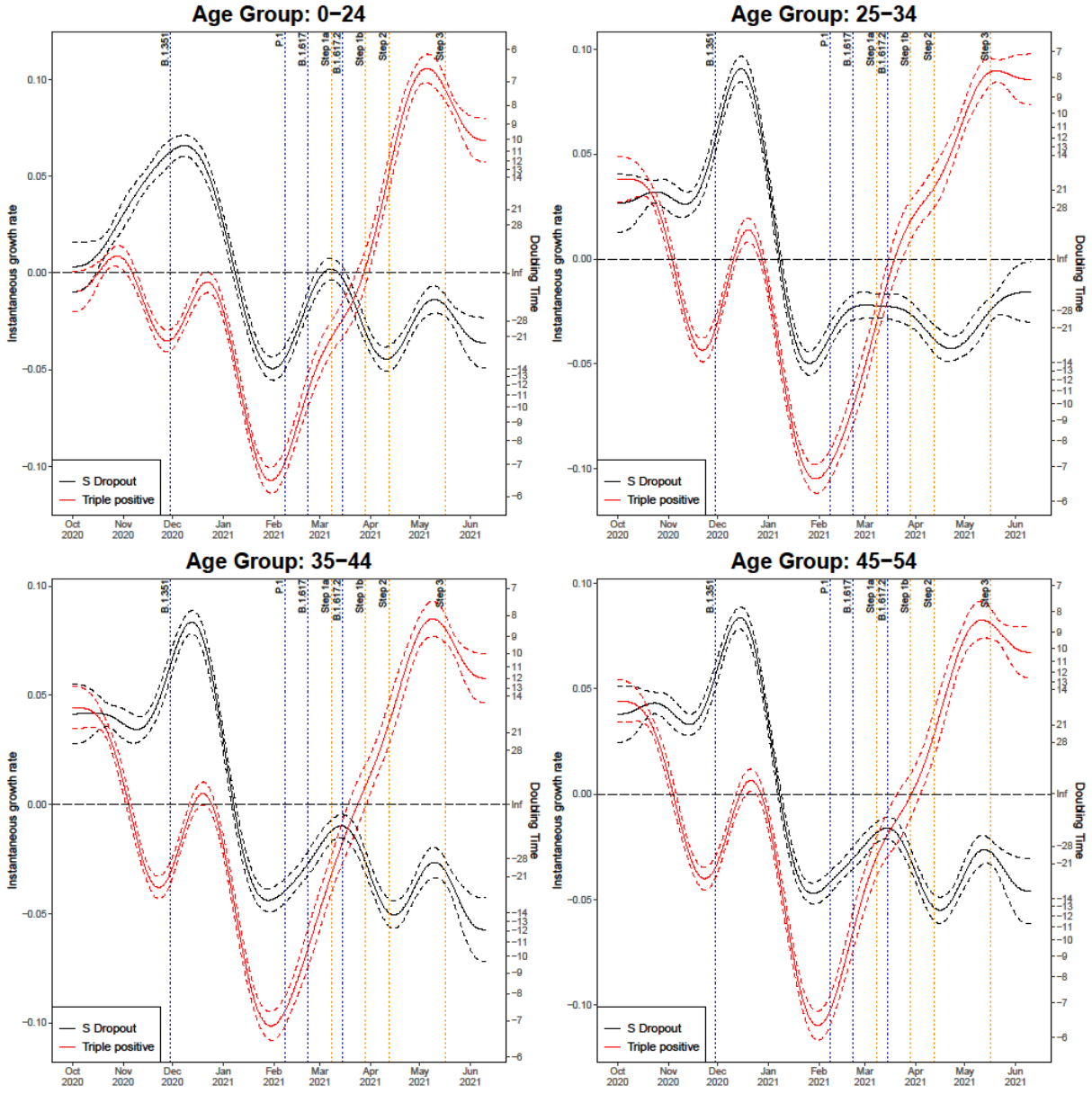
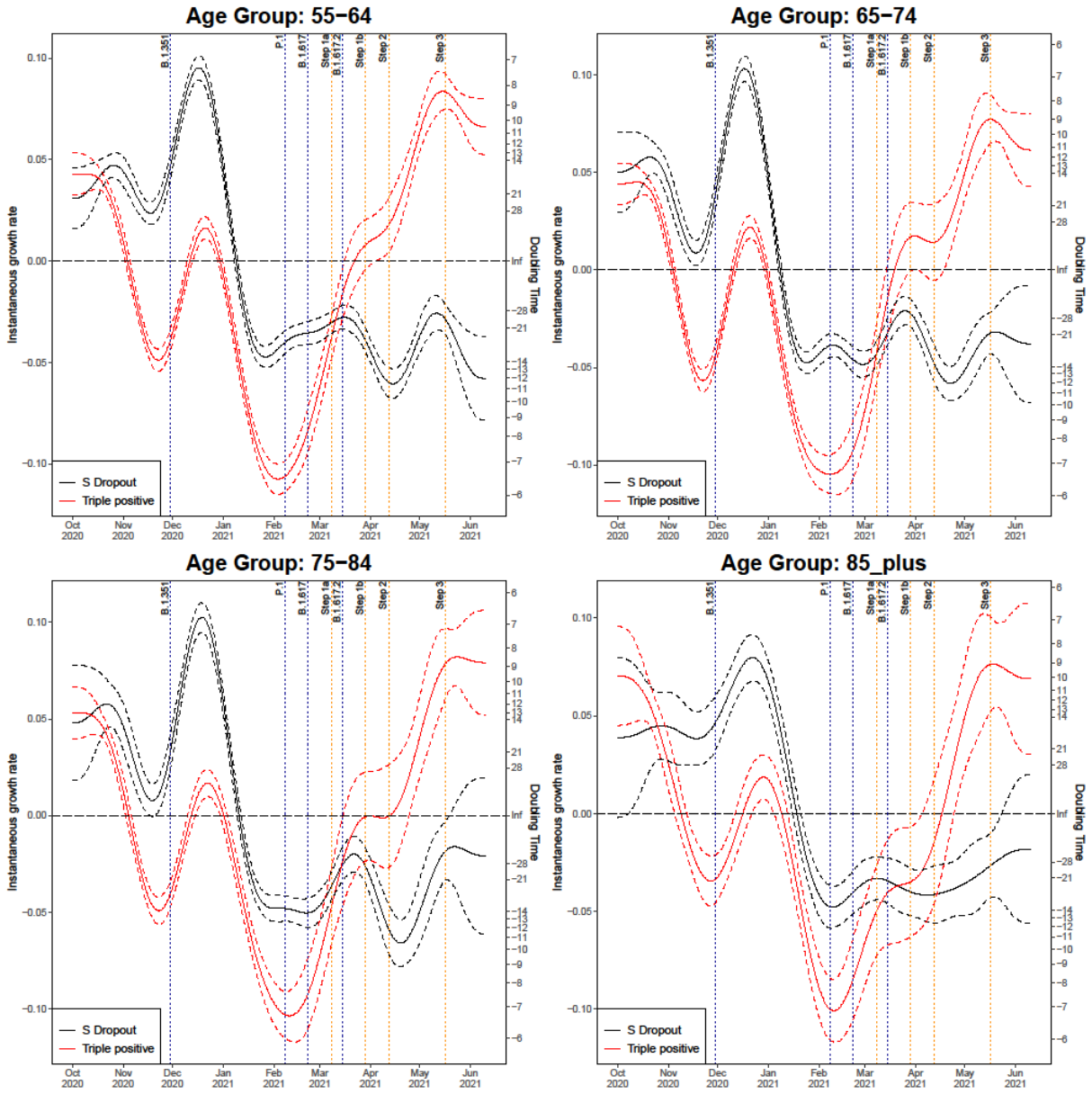
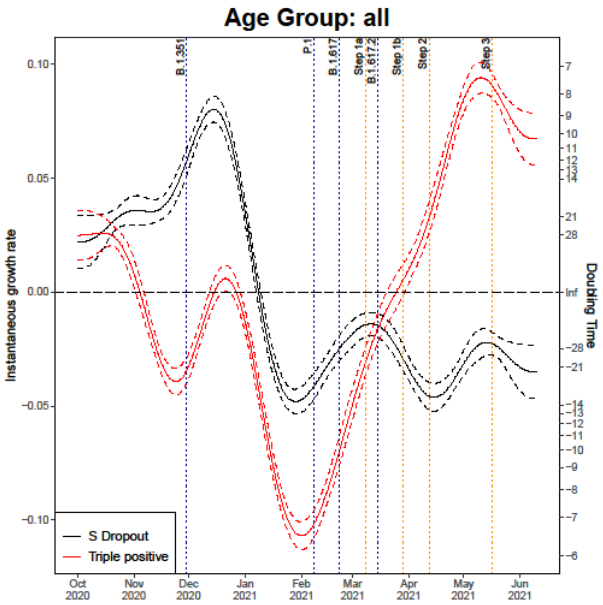
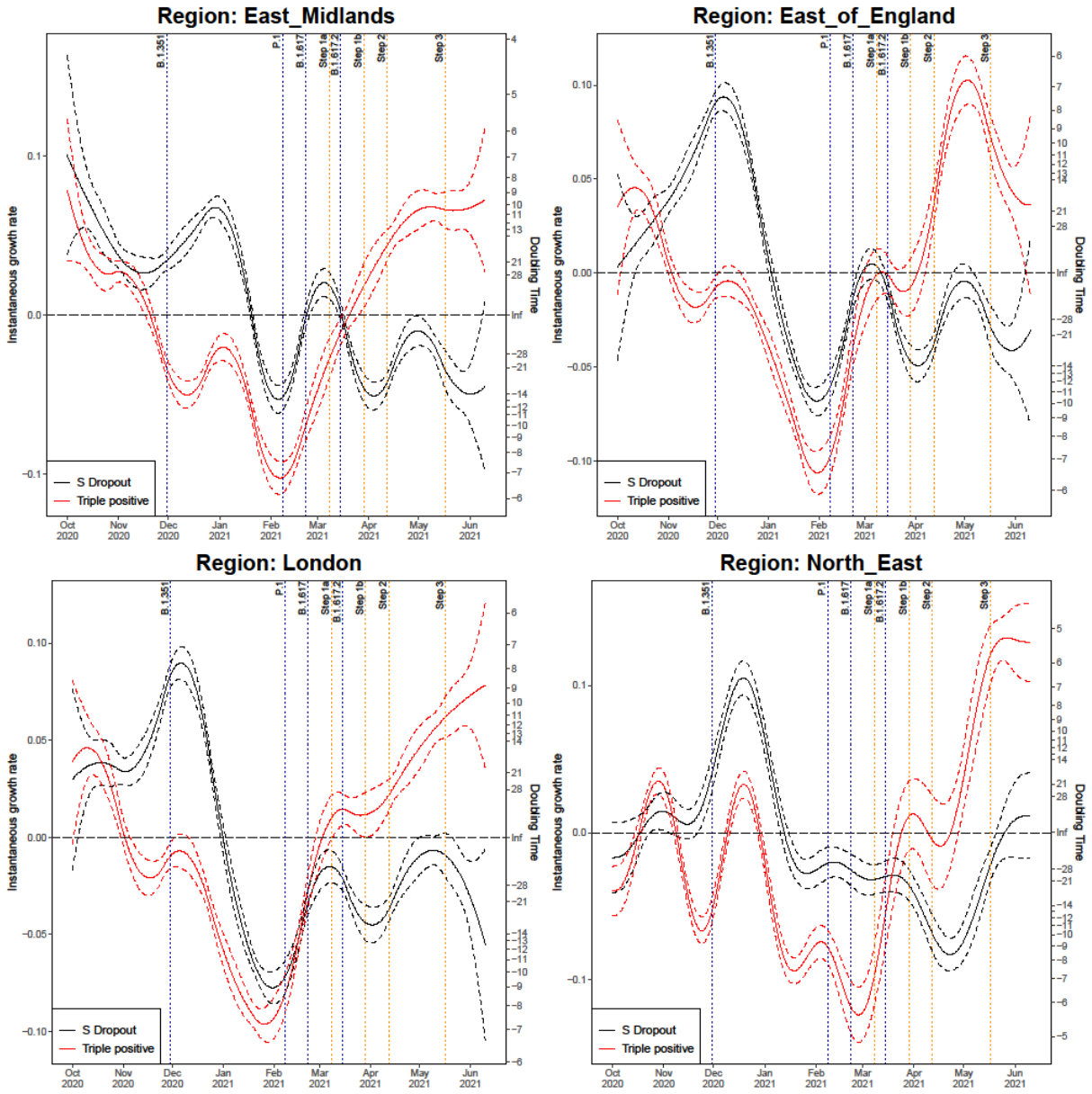
Appendix A: Cases Age Groups

