting events or mass gatherings could take place, or places of worship reopen. These cannot reopen any sooner. It is in large gatherings that a single person may infect many⁸. This includes theatres, cinemas and creative activity like comedy clubs.
- Larger firms reopen in this phase too
- Department stores reopen now; if they opened in an earlier phase, they would be tempted to host sales, to offload unsold stock, thus attracting crowds.
- Weddings can take place and funerals can take place with larger groups
- Pubs, restaurants and night clubs can only reopen at this stage, especially as we will be in the summer.

⁸ This issue has figures prominently during the policy debate, in the UK and elsewhere, regarding the Mitigation and Suppression strategy.

- Mass transit could return to normal but wearing of masks should be compulsory with strict enforcement⁹.
- Gyms can only reopen now, but must ensure enhanced sanitation, with single use areas and not widespread use of the gym.
- International flights still banned to countries deemed at risk. Liaise with other countries to see if tracing apps can be used for international passengers.

The lockdown is helping overcome the health risk the country faces. However, only by ending the lockdown can we address the economic, social and quality of life challenges.

Option 2: Unlock based on age

In our view the only argument in favour of using age in the unlocking is focused on nurseries, schools, colleges and universities. There appears to be low transmission of the virus from schools and they play an important part in allowing the economy to come back to life, as people can return to work. But again, this needs to be done gradually, perhaps with nurseries first, then schools and possibly universities geared around the end of year exams.

One suggestion is to “release” people by age cohort, beginning with younger age groups. The argument behind this is justified in one of two ways. A defensive argument, that older age groups are more likely to suffer serious problems from the virus and thus should be last in the queue to leave the lockdown. The latest global fatality ratios are overall 0.66%, varying from close to zero for under 19s, to 0.031% for 20-year olds, 0.08% (30s), 0.16% (40s), 0.6% (50s), 1.93% (60s), 4.28% (70s), 7.80% (80s and over).¹⁰ Or, a proactive argument, that younger people are those least likely to suffer from the virus or, the argument (which we think is the wrong way to look at this), that they have suffered most from the lockdown.¹¹

We are against releasing based on age cohorts, particularly beginning with the young, as we feel *this would not kick-start the economy much* (which is a key aspect of unlocking). As important as this group is, innovation from 20 year-olds is not going to fill the economic void. Also, they are not at crucial stages of business to be reopening them or running them; they are not going to be selling to other younger people unless they have money

The economic output of this group, the 20-year olds, is relatively low, and the evidence for this is that their wages and salaries are lower than older age cohorts, reflecting their lower marginal relative productivity. We are not in favour of releasing based on age, even if another group was selected first, but if one was to release on age cohorts it makes more sense to focus on the more productive group from an economic perspective, those running firms, which would be in their 50s, or so.

Releasing on any age cohorts contains another inherent problem, particularly if they are likely to mix among themselves. The infection rate among this group will rise. We cannot be certain to what level it would rise to, but our thinking is that it is very likely that infection rate would rise above one, so that, for instance, the bulk of the 20-year-old cohort would be infected.

The risk of this then spreading to others would be high. In the exit phase it is not just catching the virus but not passing on the infection that is key, and behaviours would be an important aspect of this. Thus, an aspect is how age groups might behave and whether this is possible to administer – especially for young people who live with

⁹ There is increasing evidence that the main way in which the virus spreads is through droplets in coughs and sneezes. This implies that on mass transit, for example, nose and mouth covering should be compulsory. It does not have to be a medical mask, and covering will reduce very substantially the spray from droplets. Masks are not to protect you from the virus, they are to protect other people from you if you have it. See for example Wölfel, R., Corman, V.M., Guggemos, W. *et al.* Virological assessment of hospitalized patients with COVID-2019. *Nature* (2020). <https://doi.org/10.1038/s41586-020-2196-x>

¹⁰ ‘Estimating case fatality rates of Covid-19’ *Lancet*, 31/03/2020 <https://www.thelancet.com/action/showPdf?pii=S1473-3099%2820%2930245-0>

¹¹ This argument has been put forward by The Resolution Foundation.

older family members. This raises risks of embedding the virus. The University of Warwick¹² paper that advocated releasing twenty somethings, stated: “Those released would presumably also have to give a strict undertaking, upheld by the law, that they would avoid all other older adults... That is because of the health externalities that infected person can impose upon the rest of society.” It is our view that if one was to imagine one group less likely to adhere to social distancing it would be this group, particularly if given the government endorsement to be unlocked.

Even if one were to make the unlikely assumption that 20-year-olds, if released early from lockdown, were to have impeccable behaviour *there is still a significant time argument against unlocking this group*. The argument put forward is that their fatality rate is low, all would catch the virus by mixing, and then they would all become immune, thus not passing it on to others. But this would require waiting until all 20-year olds have contracted the virus and have all be tested to show that they are immune. This would likely stretch into months. Then a similar length of time with 30s, and so on.

