

# Indonesia's Covid-19 mobility restrictions: rationales and consequences

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## 1. Introduction

Mobility restrictions, or lockdowns, are one of the critical measures many economies use in responding to the Covid-19 outbreak. During the early stage of the pandemic, there was a common belief that an early and decisive decision to impose lockdowns could ideally be an appropriate policy response to take, given the uncertain nature of the coronavirus infection.

Countries like the People's Republic of China (PRC), Italy, Australia, and New Zealand imposed strict lockdown measures and rigid border controls when they recorded increased infection cases. Nevertheless, not all economies decided to set such a strict lockdown for various reasons, primarily economic considerations. Indonesia is an example that insists on not implementing complete lockdown measures.

The Indonesian government argues that more relaxed and micro-scale public activity restrictions (PPKM Mikro) are the preferred strategy for this populous archipelagic country. These relatively relaxed mobility restrictions provide some space for selected critical and essential activities (such as the health sector, markets that sell basic needs, etc.) to continue. At the same time, the government also tries to manage the spread of the new coronavirus and provide support for those adversely affected by the mobility restrictions through some social assistance and business support programs.

The effectiveness of halting people's day-to-day activity in saving lives has been critically assessed (see Correia, Luck, and Verner, 2020, Goolsbee and Syverson, 2020, Bianchi, Francesco, Giada Bianchi, and Dongho Song 2021). Nevertheless, it is difficult not to believe that the policy is economically and politically costly. Concerned about the economic and political repercussions, Indonesia did not implement a complete lockdown (Sparrow, Dartanto, Hartwig, 2020). As a result, its economy only suffered a relatively mild recession compared to other countries that do more stringent restrictions. Last year the economy shrunk 2.07%, its first recession since the 1997 Asian financial crisis.

Given the backdrop, this paper tries to understand the rationales behind Indonesia's decision to impose and/or to ease the mobility restrictions. We attempt to answer three research

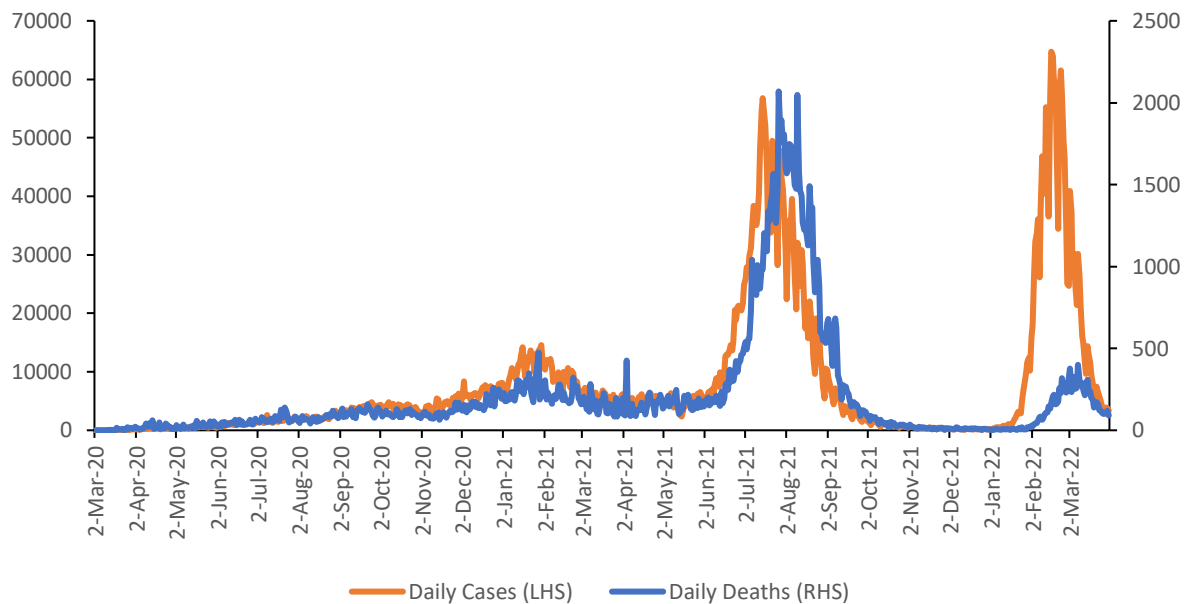
questions. First, what are the likely factors determining lockdown decisions? Second, how effective are the lockdowns in controlling the pandemic? Finally, how does the lockdown affect the economy?

The paper is organised as follows. The following section discusses Indonesia's Covid-19 situation from the start of the pandemic in March 2020 until the end of March 2022. The subsequent section briefly describes the latest trend of COVID-19 spreads in the country. The third section discusses mobility restrictions imposed by the government, focusing on the timing and their rationales. The fourth section provides some geographic case studies of how the pandemic has affected the economy by focusing on the pandemic impact on Jakarta and Bali. Section five explores the main factors driving government decisions to implement mobility restrictions. Section six discusses the effectiveness of the mobility restrictions policy in controlling the pandemic, followed by section seven which looks at the economic impact of the policy. The last section concludes.

## **2. Covid-19 trends**

At the time of the writing, Indonesia has reported more than six and more than 156,000 deaths from the pandemic. Prior to that, in July 2021, Indonesia was hit by the Delta variant, which is more contagious and deadly than the initial coronavirus type. At that time, Indonesia experienced a significant increase in the infection rate, reaching more than 56 thousand cases on 15 July 2021 (Figure 1). This is way higher than the previous peak recorded in January, which was around 13 thousand infection cases in one day. As the health care system could not cope with the rapid increase in the number of cases, the fatality rate increased significantly, reaching more than 2,000 deaths in one day on 27 July 2021. Indonesia, back then, replaced India as the new epicentre of Covid-19 in Asia. By October 2021, the country managed to bring daily infection cases down significantly to below one thousand cases per day (Figure 1).

**Figure 1: Daily infection and death cases due to Covid-19**



Source: <https://covid19.go.id/peta-sebaran> (as of 5 April 2022).

Is this seemingly positive outcome in flattening the pandemic curve due to mobility restrictions that the government implemented? Or is this caused by other factors?

Figure 1 shows that the declining trend of the Covid-19 infection is only temporary. As the country started to remove the restrictions in the late fourth quarter of 2021, another new and more infectious variant, Omicron, hit the region. By mid-February 2022, the daily infection cases increased to more than 64,000 cases, higher than the daily infection peak during the delta variant. Interestingly, the fatality rate did not rise as high as during the delta variant. At the height of the third wave, the fatality rate was around 300-400 deaths per day, much lower than the 1000-2000 deaths per day during the Delta variant wave. One contributing factor is the progress of the vaccination program, which reached around 94% for the first dose, and around 76% for the second dose, by March 2022. By the end of March 2022, the omicron wave seems to have subdued. Nevertheless, it remains to be seen if the trend will continue until Indonesia reaches zero cases or if there will be another wave of infections as the economy starts to recover.

**Table 1: Geographical distribution of the Covid-19 cases**

| Provinces         | Total confirmed case | % Share |
|-------------------|----------------------|---------|
| Jawa and Bali     | 4,198,607            | 69.8    |
| Sumatera          | 808,466              | 13.4    |
| Kalimantan        | 454,555              | 7.6     |
| Sulawesi          | 309,857              | 5.2     |
| Nusa Tenggara     | 129,001              | 2.1     |
| Maluku & Papua    | 112,332              | 1.9     |
| Indonesia (Total) | 6,012,818            | 100     |

Source: Coordinating Ministry for Economic Affairs (as of 31 March 2022).

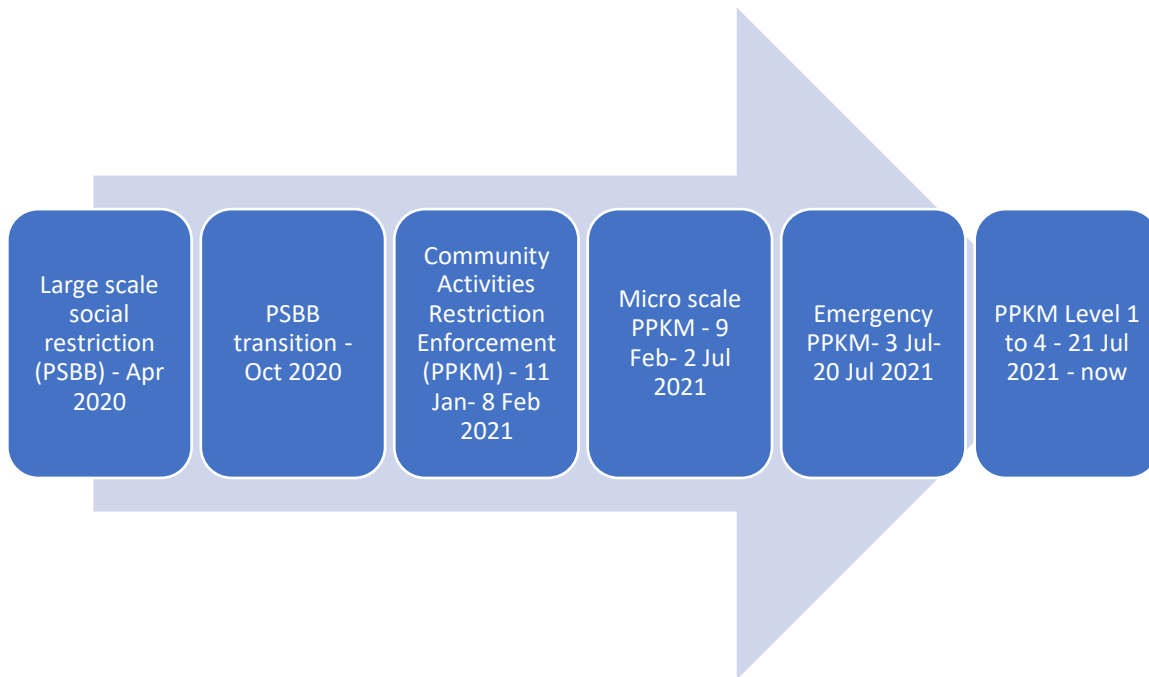
The number of COVID-19 cases in Indonesia is not equally distributed across provinces. Table 1 shows that most cases happened in the two most populous islands in Indonesia, Java and Bali, which together contributed almost 70% of the total infection cases in the country. Given the large number of cases in Java and Bali, it was natural that the government had focused its control measures on the two islands.

