

The Economic Impact of Covid in Bali, Indonesia

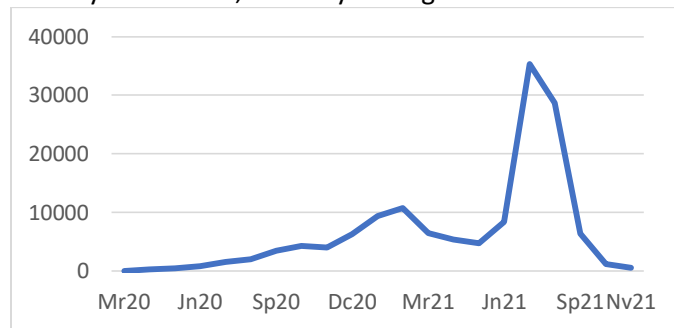
Introduction

Indonesia, like all other countries in the world, has experienced the covid pandemic. However, compared to other countries of similar size, Indonesia has fared relatively well, with total cases to date (mid November 2021)¹ only about 10%* of the United States or Brazil. While government policy certainly contributed to this success, geography also played a major role. Indonesia is an archipelago with dense population and urban centers concentrated on Java. Access from Java to other islands is by ferry (to Sumatra, Kalimantan and Bali), ship or air. Isolating the “Outer Islands” from large scale transmission out of Java was relatively easy.

Indonesia’s pandemic has experienced two surges, a relatively small one following the 2020 Christmas/New Year holiday season when the alpha (United Kingdom) variant was emerging and a much larger one following the 2021 Muslim Ramadan/Eid season when the delta (India) variant was spreading, Figure 1A.

Figure 1
Indonesian Covid Pandemic

A. Daily New Cases, monthly average



B. Provincial Distribution, percent of cases

Province	First Peak	Second Peak
Jakarta	18	25
W.Java	36	11
C.Java	11	18
E.Java	5	9
Bali	3	2

Source: Indonesian National Covid Task Force

The pandemic has been centered in the “big 4” provinces of Java, Figure 1B and especially in Jakarta, the national capital city (which has the status of a province). During the first surge, about 1/4 of the cases recorded in W.Java were located in the two municipalities adjacent to Jakarta. These municipalities form part of the Jakarta Metropolitan Area. If we add these cases to Jakarta, the pandemic is more evenly divided between Jakarta and W.Java. These two provinces together accounted for half the national total cases.

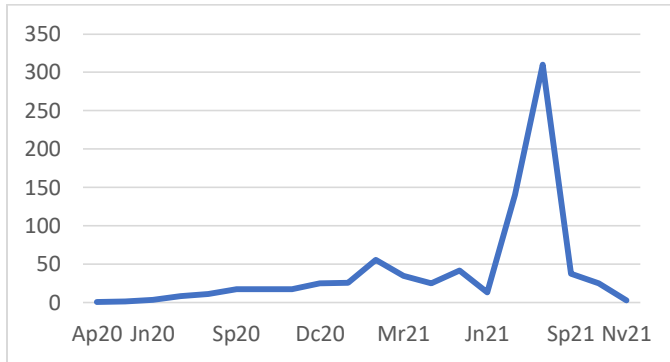
The second surge was different. Jakarta was still the epicenter but cases were more widely distributed across the Java provinces. Furthermore, these provinces accounted for less than 2/3 of total cases in the second surge compared to almost 3/4 of the first surge cases showing that the “Outer Islands” were harder hit during the second surge. In addition to being more widely spread across all provinces, the second surge saw more cases in secondary cities outside the major metropolitan areas.

The pandemic in Bali has followed the course of the national pandemic, Figure 1B and Figure 2. Bali did not fully recover from the first surge before entering the second surge. The peak of Bali’s second surge

* In order to keep the presentation uncomplicated, references and data sources are placed in endnotes.

occurred about 2 weeks later than the national (Java) peak, which suggests – but does not prove – transmission of the delta variant by domestic tourists. The peak of the second surge in Bali was more severe than the first (6:1) and more severe than the national total (3:1).

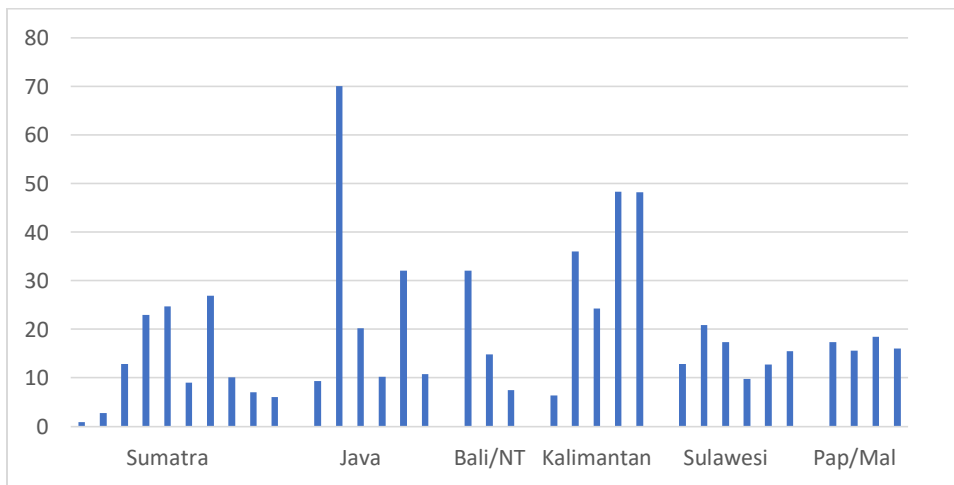
Figure 2
Covid Pandemic in Bali, average daily new cases / 100,000 people



Source: Bali Provincial Covid Task Force

This notion is supported by Figure 3 which shows the overload on provincial medical facilities at the peak of the second surge. The capacity of medical facilities also affects the calculation, as in the case of the Kalimantan provinces which are relatively undersupplied compared to Java. However Bali is relatively well supplied, so the fact that it has the 6th heaviest overload (out of 34 provinces) and 3rd heaviest without Kalimantan, suggests that the second surge was, in fact, severe.

Figure 3
Covid Overload on Medical Facilities, percent overload



Sources: National Covid Task Force (covid data), Central Statistical Agency (medical facilities data)

Government Policy Response²

The first recorded case of covid in Indonesia was in Jakarta on 2 March 2020. However in February there had been earlier “imported” cases when Indonesian citizens were evacuated from Wuhan, China and

Indonesian (mostly Balinese) cruise ship workers were repatriated. These cases were limited to quarantine facilities. The government responded quickly to domestic covid cases: the President announced a seven point plan, including both health measures and economic support (guaranteed food security, assistance for small business).³

A week later, in mid-March, the President established a Covid Emergency Response Task Force (Task Force). He instructed all central ministries and local governments (provincial, municipality and regency/county) to shift budget funds from non-obligatory items to a new covid response budget line. This policy had an important negative knock-on effect for many small and medium enterprises whose main business was as suppliers for government development projects.