Initial opinion polling from YouGov suggest strong opposition and this might raise questions about how everyone else might behave if this policy were to proceed, with 53% strongly opposing and 22% somewhat opposing and only 3% strongly supporting releasing Covid-19 restrictions for 20-year olds not living with their parents.¹³

Option three: Unlock based on geography

We do not view ending the lockdown based on geography *alone* as credible for the UK. It is however a possible option that needs to be recognised. The challenge, however, with this option is the dominant role that London and its service sector occupies in the UK and, as noted below, the challenge this poses in addressing the virus.

The main argument behind this is that there has been substantial variation in the virus across the UK. We are learning more about the virus all the time, as data and research analysis becomes available. The idea here seems to be to phase out lockdown on a geographic basis, with areas of low infection the first to be released. Yet it is hard to see the justification for this in a country like the UK.

A possible inspiration here is China, where the infection rates in the rest of China outside Hubei were very low¹⁴. The Chinese approach, however, may be difficult to follow, as it imposed truly draconian lockdown policies and effectively isolated Hubei - a province, we should remember, of some 60 million people, not far short of the population of the UK. The UK is much smaller geographically and more tightly knit than China. The fact that others may be able to unlock by geography neither means that we could.

Everywhere, except a few remote areas such as the Highlands and Central/North Wales, contains substantial urban areas. Thus, locking down particular regions, or areas, apart from remote ones, seems difficult, and would not result in much of an early rebound in economic activity given their small economic scale as a share of the UK.

We note reports from other countries that tentative analysis on the infection rate suggests it may be around fifteen per cent but more particularly for this point here, it does not vary by size of cluster¹⁵. Naturally, on this basis, one might expect cities and larger towns to contain more cases. Also, the analysis of the virus to date shows the importance of clusters, but this would argue the case more for effective testing and immunisation.

Just as it is hard to imagine keeping people apart if different age cohorts are released, it is also difficult to imagine unlocking based on geographic region, too. But the question of whether decentralisation can play a role in the

¹² An example is the paper by academics at Warwick which argues for “releasing” young people in their 20’s who do not live with their parents https://warwick.ac.uk/fac/soc/economics/research/centres/cage/manage/publications/policy_briefing_oswald__powdthavee.pdf

¹³ You Gov, 9/4/2020 <https://yougov.co.uk/topics/health/survey-results/daily/2020/04/09/632bd/2>

¹⁴ See Chart 8 in <https://medium.com/@tomaspuoyo/coronavirus-act-today-or-people-will-die-f4d3d9cd99ca>

¹⁵ The cluster effect is attracting increasing attention, as this interesting article from six correspondents across the globe highlights, in the Guardian on 9/04/2020, ‘The cluster effect: how social gatherings were rocket fuel for coronavirus’ <https://www.theguardian.com/world/2020/apr/09/the-cluster-effect-how-social-gatherings-were-rocket-fuel-for-coronavirus>. On 31/03/2020 Professor H Streeck of the University of Bonn established a “Covid-19 case study cluster in Heinsberg”, to follow 1,000 people, representative of the German population, interviewing them to identify causality with pre-existing conditions, to generate prevention recommendations. <https://www.deutschlandfunk.de/die-nachrichten-wissensnachrichten.2794.de.html>

exit strategy needs to be raised. There is mixed evidence so far in this crisis, with some areas like Manchester exercising decentralisation to purchase protective equipment and two health authorities now trailing particular drugs to be beat the virus, in contrast it is said there is too much centralisation over testing.

To maximise the economic rebound based on unlocking by geography requires unlocking London, which accounts for about one-quarter of the UK's gross value added and into which millions of people commute. Revitalising the London economy is thus vital to economic recovery. Unlocking *all* economic activities in London, given its scale, without testing and tracking in place, would seem likely to see an early rise in the infection rate. There might also be increased migration to London as people seek to find work and take advantage of a possibly easier renting market. One might also ask how this fit into the post-crisis levelling up agenda, if some of the more prosperous cities and regions are given a head start to exit the crisis?

Option four: Unlock based on immunisation

We are not entering into the question as to whether having had the virus confers immunity. We suppose it does. The idea is that those who have had the virus can move freely, armed with their certificate.

This exit approach may appear good in theory but is hard to imagine it working effectively in practice. We accept that mass testing and rolling out of antibody tests is desirable and will be necessary in any unlocking scenario. But the scale of antibody tests available now does not suggest that it is a credible route by itself to kick-starting the economy. The way this option works is that antibody tests are made available, widely. Those who pass and are seen to have had the virus are then given a pass that allows them to be unlocked – and return to normal activity including work or college. Thus, a key problem is the sheer scale of the testing required, even when a reliable test become available.

Another challenge is that it could incentivise those who are young or who believe that they are strong enough to not be impacted by the virus to go out and catch the virus – as this is the passport to being unlocked.