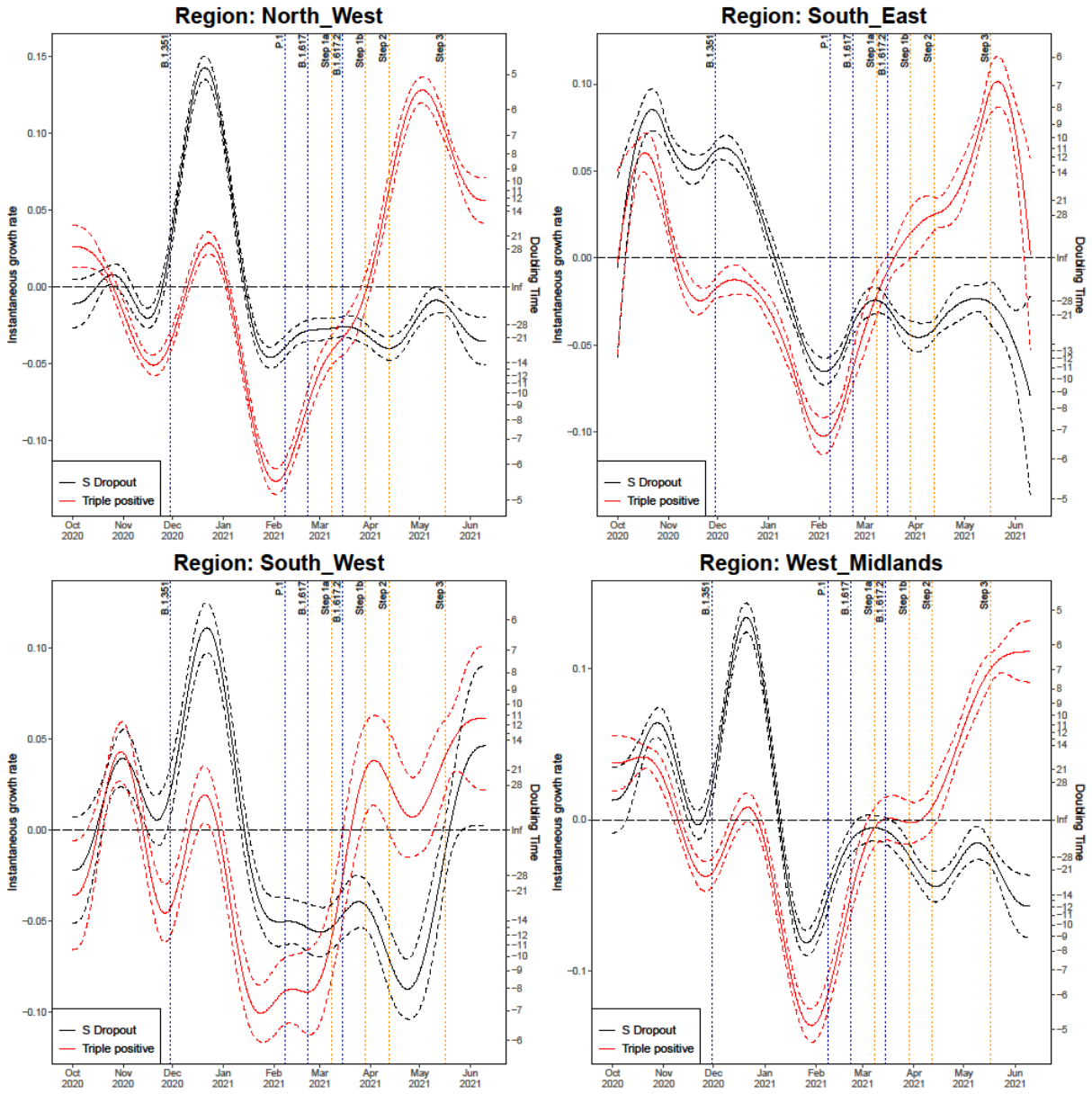


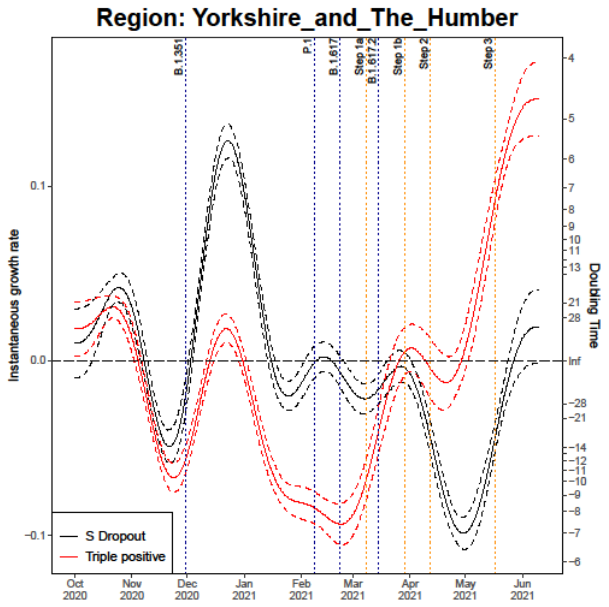

Age Group: 55−64
Age Group: 65−74
Age Group: 75−84
Age Group: 85_plus
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021



