ADB BRIEFS

KEY POINTS

- The global impact of the pandemic ranges from $4.8 trillion to $7.4 trillion (5.5% to 8.7% of gross domestic product [GDP]) this year, with an additional impact of $3.1 trillion to $5.4 trillion (3.6% to 6.3% of GDP) in 2021. Around 28% of these losses are incurred by developing Asia, with South Asia absorbing substantial losses relative to GDP.

- Revised tourism losses reflect extended travel restrictions and the latest passenger survey results. The protracted halt in global tourism, coupled with increased travel aversion, implies substantial tourism losses into 2021 and bodes ill for many tourism-dependent economies in developing Asia.

- Domestic demand impacts in 2020 have risen for economies that had larger contractions in the second quarter (Q2), or which are still dealing with outbreaks and containment.

The Impact of COVID-19 on Developing Asia: The Pandemic Extends into 2021

INTRODUCTION

This brief provides updated estimates of the macroeconomic impact of the coronavirus disease (COVID-19), incorporating the latest information on outbreak severity, containment measures, and forecast revisions.[1] It follows a series of assessments done by the Asian Development Bank (ADB) since March 2020. The first impact assessment was released as *ADB Brief No. 128* on 6 March; the second [2] appeared as a Special Topic in the April 2020 *Asian Development Outlook (ADO)* report released on 3 April; the third was released as *ADB Brief No. 133* on 15 May; and the fourth appeared in the Centre for Economic Policy Research (CEPR) volume *COVID-19 in Developing Economies* issued on 22 June.[2] One innovation in the June assessment was to calibrate each economy's domestic demand shocks by using information on outbreak severity, the stringency of its containment policies, and the decline in mobility outside the home. The same approach is maintained here, but calculations are updated using the latest available data.

The updated estimates calculate the pandemic's impact not just in 2020 but also in 2021. Prior assessments assumed that containment would take place over one to two quarters, with activity normalizing in the latter months of 2020, so that all or most of the impact of the pandemic would be felt in 2020. Those scenarios have not materialized. In this update, we estimate the impact of the pandemic not just in 2020 but also in 2021, given the continued persistence of the pandemic. As in previous assessments, key channels through which COVID-19 will affect economic activity include declines in domestic consumption and investment from containment policies and precautionary behavior, and a fall in international tourism from travel bans, border closures, and prolonged wariness of travelers. These external and domestic demand shocks will have indirect effects via trade and production linkages, which are estimated using the ADB Multiregional Input–Output Table (MRIOT).

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[1] The authors of this brief are Abdul Abiad, Reizle Platitas, Jesson Pagaduan, Christian Regie Jabagat, and Editha Laviña. Developing Asia refers to the 46 members of the Asian Development Bank listed in the Table 1 note.

[2] Other recent ADB Policy Briefs have examined the pandemic's impact in particular areas, such as on food security (*ADB Brief No. 139*), United States dollar funding (*ADB Brief No. 146*), migrants and remittances (*ADB Brief No. 148*), and tourism (*ADB Brief No. 150*).

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THE PANDEMIC CONTINUES, BUT CONTAINMENT MEASURES ARE EASING IN MOST ECONOMIES

COVID-19 has persisted, in the form of extended first waves in some countries and recurrent waves in others. High daily new case counts in Europe, the United States (US), Latin America, and developing Asia show that the pandemic is not yet under control (Figure 1). As of mid-November, the US is currently on its third wave and Europe is on its second, and new daily cases in these regions currently exceed 100,000. Developing Asia has about 63,000 new cases daily, and South Asia remains the epicenter accounting for about three-fourths of this number. Central and Southeast Asia account for about 8,000 new cases daily. East Asia has largely gotten its outbreaks under control and has just over 200 new cases daily, whereas the Pacific has avoided large-scale outbreaks.

Despite the continuing outbreaks, most regional economies have been easing containment measures (Figure 2). Strict lockdowns enforced by many governments in the second quarter have been relaxed over the past months, as large-scale lockdowns were simply not sustainable from an economic perspective. While easing is evident across all subregions, there are still variations in the stringency of containment, partly reflecting the state of outbreaks in different subregions and economies. Stringency remains relatively high in South Asia and Central Asia, where outbreaks have been more persistent, and stringency is lowest in the Pacific and East Asia, where outbreaks are either absent or have been largely controlled.

As a result, mobility outside the home has increased substantially from its second-quarter lows (Figure 3). Rapid and early containment paid off for East Asia as it regained pre-pandemic mobility by September. Mobility is also back to normal in the Pacific. In other subregions mobility has also rebounded from its second-quarter nadir, although it remains about 10% below normal in South Asia and Central Asia and about 20% below normal in Southeast Asia.

DOMESTIC DEMAND IMPACT ESTIMATES HAVE WORSENED IN SOME ECONOMIES, IMPROVED IN OTHERS

The estimated impact on domestic demand in 2020 has widened for some economies, but narrowed for others. Following the approach in the June assessment, a useful crowdsourced estimate of the pandemic's impact on domestic demand can be extracted by comparing the latest Consensus Forecasts (CF) for 2020 consumption and investment to the corresponding pre-COVID-19 CF for 2020. The June assessment used May CF for 2020 consumption and investment. The current estimates use the November issue, and the differences relative to May reflect the additional information from recent data releases and developments, including Q2 and Q3 GDP outturns.

Figure 1: Daily New COVID-19 Cases

The virus continues to spread globally...

...with South Asia being the epicenter in developing Asia.

