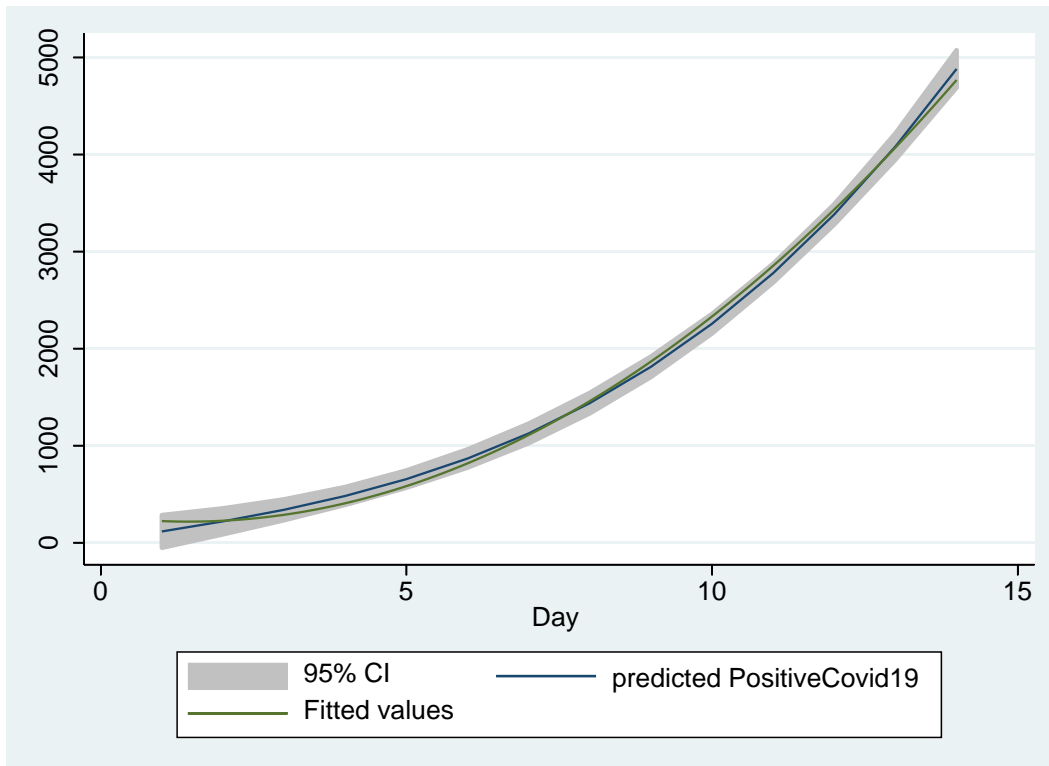


## SUPPLEMENTARY MATERIAL

Statistic calculate performed with STATA® and Microsoft Excel®

Fitting model of Covid19 Positive and Time

$$Y=ax^3 + bx^2 + cx + d$$



Computing average derivatives

Polynomial-series estimation                  Number of obs       =           15  
  Polynomial order    =            3

PositiveC~19	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
B	458.3368	16.27046	28.17	0.000	426.4473	490.2264

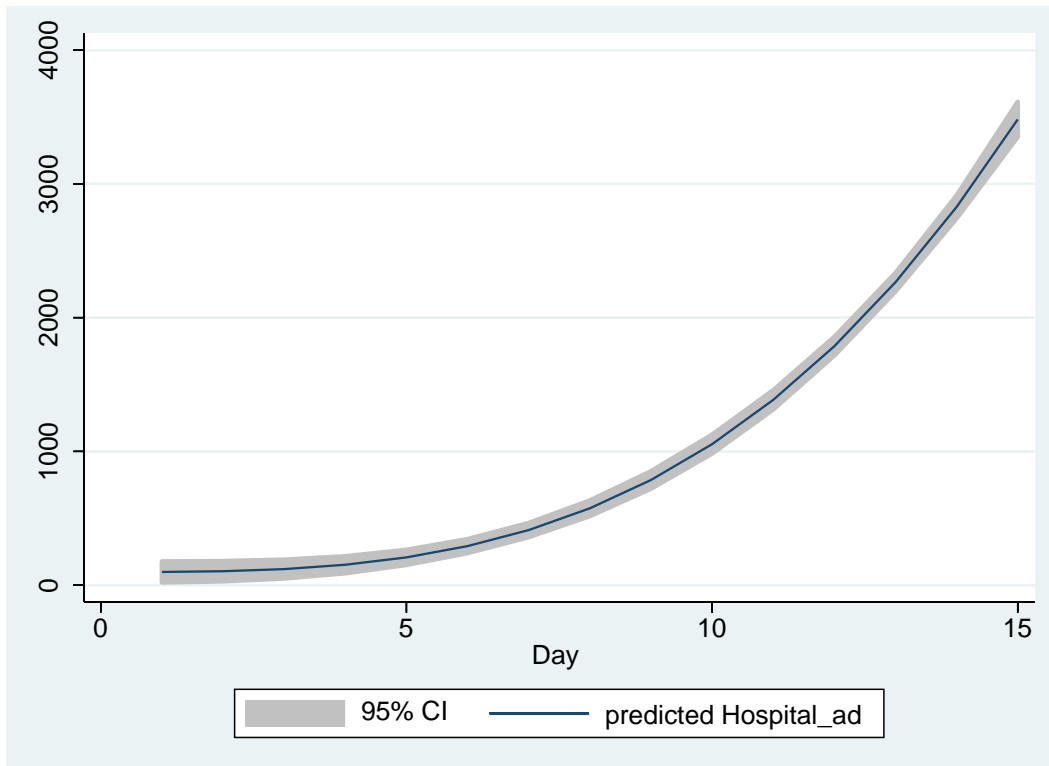
Day	Official data	Forecasts				
		Linear	Squared	Cubic	Exp	STATA
1	132	-744,7	321	39	194	38,5277
2	229	-344,8	264	224	252	223,7636
3	322	55,1	278	386	328	386,1719
4	400	455,0	361	541	426	541,2668
5	650	854,9	515	705	554	704,5625
6	888	1254,8	740	892	720	891,5732
7	1049	1654,7	1034	1118	936	1117,8131
8	1694	2054,6	1399	1399	1216	1398,7964
9	1835	2454,5	1834	1750	1580	1750,0373
10	2263	2854,4	2339	2187	2053	2187,05
11	2706	3254,3	2915	2725	2668	2725,3487
12	3296	3654,2	3560	3380	3467	3380,4476
13	3916	4054,1	4277	4168	4506	4167,8609
14	5061	4454,0	5063	5103	5856	5103,1028
15	6378	4853,9	5919	6202	7610	6201,6875