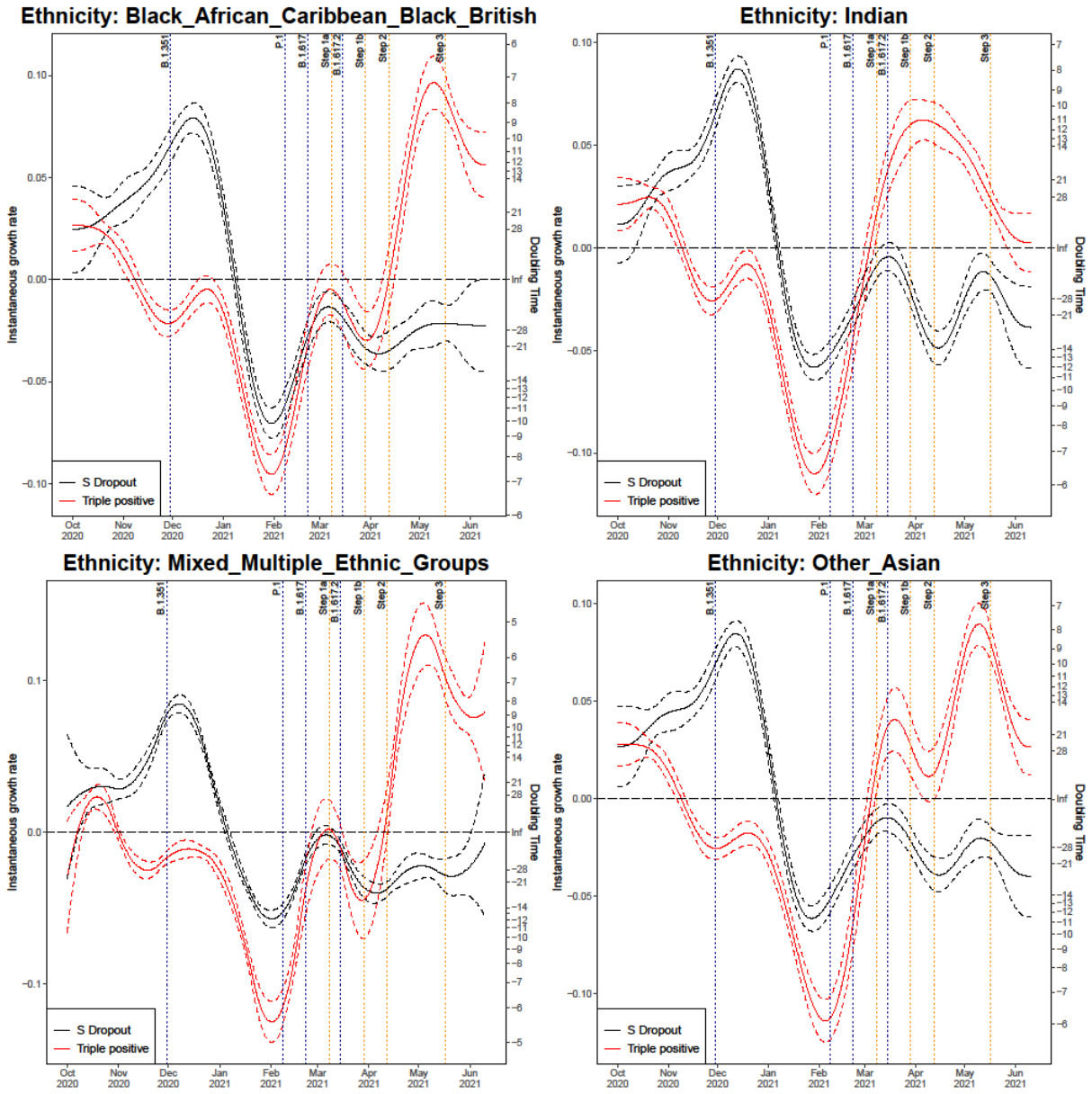
Appendix B: Cases Regions

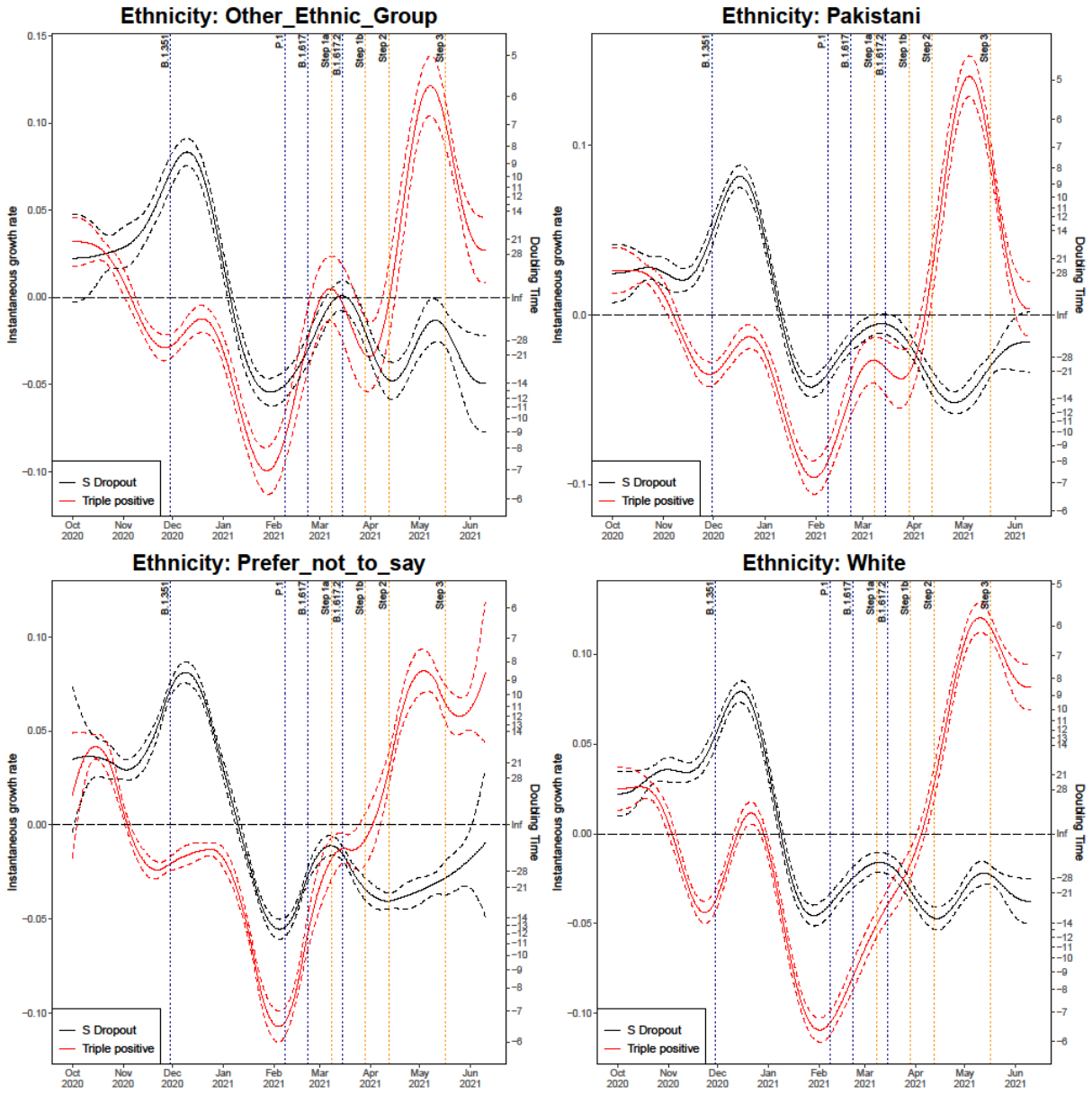

Region: East_Midlands
Region: East_of_England
Region: London
Region: North_East
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021


Region: North_West
Region: South_East
Region: South_West
Region: West_Midlands
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