A. Global

New cases, 7-day moving average, log scale

B. Developing Asia

New cases, 7-day moving average, log scale

Note: Latin America includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.
Sources: European Centre for Disease Prevention and Control; Johns Hopkins University; *Telegraph UK*; Worldometer (accessed 18 November 2020).
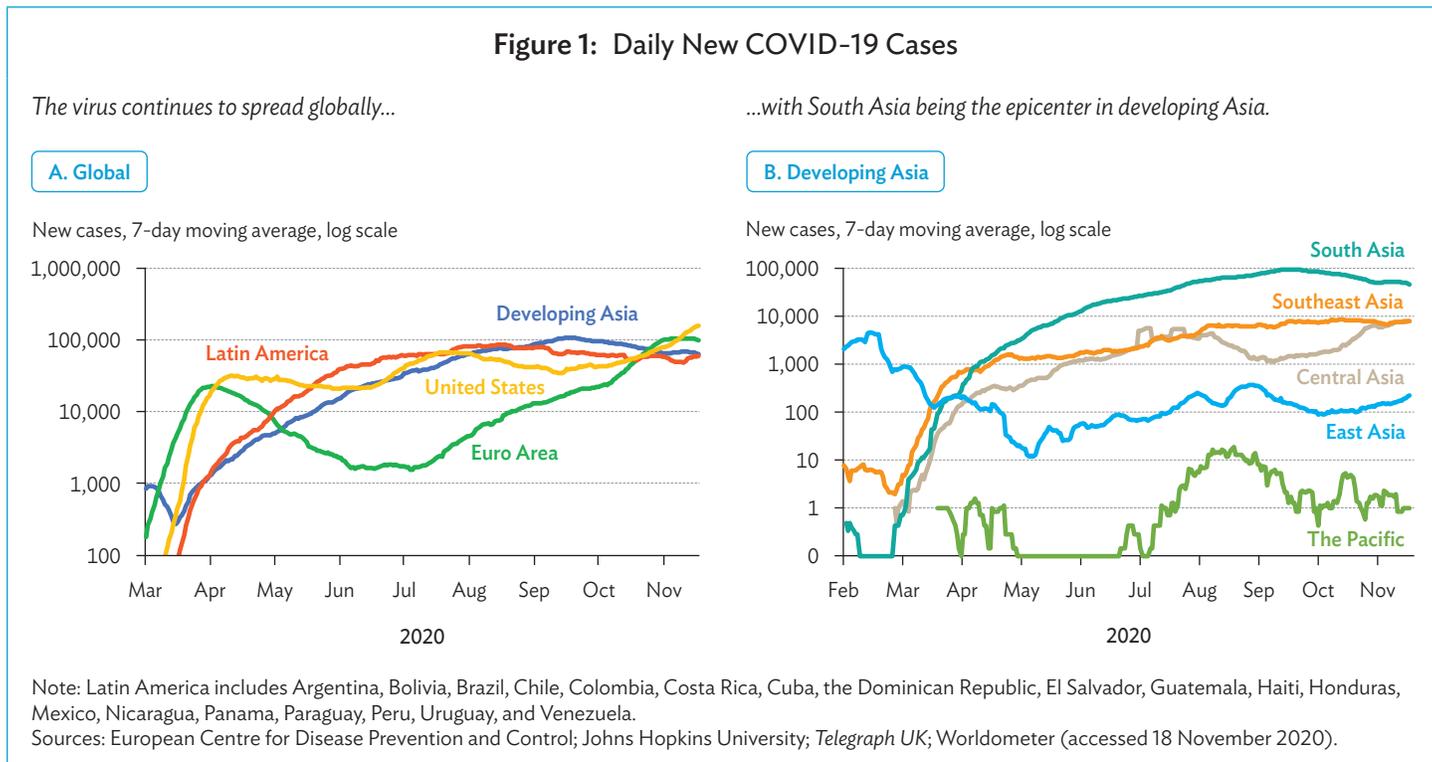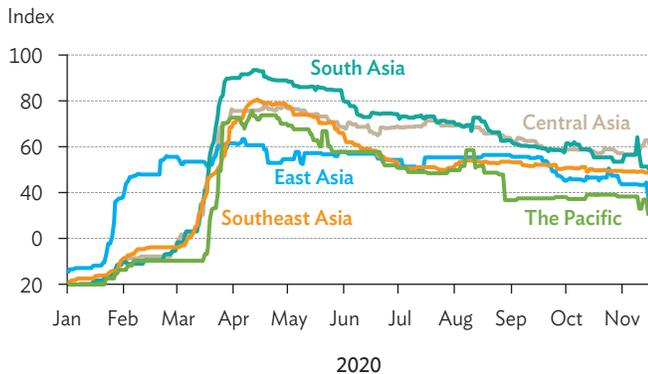
Figure 2: Containment Stringency in Developing Asia

Stringent containment measures in Asia are now being eased, but with variations across and within subregions...

Stringency index, 7-day moving average

Index

2020

Note: The Government Response Stringency index is a composite measure of nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100, with 100 being the strictest response.
Source: University of Oxford (accessed 19 November 2020).

Figure 3: Mobility Outside the Residence in Developing Asia

...and easing of containment has enabled an increase in mobility in most economies.

Mobility, 7-day moving average

Index

2020
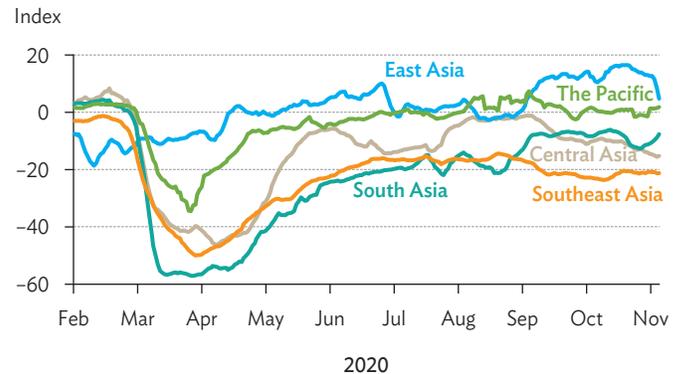
Note: Average mobility is calculated as the average of five nonresidential mobility indicators, measured as percent change from baseline. The baseline is calculated as the median, for the corresponding day of the week, over the 5-week period between 3 January–6 February 2020.
Source: Google LLC. Community Mobility Reports (accessed 18 November 2020).

For economies that had particularly severe Q2 downturns and prolonged outbreaks and lockdowns, estimates of the 2020 impact on consumption and investment are now larger. This is most evident for India and the Philippines, where 2020 consumption is expected to be 12%–15% lower and investment about 25% lower than pre-COVID-19 expectations (Figure 4). These new estimates are twice as large as they were in June. Many other economies also saw downward revisions to 2020 consumption, including Singapore, Malaysia, and Hong Kong, China. In contrast, there was a more even split between downward and upward revisions to 2020 investment, as some economies including the People's Republic of China (PRC), the Republic of Korea, and Taipei,China rebounded more rapidly, portending better business investment conditions than were previously expected.