### 3. Lockdown in Indonesia's terms

In Indonesia, various terms are used to define mobility restrictions depending on the timing and Covid-19 situation (see Figure 2). None of them is called lockdown. Table 2 shows that at the start of the pandemic, Indonesia implemented large-scale social restrictions (PSBB) in April 2020. The government tightened the work-from-home orders and announced an international travel ban, yet the country did not enter into a total lockdown (Sparrow, Dartanto, Hartwig, 2020). The PSBB was relaxed in June 2020 in preparation for the new normal. In January 2021, as there was a rapid spread of Covid-19 infections after the New Year holiday, the government implemented community activities restrictions enforcement (PPKM), which is a more centralised policy. Unlike PSBB, in which every province can apply to the Minister of Health to implement mobility restrictions (bottom-up approach), PPKM allows the central government to assess and then instruct districts or municipalities to implement community restrictions (top-down approach).

The PPKM started in January 2021 and it focused on seven provinces, i.e., Jakarta, West Java, Banten, Central Java, Yogyakarta, East Java, and Bali. The policy required travellers to Bali or Java must show rapid antigen and RT-PCR tests. Moreover, businesses must continue to implement a work-from-home system for 75% of their employees, and 25% can work in the office. In education, 100% of learning continues with an online system. In restaurants, dine-in was limited to only 25% of visitors according to the restaurant's capacity. Shopping centre operational hours were limited to 7.00 PM local time. And places of worship have a maximum capacity of 50%.

**Figure 2: Various Mobility Restrictions in Indonesia**



Source: Ministry of Coordinating Economic Affairs.

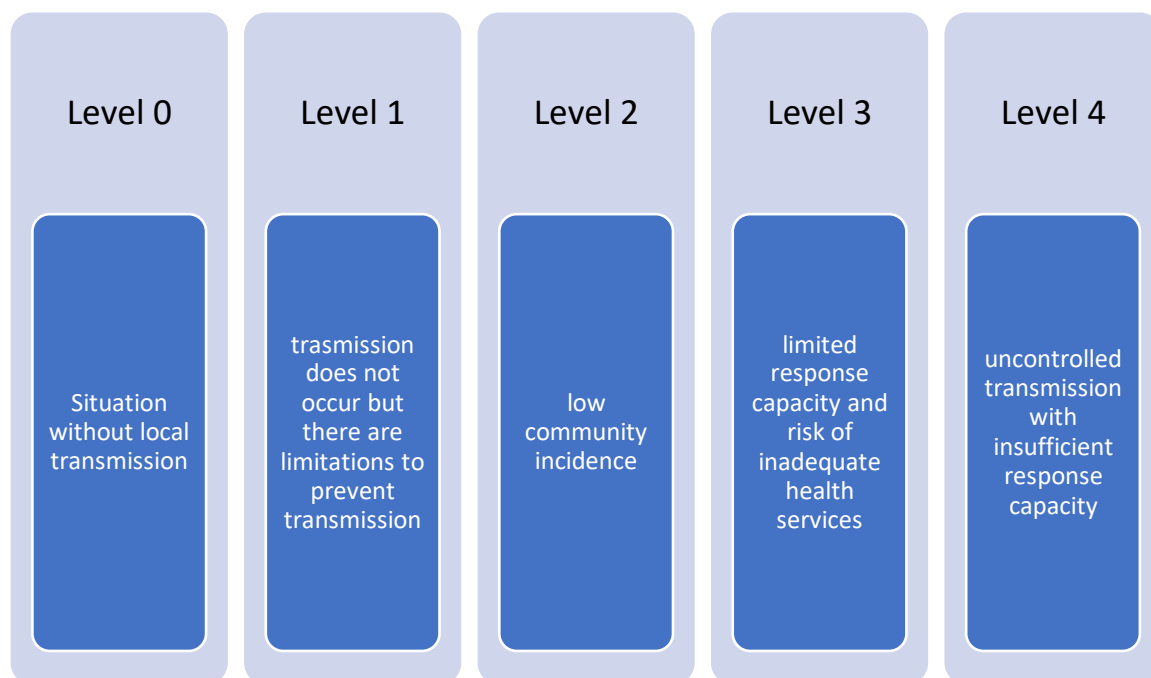
As the government later judged that the PPKMs focused on Java and Bali were ineffective in suppressing the spread of Covid-19, it changed the policy and named it micro PPKM. The micro PPKM requires village and community leaders (RT/RW) actively play a role in managing the pandemic. The policy was implemented in select areas in Java and Bali. When the Delta variant hit the country in June 2021, the government tightened the PPKM, and in July, the restriction was named an emergency PPKM. Concern about the health and economic impacts of the Delta wave forced President Jokowi to appoint Coordinating Minister for Maritime Affairs and Investment, Luhut Binsar Pandjaitan, as Coordinator for implementing emergency micro-community activity restrictions (PPKM) for Java and Bali.<sup>1</sup> While the government keeps changing the term for the mobility restrictions, essentially each new term means almost the same thing. The difference between one policy term with another is only in the degree of tightening, such as the amount of capacity, operating hours in shopping malls, restaurants, or mosques, and mobility of residents outside the area.

As mentioned above, from the beginning of the pandemic, the government has been concerned about the economic implication of the full lockdown. This concern is reflected in the selection of Coordinator for the activity restrictions, i.e., the Minister of Coordinating Minister for Maritime Affairs and Investment, instead of the Minister of Health. The central authorities realised that total lockdown would be impractical and unsustainable given the size

<sup>1</sup> <https://nasional.kompas.com/read/2021/06/29/22080051/jokowi-tunjuk-luhut-sebagai-koordinator-ppkm-mikro-darurat-untuk-jawa-bali?page=all>

of the population, with a significant size of the informal sector and limited institutional as well as fiscal capacity. Nevertheless, Indonesia implemented more relaxed mobility restrictions that allow critical and essential business activities to continue. Essential sectors include banking and financial institutions; capital market; ICT related sectors; hotels; and export-oriented industries. Meanwhile, critical sectors include health; public safety and order; energy; logistics, transportation, and distribution; food and beverages; fertilisers and petrochemicals; cement and building materials; national strategic projects; construction (public infrastructure); and basic utilities (electricity, water, and waste management).

**Figure 3: Different Levels of Community Activities Restrictions Enforcement (PPKM)**



Source: Ministry of Coordinating Economic Affairs.

Note that the mobility restrictions have never been fully or officially removed since they started in April 2020 (see Appendix). The policy restriction is evaluated every week or two and extended up until now. The stringency is adjusted following the daily infection cases and the capacity of the health system to respond.

The latest change in mobility measures is called PPKM level 1-4. The new policy is essentially the same as the previous ones. However, this time the government used select parameters, such as the number of active cases, and the progress of vaccination rate, to categorise regions' status from level 1 (or green zone) to level 4 (red zone or emergency) (Figure 2)

Since 21 July 2021, the government has downgraded the PPKM Level from 4 to 3, even 2, for several cities. In August 2021, while the number of cases in the Java cities decreased, cities

outside Java experienced spikes for several weeks. This has led the government to implement different levels of PPKM outside Java. In terms of the job division, President Jokowi appointed Coordinating Minister for Economic Affairs, Airlangga Hartarto, to be the Coordinator for PPKM outside Java and Bali.

Based on the evaluation of PPKM during 21-27 September 2021, the government decided to evaluate the PPKM policy weekly allowing social mobility in retail activity and recreation parks to resume gradually. The changes in the PPKM level were very fluid from the end of 2021 to early 2022 with the rise of the Omicron variant. Varying levels of PPKM were imposed based on pandemic transmission level and response capacity of the health sector in different areas during this period (Figure 3).

In January 2022, the government resumed face-to-face school and learning. Schools and other educational institutions can hold limited face-to-face learning (Pembelajaran Tatap Muka or PTM). All education units at levels 1,2 and 3 in PPKM are required to implement limited PTM. The regional government cannot prohibit limited PTM for those who meet the criteria and cannot add more stringent rules. The guideline of student capacity and duration of learning in the implementation of limited PTM is regulated based on the vaccination coverage of fully vaccinated (two doses) educators and education personnel of each education unit.<sup>2</sup>

In mid-May 2022, the government relaxed flight rules for foreign travellers. There are no more requirements for PCR and Antigen tests for domestic and international travellers, starting 18 May, 2022. However, travellers must show that they have been fully vaccinated (the second dose).<sup>3</sup>

#### **4. Geographical Case Study**

Given Indonesia's extensive decentralised system, we are interested in examining the variations of mobility restrictions as well as the implications among regions. In Indonesia, regional governments play an active role in determining the timing and scope of the implementation of mobility restrictions. For instance, in the case of PSBB implementations, some regions have introduced their respective restrictions in response to rising infection rates in their separate areas.