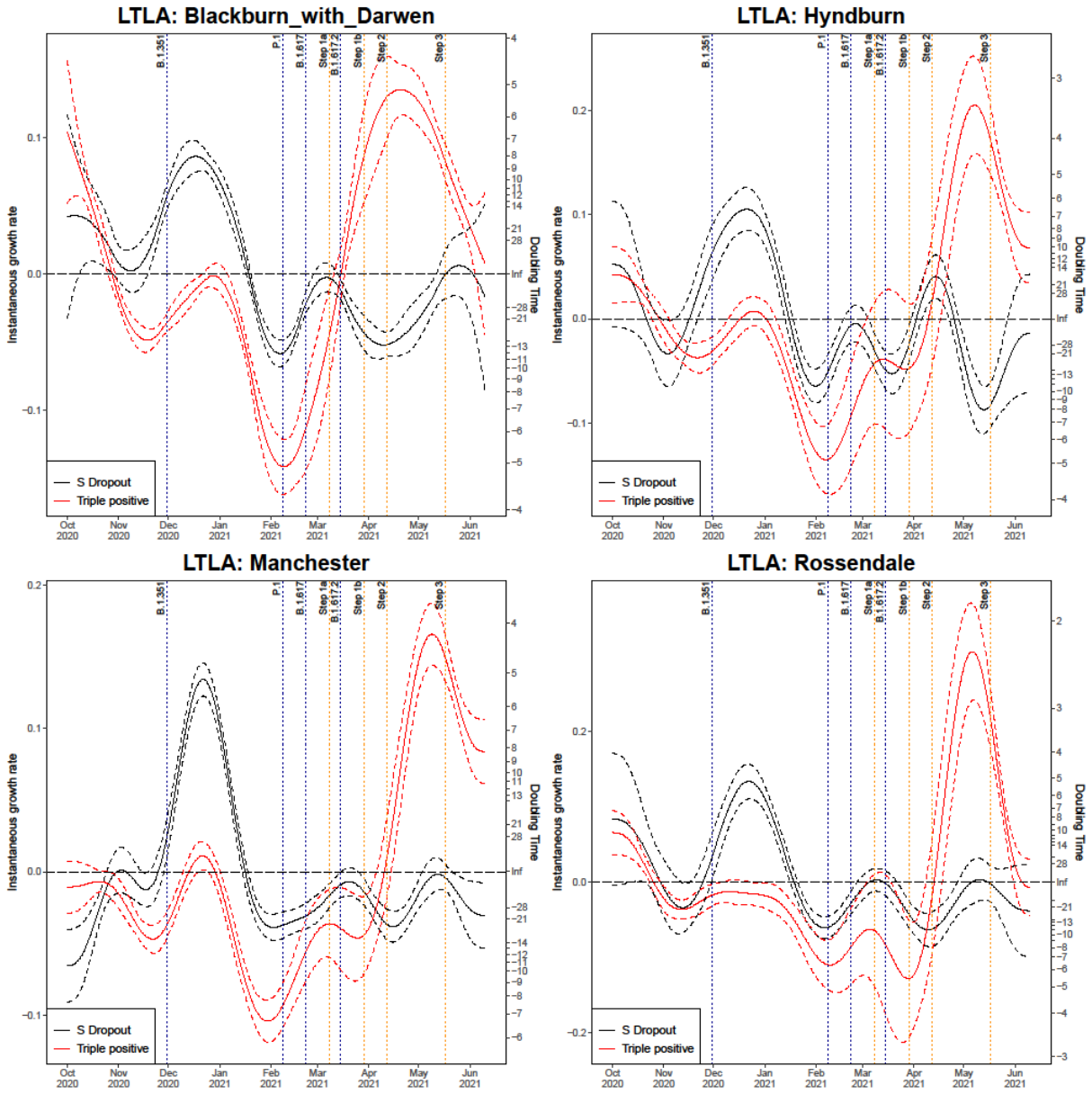


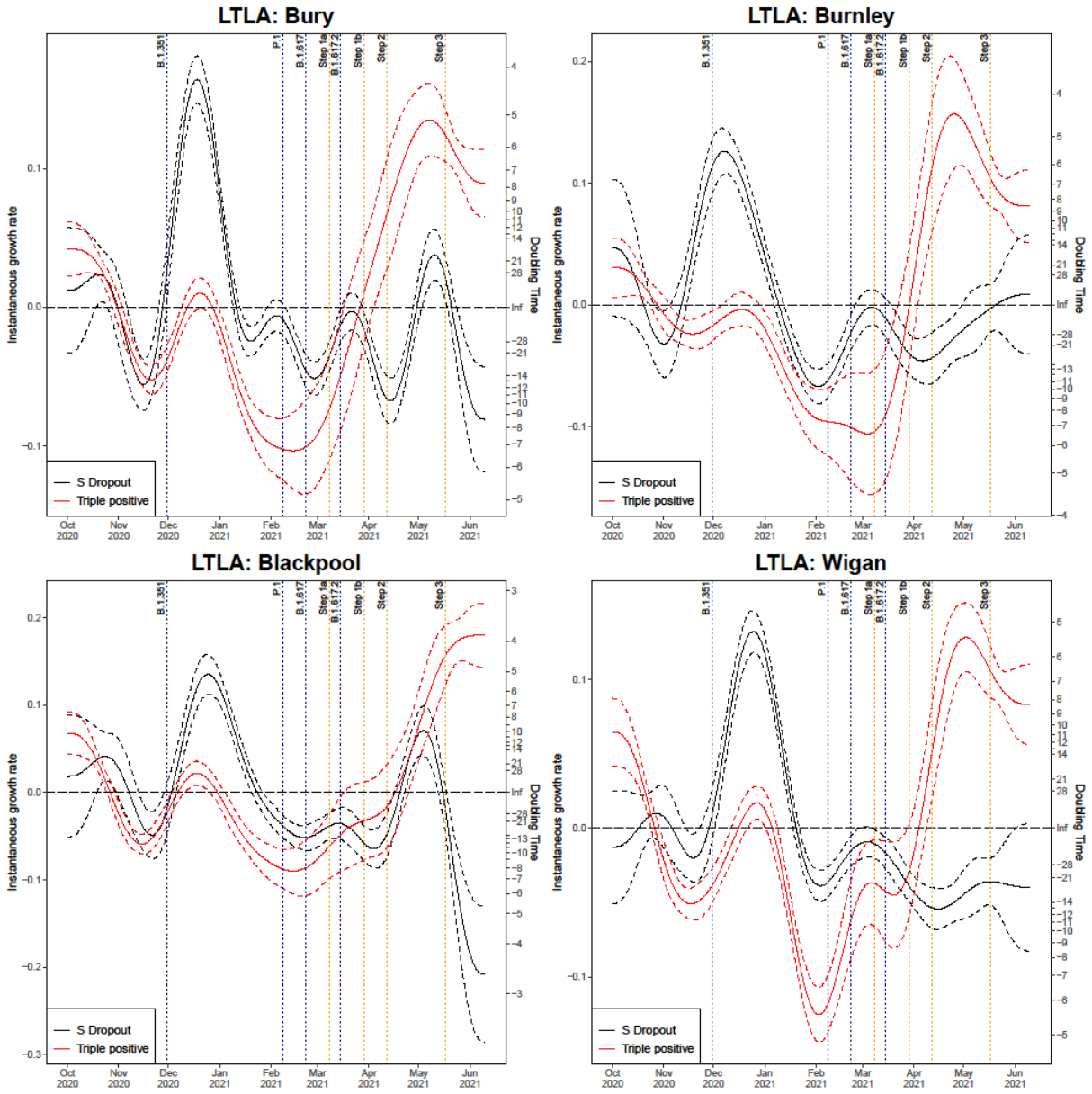
Appendix C: Cases Ethnicity

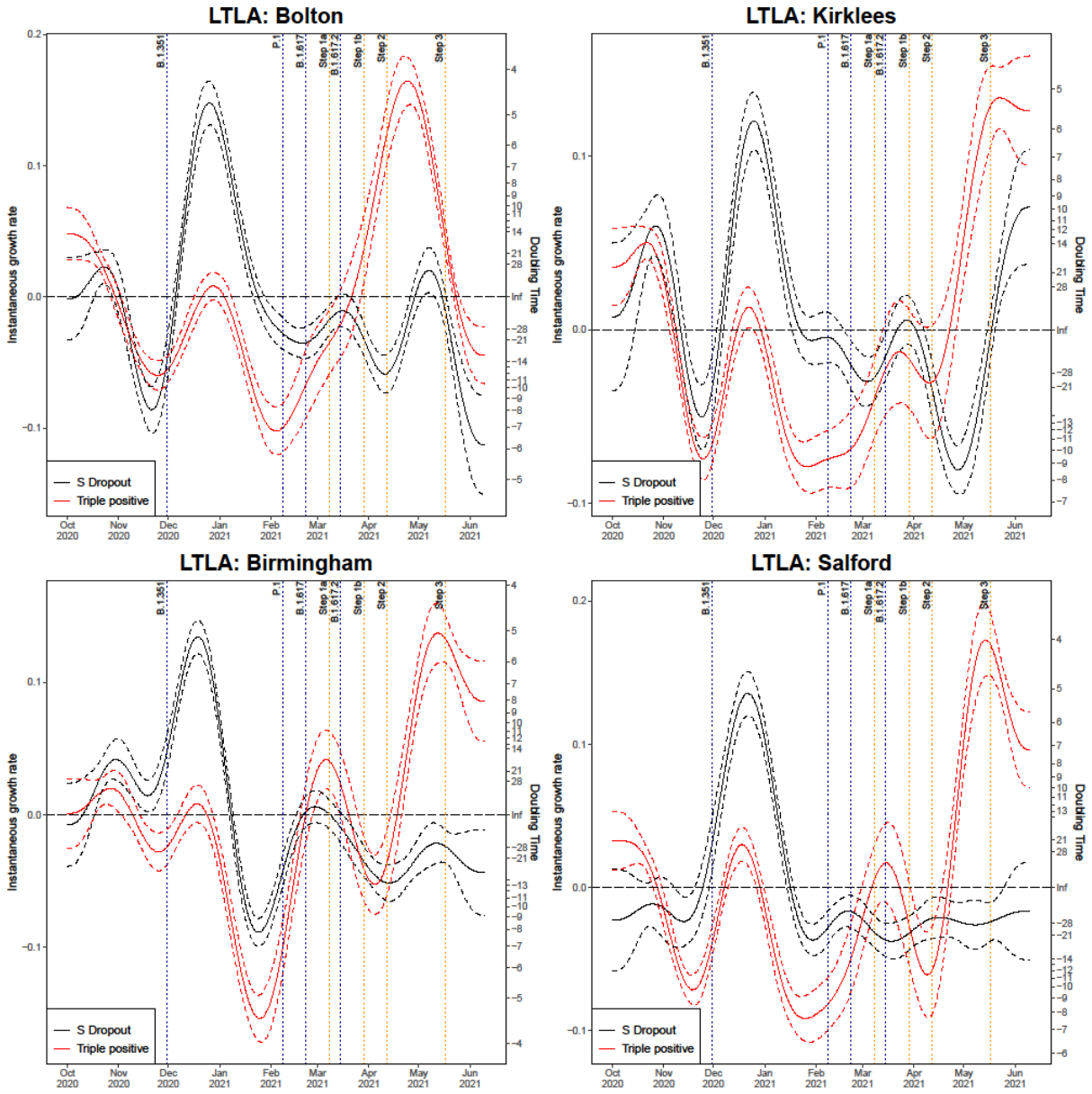

Ethnicity: Black_African_Caribbean_Black_British
Ethnicity: Indian
Ethnicity: Mixed_Multiple_Ethnic_Groups
Ethnicity: Other_Asian
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

