AMERICAN ASSOCIATION OF WINE ECONOMISTS

AAWE WORKING PAPER
No. 249
Economics

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May 2020

www.wine-economics.org

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May 2020

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Acknowledgement:
The authors are grateful for financial support from Wine Australia, under Research Project UA1803-3-1, and from the University Adelaide's Faculty of the Professions and School of Agriculture, Food and Wine.

COVID-19 and Global Beverage Markets: Implications for Wine

Policy responses to the coronavirus COVID-19 pandemic in the first half of 2020 have caused a global economic recession, the severity of which has not been seen since the 1930s. How is that affecting the world's beverage markets, and what does it mean for the wine industry this and next year?

Of course no-one can answer this question with any precision, because it depends on many factors that remain very uncertain. Nonetheless, the European Commission (2020) has warned that the volume of wine consumption in the European Union (EU) would be 8% lower in 2020 than the previous five years' average, bearing in mind that the 70% of sales that are off-premise are expected to be a little above average this year as many people self-isolate at home and avoid restaurants, bars and pubs. Social distancing makes large celebrations and partying impossible and so is especially damaging to sparkling wine sales. Maxime Toubart, Chairman of the Champagne producers' organisation SGV, suggested on 5 May that Champagne sales in March and April were down 80%.

How might sales declines compare with EU wine production? What about in other parts of the world? How different will those impacts for wine be from those affecting beer and spirits? With the help of a global model of a new model of global beverage markets (Wittwer and Anderson 2019), this article specifies hypothetical shocks and estimates their effects on various nations' beverage production, consumption, trade and prices. The latest global macroeconomic projections from the IMF (2020) are drawn on to simulate the market impacts of (i) a downturn in incomes in 2020 on beverage demand and the response of suppliers and (ii) an optimistically assumed reversal as early as 2021. In what follows we explain the nature of the exercise, present global results (including their sensitivity to alternative consumer responses in China), highlight caveats and stress that these are not forecasts but simply projections based on explicit assumptions about a very uncertain environment, and draw out implications for wine producers.

Basic Economics of COVID-19's Global Market Shock

Every sector of most national economies has been affected by COVID-19. Production has been curtailed and product demand has fallen to varying extents across sectors thanks to social distancing and self-isolation measures. Where the national decline in supply (production plus change in seller stocks) is less [or more] than the decline in demand, the difference spills over into amplified percentage changes in the volume of net exports [or net imports]. Globally, if the increase in net exports exceeds [is less than] the increase in net imports of a product, its international price falls [rises].

In the case of beverages, sales to consumers are affected not only by declines in incomes but also by the governmental measures that have led to closure of restaurants, bars, cafes and clubs plus the decline in travel and tourism and hence also in duty-free sales, consumption on airlines and cruise ships, and visits to cellar doors.

Certainly there has been some offsetting off-premise and, for smaller producers, more direct e-commerce sales; and there have been some increases in consumer stocks in anticipation of a period of self-isolation at home. Off-premise beverage sales typically tend to be of lower quality than on-premise purchases though. During the global financial crisis of 2008-09, the decline in both quantity and quality of sparkling wine sales was especially marked – and the subsequent rate of growth from the lower 2009 base was slower than it had been in preceding years, notwithstanding the Prosecco boom of the past decade (OIV 2020).

Wine production has been affected relatively little by COVID-19, even in the Southern Hemisphere where this year's vintage timing coincided with when the coronavirus struck but exemptions were made to allow the industry to complete its crush. Unlike wine, beer and spirits production is not dependent on a perishable crop, and its production too has not been seriously affected by social distancing measures, so its adjustment to changed market signals can be expected to be as per usual when demand patterns change. Small craft breweries and distilleries, like small wineries, have sought to expand their e-commerce channels, to varying degrees that have only partly substituted for lost traditional sales.

Modelling Beverage Markets

Analysis of markets for the three main alcoholic beverage groups (wine, beer and spirits) requires a global economic model of national markets connected through international trade, in which the interactions between each nation's producers and consumers of these three

beverages are explicitly recognized. Wittwer and Anderson (2019) provide such a model. It is calibrated to 2016-18 data, but for present purposes it is updated to 2019 and then projected to 2020 and then 2021 using IMF macroeconomic growth rate projections which take into account COVID-19 impacts on GDP in those two years. Results for COVID-affected 2020 are reported relative to the 2019 base, and those for 2021 are reported relative to the COVID-affected 2020 levels.

