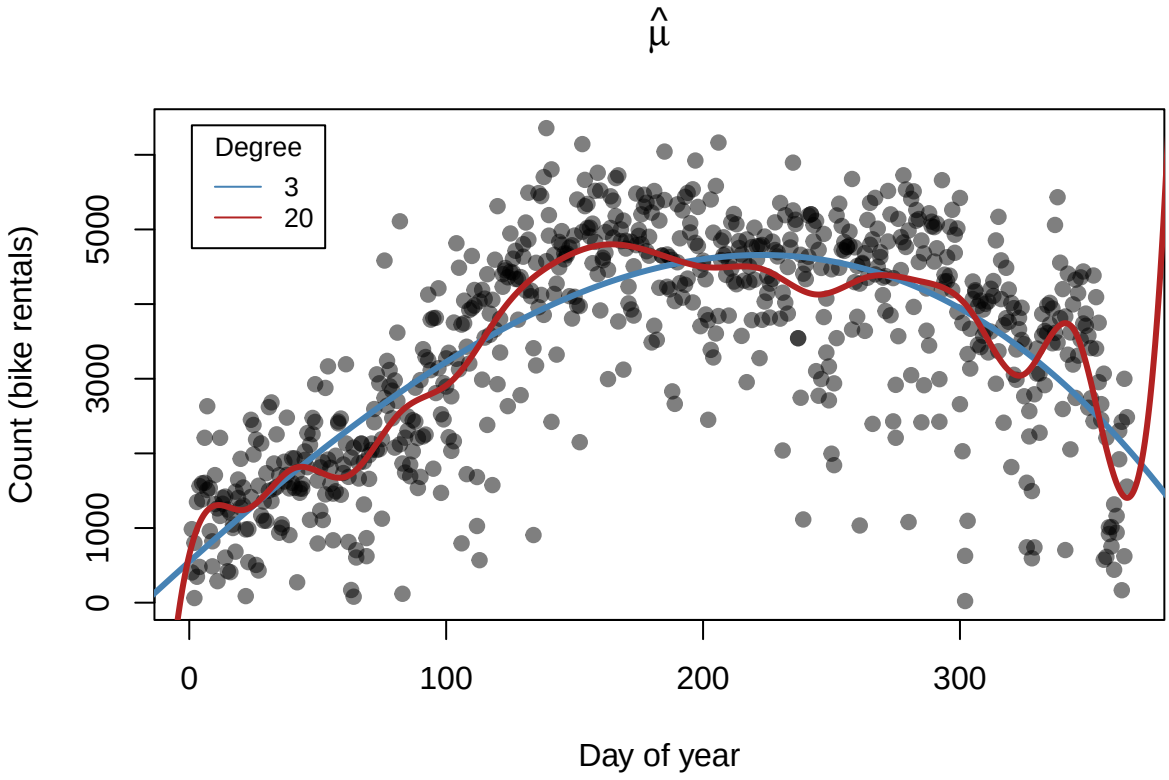
Bike

The data set is related to the two-year historical log corresponding to years 2011 and 2012 from Capital Bikeshare system, Washington D.C., USA which is publicly available in http://capitalbikeshare.com/systemdata.

