Trajectory Mapping Results

analysis x

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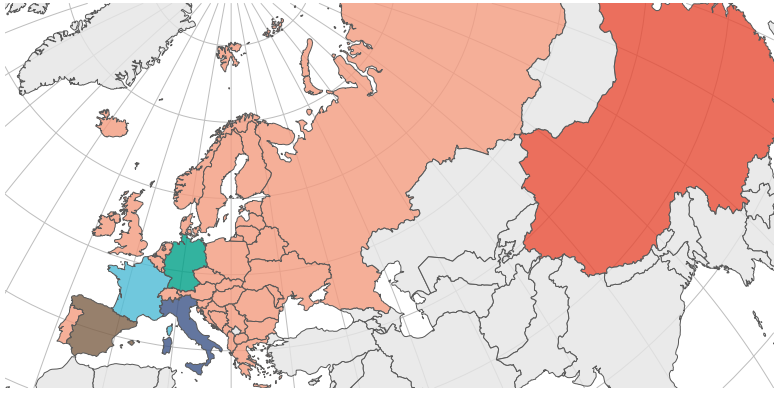
17 December, 2020

Deme configuration



deme	division	country	region	exclude_country	min_date	max_date
China		China	Asia		2019-12-24	2020-01-23
France		France	Europe		2020-01-23	2020-03-08
Germany		Germany	Europe		2020-01-28	2020-03-08
Italy		Italy	Europe		2020-01-29	2020-03-08
OtherEuropean			Europe	France,Germany,Italy,Spain	2020-01-29	2020-03-08
Spain		Spain	Europe		2020-02-24	2020-03-08

Table 2: Total number of cases reported to ECDC 18th March

deme	cumcases	pop	cas100
China	81063	1439323.8	5.6
France	6633	65273.5	10.2
Germany	6012	83783.9	7.2
Italy	27980	60461.8	46.3
OtherEuropean	16685	491362.0	3.4
Spain	13994	46754.8	29.9

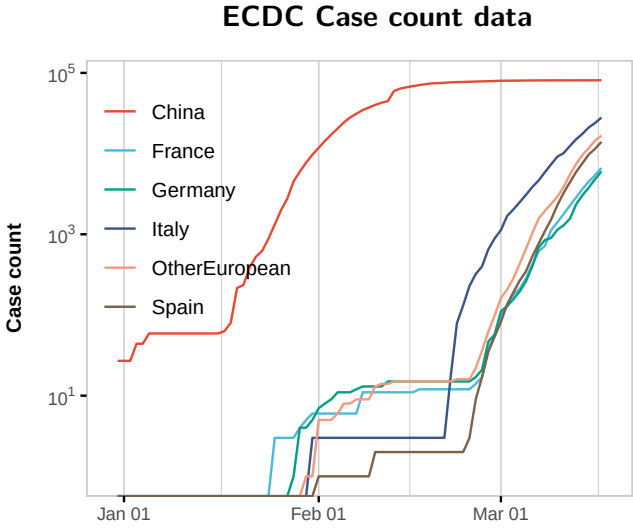


Figure 1: ECDC case counts for each deme from the beginning of the pandemic to March 18

Epidemic trajectory data

From the Stochastic Trajectory Mapping analysis, we obtain one epidemic trajectory per set of parameters + typed node tree.

The processing of the trajectory data includes the generation of two different datasets:

- `states`: We have the total number of inferred cases by trajectory, deme and time.
- `events`: We have each event that happened in a epidemic trajectory, with its type (origin, birth, death or migration), the source/destination deme and time.

