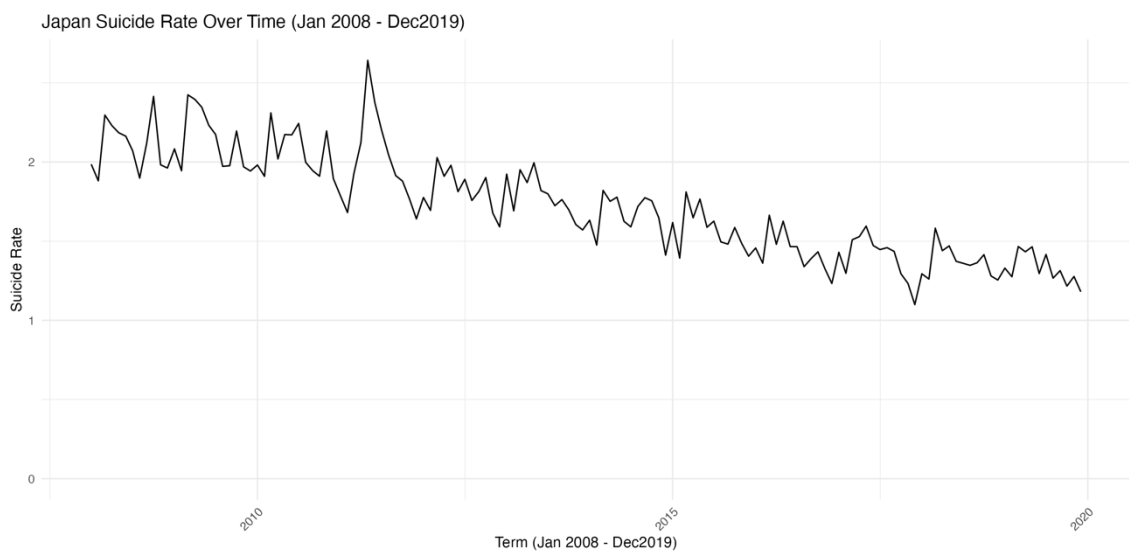


S Figure 1 Trend in Suicide Rates in the United States: January 2004 to December 2019



Source: US Data

S Figure 2 Trend in Suicide Rates in the United States: January 2008 to December 2019

S Table 1 Grid-search Results for Models (1)-(3) in the US (Validation Period: January-December 2017)

	Iterations	Burn-in Percent	Burn-in	MAPE
Model (1)				
	2000	0.1	200	5.132
	2000	0.2	400	5.086
	2000	0.3	600	5.042
	2000	0.4	800	5.082
	4000	0.1	400	5.06
	4000	0.2	800	5.081
	4000	0.3	1200	5.109
	4000	0.4	1600	5.122
	8000	0.1	800	5.088
	8000	0.2	1600	5.095
	8000	0.3	2400	5.059
	8000	0.4	3200	5.031
	16000	0.1	1600	5.049
	16000	0.2	3200	5.031
	16000	0.3	4800	5.047
	16000	0.4	6400	5.055
Model (2)				
	2000	0.1	200	6.147
	2000	0.2	400	5.979
	2000	0.3	600	6.297
	2000	0.4	800	6.037
	4000	0.1	400	5.77
	4000	0.2	800	5.812
	4000	0.3	1200	5.814
	4000	0.4	1600	5.923
	8000	0.1	800	6.054
	8000	0.2	1600	6.063
	8000	0.3	2400	6.121
	8000	0.4	3200	6.122

	16000	0.1	1600	5.988
	16000	0.2	3200	5.988
	16000	0.3	4800	5.994
	16000	0.4	6400	6.144
Model (3)				
	2000	0.1	200	3.617
	2000	0.2	400	4.336
	2000	0.3	600	4.144
	2000	0.4	800	3.855
	4000	0.1	400	4.174
	4000	0.2	800	3.998
	4000	0.3	1200	4.202
	4000	0.4	1600	4.345
	8000	0.1	800	3.92
	8000	0.2	1600	4.004
	8000	0.3	2400	3.967
	8000	0.4	3200	3.924
	16000	0.1	1600	4.2
	16000	0.2	3200	4.074
	16000	0.3	4800	4.157
	16000	0.4	6400	4.218