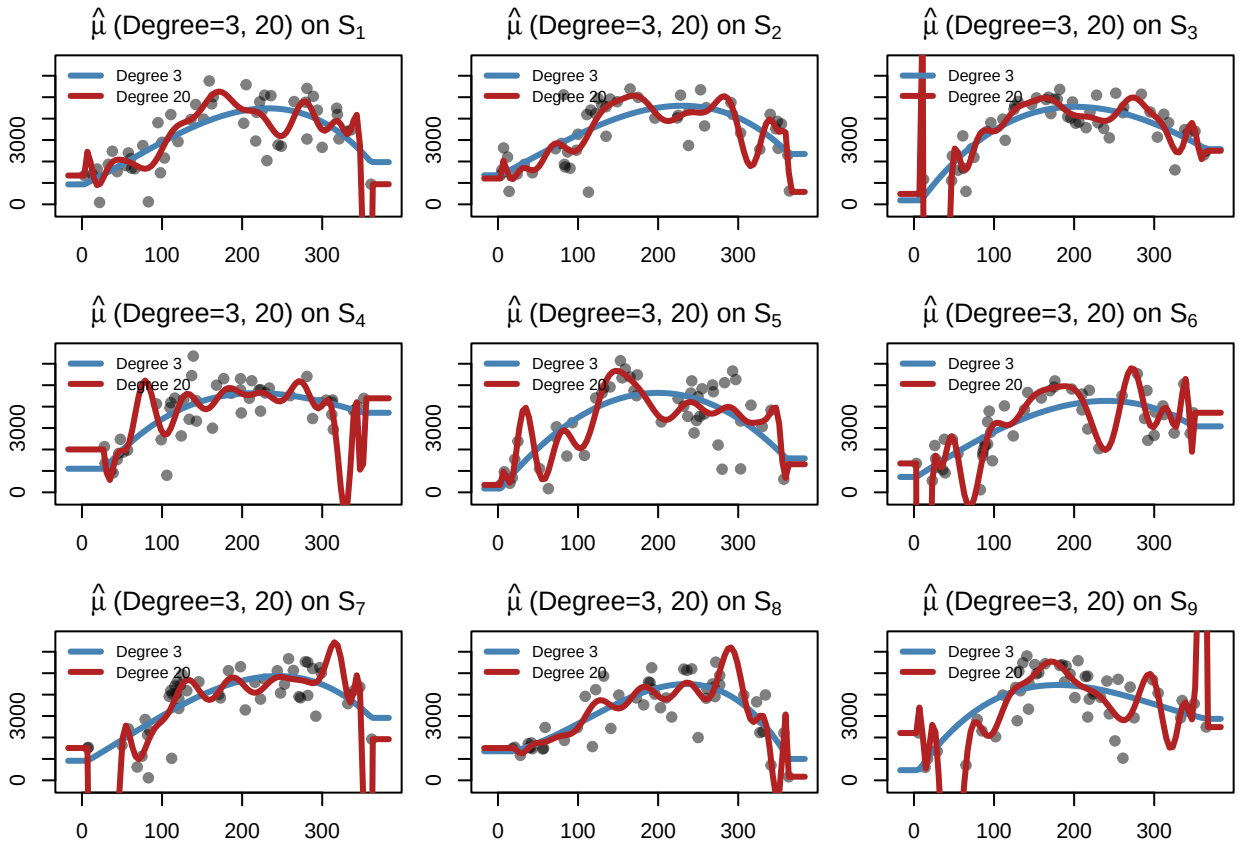
The following is a scatter plot of the data, overlaid are the fitted polynomials with degrees 3 and 20 to the data.

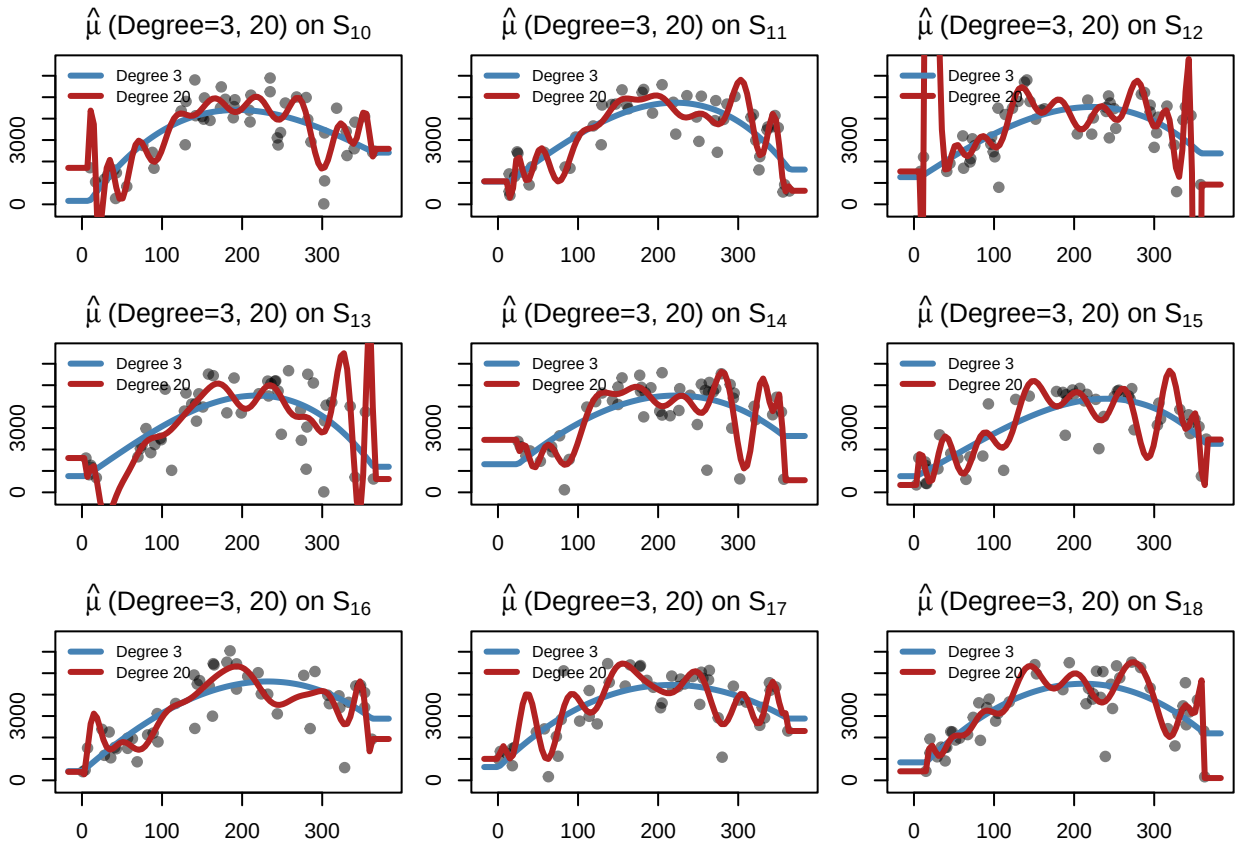
```
# ########
# REDACTED
# ########
```