Views on the US economy for 2020 are now more optimistic than they were in May. While the US had a catastrophic April as a result of lockdowns, economic indicators such as retail sales quickly bounced back as early as May and June. A large contributor to this rapid rebound was the substantial and rapid policy response, including the Coronavirus Aid, Relief, and Economic Security Act, which provided $2.2 trillion or more than 10% of GDP in stimulus through direct cash payments to individuals, increased unemployment benefits, and support to firms and local governments. Some other advanced economies like France and Japan likewise displayed similar upward adjustments to consumption and investment, although others such as Spain and the United Kingdom saw downward adjustments.

For economies not covered by CF, the analysis estimates the impact on domestic demand using information on outbreaks, containment, and mobility. CF has consumption and investment forecasts for only 38 major economies. We estimate the relationship between consumption/investment revisions and outbreak severity, containment stringency, and mobility using the CF sample, and use this estimated relationship to predict the impact on domestic demand for other economies not covered by CF, including many ADB developing member economies, under the baseline scenario. The estimated relationships are presented in Annex Tables 1 and 2. For the better- and worse-case scenarios, the impact on domestic demand is assumed to be 25% smaller or larger than under the baseline, respectively.

CF for 2021 consumption and investment indicate only a partial recovery next year. A comparison of consumption and investment revisions in 2021 relative to revisions in 2020 show that the wide gaps that emerged in 2020 are expected to narrow next year (Figure 5), as economies are expected to post above-normal growth rates. But gaps will not close completely. Consumption will still remain between 3% and 12% below pre-COVID-19 expectations for 2021 (Figure 5, panel A). Investment gaps are expected to close next year for the PRC, the Republic of Korea, and Taipei,China, but are expected to remain sizable (between 4% and 25%) for other economies (Figure 5, panel B). This implies that losses from the pandemic will be smaller but still significant next year. For countries outside the CF sample,
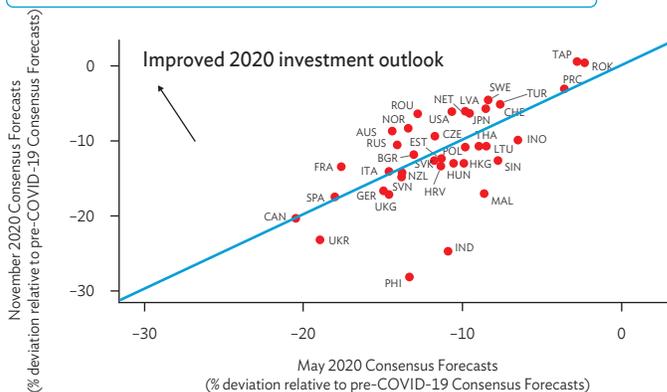
3

Figure 4: 2020 Consumption and Investment Impact, Updated vs. June Estimates

Some Consensus Forecasts consumption and investment revisions (vis-à-vis pre-COVID-19) have narrowed, others have widened.

A. 2020 Consumption revision relative to pre-COVID-19 forecasts
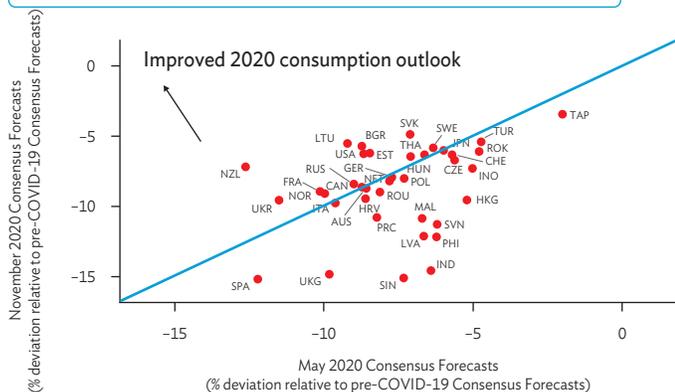
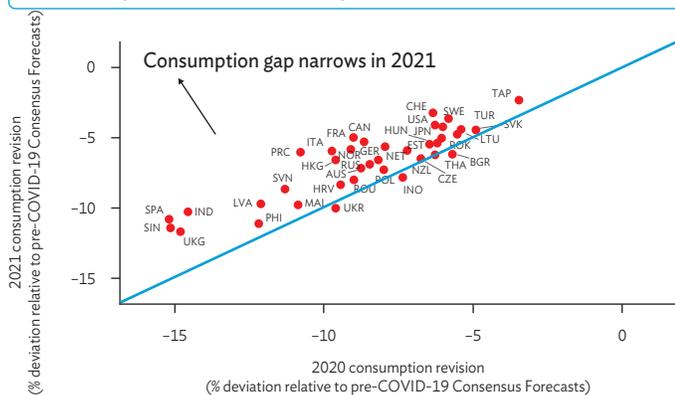**B. 2020 Investment revision relative to pre-COVID-19 forecasts**

AUS = Australia; BGR = Bulgaria; CAN = Canada; CZE = Czech Republic; EST = Estonia; FRA = France; GER = Germany; HKG = Hong Kong, China; HRV = Croatia; HUN = Hungary; IND = India; INO = Indonesia; ITA = Italy; JPN = Japan; LTU = Lithuania; LVA = Latvia; MAL = Malaysia; MEX = Mexico; NET = Netherlands; NOR = Norway; NZL = New Zealand; PHI = Philippines; POL = Poland; PRC = People's Republic of China; ROK = Republic of Korea; ROU = Romania; RUS = Russia; SIN = Singapore; SPA = Spain; SVK = Slovakia; SVN = Slovenia; SWE = Sweden; TAP = Taipei,China; THA = Thailand; TUR = Turkey; UKG = United Kingdom; UKR = Ukraine; USA = United States.
Note: Revisions are the declines in 2020 consumption and investment growth forecasts in May 2020 and November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts of 2020 consumption and investment growth.
Sources: Consensus Economics. Consensus Forecasts reports; authors' estimates.
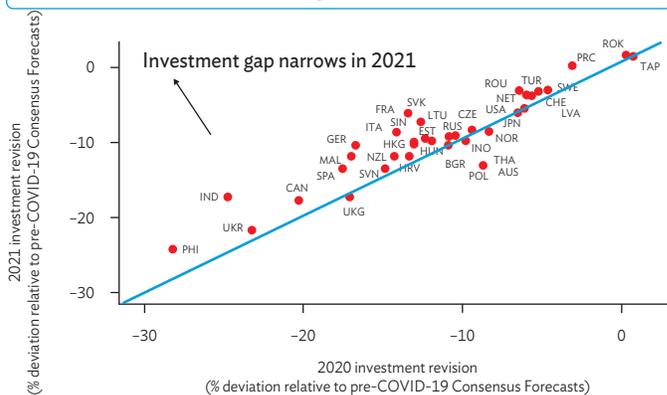
Figure 5: Consumption and Investment Revisions, 2021 vs. 2020

Consumption and investment gaps will narrow in 2021, but will not close completely.

