

COVID-19 Inoculation Drive Slowly Getting Off The Ground

In a nutshell: Almost all the ASEAN-6 countries have begun or have plans to begin their inoculation drive against COVID-19; but the road to herd immunity (i.e. anywhere between 60-70% of the population becoming immunised) is a long one and for some countries will be fraught with more challenges than others. In this piece, we assess the current state of play within the ASEAN-6 economies regarding the immunisation drive, the sources of vaccines and path to herd immunity. Our baseline is for GDP growth in each of these economies to improve consistent with the immunisation drive but to pick up perceptibly only in 2022 once travel and tourism related activities becomes less reluctant.

The Current State of Play

The heterogeneity of the ASEAN-6* economies in terms of the spread of COVID-19, the resources available to tackle the outbreak and more generally, the state of the public health system implies that the urgency for a successful vaccination drive differs from country to country. Below we take stock of the current state of play with regard to the vaccination drive for each country:

- **Singapore**, the smallest in size and richest economy of the six, is unsurprisingly best placed to take advantage of the vaccine breakthroughs. **It was the first Asian country to kick-off its inoculation drive on 30 December 2020. As of 11 February, Singapore had completed the first round of inoculations for over 4% of its population (250,000 people)**, focused primarily on healthcare workers. It has also started on 2nd round inoculations for this group. Importantly, the government has rolled out the next phase of its inoculation drive involving the elderly (aged above 70 years) on 22 February (following a pilot on 27 January). The government is increasing the number of vaccination centres to enable them to administer 2,000 vaccinations per day. This is in addition to the existing capacity in terms of polyclinics and Public Health Preparedness Clinics. By Q3 2021, Singapore's authorities expect to have enough vaccine doses to administer to its 5.7mn people and aim to complete the vaccination drive by the end of 2021.
- **Indonesia** was the second country among the six to kick off its inoculation drive on 13 January 2021.
 - **Almost immediately after its initiation, the vaccination drive met with its fair share of challenges and controversies.** These include inadequate power supply across the cold storage chain resulting in vaccines being stored in non-ideal conditions for some time¹ (note: most vaccines procured need specific freezing temperatures at which they need to be stored to remain effective) and a general refusal by the public to take the vaccine following the spread of fake news. The government has now made it mandatory for all citizens to take the vaccines.
 - **As of 17 February, ~0.5% of the population had received the first dose of the vaccination and the second phase of inoculations had begun.** In this phase, the government aims to vaccinate at least 38.5mn (~14% of the population) including those aged 60 years and above. The government's target is to vaccinate 16mn people a month.

*ASEAN-6 includes Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam

¹ Indonesia's coronavirus vaccine roll-out complicated by mistrust, broken fridges and fears of a 'global Antichrist conspiracy', South China Morning Post, 6 February 2021

² Indonesia criticised for prioritising social media stars in vaccine drive, Financial Times, 18 January 2021.

- **Malaysia's vaccination drive began on 24 February** (two days ahead of the initial schedule following the early arrival of the vaccines). Ensuring that the vaccination drive is successful is particularly critical for Malaysia, which has experienced an intensified second wave since January, which forced the government to impose stringent Movement Control Orders (extended until 4 March) for Kuala Lumpur, Johor and Penang.
 - The vaccination drive will be rolled out in three phases and aims to cover 80% of the population in 12 months' time. In Phase 1 (starting late February until April 2021), shots will be administered to 500,000 frontline workers; In Phase 2 (starting April until August 2021), shots will be administered to the elderly & high risk patients and finally, in Phase 3 (starting May 2021 until February 2022), all those aged 18 & above will be given shots. The vaccines will be free for citizens and chargeable for foreigners.
- The vaccination drives in **the Philippines, Thailand and Vietnam have yet to begin in earnest**.
 - **The Philippines vaccination drive was reported to kick off on 15 February**, following the arrival of the Pfizer vaccines. However, the arrival of the vaccines has been delayed due to some gaps in paperwork and it remains unclear exactly when they will arrive. This will likely set back the governments' target of vaccinating 70mn people in 2021 (~60% of the population). According to the government's original timeline, a 'mini rollout' would be in effect in Q1 2021, prioritising 1.7mn healthcare and frontline workers. During Q2, the government expected to extend vaccinations to the vulnerable sections of society, including the elderly. By Q3, the government expected its inoculation drive to become more widespread, given vaccine supply is expected to reach 30-50mn doses, i.e. able to inoculate between 15mn to 25mn people. By the end of the year, the government expected to hit its target of inoculating 70mn people.
 - **Thailand's health regulator endorsed AstraZeneca for emergency use on 21 January**, the first vaccination to secure approval for domestic distribution. **Thailand will rely on China's Sinovac Biotech vaccine to kick start its vaccination drive: the vaccines are said to arrive week of February 22** and will allow the government to begin inoculations. The vaccination drive is planned for 2 phases. In Phase 1 (February to May 2021), 2mn doses will be administered to healthcare and frontline workers and in Phase 2 (June to December 2021), the government aims to administer 10mn doses monthly. Eventually, the aim is to secure herd immunity by vaccinating ~60% of the population by end-2021.
 - **Vietnam's authorities have not clearly alluded to a plan for generating mass immunity yet**. The country signed a deal with AstraZeneca to acquire 30mn doses, another 30mn will be secured through WHO-led COVAX program this year. The arrival of 204,000 doses of the vaccine on 28 February will set in motion the initial phase of the vaccination drive, aimed at healthcare workers and the elderly.

