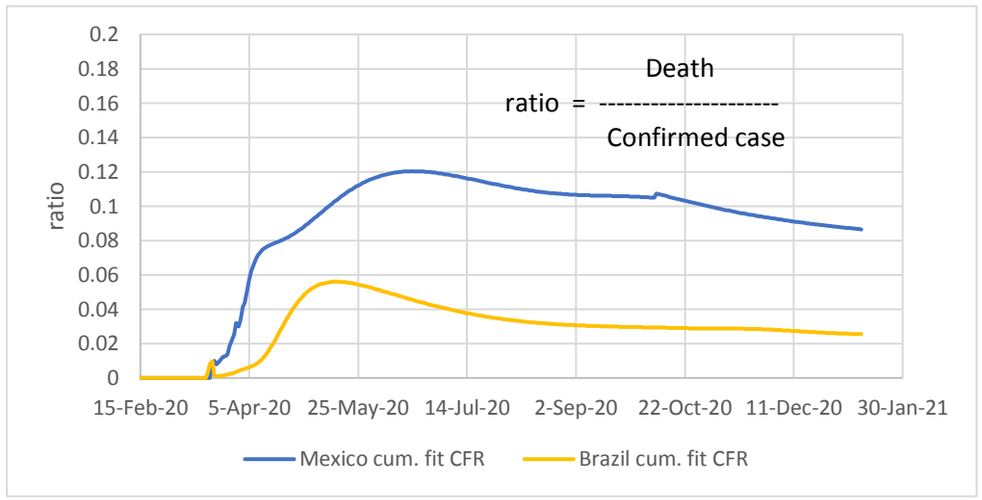
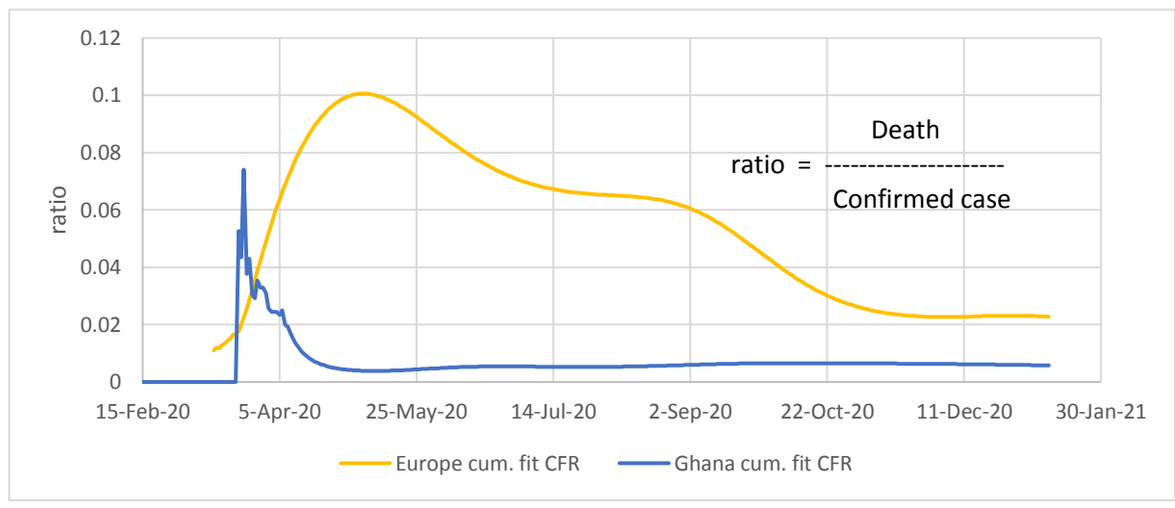
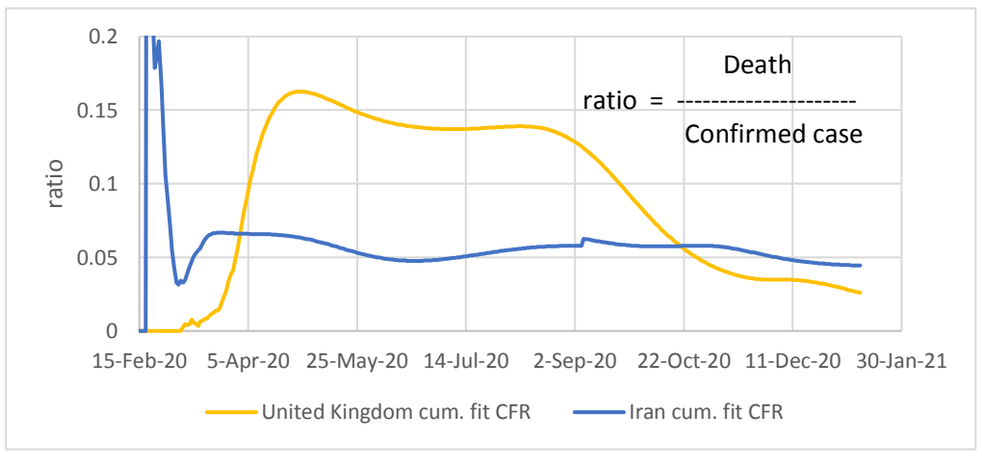
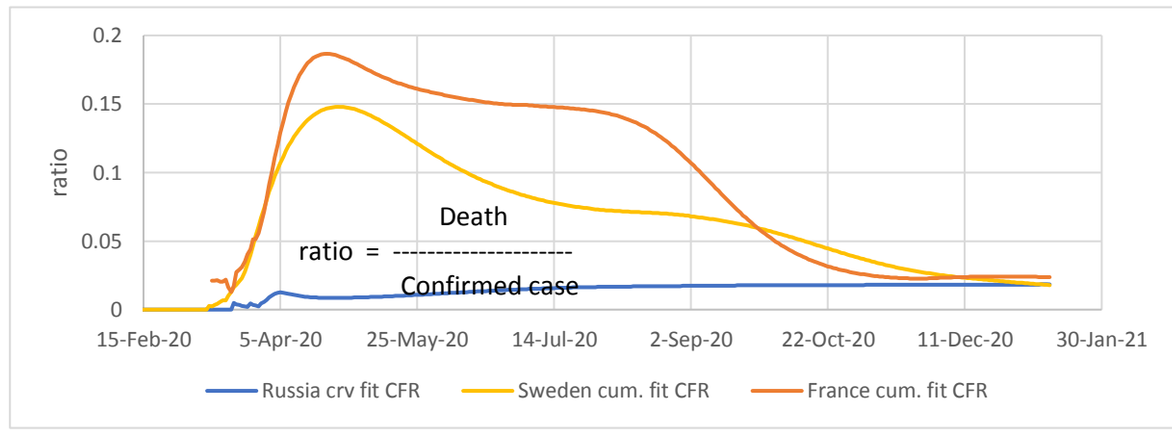
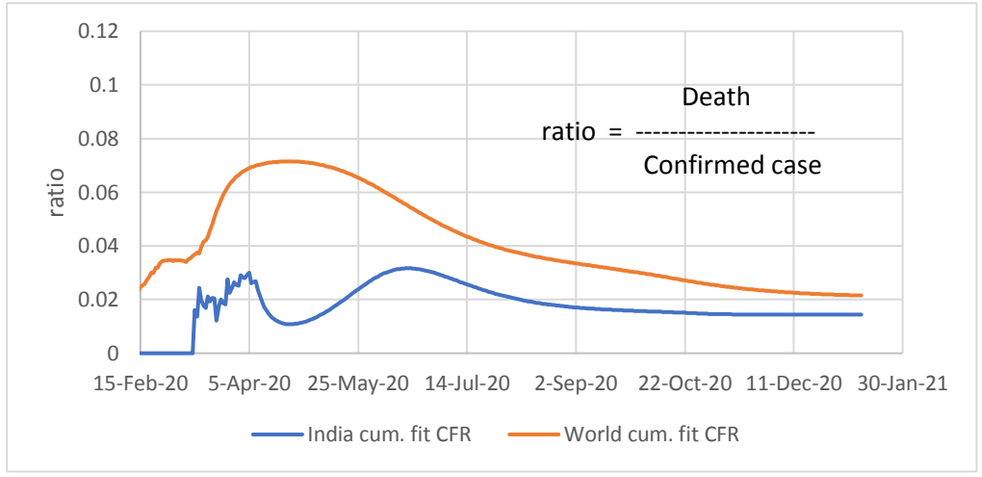
Experimental page : ratios of curve fit deaths to curve fit confirmed cases (CFR)