A. Consumption revision relative to pre-COVID-19 forecasts, 2021 vs 2020

B. Investment revision relative to pre-COVID-19 forecasts, 2021 vs 2020

AUS = Australia; BGR = Bulgaria; CAN = Canada; CZE = Czech Republic; EST = Estonia; FRA = France; GER = Germany; HKG = Hong Kong, China; HRV = Croatia; HUN = Hungary; IND = India; INO = Indonesia; ITA = Italy; JPN = Japan; LTU = Lithuania; LVA = Latvia; MAL = Malaysia; MEX = Mexico; NET = Netherlands; NOR = Norway; NZL = New Zealand; PHI = Philippines; POL = Poland; PRC = People's Republic of China; ROK = Republic of Korea; ROU = Romania; RUS = Russia; SIN = Singapore; SPA = Spain; SVK = Slovakia; SVN = Slovenia; SWE = Sweden; TAP = Taipei,China; THA = Thailand; TUR = Turkey; UKG = United Kingdom; UKR = Ukraine; USA = United States.
Note: Revisions are the changes in November 2020 Consensus Forecasts of consumption and investment growth of 2020 and 2021 relative to pre-COVID-19 Consensus Forecasts of consumption and investment of each year.
Sources: Consensus Economics. Consensus Forecasts reports; authors' estimates.

there is no information on how outbreaks, containment, and mobility will evolve next year. And the latest available information on these variables (to mid-November) does not have significant predictive power for 2021. But consumption and investment revisions in 2020 are strong predictors for revisions in 2021, with coefficients suggesting that gaps will narrow by 20%–30% (Annex Tables 3 and 4). This relationship is used to predict the pandemic's impact on domestic demand next year for non-CF countries under the baseline scenario, and for the better- and worse-case scenarios, the impact on 2021 domestic demand is assumed to be 25% smaller or larger than under the baseline, respectively.

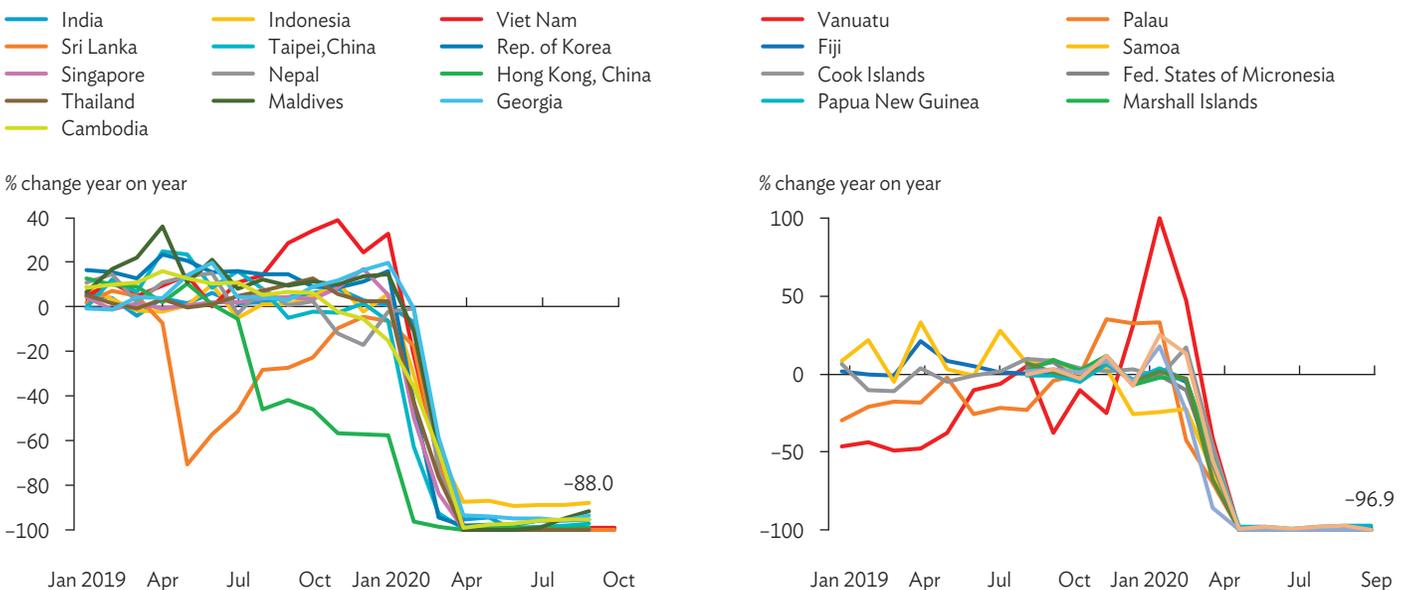## THE REBOUND IN GLOBAL TOURISM HAS BEEN DELAYED

With the global pandemic persisting, no end is yet in sight for the global tourism collapse. For the 24 economies with tourist arrivals data available for August, the year-on-year decline in arrivals ranges from 88% to 100% (Figure 6). International restrictions on nonessential travel remain in place in most economies; within developing Asia, only Maldives has fully reopened, with no mandatory quarantine requirements for international tourists. Many Pacific island economies have said they will continue to restrict international tourist arrivals until 2021 despite a very high dependence on tourism, as their

health systems do not have the capacity to deal with a COVID-19 outbreak. For this analysis, the baseline scenario assumes that international travel restrictions are maintained for 9 months, i.e., until the end of 2020. The better-case scenario assumes travel restrictions are lifted 3 months earlier (which would be closer to what Maldives has done in terms of opening up), and the worse-case scenario assumes travel restrictions are lifted 3 months later, after the first quarter of 2021.