During March, local governments began declaring local states of emergency and instituting various types of restrictions such as closing businesses and suspending Friday communal prayers in mosques. On 30 March, the President invoked the 2018 health emergency and quarantine law. This law was designed around the 2000 political decentralization laws which transferred responsibility for sectoral policies and funding from the central ministries to local governments. One of the devolved functions was health. The quarantine law, while maintaining the central government's ultimate authority, envisages local governments selecting and implementing health protocols based on local conditions.

The central government Task Force drew up a menu of options for addressing covid, called the Large Scale Social Restrictions LSSR. Restrictions included: closing schools and businesses, capacity limits on activities in public venues including houses of worship and sports arenas, limits on public transport, etc. Local governments then requested permission from the central government to apply restrictions. Jakarta immediately applied followed by the municipalities in West Java and Banten provinces which are part of the Jakarta Metropolitan Area. By the end of April, all of Java and many urban areas in the "Outer Islands" had applied some LSSR.

There was a huge public outcry in Bali against LSSR and neither the provincial government nor the single municipality and eight regencies requested central government permission to apply LSSR. Bali was not under covid restrictions until the local government based LSSR system was replaced with the uniform national restriction package, the Restrictions on Social Activities RSA system in January 2021.

At the beginning of the pandemic, the government appears to have been most concerned about the Muslim Fasting Month (late April – late May 2020) and the Eid festival the last week of May when urban residents, especially the huge working class, return to their home villages. The problem was especially worrisome for Jakarta with workers not only from Java but also Sumatera and other "Outer Islands". Beginning in April, all modes of public transport out of Jakarta were closed until June and private vehicles were turned back at highway checkpoints. The strategy seems to have worked, as there was no noticeable post-Eid surge and the pandemic continued to be centered in the urban areas of Java, not villages.

The 2020/2021 end-of-year surge seems to have caught the government by surprise. The day after Eid (23 May), the central government announced that LSSR would be cancelled and Indonesia would operate under a "new normal" which included social distancing and masks outdoors but, crucially, not indoors or at private gatherings. Malls and restaurants reopened and restrictions on transport were lifted. In July, the Task Force reporting to the president was downgraded to the status of a committee reporting to a minister.

On New Years Day 2021 with 10 thousand new cases per day, the government finally took action. Indonesia's international borders were closed. Local government based LSSR were replaced by a uniform Restrictions on Social Activities RSA system applied to provinces, municipalities/regencies designated by the central government. Under RSA, government offices and businesses were limited to 25% employees physically present with the remainder "work from home". Main roads were closed except for people traveling to work (with documentation) or shopping for essential goods. Schools were moved completely online through parents' handphones. Non-essential services, such as malls, salons, spas and restaurants, were closed although take-out and delivery was allowed. Parks and beaches were also closed. Houses of worship were limited to 50% capacity. Public venues were required to close at 8pm.

These drastic restrictions did not last long as daily new cases began to decline. In February 2021, the system was revised to RSA-micro where the restrictions were now imposed at the neighborhood level, rather than to administrative units, i.e. provinces, municipalities or regencies. Municipality and regency governments decided where and when to apply the RSA restrictions. The restrictions themselves were also loosened. Work From Home was reduced to 50%. Non-essential services were permitted to reopen at 25% capacity. The curfew was extended to 9pm. In March, mass public events such as sports, prayer meetings and culture/theme parks, were permitted. Parks and beaches reopened with capacity limits but these were not strictly enforced in Bali.

At this time, there were no foreign tourists and there had not been any for almost a year. However a trickle of domestic tourists began to return when the RSA-micro system was implemented. Opening parks and beaches, which was incidental in other areas of the country, was crucial for Bali.

The government did anticipate the 2nd surge. Initially the RSA was applied only to Java and Bali but in the run-up to Ramadan/Muslim Fasting Month (April – May 2021), RSA was gradually extended to cover all 34 provinces. The government shortened the Eid vacation from 8 days (traditional Quranic) to 5 days and requested people not to go home to their villages. Travel restrictions were tightened, but not closed. The government then made a crucial policy mistake. The Eid vacation days were moved two weeks, from mid-May to the end of May.

In spite of the government campaign to keep city people from returning home to their villages over the Eid, some (mostly urban working class) people did return. They took with them the covid delta variant and villagers became infected. So when the (mostly urban middle class) people returned home to their villages two weeks later, they were greeted by villagers who had already been infected but were not yet showing symptoms. These visitors then took covid delta variant with them back to the cities. This process produced the second surge, which was more widely distributed than the first and had a much greater impact in rural areas than the first surge.

With the number of cases skyrocketing in both urban and rural areas, on 1 July the government introduced the Emergency RSA in Java and Bali, retaining the micro-RSA elsewhere. The Emergency restrictions were draconian: 100% work from home, schools and universities 100% online, malls and restaurants closed, traditional markets closed although informal satellite markets continued to operate, houses of worship closed, public transport limited to 70% capacity, all mass events (both public and private, such as weddings) banned. International borders were closed to all foreign arrivals, including diplomats, foreigners with permanent residence and holders of work visas.

As the number of new cases began to decline in August, enforcement of restrictions was gradually loosened although RSA is still officially in force as of this article (mid November 2021). In mid-

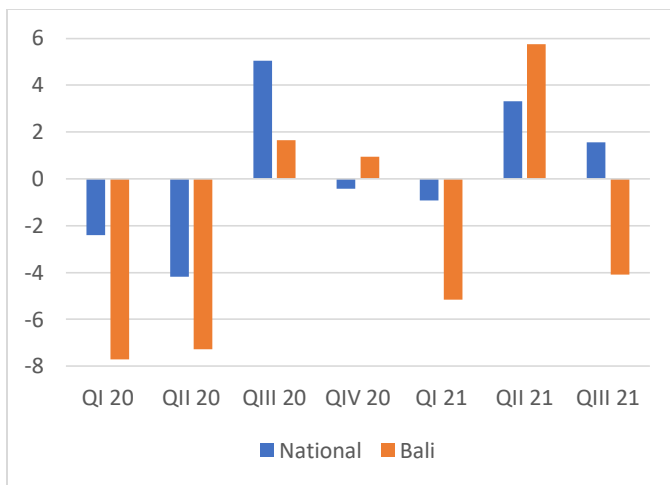
September, foreign tourism was reopened but lack of clarity on administrative rules and procedures has discouraged tourists from coming back to Indonesia. Additional restrictions mean that even those foreign visitors who do enter Indonesia find it extremely difficult to come to Bali.