S Table 2 Grid-search Results for Models (4) in the US (Validation Period: January-December 2017)

Iterations	Burn-in Percent	Pi	Burn-in	MAPE
2000	0.1	0.05	200	5.034
2000	0.1	0.1	200	5.092
2000	0.1	0.15	200	4.874
2000	0.1	0.2	200	5.002
2000	0.2	0.05	400	4.938
2000	0.2	0.1	400	4.973
2000	0.2	0.15	400	4.766
2000	0.2	0.2	400	4.92
2000	0.3	0.05	600	4.886
2000	0.3	0.1	600	4.971
2000	0.3	0.15	600	4.705
2000	0.3	0.2	600	4.915
2000	0.4	0.05	800	4.862
2000	0.4	0.1	800	4.95
2000	0.4	0.15	800	4.645
2000	0.4	0.2	800	4.914
4000	0.1	0.05	400	4.866
4000	0.1	0.1	400	4.85
4000	0.1	0.15	400	4.056
4000	0.1	0.2	400	4.869
4000	0.2	0.05	800	4.931
4000	0.2	0.1	800	4.976
4000	0.2	0.15	800	4.017
4000	0.2	0.2	800	4.968
4000	0.3	0.05	1200	5.054
4000	0.3	0.1	1200	5.133
4000	0.3	0.15	1200	4.052
4000	0.3	0.2	1200	5.121
4000	0.4	0.05	1600	4.97
4000	0.4	0.1	1600	4.976

4000	0.4	0.15	1600	3.861
4000	0.4	0.2	1600	4.997
8000	0.1	0.05	800	4.839
8000	0.1	0.1	800	4.815
8000	0.1	0.15	800	4.391
8000	0.1	0.2	800	4.841
8000	0.2	0.05	1600	4.808
8000	0.2	0.1	1600	4.764
8000	0.2	0.15	1600	4.34
8000	0.2	0.2	1600	4.803
8000	0.3	0.05	2400	4.793
8000	0.3	0.1	2400	4.724
8000	0.3	0.15	2400	4.327
8000	0.3	0.2	2400	4.78
8000	0.4	0.05	3200	4.764
8000	0.4	0.1	3200	4.719
8000	0.4	0.15	3200	4.445
8000	0.4	0.2	3200	4.767
16000	0.1	0.05	1600	4.819
16000	0.1	0.1	1600	4.782
16000	0.1	0.15	1600	4.597
16000	0.1	0.2	1600	4.84
16000	0.2	0.05	3200	4.771
16000	0.2	0.1	3200	4.742
16000	0.2	0.15	3200	4.635
16000	0.2	0.2	3200	4.798
16000	0.3	0.05	4800	4.804
16000	0.3	0.1	4800	4.769
16000	0.3	0.15	4800	4.788
16000	0.3	0.2	4800	4.825
16000	0.4	0.05	6400	4.825
16000	0.4	0.1	6400	4.801

16000	0.4	0.15	6400	4.794
16000	0.4	0.2	6400	4.824

S Table 3 Grid-search Results for Models (1)-(3) in the Japan (Validation Period: January-December 2017)

	Iterations	Burn-in Percent	Burn-in	MAPE
Model (1)				
	2000	0.1	200	5.424
	2000	0.2	400	5.395
	2000	0.3	600	5.452
	2000	0.4	800	5.525
	4000	0.1	400	5.449
	4000	0.2	800	5.447
	4000	0.3	1200	5.383
	4000	0.4	1600	5.384
	8000	0.1	800	5.458
	8000	0.2	1600	5.451
	8000	0.3	2400	5.475
	8000	0.4	3200	5.486
	16000	0.1	1600	5.466
	16000	0.2	3200	5.458
	16000	0.3	4800	5.462
	16000	0.4	6400	5.464
Model (2)				
	2000	0.1	200	5.886
	2000	0.2	400	5.85
	2000	0.3	600	5.746
	2000	0.4	800	5.766
	4000	0.1	400	5.701
	4000	0.2	800	5.642
	4000	0.3	1200	5.715
	4000	0.4	1600	5.603
	8000	0.1	800	5.647
	8000	0.2	1600	5.595
	8000	0.3	2400	5.586
	8000	0.4	3200	5.545