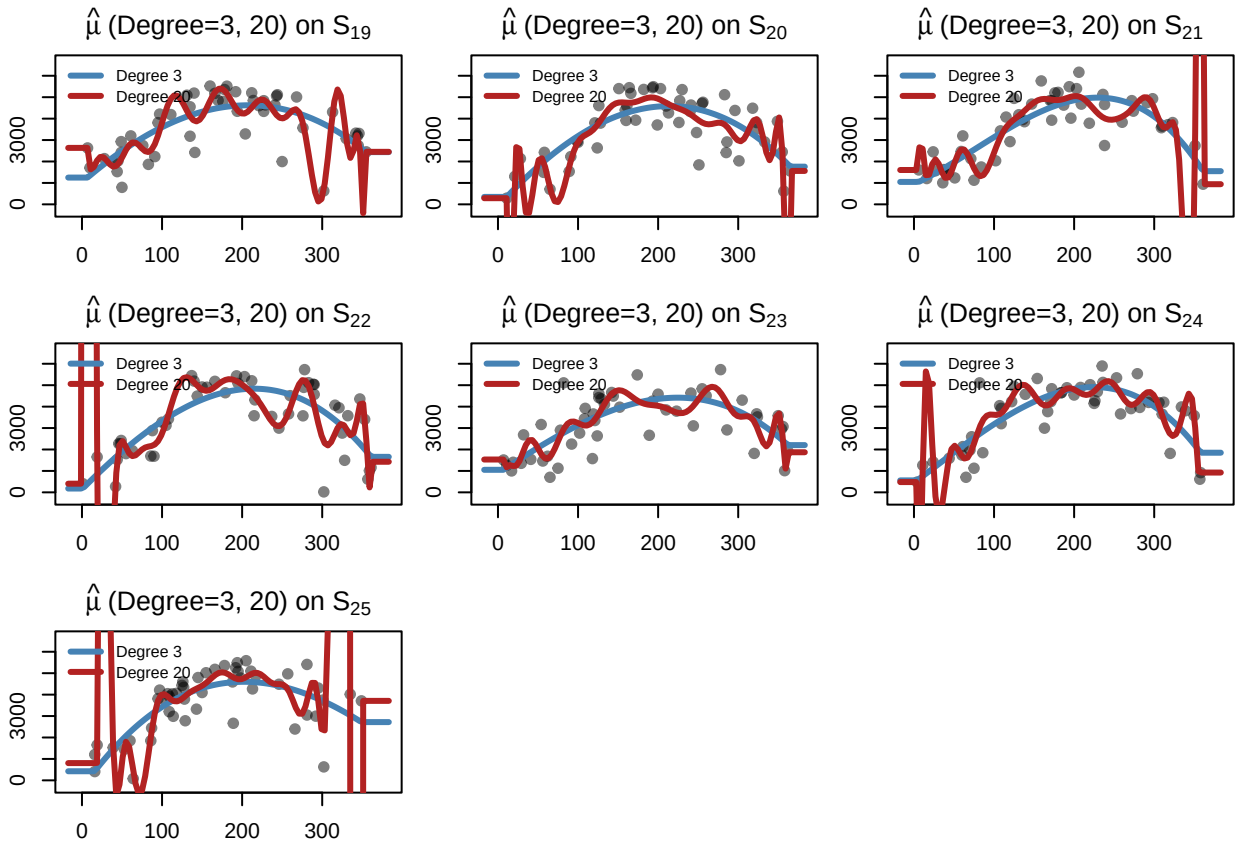


Here we generate 25 samples of size 50 and fit polynomials of degree 3 and 20 to every sample.

```
# ########
# REDACTED
# ########
```

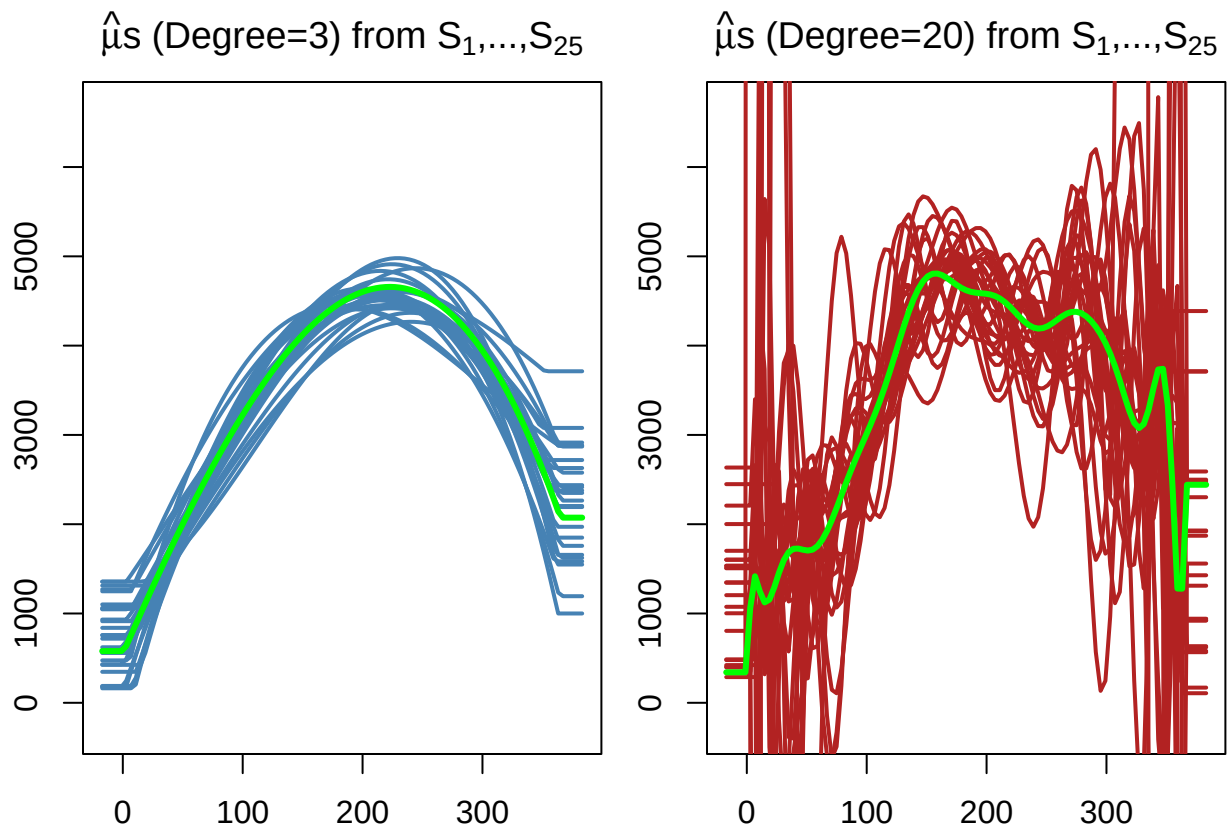

$\hat{\mu}$ (Degree=3, 20) on S_1
$\hat{\mu}$ (Degree=3, 20) on S_2
$\hat{\mu}$ (Degree=3, 20) on S_3
$\hat{\mu}$ (Degree=3, 20) on S_4
$\hat{\mu}$ (Degree=3, 20) on S_5
$\hat{\mu}$ (Degree=3, 20) on S_6
$\hat{\mu}$ (Degree=3, 20) on S_7
$\hat{\mu}$ (Degree=3, 20) on S_8
$\hat{\mu}$ (Degree=3, 20) on S_9
Degree 3
Degree 20
0
3000
0
100
200
300


