

Table 1: Correlogram and Autocorrelation values.

Lag	1	2	3	4	5	6	7	8	9	10
Correlation	0.963	0.925	0.893	0.881	0.875	0.856	0.829	0.796	0.769	0.755

Table 2: Mean forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
2018	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6
2019	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6.835417	6
2020	6.835417	6.835417	-	-	-	-	-	-	

Table 3: Naive forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
2019	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
2020	3.9	3.9	-	-	-	-	-	-	-	-	-	-

Table 4: Seasonal naive forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	5.1	4.9	4.6	4.1	4.1	4.5	4.6	4.5	4.1	3.9	3.9	3.9
2019	5.1	4.9	4.6	4.1	4.1	4.5	4.6	4.5	4.1	3.9	3.9	3.9
2020	5.1	4.9	-	-	-	-	-	-	-	-	-	-

Table 5: Measures of accuracy.

		RMSE	MAE	MAPE	MASE
<b>Average</b>	Training set	1.892	1.685	27.145	2.240
	Test set	3.064	3.043	81.842	4.045
<b>Naive</b>	Training set	0.349	0.279	4.242	0.371
	Test set	0.374	0.315	8.585	0.419
<b>Seasonal Naive</b>	Training set	0.816	0.752	12.172	1
	Test set	0.642	0.608	16.164	0.808

Table 6: Trend-only regression results.

Call: tslm(formula = unrtrain ~ trend)					
Residuals:					
Min	1Q	Median	3Q	Max	
-0.70106	-0.30502	0.00026	0.26722	0.89454	
Coefficients:					
	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	10.082982	0.077165	130.67	1.2e-16 ***	
trend	-0.066960	0.001381	-48.47	1.2e-16 ***	

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
Residual standard error: 0.3751 on 94 degrees of freedom  
Multiple R-squared: 0.9615, Adjusted R-squared: 0.9611  
F-statistic: 2349 on 1 and 94 DF, p-value: 1.2e-16

Table 7: Seasonal dummies-only regression results.

Call:					
tslm(formula =					
unrtrain ~ season)					
Residuals:					
	Min	1Q	Median	3Q	Max
	-2.587	-1.669	-0.075	1.581	3.038
Coefficients:					
	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	7.6500	0.6951	11.006	1.2e-16 ***	
season2	-0.2000	0.9830	-0.203	0.839	
season3	-0.4625	0.9830	-0.470	0.639	
season4	-1.0500	0.9830	-1.068	0.289	
season5	-1.0000	0.9830	-1.017	0.312	
season6	-0.5875	0.9830	-0.598	0.552	
season7	-0.5125	0.9830	-0.521	0.603	
season8	-0.7625	0.9830	-0.776	0.440	
season9	-1.1375	0.9830	-1.157	0.250	
season10	-1.2875	0.9830	-1.310	0.194	
season11	-1.3875	0.9830	-1.411	0.162	
season12	-1.3875	0.9830	-1.411	0.162	

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
Residual standard error: 1.966 on 84 degrees of freedom  
Multiple R-squared: 0.0555, Adjusted R-squared: -0.06818  
F-statistic: 0.4487 on 11 and 84 DF, p-value: 0.9288

Table 8: Trend with seasonal dummies regression results.

Call: tslm(formula = unrtrain ~ trend + season)					
Residuals:					
	Min	1Q	Median	3Q	Max
	0.4944	-0.1761	0.0375	0.2221	0.4523
Coefficients:					
	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	10.5003142	0.1024510	102.491	1.2e-16 ***	
trend	-0.0662864	0.0009804	-67.614	1.2e-16 ***	
season2	-0.1337136	0.1320577	-1.013	0.3142	
season3	-0.3299272	0.1320686	-2.498	0.0145 *	
season4	-0.8511409	0.1320868	-6.444	7.22e-09 ***	
season5	-0.7348545	0.1321122	-5.562	3.17e-07 ***	
season6	-0.2560681	0.1321450	-1.938	0.0561 .	
season7	-0.1147817	0.1321850	-0.868	0.3877	
season8	-0.2984954	0.1322322	-2.257	0.0266 *	
season9	-0.6072090	0.1322867	-4.590	1.56e-05 ***	
season10	-0.6909226	0.1323485	-5.220	1.30e-06 ***	
season11	-0.7246362	0.1324174	-5.472	4.61e-07 ***	
season12	-0.6583499	0.1324936	-4.969	3.56e-06 ***	

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
Residual standard error: 0.2641 on 83 degrees of freedom  
Multiple R-squared: 0.9832, Adjusted R-squared: 0.9807  
F-statistic: 403.8 on 12 and 83 DF, p-value: 1.22e-16

Table 9: Coefficients of variation.

	Trend	Season	Trend and Season
CV	0.143	4.417	0.081

Table 10: Trend only forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2018	3.587851	3.520891	3.453931	3.386971	3.320010	3.253050	3.186090	3.119130	3.052170
2019	2.784329	2.717369	2.650409	2.583449	2.516489	2.449529	2.382569	2.315609	2.248649
2020	1.980808	1.913848	-	-	-	-	-	-	-

Table 11: Seasonal only forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
2018	7.6500	7.4500	7.1875	6.6000	6.6500	7.0625	7.1375	6.8875	6.5125	6.3625
2019	7.6500	7.4500	7.1875	6.6000	6.6500	7.0625	7.1375	6.8875	6.5125	6.3625
2020	7.6500	7.4500	-	-	-	-	-	-	-	-

Table 12: Trend and seasonal forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
2018	4.070536	3.870536	3.608036	3.020536	3.070536	3.483036	3.558036	3.308036	2
2019	3.275099	3.075099	2.812599	2.225099	2.275099	2.687599	2.762599	2.512599	2
2020	2.479663	2.279663	-	-	-	-	-	-	

Table 13: Measures of forecast accuracy.

		RMSE	MAPE
<b>Trend</b>	Training set	0.371	4.910
	Test set	0.715	16.703
<b>Seasonal</b>	Training set	1.839	26.686
	Test set	2.992	75.925
<b>Trend and seasonal</b>	Training set	0.246	3.584
	Test set	0.597	15.113

Table 14: Trend and seasonal model forecasts.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
2020	-	-	2.732105	2.162105	2.202105	2.632105	2.702105	2.462105	2
2021	2.571388	2.371388	-	-	-	-	-	-	