"There Will Be Growth in the Spring":
How Well Do Economists Forecast Recoveries?[1]

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"the ability to produce accurate predictions of the course of the economy in the near-term is probably the main criterion by which the public judges the usefulness of our entire profession."

Victor Zarnowitz, noted economic forecaster (1986)

"As long as the roots are not severed, all is well. And all will be well in the garden ... there will be growth in the spring."

Peter Sellers, playing Chauncey Gardiner in "Being There" (1979)

I.   Introduction

Leading economic forecasters predict deep recessions this year in almost all major countries and recoveries next year. For the United States, for instance, the IMF forecasts that incomes (i.e. real GDP) will decline about 6 percent this year but bounce back by nearly 5 percent next year. Private sector forecasters are largely in agreement. The publication *Consensus Forecasts* provides, for each country, an average of individual forecasts, most of which emanate from the private sector. Table 1 lists IMF and Consensus forecasts for the G-7 countries and for 5 major emerging markets. While the numbers differ somewhat between the two sources, there is agreement that in all 12 cases the economies will register growth rather than a second year of decline. In others, a V-shaped recovery is expected in all these major economies, though in some cases the recovery is expected to be somewhat tepid relative to the decline this year.

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[1] The views expressed in this paper are those of the authors and should not be ascribed to the institutions with which they are affiliated. This paper draws on work conducted when the authors were in the IMF's Research Department and is not part of an ongoing evaluation by the IMF's Independent Evaluation Office.

Table 1: Forecasts for Major Economies, IMF and Consensus Forecasts

Country	2020		2021	
	IMF	Consensus	IMF	Consensus
United States	-5.9	-4.0	4.7	3.9
Germany	-7.0	-5.0	5.2	4.5
France	-7.2	-5.4	4.5	5.1
Italy	-9.1	-7.5	4.8	4.5
Japan	-5.2	-3.3	3.0	2.1
United Kingdom	-6.5	-5.4	4.0	4.7
Canada	-6.2	-3.9	4.2	4.1
China	1.0	2.0	9.2	7.8
India	1.2	2.7	7.4	6.3
Russia	-5.5	-3.8	3.5	3.0
Brazil	-5.3	-3.2	2.9	3.1
Mexico	-6.6	-6.2	3.0	2.5
Sources: April 2020 World Economic Outlook for IMF forecasts and the April 6 (for G7, China and India) and April 14 (for Russia, Brazil and Mexico) issues of *Consensus Forecasts*.				

How credible are such forecasts of recovery? To shed light on this question, this paper looks at how well forecasts for the years following the onset of a recession have fared.[2] We study this performance over the last 30 years (1990 to 2019) for a large group of countries. Our main findings are the following:

► Forecasting a V-shaped recovery (decline this year, increase next year) is the most common strategy employed by forecasters. As two-thirds of recessions have indeed been V-shaped, this turns out to be sensible strategy. In 90 percent of such cases, IMF forecasts have correctly predicted a recovery in the year after a recession has begun; in other words, it is only in 10 percent of cases that they have inaccurately predicted that the recession will continue into a second year.

► What about the other two-thirds of cases when recessions have continued into the second year and sometimes even longer? These cases have proved challenging for forecasters. In 90 percent of such cases, the forecast has been for a recovery, which does not arrive. Surprisingly, forecasters are fairly slow to let go of the belief that recovery will arrive, so that even as the second year of recession is drawing to a close, in 40 percent of the cases forecasters are still predicting recovery that year.

While we present detailed results for IMF forecasts, we show that similar results hold for Consensus Forecasts. The focus on IMF forecasts is simply because they are available for

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[2] For evidence on how well forecasters predict recessions, see Loungani (2001) and An, Jalles and Loungani (2018).

virtually every country and hence provide a large number of recessions to study. But the conclusions reached here about IMF forecasts apply just as well to Consensus Forecasts.

Our results suggest exercising some caution about the baseline forecasts of a V-shaped recovery in 2021. Forecasters do not seem to have had much ability to tell when a recovery will be V-shaped from when it will not. In the case of the ongoing pandemic, the challenge is magnified because the recovery depends not only on economic forces but on epidemiological developments and a variety of policy responses to such developments. Indeed, these factors may have led the Managing Director of the IMF and its Chief Economist to emphasize the uncertainty attached to forecasts for this year and the next.

Section II of the paper presents the analysis of IMF forecasts and Section III compares IMF and Consensus forecasts.