Even after travel bans are lifted, many travelers are planning to defer travel for a longer period and are opting for domestic, short-haul travel. The International Air Transport Association (IATA) has been conducting COVID-19 Passenger Surveys every 2 months since February, asking travelers about their travel plans once travel restrictions are lifted. In the latest survey conducted in August, 52% of survey respondents plan to wait 6 months to 1 year or more after travel bans are lifted before traveling or have deferred travel indefinitely (Figure 7). This is an increase relative to the survey in April (which was used in the June assessment), where the corresponding figure was 40%. The delayed and staggered return of tourists is incorporated into our impact analysis. In addition, travelers indicated a shift in preference toward short-haul and domestic flights. Taken together, the continued travel restrictions and slow return of tourists after bans are lifted suggest that the recovery in international tourism will be at best partial in 2021.

Figure 6: Year-on-year Change in International Tourist Arrivals, Selected Developing Asian Economies

Tourist arrivals collapsed almost everywhere in April, and have not recovered.

Legend: India, Sri Lanka, Singapore, Thailand, Cambodia, Indonesia, Taipei,China, Nepal, Maldives, Viet Nam, Rep. of Korea, Hong Kong, China, Georgia, Vanuatu, Fiji, Cook Islands, Papua New Guinea, Palau, Samoa, Fed. States of Micronesia, Marshall Islands

Note: Tourist arrivals refer to the number of inbound international travelers, typically for a length of stay not exceeding a year and no less than half a day, and it generally excludes overseas visits from citizens or permanent residents and tourists in transit.
Sources: CEIC Data Company; International Monetary Fund Tourism Tracker; and official sources (accessed 21 October 2020).

Figure 7: Travel Plans after Bans Are Lifted

Travelers have become more averse since April.
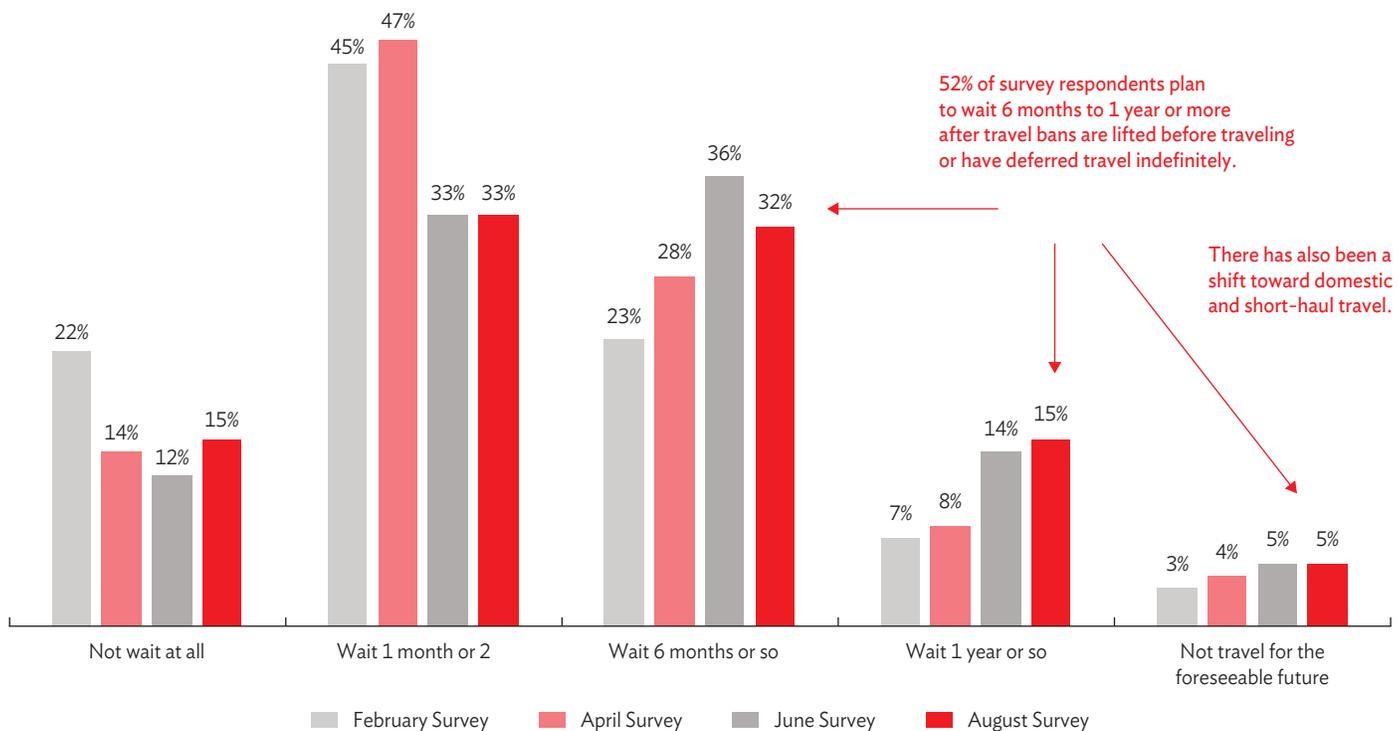
52% of survey respondents plan to wait 6 months to 1 year or more after travel bans are lifted before traveling or have deferred travel indefinitely.

There has also been a shift toward domestic and short-haul travel.

	February Survey	April Survey	June Survey	August Survey
Not wait at all	22%	14%	12%	15%
Wait 1 month or 2	45%	47%	33%	33%
Wait 6 months or so	23%	28%	36%	32%
Wait 1 year or so	7%	8%	14%	15%
Not travel for the foreseeable future	3%	4%	5%	5%

Note: In the International Air Transport Association (IATA) COVID-19 Passenger Confidence Survey, 4,700 recent air travelers (traveled in the last 9 months) are asked, "Once the pandemic has subsided, how long would you wait, if at all, to return to your usual travel plans?"
Source: International Air Transport Association.

As in previous assessments, shocks to domestic demand and tourism are fed through the ADB Multiregional Input-Output Table (MRIOT) to capture indirect effects through trade and production linkages. The methodology is identical to the one used in previous ADB impact assessments.[3] One can quantify the effect of global spillovers (excluding tourism) on an economy by running the model with no shock applied to an economy's domestic demand nor to its tourism receipts. This can be calculated for each of the 24 developing Asian economies covered in the ADB MRIOT. A regression of global spillovers on country openness finds a statistically significant relationship, with about 68% of the variation in the magnitude of global spillovers accounted for by variation in openness. This regression can then be used to estimate global spillover impact for economies not covered by the ADB MRIOT.