The government began a vaccination program in January 2021 using a Chinese vaccine. The first priority was security personnel and health workers, then civil servants including teachers. As more vaccines became available, vaccination was opened to the general public in May, beginning in Jakarta. By November 2021, 60% of the eligible population (age 12 and over) had received their first dose and 40% were fully vaccinated. Bali had achieved 100% first dose and 90% fully vaccinated.⁴ The vaccination message was simple: no tourists until everybody is vaccinated.

Economic Impact

The government’s on-again-off-again policy response is reflected in the economic sphere, Figure 4. The figure shows the change in economic activities (gross domestic product GDP) for each quarter (3-month period) from January – March 2020 to September – November 2021 (latest available data). A positive number shows that production grew compared to the previous quarter while a negative number shows that production shrank.

Figure 4
Quarterly Economic Growth / Shrinkage, percent change



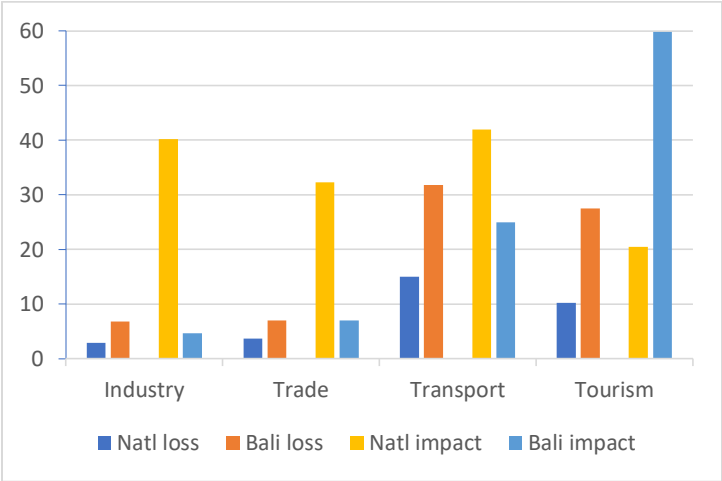
Source: Indonesian Statistical Agency, Bali Provincial Statistical Agency

It is interesting that the national economy was already showing a decline in production in Quarter I (January – March) 2020 before the first domestic covid case had been reported. The decline in production was concentrated in the air transport sector⁵ as the northern developed countries, including China, closed their borders. These areas are a major source of international tourists during the northern winter. The larger, additional decline in QII was a direct impact of the government’s LSSR policy to control the spread of covid during the Muslim Fasting Month and Eid celebration. This decline was also concentrated in transportation, including land, rail, sea and air. Inter-island ferry transport, predominantly between Jakarta/Java and Sumatra, is not reported separately, but was also closed.

The loosening of restrictions during the middle of the year allowed economic activities to recover. The Restrictions on Social Activities RSA policy instituted to contain the first surge (QIV 2020 – QI 2021) was deliberately designed to reduce the negative economic impact by allowing economic activities to continue under strict health protocols, e.g. work from home and capacity limits. The effect of tightening restrictions during the second surge (QIII 2021) shows clearly. By September 2021, the level of production for the national economy had returned to the pre covid level (December 2019).

The impact of the government covid response on Bali was completely different, Figure 5. The figure shows the cumulative loss of production for key economic sectors (QI 2020 – QIII 2021) in the two left hand columns for each sector. It then shows the impact of these losses on total economic shrinkage, in the two right hand columns for each sector.⁶ This impact is affected by the size of the loss, but also by the size of the sector in the economy. A large sector with even a small loss can have a large impact, e.g. industry and trade in the national economy.

Figure 5
Sectoral Loss of Production and Impact of the Lost Production, percent



Sources: Indonesian Statistical Agency, Bali Provincial Statistical Agency

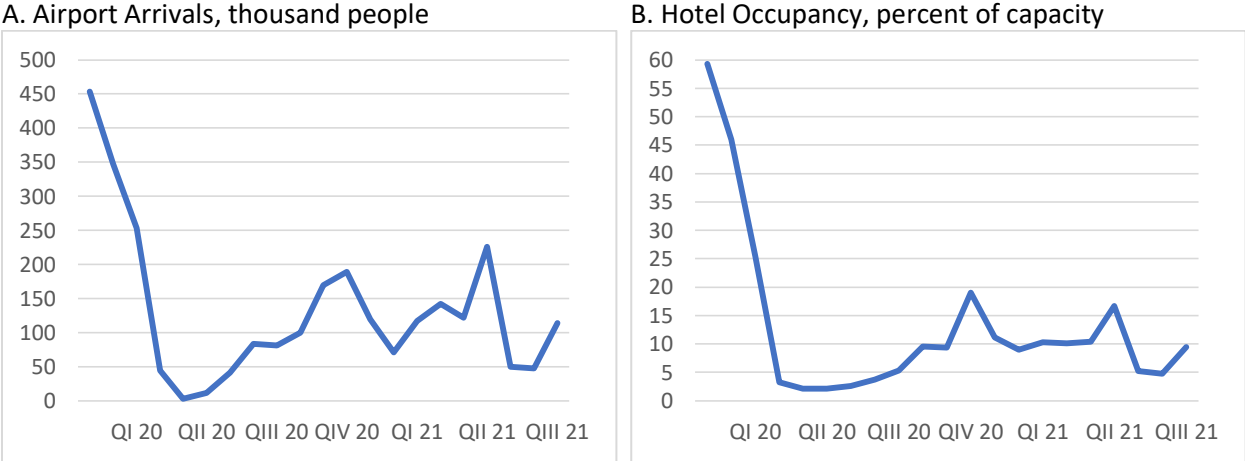
The differences in impact of covid at the national level and in Bali were caused by differences in the structure of production. Economic activities at the national level are well balanced among sectors of production (agriculture contributing 13%,⁷ industry 20% and trade 13%) with transport and tourism⁸ relatively small sectors (5% and 3%, respectively). While Bali’s economy also has 13%⁹ contributed by agriculture, the similarity with the national economy stops there. Tourism is the largest single sector, accounting for 23% of production and transport contributes 10%, 3/4 of which comes from air travel.

As noted above, foreign tourists had already stopped coming to Bali before the first covid case was recorded in Indonesia. The transport sector shrank 13% in the first quarter of 2020 and an additional 34% in the second quarter. A normal 500 thousand arrivals in January fell to 0 in April after the sending countries closed their borders. Production of tourism services dropped 15% from January to March and an additional 25% in the following three months (April – June). Hotel occupancy rates (percent of rooms with guests) fell from a normal 60% in January to 3% in April.