Multipronged Approach To Sourcing Vaccines

Vaccine doses have been procured from a combination of sources by the ASEAN-6 countries. Most have tapped China for their Sinovac vaccine along with the Pfizer-BioNTech, AstraZeneca and Moderna vaccines. The Philippines has also sought out the Covovax vaccine (Serum Institute of India's rendition of the US' Novovax vaccine).

Singapore expects it will have procured enough vaccination doses for its population of 5.7mn by Q3 2021 while Malaysia, we estimate, has a sourcing roadmap in place to secure enough doses to vaccinate 95% of population. Indonesia and the Philippines have secured enough to cover 80% and 60% of the population, respectively

while Thailand has about 45% covered. Vietnam's doses secured so far will cover only 15% of the population, by our estimates.

| Country | Vaccination brand | Doses | Country | Vaccination brand | Doses |
|------------------------------------|---|-----------------------------|---|-------------------------------------|---|
| Indonesia | Sinovac | 125.5mn | Thailand | AstraZeneca | 61mn |
| | AstraZeneca | 50mn | | Sinovac | 2mn |
| | Novavax Inc | 50mn | | Total | 63mn (~45% of pop.) |
| | Indigenous Merah Putih | 57.6mn | Malaysia | Pfizer-BioNTech | 25mn |
| | AstraZeneca (part of COVAX) | 108mn | | AstraZeneca (part of COVAX) | 6.4mn |
| | Pfizer-BioNTech (in talks) | 50mn | | AstraZeneca | 6.4mn |
| | Total | 441mn (~80% of pop.) | | Sinovac | 14mn |
| Covovax (Serum Institute of India) | 30mn | Sputnik V | | 6.4mn | |
| Philippines | Sinovac (applied for emergency authorisation from local FDA) | 25mn | Solution Group Bhd. & CanSino Biologics jointly developed vaccine | 3.5mn | |
| | AstraZeneca (emergency authorisation from local FDA approved) | 17mn | Total | 61.7mn (~95% of pop.) | |
| | Gamaleya (applied for emergency authorisation from local FDA) | 25mn | Singapore | Pfizer-BioNTech | Due to the confidentiality undertakings the exact doses of the purchases has not been disclosed |
| | Moderna (preliminary agreement) | 20mn | | Moderna | |
| | Pfizer-BioNTech | 15mn | | Sinovac | |
| | Total | 132mn (~60% of pop.) | | Arcturus Therapeutics Holdings Inc. | |
| Vietnam | AstraZeneca | 30mn | <i>Note: Calculations are made based on 2 doses/person. Source: Bloomberg, Reuters, China Morning Post, Jakarta Post, Philippines Business World, Mizuho Bank</i> | | |
| | Total | 30mn (~15% of pop.) | | | |

Box 1: Vaccine diplomacy

“Vaccine diplomacy” loosely defined as countries, that are able and willing, donate or provide COVID-19 vaccines at low costs to countries that are unable to afford it. China, India, Russia and the UAE are among the top few countries engaged in vaccine diplomacy.