The health ministry has sole authority to impose PSBBs, but local governments, as well as the Covid-19 Task Force, can submit proposals for local PSBBs to the ministry (Sparrow, Dartanto, and Hartwig, 2020, p. 275). Moreover, large cities are a more conducive environment for the virus to thrive (Sparrow, Dartanto, and Hartwig 2020). This is due not so much to population density but to mobility, connectivity, and economic activity in large cities (Hsu 2020). To

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<sup>2</sup> <https://www.kompas.com/edu/read/2022/01/03/105145271/sekolah-tatap-muka-dimulai-ini-daftar-aturan-lengkap-2022?page=all>

<sup>3</sup> <https://travel.kompas.com/read/2022/05/18/180646927/pelaku-perjalanan-luar-negeri-sudah-tak-perlu-tes-ini-syaratnya?page=all>

illustrate, we compare and contrast the impact of the mobility restrictions on health and the economic outcomes between Jakarta and Bali, the two main gates for foreign visitors.

Jakarta is an interesting case study for several reasons. It is the financial and services centre of the country. It is the barometer of the country's economic situation, given that the city contributes about 17-18% to the national GDP. In addition, Jakarta has a large population, and it shares porous borders with the surrounding districts and municipalities, i.e., Bogor, Bekasi, Depok, Tangerang, and Karawang. Millions of commuters come in and out of the city every day, which makes the city more prone to virus transmission.

The Jakarta governor imposed transitional PSBBs when the national government eased the restrictions in June 2020 (see Appendix). The restrictions were further tightened in response to the acceleration of infections in Jakarta in August and September.<sup>4</sup> These transitional restrictions affected business activities in specific sectors, limited the number of employees in a workplace, and reduced public transport volume. However, these restrictions are in contradiction with national policy and have drawn criticism from central government officials who fear the economic repercussions of the local restrictions (Sparrow, Dartanto, and Hartwig, 2020, p. 295). Such tensions between the policy priorities of national and subnational jurisdictions are pervasive in Indonesia.

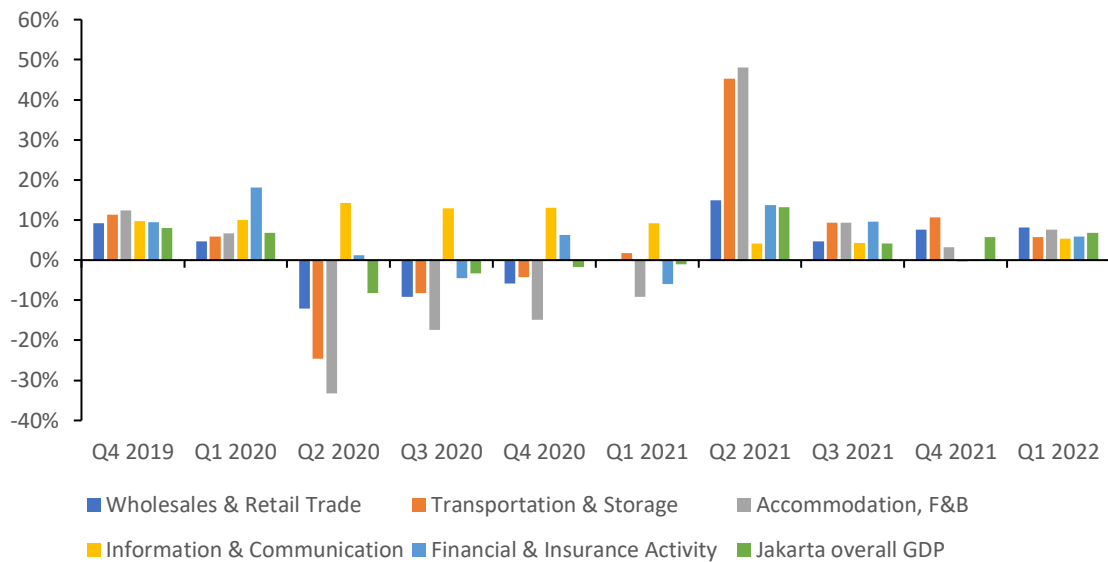
The on and off mobility restrictions implemented in Jakarta have caused the city economy to contract by -2.4% in 2020. During the implementation of PSBB in Q2 2020, the accommodation and food & beverages sector contracted by -34.8%; transportation and storage dropped by -23.5%; and retail trade fell by -13.7% (Figure 4). The three sectors are also the key employers for many workers in the informal sector.

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<sup>4</sup> <https://www.kompas.com/tren/read/2020/09/11/190300865/perjalanan-psbb-transisi-di-jakarta-hingga-anies-tarik-rem-darurat?page=all>. Accessed 13/11/2021.



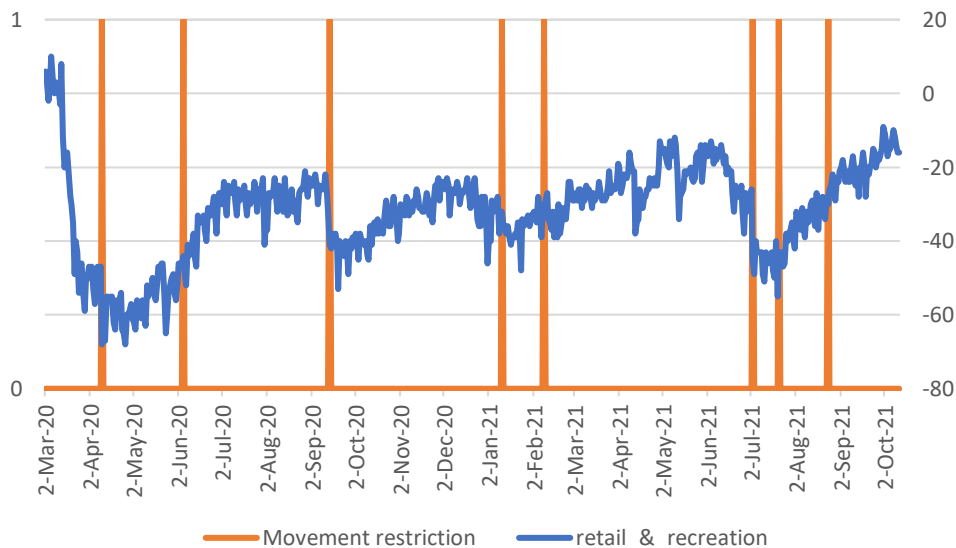
**Figure 4: Jakarta's GDP growth by key sectors (% , y-o-y)**



Source: BPS.

Figure 5 shows that the implementation of mobility restrictions has significantly reduced people mobility in Jakarta. Using the Google mobility data, the PSBB regulation in April 2020 had caused a 60-70% decline in retail and recreation activities. In September 2020, when the restriction was tightened, there was a 40-50% decline in retail and recreation activities. And later, in July 2021, when restrictions were tightened due to the Delta variant, activities in retail and recreation again dropped around 40-50%. Overall, activities in retail and recreation have not returned to the pre-pandemic level.

**Figure 5: Mobility restrictions in Jakarta**



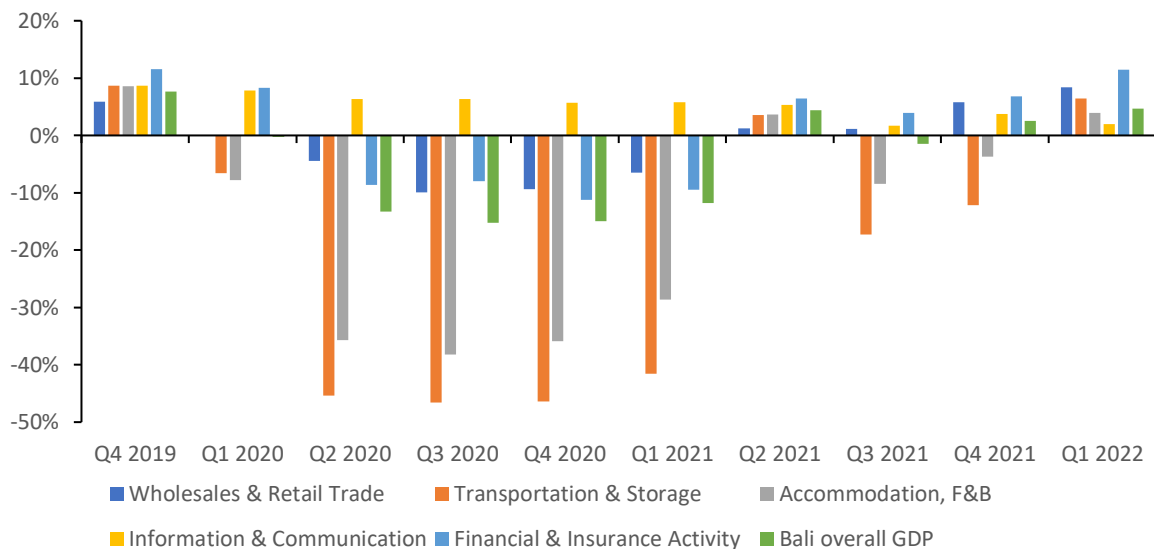
Source: Google mobility data.

The vast economic cost of the pandemic can be seen in the decline in the city tax revenue collection, which fell by 55% to Rp 22.5 tr (\$1.6 bn) in 2020.<sup>5</sup> Consequently, the Jakarta budget declined by 47% to Rp 47.2 tr (\$3.4 bn).