Further, a market in forgeries would undoubtedly develop. Resentment may develop amongst those who perceived themselves as having behaved “properly” but not yet released from lockdown. Points such as these - based on economics and social science - emphasise that the exit strategy cannot be based on the judgments of epidemic modellers and health professionals alone.

Essential technical measures in any unlocking

The following must be continuous aspects of any future approach taken:

- Testing
 - Mass testing has to be the aim.
 - Thus, rapid intensification of testing is needed.
- Treatments
 - Speed up use of treatments available elsewhere, where appropriate.
- Tracking
 - Contact tracing is necessary.
 - Use technology and best practice from elsewhere to roll-out tracing.
 - Ensure capability for surveillance and thus action when virus cases are identified.
- Adaptive triggering
 - In an ideal world we would like there to be a vaccine and mass testing in place, but until then there is the need to be flexible, with adaptive triggering an option. “Adaptive triggering” means reinstating lockdown measures if the virus shows signs of a strong return.

- However, with appropriate policies and suitable behavioural responses from the population, the large second wave predicted by “pure” epidemiological models can be avoided.

Conclusion

We have a health crisis and an economic crisis. Naturally we do not want to unlock the country until the coronavirus crisis is passed the worst. But there are early indicators that this may be the case by the end of April, with a range of medical data by then likely to have shown the death rate has peaked and that the infection rate has fallen noticeably. The lockdown has already lowered the infection rate of the virus to less than one. This background should be the trigger for release of the country from the lockdown.

It is vital from an economic perspective to unlock the economy as soon as it is medically sensible to do so.

However, we must *not* rely solely on epidemiological models. These models do not take into account endogenous behavioural responses. Because of their very structure these models, as we have shown elsewhere, are likely to assume a return of the virus. While they were essential in outlining the case for a lockdown (albeit perhaps later than it should have occurred), these scientific models are likely to recommend leaving the lockdown too late. Behaviours play a key role and thus economics and social science has a vital role to play in plotting a credible and safe route out of lockdown.

The lockdown is costing the economy a considerable amount. The lost output may be between £6 billion - £13 billion per week. The economy has been hit by a severe shock and the lockdown has brought large swathes of the economy to a standstill. This is seen, initially as a temporary shock.

The longer the lockdown continues, the more likely it is that parts of the economy will witness a permanent loss with firms and jobs disappearing. Permanent damage suffered by the economy will likely be a non-linear function of the length of the lockdown. That is, the longer it lasts the more permanent the damage will be and at a worse rate. One in six people work in sectors directly impacted by the lockdown but one in three are exposed.

Thus, the lockdown must finish. Testing and tracing are necessary in any approach. So, too, is the importance of understanding how people are likely to behave. In the absence of a vaccine, this vaccine gap phase means the need for enhanced vigilance through moving as quickly as possible to mass testing and using technology to ensure tracking of the virus as the country returns to life. The public would still be asked to exercise caution if they felt they were in an at-risk group until a vaccine is detected.

We rule out two options as not credible. These are waiting for a vaccine before unlocking or prolonging the lockdown as in Wuhan to then unlock immediately. Instead, a gradual and predictable approach is needed.

That leaves four possible options to gradually unlock the country, helping kickstart the economy and ensure the virus is kept under control by not be transmitted across the population.

Unlocking by age does NOT meet either of these, particularly if it is led by releasing 20s age group. Their behaviours would be most likely to return to normal, increase the infection rate for this group, giving them all the virus, and risks transmitting it to other age groups. Also, it would not be the most economically productive way to proceed, as most do not carry out critical or unsupervised roles in firms.

Unlocking by geography, also, made sense in China, but less so in the UK. Moreover, when one considers the options of unlocking by age cohort or by region, it is hard imagine enforcing this so that the groups who are now released do not mix with others, who are not released.

Unlocking by those who have passed an immunisation test, too, would at least satisfy the health criteria but it is hard to see it achieving the criteria need to kickstart the economy, particularly given the low level of antibody tests in UK.

Instead the only credible route to take is a traffic light approach based on economic activity. This would also be easy for the public to understand, and to support. Also, unlike choices made on age cohorts or by geography few, if any, would feel hard done by the approach taken.

After ending the lockdown, we move to the Red Phase - so we stop doing things we did before the crisis. A range of activities would open, including small shops and nurseries, plus many others. Then, three weeks later, would be the Amber Phase, so we should still be cautious. All schools could reopen. Private car use would be permitted for non-essential reasons. Masks would be mandatory on public transport. Then, three weeks after this would be the Green Phase, including pubs opening, mass sporting events and religious services, plus large stores. Other macro-economic policy measures could then be unveiled, including cutting VAT rates at this stage, to help kick-start consumption.

The important issue is to unlock in a gradual and predictable way that gives hope to people, keeps the virus risk under control and restarts the economy.

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