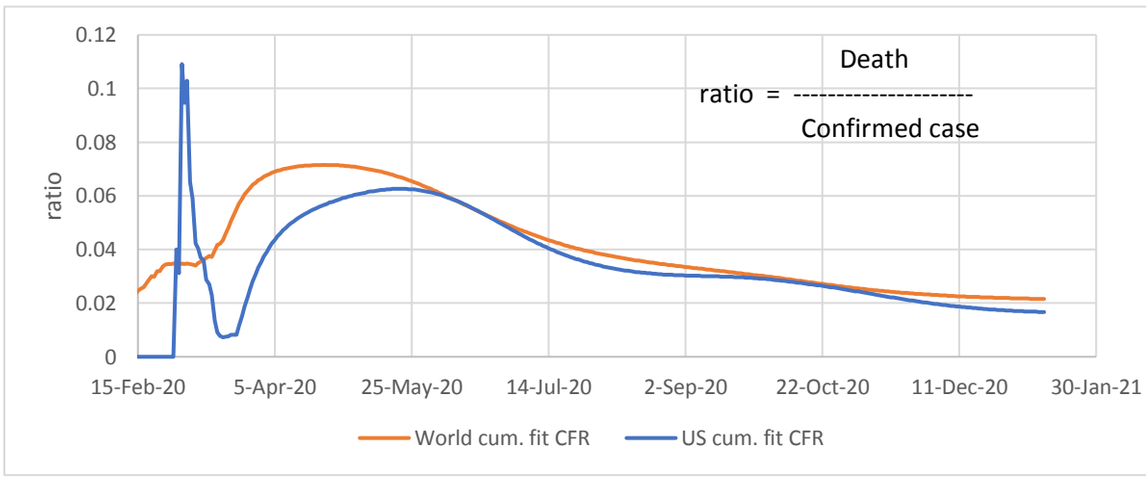




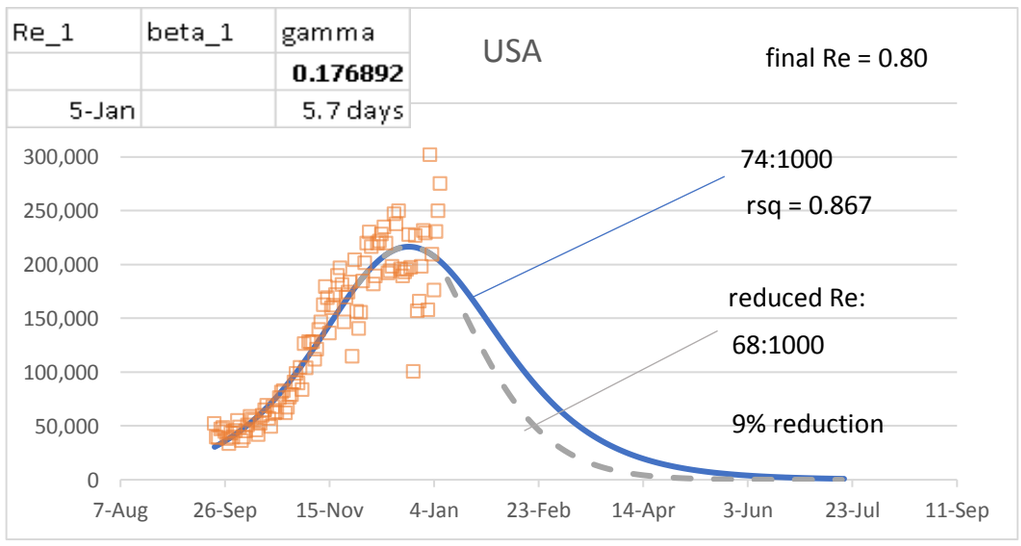


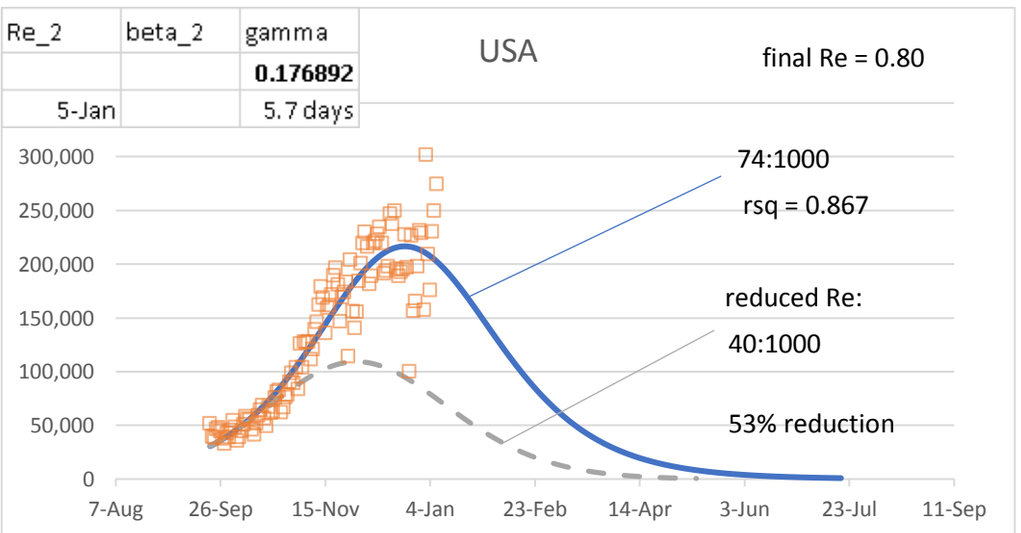




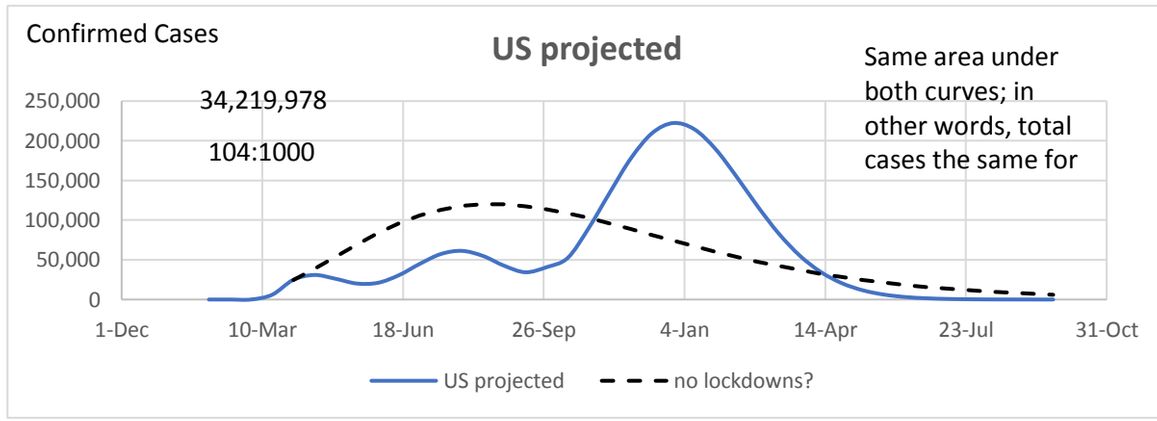


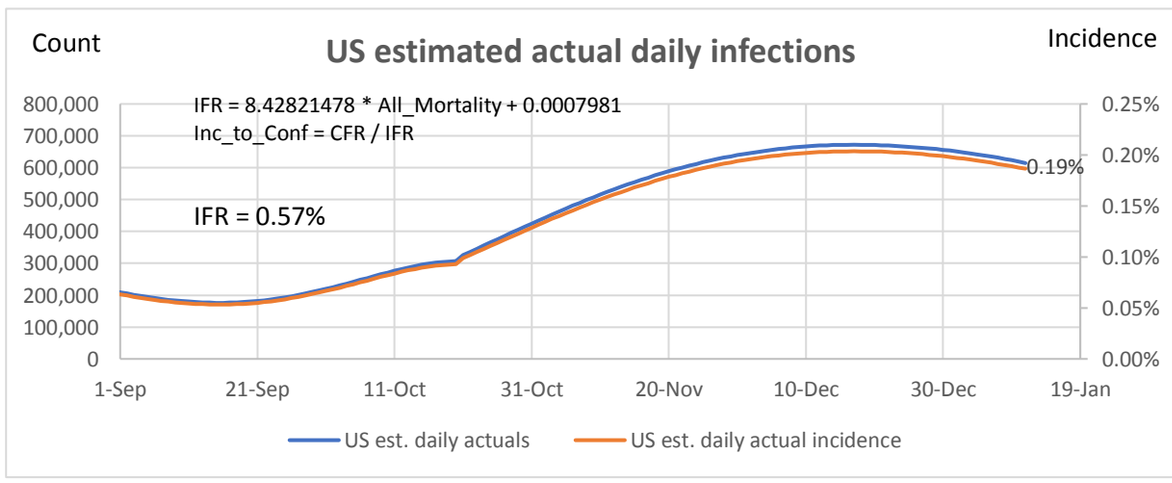
Demonstration of SIR model where R_e is linearly reduced to 0.80 at the end of the sequence:





Reducing the R_e while keeping gamma constant is the same as reducing contact rate. Contact rate is reduced through isolation, lockdowns, and vaccinations. Seems to indicate timing of start of measures is a big factor. The orange data taken as without measures, but we know certain measures were taken. Hard to determine effect, without a basis of comparison.





False Positives Demonstration