Interpolation	R squared	Coefficients			
Linear	0,8868			399,9	-1144,6
Squared	0,9876		35,129	-162,17	447,93
Cubic	0,9952	2,5857	-26,928	247,92	-185,05
Exp.	0,9765			149,48	0,262

### Fitting model

#### Hospital admission and time

$$Y = ax^3 + bx^2 + cx + d$$



Computing average derivatives

Polynomial-series estimation          Number of obs = 15  
Polynomial order = 3

Hospital_ad	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	255.7217	7.585743	33.71	0.000	240.854 270.5895

Note: Effect estimates are averages of derivatives.

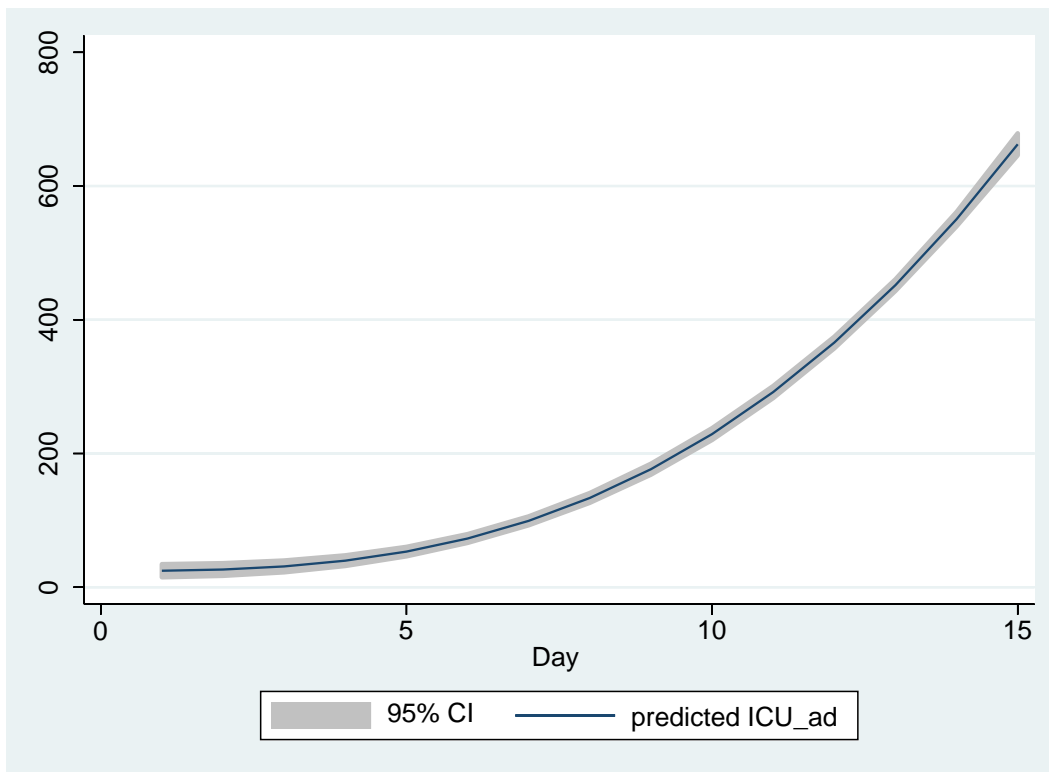
Day	Official data	Forecast				STATA
		Linear	Squared	Cubic	Exp	
1	54	-535,8	201	51	67	50,8652
2	101	-311,2	110	89	90	88,5147
3	114	-86,6	67	125	121	125,1572
4	128	138,0	73	169	163	169,0607
5	248	362,5	128	228	219	228,4932
6	345	587,1	231	312	294	311,7227
7	401	811,7	382	427	394	427,0172
8	639	1036,3	583	583	530	582,6447
9	742	1260,9	832	787	711	786,8732
10	1034	1485,4	1129	1048	955	1047,9707
11	1346	1710,0	1475	1374	1283	1374,2052
12	1790	1934,6	1870	1774	1723	1773,8447
13	2394	2159,2	2313	2255	2314	2255,1572
14	2651	2383,8	2805	2826	3108	2826,4107
15	3557	2608,3	3345	3496	4174	3495,8732

Interpolation	R squared	Coefficients			
Linear	0,844			224,58	-760,36
Squared	0,9897		24,301	-164,24	341,28
Cubic	0,9962	1,378	-8,7715	54,318	3,9407
Exp.	0,9893			50,058	0,2949

## Fitting model

### ICU admission and Time

$$Y = ax^3 + bx^2 + cx + d$$



Computing average derivatives

Polynomial-series estimation                      Number of obs         =         15  
    Polynomial order      =         3

ICU_ad	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	46.22581	1.160168	39.84	0.000	43.95192    48.4997

Note: Effect estimates are averages of derivatives.