The extent of the macroeconomic shock to aggregate household expenditure in 2020 and its subsequent recovery in 2021, based on forecasts by the IMF (2020), is shown in the Appendix Table for 51 countries or residual country groups. The global average assumed change in aggregate household expenditure is -5.0% in 2020 and +4.7% in 2021.

There is of course a huge amount of uncertainty around these 'best guesses' by the IMF, which many commentators see as overly optimistic in terms of the speed of recovery. In a much-lengthier global macro modelling article, McKibbin and Fernando (2020) examine seven COVID scenarios in which the aggregate household expenditure shock for various countries in 2020 ranges from -0.1% to -10%, for example. While the IMF numbers appear to be close to national forecasts of major advanced economies for 2020, what is much less certain is how rapidly economies will recover post-2020. The IMF projections for 2021 imply a prompt and almost perfect V-shaped pathway, but it is also possible the recovery might be a reverse-J shape (less than full recovery in 2021 due to, for example, older stood-down workers not being re-employable), U-shaped (a longer delay before recovery begins) or even involve a more gradual return to 2019 income levels over several subsequent years (due, for example, to consumers being slow to return to crowded places even after restrictions are lifted). If the recovery traces a U-shape with no income growth in 2021 and the upturn delayed to 2022, then 2021 volumes and prices would be unchanged from those we project for 2020 and our 2021 results would be more like what would be anticipated in 2022.[1]

The only other modelling change made in this scenario is that wine demand moves to lower-priced items in 2020, as a consequence of the closure of restaurants, cafes, pubs and clubs for several months. Specifically, we assume there is a temporary 3% taste swing away

[1] The removal of government-imposed restrictions may not be enough for consumers to return to previous economic and social activities. Maloney and Taskin (2020) find for the U.S. that much of the decrease in mobility is voluntary and driven by the number of COVID-19 cases (greater awareness of risk). They find closing nonessential business, sheltering in place and school closures are effective, but their total contribution is dwarfed by the voluntary. This suggests that much social distancing may continue even after restrictions are lifted. Their results are consistent across countries and income groups except for the poorest in low-income countries who could not afford to abandon their sources of livelihood. That is, removing restrictions may not yield a V-shaped recovery if consumers are unconvinced that the COVID risk has fallen.

from sparkling and super-premium still wines and a 3% swing in favor of non-premium and commercial still wines during 2020. In the light of a recent report of interviews with Chinese experts by Wine Intelligence (2020), we also show how much those results change if for China we instead assume a 30% taste swing away from wine. This is based on those experts' suggestion that China's expenditure on wine in 2020 could be 30-40% below 2019 spending as consumers rely more on their traditional beverages of beer and spirits for drinking at home in the lockdown.

In the GLOBAL-BEV model, wine markets have been disaggregated into four types, namely non-premium (including bulk), commercial-premium, and super-premium still wines, plus sparkling wine. Commercial-premium still wines are defined to be those between US$2.50 and $7.50 per litre pre-tax at a country's border or wholesale. Beer and spirits are not split into regular and craft categories, because the latter still have small market shares in volume terms and are very minor players in international trade. The world is divided into 44 individual nations with all other countries being captured in seven composite residual regions. The primary sources of data for constructing the GLOBAL-BEV model's baseline database for 2016-18 are Anderson and Pinilla (2020) plus Anderson (2020) for taxes on beverage consumption and imports, Holmes and Anderson (2017) for wine, beer and spirits average consumer expenditure data, and United Nations (2019) for volume and value of international trade in beverages.

This GLOBAL-BEV model has income- and price-responsive demand equations, price-responsive supply equations and hence quantities and prices for each of the grape and wine products and for beer and spirits, plus for a single composite of all other products in each country such that it has elements of an economywide model. Grapes are assumed to be not traded internationally, but other products are both exported and imported. All prices are expressed in real (2017) US dollar terms. However, to avoid complicating the scenarios, it is assumed that currency exchange rates and overall consumer price indexes for each country do not change over the two years examined, so value changes also can be interpreted as being nominal and in local currencies.

Aggregate consumption expenditure

Real incomes and hence aggregate spending are expected by the IMF (2020) to drop in most countries in 2020, but to varying extents ranging up to 10% (Figure 1). Two important exceptions are China and India, whose growth rates are expected to drop considerably from their recent high rates but to still be positive.

