Grando_ABC_all_param

February 26, 2021

1 Grando ABC - Estimating all paramters

Calculations here were made using the same variables as used by grando.

• 1 U ([5, 15]) , 2 U ([16, 25]) and 3 U ([26, 35]) ; • 1 U ([0.03, 0.07]) , 2 U ([0.008, 0.02]) and 3 U ([0.001, 0.007]) ; • 1 U ([0.8, 1.4]) , 2 U ([0.3, 0.7]) and 3 U ([0.07, 0.2]) .

The data includes 100 iterations, again as per Grando.

Computation took 43.2857 seconds.

The graphs below correspond to the ones found in Grando's paper pages 75 and 76. As one may notice the results are extremely close to those found in the original paper.

[1]:
```
import numpy as np
import seaborn as sns
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
```

[2]:
```
headers =['lambda1', 'lambda2', 'lambda3', 'xi_1', 'xi_2', 'xi_3', 'tau_1',␣
↪'tau_2', 'tau_3', 'distSit', 'distSitAss']
```

[3]:
```
data = pd.read_csv('avg.csv', names = headers)
```

[4]:
```
data.head()
```

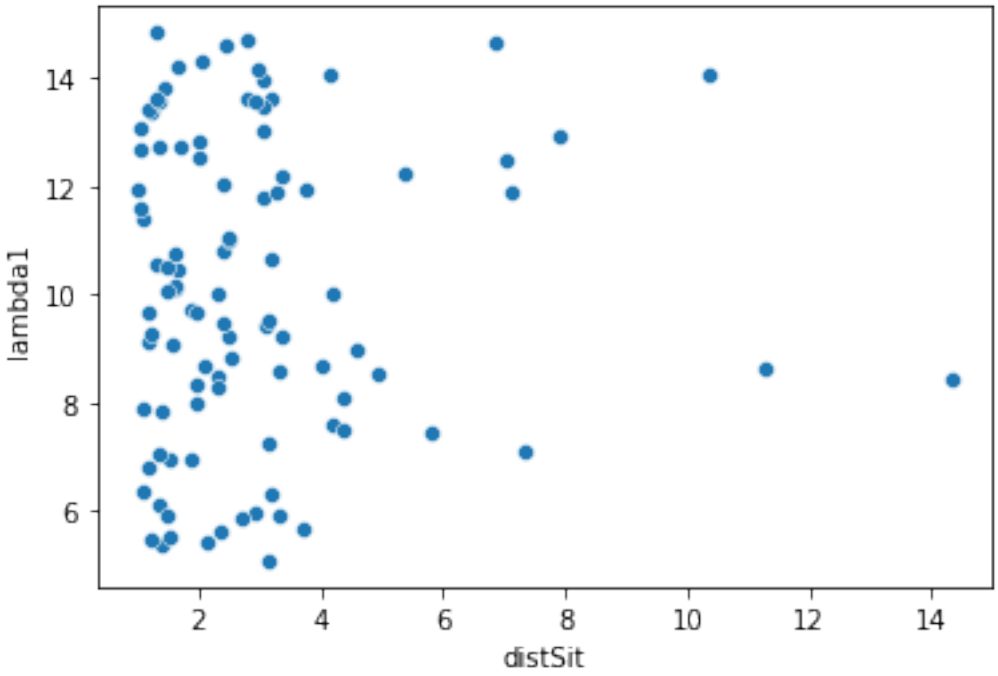
[4]:

	lambda1	lambda2	lambda3	xi_1	xi_2	xi_3	tau_1	tau_2	tau_3	distSit	distSitAss
0	7.99574	16.8391	26.9649	0.061974	0.008979	0.005472	0.977356	0.523792	0.108015	1.94544	44.4295
1	12.72710	17.7683	27.3699	0.065867	0.014380	0.004254	1.241260	0.308835	0.135869	1.69883	39.1523
2	5.62897	18.5608	29.7252	0.057236	0.010516	0.005378	1.293900	0.357876	0.143627	2.34377	52.4993
3	13.38010	18.3849	34.1999	0.039127	0.011217	0.003726	1.364620	0.372494	0.169592	1.20036	27.5137
4	10.81130	19.1825	31.5892	0.041926	0.008297	0.005114	0.986287	0.510836	0.166020	2.37959	53.2377