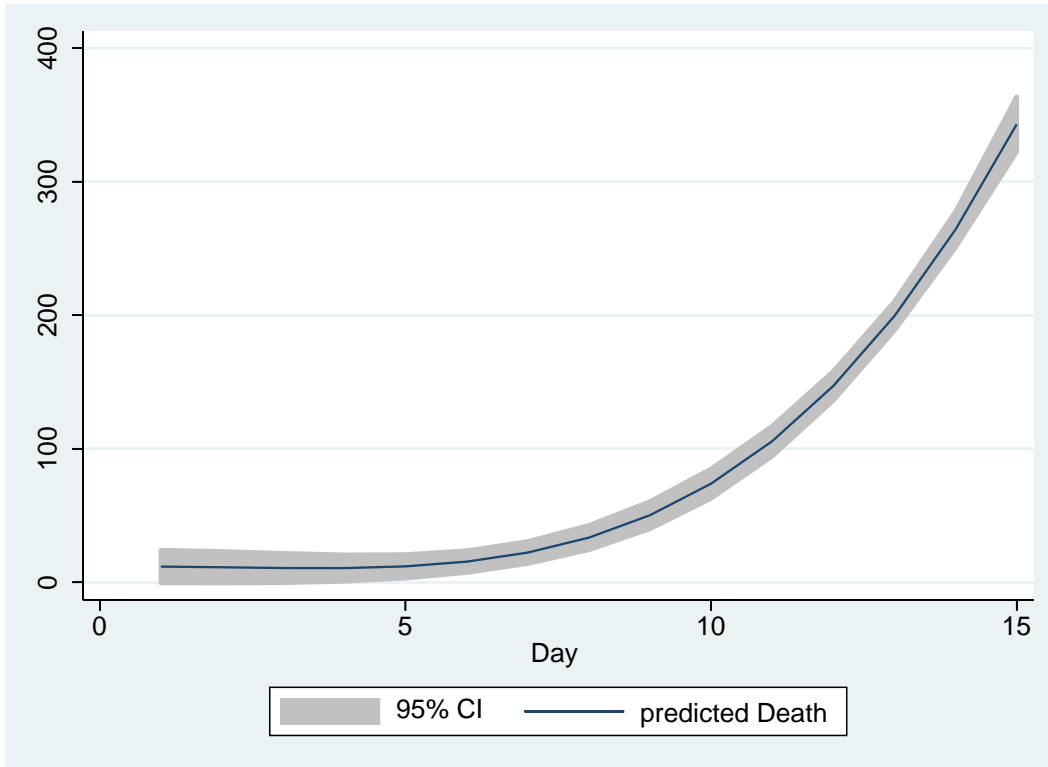
Day	Official data	Forecast				
		Linear	Squared	Cubic	Exp	STATA
1	26	-88,8	42	28	21	27,8677
2	27	-45,6	29	27	28	27,2578
3	35	-2,3	25	31	36	30,5553
4	36	40,9	29	39	46	38,5492
5	56	84,2	42	52	59	52,0285
6	64	127,4	64	72	76	71,7822
7	105	170,7	94	99	98	98,5993
8	140	213,9	133	133	126	133,2688
9	166	257,2	181	177	162	176,5797
10	229	300,4	237	229	209	229,321
11	295	343,7	302	292	269	292,2817
12	351	386,9	375	366	346	366,2508
13	462	430,2	458	452	446	452
14	567	473,5	548	550	574	550,3702
15	650	516,7	648	662	739	662,0985

Interpolation	R squared	Coefficients			
Linear	0,8688			43,254	-132,1
Squared	0,9966		4,321	-25,883	63,791
Cubic	0,9982	0,1315	1,1647	-5,0245	31,596
Exp.	0,9901			16,638	0,2529

### Fitting model

$$Y = ax^3 + bx^2 + cx + d$$

### Death and Time



Computing average derivatives

Polynomial-series estimation                      Number of obs        =                15  
    Polynomial order    =                3

Death	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	26.41951	1.984036	13.32	0.000	22.53087    30.30815