Bali is another interesting case study for several reasons. It is the tourism centre of the country. Thus it is the barometer of the country’s tourism sector recovery. Moreover, the government has been focusing on the safe re-opening of Bali to provide a good model for other tourism destinations.

Unlike Jakarta, which is quite diverse in terms of sectoral composition to growth, Bali’s economy is highly dependent on the tourism sector. Tourism contributes 60% of its GDP.<sup>6</sup> This is the reason, when Indonesia closed its international borders in April 2020, Bali’s economic growth plummeted to -9.3% in 2020.<sup>7</sup> Transport, accommodation, food and beverages sectors were the hardest hit sector as there were practically no international tourists visiting the island (Figure 6). It is reported that 87.5% MSMEs in Bali experienced negative impacts of the pandemic.<sup>8</sup> More than 49,000 have lost their jobs, and more than 593 thousand experienced reduction in work hours by August 2021.<sup>9</sup> The only lifeline for the island’s economy is only domestic tourism.

**Figure 6: Bali’s GDP growth by key sectors (% , y-o-y)**



Source: BPS.

<sup>5</sup> <https://www.cnbcindonesia.com/news/20200529172237-4-161900/dihantam-corona-penerimaan-pajak-dki-jakarta-ambles-55>. Accessed 13/11/2021.

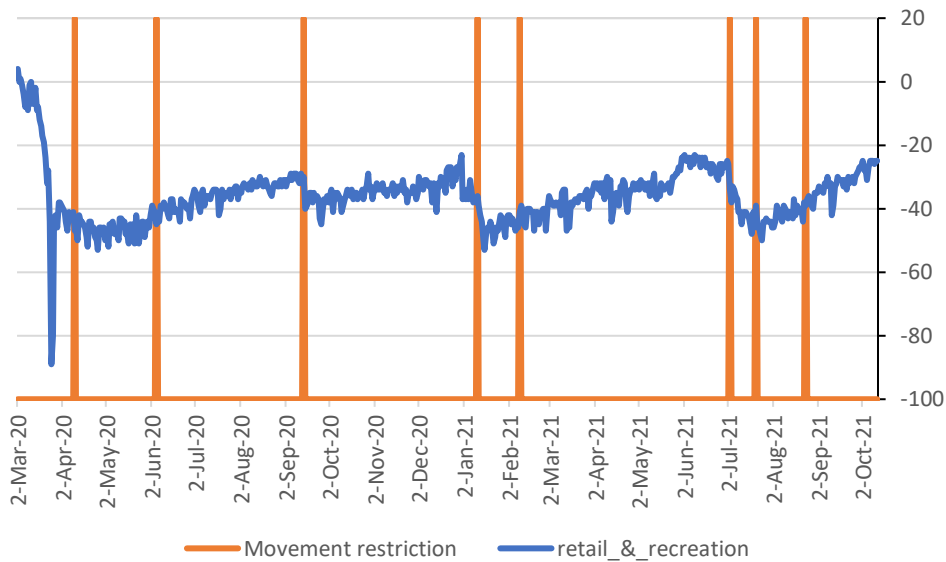
<sup>6</sup> <https://www.antaraneews.com/berita/2185274/pandemi-pacu-bali-perkuat-sektor-pertanian-dan-pendidikan>. Accessed 13/11/2021.

<sup>7</sup> <https://ekonomi.bisnis.com/read/20210522/9/1396826/ekonomi-bali-masih-rawan-minus-sampai-akhir-tahun-2021>. Accessed 13/11/2021.

<sup>8</sup> <https://mediaindonesia.com/nusantara/436431/sebanyak-225-umkm-bali-tidak-terdampak-covid-19> <https://www.bbc.com/indonesia/indonesia-57723855>. Accessed 13/11/2021

<sup>9</sup> <http://bisnisbali.com/2035-persen-penduduk-usia-kerja-di-bali-terdampak-covid-19/>. Accessed 13/11/2021.

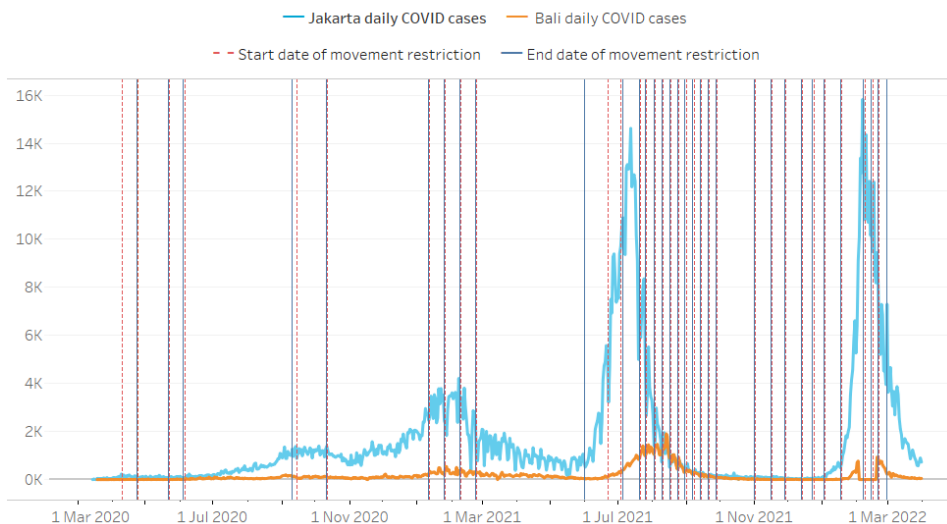
**Figure 7: Mobility restrictions in Bali**



Source: Google LLC. Community Mobility Reports. <https://www.google.com/covid19/mobility/>

Figure 7 shows that the implementation of border closure in Bali has significantly reduced people’s mobility. Using the Google mobility data, the international border closure and PSBB in April 2020 had caused an 80-90% decline in retail and recreation activities. In January 2021, when the restriction was tightened due to the infection spike after the new year holiday, there was a 40-50% decline in retail and recreation activities. And later, in July 2021, when restrictions were tightened due to the Delta variant, activities in retail and recreation again dropped around 40-50%. Compared to Jakarta, activities in retail and recreation in Bali have declined more drastically than at the pre-pandemic level.

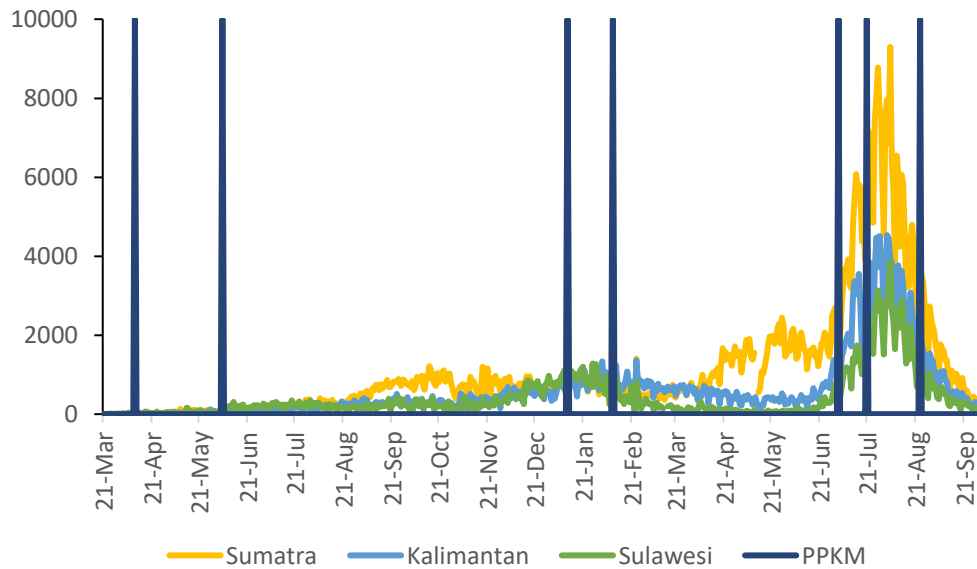
**Figure 8: Lockdown and Covid-19 infection in Jakarta and Bali**



Source: <https://covid19.go.id/peta-sebaran>.

Note: The grids indicate different episodes of the implemented mobility restrictions discussed in section 3 and detailed in Appendix 1. The dotted red lines mark the start of a mobility restriction episode, and the solid blue lines mark the end of it. This note applies to all the charts showing the same grids.

**Figure 9: Lockdown and Covid-19 infection in other islands**



Source: <https://covid19.go.id/peta-sebaran>

The figures above show that Jakarta tends to lead other regions in terms of daily infection cases and is much larger in terms of positive cases than other provinces in Indonesia. One possible explanation is that Jakarta is the main gate to enter the country, in fact the first case of Covid-19 was found in Jakarta. In addition, Jakarta has conducted more testing and tracing than other parts of the country, which naturally leads to a more significant likelihood of finding positive cases.

## 5. Factors behind the mobility restrictions in Indonesia

The COVID-19 pandemic caught the world by surprise. It started to draw attention after the reported outbreak in Wuhan, China in December 2019 and started to spread across countries, initiating a stream of travel restrictions across the globe in February-March 2020. People grappled with adjusting to a new reality where close gathering and physical interactions could invoke health hazards that may be deadly as the coronavirus outbreak continues.

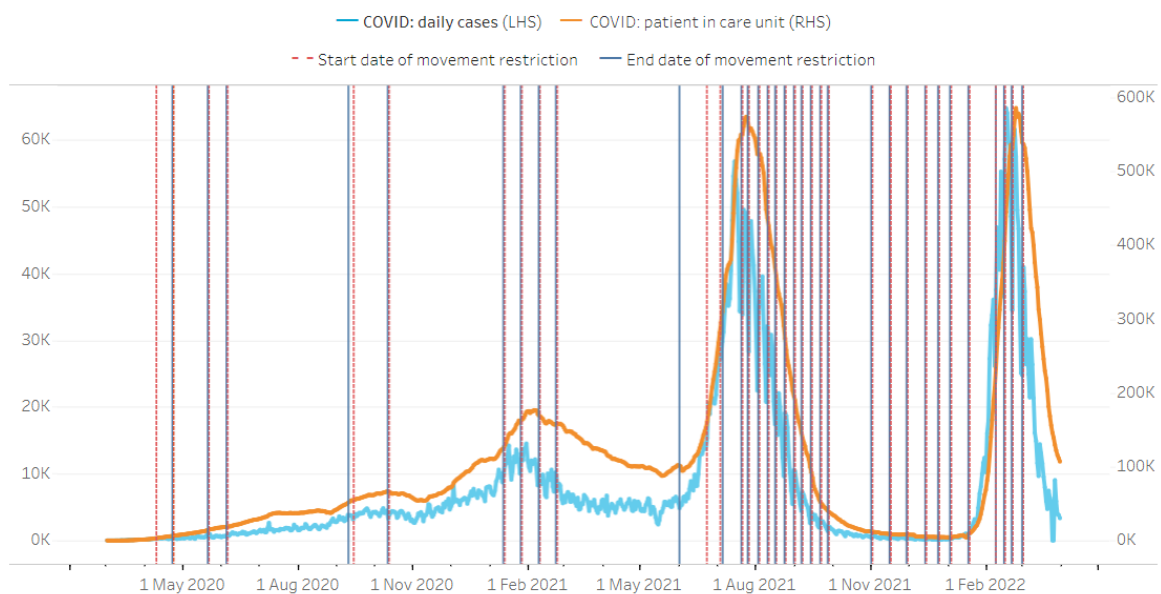
As the government promotes tourism in Indonesia, the country responded rather late to the pandemic and still considered itself safe when the first COVID-19 infection was detected in early March 2020. People’s mobility index outside residential areas briefly increased above its January 2020 level before dipping below its pre-pandemic level in mid-March after the

total number of infections crossed the 100 marks. The index bottomed out in April as the first large-scale social restriction (PSBB) was implemented. Since then, different degrees and intensities of lockdowns or mobility restrictions have been observed, depending on how the number of active cases evolves in different areas of the country. Several fiscal and monetary policies have also been implemented to stabilise the immediate impact on the economy (Rizvi et al., 2021).

While it is well understood that various political and economic considerations are involved in initiating mobility restriction policies, they should not be the most critical factors in shaping the policy decision. The data suggest that all decisions to extend mobility restriction policies in Indonesia are to do with the dynamics of daily infection cases and/or the total number of severe active cases,<sup>10</sup> which can be proxied by the number of patients in care units.

Continuously increasing infection cases and hospitalisations have prompted continuous renewals of mobility restriction orders in the country, albeit with different degrees of stringency, which is discussed in the following section. Renewals of mobility restrictions extended to the implementation of the micro-scale PPKM from late February 2021 to the end of May 2021. Despite the declining number of daily new infection cases in this episode, health facilities remained tightly pressured with the high number of hospitalisations as the number of active severe cases remained high (Figure 10).

**Figure 10: Daily COVID-19 infection and hospitalisations**



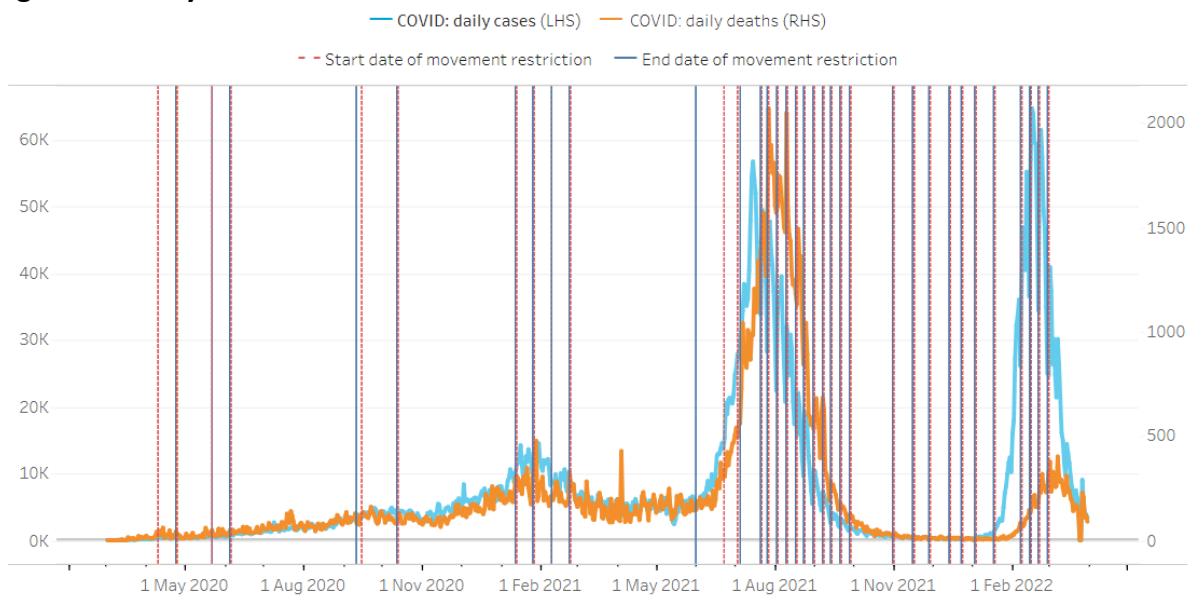
Source: Our World in Data. <https://ourworldindata.org/grapher/covid-stringency-index>.

Figures 10 and 11 also show that the number of new cases dictated the patterns observed in hospitalisations and the number of daily fatalities due to COVID-19. Both variables are

<sup>10</sup> Continuous and consistent data on the total number of active cases are difficult to compute since data on recoveries from COVID-19 are patchy and seem to be discontinued in 2021. The patient in care unit data reflects the number of severe cases that requires hospitalisation and, to some extent, the degree of pressure on the health facility.

positively correlated with the new daily cases, with a correlation coefficient of 91% for hospitalisations and 65% for daily fatalities. Note that while the correlation between daily cases and hospitalisations is not much affected by the Omicron wave in early 2022, the correlation between daily cases and fatalities dropped substantially during the omicron wave—the correlation coefficient between daily cases and deaths excluding the Omicron wave is 88%. The drop in correlation is mainly attributable to the relatively large number of vaccinations that significantly reduced the fatalities due to COVID-19 during the Omicron wave (Figure 11). Regardless, new daily cases consistently preceded the peaks of both hospitalisations (by about a week) and daily fatalities (by about 3 weeks), and hence acted as a reliable leading indicator that is used as the main factor in implementing mobility restrictions.

**Figure 11: Daily COVID-19 infection and fatalities**



Source: Our World in Data. <https://ourworldindata.org/grapher/covid-stringency-index>.

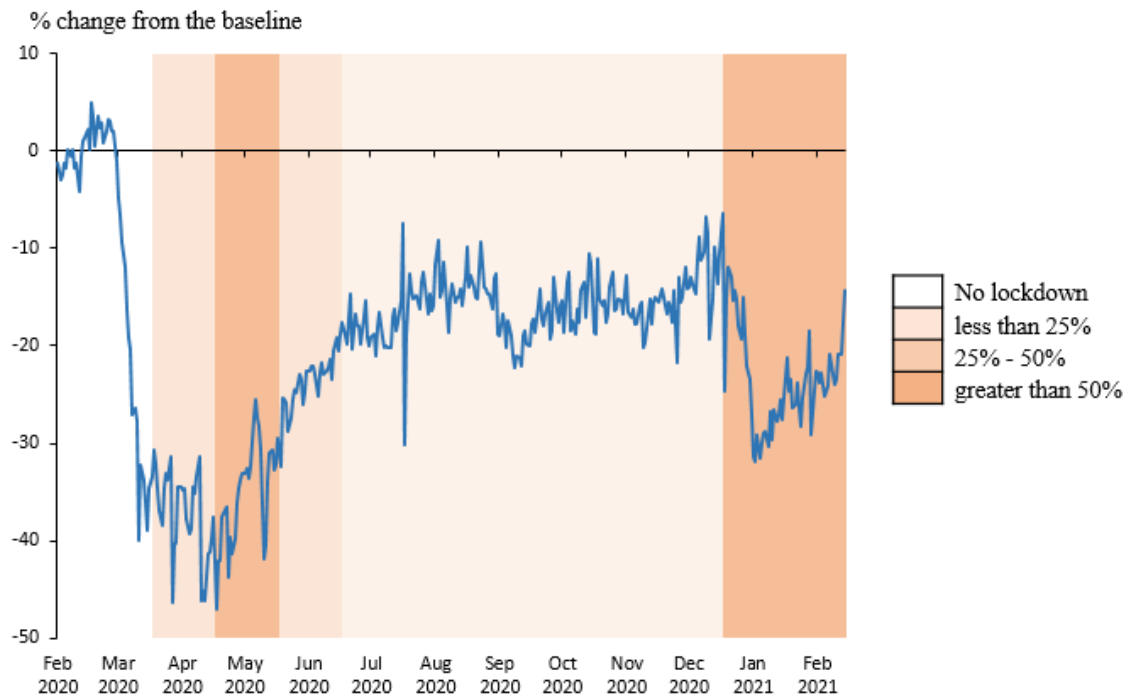
## 6. Effectiveness of the restriction policies

The number of new daily and active COVID-19 cases also acts as the main determinant for people’s mobility, which varies across places and times in Indonesia due to region-specific factors and seasonalities. Restricting people’s mobility is often regarded as the most effective way to contain the spread of coronavirus, especially during the early years of the pandemic. By examining the experiences of implementing mobility restrictions in different regions in Indonesia, Ridhwan, et.al. (forthcoming) suggests that restriction policies are somewhat effective in containing people’s mobility in the country. People’s mobility outside the residential areas is higher in the months before the implementation of mobility restrictions. It returns to become more active again a month or two after the restriction.

The extent of mobility restrictions in Indonesia varies across regions. The policy is mostly not being applied nationwide and is most predominantly implemented in Jakarta, which is the

largest contributor of COVID-19 cases in the country. Ridhwan et.al. (forthcoming) noted that in between February 2020 to February 2021, most mobility restriction episodes are applied to less than 25% of regions in Indonesia. This is why people’s mobility in July-December 2020 increases despite continuing restriction policies. However, Figure 12 supports the notion that the restriction policies are quite effective in limiting people’s mobility in the country. When applied to more regions, the restrictions reduce the average people’s mobility nationwide, and vice versa.

**Figure 12: Average people’s mobility outside residential areas**



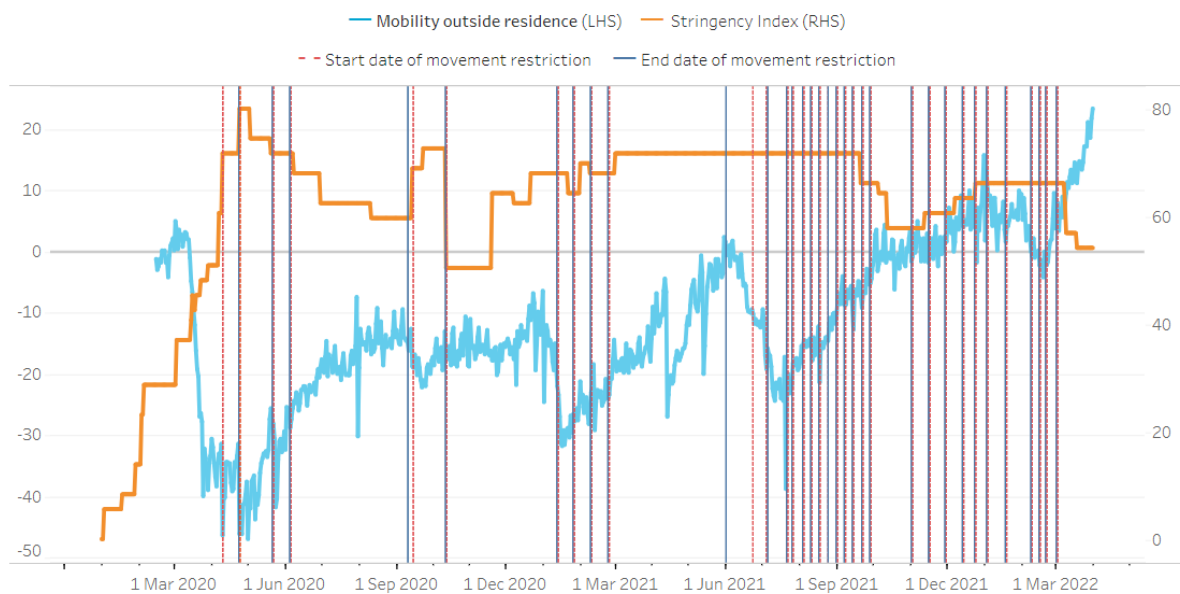
Source: Ridhwan, et.al. (forthcoming)

In terms of its application, aside from public campaigns and restrictions on internal movements, no other measures of mobility restriction were applied nationwide in the country (Oxford COVID-19 government response tracker—Hale, et.al., 2020). Closing of schools and workplaces, for example, are applied nationwide at a very mild level—limited only to recommendations for closing—after the peak of the Delta-variant wave in September 2021. The same nationwide treatment, with requirements to cancel public events, was also applied during the Omicron wave in early 2022. Such variations in terms of restriction policy coverage and measures result in variations in the degree of mobility restriction’s stringency (Figure 13).

Changes in the degree of restriction stringencies were proven to be effective in containing people’s movements outside the residency areas, at least up to the peak of the second wave in February 2021. As the authorities implemented the movement restriction measures in April 2020 in an attempt to contain the continued spread of coronavirus, people’s mobility dropped by almost half of what it used to be before the pandemic began.

Since then, the authority adjusted the measures by gradually easing the stringency. First, in May 2020, by changing the restriction on internal movements from a complete restriction to a recommendation for not travelling across cities/regions, followed by the reopening of public transport services. Further easings were introduced in June by partial re-openings of selected workplaces and schools, and in August, by easing international travel bans to only some regions of origin. All these have pushed back people’s mobility rate to as high as about 10% below the pre-pandemic level in late August.

**Figure 13: Restriction stringency index and the average mobility outside residential areas**



Sources: Hale, T., N. Angrist, E. Cameron-Blake, L. Hallas, B. Kira, S. Majumdar, A. Petherick, T. Phillips, H. Tatlow, and S. Webster. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government. University of Oxford, Google LLC. Community Mobility Reports. <https://www.google.com/covid19/mobility/>.

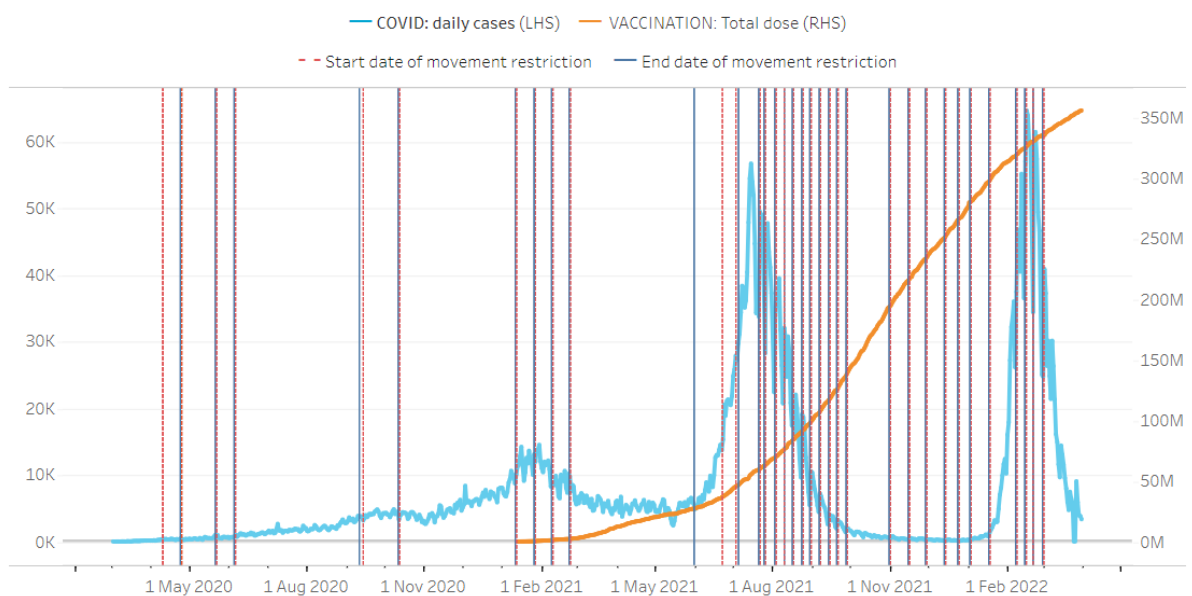
Accelerating COVID-19 infection cases in September 2020 has pointed the authority to restrengthen the mobility restriction measures, which again led to a fall in people’s movements outside their residential areas. The correlation between the stringency index and people’s mobility has weakened somewhat since February 2021 after COVID-19 vaccination programs took off in the country. There was even a brief episode when the stringency index seems to correlate positively with mobility (October 2020-January 2021), just before the Omicron wave hit the economy.

In summary, all these suggest that the mobility restriction policies were effective in helping to contain the exponential spread of coronavirus, especially with the alteration of its level of stringency before the COVID-19 vaccination program started to expand in mid-2021. This effectiveness extends to containing the number of hospitalisations and fatalities. However, the correlation between the degree of restriction stringency and people’s mobility seems to weaken after the government expedited the rate of COVID-19 vaccination in May 2021.



The increase in the share of the population vaccinated, from 10% to over 30% in October, has helped Indonesia to shorten the length of the Delta-variant wave. In less than 3 months, the number of daily infections fell from over 55,000 cases per day to around 1,500 cases per day (Figure 14), along with the decline in hospitalisations and deaths. Daily cases and hospitalisations once again shot up during the Omicron wave in February-March 2022 (Figure 10) despite the continued increase in the share of people vaccinated. However, the vaccine was proven effective in shielding from fatalities due to COVID-19 as can be seen in the later part of Figure 11. This explains the jump in people’s mobility to exceed its pre-pandemic level in late February 2022, even before the degree of restriction stringency was eased. The effectiveness of the mobility restriction policies was enhanced tremendously by the rapid increase in vaccination, especially in reducing the rate of fatalities from COVID-19.