THE PANDEMIC'S IMPACT ON THE WORLD ECONOMY AND DEVELOPING ASIA WILL BE SIZABLE INTO NEXT YEAR

Relative to a no-COVID-19 baseline, the updated estimates suggest a global loss of 5.5% to 8.7% of world GDP in 2020, and smaller but still significant loss of 3.6% to 6.3% of global GDP in 2021 (Table 1). This is equivalent to $4.8 trillion to $7.4 trillion in the first year, and $3.1 trillion to $5.4 trillion the next. The impact on global GDP is slightly lower than was estimated in June (when the estimated range was 7.1% to 10.5% of global GDP), primarily driven by a smaller estimate for the US, where the impact is now 3.1% to 4.2% of GDP smaller than in June, as a result of the quicker-than-expected recovery in the US economy.

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[3] See the April *Asian Development Outlook 2020*, pages 30–41, and *COVID-19 in Developing Economies*, pages 86–99. The MRIOT allows the calculation of a *technical coefficients matrix A* that specifies how much input is needed from every sector in every country to produce one unit of output in sector i in country j. Given the vectors of gross outputs x and final demand f (covering all country sectors), one can show that $x = Ax + f$ and $x = (I − A)^{-1}f$, or $\Delta x = (I − A)^{-1}\Delta f$. That is, for a given exogenous change in final demand, one can calculate the impact on gross output and on value-added or GDP, using the matrix $(I − A)^{-1}$, also known as the Leontief inverse.

Table 1: Estimated Global and Regional Losses due to COVID-19 (relative to a no-COVID-19 baseline)

	2020						2021					
	GDP (%)			GDP loss ($ billion)			GDP (%)			GDP loss ($ billion)		
	Better	Baseline	Worse	Better	Baseline	Worse	Better	Baseline	Worse	Better	Baseline	Worse
World	−5.5	−7.2	−8.7	4,757	6,165	7,441	−3.6	−4.9	−6.3	3,108	4,234	5,407
Developing Asia	−6.0	−7.8	−9.5	1,394	1,818	2,211	−3.6	−4.9	−6.3	844	1,148	1,470
Central Asia	−9.3	−11.9	−14.2	34	43	51	−6.2	−8.6	−11.1	23	31	40
East Asia	−4.6	−6.0	−7.4	761	999	1,223	−2.4	−3.3	−4.2	402	547	698
Southeast Asia	−8.6	−10.9	−12.7	253	320	374	−6.1	−8.4	−11.0	178	246	322
South Asia	−10.0	−13.2	−16.3	343	453	560	−7.0	−9.4	−11.8	240	322	406
The Pacific	−7.0	−8.7	−9.6	2	3	3	−3.8	−5.6	−7.8	1	2	3
United States	−4.9	−6.4	−7.8	1,038	1,349	1,634	−3.3	−4.5	−5.8	696	947	1,212
Europe	−7.9	−10.2	−12.2	1,488	1,913	2,285	−5.1	−7.0	−9.0	956	1,311	1,697
Rest of the World	−3.6	−4.6	−5.6	836	1,084	1,310	−2.6	−3.5	−4.4	612	828	1,027

Note: Developing Asia refers to the 46 members of the Asian Development Bank listed below. Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. East Asia comprises Hong Kong, China; Mongolia; the People's Republic of China; the Republic of Korea; and Taipei,China. South Asia comprises Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Southeast Asia comprises Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Viet Nam. The Pacific comprises the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.
Source: Authors' estimates.

It remains to be seen whether the recent new waves of cases in the US will dampen prospects once again, although those effects are likely to be felt in 2021 and are offset by improved prospects for an effective vaccine. As in previous assessments, impact is calculated under a range of scenarios reflecting the uncertainty surrounding the pandemic. Travel bans are in place for 6/9/12 months under better/baseline/worse-case scenarios, respectively, with gradual recovery in arrivals once bans are lifted, in line with IATA survey results. Domestic consumption and investment declines are smaller by 25% in the better-case and larger by 25% in the worse-case scenario, relative to baseline scenario. Annex Table 5 details the assumptions underlying the scenarios.

For developing Asia, the pandemic will result in a loss of 6.0% to 9.5% of regional GDP in 2020 and 3.6% to 6.3% of regional GDP in 2021, with South Asia taking a proportionately bigger hit. The regional impact in 2020 is in line with the previous estimated impact of 5.7% to 8.5% loss in regional GDP. But this aggregate figure masks a marked redistribution of losses within developing Asia. As noted above, the estimated impact on India's domestic demand is now substantially higher, reflecting the prolonged large-scale lockdown the country went through. As a result, the South Asia subregion will see an estimated loss of 10.0%–16.3% of subregional GDP, up from 7.0%–10.4% of subregional GDP estimated in June. This has been offset by a smaller estimated impact on East Asia, of 4.6%–7.4% of subregional GDP, down from 5.1%–7.6% in June.

At a more disaggregated level, the impact on tourism-dependent economies in developing Asia will drag on into 2021 (Figure 8). For several small island economies such as Maldives in South Asia and the Cook Islands, Palau, and Vanuatu in the Pacific, international tourism revenues are in the range of 40%–60% of GDP. The sudden stop in international tourism since the second quarter of this year implies substantial losses for these countries, and the likely gradual return of tourists means that these tourism effects are likely to spill over into 2021. Stronger rebounds and commensurately smaller losses are expected in 2021 for countries that have successfully controlled their outbreaks and improved domestic demand, such as the PRC, the Republic of Korea, and Viet Nam.

These impact estimates are relative to a no-COVID-19 counterfactual, are subject to a number of caveats, and should not be interpreted as growth forecasts. The model does not account for all the factors that affect economic activity. These include policy responses, which are sizable in some economies and more modest in others.[4] A second factor would be differences in the external trade environment. For example, some economies in East and Southeast Asia have seen exports outperform in recent months despite generally weak external conditions, as demand for certain products such as health and medical supplies and electronics has been particularly strong. Many other developments, such as supply disruptions or effects on remittances, would have additional impact beyond what is measured here.[5] ADB will release the next *Asian Development Outlook Supplement* with updated forecasts in early December 2020.