Producer price and consumption effects

Those expected drops in aggregate expenditure in 2020 are projected to lower real producer prices of beverages in all regions, but most for wine and least for spirits (Table 1). The falls in average wine prices vary across countries even though there is little cross-country difference in price drops for each of the four different types of wines. The average price drops in New Zealand and North America by nearly twice as much as in Australia, for example, because their production is more specialized in higher-priced wines whose demand has fallen most. Prices for spirits drop less than for wine and beer because China and India dominate the global volume of spirits consumption (a combined share of almost 60%) and their incomes are expected to continue to grow in 2020, albeit far less rapidly than in the recent past.

[Insert Table 1 about here]

The assumed near-reversal of incomes in 2021 generates a near-reversal of these price changes. A recovery that rapidly could contain the damage to profits to just one trading year. The sooner lockdowns are lifted, and the fewer second-wave infections, the more confined that loss will be to the middle half of 2020.

The projected changes in volumes of beverages consumed are reported in Table 2. The world is projected to have a 2% fall in overall consumption of both wine and beer, but spirits consumption in 2020 is projected to be the same as in 2019. Within the wine group, sales of the more-profitable fine wines drop by twice as much as the average while lower-priced wine consumption falls very little. The only region where wine consumption does not fall is Asia, because its income growth is expected to be lower than normal but not negative, and their trend growth in consumption in recent years has been much stronger for wine than for beer and spirits (Anderson, Meloni and Swinnen 2018). The projected fall in wine consumption in Europe is less than half the decline forecast by the European Commission (2020) and OIV (2020). The reason for the difference may be that the EU and OIV have not built into their analyses the positive impact on sales of the global decline in wine prices.

[Insert Table 2 about here]

Sales growth is projected to occur in 2021, but that makes up only about two-thirds of the projected wine sales volume losses incurred in 2020 except in Asia (compare Tables 2(a) and 2(b)). The reasons for less-than-full sales recovery are that real incomes do not fully recover in 2021, yet average prices almost fully return to pre-COVID levels after restaurants, pubs, etc. re-open and consumers go up-market again in terms of quality.

The values of consumption alter considerably more than their volumes, because prices also fall and then rise over the two years and they alter more for fine wines than for commercial ones. For the world as a whole, the volume of all wine consumption falls 2% in 2020 and rises 1% in 2021, whereas real expenditure on wine falls 7.5% in 2020 and rises 6.5% in 2021. For sparkling wine globally, the differences are even starker: the volume falls 6% in 2020 and rises 5% in 2021, whereas real expenditure on sparkling wine falls 12% in 2020 and rises 11% in 2021. Beer expenditure globally is projected to fall just 5% and spirits only 3% in 2020, but that is projected to be more than offset in 2021 by an expansion of each of around 7% (Table 3).

[Insert Table 3 about here]

Effects on international trade

The volume of world trade in the various wine categories alter by percentages similar in size to those for the volume of global consumption, but their values alter by much larger percentages because of the changes in relative prices of those wines. In particular, the value of fine wine exports falls by almost three times as much as their volume in 2020 (Tables 4 and 5). However, that value is projected to almost fully recover in 2021 as restaurants, etc. re-open. For example, the value of Australia's exports of super-premium still wine is projected to be 10% less in 2020 than 2019 because of COVID-19, but to rebound by 11% in 2021.

[Insert Tables 4 and 5 about here]

World imports change to the same extent as world exports of course. Table 6 shows that wine imports in 2020 are projected to decline in Western Europe and the United States by 2% by volume but by around 10% by value. Again this is because a relatively high share of their imports are fine wines and their price has risen by much more than that of commercial wines. Note, however that Asia's wine import volumes are projected to continue to grow in 2020, albeit at a slower pace than in recent years. This is due to a temporary change in the composition of those imports away from fine wines and toward commercial wines. The switch is partly because of a change in the relative price of fine wines but also because of our assumed temporary taste change away from fine wines (a proxy for the switch

from on-premise to off-premise consumption because of restaurant and bar closures in 2020). A reversal of that taste change in 2021 causes Asia's volume of wine imports to change very little compared with its value.

[Insert Table 6 about here]

Alternative assumption about taste swings in China

What if we instead we assume for China a 30% taste swing away from wine, as suggested by Chinese interviewees in a report by Wine Intelligence (2020)? This is a rather extreme alternative assumption, but one based on the fact that wine is a relatively new beverage for Chinese consumers and is mostly consumed in social settings away from home – which social distancing has precluded during the recent COVID-inspired lockdown. In that alternative scenario, Australia's average producer price of wine would fall 11% instead of 6% in 2020 compared with 2019, its wine export volume would still decline just 1% but its export value would fall 14% instead of 4%. Because of China's dominance in the region, Asia's total wine imports would be one-fifth lower in 2020, and Asian expenditure on wine would be almost one-quarter lower.