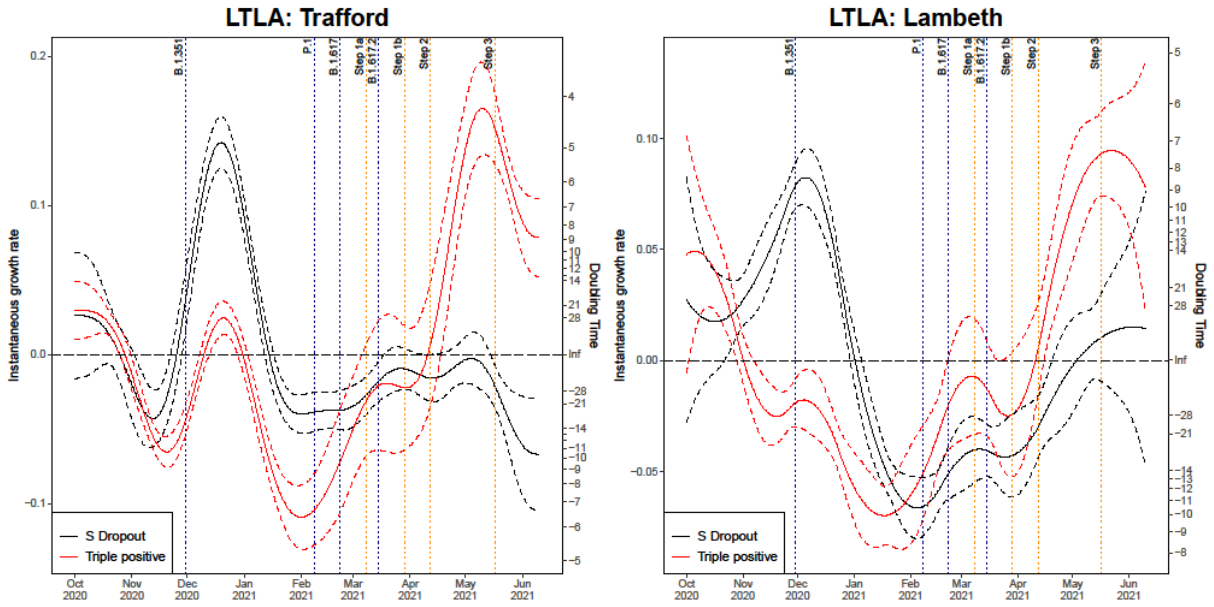


Appendix D: Cases LTLA

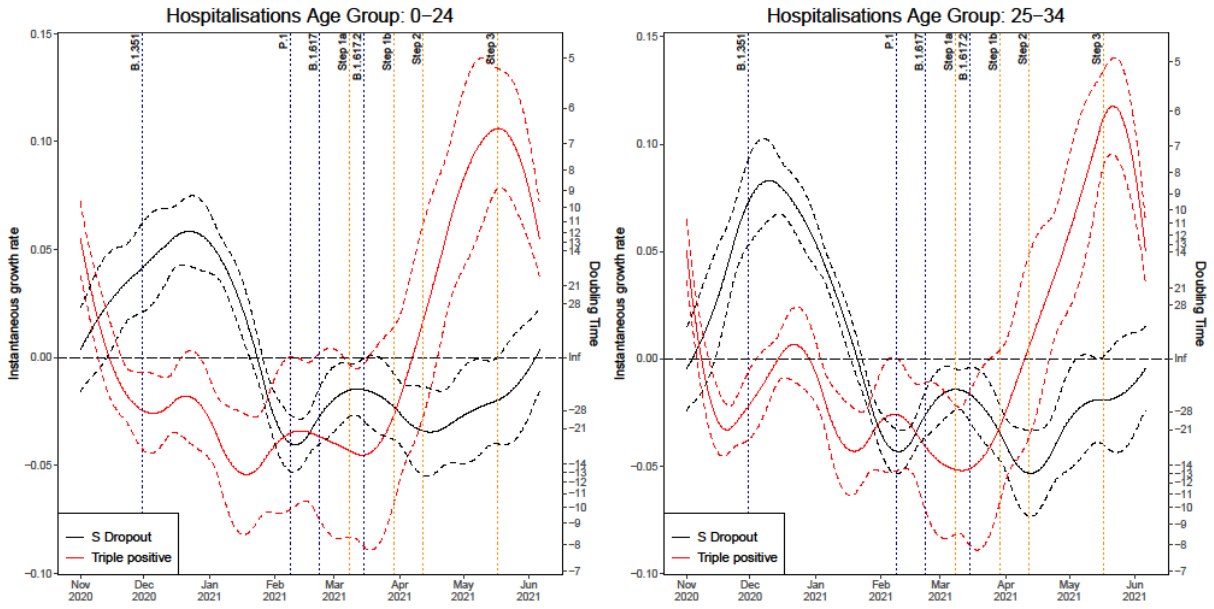

LTLA: Blackburn_with_Darwen
LTLA: Hyndburn
LTLA: Manchester
LTLA: Rossendale
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

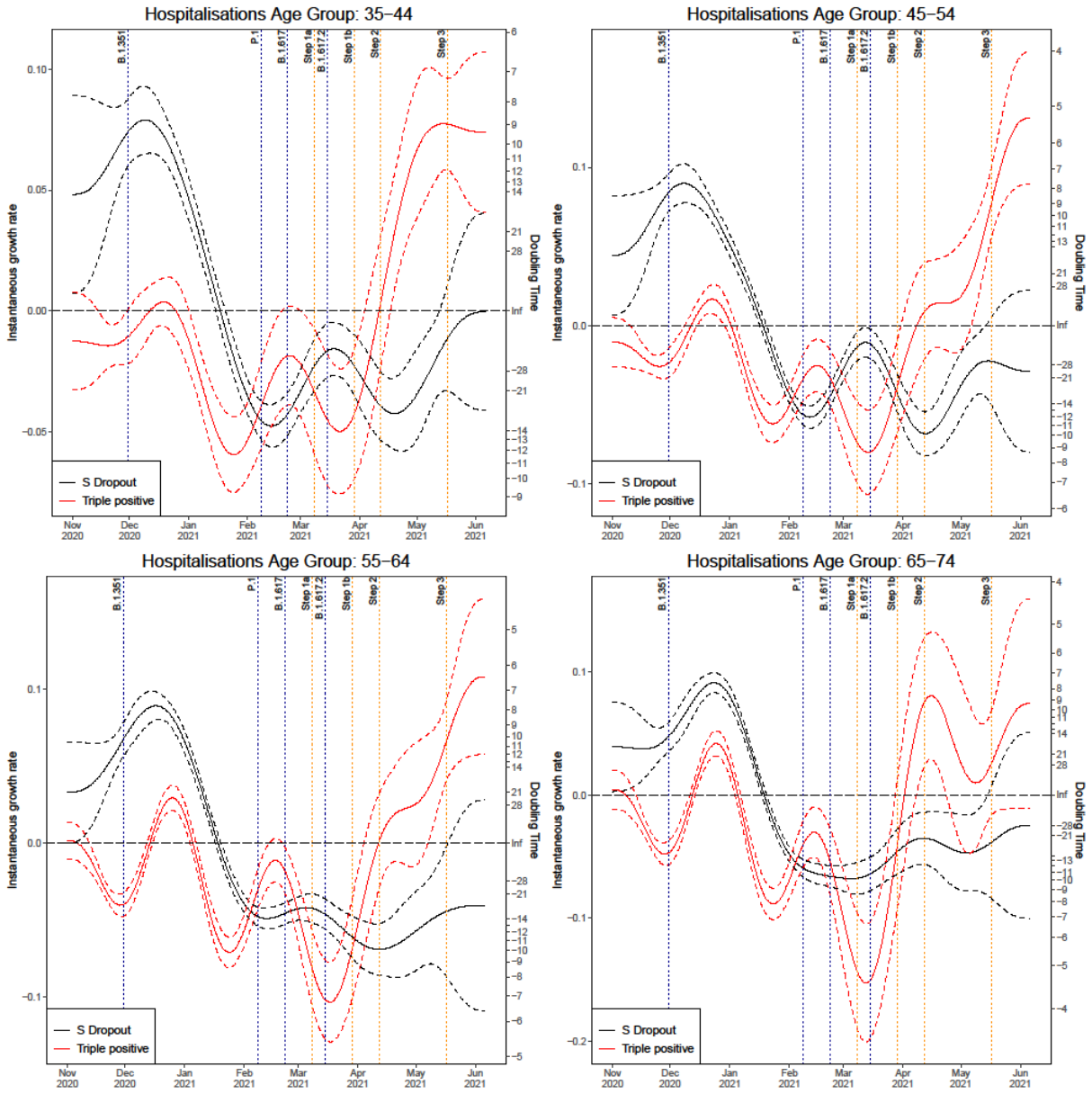

LTLA: Bury
LTLA: Burnley
LTLA: Blackpool
LTLA: Wigan
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

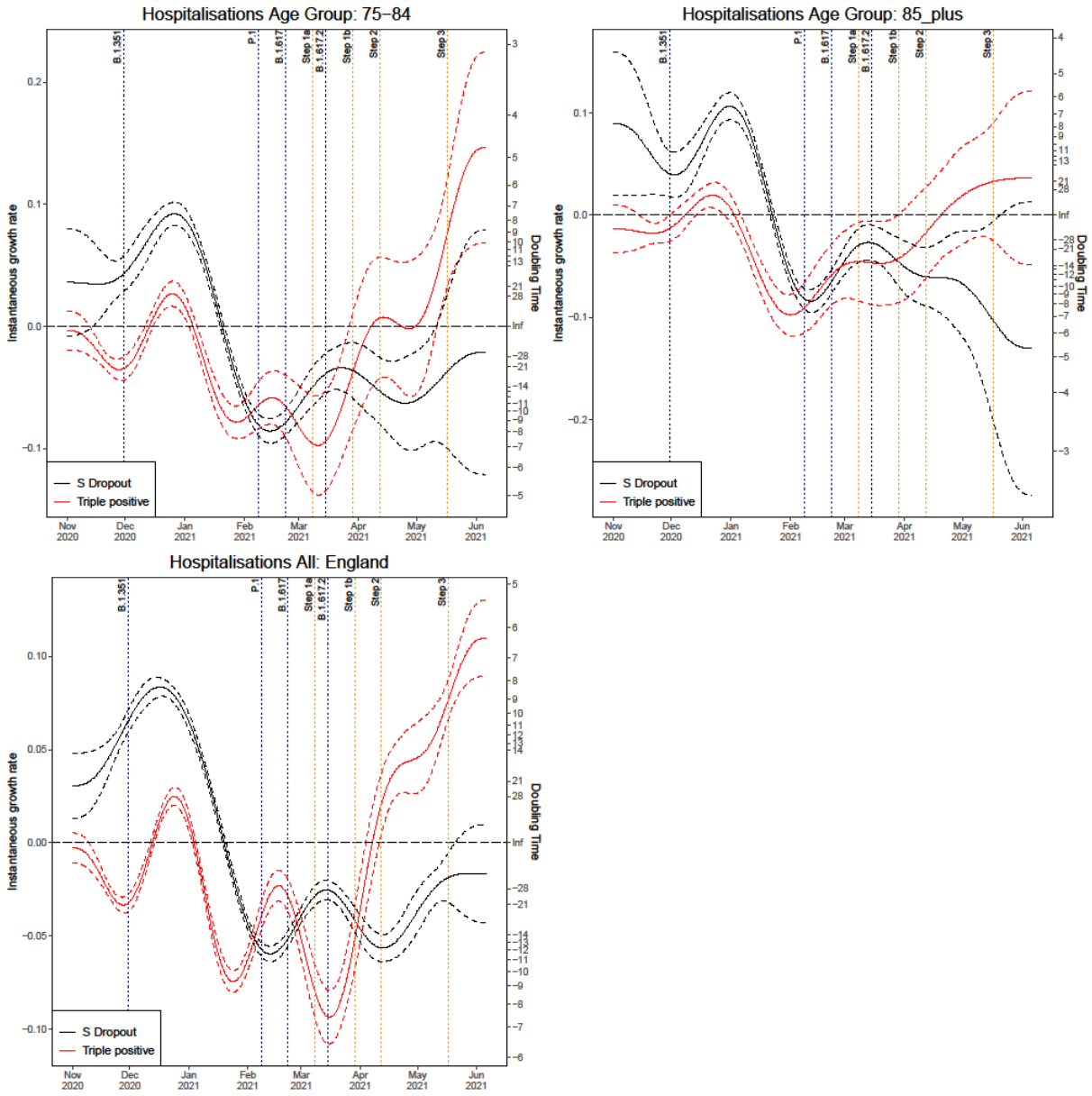

LTLA: Bolton
LTLA: Kirklees
LTLA: Birmingham
LTLA: Salford
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021