II. Analysis of IMF Forecasts

To conduct our analysis of forecasting performance, we first identify every instance since 1990 when a country was in recession, which we define simply as a year in which real GDP declined. The full list of these recessions is given in Annex A. There have been 436 recessions over this period—76 in advanced economies, 219 in emerging economies and 141 in Low-Income Developing Countries (LIDCs).

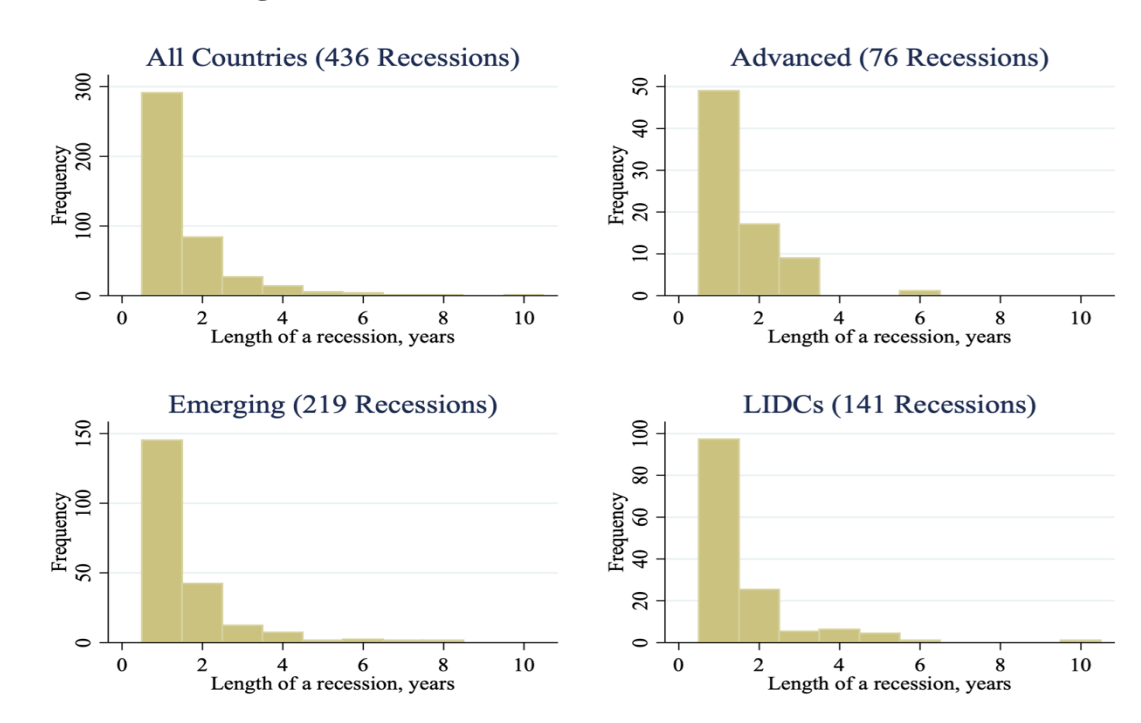**Figure 1: Distribution of the Duration of Recessions**

Figure 1 illustrates the duration of recessions. About two-thirds of recessions (291 out of 436) last one year, though this proportion varies a bit among the three country groups. Most of the remaining one-third of cases consist of a two-year recession; very few recessions last more than two years. For all essential purposes, therefore, the main question of interest is: once a recession starts, what forecast is made for what will transpire in the following year—recovery or continued recession?

To answer this question, we use forecasts from the IMF's flagship publication, the *World Economic Outlook*, issued every April and October. In each issue a forecast is made for what will happen to real GDP in a country this year and the following year. For instance, as noted above in Table 1, in April 2020 the IMF forecast that real GDP in the United States would fall by 5.9 percent in 2020 and increase by 4.7 percent in 2021; that is, the IMF is forecasting recovery rather than continued recession in the year following the start of the recession.

In October 2020, the IMF will update its forecasts for 2020 and 2021, and next year it will further update its forecasts for 2021 in April and October. Hence for the (potential) recovery year of 2021, we will eventually end up with a series of four forecasts, two made in 2020—the year the recession started—and two made in 2021. We refer to the two forecasts for 2021 made in 2020 as *year-ahead* forecasts, using the labels April(t-1) and Oct(t-1) to distinguish each. The two forecasts for 2021 that will be made during 2021 are called *current-year* forecasts, with labels April(t) and Oct(t).

We of course do not how as yet how accurate these forecasts for 2021 will turn out to be, but we can look back and see how well forecasts have fared in the aftermath of the previous 436 recessions we have identified. The results of our analysis are summarized in Table 2.