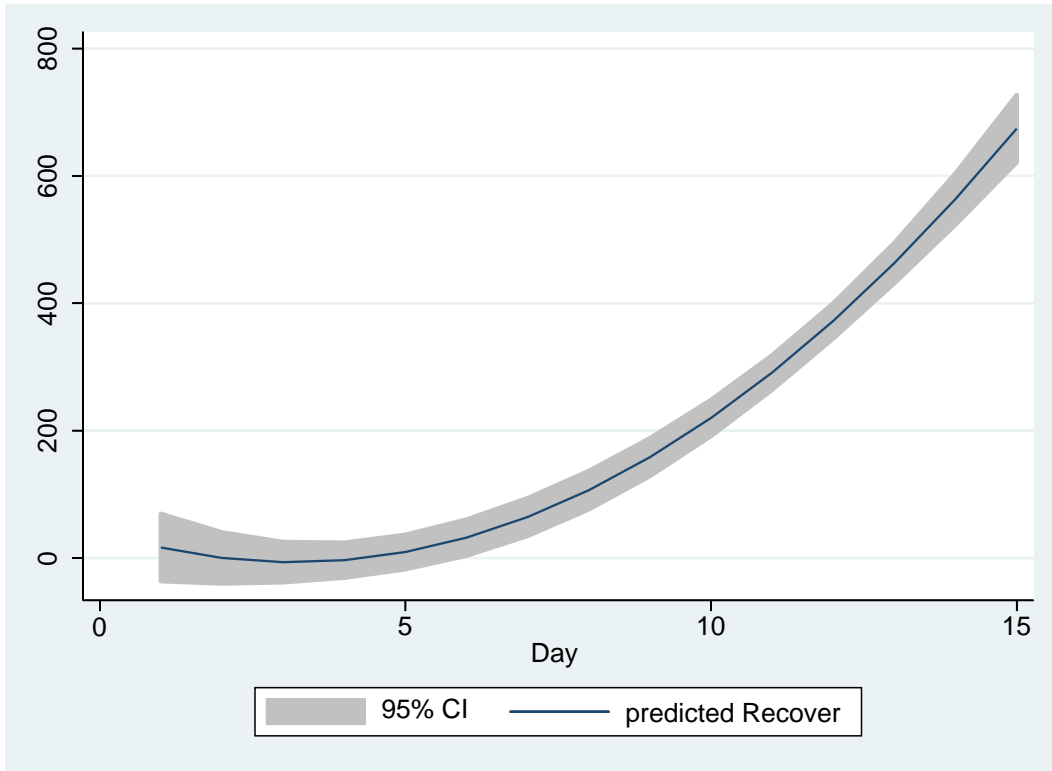
Note: Effect estimates are averages of derivatives.

Day	Official data	Forecast				
		Linear	Squared	Cubic	Exp	STATA
1	5	-57,4	28	0	5	0,1741
2	6	-36,7	12	8	6	8,0582
3	10	-16,0	2	12	8	12,4315
4	12	4,7	-3	15	12	14,8162
5	12	25,3	-2	17	16	16,7345
6	21	46,0	5	20	21	19,7086
7	29	66,7	17	25	29	25,2607
8	34	87,4	35	35	40	34,913
9	52	108,1	58	50	54	50,1877
10	79	128,8	88	73	74	72,607
11	107	149,5	122	104	101	103,6931
12	148	170,1	163	145	137	144,9682
13	197	190,8	209	198	187	197,9545
14	233	211,5	260	264	255	264,1742
15	366	232,2	317	345	348	345,1495

Interpolation	R squared	Coefficients			
Linear	0,7599			20,686	-78,086
Squared	0,9668		2,8114	-24,297	49,365
Cubic	0,9902	0,2537	-3,2776	15,941	-12,743
Exp.	0,9939			3,3328	0,3098



### Fitting model Recover and Time



Computing average derivatives

Polynomial-series estimation      Number of obs = 15  
 Polynomial order = 3

Recover	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	46.88535	4.679378	10.02	0.000	37.71393    56.05676

Note: Effect estimates are averages of derivatives.

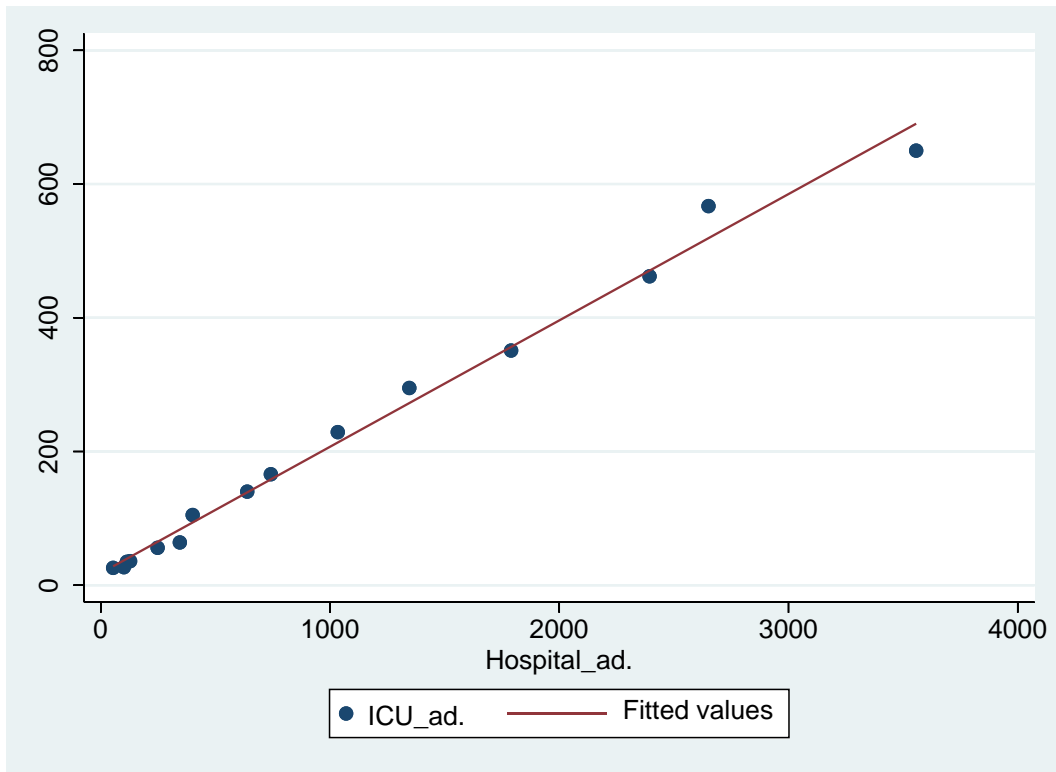
Day	Official data	Forecast				
		Linear	Squared	Cubic	Exp	STATA
1	0	-131,4	16	17	0	16,9293
2	1	-84,4	0	0	0	0,1236
3	1	-37,5	-7	-7	0	-6,7715
4	3	9,5	-3	-4	0	-3,7824
5	45	56,5	9	9	0	9,0645
6	46	103,5	32	32	0	31,7428
7	50	150,5	64	64	0	64,2261
8	83	197,5	106	106	0	106,488
9	149	244,5	158	159	0	158,5021
10	160	291,4	220	220	0	220,242
11	276	338,4	291	292	0	291,6813
12	414	385,4	372	373	0	372,7936
13	523	432,4	463	464	0	463,5525
14	589	479,4	564	564	0	563,9316
15	622	526,4	674	674	0	673,9045