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[4] For more information on the magnitude and nature of countries' policy responses, see ADB's COVID-19 Policy Database: https://covid19policy.adb.org/.
[5] Takenaka et al. (2020), for example, find that total remittances to Asia are expected to drop between $31.4 billion and $54.3 billion in 2020.

Figure 8: COVID-19's Impact on Developing Asian Subregions under Baseline Scenario
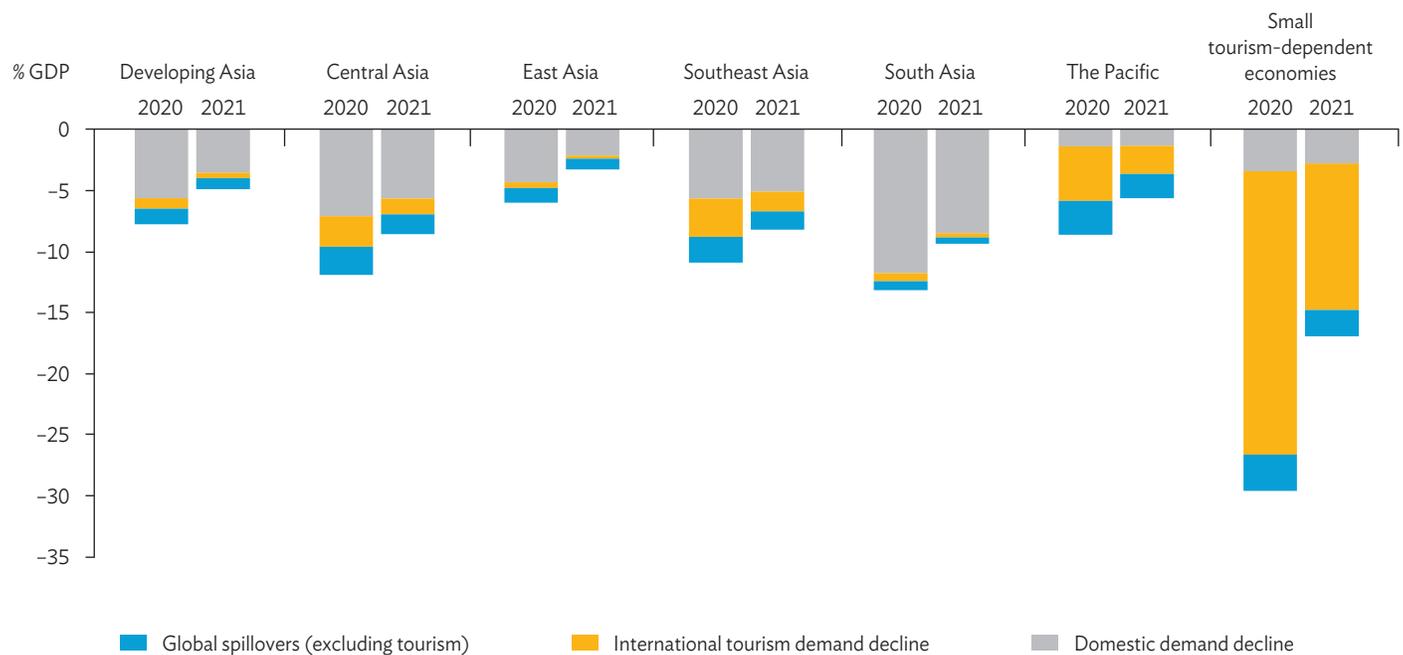
Note: Small tourism-dependent economies include the Cook Islands, Fiji, Maldives, Palau, and Vanuatu.
Source: Authors' estimates.

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ANNEX

Annex Table 1: Regression of Consensus Forecasts 2020 Consumption Revisions (relative to pre-COVID-19) on Stringency, Mobility, and Outbreak Severity

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2020 Consumption Revision						
Average stringency	−0.00160*** (0.000269)			−0.000642 (0.000412)	−0.00155*** (0.000283)		−0.000582 (0.000413)
Average workplace mobility		0.00233*** (0.000414)		0.00173** (0.000574)		0.00269*** (0.000597)	0.00209** (0.000730)
Ln(cases per million)			−0.00319 (0.00244)		−0.00108 (0.00153)	0.00264 (0.00207)	0.00223 (0.00210)
Constant	0.00513 (0.0146)	−0.0281** (0.00938)	−0.0583** (0.0213)	−0.00651 (0.0165)	0.0118 (0.0172)	−0.0428*** (0.0118)	−0.0209 (0.0169)
R-squared	0.313	0.381	0.041	0.405	0.318	0.396	0.416
Adjusted R-squared	0.294	0.363	0.015	0.370	0.279	0.361	0.363
Bayesian information criterion	−167.0	−165.8	−154.3	−163.7	−163.6	−163.1	−160.7
Akaike information criterion	−170.2	−169.0	−157.6	−168.5	−168.5	−168.0	−167.2
F statistic	35.36	31.74	1.699	17.58	16.78	14.18	11.64
Number of observations	38	37	38	37	38	37	37

Notes: Dependent variable is revision in Consensus Forecasts for 2020 consumption (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). Robust standard errors in parentheses. Based on adjusted R-squared and information criteria, column (4) is used for prediction (or columns (2) or (1) if stringency or mobility are missing). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' estimates.

Annex Table 2: Regression of Consensus Forecasts 2020 Investment Revisions (relative to pre-COVID-19) on Stringency, Mobility, and Outbreak Severity

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2020 Investment Revision						
Average stringency	−0.00326** (0.000918)			−0.00168 (0.00106)	−0.00300** (0.00104)		−0.00146 (0.00113)
Average workplace mobility		0.00516*** (0.000897)		0.00358* (0.00134)		0.00641*** (0.00110)	0.00489** (0.00175)
Ln(cases per million)			−0.00990* (0.00474)		−0.00584 (0.00541)	0.00924* (0.00447)	0.00819 (0.00456)
Constant	0.0711 (0.0494)	0.00966 (0.0222)	−0.0286 (0.0439)	0.0662 (0.0390)	0.107* (0.0523)	−0.0417 (0.0275)	0.0132 (0.0493)
R-squared	0.291	0.431	0.089	0.469	0.320	0.474	0.502
Adjusted R-squared	0.271	0.415	0.063	0.438	0.281	0.443	0.457
Bayesian information criterion	−108.7	−114.8	−99.19	−113.7	−106.7	−114.1	−112.5
Akaike information criterion	−112.0	−118.0	−102.5	−118.6	−111.6	−118.9	−119.0
F statistic	12.65	33.13	4.365	18.25	8.714	21.11	19.04
Number of observations	38	37	38	37	38	37	37

Notes: Dependent variable is revision in Consensus Forecasts for 2020 investment (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). Robust standard errors in parentheses. Based on adjusted R-squared and information criteria, column (4) is used for prediction (or columns (2) or (1) if stringency or mobility are missing). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' estimates.