Table 2: Forecasts for the Year after the Recession Starts vs. Realizations ('Actual')

Actual	April(t-1)			Oct(t-1)		
	Recovery	Recession	Total	Recovery	Recession	Total
Recovery	269	22	291	267	24	291
Recession	132	13	145	114	31	145
Total	401	35	436	381	55	436
	April(t)			Oct(t)		
	Recovery	Recession	Total	Recovery	Recession	Total
Recovery	252	39	291	260	31	291
Recession	76	69	145	61	84	145
Total	328	108	436	321	115	436

Note that this table has four panels, one each for the four forecasts described earlier. Let's start with the upper-left panel, which compares how well forecasts made in April(t-1)—the ones

made in April of the year the recession started, not unlike the situation at the moment—did relative to what transpired the following year, referred to as the 'actual'.

▪ The first row in that panel repeats the information provided earlier that 291 recessions out of 436 ended within a year. What the panel indicates is that in 269 of those cases—in over 90 percent—the IMF correctly predicted that the recession would only last a year. Hence, there were only 22 cases—under 10 percent—in which the IMF made the erroneous assessment that the recession would continue on to a second year.

▪ The second row in the panel shows the pattern on forecasts in the 145 cases where the recession continued onto a second year. In 132 of these cases—just over 90 percent—the IMF forecast a recovery; in the other 10 percent of the cases the IMF correctly predicted that the recession would continue for a second year.

To summarize, V-shaped recoveries are predicted very well in the preceding April and multi-year recessions are forecast poorly.

The other panels of Table 2 provide similar analysis for the three other cases, Oct(t-1), April(t) and Oct(t). The conclusions from all four panels are illustrated in Figure 2. The left panel shows the good performance when recoveries turn out to be V-shaped: the percentage of recoveries called correctly by the IMF hovers around 90 percent. The right panel shows the poor performance when recessions drag on for a second year: the initial success rate in April(t-1) is only 10 percent and, while it steadily increases over time, even by Oct(t) has not quite reached 60 percent.

Figure 2: Predicted Recoveries vs. Reality
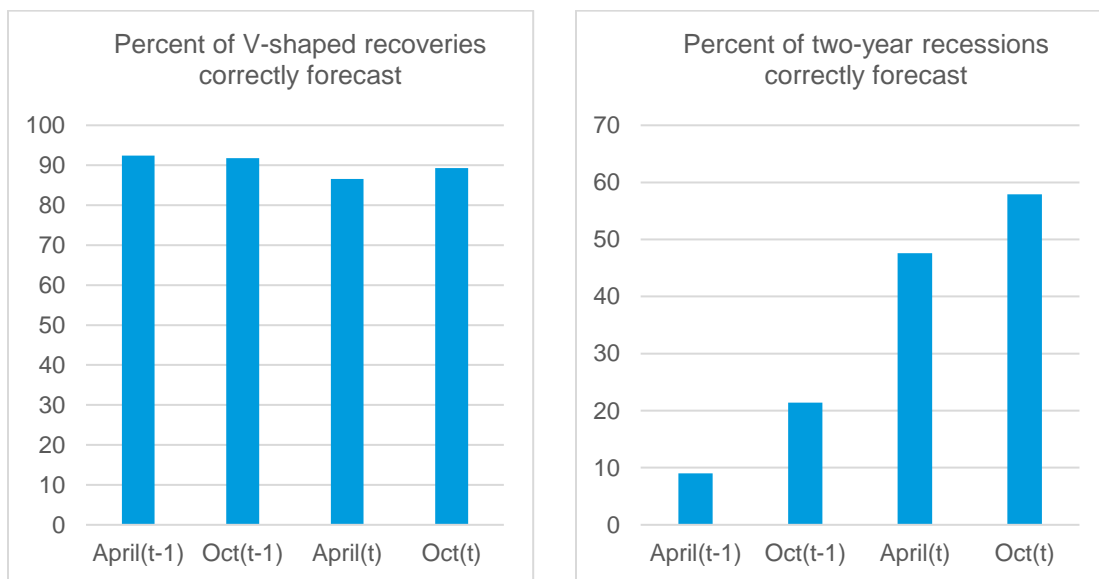
Our results thus far have focused only on whether the forecasts 'get the sign right', viz., the extent to which forecasters are able to tell whether the year following a recession will be a

year of growth or decline. It would also be interesting to look at the magnitude of the forecast errors made. For instance, if the outcome was -0.1 percent while the forecast was 0.1 percent, one would consider that a successful forecast—a near miss—even though forecasters did not get the sign right. Table 3 shows the mean forecast errors made over all 436 episodes and for two other cases of interest: (i) 'missed recoveries'—when the forecast is for the recession to continue but the outcome is a recovery; and (ii) 'missed recessions'—when the forecast is for a recovery but the recession continues into a second year.

