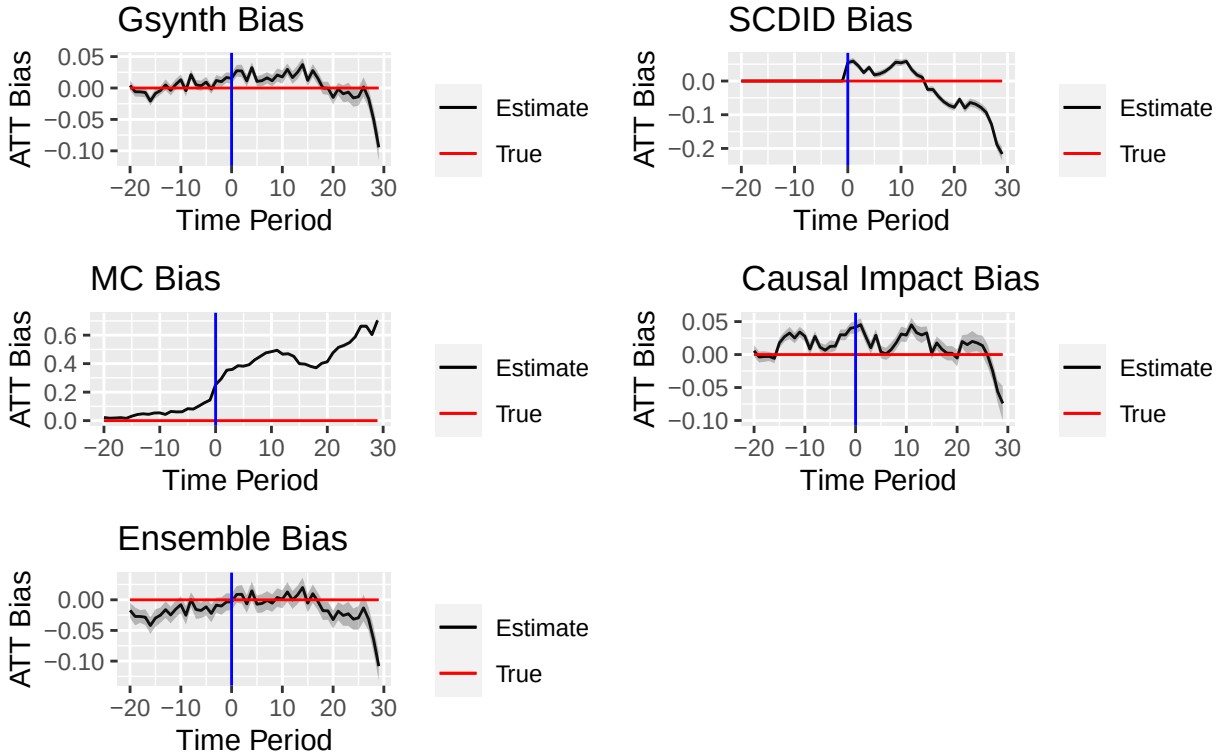
DGP Variations

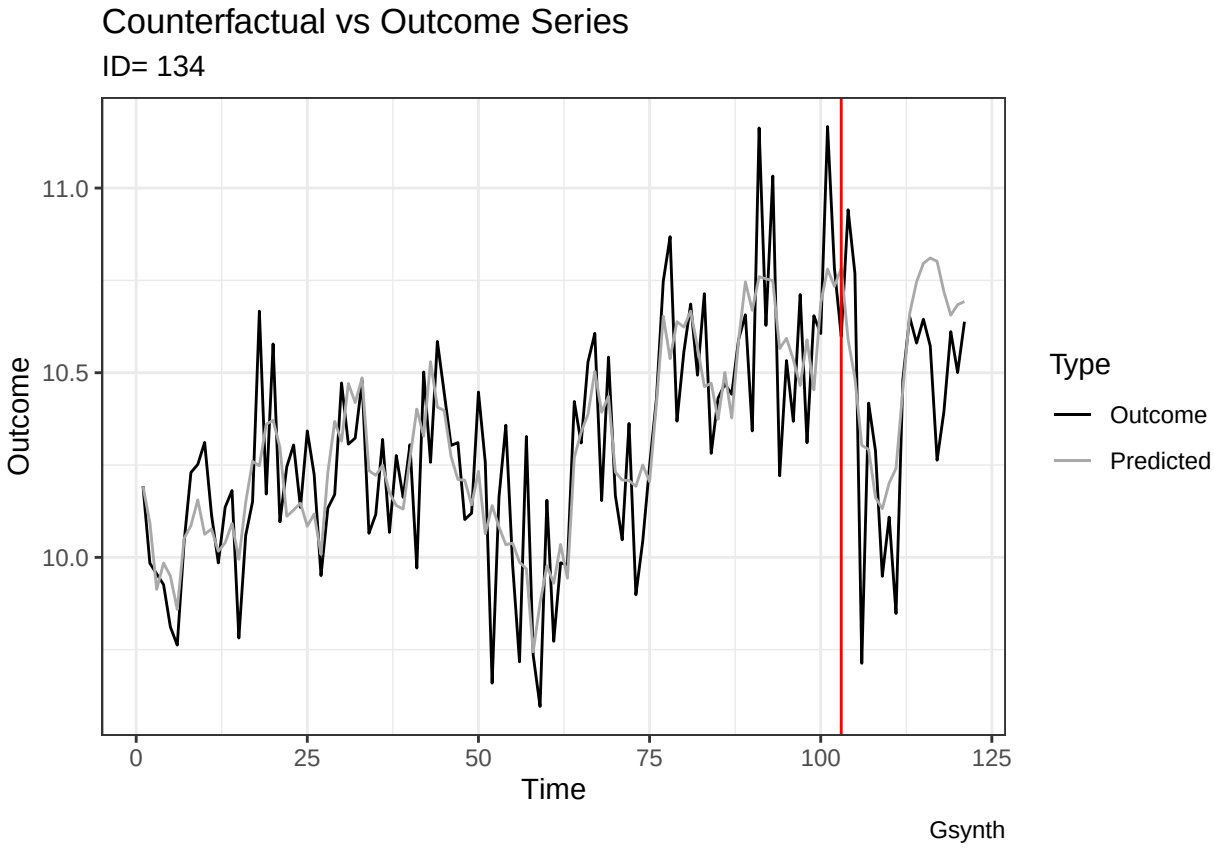
For Loop Over DGPs

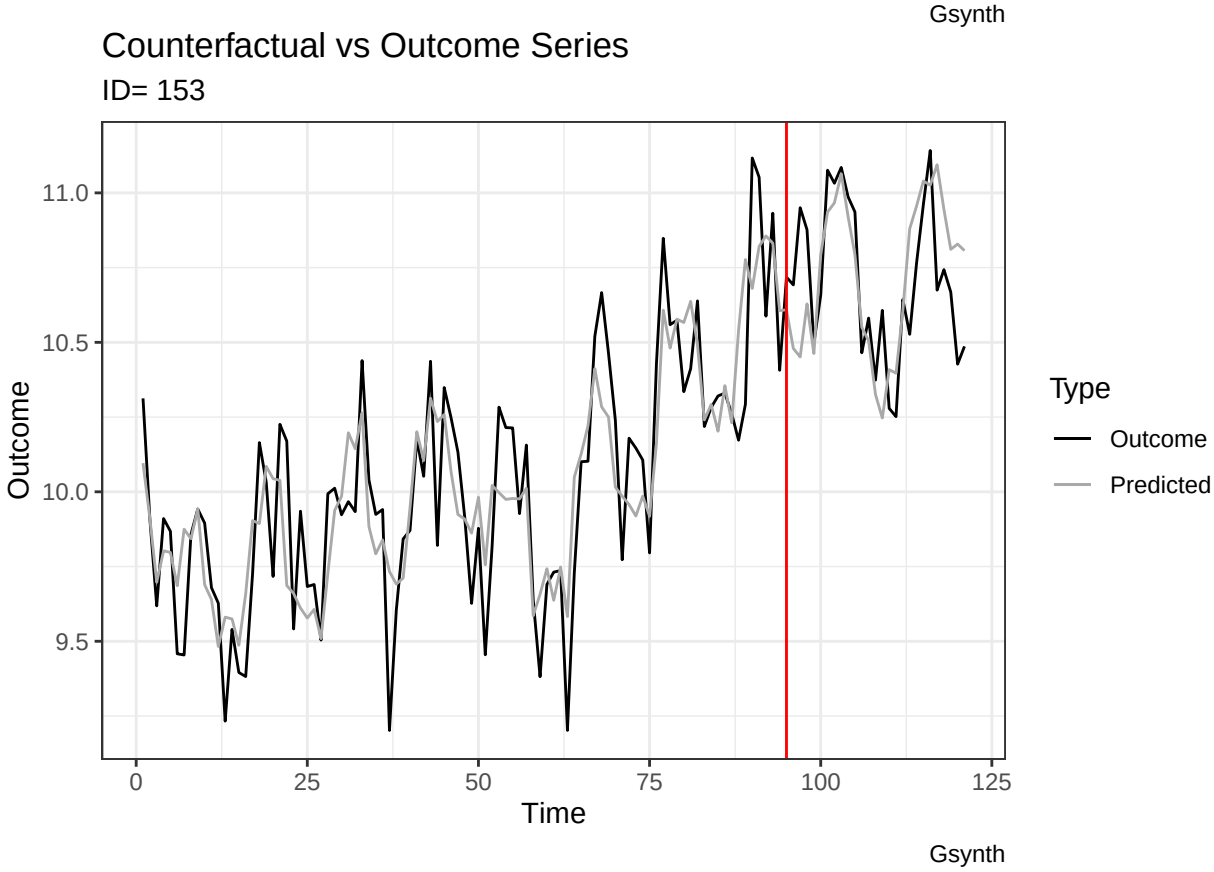
```