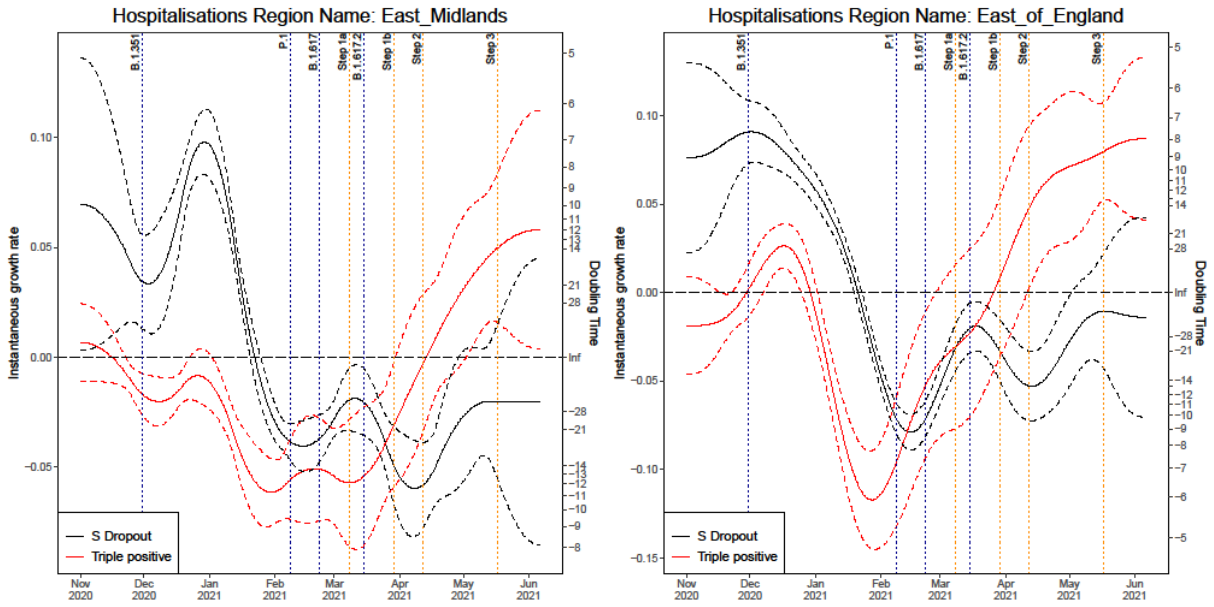
Appendix E: Hospitalisation Age Groups

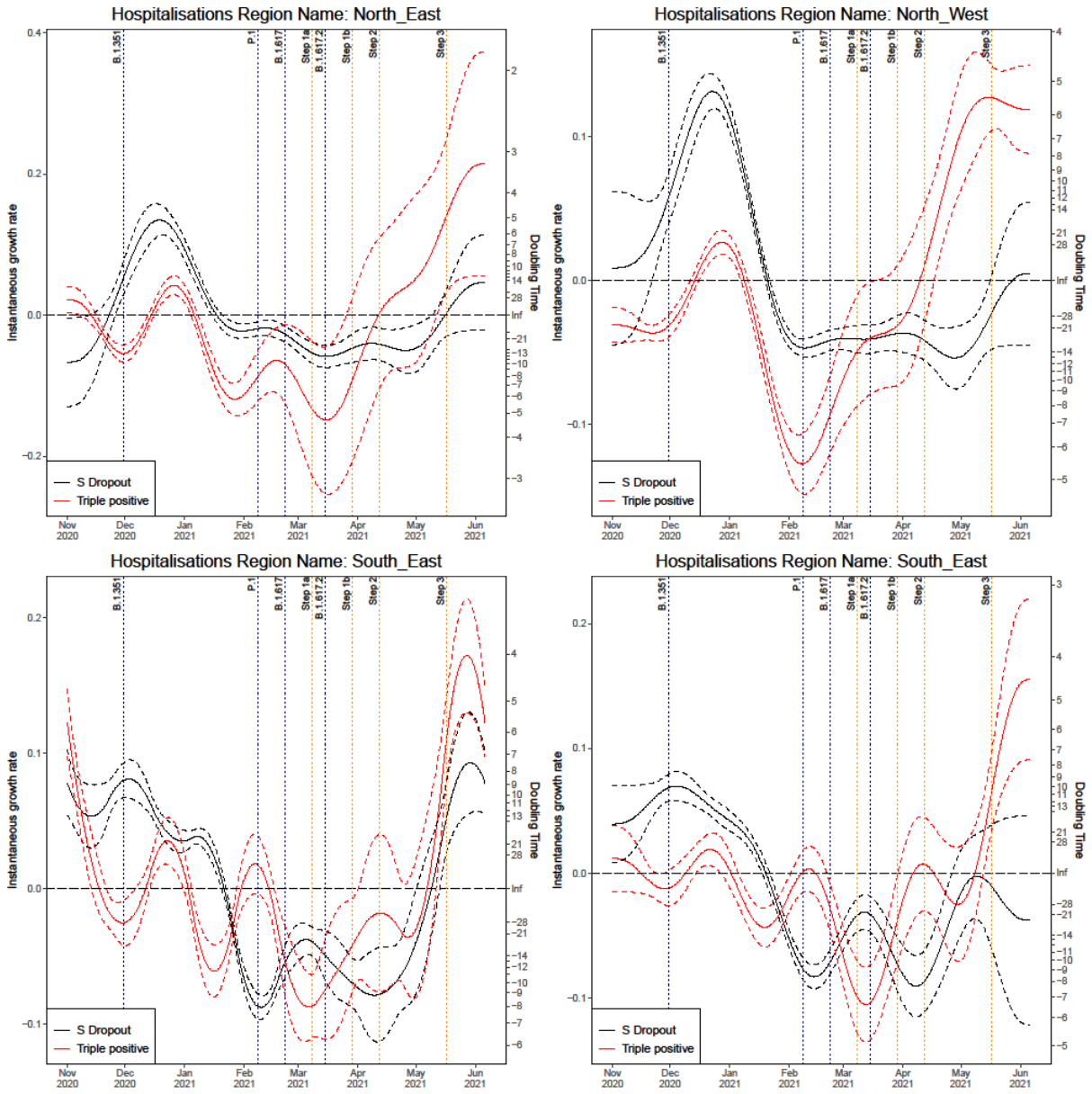


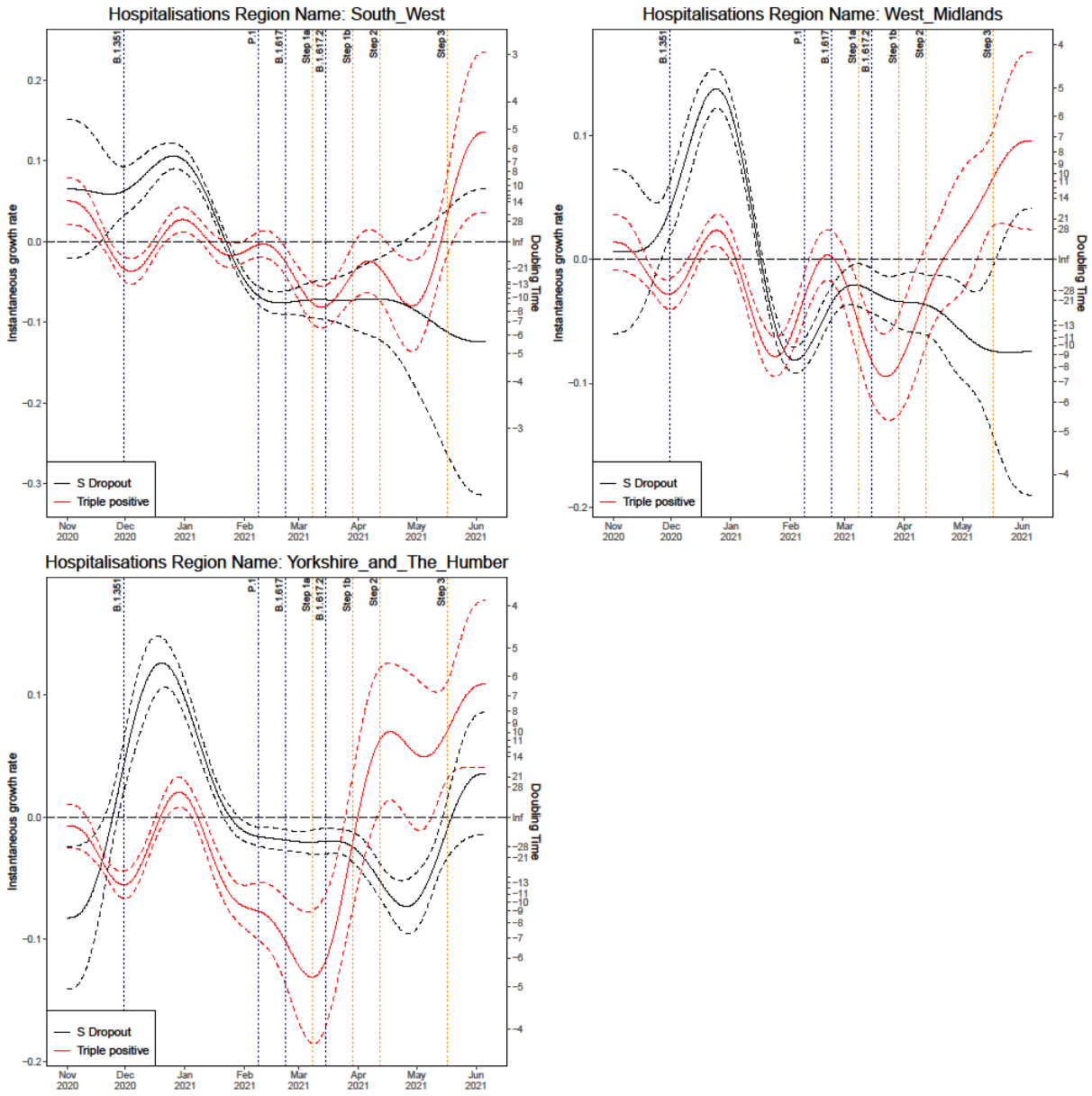

Hospitalisations Age Group: 35−44
Hospitalisations Age Group: 45−54
Hospitalisations Age Group: 55−64
Hospitalisations Age Group: 65−74
Instantaneous growth rate
Doubling Time