The loss of production in tourism is especially damaging because tourism service providers purchase half of the inputs they use in production (not counting labor) from Balinese vendors.¹⁰ If tourism spending falls by Rp.10 million, this causes additional losses to other vendors of Rp.6 million. Tourism businesses purchase 70% of Bali’s horticulture production (fresh fruits and vegetables), 60% of poultry and eggs production and three-quarters of local processed food production. The food processors purchase half of their inputs from the local agricultural sector.

After the initial shock, Bali’s economy followed roughly the pattern of the national economy’s response to government covid policy, Figure 4, p.5 above and Figure 6. These airport arrivals and hotel occupants were domestic tourists, as foreign tourism had been closed down. The peaks in the graphs show times when government covid restrictions were loosened while the troughs occurred when regulations were tightened.

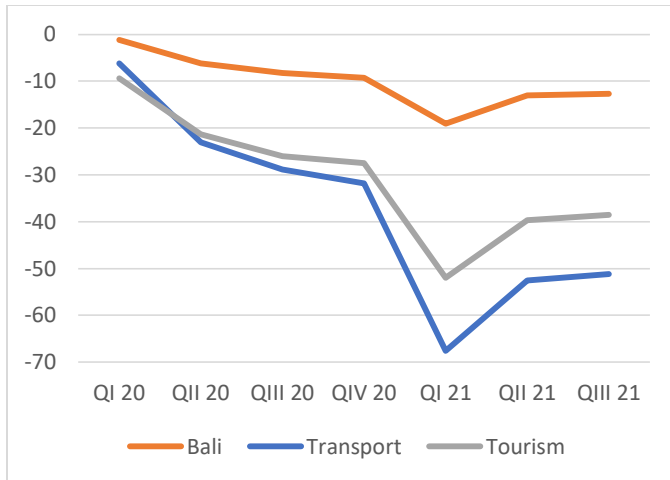
Figure 6
Bali’s Transport and Tourism Sectors, January 2020 – September 2021



Source (both charts): Bali Provincial Statistical Office

The cumulative impact of covid and the government’s policy response is shown in Figure 7. While the national economy had recovered to pre covid levels of production by September 2021, Bali’s production was still only 87% of the pre covid level. Bali’s transport sector was only about half pre covid level and tourism only 60%. All the other sectors were back to 90% or above.

Figure 7
Loss of Production January 2020 – September 2021, cumulative percent



Source: Bali Provincial Statistical Agency

The economic effect of the change in government policy response between the first surge (QIV 20) and the second surge (QII 21) is clear in the figure. During the first surge, the government closed down virtually all public activities. During the second surge, the restrictions were specifically targeted at activities involving large groups of people, focusing on capacity limits rather than closures. This change was especially important for air transport, which allows tourists access to Bali.

Employment and Poverty¹¹

Bali is a small island with a population of 4.3 million people (2020) and a labor force of 2.5 million people (2019). The largest employers are agriculture and trade (19% each), followed by manufacturing (15%) and tourism (13%). Only 3% of the labor force works in transport.(pre covid, 2019)

Unemployment rates are historically low, less than 2% compared to the national average of 5% . The unemployment rate in Bali exploded from 1.57% pre covid (2019) to 5.63% (2020). This represents 161 thousand lost jobs¹², more than half of which (57%) were from the tourism sector. Younger workers were hit hardest: 2/3 of the job losses were experienced by workers under the age of 30. Almost 1/3 of jobs lost were owner-operators (self-employed or employers) while these people account for only about 10% of total employment so business enterprises closed at 3x the rate of unemployment of workers. The average Balinese business is small, with 13 – 14 paid employees. The fact that so many employers went out of business suggests that these small businesses are vulnerable to external shocks. Unemployment has now (September 2021) fallen slightly to 5.37%.

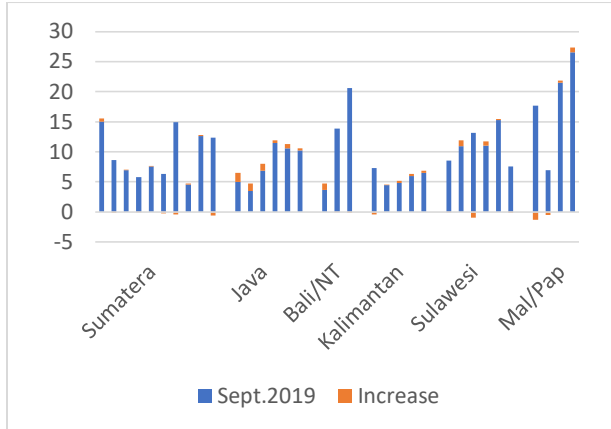
Bali's poverty rate is also low compared to the national level,

Figure 8A. The blue columns show the pre covid poverty rates for the 34 provinces, arranged by island group in approximately west to east, north to south order. The red sections of the columns show the increase in poverty rates as of September 2021 (latest data). The national poverty pre covid rate was just over 9% and increased by 1/2 percent.

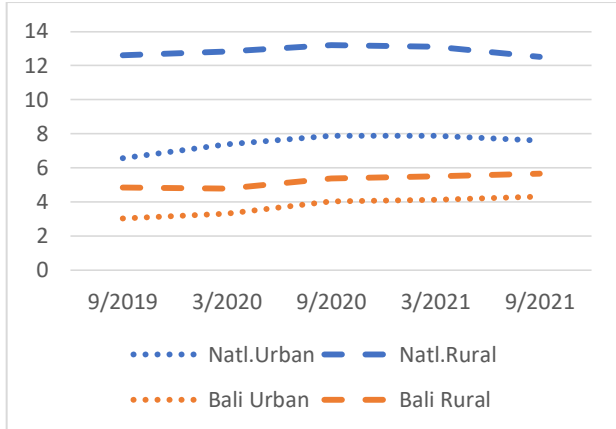
Bali had the lowest poverty rate among all provinces 3.6% (left hand column in Bali/NT group) but the second largest increase, more than 1%, after Jakarta and its neighbors (Banten and West Java) where poverty increased 1.25% – 1.5%. However the 1% increase in Bali represented a much larger shock because the pre covid rate was so low.

Figure 8
Covid Poverty

A. Province Poverty Rate, percent



B. Changes Over Time, percent



Source (A and B): Central Statistical Agency

At the national level, urban poverty (second line from the top) spurted in early 2020, peaked in early 2021 and then began to decline. This roughly follows the schedule of changes in government covid policy response. Rural poverty began to increase in mid 2020 but peaked at the same time as urban poverty and is now declining faster than urban poverty. This pattern suggests that the changes in rural poverty were spillover effects from changes in urban economic activity.

Bali's urban and rural poverty began to increase from early 2020 and peaked in mid 2020 but have not declined. This parallel change suggests that the urban and rural economies are integrated. The structure of this mutual integration is explored in the next section.