Interpolation	R squared	Coefficients			
Linear	0,8452			46,986	-178,42
Squared	0,9793		4,8751	-31,016	42,585
Cubic	0,9793	-0,0044	4,9817	-31,72	43,672
Exp.					

## Fitting model

### ICU vs Hospital ad

$$Y=ax+b$$



```
. regress ICU_ad Hospital_ad
```

Source	SS	df	MS	Number of obs	=	15
Model	597350.793	1	597350.793	F(1, 13)	=	1392.64
Residual	5576.14077	13	428.933905	Prob > F	=	0.0000
Total	602926.933	14	43066.2095	R-squared	=	0.9908
				Adj R-squared	=	0.9900
				Root MSE	=	20.711

ICU_ad	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Hospital_ad	.1889516	.0050633	37.32	0.000	.1780131	.1998902
_cons	18.12906	7.491698	2.42	0.031	1.944227	34.31389

```
. twoway (scatter ICU_ad Hospital_ad) (lfit ICU_ad Hospital_ad)
```

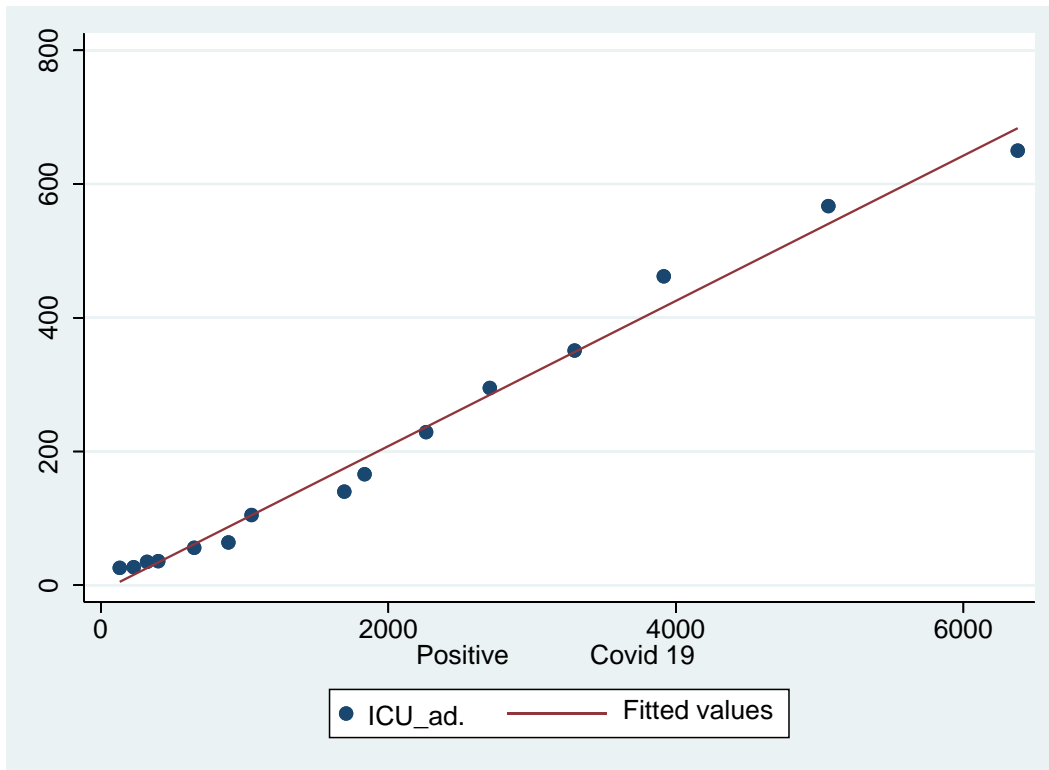
Day	Official Data		Forecasts	
	Positive	ICU	Linear	Squared
1	54	26	28,3	17
2	101	27	37,2	28
3	114	35	39,7	31
4	128	36	42,3	34
5	248	56	65,0	61
6	345	64	83,3	82
7	401	105	93,9	94
8	639	140	138,9	146
9	742	166	158,4	167
10	1034	229	213,6	228
11	1346	295	272,5	291
12	1790	351	356,4	378
13	2394	462	470,6	489
14	2651	567	519,2	534
15	3557	650	690,4	683