Caveats

This example of an alternative assumption about Chinese wine spending is a reminder that the above results depend heavily on numerous assumptions. As mentioned at the outset, results depend especially heavily on our assumptions about the extent to which economies go into recession in 2020 and the extent and speed of recovery in the years to follow. The V-shaped projection by the IMF (2020), implying a near-return to 2019 incomes by 2021, is more optimistic than many commentators suggest. The trajectory could be more U-shaped, delaying the return to growth by one or more years. Or it could involve gradual but sluggish growth after this year, in which case the above projected increases in 2021 should instead be interpreted as being spread over several years.

The immediate impact also depends on the 2020 winegrape crush and wine production projections. Australia's 2020 crush is as yet unknown but may be as much as 20% below the 'normal' volume we have assumed. And given the current excess supply of wine in the US and EU, much of Europe's 2020 vintage may be diverted to distillation by the end of this year. This would lessen the downward pressure on wine prices this and next year, but would mean low returns to grapegrowers this year.

The projected impact of COVID next year also depends on our assumed return to premiumization on the part of consumers (a reversal of our assumed taste swing away from fine wine for 2020), which is based on the assumption that consumers will return fully to eating out, pubbing, clubbing and cellar-door visiting in 2021. Again that may be too optimistic, at least in terms of speed if not also on the eventual extent of recovery.

Implications for wine producers

As for many industries, wine producers in all countries are destined to lose sales at least in 2020, and possibly longer. The above results suggest they will lose more than producers of beer and spirits, because wine is a very minor beverage in the only two large economies that are expected to not fall into recession in 2020, namely China and India. Wine producers heavily reliant on cellar-door visits for their sales will lose most, and more so the slower they are to improve their e-commerce capabilities. Those short of cash will be especially vulnerable, and the worst affected may be forced to close or sell to a more-viable and cashed-up producer. While such an outcome is unfortunate and inequitable, it is not uncommon in serious downturns. It will be less unlikely though, the faster the economic recovery from COVID-19. Hence the importance of governments adjusting their policy settings optimally through each stage of this crisis. An even better outcome would be possible if national governments were to coordinate their efforts to minimize the adverse health and economic consequences of the pandemic and the policy reactions to it.

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Figure 1: Aggregate Consumption Expenditure Growth Rates, 2020 (%)

Source: IMF (2020).

Table 1: Real[a] beverage producer price changes, 2019 to 2020 (%)

	AUS	NZL	WEur	US&Can	SthAmer	South Africa	**WORLD**
All wine	**-6**	**-11**	**-8**	**-11**	**-6**	-8	**-8**
NPWine	-2	-2	-2	-2	-2	-2	**-2**
CPWine	-2	-3	-4	-4	-3	-10	**-3**
SPWine	-13	-12	-13	-15	-11	-4	**-13**
Sparkling	-10	-10	-10	-11	-9	-12	**-10**
Beer	-7	-6	-6	-8	-7	-7	**-5**
Spirits	-4	-5	-3	-5	-5	-3	**-2**

Note: In this and subsequent tables, NP is non-premium, CP is commercial premium and SP is super premium still wine.

[a] Expressed in US dollars but in these simulations currency exchange rates are assumed not to change so these are the same as national currency changes.

Source: Authors' model results.

Table 2: Changes in volume of domestic consumption of beverages, 2019 to 2021 (%)

(a) 2019 to 2020

	AUS	NZL	WEur	UK	EEur	US&Can	SthAmer	Afr&ME	Asia	**WORLD**
All wine	**-3**	**-4**	**-3**	**-3**	**-1**	**-3**	**-3**	**-1**	**3**	**-2**
NPWine	0	-1	-1	0	0	0	-2	1	3	**-1**
CPWine	-2	-2	-3	-2	-1	-1	-2	-0	4	**-1**
SPWine	-5	-6	-6	-5	-5	-5	-6	-2	1	**-5**
Sparkling	-6	-6	-7	-6	-5	-5	-7	-4	-1	**-6**
Beer	-4	-4	-5	-4	-3	-3	-3	-2	0	**-2**
Spirits	-4	-4	-5	-5	-3	-4	-3	-3	0	**0**