Use 0.19% from US est. incidence above as estimated daily incidence

Prevalence estimated as avg. infected period of 2 weeks X incidence

99% accuracy of test

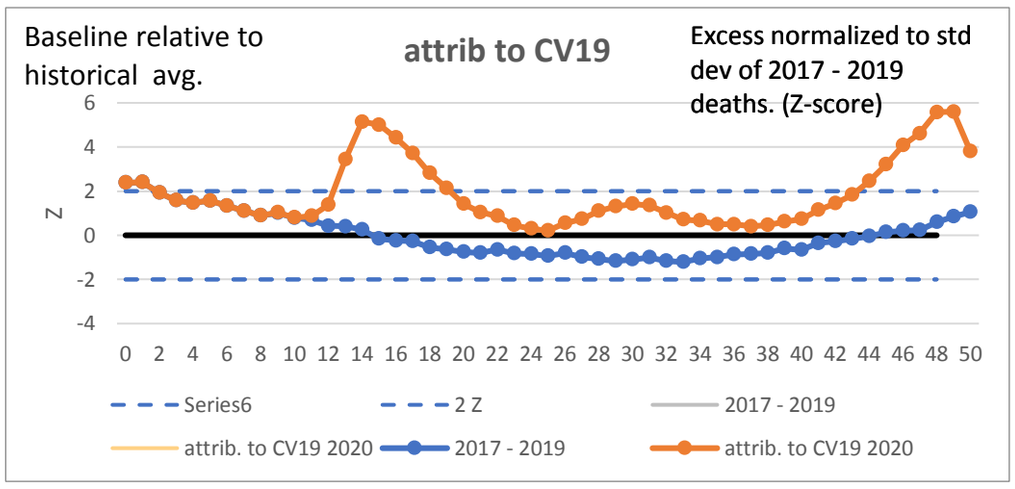
0.19% X 14 = 2.660%

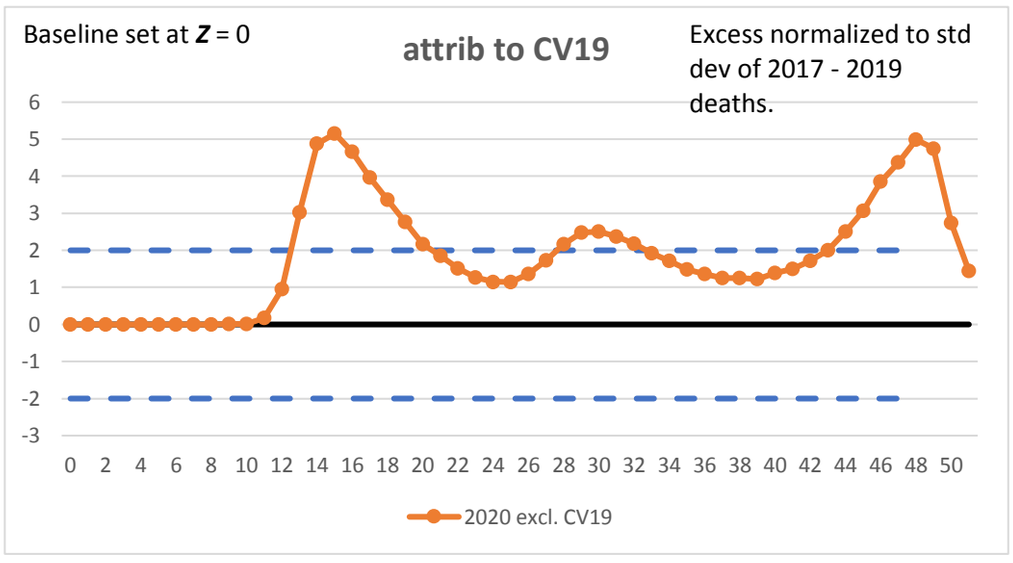
	Positive	Negative	
test pos	2.633%	0.973%	3.61%
test neg	0.027%	96.367%	96.39%
	2.660%	97.340%	100.00%

False pos. is a bit over 1/4 of total positives!

TRUE +	2.633%/3.61%	73.0%
FALSE +	0.973%/3.61%	27.0%
Total	----------	100.00%

Counter-act this tendency by increasing test sensitivity. However this may increase false negatives, the recipients of which may be positive, think they're negative, and go spread it around some more.