[5]:
```
# Lambda1 vs distance

sns.scatterplot(x = data['distSit'],y = data['lambda1'])
```

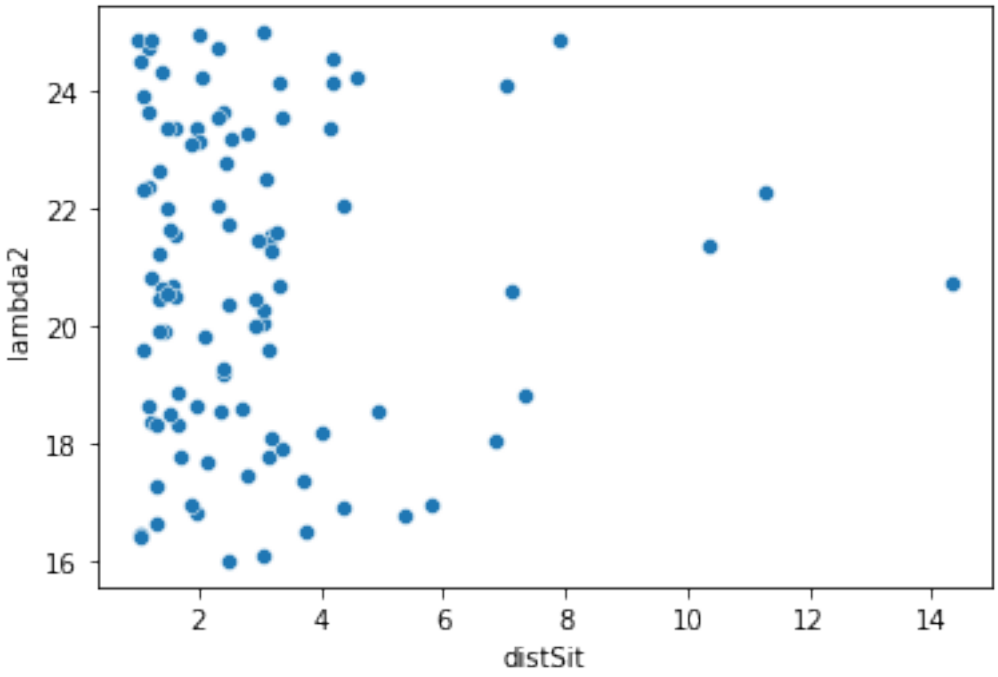
[5]: <AxesSubplot:xlabel='distSit', ylabel='lambda1'>



[6]:
```
# Lambda2 vs distance

sns.scatterplot(x = data['distSit'],y = data['lambda2'])
```

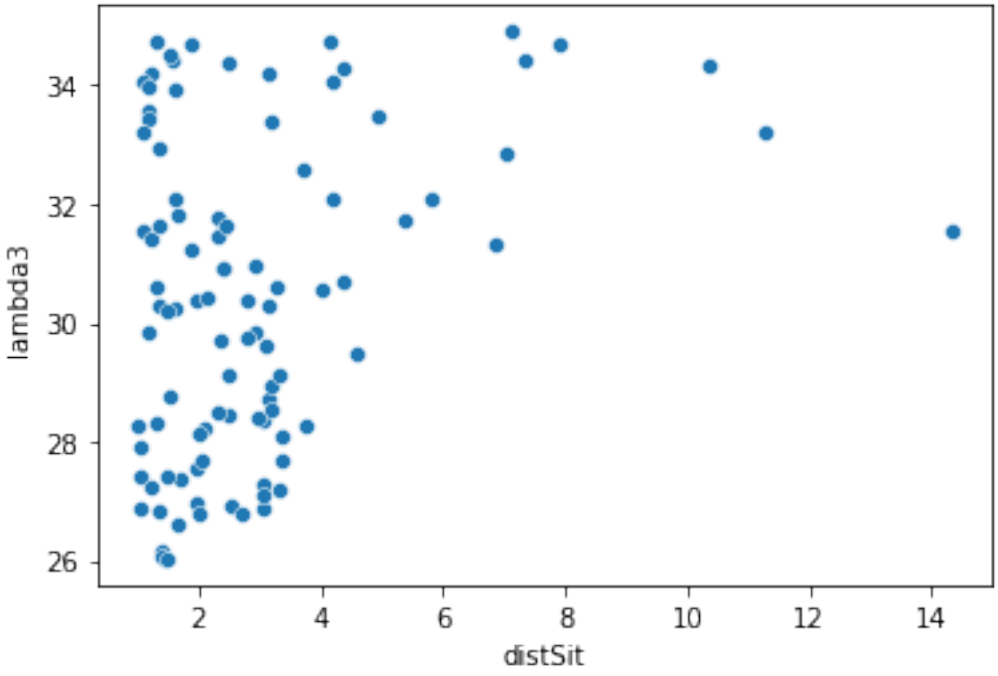
[6]: <AxesSubplot:xlabel='distSit', ylabel='lambda2'>