(b) 2020 to 2021

	AUS	NZL	WEur	UK	EEur	US&Can	SthAmer	Afr&ME	Asia	**WORLD**
All wine	**2**	**4**	**1**	**1**	**0**	**2**	**1**	**0**	**3**	**1**
NPWine	0	0	-1	-1	-1	-1	1	-1	1	**0**
CPWine	1	2	0	0	0	0	1	-0	2	**1**
SPWine	5	7	4	3	4	4	5	2	4	**4**
SparkWine	6	7	5	4	4	5	6	4	6	**5**
Beer	3	4	3	2	2	2	2	2	3	**2**
Spirits	3	4	3	3	2	2	2	2	3	**2**

Source: Authors' model results.

Table 3: Changes in real value[a] of domestic consumption of beverages, 2019 to 2021 (%)

(a) 2019 to 2020

	AUS	NZL	WEur	UK	EEur	US&Can	LatAm	Afr&ME	Asia	World
All wine	**-9.2**	**-11.1**	**-9.2**	**-7.1**	**-6.1**	**-9.4**	**-7.6**	**-5.2**	**-1.4**	**-7.5**
NPWine	-1.6	-1.4	-2.3	-1.9	-0.7	-1.0	-2.5	0.0	2.3	-1.5
CPWine	-3.7	-3.8	-4.9	-4.0	-3.2	-3.1	-3.6	-1.8	2.8	-2.5
SPWine	-13.1	-13.2	-13.9	-13.1	-11.6	-12.2	-12.4	-9.3	-8.0	-12.2
Sparkling	-12.8	-12.8	-13.8	-12.6	-12.4	-11.9	-13.1	-10.3	-5.4	-12.1
Beer	-7.8	-7.8	-8.0	-7.6	-6.8	-7.2	-7.0	-5.5	-0.2	-4.9
Spirits	-7.1	-7.5	-7.1	-5.8	-6.3	-6.4	-6.4	-5.4	0.0	-2.9
All other products	-6.8	-7.0	-7.5	-6.6	-5.3	-5.9	-5.8	-4.0	-1.4	-5.0

(b) 2020 to 2021

	AUS	NZL	WEur	UK	EEur	US&Can	LatAm	Afr&ME	Asia	World
All wine	**8.8**	**11.4**	**6.2**	**4.3**	**4.0**	**8.0**	**5.6**	**4.1**	**7.7**	**6.5**
NPWine	0.6	0.7	-0.2	-0.4	-0.9	-0.3	1.0	-1.0	1.5	-0.1
CPWine	2.9	3.2	1.8	1.3	1.2	1.5	1.5	0.8	4.6	2.3
SPWine	13.4	14.0	11.5	10.9	10.4	11.2	11.3	8.5	12.1	11.5
Sparkling	12.8	13.2	11.1	10.1	10.7	10.9	11.3	9.3	13.8	11.3
Beer	7.4	7.9	5.5	5.0	5.2	5.8	4.5	4.4	9.6	6.7
Spirits	7.1	8.1	5.2	3.8	5.2	5.5	4.4	5.6	8.5	7.0
All other products	6.2	7.0	4.7	4.0	3.9	4.7	3.7	3.5	6.2	4.9

[a] Expressed in US dollars but in these simulations both exchange rates and overall national CPIs are assumed not to change so these are the same as nominal national currency changes.

Source: Authors' model results.

Table 4: Changes in volume of wine exports, 2019 to 2021 (%)

(a) 2019 to 2020

	AUS	NZL	WEur	US&Can	SthAmer	South Africa	**WORLD**
All wine	**-1**	**-1**	**-1**	**0**	**-3**	**-2**	**-1**
NPWine	-1	0	0	-1	-1	-1	**0**
CPWine	-1	-1	1	2	-2	0	**0**
SPWine	2	-2	-3	-2	-15	-4	**-4**
Sparkling	-4	-4	-5	-4	-11	-9	**-6**

(b) 2020 to 2021

	AUS	NZL	WEur	US&Can	SthAmer	South Africa	**WORLD**
All wine	**0**	**1**	**1**	**0**	**2**	**2**	**1**
NPWine	0	0	0	0	1	0	**0**
CPWine	-1	0	0	-1	1	0	**0**
SPWine	-2	1	3	1	14	2	**4**
Sparkling	3	0	5	6	9	2	**6**

Source: Authors' model results.