Regional Impacts

The previous discussion has been in terms of provincial totals but economic activities are not spread evenly over the province. Bali, like most other Indonesian islands, consists of a volcano – in Bali's case, still active – surrounded by coastal plains. The central area of the island is hilly and mountainous. The "mountains" are actually former cones of the volcano, while the hills are old lava flows. Bali's volcano, Mt. Agung, produces huge amounts of sand and ash in addition to lava. This sand and ash is washed off the volcano's slopes during the rainy season and is carried down to the coastal plains. As a result, the entire island is very fertile and the ash helps fertilize the offshore coral reefs as well.

The island is shaped like a somewhat flattened diamond, 153 km. wide at its widest point and 117 km. from north to south.¹³ The province is divided into 9 administrative areas: 8 regencies / counties and one municipality, Denpasar, the provincial capital. The northern tip of the island is

- Buleleng Regency, which contains the port of Singaraja (inter-island freight) and offshore islands dive tourism sites.

The southern tip of the island is

- Badung Regency, which includes the main Southern Ocean beach tourism areas.

Stretching across the island, roughly west to east are:

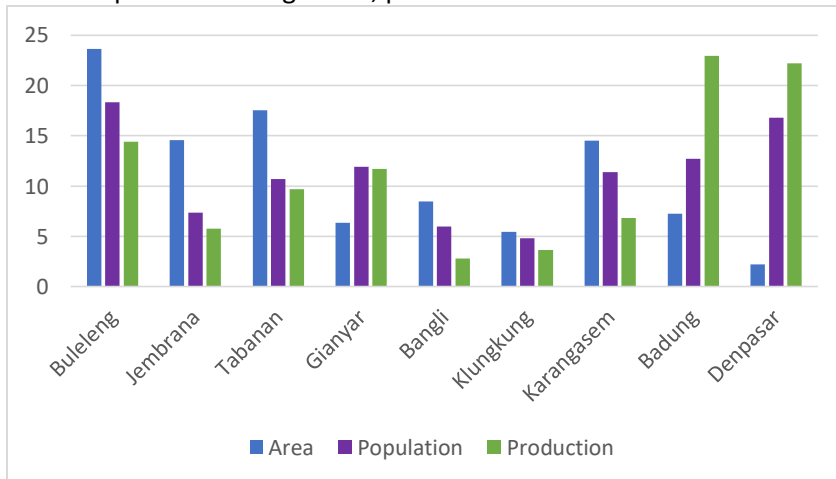
- Jembrana Regency, which contains the ferry terminal for the Java-Bali ferry and West Bali National Park.

- Tabanan Regency
- Gianyar Regency, which contains Ubud mountain resort area and is a center for Balinese arts and culture.
- Bangli Regency, the mountainous center of Bali. It contains Batur crater lake resort area.
- Klungkung Regency.
- Karangasem Regency, which contain Mt.Agung, an active volcano and the highest mountain in Bali. Candidasa, a small beach tourism area, is built where the lava flow from the 1963 eruption reached the sea. The regency also contains the terminal for the Bali – Lombok ferry.

The municipality of Denpasar was carved out of Badung Regency. It is the provincial capital, the administrative, financial and business center of Bali. It includes the small southeast coast beach tourism area and contains Benoa port, the inter-island passenger and international cruise ship port.

The regencies are very different from one another, Figure 9. The left hand column for each regency shows the percent of Bali’s land area contained in the regency. The center column shows the regency’s share of population. Finally, the right hand column shows the regency’s contribution to the pre covid economic production (gross regional domestic product GDRP). Here the differences are more extreme: Badung and Denpasar together account for almost half of the total economic production.

Figure 9
Size Comparisons of Regencies, percent of Bali total



Source: Bali Provincial Statistical Agency

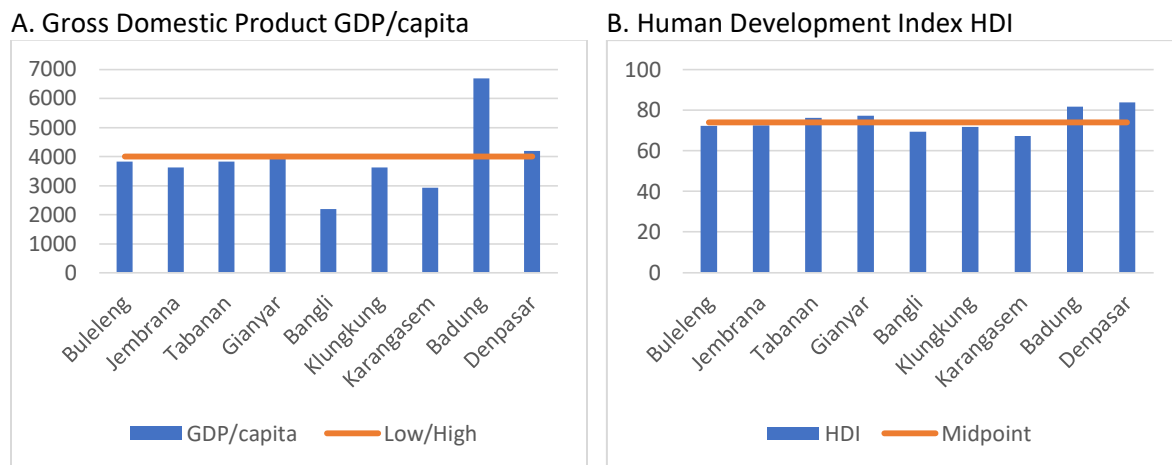
Regencies with relatively large areas (tall left columns) compared to the population (center column), such as Bangli and Jembrana, are sparsely populated. The reverse is true for Badung and Denpasar, which are densely populated. Comparing the heights of the left and right columns gives information about the relative productivity. Denpasar is, by far, the most productive area with a high production from a small area. This is characteristic of urban areas. These comparisons allow us to describe the regencies as follows:

- Buleleng is large, with a moderately dense population and moderately low production intensity.
- Jembrana is moderately large with a sparse population and low production intensity as much of its area is national park.
- Tabanan is moderate in size, sparsely populated and moderately low production intensity.
- Gianyar is small, densely populated with high production intensity.

- Bangli is small, sparsely populated and has the lowest production intensity as it is landlocked and mountainous.
- Klungkung is small, moderately densely populated and production intensity is moderately low.
- Karangasem is large, moderately densely populated with moderately low production intensity.
- Badung is small with high population density and high production intensity.
- Denpasar is very small with the highest population density and highest production intensity due to its urban characteristics.