Interpolation	R Squared	Coefficients		
Linear	0,9908		0,189	18,129
Squared	0,9942	-1,00E-05	0,2261	5,1106
Exponential				

## Fitting model

### ICU and Positive

$$Y=ax+b$$



```
. regress ICU_ad PositiveCovid19
```

Source	SS	df	MS	Number of obs	=	15
Model	595814.107	1	595814.107	F(1, 13)	=	1088.96
Residual	7112.82622	13	547.140479	Prob > F	=	0.0000
				R-squared	=	0.9882
				Adj R-squared	=	0.9873
Total	602926.933	14	43066.2095	Root MSE	=	23.391

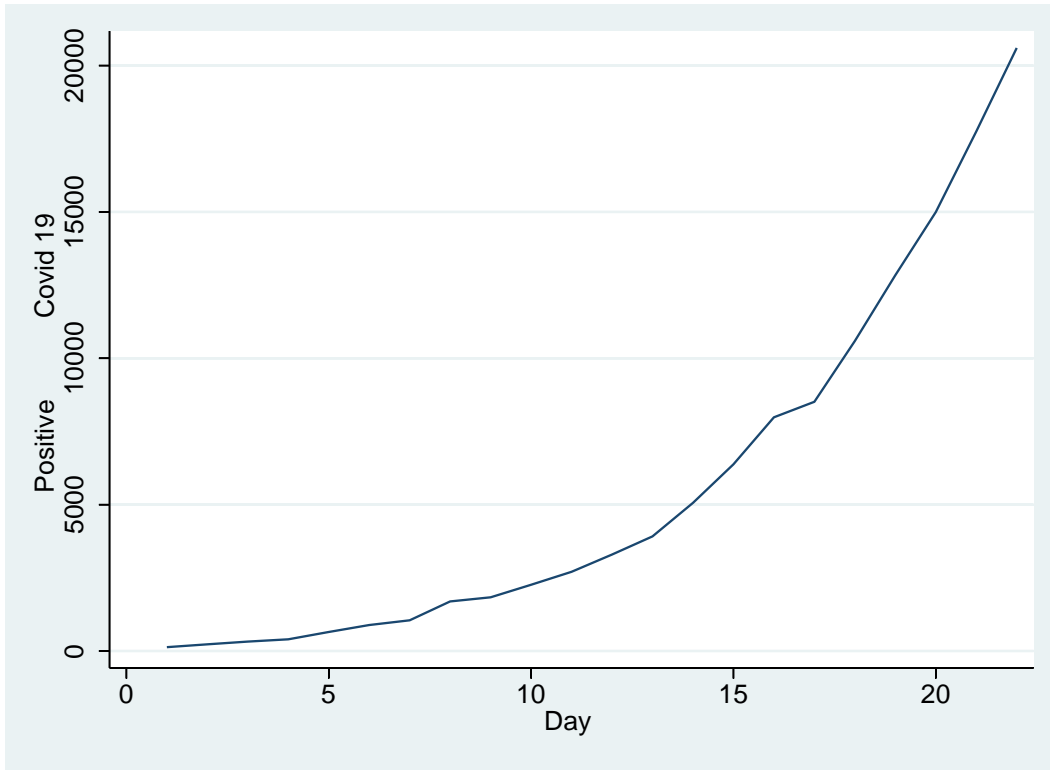
ICU_ad	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
PositiveCovid19	.1086243	.0032917	33.00	0.000	.101513	.1157356
_cons	-9.246065	9.067306	-1.02	0.326	-28.83479	10.34266

Day	Official Data		Forecasts	
	Positive	ICU	Linear	Squared
1	132	26	5,1	2
2	229	27	15,6	13
3	322	35	25,7	24
4	400	36	34,2	33
5	650	56	61,3	61
6	888	64	87,2	87
7	1049	105	104,7	105
8	1694	140	174,7	177
9	1835	166	190,0	192
10	2263	229	236,5	239
11	2706	295	284,6	288
12	3296	351	348,7	352
13	3916	462	416,0	419
14	5061	567	540,4	541
15	6378	650	683,4	679

Interpolation	R Squared	Coefficients		
Linear	0,9882		0,1086	-9,2461
Squared	0,9883	-7,00E-07	0,1128	-12,422
Exponential				

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Update from March 15 2020 to March 22 2020