Table 5: Changes in real[a] value of wine exports, 2019 to 2021 (%)

(a) 2019 to 2020

	AUS	NZL	WEur	US&Can	SthAmer	South Africa	**WORLD**
All wine	**-4**	**-12**	**-10**	**-7**	**-9**	**-6**	**-11**
NPWine	-3	-2	-2	-2	-3	-4	**-3**
CPWine	-2	-3	-3	-1	-4	-4	**-3**
SPWine	-10	-13	-14	-12	-22	-15	**-14**
Sparkling	-12	-12	-15	-8	-18	-18	**-15**

(b) 2020 to 2021

	AUS	NZL	WEur	US&Can	SthAmer	South Africa	**WORLD**
All wine	**4**	**11**	**9**	**6**	**7**	**4**	**8**
NPWine	1	1	1	1	1	1	**1**
CPWine	3	2	3	2	3	3	**3**
SPWine	11	12	14	11	23	15	**14**
Sparkling	14	10	14	12	17		**14**

[a] Expressed in US dollars but in these simulations both exchange rates and overall national CPIs are assumed not to change so these are the same as nominal national currency changes.

Source: Authors' model results.

Table 6: Changes in volume and real[a] value of wine imports, 2019 to 2021 (%)

	Volume					Real[a] value			
(a) 2019 to 2020									
	WE	US	Asia	**World**		WE	US	Asia	**World**
All wine	**-2**	**-2**	**5**	**-1**	**All wine**	**-9**	**-10**	**0**	**-6**
NPWine	-1	-1	4	**0**	NPWine	-5	-4	2	**-4**
CPWine	-2	-1	7	**0**	CPWine	-3	-2	9	**1**
SPWine	-5	-3	0	**-3**	SPWine	-13	-13	-6	**-11**
Sparkling	-7	-5	2	**-5**	Sparkling	-15	-13	-6	**-12**
(b) 2020 to 2021									
	WE	US	Asia	**World**		WE	US	Asia	**World**
All wine	**1**	**1**	**4**	**1**	**All wine**	**8**	**10**	**10**	**8**
NPWine	0	1	1	**0**	NPWine	0	2	2	**1**
CPWine	0	-1	4	**0**	CPWine	2	2	5	**3**
SPWine	4	2	5	**3**	SPWine	15	14	15	**14**
Sparkling	5	6	9	**6**	Sparkling	14	14	15	**14**

[a] Expressed in US dollars but in these simulations both exchange rates and overall national CPIs are assumed not to change so these are the same as nominal national currency changes.

Source: Authors' model results.

Appendix Table 1: Aggregate Consumption Expenditure Growth Rates, 2020 and 2021 (%)

	2020	2021		2020	2021
France	-7.2	4.5	New Zealand	-7.0	7.0
Italy	-9.1	4.8	Canada	-6.2	4.2
Portugal	-8.0	5.0	United States	-5.9	4.7
Spain	-8.0	4.3	Argentina	-10.0	8.0
Austria	-7.0	4.5	Brazil	-5.3	2.9
Belgium	-6.9	4.6	Chile	-4.5	5.3
Denmark	-6.5	6.0	Mexico	-6.6	3.0
Finland	-6.0	3.1	Uruguay	-3.0	5.0
Germany	-7.0	5.2	Other L. Am	-5.0	4.0
Greece	-10.0	5.1	South Africa	-5.8	4.0
Ireland	-6.8	6.3	Turkey	-5.0	5.0
Netherlands	-7.5	3.0	North Africa	-2.8	4.0
Sweden	-6.8	5.2	Other Africa	-3.4	2.4
Switzerland	-6.0	3.8	Middle East	-4.0	3.0
UK	-6.5	4.0	China	1.2	9.2
Other W.E.	-7.0	5.0	Hong Kong	-4.8	3.9
Bulgaria	-4.0	6.0	India	1.9	7.4
Croatia	-9.0	4.9	Japan	-5.2	3.0
Georgia	-4.0	3.0	Korea	-1.2	3.4
Hungary	-3.1	4.2	Malaysia	-1.7	9.0
Moldova	-3.0	4.1	Philippines	0.6	7.6
Romania	-5.0	3.9	Singapore	-3.5	3.0
Russia	-5.5	3.5	Taiwan	-4.0	3.5
Ukraine	-7.7	3.6	Thailand	-6.7	6.1
Other E.E.	-5.0	4.0	Other Asia	0.5	4.0
Australia	-6.7	6.1	**WORLD**	**-5.0**	**4.7**

Source: Authors' compilation based on GDP projections by IMF (2020).