Annex Table 3: Regression of Consensus Forecasts 2021 Consumption Revisions (relative to pre-COVID-19) on 2020 Consumption Revisions, Stringency, Mobility, and Outbreak Severity

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2021 Consumption Revision							
Average stringency		0.000103 (0.000168)			−0.0000838 (0.000167)	0.000103 (0.000168)		−0.0000617 (0.000175)
Average workplace mobility			−0.000251 (0.000314)		−0.000330 (0.000350)		−0.000142 (0.000438)	−0.000215 (0.000503)
Ln(cases per million)				−0.000151 (0.00122)		−0.000144 (0.00120)	0.000681 (0.00147)	0.000590 (0.00151)
Consumption revision in 2020	0.714*** (0.0467)	0.738*** (0.0498)	0.763*** (0.0590)	0.712*** (0.0540)	0.756*** (0.0600)	0.736*** (0.0519)	0.760*** (0.0606)	0.755*** (0.0604)
Constant	−0.00645 (0.00425)	−0.00981 (0.00759)	−0.00788 (0.00535)	−0.00530 (0.00923)	−0.00579 (0.00751)	−0.00870 (0.00937)	−0.0120 (0.00951)	−0.00995 (0.0118)
R-squared	0.778	0.780	0.806	0.778	0.807	0.780	0.808	0.808
Adjusted R-squared	0.772	0.767	0.795	0.765	0.790	0.761	0.790	0.784
Bayesian information criterion	−225.8	−222.6	−220.3	−222.2	−216.9	−218.9	−217.0	−213.5
Akaike information criterion	−229.1	−227.5	−225.2	−227.1	−223.4	−225.5	−223.5	−221.6
F statistic	234.1	129.5	112.5	126.9	75.29	83.90	73.54	56.75
Number of observations	38	38	37	38	37	38	37	37

Notes: Dependent variable is revision in Consensus Forecasts for 2021 consumption (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). Available data on outbreak severity, containment stringency, and mobility in the second half of 2020 show no predictive power for 2021 consumption revisions. Coefficient on 2020 consumption revision is highly significant and suggests partial recovery next year, with gap narrowing by 20%–30%. Column (1) used for prediction. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' estimates.

Annex Table 4: Regression of Consensus Forecasts 2021 Investment Revisions (relative to pre-COVID-19) on 2020 Investment Revisions, Stringency, Mobility, and Outbreak Severity

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2021 Investment Revision							
Average stringency		0.0000553 (0.000300)			−0.0000821 (0.000481)	0.0000569 (0.000308)		0.0000176 (0.000450)
Average workplace mobility			0.0000966 (0.000497)		0.0000130 (0.000778)		0.000541 (0.000652)	0.000564 (0.000831)
Ln(cases per million)				0.000707 (0.00152)		0.000712 (0.00151)	0.00272 (0.00214)	0.00274 (0.00194)
Investment revision in 2020	0.824*** (0.0472)	0.828*** (0.0539)	0.804*** (0.0572)	0.830*** (0.0474)	0.802*** (0.0593)	0.834*** (0.0511)	0.796*** (0.0629)	0.796*** (0.0639)
Constant	−0.00220 (0.00556)	−0.00460 (0.0120)	−0.00315 (0.00809)	−0.00766 (0.0145)	−0.000885 (0.0127)	−0.0102 (0.0120)	−0.0195 (0.0159)	−0.0201 (0.0152)
R-squared	0.870	0.870	0.864	0.870	0.864	0.870	0.869	0.869
Adjusted R-squared	0.866	0.862	0.856	0.863	0.852	0.859	0.857	0.853
Bayesian information criterion	−182.5	−178.9	−174.3	−179.0	−170.7	−175.4	−172.0	−168.4
Akaike information criterion	−185.8	−183.8	−179.1	−183.9	−177.1	−182.0	−178.5	−176.5
F statistic	304.3	151.3	139.9	153.2	88.55	102.1	93.76	73.11
Number of observations	38	38	37	38	37	38	37	37

Notes: Dependent variable is revision in Consensus Forecasts for 2021 investment (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). Available data on outbreak severity, containment stringency, and mobility in the second half of 2020 show no predictive power for 2021 investment revisions. Coefficient on 2020 investment revision is highly significant and suggests partial recovery next year, with gap narrowing by 20%–30%. Column (1) used for prediction. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' estimates.

Annex Table 5: Scenario Assumptions

	Better	Baseline	Worse
Tourism	Travel bans are in place for **6 months**, until September 2020. Gradual recovery in arrivals after bans are lifted, in line with August 2020 IATA COVID-19 Passenger Confidence Survey.	Travel bans are in place for **9 months**, until December 2020. Gradual recovery in arrivals after bans are lifted, in line with August 2020 IATA COVID-19 Passenger Confidence Survey.	Travel bans are in place for **12 months**, until April 2021. Gradual recovery in arrivals after bans are lifted, in line with August 2020 IATA COVID-19 Passenger Confidence Survey.
Consumption	Domestic consumption impact in 2020 and 2021 is 75% of the impact under the baseline.	Domestic consumption impact in 2020 and 2021 based on the revision in Consensus Forecasts for consumption (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). For economies not covered by Consensus Forecasts, consumption impact is predicted based on regressions in Annex Tables 1 and 3.	Domestic consumption impact in 2020 and 2021 is 125% of the impact under the baseline.
Investment	Domestic investment impact in 2020 and 2021 is 75% of the impact under the baseline.	Domestic investment impact in 2020 and 2021 based on the revision in Consensus Forecasts for investment (November 2020 Consensus Forecasts relative to pre-COVID-19 Consensus Forecasts). For economies not covered by Consensus Forecasts, investment impact is predicted based on regressions in Annex Tables 2 and 4.	Domestic investment impact in 2020 and 2021 is 125% of the impact under the baseline.

COVID-19 = coronovirus disease, IATA = International Air Transport Association.