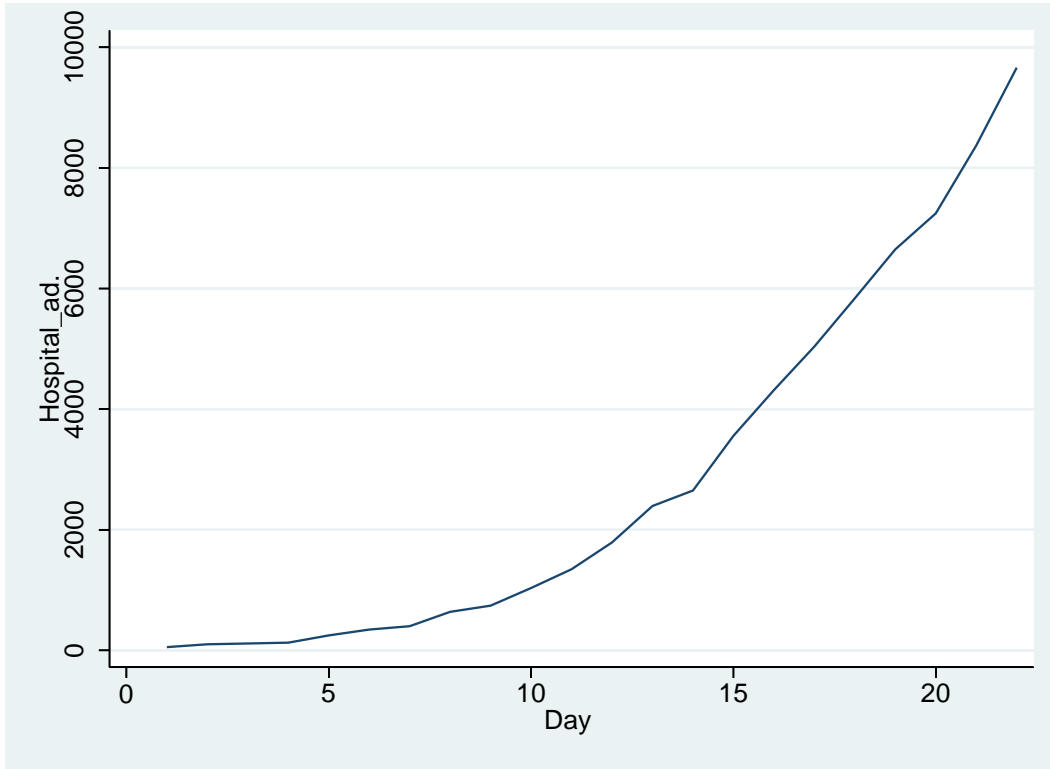


Computing average derivatives

Polynomial-series estimation                      Number of obs     =             22  
    Polynomial order   =             3

PositiveC~19	Effect	Robust		z	P> z	[95% Conf. Interval]
		Std. Err.				
B	1011.097	9.963207		101.48	0.000	991.5692    1030.624

Note: Effect estimates are averages of derivatives.



Computing approximating function

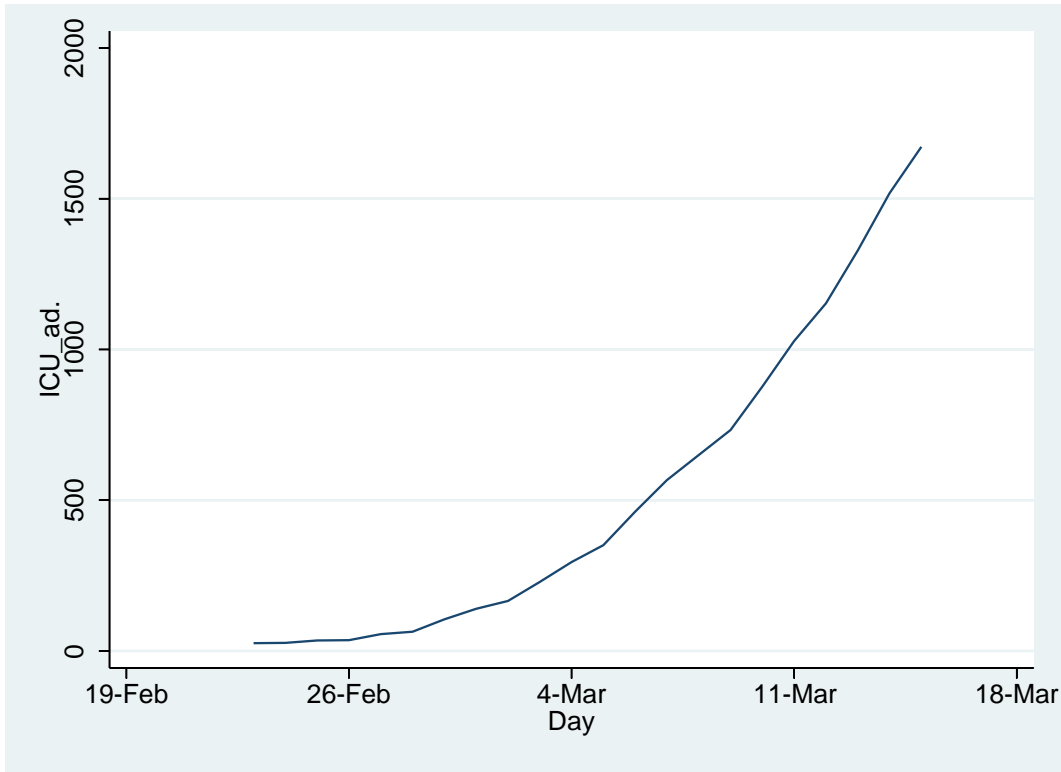
Computing average derivatives

Polynomial-series estimation                      Number of obs    =            22  
   Polynomial order =            3

Hospital_ad	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	452.1252	7.127008	63.44	0.000	438.1566    466.0939

Note: Effect estimates are averages of derivatives.