S Dropout
Triple positive
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021



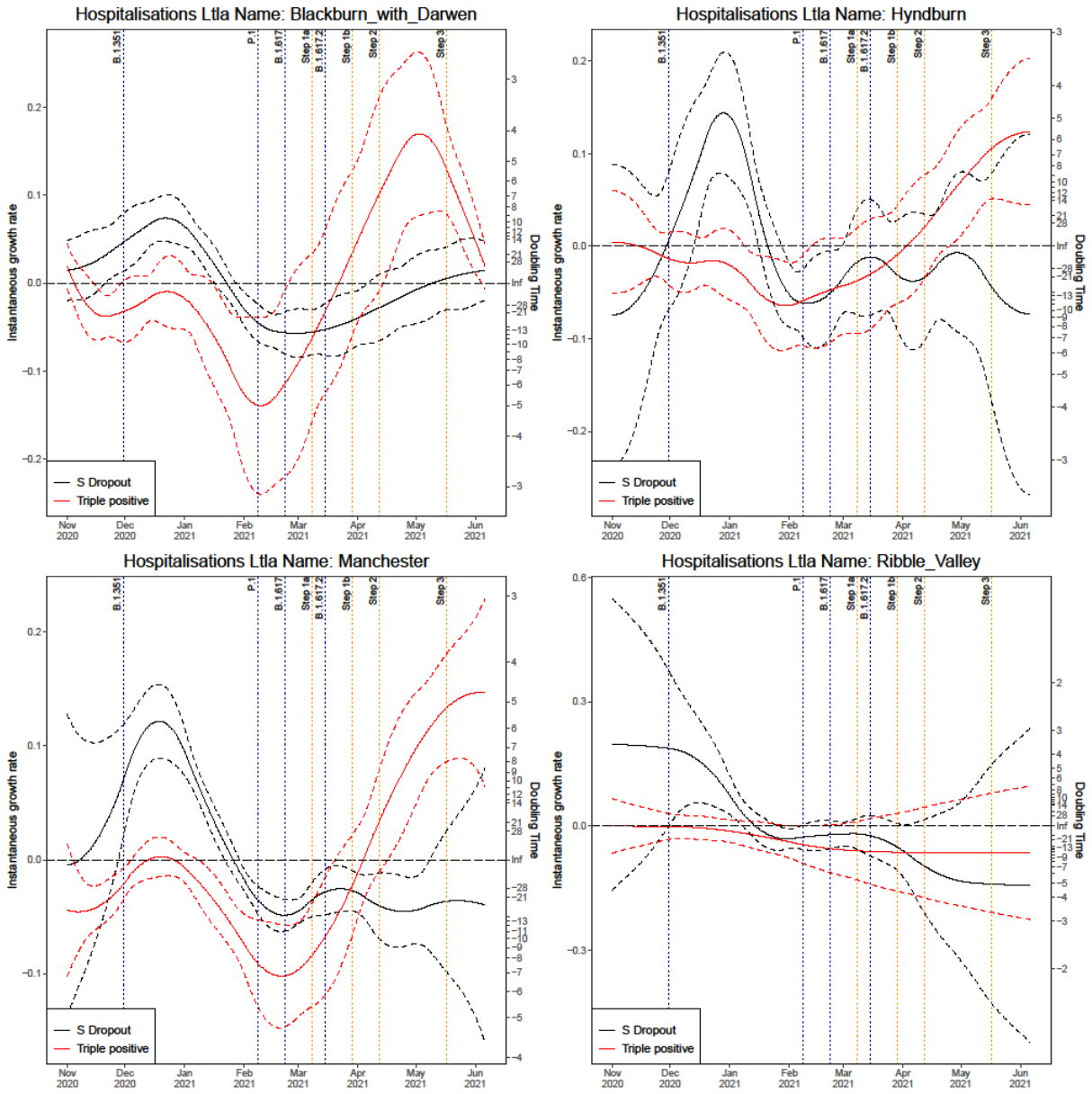
Appendix F: Hospitalisation Region

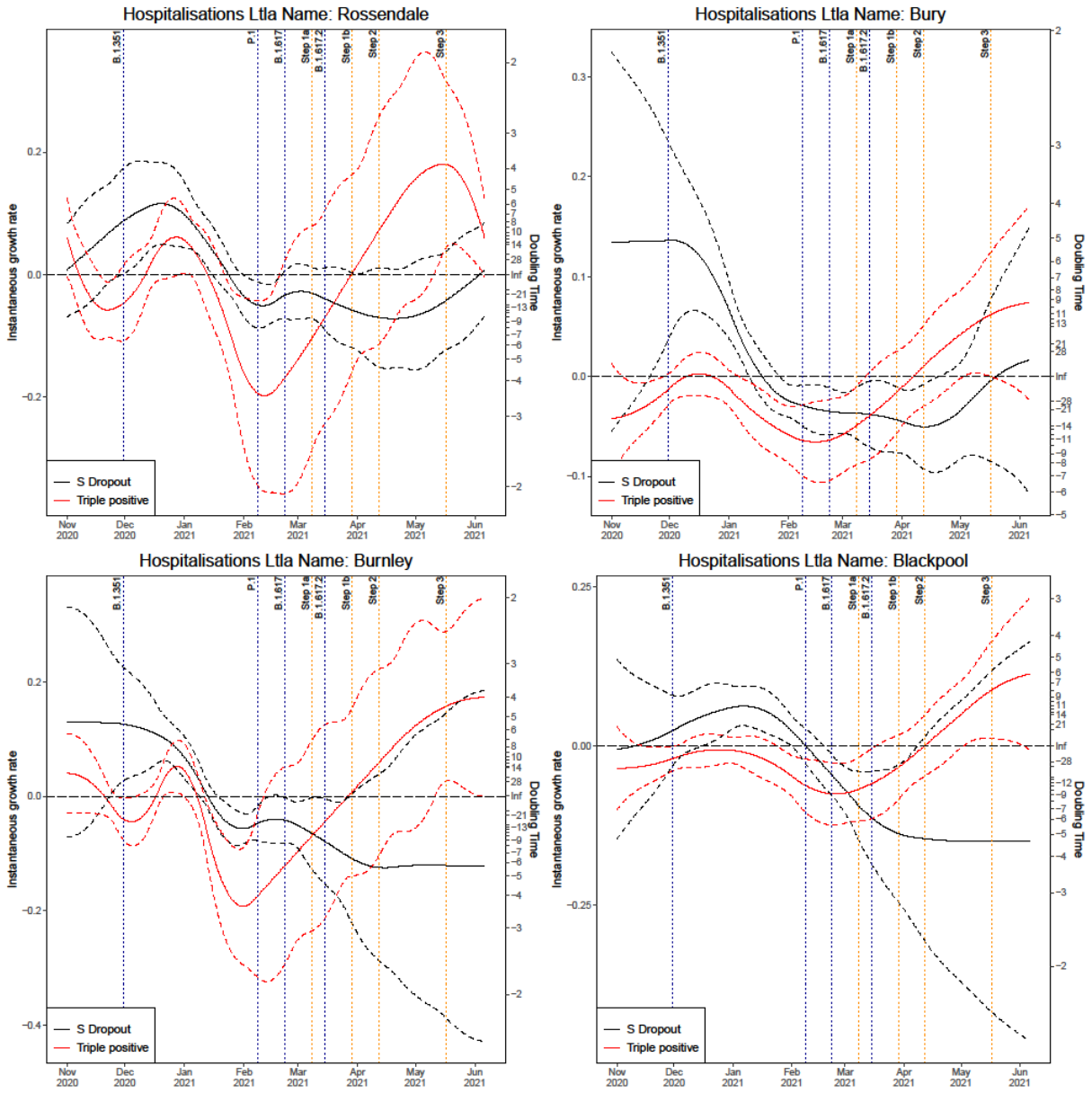

Hospitalisations Region Name: East_Midlands
Hospitalisations Region Name: East_of_England
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