## [1] "aa_high_acf_loading_shift"
## [1] "aa_high_acf"
## [1] "aa_low_acf_sel_covariate_shift"
## [1] "aa_low_acf"
## [1] "aa_noisy_factors_load_shift_lowacf"
## [1] "aa_noisy_factors_load_shift"
## [1] "aa_noisy_factors_lowacf"
## [1] "aa_noisy_factors"
## [1] "ab_decay_het_loading_shift"
## [1] "ab_decay_het"
## [1] "ab_decay_impact_het_loading_shift"
## [1] "ab_decay_impact_het"
## [1] "ab_impact_het_loading_shift"
## [1] "ab_impact_het"
## [1] "ab_no_het_loading_shift"
## [1] "ab_no_het"
```

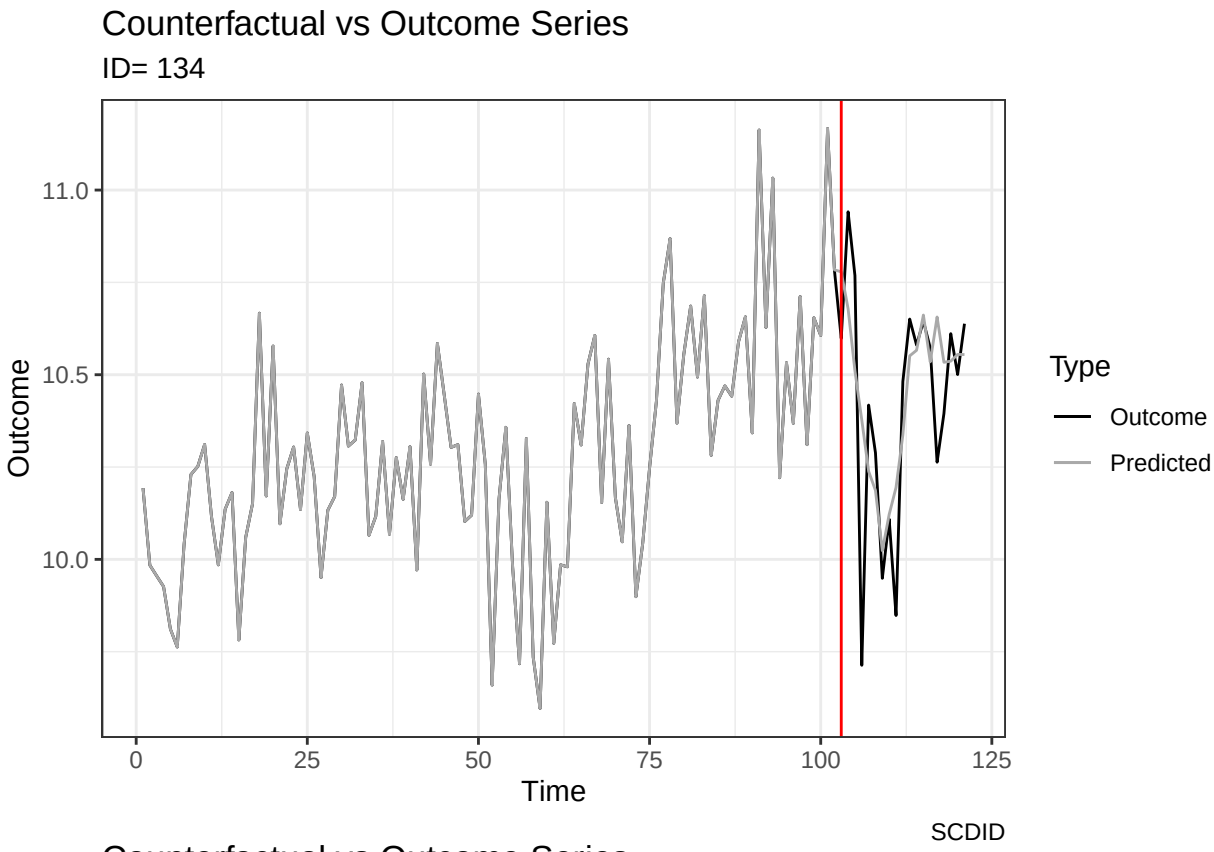
Bias by Method: aa_high_acf_loading_shift

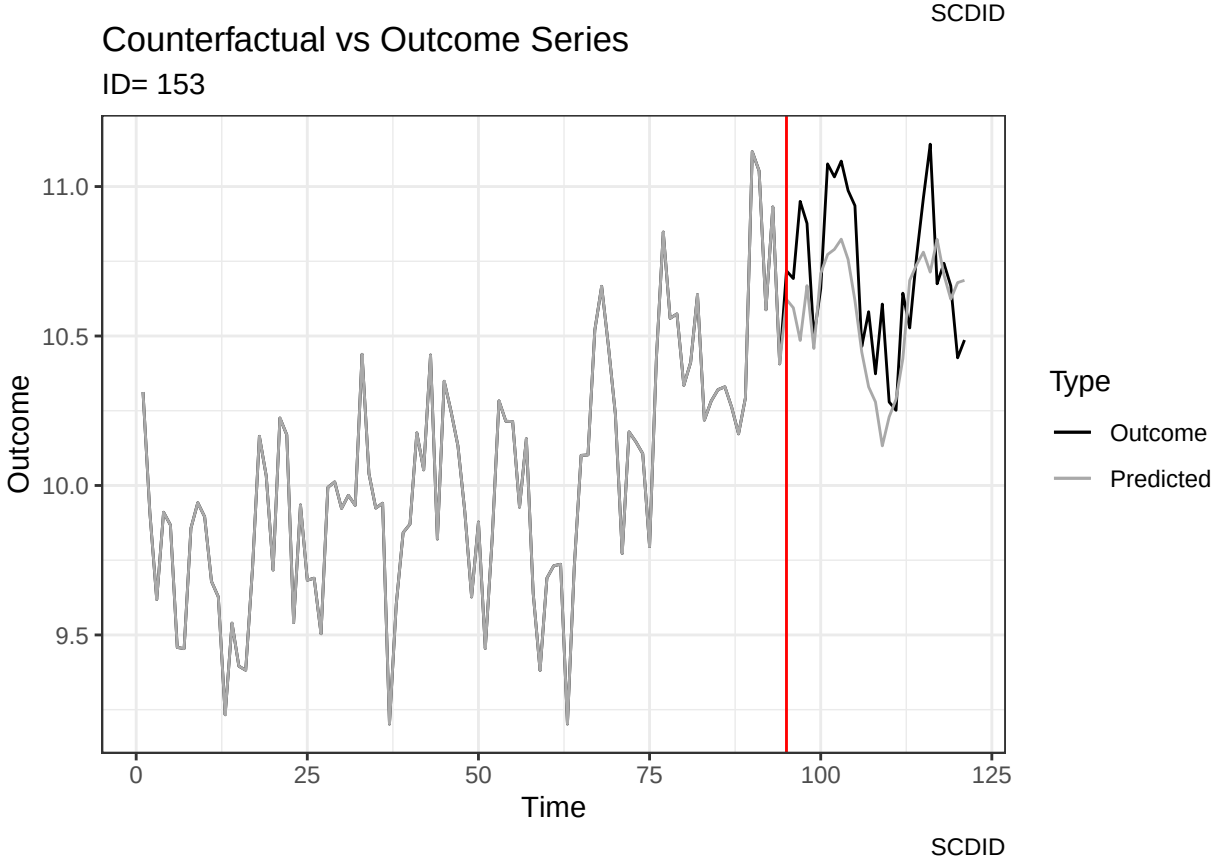