The relationship between population and production (gross domestic product GDP) is an important variable in economic theory. The World Bank classifies countries' level of development by GDP/capita (GDP divided by total population). Low income countries have GDP/capita up to US\$1000; lower middle income countries between US\$1 and 4 thousand; higher middle income countries US\$4 – 12 thousand; and high income countries higher than US\$12000. Most of Bali's regencies are in the middle middle income range, Figure 10A. The red horizontal line shows the dividing line between lower and higher middle income levels. Bangli and Karangasem are lower middle income range while Badung is higher middle income.

Figure 10
Indicators for Level of Economic Development, 2019



Source: Rupiah from Bali Provincial Statistical Agency, converted to US\$ with World Bank purchasing power parity PPP 2019¹⁴

Source: Bali Provincial Statistical Agency

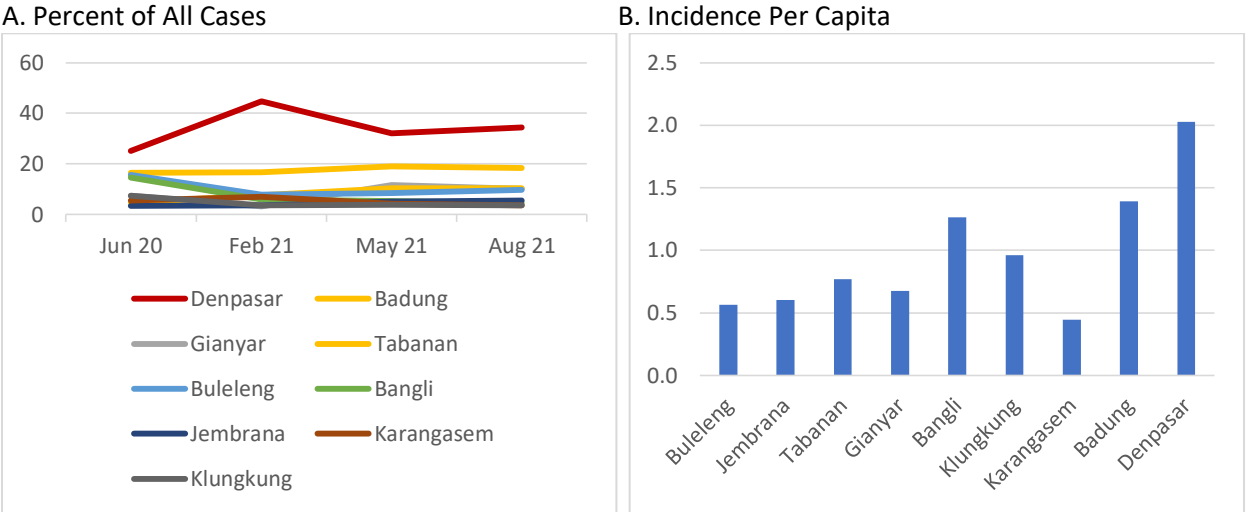
But GDP/capita is a measure of average total production, not income available to the household. In Bali, only about half of total production is available to households for spending.¹⁵ The remainder is spend by government (10%) or business production costs and investment. A standard measure of personal and household welfare is the Human Development Index HDI, Figure 10B. The HDI is calculated as a combination of income (GDP/capita), education level of the population and health (life expectancy). The score ranges from 0 – 100 with the lowest actual score being 39 (Niger) and the highest 96 (Norway).¹⁶ Again the red line shows the middle score for the world (189 countries). In this case, all regencies are clustered around the midpoint value. The differences between high and low regency on HDI are much smaller than for GDP/capita. This is the impact of Indonesia's development strategy, which emphasizes

equal access to education and health care while allowing business entrepreneurs to enjoy the financial fruits of their efforts.

Regional Distribution of Covid

Covid was not spread evenly through the regencies, Figure 11. Figure 11A shows the percent of total provincial cases reported from each regency. Denpasar alone was responsible for just over 1/3 of cases, while Denpasar and Badung together contributed half of all cases. Denpasar was hit fairly hard by the first surge (February 2021) but the second surge was distributed evenly across regencies.

Figure 11
Covid Cases

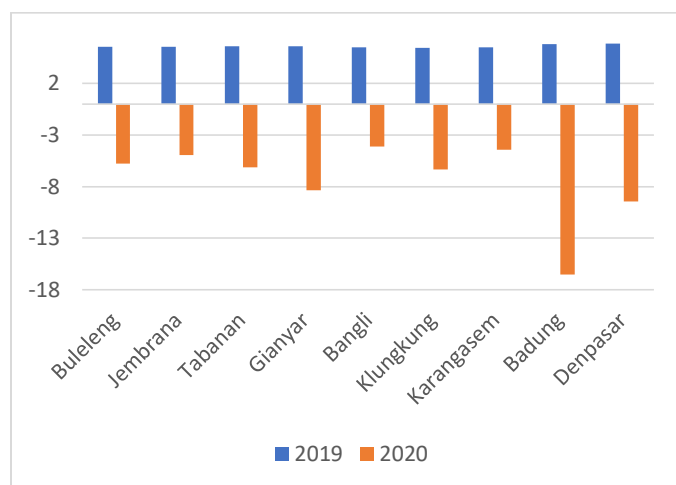


Source: Bali Provincial Covid Task Force, population data from Bali Provincial Statistical Agency

Denpasar and Badung experienced large numbers of covid cases, but they also have large populations so more people were available to become sick. Figure 11B compares the regency’s share of covid cases with its share of population. Denpasar had twice as many cases as its population. Bangli and Klungkung also had relatively high incidence, not because they had a large number of cases but because their populations are very small. Although Badung had many cases of covid, the incidence was not very high because the population is large. So we conclude that Denpasar was the center of the pandemic in Bali, with a secondary center in neighboring Badung.

However the economic impact of covid does not follow exactly the incidence, Figure 12, following page. Pre covid growth rates of production (gross regional domestic product GRDP) were similar among all regencies, about 5%. But Badung, not Denpasar, was the regency most devastated by covid, losing almost 17% of its pre covid production. That is the equivalent of 2.5 months with no economic activities. Denpasar and Gianyar were also hit hard, losing around 8% equivalent to one month of production. The other regencies went from growth of 5% to loss of 4 – 6%.

Figure 12
Impact of Covid on Regency Growth Rate, percent growth of GDP



Source: Bali Provincial Statistical Agency

We saw above Figure 5, p.6, that Bali's economy is heavily dependent on tourism and transportation, which were the sectors most heavily affected by the central government policy response to covid. We also noted that the tourism industry purchases its inputs from the agricultural and industrial (food processing) sector which also purchases inputs from agriculture.

The distribution of production for these key sectors across regencies is shown in Table 1. The statistical agency does not publish sectoral production data at the regency level but we can look at physical production using the economic base/non base sector method. This method compares the percent of physical production contributed by a regency to the percent of resources¹⁷ located in the regency. A score larger than 1 shows that the regency is a specialist (base) producer for that sector. To keep the table simple, scores lower than 1 are not shown.