USA Excess Deaths (from CDC data):

Annualized on 52 weeks		Weeks are labelled 0 thru 51	
	All Cause	All Cause, excl. CV19	CV19
3 yr average before 2020	859:100,000	876:100,000	-
2020	1009:100,000	909:100,000	-
Diff.	133:100,000	34:100,000	99:100,000

3 yr average
859:100,000

26% of All-Cause excess deaths are non-CV19

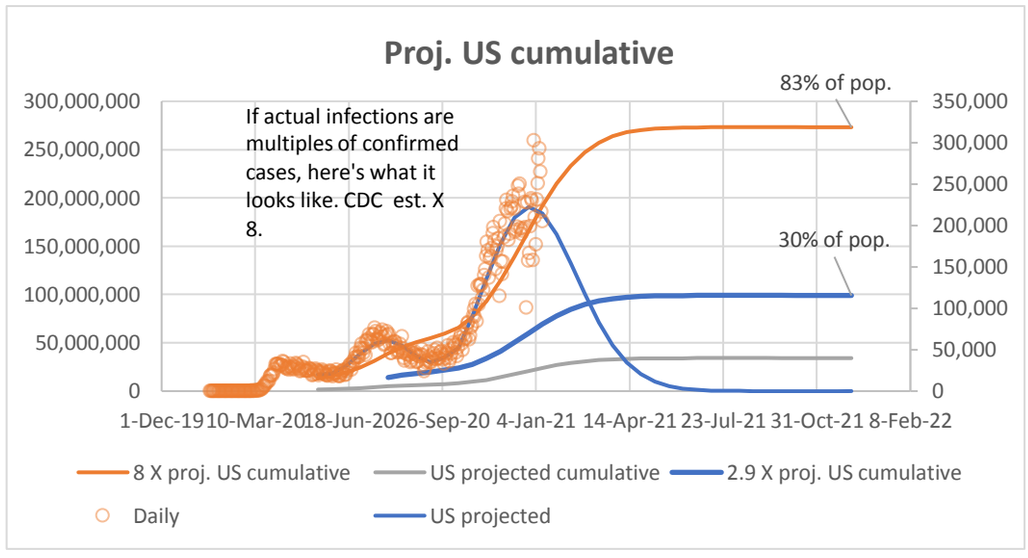
https://data.cdc.gov/NCHS/Excess-Deaths-Associated-with-COVID-19/xkkf-xrst/data

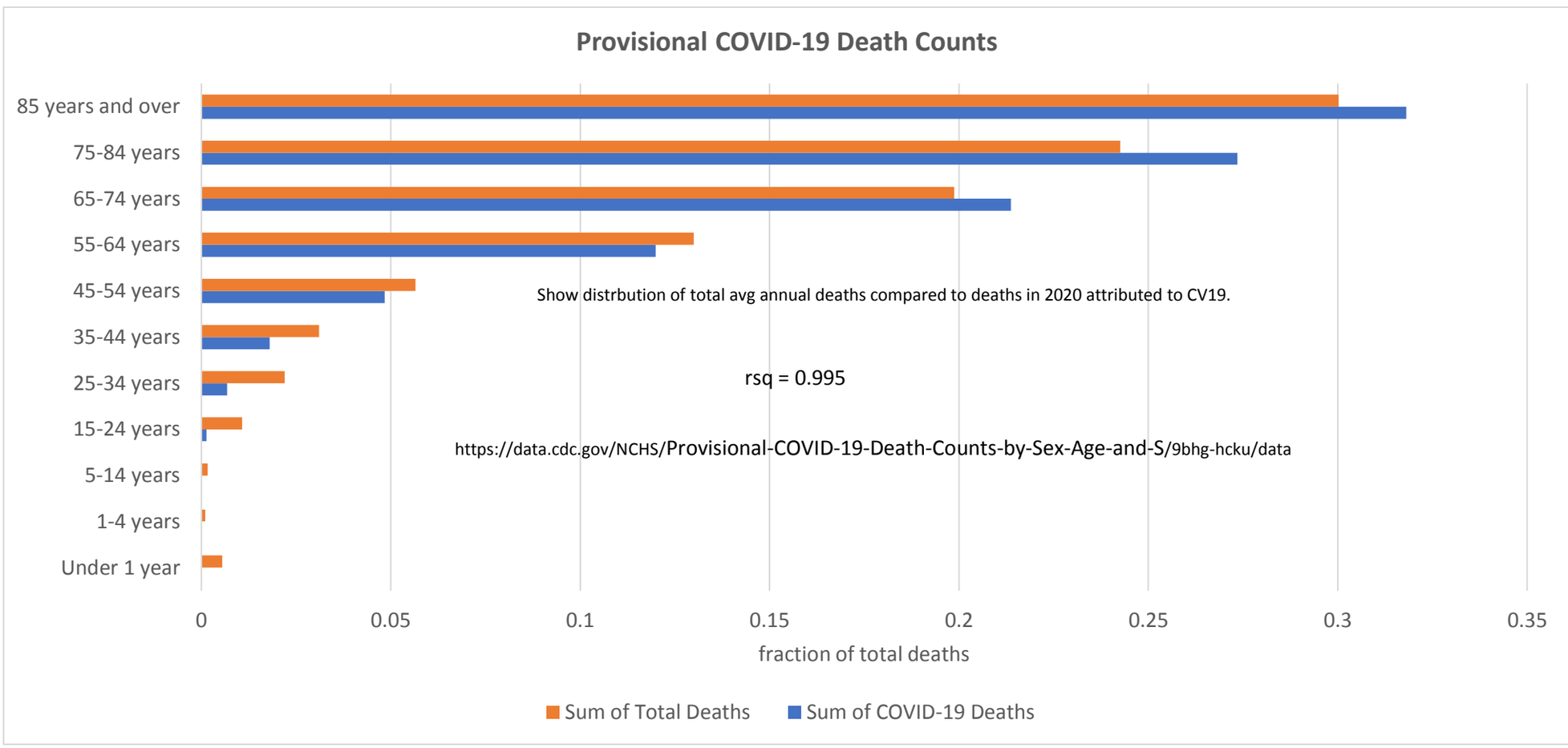
K = 0.318

gamma = 0.171 R_o = exp(K/gamma) = 6.42 84%

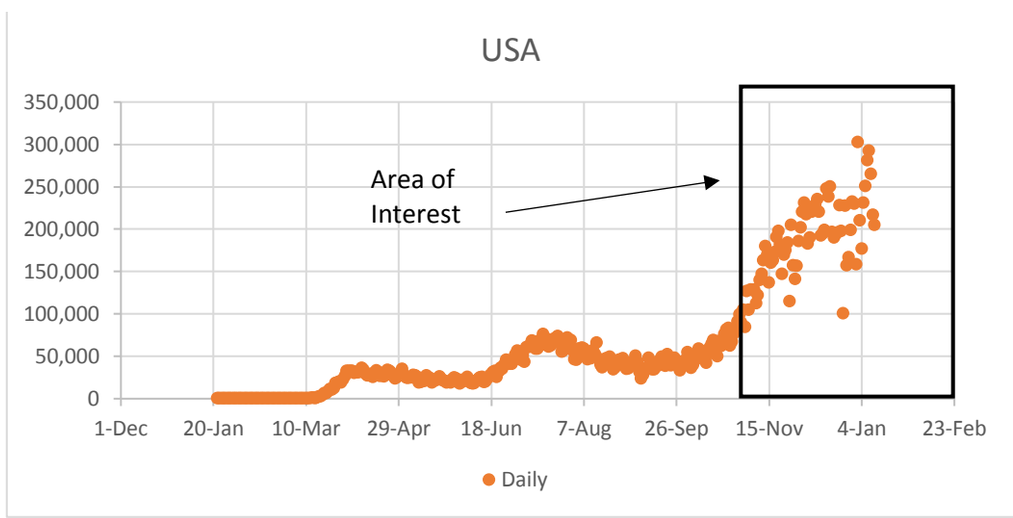
gamma = 0.286 $R > [1 - 1/R_0]/N$ = 3.04 67% <=Herd immunity