The forecast error is defined as the actual minus the forecast, so that a negative number indicates that the forecast turned out to be more optimistic than the actual. The top panel of Table 3 shows that averaged over all 436 episodes, there is a modest amount of over-optimism in the April(t-1) forecasts which gets whittled away over the subsequent forecasts, and by Oct(t) the forecast errors are quite modest.

Table 3. Mean Forecast Errors (MFE)

	Apr(t-1)	Oct(t-1)	Apr(t)	Oct(t)
Average over 436 episodes				
MFE during recoveries				
All countries	-1.9	-1.6	-0.4	0.2
Advanced	-1.3	-0.6	0.6	0.4
Emerging	-1.4	-1.4	0.1	0.5
LIDCs	-2.9	-2.6	-1.5	-0.4
Missed recoveries				
# of recoveries missed	22	24	39	31
MFE for these cases				
All countries	3.2	4.2	4.4	3.9
Advanced	3.2	5.1	2.3	1.4
Emerging	2.2	3.7	4.5	3.9
LIDCs	5.4	4.8	6.2	5.3
Missed recessions				
# of recessions missed	132	114	76	61
MFE for these cases				
All countries	-8.4	-8.2	-6.4	-5.7
Advanced	-5.5	-4.0	-1.9	-1.0
Emerging	-7.5	-7.5	-5.3	-4.8
LIDCs	-11.5	-11.0	-9.1	-8.6

The mean forecast errors for cases where recoveries were missed, shown in the middle panel, are of course positive as the forecasts turned out to be pessimistic relative to the outcomes. For advanced economies, the forecast errors decline and are fairly small by Oct(t); the same cannot be said for the errors made in the case of the two other country groups.

The largest forecast errors occur when the forecast is for recovery but the recession continues into a second year, as shown in the bottom panel. Encouragingly, the forecast errors

get considerably smaller, and particularly so for advanced economies, as time goes by and more information becomes available to forecasters.

In sum, the errors made are not near misses—forecasters miss by a lot when making forecasts about what might transpire a year ahead, but correct their mistakes steadily over time, particularly in the case of advanced economies.

III.   Comparing IMF and Consensus Forecasts

Consensus Forecasts comes closest to the IMF in providing forecasts for a large group of countries over a long period of time. This source also has some advantages over IMF forecasts. The forecasts are available monthly. Moreover, the so-called 'consensus' forecast for each country is arrived at by averaging over the forecasts of a number of individuals, most of them from the private sector. Hence, at least in principle, Consensus offers a more timely source of forecasts largely made by people outside the public sector confines of the IMF. In practice, forecasts from the two sources turn out to be quite similar in their general patterns and in magnitude. The similarity in patterns is shown in Figure 3, which presents the evolution of forecasts from the two sources in the year following the start of a recession.