[7]:
```
# Lambda3 vs distance

sns.scatterplot(x = data['distSit'], y = data['lambda3'])
```

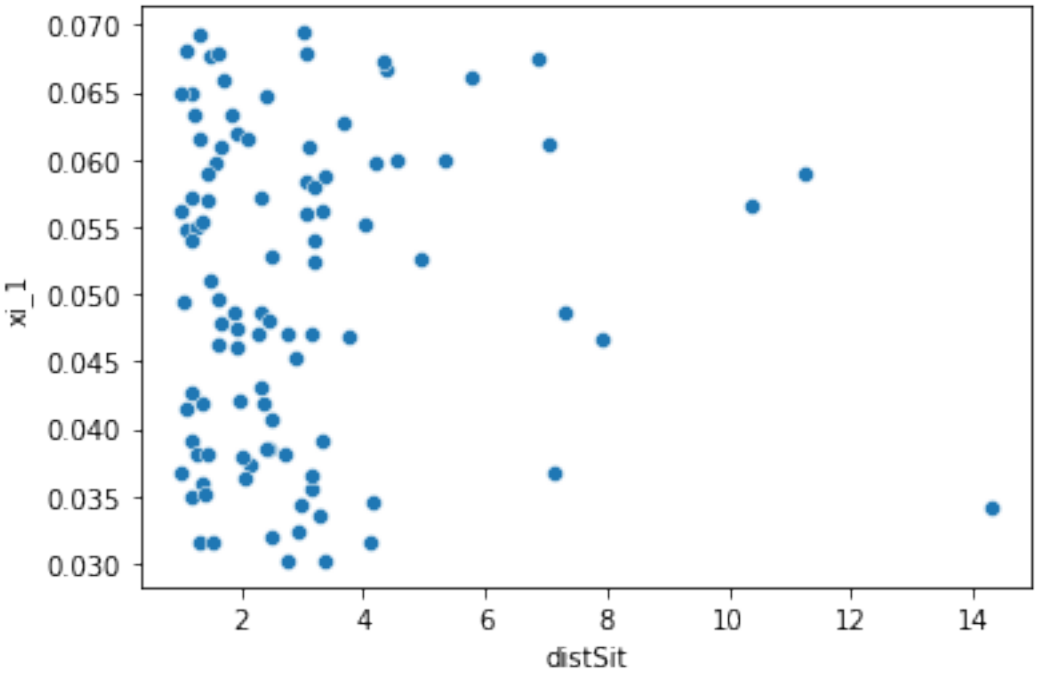
[7]: <AxesSubplot:xlabel='distSit', ylabel='lambda3'>



[8]:
```
# xi_1 vs distance

sns.scatterplot(x = data['distSit'],y = data['xi_1'])
```