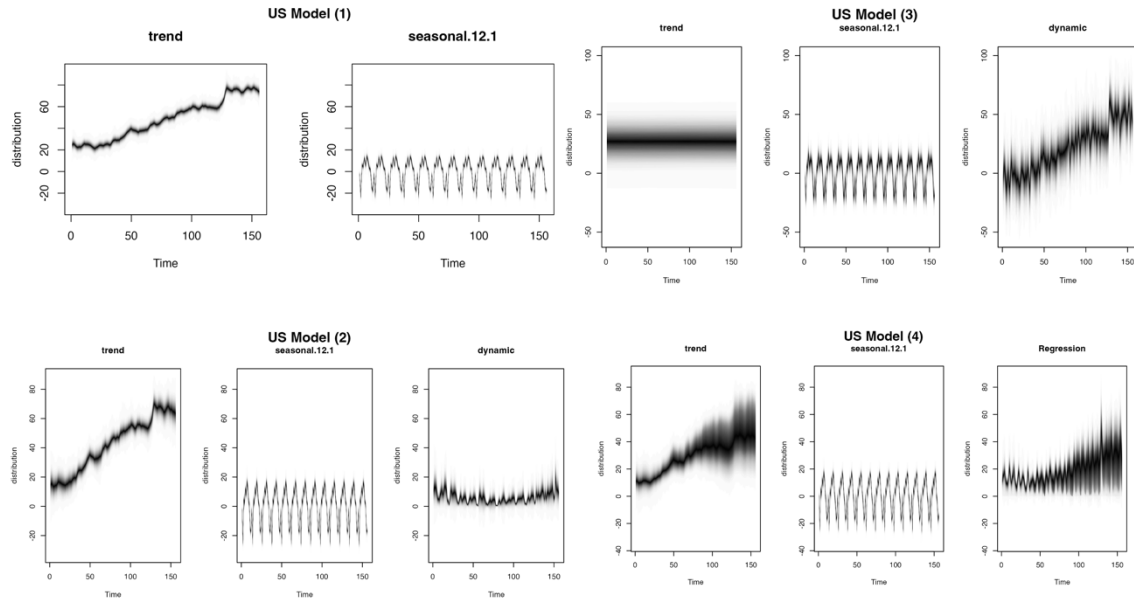
	16000	0.1	1600	5.652
	16000	0.2	3200	5.824
	16000	0.3	4800	5.834
	16000	0.4	6400	5.832
Model (3)				
	2000	0.1	200	12.237
	2000	0.2	400	11.595
	2000	0.3	600	11.185
	2000	0.4	800	10.727
	4000	0.1	400	11.013
	4000	0.2	800	10.817
	4000	0.3	1200	10.879
	4000	0.4	1600	11.308
	8000	0.1	800	10.849
	8000	0.2	1600	11.329
	8000	0.3	2400	10.976
	8000	0.4	3200	11.055
	16000	0.1	1600	10.918
	16000	0.2	3200	11.074
	16000	0.3	4800	10.994
	16000	0.4	6400	10.885

S Table 4 Grid-search Results for Models (4) in the Japan (Validation Period: January-December 2017)