Figure 3: Evolution of Forecasts the Year After a Recession Starts: IMF and Consensus
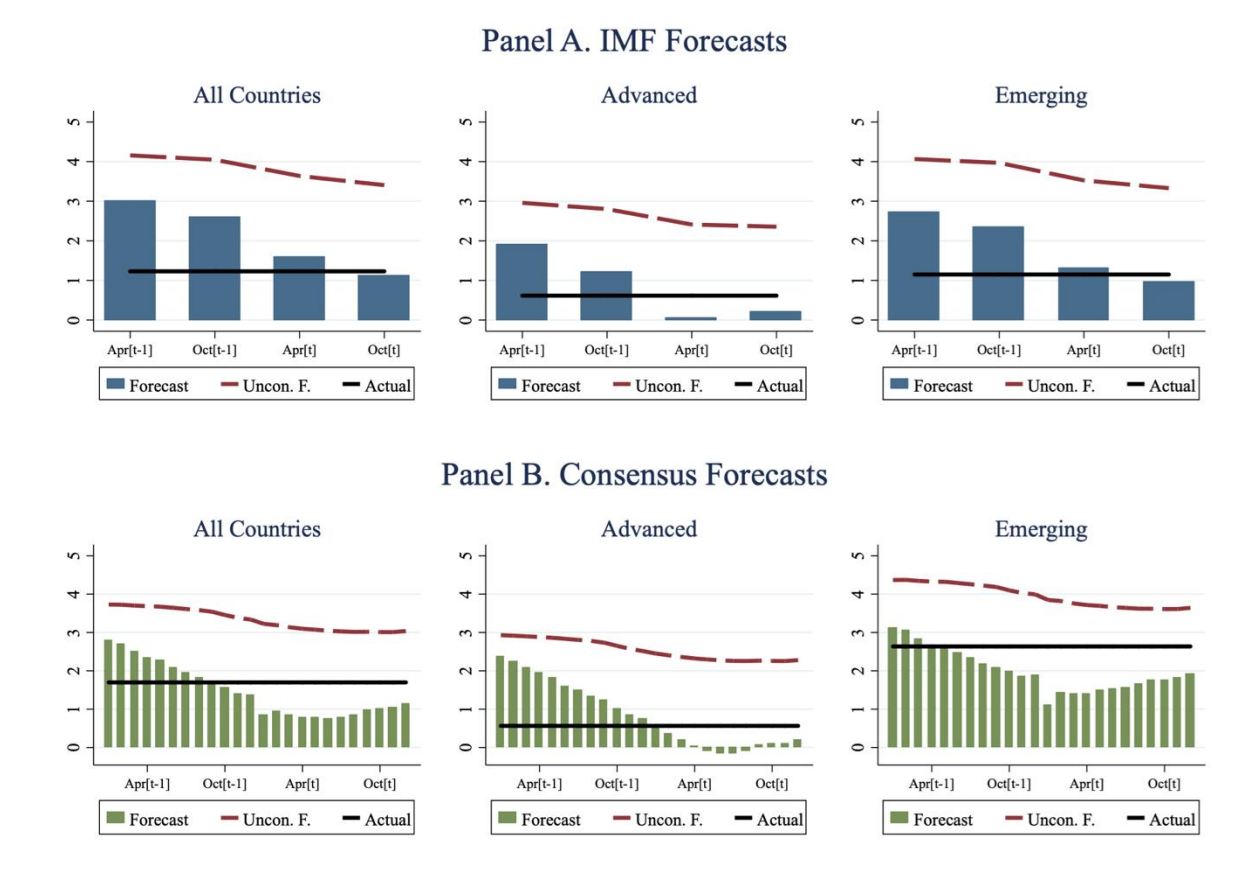
First, consider the IMF forecasts shown in the three panels in the top row for all countries, advanced economies and emerging economies, respectively. In the panel for all countries, the red dotted line is the average of all forecasts for all years. It shows that this 'unconditional' forecast in April(t-1) is for 4 percent growth and it gets marked down to about 3 percent by Oct(t). The solid black line is the average outcome for the years following a recession year. Not surprisingly, this line is well below the unconditional forecast since some of the years will be marked by recessions. The average IMF forecast is shown by the blue bar. In all three cases (all; advanced; emerging), the April(t-1) forecast is below the unconditional forecast (red dotted line)—suggesting that forecasters are aware that this is not going to be a normal year—but above the outcome (solid black line), indicating that forecasts are too optimistic relative to what will transpire. Over the course of the year and into the following year, forecasts are revised down toward the outcome so that by Oct(t) the forecast error is small.

The bottom row shows the time path of the forecasts from Consensus. In this case, since the forecasts are revised monthly, we have a series of 24 forecasts, shown by the green bars. The evolution of the forecasts is similar in broad terms to those of the IMF. There is optimism initially about how the following year will turn out, which is revised down over time, leading to a forecast the year is ending that is not too far from what actually transpires. The correspondence between the two sources is greater in the case of advanced economies than for emerging markets.

The two sources also perform rather similarly in forecasting whether recessions will turn out to be V-shaped rather than continue into a second year. This is shown in Table 4, which has the same structure as Table 2, except that each cell shows two numbers, the first for Consensus and the second for the IMF.

Table 4: Forecasts for the Year after the Recession Starts vs. Realizations ('Actual'), Consensus vs. IMF

Actual	April(t-1)			Oct(t-1)		
	Recovery	Recession	Total	Recovery	Recession	Total
Recovery	103 vs. 95	6 vs. 14	109	95 vs. 96	14 vs. 13	109
Recession	41 vs. 36	1 vs. 6	42	30 vs. 27	12 vs. 15	42
Total	144	7	151	125	26	151
	Apr(t)			Oct(t)		
	Recovery	Recession	Total	Recovery	Recession	Total
Recovery	96 vs. 90	13 vs. 19	109	101 vs. 98	8 vs. 11	109
Recession	12 vs. 13	30 vs. 29	42	8 vs. 9	34 vs. 33	42
Total	108	43	151	109	42	151

At the very outset, note that this comparison can only be done for the 151 recessions for which we have data from both Consensus and IMF. Over 70 percent of the time (109 out of 151) recessions are V-shaped, not too far off from the two-thirds figure we had with the much larger set of recessions earlier.