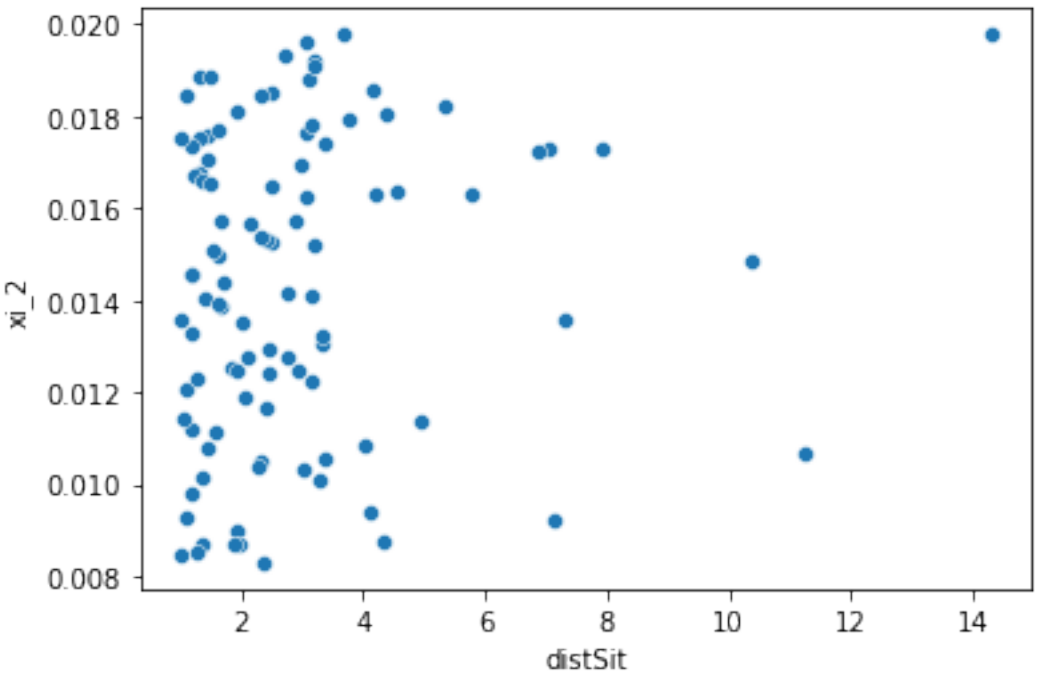
[8]: <AxesSubplot:xlabel='distSit', ylabel='xi_1'>



[9]:
```
# xi_2 vs distance

sns.scatterplot(x = data['distSit'],y = data['xi_2'])
```

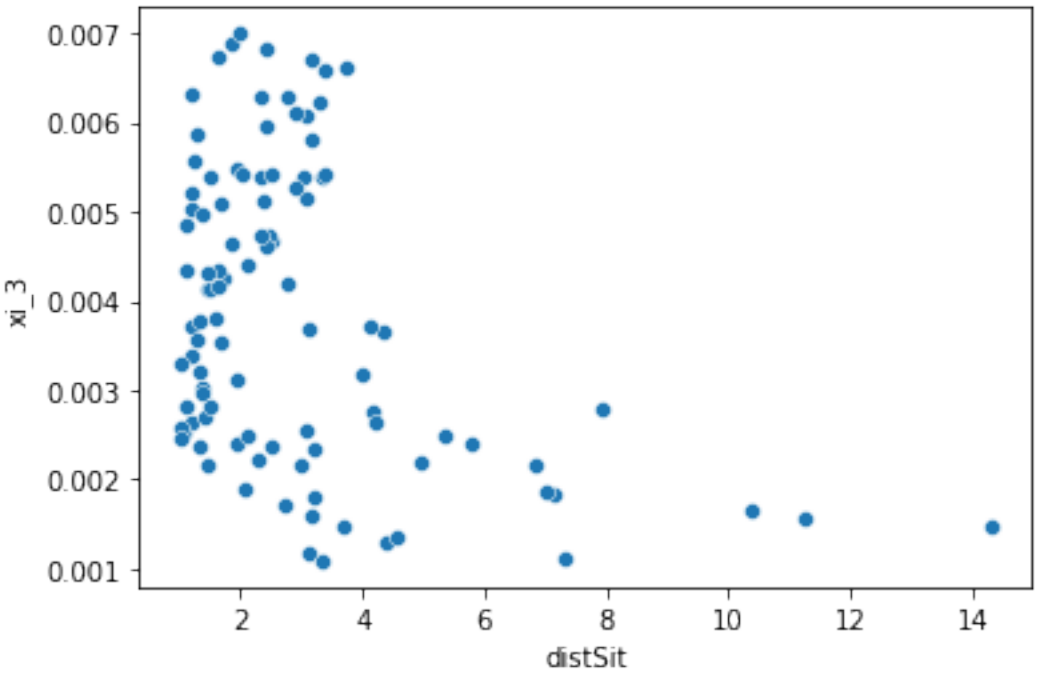
[9]: <AxesSubplot:xlabel='distSit', ylabel='xi_2'>