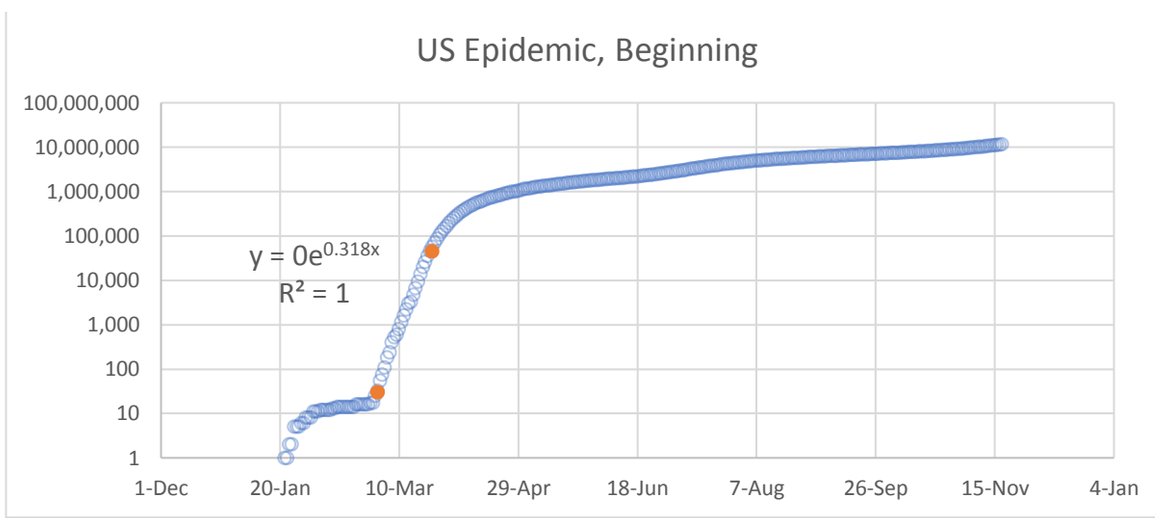
R is recovered variable.

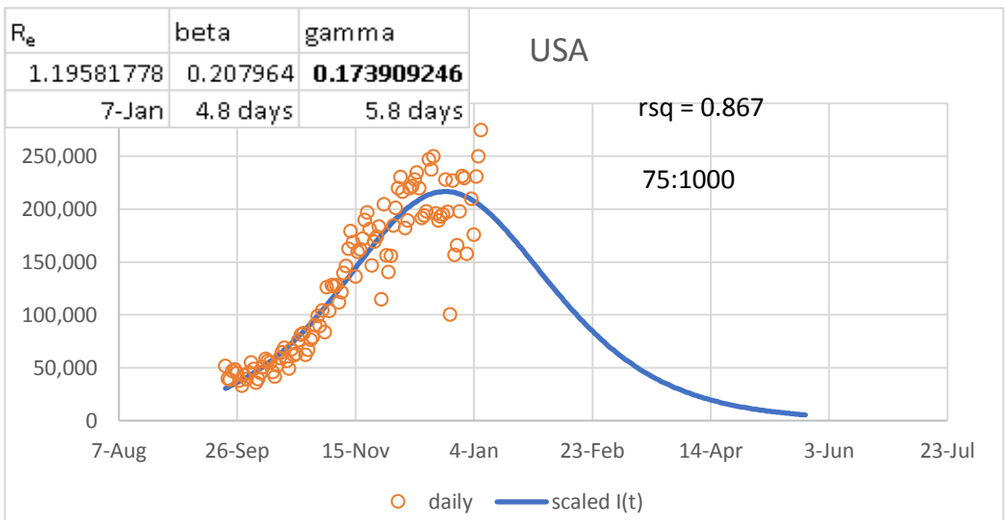


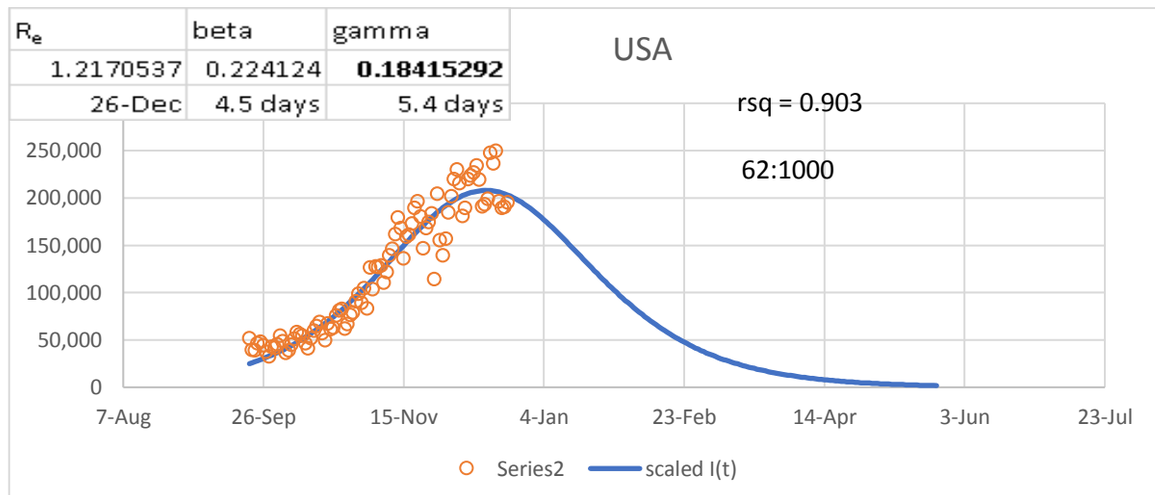


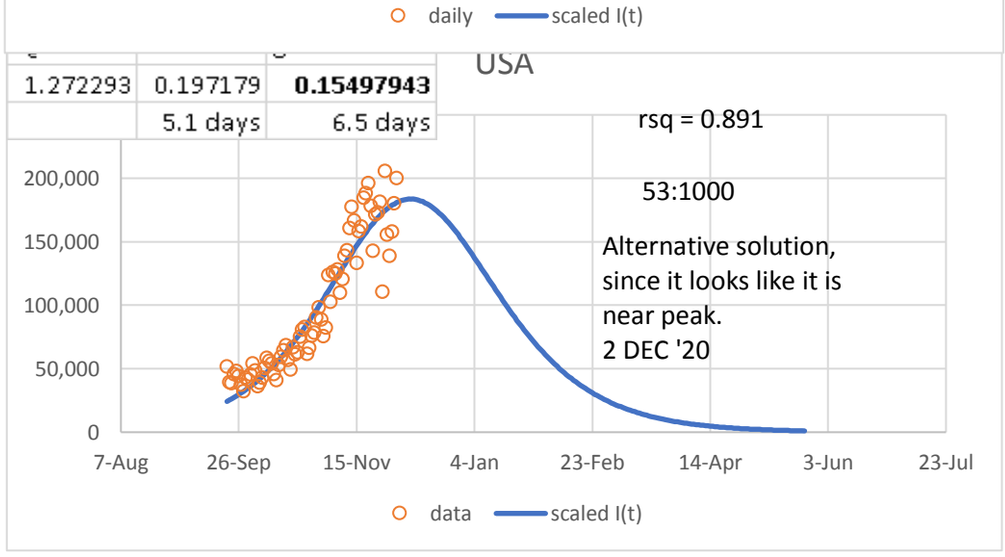
Here are some demonstrations of SIR model, using R_e, gamma, and beta