Table 3: States dataset

traj	type	time	N	age	date_model	date
1	France	0.0000000	0	0.3042772	2019-11-16	2019-11-26
1	France	0.0121711	0	0.2921061	2019-11-21	2019-12-01
1	France	0.0152139	0	0.2890634	2019-11-22	2019-12-02
1	France	0.0212994	0	0.2829778	2019-11-24	2019-12-04
1	France	0.0214172	0	0.2828600	2019-11-24	2019-12-04

Epidemic trajectory data

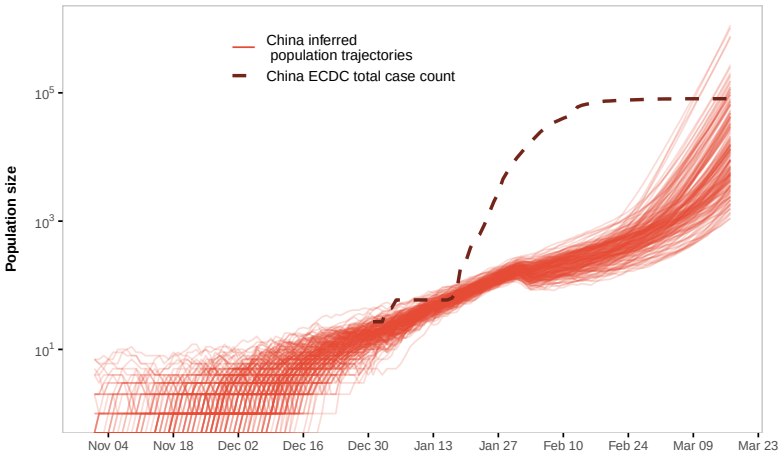
Table 4: Events dataset

traj	time	event	src	dest	mult	age	date_model	date
1	0.0000000	O				0.3042772	2019-11-16	2019-11-26
1	0.0121711	B	China	China	1	0.2921061	2019-11-21	2019-12-01
1	0.0152139	B	China	China	1	0.2890634	2019-11-22	2019-12-02
1	0.0212994	B	China	China	2	0.2829778	2019-11-24	2019-12-04
1	0.0214172	B	China	China	1	0.2828600	2019-11-24	2019-12-04

To have a feasible time of analysis of the epidemic trajectories we take a random subsample of 500 trajectories.

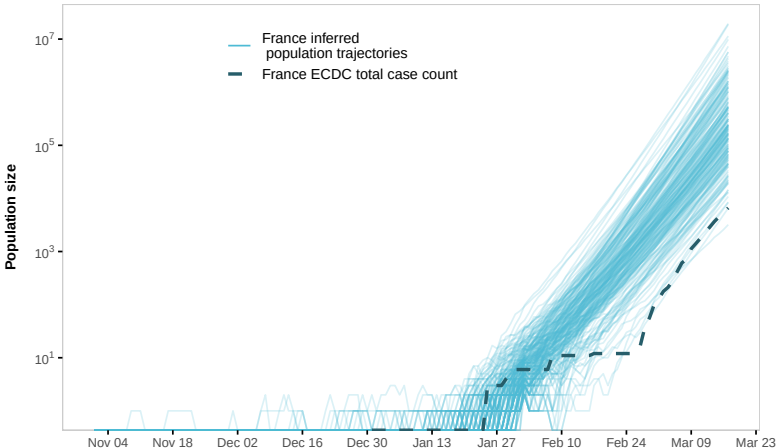
To facilitate visualization and summarise the results, we take a grid time of 1 day and summarise the number of events that day as the sum of the events in the corresponding time interval; and the number of inferred cases as the maximum of the interval.

Inferred case counts - China



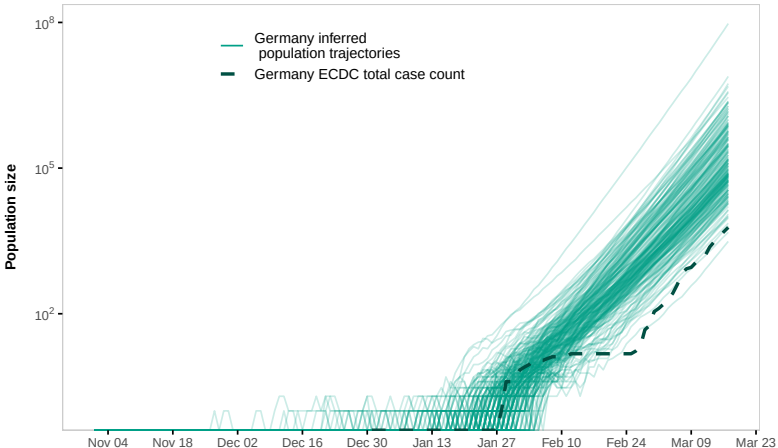
lmedian	10479.5
llow	1517.45
lhigh	251851.1
cumcases	81063
cumdeaths	3225
cases	43
pop	1439324
cas100	5.63
fc	7.74
lfc	0.32
hfc	53.42
rc	0.13
lrc	0.02
hrc	3.11

Inferred case counts - France



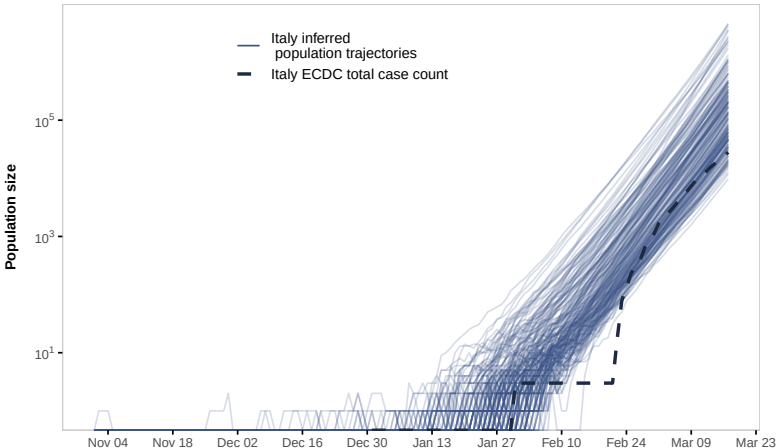
lmedian	217721
llow	12916.25
lhigh	5757911
cumcases	6633
cumdeaths	148
cases	1210
pop	65273.51
cas100	10.16
fc	0.03
lfc	0
hfc	0.51
rc	32.82
lrc	1.95
hrc	868.07

Inferred case counts - Germany



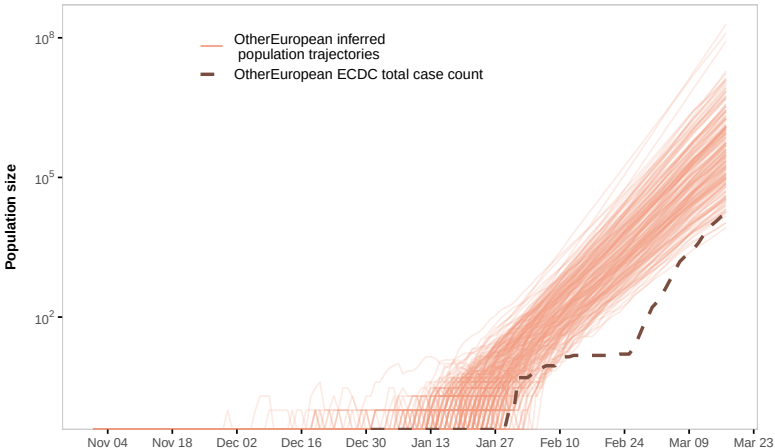
lmedian	110570
llow	9899.05
lhigh	3601783
cumcases	6012
cumdeaths	13
cases	1174
pop	83783.95
cas100	7.18
fc	0.05
lfc	0
hfc	0.61
rc	18.39
lrc	1.65
hrc	599.1

Inferred case counts - Italy



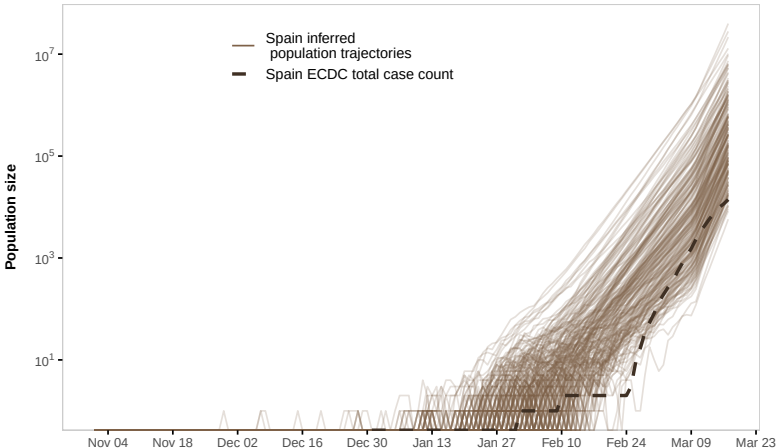
lmedian	117504
llow	16826.28
lhigh	2812930
cumcases	27980
cumdeaths	2158
cases	4000
pop	60461.83
cas100	46.28
fc	0.24
lfc	0.01
hfc	1.66
rc	4.2
lrc	0.6
hrc	100.53

Inferred case counts - OtherEuropean



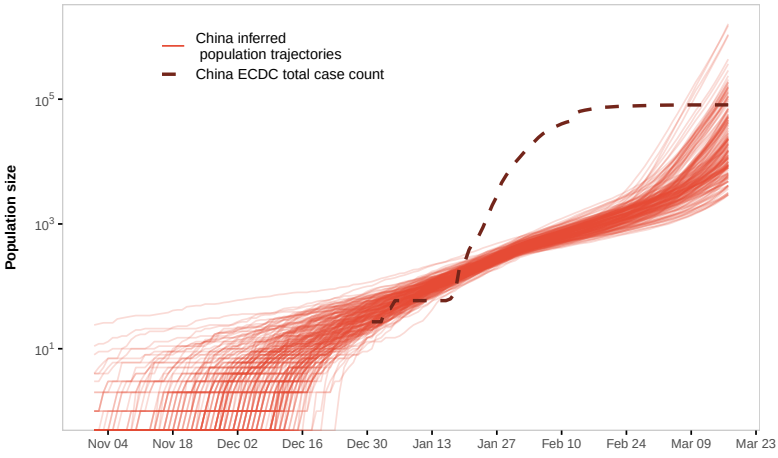
lmedian	381432
llow	18453.88
lhigh	13473789
cumcases	16685
cumdeaths	191
cases	9
pop	491362
cas100	3.4
fc	0.04
lfc	0
hfc	0.9
rc	22.86
lrc	1.11
hrc	807.54

Inferred case counts - Spain



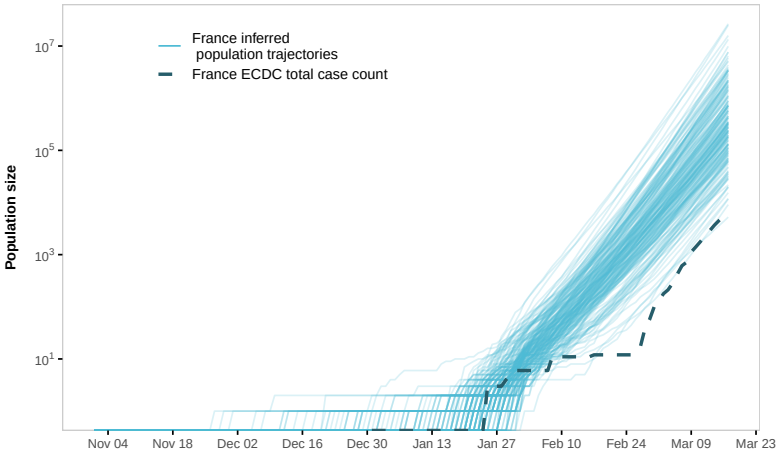
lmedian	187561
llow	10963.8
lhigh	9528705
cumcases	13994
cumdeaths	309
cases	2503
pop	46754.78
cas100	29.93
fc	0.07
lfc	0
hfc	1.28
rc	13.4
lrc	0.78
hrc	680.91