China is leading the way within the ASEAN-5 but India and Russia may be catching up

China's “vaccine diplomacy” has put down some of its roots within the ASEAN-5 countries. Four out of the five ASEAN-5 countries (apart from Vietnam) have signed up for Sinovac doses. Sinovac is a privately owned company based out of Beijing. Some other major Chinese vaccine producers also competing for the limelight include the China National Pharmaceutical Group (Sinopharm) and CanSino based out of Tianjin. While Indonesia's vaccine drive was famously kick started by Sinovac, Malaysia's Solution Group Bhd. & CanSino Biologics are jointly working on a vaccine for domestic distribution.

India and Russia are slowly covering ground within these countries. The Philippines signed an agreement with the Serum Institute of India (SII) for 30mn doses of Covovax. SII has partnered with US based Novavax for the development and commercialization of Covovax. The vaccine is said to become available by Q3 2021 for 15mn people. Malaysia and the Philippines have signed up for Russian produced vaccines (Gamaleya & Sputnik V).

Outside the ASEAN-5, India's “vaccine diplomacy” is making some waves. SII has also partnered with AstraZeneca to produce Covishield, which has been approved in eleven countries including Bangladesh, Nepal and South Africa. Importantly, WHO approved Covishield for emergency use on 16 February making it eligible to be a part of the WHO-led COVAX initiative; China's Sinovac and Sinopharm are still waiting for this approval (expected in March).

The downside of vaccine diplomacy

The fact that the domestic vaccine drives in China and India have yet to take off is increasingly becoming a sore point for the governments' back in their home countries. China, for its part, is looking to push its domestic vaccination drive while SII noted that some shipments abroad may be delayed until domestic demand for vaccines in India is met.

Still A Long Road To 'Herd Immunity'

The initial timelines for the ASEAN-6 countries suggest that herd immunity (i.e., somewhere between 60% and 70% of population becoming immune to the disease) will be staggered. Singapore will possibly achieve herd immunity, with 80% of its population having received the vaccination doses, within 2021. But for the other 5 countries, even the initial official timelines roll beyond 2021 and some delays are to be expected.

First, **the supply of vaccines will continue to be staggered and hence the timeline for complete or partial immunisation (even by official forecasts) will be staggered.** Singapore plans to complete the immunisation process by end 2021. However, the Philippines will reach 100% immunisation by 2023. During the interim period, the spread of the virus will continue and possibly intensify in waves, as is the current situation.

Further, **a significant supply of vaccines for Philippines (~43mn), Thailand (~49mn) and Vietnam (~126mn) will need to be secured (by our estimates) to ensure that even 80% of the population of these countries is vaccinated.** With vaccines in high demand, it will be some time yet before these amounts can be procured, which leaves the timeline for complete immunisation susceptible to delays. This is not to say that innovative solutions cannot be sought out. Authorities in Thailand's Phuket province, which heavily relies on tourist activities, are planning a private COVID-19 vaccination drive to immunise the provinces' population and catalyse the return of foreign tourism.

Second, **distribution and logistics challenges will plague the economies of Indonesia and the Philippines where existing infrastructure setups may prove inadequate.** The cold chain management required to transport COVID-19 vaccines at freezing temperatures across the widespread archipelagos has already proved to be a challenge in Indonesia and we expect it will be the same in the Philippines as well. While these challenges will not derail the immunisation drive, they could stretch out the timelines.

Third, **the efficacy of every vaccine brand is different and as a result, even with 60-70% of the population being immunised, the proportion of the population immune to the virus will be lower than the headline number suggests.** The efficacy of Sinovac, which will be expected to be procured in large numbers by most of the ASEAN-6 countries, has a large band-width in terms of its efficacy compared to Pfizer and Moderna. AstraZeneca's vaccine, which is being distributed by the WHO-led COVAX alliance, has a lower efficacy compared to Pfizer and Moderna.

Lastly, **there are always the risks associated with the current vaccines being less effective in the face of newer mutations of the COVID-19 virus.** This will result in the ongoing vaccination drive under achieving on its desired outcomes. While vaccines to tackle newer mutations will likely be developed, the process of procurement and distribution may need to start afresh.