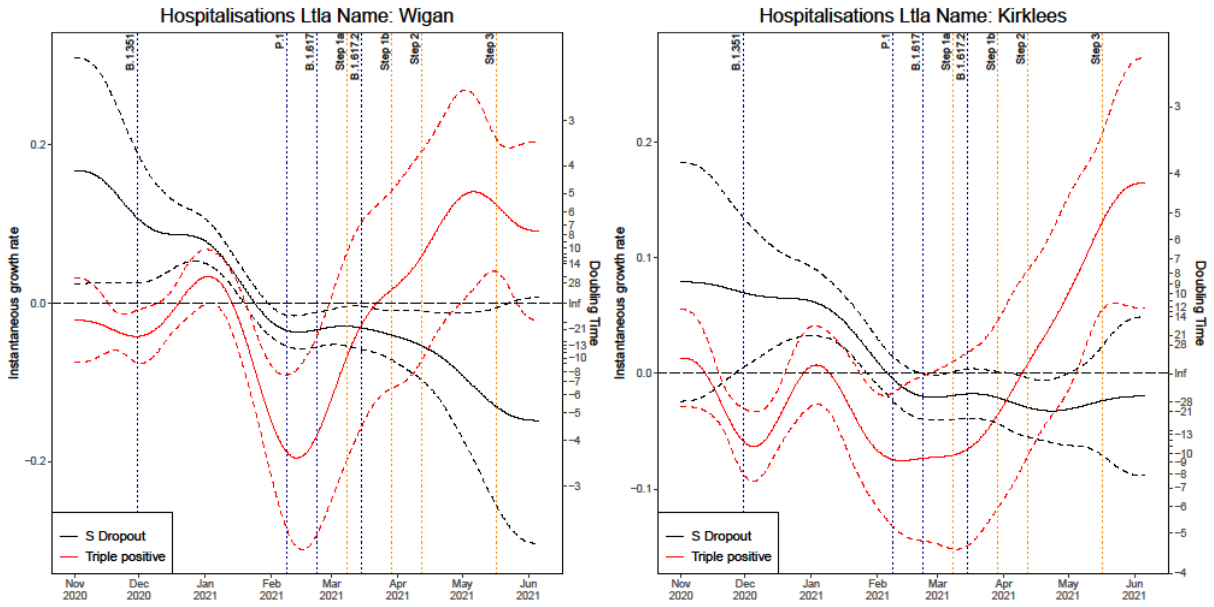

Hospitalisations Region Name: North_East
Hospitalisations Region Name: North_West
Hospitalisations Region Name: South_East
Hospitalisations Region Name: South_East
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021

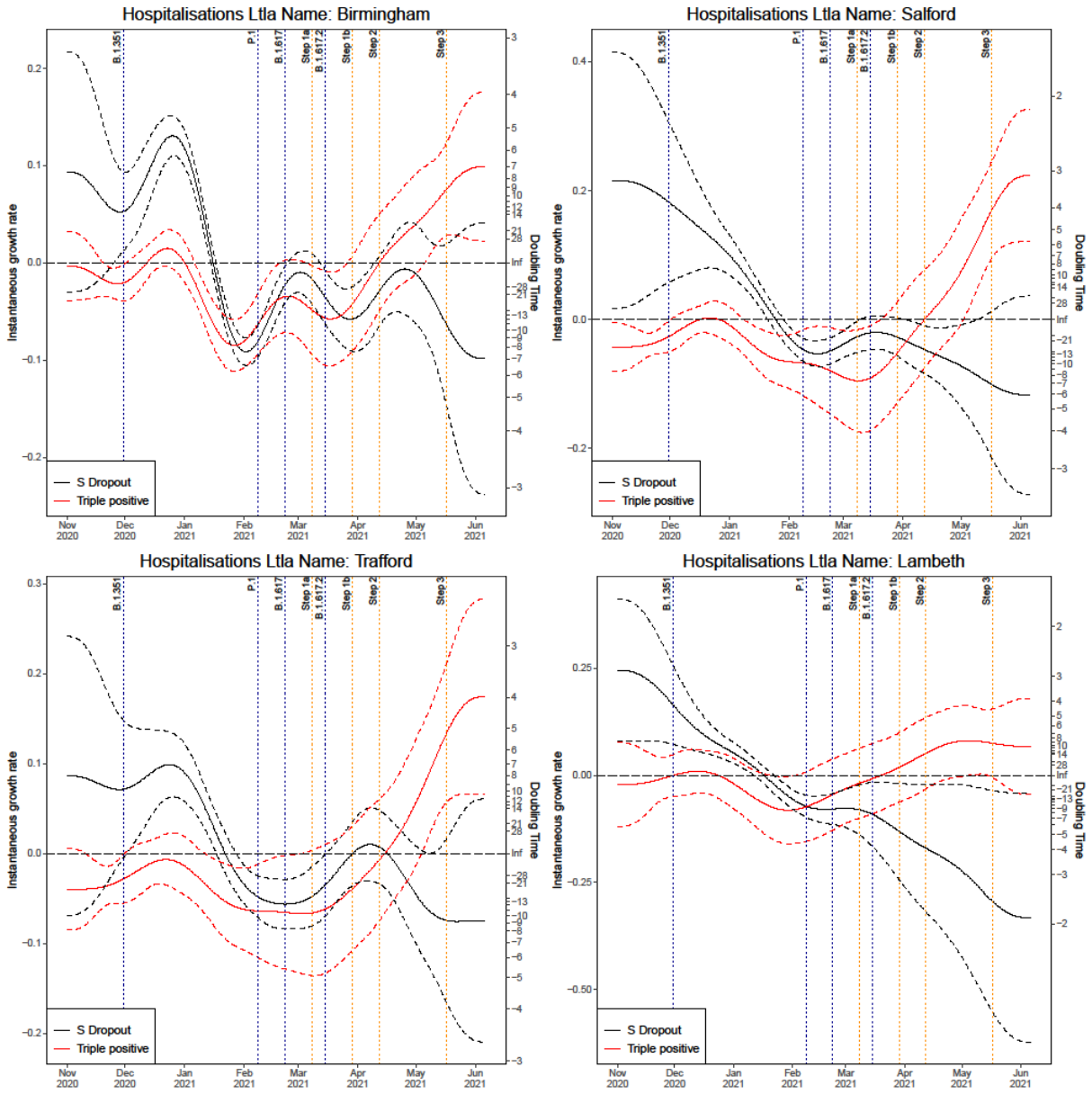


Appendix G: Hospitalisation LTLA


Hospitalisations Ltla Name: Blackburn_with_Darwen
Hospitalisations Ltla Name: Hyndburn
Hospitalisations Ltla Name: Manchester
Hospitalisations Ltla Name: Ribble_Valley
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021


Hospitalisations Ltla Name: Rossendale
Hospitalisations Ltla Name: Bury
Hospitalisations Ltla Name: Burnley
Hospitalisations Ltla Name: Blackpool
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021


Hospitalisations Ltla Name: Wigan
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Hospitalisations Ltla Name: Kirklees
Instantaneous growth rate
Doubling Time
B.1.351
P.1
B.1.617
Step 1a
B.1.617.2
Step 1b
Step 2
Step 3
S Dropout
Triple positive
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021



Appendix H

	SI mean	SI SD
	5.68	4.77
	2.97	3.29
	5.3	0.26
	7.2	
	4.55	3.3
	4.6	5.55
	5.1	5.3
	5.1	
	3.9	4.75
	6.5	
	4.9	4.4
	6.5	4.7
	6.3	4.2
	5.9	4.8
	3.9	4.24
	4.3	0.716
	7.5	3.4
	5.2	4.32
	4.1	0.882

	6.6	
	3.4	
	3.1	0.75
	5.5	3.9
	4.7	2.9
	5.8	
Mean	5.144	3.496
SD	1.22657	1.659
Min	2.97	0.26
Max	7.5	5.55

Appendix I

Time from Symptom Onset to Specimen Date

Start Date	End Date	N	Fit	Mean	SD	Alpha	Beta	Looic	Waic	Max Rhat	Min Rhat	Bad Pareto
01/01/2020	31/05/2020	557	weibull	3.66875	2.76983	1.34002	3.99321	2520.042	2519.159	1.00519	1.00089	0
01/06/2020	31/08/2020	4069	weibull	2.95717	2.39506	1.2423	3.17018	16859.34	16857.72	1.00025	0.999731	0
01/09/2020	30/09/2020	10000	weibull	2.6209	2.11027	1.24985	2.81378	39058.67	39055	1.00013	0.999542	0
01/10/2020	31/10/2020	10000	weibull	2.18193	2.05758	1.06113	2.2331	36226.77	36230.66	1.00124	0.99963	0
01/11/2020	30/11/2020	10000	weibull	1.97344	2.18076	0.906533	1.8826	34588.96	34602.01	1.00749	1.00303	0
01/12/2020	31/12/2020	10000	weibull	2.45101	2.17378	1.12993	2.56172	38238.76	38241.01	1.00077	1.00026	0
01/01/2021	31/01/2021	10000	weibull	2.07839	2.06587	1.00626	2.0836	35433.81	35439.34	1.00173	1.00054	0
01/02/2021	28/02/2021	10000	weibull	1.94196	2.00735	0.967796	1.91389	34250.36	34259.23	1.00184	0.999833	0
01/03/2021	31/03/2021	10000	weibull	1.96348	2.00263	0.98072	1.94674	34429.29	34437.08	1.00288	0.999865	0
01/04/2021	30/04/2021	10000	weibull	2.10586	2.06323	1.02091	2.12367	35648.06	35652.98	1.00075	0.999712	0
01/05/2021	31/05/2021	10000	weibull	2.01347	2.07044	0.972811	1.98905	34898.79	34906.32	1.00235	1.00046	0