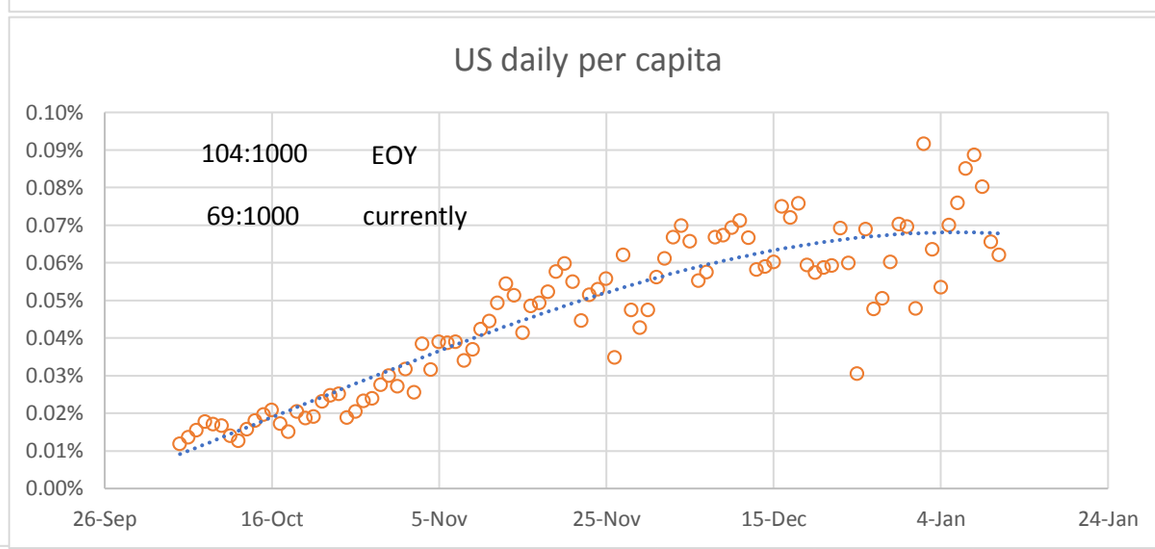

USA
Area of Interest
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1-Dec
20-Jan
10-Mar
29-Apr
18-Jun
7-Aug
26-Sep
15-Nov
4-Jan
23-Feb
Daily

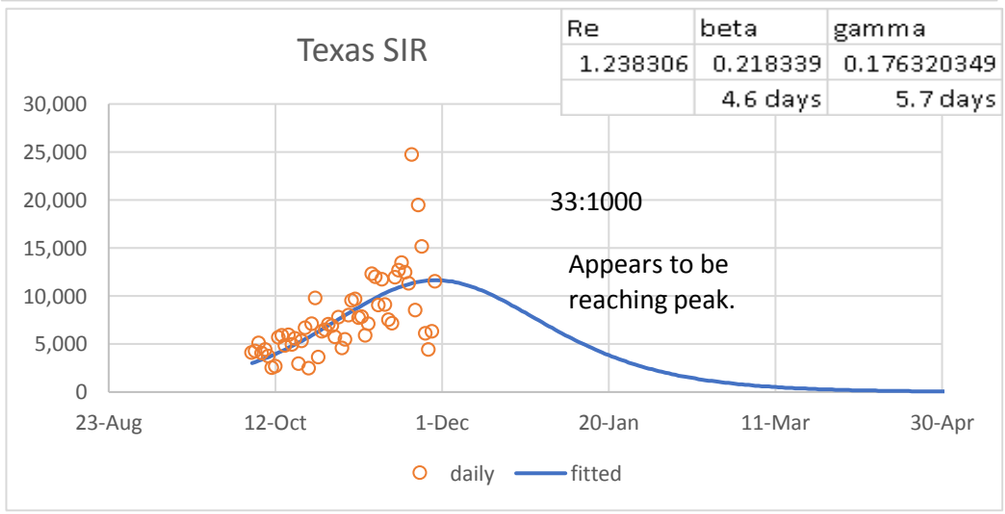

US Epidemic, Beginning
100,000,000
10,000,000
1,000,000
100,000
10,000
1,000
100
10
1
y = 0e^0.318x
R² = 1
1-Dec
20-Jan
10-Mar
29-Apr
18-Jun
7-Aug
26-Sep
15-Nov
4-Jan

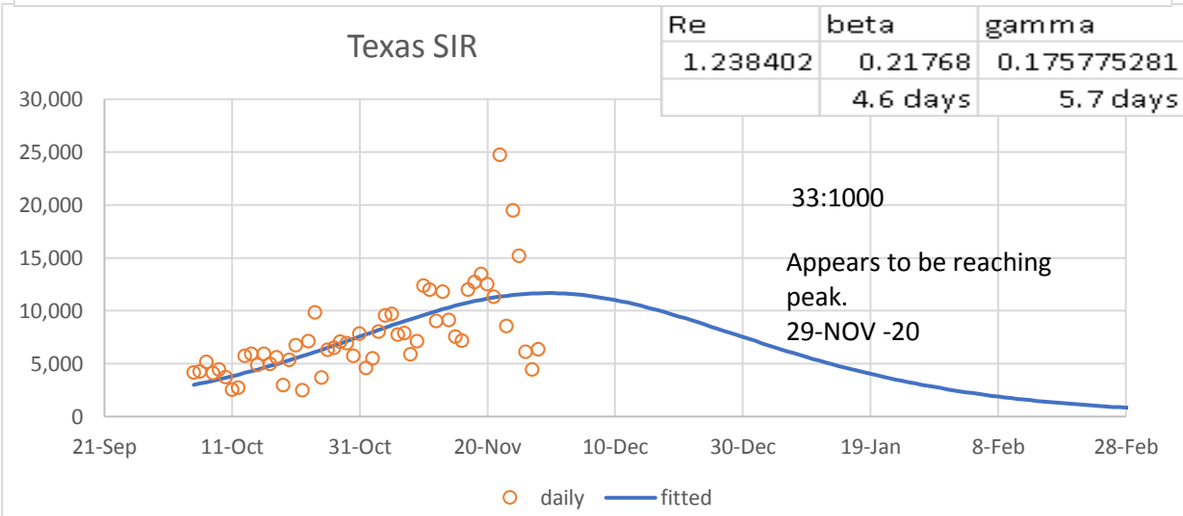

Re
beta
gamma
1.19581778
0.207964
0.173909246
7-Jan
4.8 days
5.8 days
USA
rsq = 0.867
75:1000
250,000
200,000
150,000
100,000
50,000
0
7-Aug
26-Sep
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
daily
scaled I(t)

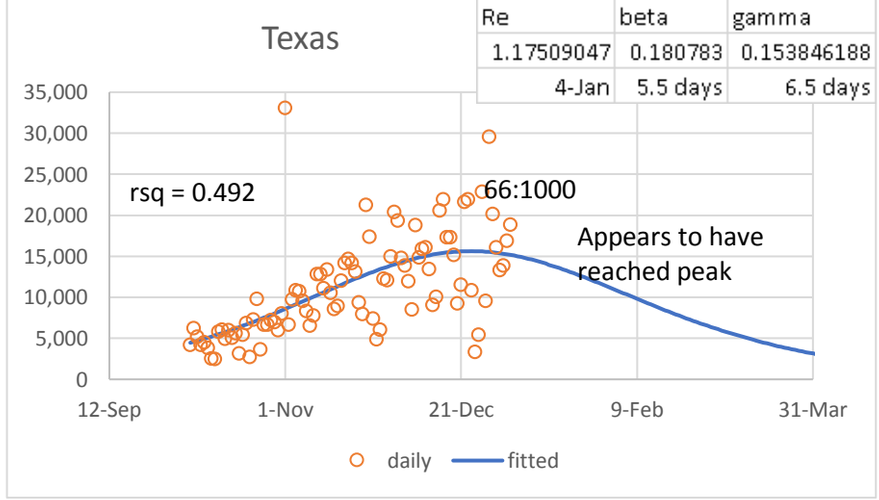

Re
beta
gamma
1.2170537
0.224124
0.18415292
26-Dec
4.5 days
5.4 days
USA
rsq = 0.903
62:1000
250,000
200,000
150,000
100,000
50,000
0
7-Aug
26-Sep
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
Series2
scaled I(t)