As before, let's start with the upper-left panel, which compares how well IMF forecasts made in April(t-1) did relative to Consensus forecasts made around the same time.

▪The first row in the panel indicates that in 103 of the 109 cases (94 percent), Consensus correctly called for a V-shaped recovery, slightly higher than the IMF's 87 percent (95 out of 109).

▪ The second row in the panel shows the pattern on forecasts in the 42 cases where the recession continued onto a second year. In nearly a 100% of these cases (41 out of 42), Consensus incorrectly forecast a recovery, slightly worse than the IMF's 86% incorrect record (36 out of 42).

Hence, for Consensus forecasts too, V-shaped recoveries are predicted very well in the preceding April and multi-year recessions are forecast very poorly.

The other panels of Table 4 provide similar analysis for the three other cases, Oct(t-1), April(t) and Oct(t). The conclusions from all four panels are illustrated in Figure 4, with the blue bars indicating Consensus and the yellow bars indicating the IMF forecasts. The left panel shows the good performance by both sources when recoveries turn out to be V-shaped: the percentage of recoveries called correctly ranges between 80 and 90 percent. The right panel shows the poor performance when recessions drag on for a second year: the initial success rate in April(t-1) is very low but increases steadily to reach 80 percent by Oct(t).

Figure 4: Predicted Recoveries vs. Reality: Consensus vs. IMF
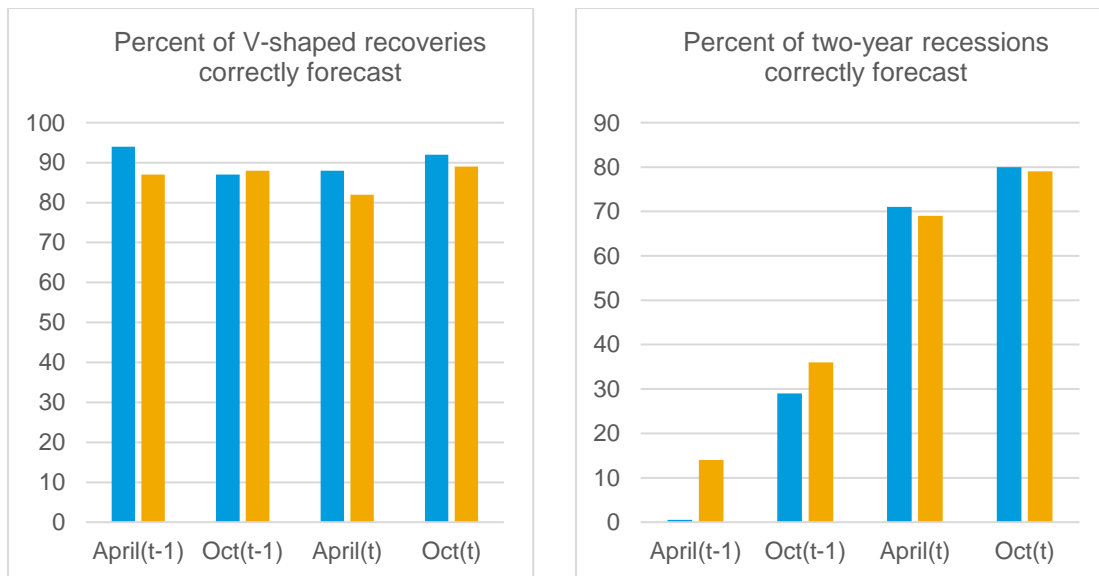
IV.   Conclusions

The declines in economic activity have been so deep in the first months of this year that only a sharp snapback to normalcy can keep the recessions forecasted for this year from occurring. But the prospects for 2021 seem more open: will many countries see recovery or a continued recession? Major forecasters such as the IMF and Consensus Forecasts are predicting a recovery.

This paper has looked back to when these forecasters have been in similar situations to provide some evidence on how well they have performed. We find that nearly two-thirds of recessions have been followed by a recovery the following year, and hence calling for a recovery once a recession has started has proven to be a fairly safe bet for forecasters.