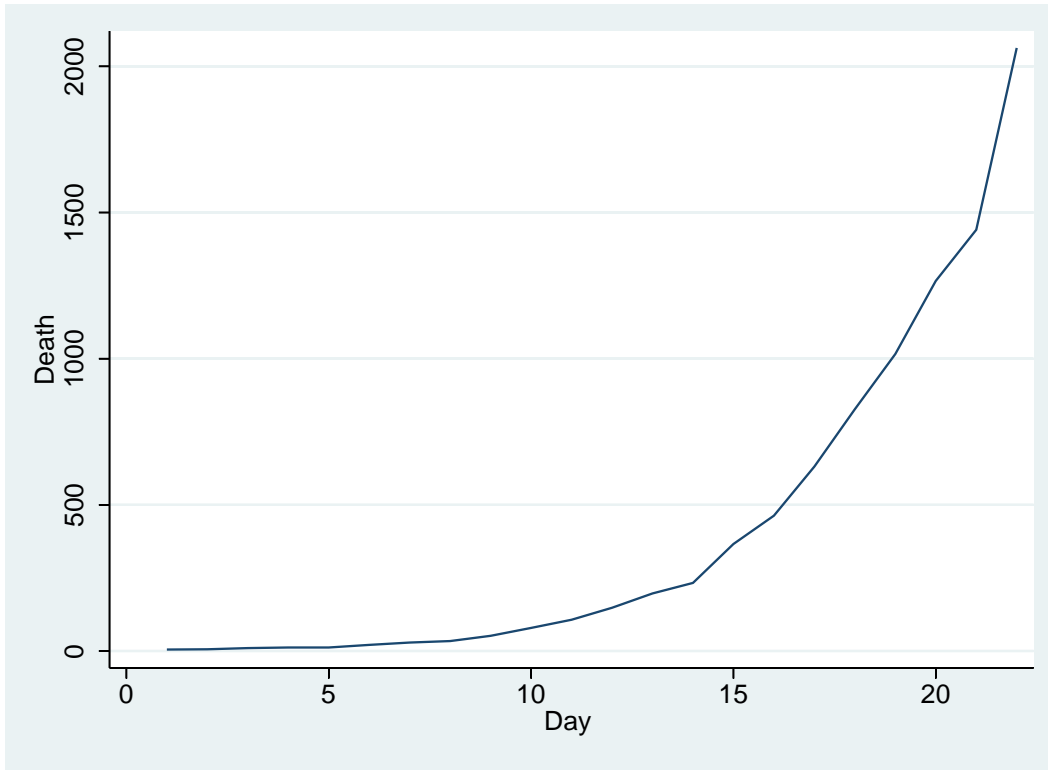




Polynomial-series estimation

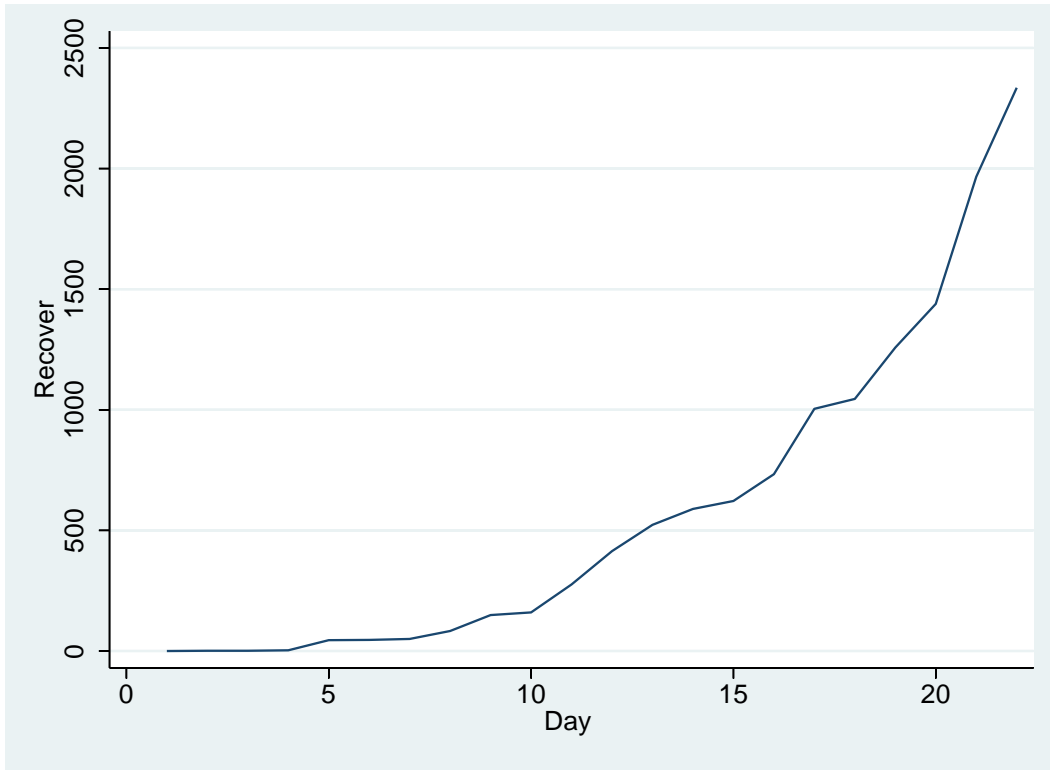
Number of obs = 22  
 Polynomial order = 3

ICU_ad	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	79.34285	.770338	103.00	0.000	77.83302 80.85269



Death	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]
B	98.55183	6.213871	15.86	0.000	86.37287 110.7308

Note: Effect estimates are averages of derivatives.



Computing average derivatives

Polynomial-series estimation                      Number of obs        =            22  
    Polynomial order    =            3

Recover	Effect	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
B	111.5226	5.433796	20.52	0.000	100.8726	122.1727

Note: Effect estimates are averages of derivatives.