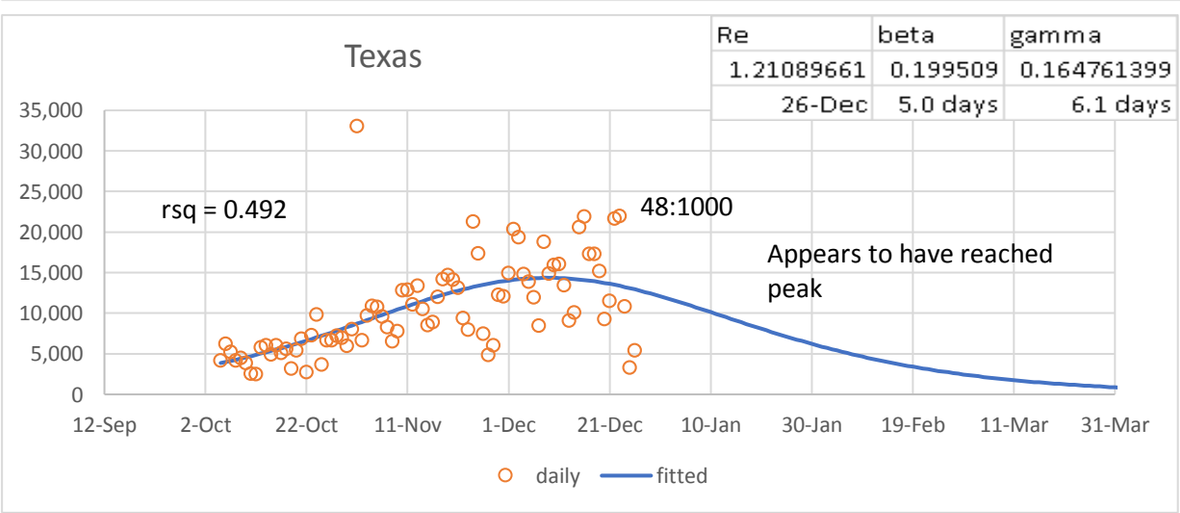

1.272293
0.197179
0.15497943
5.1 days
6.5 days
USA
rsq = 0.891
53:1000
Alternative solution, since it looks like it is near peak.
2 DEC '20
200,000
150,000
100,000
50,000
0
7-Aug
26-Sep
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
data
scaled I(t)


US daily per capita
0.10%
0.09%
0.08%
0.07%
0.06%
0.05%
0.04%
0.03%
0.02%
0.01%
0.00%
104:1000 EOY
69:1000 currently
26-Sep
16-Oct
5-Nov
25-Nov
15-Dec
4-Jan
24-Jan


Texas SIR
Re
beta
gamma
1.238306
0.218339
0.176320349
4.6 days
5.7 days
33:1000
Appears to be reaching peak.
30,000
25,000
20,000
15,000
10,000
5,000
0
23-Aug
12-Oct
1-Dec
20-Jan
11-Mar
30-Apr
daily
fitted

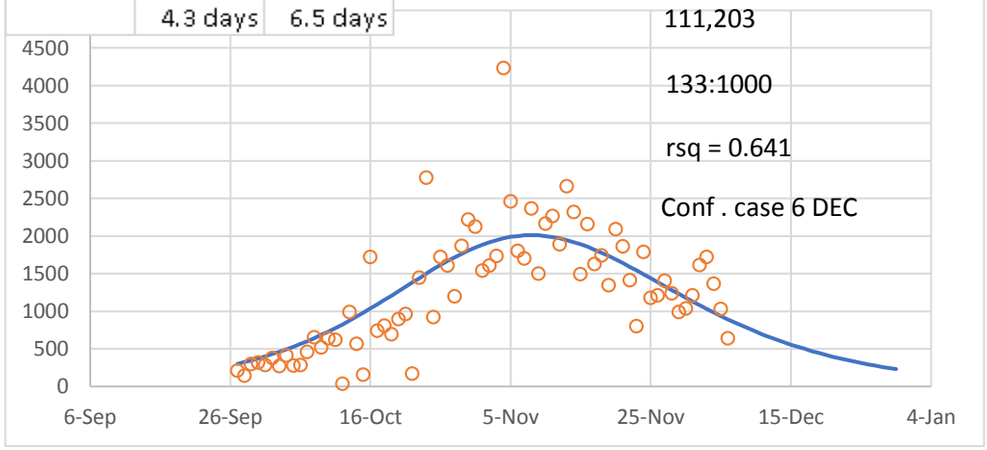

Texas SIR
Re
beta
gamma
1.238402
0.21768
0.175775281
4.6 days
5.7 days
33:1000
Appears to be reaching peak.
29-NOV -20
30,000
25,000
20,000
15,000
10,000
5,000
0
21-Sep
11-Oct
31-Oct
20-Nov
10-Dec
30-Dec
19-Jan
8-Feb
28-Feb
daily
fitted


Texas
Re
beta
gamma
1.17509047
0.180783
0.153846188
4-Jan
5.5 days
6.5 days
rsq = 0.492
66:1000
Appears to have reached peak
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
12-Sep
1-Nov
21-Dec
9-Feb
31-Mar
daily
fitted


Texas
Re
beta
gamma
1.21089661
0.199509
0.164761399
26-Dec
5.0 days
6.1 days
rsq = 0.492
48:1000
Appears to have reached peak
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
12-Sep
2-Oct
22-Oct
11-Nov
1-Dec
21-Dec
10-Jan
30-Jan
19-Feb
11-Mar
31-Mar
daily
fitted

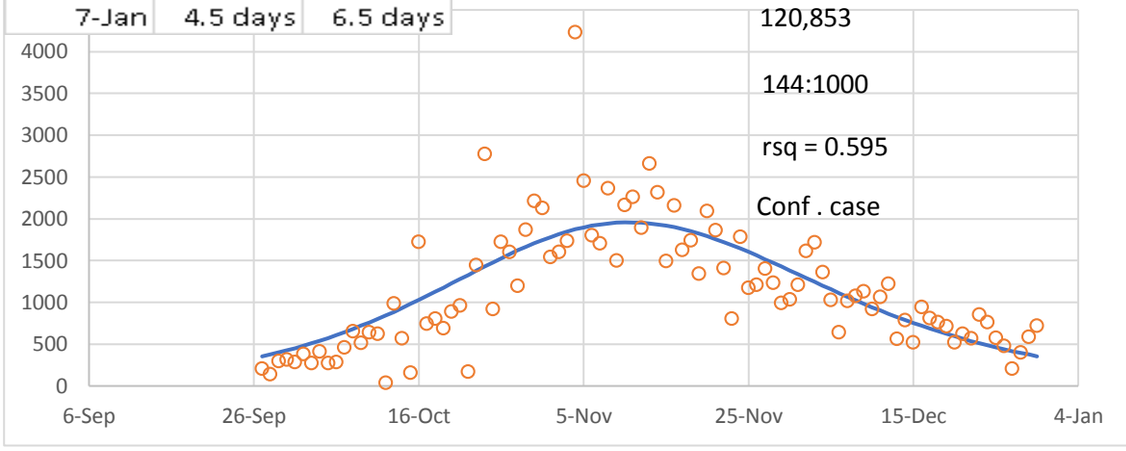
R_e	beta	gamma
1.50356	0.231317	**0.153846**
	4.3 days	6.5 days