[10]:
```
# xi_3 vs distance

sns.scatterplot(x = data['distSit'], y = data['xi_3'])
```

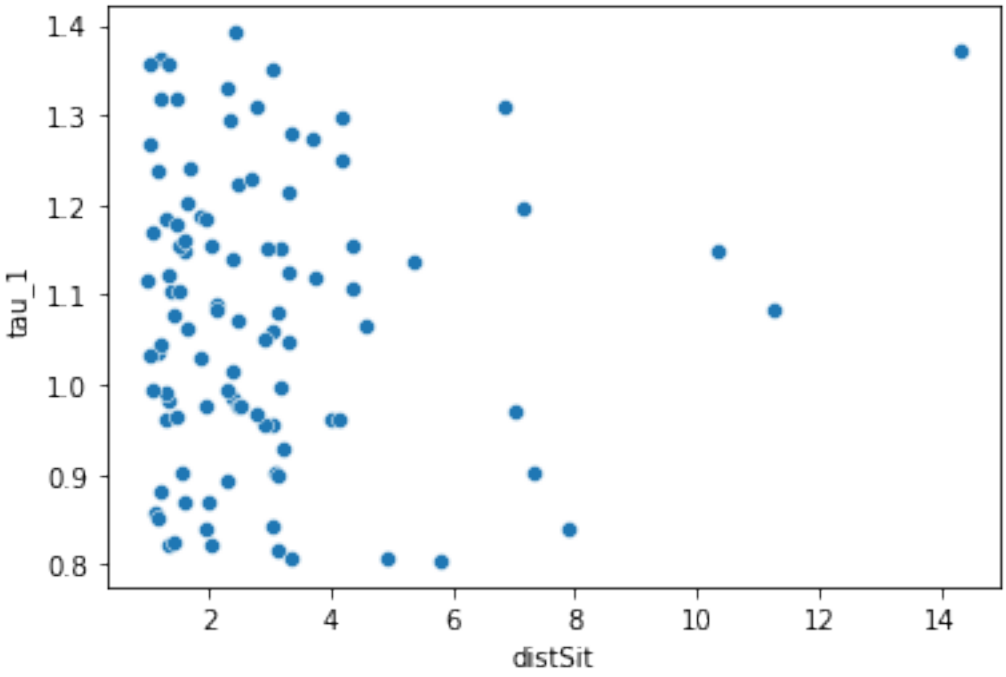
[10]: <AxesSubplot:xlabel='distSit', ylabel='xi_3'>



[11]:
```
# tau_1 vs distance

sns.scatterplot(x = data['distSit'], y = data['tau_1'])
```