**Figure 14: Daily COVID-19 infection and total vaccination doses**



Source: Our World in Data. <https://ourworldindata.org/grapher/covid-stringency-index>.

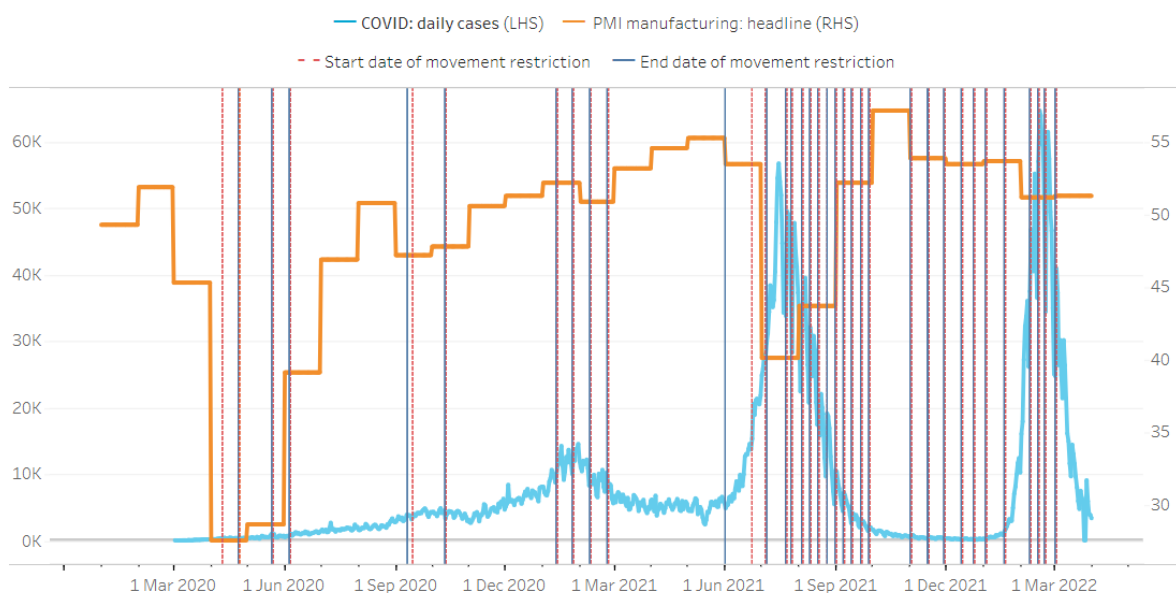
## 7. The economic impacts of mobility restriction policies

GDP growth in Indonesia slowed to just below 3.0% in the first quarter of 2020 as the spread of coronavirus started to affect the economy. Since then, the economy has experienced a recession with four consecutive quarterly declines in GDP due to the closing of economic activity. Economic activity fell as GDP posted negative growth at -5.3% in the second quarter of 2021, -3.5% in the third, -2.2% in the fourth, and -0.75 in the first quarter of 2021. The economy started to recover some of the loss by growing at 7.1% in the second quarter of 2021. Lately, except for the hiccup of 3.5% growth in the third quarter of 2021 due to the delta-variant spread, the GDP growth rate seems to have returned to its average 5.0-5.5% growth rate—a good rate of growth but is not strong enough to guarantee a quick recovery to its pre-pandemic path of aggregate economic activity.

Due to data limitations, this section discusses the impact of COVID-19 mobility restriction policies on the economy through the lens of real economic activities and the financial markets. Real economic activities will be represented by the manufacturing purchasing managers' index (PMI) which comes only with a month lag and is available on a monthly frequency basis. The financial sector is represented by the market capitalisation data from the Jakarta stock exchange (JSX), which shows the trading activity in the stock exchange and is available daily.

The pandemic and its associated restrictions on mobility impinged on the real economic activities including those of manufacturing and other sectors. Domestic manufacturing activity, as represented by the manufacturing PMI, is negatively correlated with the degree of restriction stringencies and the dynamic of new daily infection cases. This is even true for the case of the omicron wave in 2022 (Figure 15) when the average people's mobility has gone up and exceeded its pre-pandemic level. This suggests that the activity in the manufacturing sector is not immune to the re-emergence of new waves of COVID-19 cases even when fatalities are low, and people's mobility remains relatively high.

**Figure 15: Daily COVID-19 infection and manufacturing PMI**



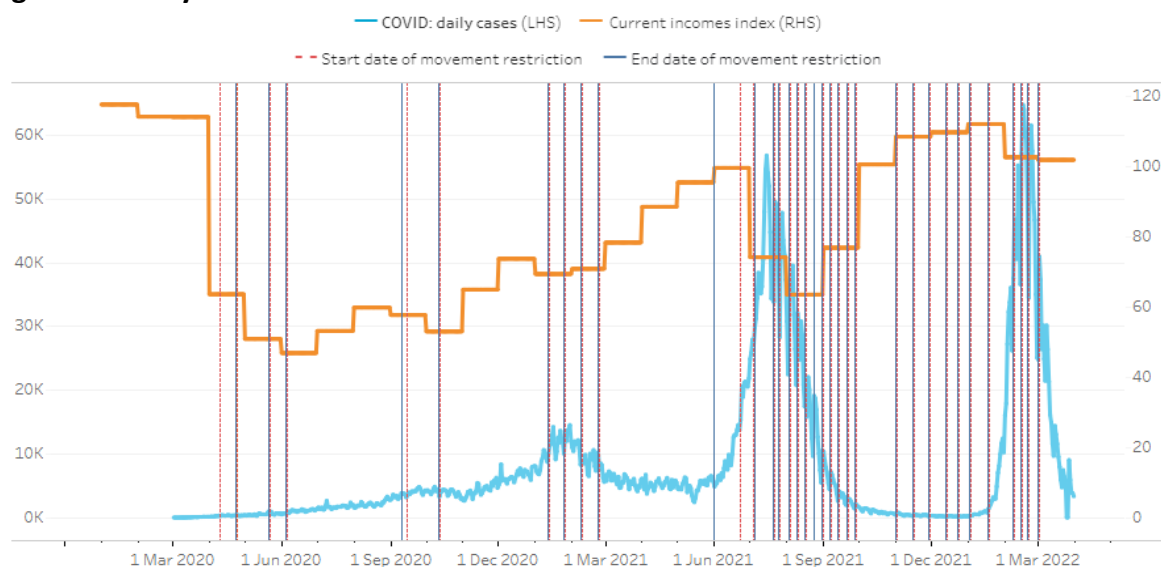
Sources: CEIC Data Company, Our World in Data. <https://ourworldindata.org/grapher/covid-stringency-index>.

The manufacturing PMI—which values below 50 indicate contraction and expansion otherwise—contracted sharply during the first episode of coronavirus spread in the country. The index plunged to below 30 in April 2020 after the first strict mobility restrictions policy was implemented, suggesting a deep contraction in manufacturing activity. But since this drop was offset by a drop in aggregate demand, inflation remained low during the period. The condition worsened as the PMI continued to suggest activity contractions relative to the previous month up to October 2020. After stagnating for a while, the activity started to pick

up slowly in March-June 2021 along with the slowdown in new daily cases (Figure 15). Before growing large enough to compensate for the loss during the contraction episode in 2020, these improvements in activity were again hampered by the Delta-variant wave of COVID-19. The PMI plunged to 40 in July 2021, indicating another large contraction in the sector’s activity which lasted until August. The weakening patterns of manufacturing activity were again repeated during the Omicron wave in early 2022.

Other real activity sectors seem to also mirror the trend in manufacturing. Studies, Ridhwan, et.al (forthcoming) for example, suggest that mobility restriction policies are negatively and significantly affecting households’ income. The current income index (CII)—which values below 100 indicates lower income than what was earned 6 months before and higher otherwise—plunged significantly in April 2020 and has continued to decrease since then. Only in November 2021 did the CCI regain a value over 100. After experiencing 17 months of continuous declines in income, households earning in Indonesia seems to have started bottoming out in October 2021 with income levels that should still be far below the average level earned prior to the pandemic (Figure 16).<sup>11</sup> This suggests a concerning tendency on how the wave of COVID-19 infections is haunting the real economic activity in the country.

**Figure 16: Daily COVID-19 infection and the current income index**



Source: Bank Indonesia (2022), Our World in Data. <https://ourworldindata.org/grapher/covid-stringency-index>.