What about the one-third of cases where a recession drags on into a second year? We find that forecasters are not very good at figuring out in advance whether the year will be marked by recovery or a continued recession. In fact, it is only about 10% of the time that forecasters have been accurately able to predict a continued recession a year in advance, and improvements in this performance happen quite slowly over the course of time. So if past ends up being prologue, it would only be by October 2021 or so that forecasters would be reasonably confident whether 2021 is going to end up as a year or recovery or recession.

Of course, this time could be different—forecast performance could be better than the historical record might indicate. Nevertheless, given the past record, it would be prudent for countries to make policy choices keeping in mind the possibility of continued recession and not just the baseline forecasts of recovery. The experience of the not-so-Great Recovery that followed the Great Recession of 2008-09 offers a cautionary lesson. In 2010, baseline forecasts of robust recovery led to a turnaround in the fiscal stance in many advanced economies that in the opinion of many observers proved premature. The recovery was tepid and the move to a tighter fiscal stance may have been one of the contributing factors to this outcome. During times of abnormal uncertainty, policy choices could be guided more by a risk-management approach rather than being linked tightly to what would be appropriate under the baseline scenario. This is particularly the case for fiscal policy, where understandable concerns about debt sustainability are likely to create a strong constituency for backing a quick withdrawal of fiscal support.

References

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Loungani, Prakash, 2001, How accurate are private sector forecasts? Cross-country evidence from consensus forecasts of output growth, *International Journal of Forecasting*, 17(3), 419–32.

Annex A

List of Recessions and Duration (in years; noted in parenthesis): Advanced Economies

Country	Recessions and Duration
Australia	1991
Austria	2009
Belgium	1993, 2009
Canada	1991, 2009
Cyprus	2009, 2012(3)
Czech Republic	1997(2), 2009, 2012(2)
Denmark	2008(2)
Estonia	1994, 1999, 2008(2)
Finland	1991(3), 2009, 2012(3)
France	1993, 2009
Germany	1993, 2002(2), 2009
Greece	1993, 2008(6), 2015(2)
Hong Kong SAR	1998, 2009, 2019
Iceland	2009(2)
Ireland	2008(2)
Israel	2002
Italy	1993, 2008(2), 2012(3)
Japan	1993, 1998(2), 2008(2), 2011
Korea	1998
Latvia	1993, 1995, 2008(3)
Lithuania	1999, 2009
Luxembourg	2008(2), 2012
Malta	2009
Netherlands	2009, 2012(2)
New Zealand	1991, 2008
Norway	2009
Portugal	1993, 2003, 2009, 2011(3)
Singapore	1998, 2001
Slovak Republic	1999, 2009
Slovenia	2009, 2012(2)
Spain	1993, 2009, 2011(3)
Sweden	1991(3), 2008(2), 2012
Switzerland	1991(3), 2009
Taiwan POC	2001, 2009
United Kingdom	1991, 2008(2)
United States	1991, 2008(2)

List of Recessions and Duration (in years; noted in parenthesis): Emerging Economies

Country	Recessions and Duration
Albania	1997
Algeria	1991, 1993(2)
Angola	2016(4)
Antigua and Barbuda	1995, 2001, 2008(4), 2013
Argentina	1990, 1995, 1999(4), 2009, 2012, 2014, 2016, 2018(2)
Armenia	1993, 2009
Azerbaijan	1993(3), 2011, 2016
Barbados	1990(3), 2001, 2009(6), 2018(2)
Belarus	1993(3), 2015(2)
Bosnia and Herzegovina	2009, 2012
Botswana	1992, 1994, 2009, 2015
Brazil	1990, 1992, 2009, 2015(2)
Brunei Darussalam	2008(2), 2013(4)
Bulgaria	1990(8), 1999, 2009
Cabo Verde	2009
Chile	1999, 2009
Colombia	1999
Costa Rica	2009
Croatia	1999, 2009(6)
Dominica	2001(2), 2009, 2011(3), 2015, 2017
Dominican Republic	1990, 2003, 2009
Ecuador	1999, 2016
El Salvador	2009
Equatorial Guinea	1991, 2010, 2013, 2015(5)
Fiji	1991, 1997, 2000, 2005, 2007, 2009
Gabon	1992, 1999(2), 2005(2), 2009
Georgia	2009
Grenada	1992(2), 2001, 2004, 2006, 2009(2), 2012
Guyana	1990, 1998, 2000, 2003, 2005
Hungary	1990(4), 2009, 2012
Indonesia	1998
Iraq	2000(3), 2017(2)
Islamic Republic of Iran	1994, 1997, 2008, 2012(2), 2015, 2018(2)
Jamaica	1997(2), 2008(3), 2012
Kazakhstan	1993(3), 1998
Kuwait	1990(2), 1999, 2009(2), 2017
Lebanon	1990, 1999, 2018(2)
Malaysia	1998, 2009
Maldives	1990, 2005, 2009
Mexico	1995, 2001(2), 2009, 2019