$\hat{\mu}$ (Degree=3, 20) on S_{10}
$\hat{\mu}$ (Degree=3, 20) on S_{11}
$\hat{\mu}$ (Degree=3, 20) on S_{12}
$\hat{\mu}$ (Degree=3, 20) on S_{13}
$\hat{\mu}$ (Degree=3, 20) on S_{14}
$\hat{\mu}$ (Degree=3, 20) on S_{15}
$\hat{\mu}$ (Degree=3, 20) on S_{16}
$\hat{\mu}$ (Degree=3, 20) on S_{17}
$\hat{\mu}$ (Degree=3, 20) on S_{18}
Degree 3
Degree 20
0
3000
0
100
200
300



Plotted here are all the fitted polynomials with degree 3 and 20 on two different figures. Overlaid are the two fitted polynomials of degree 3 and 20 based on the whole population.

```
# ########
# REDACTED
# ########
```



We calculate the sampling variability of the function of the polynomials with degree equal to 3 and 20.

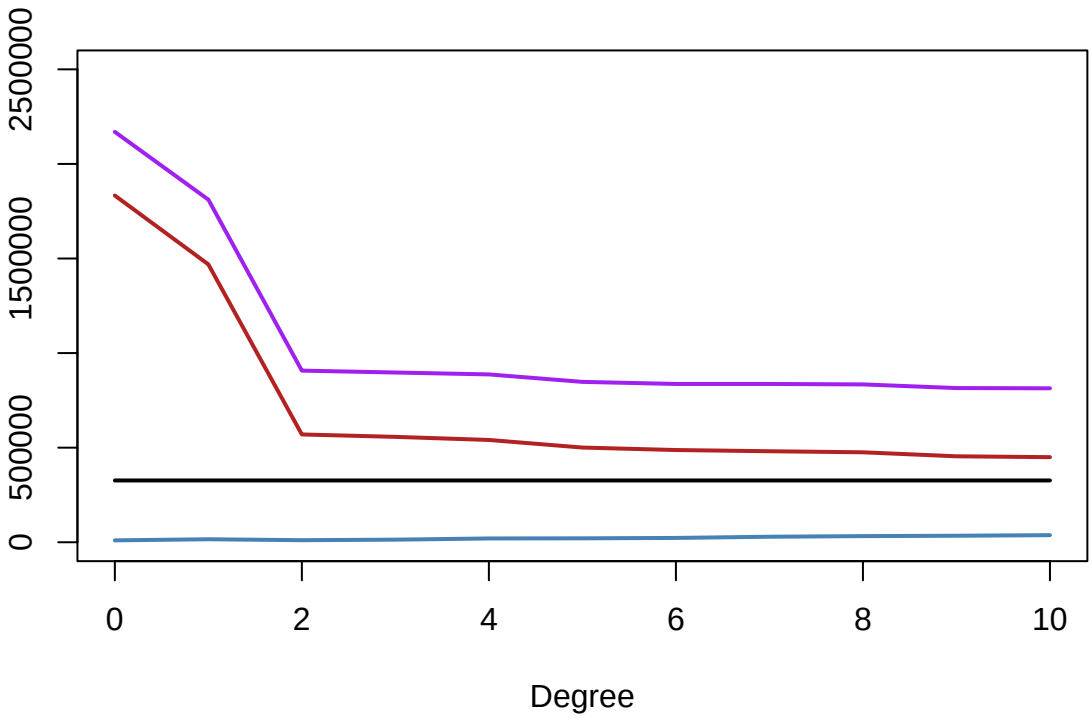
```
# ########
# REDACTED
# ########
```

We calculate the squared bias of the polynomials with degree equal to 3 and 20.

```
# ########
# REDACTED
# ########
```

We generate 25 samples of size 200 and calculate the APSE for complexities equal to 0:10.

```
# ########
# REDACTED
# ########
```


2500000
1500000
500000
0
0
2
4
6
8
10
Degree