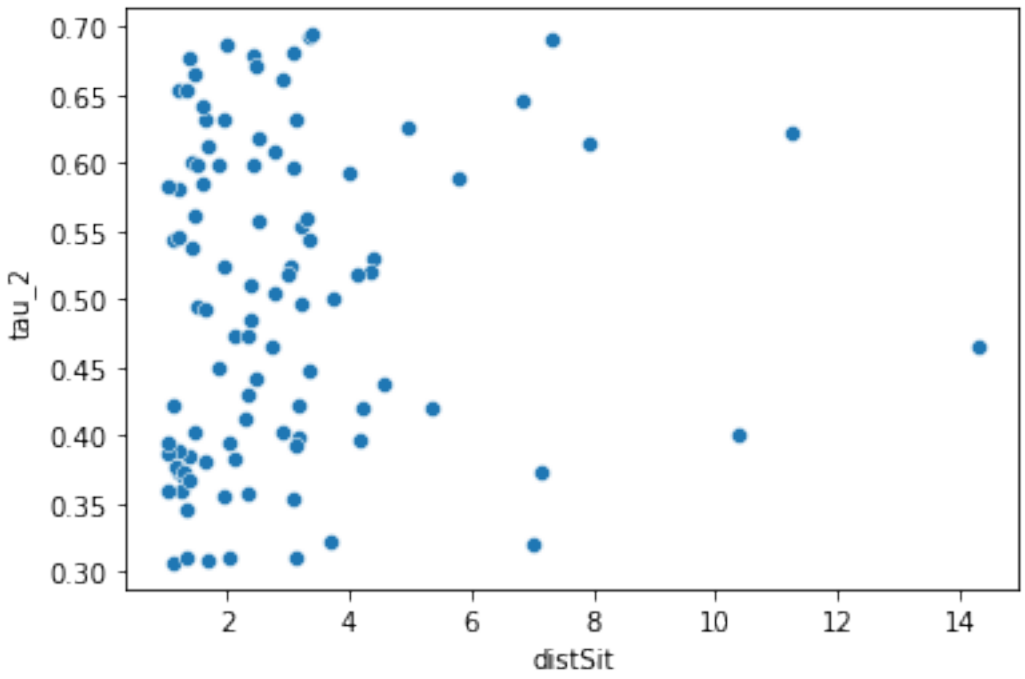
[11]: <AxesSubplot:xlabel='distSit', ylabel='tau_1'>



[12]:
```
# tau_2vs distance

sns.scatterplot(x = data['distSit'], y = data['tau_2'])
```

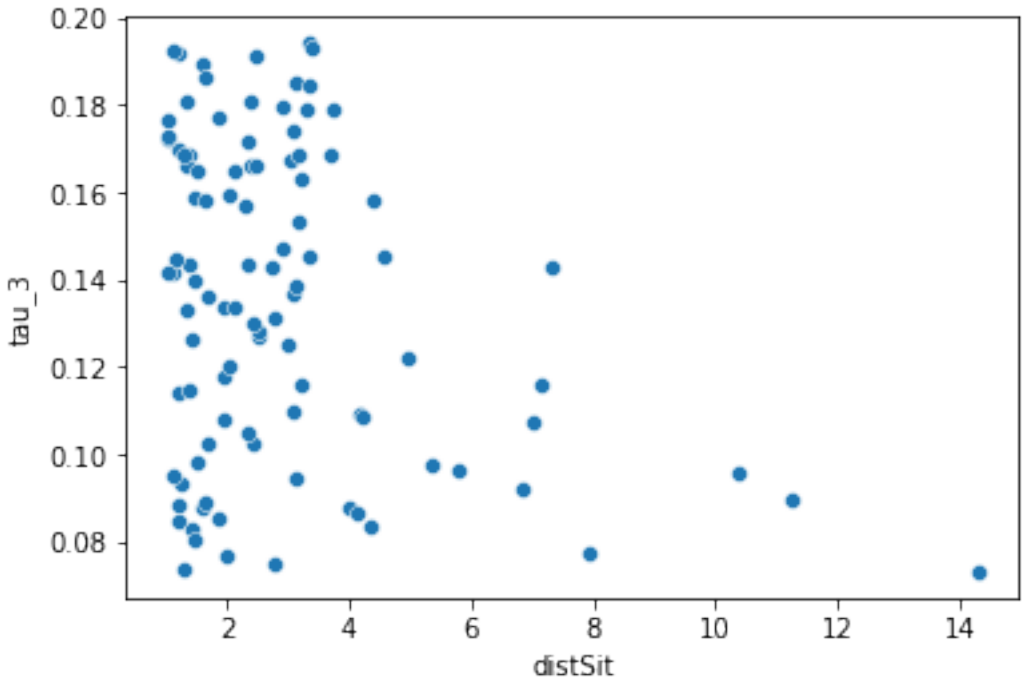
[12]: <AxesSubplot:xlabel='distSit', ylabel='tau_2'>



[13]:
```
# tau_3 vs distance

sns.scatterplot(x = data['distSit'], y = data['tau_3'])
```

[13]:
```
<AxesSubplot:xlabel='distSit', ylabel='tau_3'>
```


0.20
0.18
0.16
0.14
0.12
0.10
0.08
tau_3
2
4
6
8
10
12
14
distSit

[ ]:

[ ]: