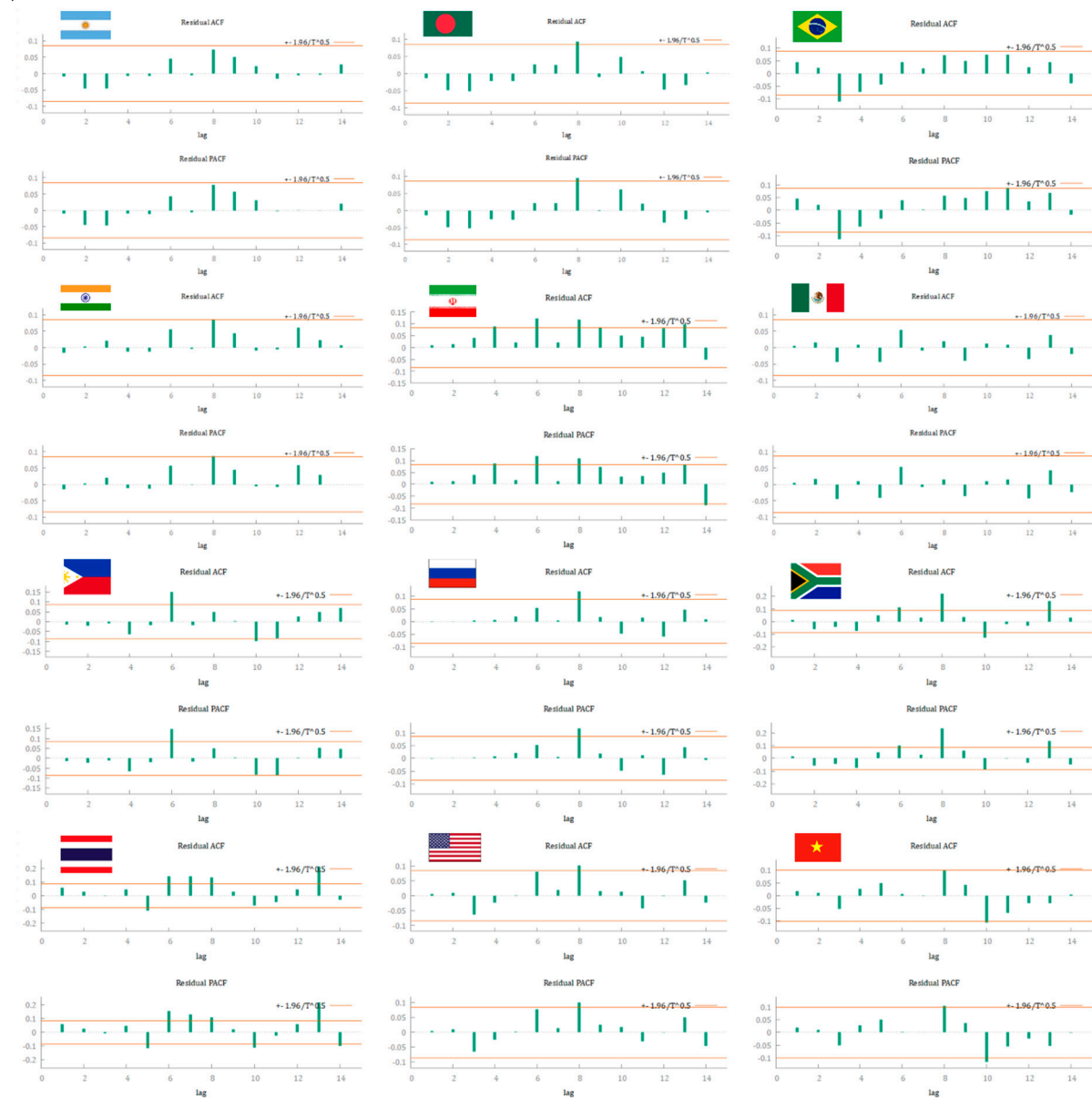


## Appendix S1

Figure S1. ACF and PACF plot of the residuals of the SARIMA models obtained using the “auto.arima( )” function.



## Appendix S2

Table S2. Comparison between SARIMA models obtained using “auto.arima( )” function and adjusted SARIMA models considering the minimization of AIC, MAE, MAPE, MASE, and RMSE metrics (in percentage), for cumulative deaths from COVID-19.