Table 1
Base Regencies for Key Sectors, score 2019

	Transport	Tourism		Industry	
		International	Domestic	Large	Medium
Buleleng	sea cargo				
Jembrana	Java ferry				
Tabanan					
Gianyar			2.2	1.4	1.2
Bangli					
Klungkung					1.6
Karangasem					

Badung	airport	6.1	3.0	1.9	1.2
Denpasar	cruise ships			2.2	2.5
Note: large industry, over 100 permanent employees; medium industry 21 – 100 employees. Data for small industries is not available at the regency level.					

	Agriculture				
	Rice	Vegetable	Fruit	Poultry	Pork
Buleleng			1.9		1.1
Jembrana					2.8
Tabanan	1.6	1.8		2.4	1.1
Gianyar	2.9			1.6	1.7
Bangli		3.8		4.6	1.0
Klungkung					
Karangasem			2.5	1.2	
Badung	1.9				
Denpasar	1.2				

Source: Bali Provincial Statistical Agency

Badung is the center of both the transportation and tourism industries, with a substantial presence in industry. Gianyar also has a presence in the domestic tourism market. The economic structure of Gianyar is more balanced with specialization in industry, poultry and pork. The latter are important inputs for the food processing industry as well as direct consumption for international cuisine. These characteristics explain the economic impact of covid on these two regencies.

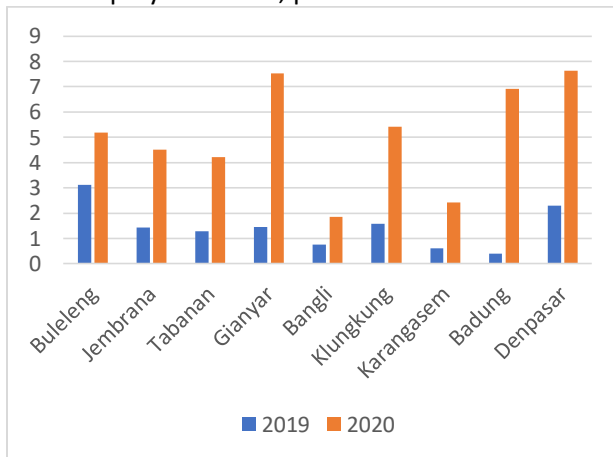
Denpasar is a special case. It is a specialist in industry but is also the political capital and financial hub of the province. It has tourism facilities, but most are targeted to business tourism rather than holidays. Denpasar was also the regency hit hardest by covid, in total number of cases as well as cases per capita of population, Figure 11, p.12.

Shrinking production means reduced demand for labor and unemployment. Covid caused unemployment rate to more than triple with most of those losses in the tourism sector, p.8 above. So it is not surprising that unemployment was concentrated in Badung and Gianyar regencies,

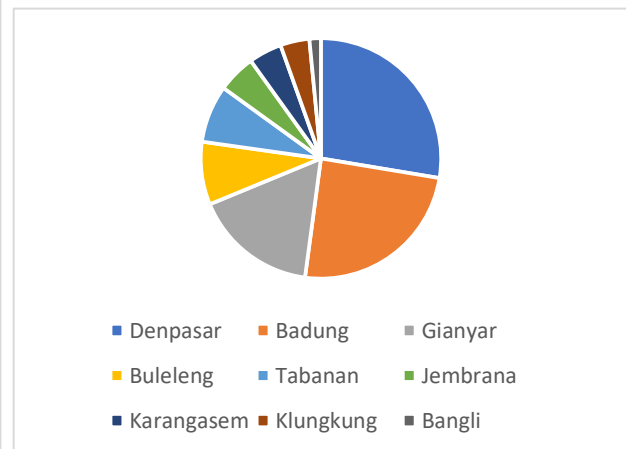
Figure 13 following page. Denpasar also experienced a large increase in unemployment, due to its role as provincial center, as explained above.

Figure 13
Covid Unemployment

A. Unemployment rate, percent



B. Contribution, percent



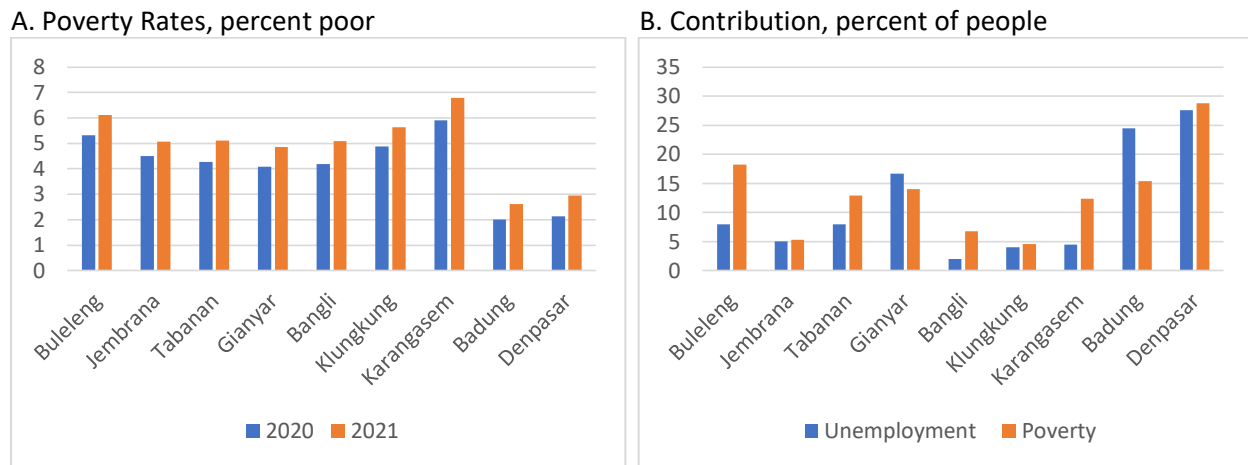
Source: Bali Provincial Statistical Agency

Buleleng and Klungkung are special cases. These are less prosperous regencies, with fewer employment opportunities. Many workers from these regencies move to the tourism centers to work. Unemployment statistics are collected in the location of the job, not the residence of the laborer. When tourism jobs were lost to covid, these workers returned home and were counted as unemployed in their home regencies.

We saw above p.8 that both unemployment and poverty increased as a result of covid. The increase in poverty appeared to be spread more or less evenly between urban and rural areas. But a regional approach shows that the situation is not that simple. Figure 14A shows that, while increases in poverty rates were, indeed, spread more or less evenly across regencies, pre covid poverty rates were not.

Badung and Denpasar had very low poverty rates while Buleleng, Klungkung and Karangasem were higher than other regencies.