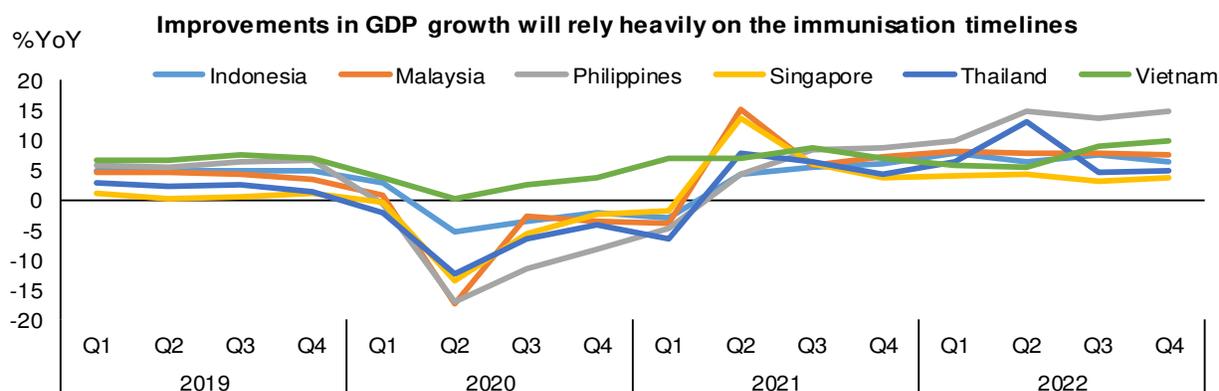
| Brand | Type | Storage temperature | Doses | Efficacy |
|----------------------------------|--|---------------------|-------------------------|--|
| Pfizer-BioNtech | mRNA | -94 degrees F | 2 doses (21 days apart) | ~95% |
| Moderna | MRNA | -4 degrees F | 2 doses (28 days apart) | ~95% |
| AstraZeneca-University of Oxford | Adenovirus-based | 34-36 degrees F | 2 doses (28 days apart) | ~70% |
| J&J | Adenovirus-based | | Single dose | ~66% |
| Sputnik V | Adenovirus-based | | 2 doses | 91.4% |
| Sinovac | Inactivated SARS-CoV-2 virus | | 2 doses | 50.38% to 91.25% depending on the trial |
| Novavax | Protein based vaccine | 2 to 8 degrees C | 2 doses | 89.3% |
| CanSino Biologics | Viral vector (loading an antigen from SARS-CoV-2 virus onto an adenovirus) | | Single dose | 65.7% at preventing symptomatic cases; 90.98% in preventing severe disease |

Source: Biospace

Staggered and uneven growth recoveries

With lockdowns, even targeted ones, proving costly economically as well as socially, a lot of hope is riding on the vaccination drive to help revive economies across the world, including within the ASEAN-6. Provided the supply of vaccines is not delayed, Singapore and possibly Malaysia will be among the first countries in the region to achieve herd immunity. They will be followed by Indonesia, Thailand, the Philippines and Vietnam (likely in that order based on the vaccine procurement agenda thus far).

As the immunisation drive picks up momentum, **we expect the domestic economies of these countries to recover** and activities to start returning to pre-Covid levels. Our baseline for the recovery in GDP growth for most of the individual ASEAN-6 economies, therefore, is consistent with the timeline of the vaccination drive. That said, we expect the recovery to remain uneven as travel and tourism related sectors will still be stifled. We see GDP growth picking up perceptibly only in 2022 for most of the ASEAN-6 economies, when we expect tourism to be boosted reflecting more advanced stages of the vaccination drive across the region as well as globally.



Source: CEIC; Mizuho Bank

As a result, we expect the output gap (i.e., the difference between actual and potential growth) to remain negative through 2021 for the ASEAN-6 before closing in the subsequent years. Admittedly, for Vietnam, the improvement in

growth despite limited progress on the vaccination front reflects a strong containment effort from the government as well as exports benefiting from diversified supply chains (see [Mizuho Insights: 11 February 2021: Vietnam: 2021 Outlook: Resilient But Not Immune](#)).

In terms of policy implications, **we expect fiscal policy will continue to do the heavy lifting in terms of pulling these economies out of the pandemic induced slump**. Monetary policy support will also be forthcoming but mostly in terms of credit and liquidity support. We expect that the rate cutting cycle will not be as deep as in 2020 and for some economies, such as the Philippines, rising inflation may preclude imminent rate cuts (see [Mizuho Chart Speak 15 February 2021: Philippines: Sharply rising inflation sets it apart from regional peers](#)).

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