Countries	AIC	MAE	MAPE	MASE	RMSE
Bangladesh	-0.97	-1.78	-31.37	-1.54	-1.56
Brazil	-0.29	-5.62	-2.87	-3.67	-3.56
Iran	-0.75	-5.36	-11.65	-3.94	-4.84
Philippines	-0.55	-5.87	-4.59	-5.75	-6.52
Russia	-0.97	-6.38	-2.4	-4.82	-6.53
South Africa	-0.85	-8.67	-6.41	-8.8	-9.3

Thailand	-5.48	-11.19	6.22	-10	-22.1
US	-0.019	-0.55	0.44	-0.48	-0.91
Vietnam	-0.3	5.55	25.88	5.51	-4.96

Notes: negative (positive) values show the percentage efficiency gain (loss) from using adjusted SARIMA models. Roman values indicate that adjusted SARIMA models were better, while italic values indicate that non-adjusted SARIMA models were better.

### Appendix S3

Table S3 (part 1). The parameters values of the best SARIMA models (reported in Table 5).

Parameters	AR	BD	BR	IN	IR	MX
Non-seasonal						
AR (1)		1.0583***	0.9396***		1.2383***	
AR (2)		0.8246***			-0.3184***	
AR (3)		-0.8857***			-0.0278	
AR (4)					0.1144*	
AR (5)					-0.1759**	
AR (6)					0.0991*	
MA (1)	-0.8866***	-0.4914***	-0.7107***	-0.6003***	-1.6674***	-0.904***
MA (2)		-0.7714***	-0.1091***		0.7645***	
MA (3)		0.3363***	-0.0365			
MA (4)			0.0516			
MA (5)			-0.018			
MA (6)			0.0979**			
MA (7)			0.6578***			
MA (8)			0.0726			
Seasonal						
AR (1)	-0.0719*	0.4869***		0.9088***	1.0986***	0.1774***
AR (2)	0.9281***			-0.7565***	-0.1082*	0.1578***
AR (3)						0.1409***
AR (4)						0.1153***
MA (1)	0.1926*	-1.262***	0.0726	-0.9502***	-0.92***	
MA (2)	-0.8067***	0.2865*		0.8578***		
MA (3)						

Notes: p-value < 0.01\*\*\*; p-value < 0.05\*\*; p-value < 0.1\*. Standards errors (omitted) are based on Hessian. Countries: AR, Argentina; BD, Bangladesh; BR, Brazil; IN, India; IR, Iran; MX, Mexico.

Table S3 (part 2). The parameters values of the best SARIMA models (reported in Table 5).

Parameters	PH	RU	ZA	TH	US	VN
Non-seasonal						
AR (1)	-0.8236***	-0.7755***	0.2257	-0.2266	0.8642***	-0.1419
AR (2)	-0.7853***	0.3712*	-0.0556	-0.5081***	-0.0726	-0.1515
AR (3)	-0.729***	0.5178***	0.2403**	-0.3056*	-0.032	0.0985
AR (4)	-0.8714***	-0.1754*	0.1722	0.4661***	0.0557	-0.4484***
AR (5)	-0.7406***		0.298***		0.0357	-0.0344
AR (6)	-0.5495***				0.1044*	
MA (1)	0.1161	0.307**	0.0128	-0.3659**	-0.3182*	-0.8437***
MA (2)	0.125	-0.8756***	0.1646	0.2527**		0.0722
MA (3)	0.1225	-0.3928***	-0.0828	0.0021		-0.1746
MA (4)	0.1502	0.5962***	-0.1015	-0.3736***		0.5919***

MA (5)			-0.1896**	0.0742		
MA (6)			0.1372**	0.4612***		
MA (7)			-0.3864***	-0.4587***		
MA (8)			0.2525**	0.269**		
MA (9)				0.0352		
MA (10)				-0.2722***		
<hr/>						
Seasonal						
AR (1)	-0.4188***	-0.0935	0.3914*	0.4756***		
AR (2)	0.4632***	0.5145*	-0.6573***	-0.3031***		
AR (3)	0.8958***	0.4692	0.5667***	0.6774***		
AR (4)		0.0387	0.1617	-0.1978**		
MA (1)	0.0527	0.3415	-0.7604***	-0.0292	-0.6052***	0.0452
MA (2)	-0.6341***	-0.2529	0.783***	0.6909***		
MA (3)	-0.7613***	-0.4179*	-0.9761***			
MA (4)	0.4458***		-0.0088			

Notes: p-value < 0.01\*\*\*; p-value < 0.05\*\*; p-value < 0.1\*. Standards errors (omitted) are based on Hessian.  
Countries: PH, the Philippines; RU, Russia; ZA, South Africa; TH, Thailand; US, the United States; VN, Vietnam.