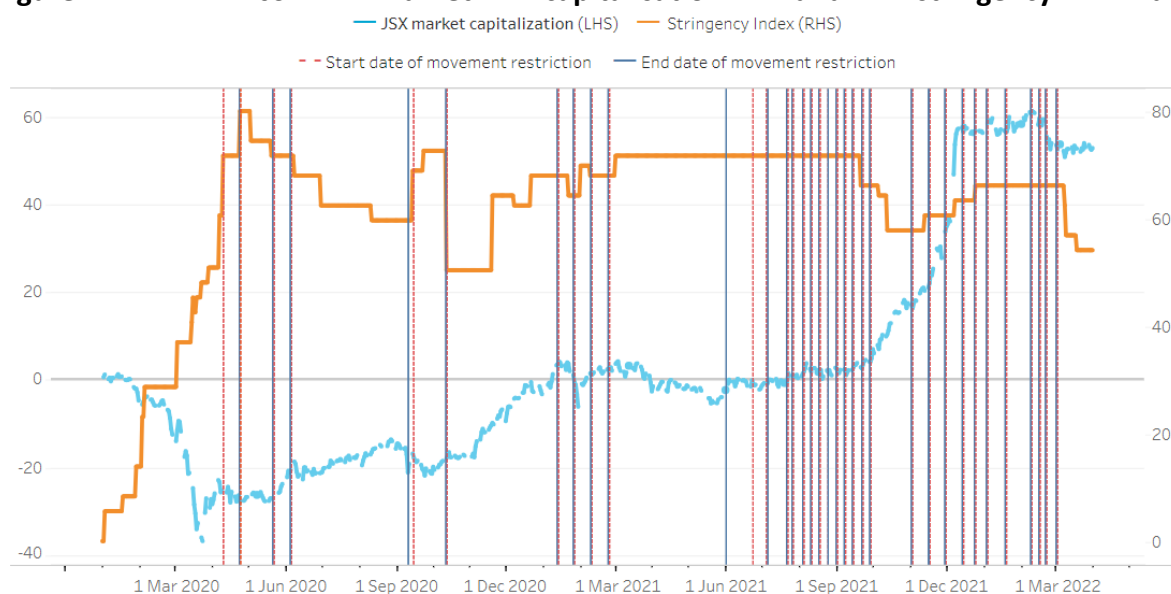
Turning to the financial sector, the Impact on stock market was only felt mostly during the first wave of the pandemic in 2020 (Figure 17). By early 2021, the Jakarta stock exchange (JSX) capitalisation index returned to its pre-pandemic level and did not seem to be affected much by the Delta wave of COVID-19 during the year. Similarly, the Omicron wave also did not seem to lower the capital market activity as indicated by the remaining high stock market

<sup>11</sup> Bank Indonesia Consumer Survey, May 2022 (<https://www.bi.go.id/en/publikasi/laporan/Pages/SK-Mei-2022.aspx>)

capitalisation index. The market confidence to the financial sector, represented by the rapid growth in the stock market capitalisation, returned post the Delta wave along with lower levels of mobility restriction stringency and a rapid increase in the COVID-19 vaccination.

Observations on the economic impacts of mobility restriction policies here reveal a concerning implication of COVID-19 and its policy responses on the potential worsening inequality, at least in the medium run. While the real economic activities continue to struggle with recurring COVID-19 waves, activities in the financial sector have way passed their pre-pandemic level. Although indirectly, this may widen the income inequality in the country. The breakdown of the CII suggests that while the decline in income of households with monthly spending above Rp 5 million (US\$ 335) a month has bottomed out since October 2021, this is not the case for those whose spending is less than Rp 2 million (US\$ 135) a month. Incomes of the latter group are still declining by April 2022.

**Figure 17: JSX market capitalisation and stringency index**



Sources: CEIC Data Company, Hale, T., N. Angrist, E. Cameron-Blake, L. Hallas, B. Kira, S. Majumdar, A. Petherick, T. Phillips, H. Tatlow, and S. Webster. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government. University of Oxford.

## 8. Conclusion

In the early years of the pandemic, mobility restrictions seemed to play a role in avoiding the exponential spread of coronavirus and higher fatalities. Yet, over time, we observe that mobility restrictions become less effective. As the government chose more relaxed rules at the micro level (districts/cities) than a strict lockdown policy at the national level, the focus of the pandemic control measure was shifted to the vaccination program. This shift in strategy is mainly driven by concern about the economic cost of a complete lockdown policy. With more relaxed mobility restrictions, the expansion of the COVID-19 vaccination program in mid-2021 became the game changer in controlling the pandemic. Our data indicate that post-Delta wave, the effectiveness of the mobility restriction policies was boosted tremendously

by the rapid increase in vaccination rate. The latter is correlated with lower fatality rates from COVID-19.

There are various political and economic considerations involved in the decision to initiate mobility restriction policies. Nevertheless, our data suggest that all decisions to extend mobility restriction policies are associated with the dynamics of daily infection cases and/or the total number of severe active cases. The rising number of infection cases and hospitalisation have prompted the authorities to continuously renew mobility restriction orders. The restrictions were implemented with different degrees of stringency, depending on pandemic transmission level and response capacity of the health sector in various areas during a certain period.

This paper shows that by relaxing mobility restrictions, Indonesia has avoided prolonged recession in the economy. Yet, pandemic impacts are quite different between the real and the financial sectors. The pandemic and its associated restrictions on mobility impinged real economic activities, especially those in the manufacturing sector. Our data shows that domestic manufacturing activity is negatively correlated with the degree of restriction stringencies and the dynamic of new daily infection cases. This suggests that the activity in the manufacturing sector is highly sensitive to the re-emergence of new waves of COVID-19 cases that may lead to the imposition of mobility restrictions.

Interestingly, the pandemic's impact on the financial sector seemed to be short-lived. The stock market was only adversely affected during the first wave of the pandemic in 2020. By early 2021, it has returned to its pre-pandemic level. The stock market did not seem to be affected much by the Delta wave nor the Omicron wave suggesting the remaining high stock market capitalisation index. This trend is not unique to Indonesia. Many stock markets in other economies also experience a boom during the pandemic.<sup>12</sup>

These contrasting dynamics between the real and the financial sector might potentially worsen inequality in the post-pandemic era. Sluggish recovery in the real sector will adversely affect millions of wage earners, whose income level will, in turn, take a longer time to reach the pre-pandemic level. Meanwhile, capital owners will reap the benefits of the financial market runs. While beyond the focus of this paper, this issue is worth further investigation.

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<sup>12</sup> <https://www.vox.com/business-and-finance/22421417/stock-market-pandemic-economy>

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### Appendix 1: Indonesia’s mobility restrictions timeline

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|--|--|
| <ul style="list-style-type: none"> <li>• <b>Large scale social restriction (PSBB) 1-3:</b></li> </ul>                                  | <ul style="list-style-type: none"> <li>• 10 – 23 April 2020</li> <li>• 24 April – 21 May 2020</li> <li>• 22 May – 4 June 2020</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>PSBB <i>Transisi</i> in Jakarta:</b></li> </ul>  | <ul style="list-style-type: none"> <li>• PSBB <i>Transisi</i> 1: 5 June – 10 September 2020 (5-18 Jun, 19-Jun-2 Jul, 3-16 Jul, 17-30 Jul, 31 Jul- 13 Aug, 14 Aug-27 Aug, 28 Aug-10 Sep )</li> <li>• PSBB: 14 September – 11 October 2020 (14-27 Sep, 24 Sep- 11 Oct )</li> <li>• PSBB <i>Transisi</i> 2: 12 October 2020– 11 January 2021 (extended every two week)</li> </ul> |
| <ul style="list-style-type: none"> <li>• <b>The emergency public activity restrictions (PPKM <i>Darurat</i>) Java-Bali:</b></li> </ul> | <ul style="list-style-type: none"> <li>• 11 – 25 January 2021</li> <li>• 26 January – 8 February 2021</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>PPKM Micro</b></li> </ul>  | <ul style="list-style-type: none"> <li>• 9-22 Feb 2021, 23 Feb - 31 May 2021, 22 Jun-5 Jul</li> </ul>  |
| <ul style="list-style-type: none"> <li>• <b>Emergency PPKM Java-Bali</b></li> </ul>  | <ul style="list-style-type: none"> <li>• 3 – 20 July 2021</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>PPKM Level 3 &amp; 4 in Java-Bali:</b></li> </ul>  | <ul style="list-style-type: none"> <li>• 21 – 25 July 2021, 26 July – 2 August 2021, 3 – 9 August 2021, 10 – 16 August 2021,</li> <li>• 17 August – 23 August 2021 (incl. Sumatera, Kalimantan, Sulawesi)</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>PPKM Level 3 (Java-Bali) and Level 4 (outside Java-Bali):</b></li> </ul>                   | <ul style="list-style-type: none"> <li>• 24 – 30 August 2021, 31 August – 6 September 2021, 7 – 13 September 2021,</li> <li>• 14 – 20 September 2021 (Level 4 only at six cities outside Java),</li> <li>• 21 – 27 September 2021,</li> <li>• 28 September – to date (Govt to evaluate the policy weekly)</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>PPKM Level 1 &amp; 2 in Java-Bali</b></li> </ul>   | <ul style="list-style-type: none"> <li>• 3 October: PPKM Level 1 for Blitar, East Java (lowest level)</li> <li>• 23 October – 30 October 2021: PPKM Level 2 (Jakarta)</li> </ul>   |

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|--|--|
| <ul style="list-style-type: none"> <li>• <b>PPKM Levels (Java-Bali/ outside Java-Bali) from end 2021 to 2022:</b></li> </ul> | <ul style="list-style-type: none"> <li>• 1 – 15 Nov 2021: Jakarta changed to Level 1</li> <li>• 29 November – 13 December 2021: Jakarta upgraded to Level 2 (in view of Omicron variant)</li> <li>• 24 December 2021 – 2 January 2022: End of Year Restriction –Level 3 applied nationwide (in and outside Java-Bali)</li> <li>• 3 – 17 Jan 2022: PPKM Level 1 (in and outside Java-Bali), PPKM Level 2 for Jakarta, Yogyakarta and the whole of Bali; extended 3x</li> <li>• 8 – 14 Feb 2022: Upgraded to Level 3 for Greater Jakarta, Bali and Yogyakarta (Omicron variant)</li> <li>• 15 – 21 Feb 2022: Bandung was added to Level 3</li> <li>• 21 – 28 Feb 2022: Level 3 extended twice in Java-Bali</li> <li>• 7 – 14 March 2022: Level 3 to Level 2 in Greater Jakarta and Greater Surabaya (extended 3x)</li> <li>• 24 May- 6 June 2022: Level 2 to Level 1 in Greater Jakarta</li> </ul> |
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Source: Authors' compilation