Inferred case counts v2- China



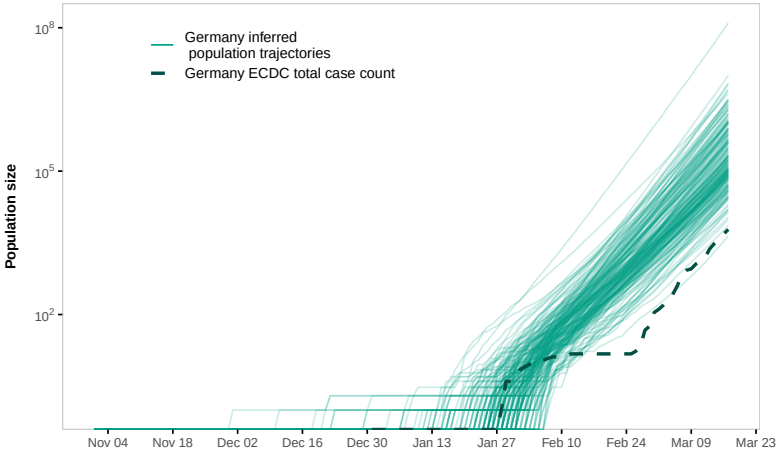
Ilow	3159.57
Ihigh	369634.8
Dmedian	3094
Dlow	359.88
Dhigh	95763.28
cumcases	81063
cumdeaths	3225
cases	43
pop	1439324
cas100	5.63
fc	5.19
lfc	0.22
hfc	25.66
rc	0.19
lrc	0.04

Inferred case counts v2- France



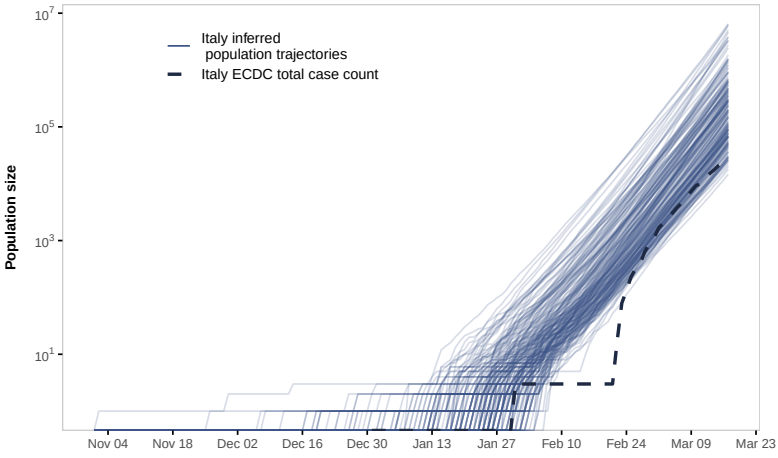
Ilow	19257.05
Ihigh	7698168
Dmedian	74268
Dlow	3523.45
Dhigh	2220137
cumcases	6633
cumdeaths	148
cases	1210
pop	65273.51
cas100	10.16
fc	0.02
lfc	0
hfc	0.34
rc	47.11
lrc	2.9

Inferred case counts v2- Germany



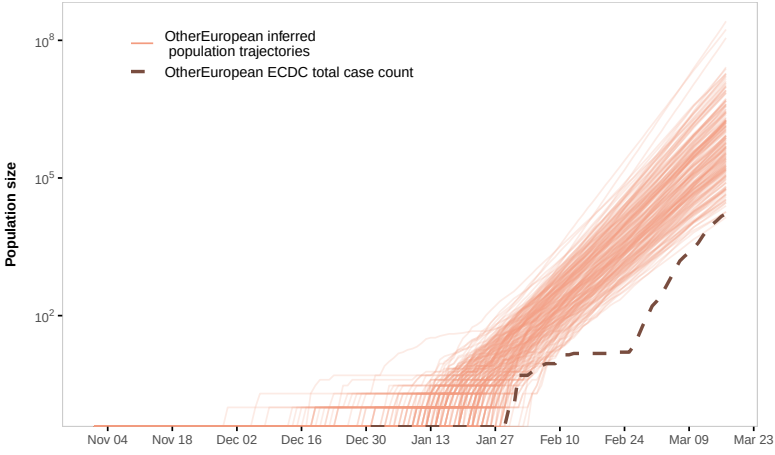
llow	15159.08
lhigh	4908095
Dmedian	35704
Dlow	2933.3
Dhigh	1299724
cumcases	6012
cumdeaths	13
cases	1174
pop	83783.95
cas100	7.18
fc	0.04
lfc	0
hfc	0.4
rc	25.77
lrc	2.52