El Paso



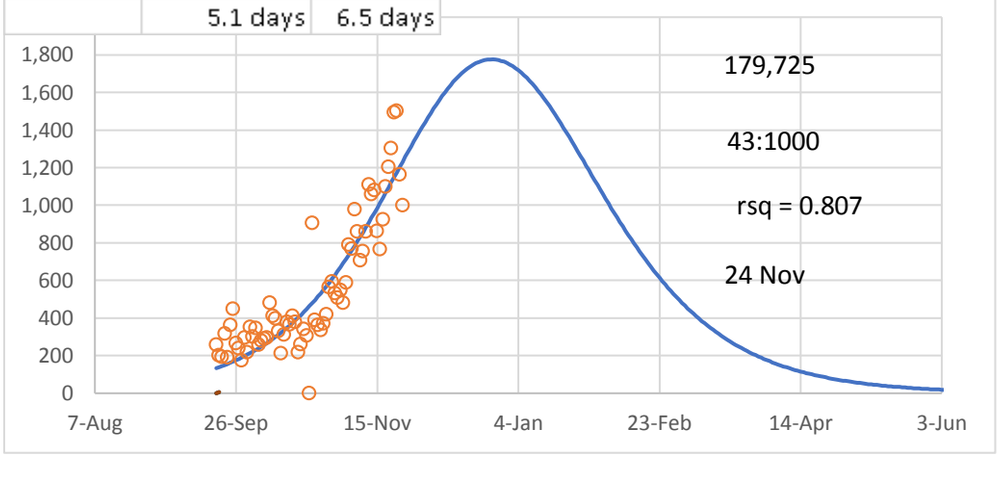
R_e	beta	gamma
1.434754	0.220731	**0.153846**
7-Jan	4.5 days	6.5 days

El Paso Conf. Cases



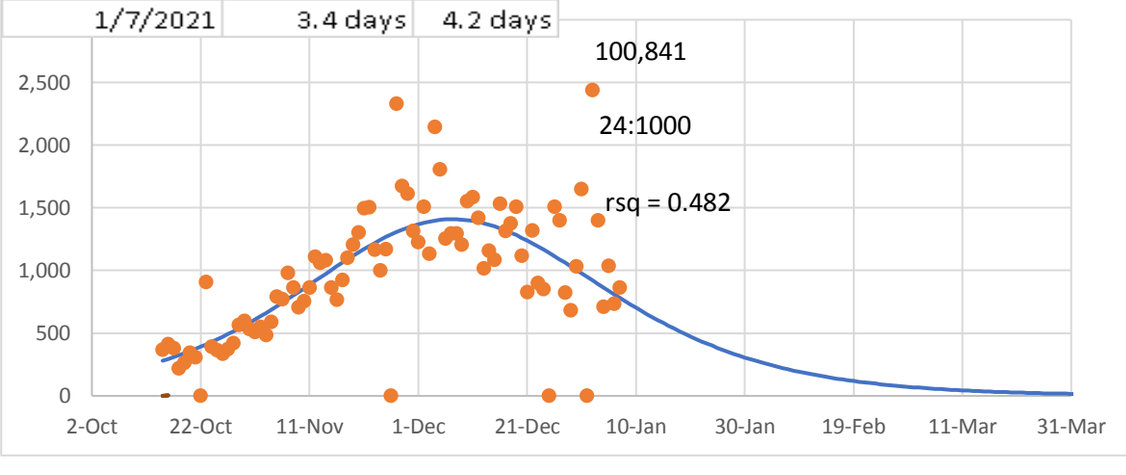
Re	beta	gamma
Ro = 1.263	0.194372482	**0.153846**
	5.1 days	6.5 days

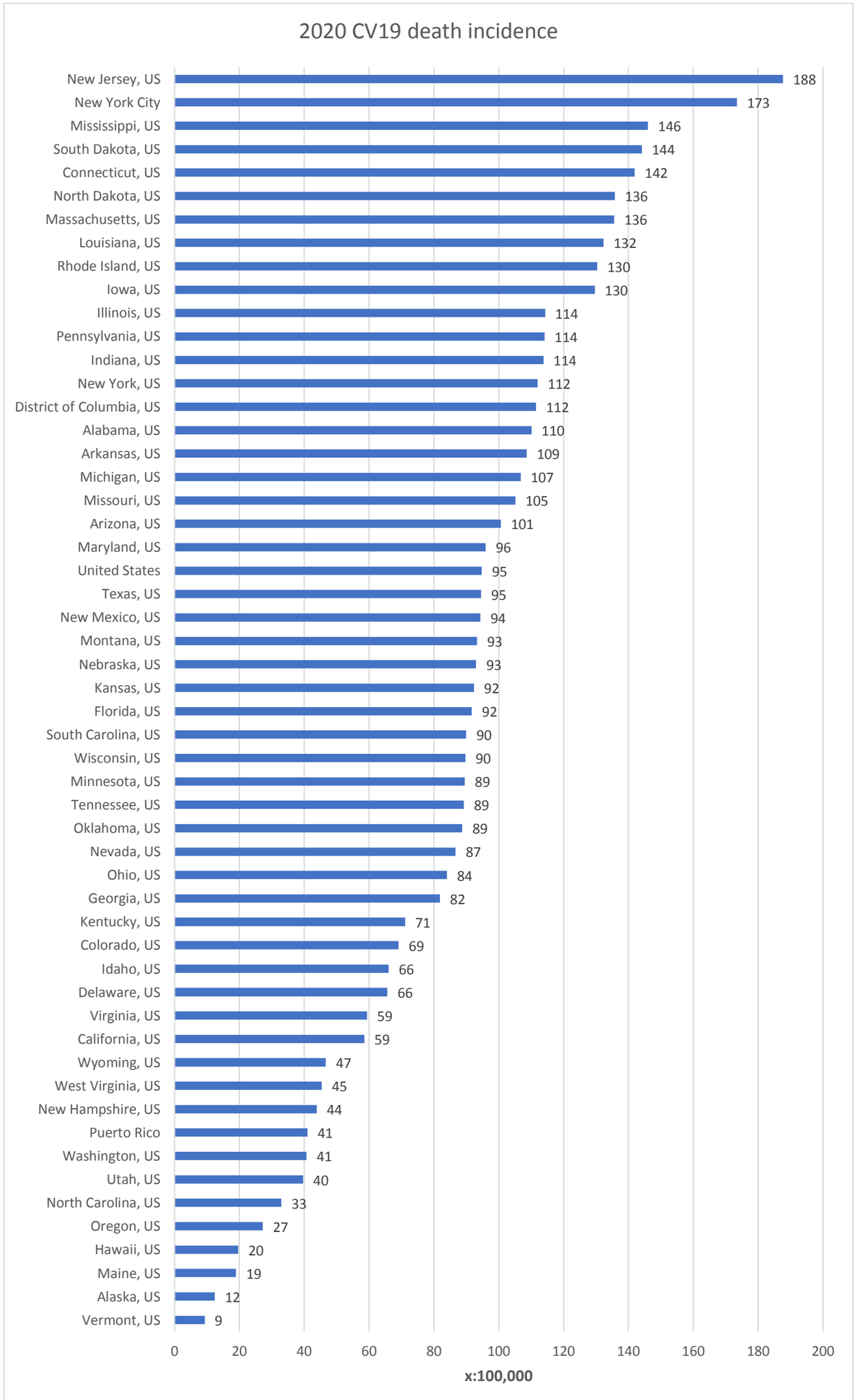
Oregon



Re	beta	gamma
Re = 1.213	0.292084136	**0.240752**
1/7/2021	3.4 days	4.2 days

Oregon





https://data.cdc.gov/NCHS/Weekly-Counts-of-Deaths-by-State-and-Select-Causes/muzy-jte6/data