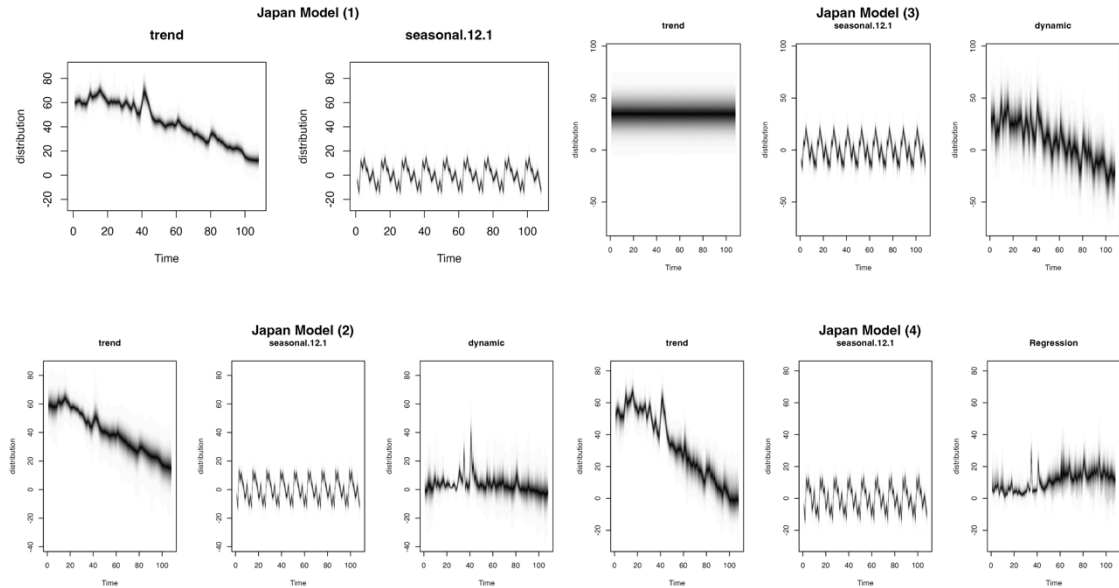
Iterations	Burn-in Percent	pi	Burn-in	MAPE
2000	0.1	0.05	200	9.142
2000	0.1	0.1	200	9.139
2000	0.1	0.15	200	9.083
2000	0.1	0.2	200	9.058
2000	0.2	0.05	400	9.252
2000	0.2	0.1	400	9.161
2000	0.2	0.15	400	9.204
2000	0.2	0.2	400	9.067
2000	0.3	0.05	600	9.256
2000	0.3	0.1	600	9.158
2000	0.3	0.15	600	9.219
2000	0.3	0.2	600	9.147
2000	0.4	0.05	800	9.307
2000	0.4	0.1	800	9.156
2000	0.4	0.15	800	9.238
2000	0.4	0.2	800	9.126
4000	0.1	0.05	400	8.988
4000	0.1	0.1	400	8.921
4000	0.1	0.15	400	8.885
4000	0.1	0.2	400	9.3
4000	0.2	0.05	800	8.99
4000	0.2	0.1	800	8.896
4000	0.2	0.15	800	8.854
4000	0.2	0.2	800	9.355
4000	0.3	0.05	1200	8.98
4000	0.3	0.1	1200	8.896
4000	0.3	0.15	1200	8.828
4000	0.3	0.2	1200	9.439
4000	0.4	0.05	1600	8.836
4000	0.4	0.1	1600	8.808

4000	0.4	0.15	1600	8.706
4000	0.4	0.2	1600	9.425
8000	0.1	0.05	800	8.973
8000	0.1	0.1	800	8.895
8000	0.1	0.15	800	8.929
8000	0.1	0.2	800	9.084
8000	0.2	0.05	1600	8.883
8000	0.2	0.1	1600	8.869
8000	0.2	0.15	1600	8.886
8000	0.2	0.2	1600	9.078
8000	0.3	0.05	2400	8.924
8000	0.3	0.1	2400	8.875
8000	0.3	0.15	2400	8.882
8000	0.3	0.2	2400	9.13
8000	0.4	0.05	3200	9.026
8000	0.4	0.1	3200	8.94
8000	0.4	0.15	3200	9.013
8000	0.4	0.2	3200	9.075
16000	0.1	0.05	1600	9.055
16000	0.1	0.1	1600	8.977
16000	0.1	0.15	1600	8.993
16000	0.1	0.2	1600	9.126
16000	0.2	0.05	3200	9.112
16000	0.2	0.1	3200	9.009
16000	0.2	0.15	3200	9.057
16000	0.2	0.2	3200	9.135
16000	0.3	0.05	4800	9.138
16000	0.3	0.1	4800	9.057
16000	0.3	0.15	4800	9.087
16000	0.3	0.2	4800	9.166
16000	0.4	0.05	6400	9.176
16000	0.4	0.1	6400	9.083

16000	0.4	0.15	6400	9.034
16000	0.4	0.2	6400	9.247



S Figure 3 Contributions of Each Component to the State for the US



S Figure 4 Contributions of Each Component to the State for the Japan