Figure 14
Covid Poverty



Source: Bali Provincial Statistical Agency

A direct link between unemployment and poverty appears not to be supported by Figure 14B. This figure shows the percentage contribution of each regency to the number of people newly unemployed and newly poor. Only in Denpasar are the two contributions equivalent. Note that the number of newly unemployed (160 thousand) is much larger than the number of newly poor (31 thousand) and that the number of newly poor includes household members, not only working adults. For most of the regencies, more (or fewer) unemployed people are not associated with more (or fewer) newly poor people. Only Denpasar, Jembrana and Klungkung show similarities between increased unemployment and increased poverty. These regencies do not share any economic or social characteristics which would explain this pattern.

Badung is the only regency with a large number of newly unemployed people but a relatively smaller number of newly poor. We saw above that most of the jobs lost to covid were in the tourism sector and most of these were located in Badung. Tourism has a high labor productivity, 150% of the provincial average. So many of these households would have had reduced incomes but not enough loss to drive them into poverty.

The reverse may be true for Buleleng and Karangasem. Both had high pre-covid poverty rates and showed a larger increase in poverty than unemployment. Economic theory has recently developed a new concept, “near poor” to describe people whose income is above than the poverty line but close to it. These people are vulnerable to even small income shocks which can drive them into poverty. Data for near poor is not available but the general level of near poverty can be approximated by a measure of vulnerability. This measure looks at the average income of the lowest group in the population (bottom 40%). The average income is then compared to the poverty line.¹⁸ Buleleng and Karaangasem have the lowest income of non poor people, 2.5 times the poverty line. All the other regencies have non poor income 3.5 times (or larger) than the poverty line. This suggests that non poor people in Buleleng and Karangasem are more vulnerable to shocks than people in other regencies.

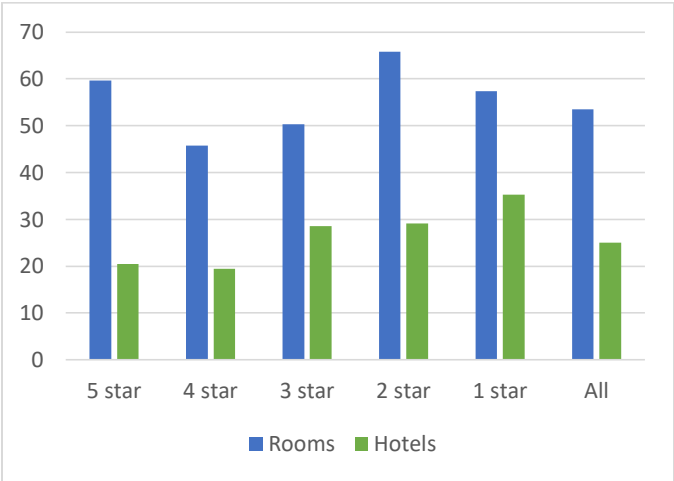
The overall poverty impact of unemployment was mitigated by central government social safety net policies, which were strengthened from the beginning of the covid pandemic. In addition, Bali has uniquely strong social capital. In particular, most Balinese in Bali return to their paternal ancestral village every 7 months (210 day calendar cycle) to celebrate the Visit of the Ancestors. This frequent renewing of contacts allows family members who work outside the tourism sector to assist relatives who jobs have been lost to covid.

Permanent effects

Covid will pass – eventually – and tourists will return. But what will they return to? Bali has lost more than half of its international tourism capacity,

Figure 15 following page. (Comparable data for domestic tourism capacity is not available.)

Figure 15
Covid Loss of Tourism Capacity, percent loss



Source: Bali Provincial Statistical Agency

The pre covid tourism sector was focused on upper end international tourists: 5 star and 4 star hotels each provided 1/3 of accommodations and 3 star hotels added another 1/4. The remaining 10% was supplied by 1 and 2 star hotels, which also served domestic tourists. By 2019 everyone agreed that Bali

was overbuilt. Not only in terms of accommodations but also infrastructure such as roads (perpetual traffic jams), electricity and water supply (frequent outages).

Hospitality will continue to be Bali's lifeblood – there is no realistic alternative. The question going forward is how Bali will rebuild. Theoretically the government can provide policy direction but, in practice, local government revenues come from taxes on hotels and restaurants so there is little appetite for radical innovation. The initiatives will have to come from hospitality entrepreneurs responding to profound changes in the global tourism market.

Endnotes

¹ [COVID Live Update: 252,067,738 Cases and 5,086,925 Deaths from the Coronavirus - Worldometer \(worldometers.info\)](https://www.worldometers.info/coronavirus/)

² Case numbers in this section were collected from media reports of Task Force announcements.

³ Dates and content of regulations in this section were collected from media accounts of government press conferences. The content of regulations was cross checked with the original documents.

⁴ Vaccination Dashboard, Ministry of Health

⁵ Construction and government spending also shrank during Q1, but this is normal due to rainy season weather conditions and the administrative delay to get government budget funds flowing. (The budget year begins 1 January.)

⁶ The impact is measured as the percent contribution of the individual sector loss to the total economic loss.

⁷ Central Statistical Agency. All national economic statistics from this source unless otherwise stated.

⁸ Hotels plus restaurants

⁹ Bali Provincial Statistical Agency. All provincial economic statistics from this source unless otherwise stated.

⁹ Hotels plus restaurants

¹⁰ Bali Provincial Input Output Matrix, 2016

¹¹ Data from Bali Provincial Statistical Agency unless otherwise specified.

¹² Note that jobs lost is not the same as newly unemployed workers because some workers who lost their jobs moved into jobs in other sectors, e.g. agriculture added 80 thousand jobs, an 18% increase over the pre covid level.

¹³ Bali Provincial Government website, <https://www.baliprov.go.id/>

¹⁴ Rp.14000 / US\$

¹⁵ Household consumption/GDP by expenditure = 48%.

¹⁶ United Nations Development Program UNDP, 2019

¹⁷ Total land area is the resource for rice, vegetables and fruit. The resource for the other products is total population.

¹⁸ The calculation is as follows:

- Calculate total income available to bottom 40% of population = average income (data available) x number of people (population data available)
- Calculate income of poverty people: poverty line (data available) x number of poor (data available)
This produces an over estimate of poverty income as not all poverty people have incomes exactly at the poverty line. A more sophisticated estimate can be made using the “depth of poverty” P1 which is the average income of a poor person. The published data have converted the P1 measure into an index number which must then be “reverse engineered” to obtain the actual income.
That level of accuracy is unnecessary for this paper.
- Calculate income of non poor in bottom 40%: subtract income of poverty people from total income of bottom 40%.
- Calculate average income of non poor: divide total income by number of non poor (total bottom 40% less poor people).