List of Recessions and Duration (in years; noted in parenthesis): Emerging Economies (continued)

Country	Recessions and Duration
Montenegro	2009, 2012
Morocco	1992(2), 1995, 1997
Namibia	2016(2), 2019
North Macedonia	2001, 2009, 2012
Oman	2002(2)
Paraguay	1999(4), 2009, 2012
Peru	1990, 1992, 1998
Philippines	1991, 1998
Poland	1990(2)
Qatar	1990(2), 1993
Romania	1990(3), 1997(3), 2009(2)
Russia	1993(4), 1998, 2009, 2015
Samoa	1990(2), 1999, 2009, 2012(2), 2018
Saudi Arabia	1993, 1999, 2001(2), 2009, 2017
Serbia	2009, 2012, 2014
Seychelles	1994, 2001, 2003(2), 2008(2)
South Africa	1990(3), 2009
Sri Lanka	1992, 1998, 2001
St. Kitts and Nevis	2003, 2009(2), 2012, 2017
St. Lucia	1997, 2001, 2005, 2009, 2012(2)
St. Vincent and the Grenadines	1994, 2009(3)
Suriname	1990(2), 1993(2), 1999(2), 2015(2)
Thailand	1997(2), 2009
The Bahamas	1991(2), 2003, 2008(2), 2013
Timor-Leste	2006, 2017(2)
Tonga	1997, 2006(2), 2012(2), 2019
Trinidad and Tobago	1993, 2009, 2011(2), 2014, 2016(4)
Tunisia	2011
Turkey	1994, 1999, 2001, 2009
Turkmenistan	1993(5)
Ukraine	1993(7), 2009, 2013(3)
United Arab Emirates	1993, 2009
Uruguay	1995, 1999(4)
Vanuatu	2001(2)
Venezuela	1994, 1996, 1999, 2002(2), 2009(2), 2014(6)

List of Recessions and Duration (in years; noted in parenthesis): LIDCs

Country	Recessions and Duration
Burkina Faso	1990
Burundi	1993(4), 2015(2)
Cameroon	1990(5)
Central African Republic	1991(3), 1996, 2000, 2003(2), 2013
Chad	1993, 1995, 1999(2), 2016(2)
Comoros	1991, 1994, 1996, 2000, 2006
Cote d'Ivoire	1990, 1992(2), 2000, 2002(2), 2011
DR of the Congo	1990(5), 1996(6)
Djibouti	1993(5)
Eritrea	2000, 2003, 2006, 2008, 2013, 2015, 2017
Ethiopia	1991(2), 1998, 2003
Guinea	2009
Guinea-Bissau	1998, 2003, 2012
Haiti	1990, 1992(3), 2001(2), 2004, 2010, 2019
Honduras	1994, 1999, 2009
Kenya	1992(2)
Kiribati	1995, 1999, 2001, 2004, 2006, 2008, 2010, 2014
Kyrgyz Republic	1993(3), 2002, 2005, 2010, 2012
Lesotho	2017
Liberia	2003, 2016, 2019
Madagascar	1991, 1994, 2002, 2009
Malawi	1992, 1994, 2001
Mali	1992, 2000, 2012
Mauritania	1994, 1997, 2000(2), 2007(2)
Moldova	1993(4), 1998(2), 2009, 2012, 2015
Mongolia	2009
Mozambique	1992
Nicaragua	1990(2), 1993, 2009, 2018(2)
Niger	1990(2), 1999(2)
Nigeria	1991, 2016
Papua New Guinea	1990, 1995, 1997, 2000(2), 2008, 2018
Republic of Congo	1993(2), 1997, 1999, 2007, 2016(2), 2019
Rwanda	1991, 1993(2)
Senegal	1990, 1994
Sierra Leone	1991(2), 1995(5), 2015
Solomon Islands	1997, 1999(4), 2009
South Sudan	2012, 2015(4)
Sudan	1990, 2009, 2011(2), 2018(2)
Sao Tome and Principe	1990
Tajikistan	1993(4)
The Gambia	1994, 2002, 2005(2), 2011, 2014
Togo	1991(3), 1996, 1998, 2000, 2004(2), 2007
Uzbekistan	1993(3)
Yemen	2011, 2014(4)
Zambia	1990(2), 1993(2), 1998
Zimbabwe	1999(10), 2019