Inferred case counts v2- Italy



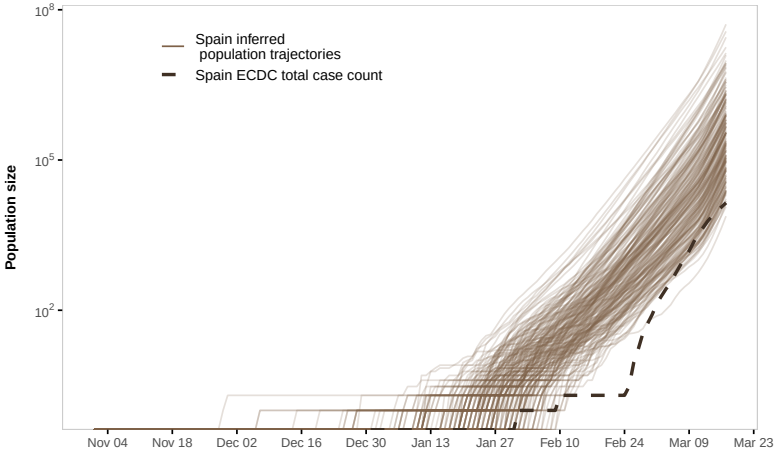
Ilow	25601.4
Ihigh	3839395
Dmedian	39677
Dlow	4978.53
Dhigh	1031158
cumcases	27980
cumdeaths	2158
cases	4000
pop	60461.83
cas100	46.28
fc	0.17
lfc	0.01
hfc	1.09
rc	6
lrc	0.91

Inferred case counts v2- OtherEuropean



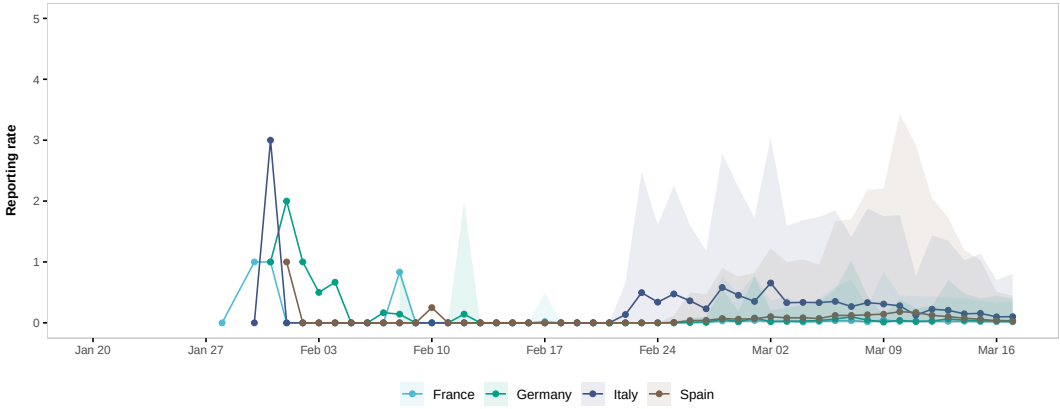
llow	29211.53
lhigh	19283534
Dmedian	118186.5
Dlow	4744.75
Dhigh	4672770
cumcases	16685
cumdeaths	191
cases	9
pop	491362
cas100	3.4
fc	0.03
lfc	0
hfc	0.57
rc	34.12
lrc	1.75

Inferred case counts v2- Spain



Ilow	15304.25
Ihigh	12412734
Dmedian	93298.5
Dlow	5644.33
Dhigh	4009957
cumcases	13994
cumdeaths	309
cases	2503
pop	46754.78
cas100	29.93
fc	0.06
lfc	0
hfc	0.91
rc	17.84
lrc	1.09

Reporting rate



Inferred case counts - Additional figures