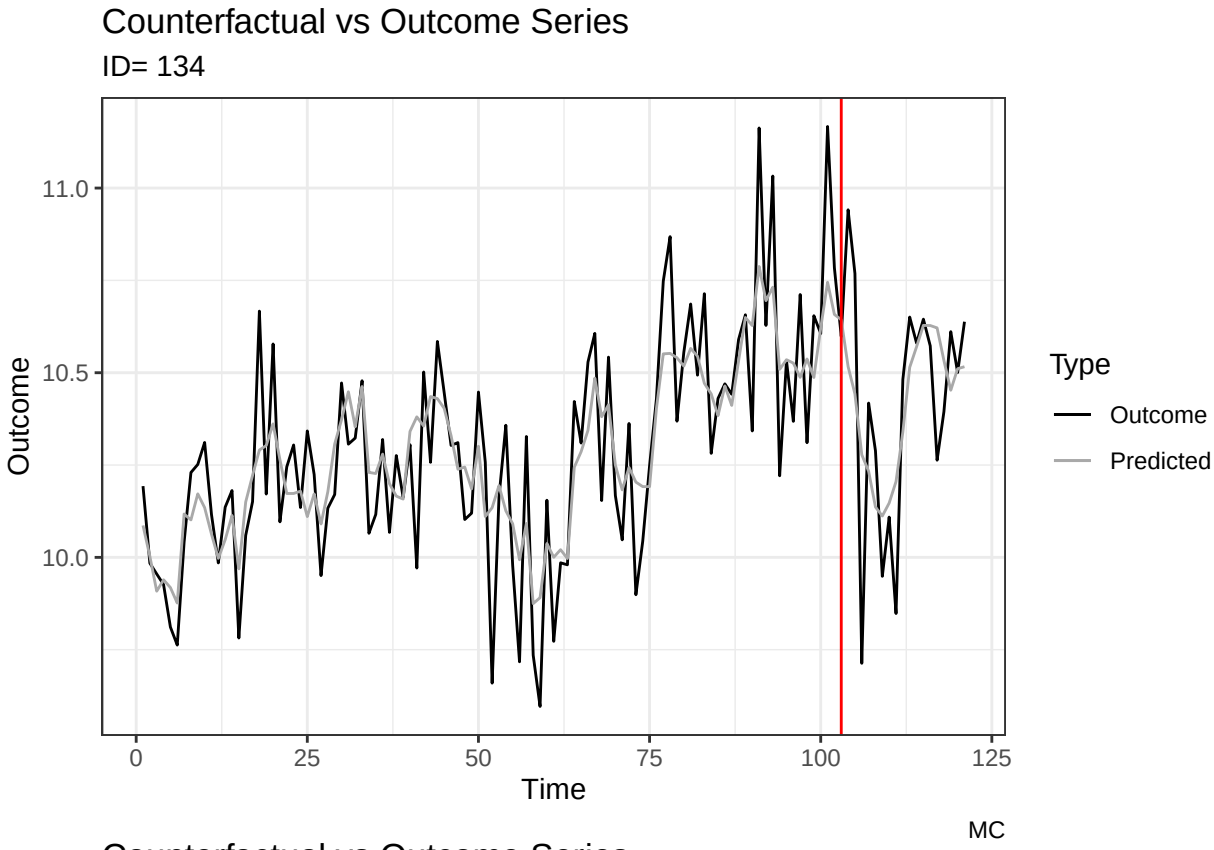
Notes:

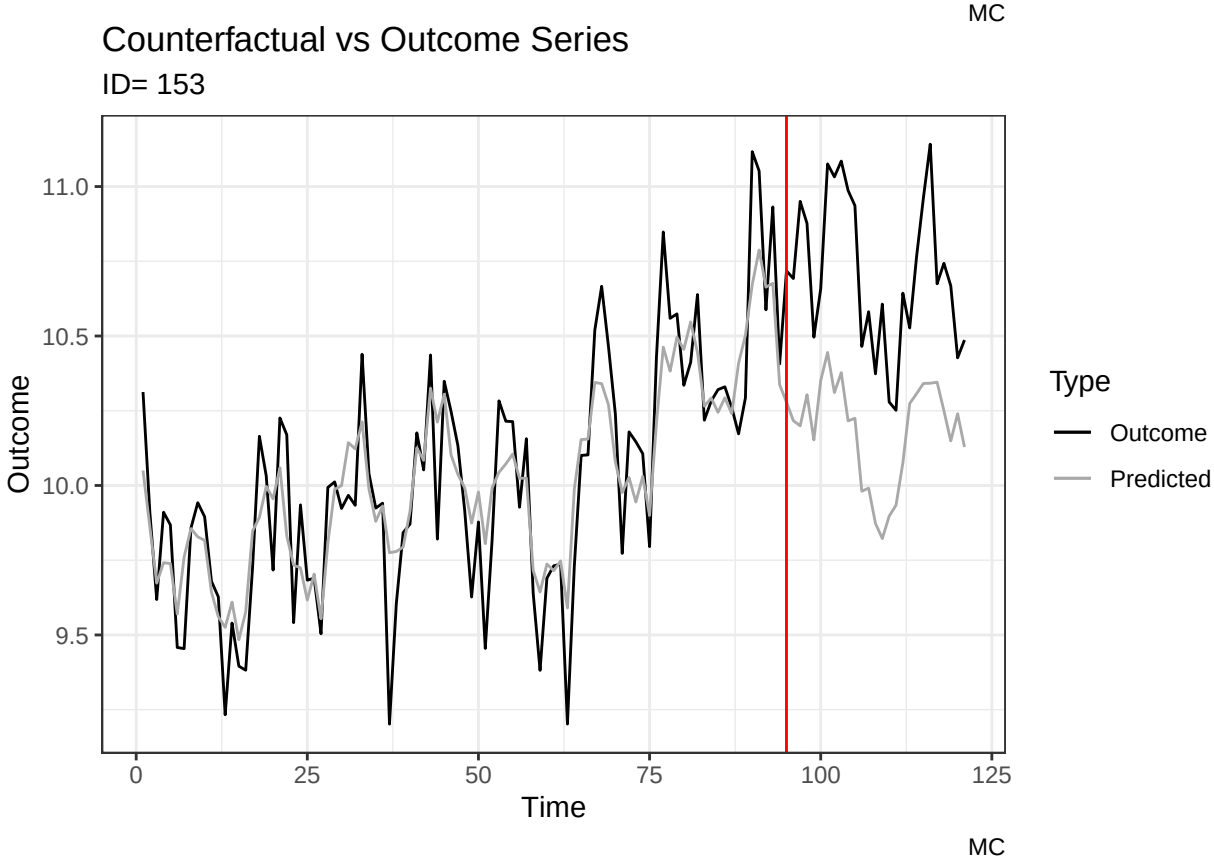

Counterfactual vs Outcome Series
ID= 134
Outcome
Time
Type
Outcome
Predicted
Gsynth

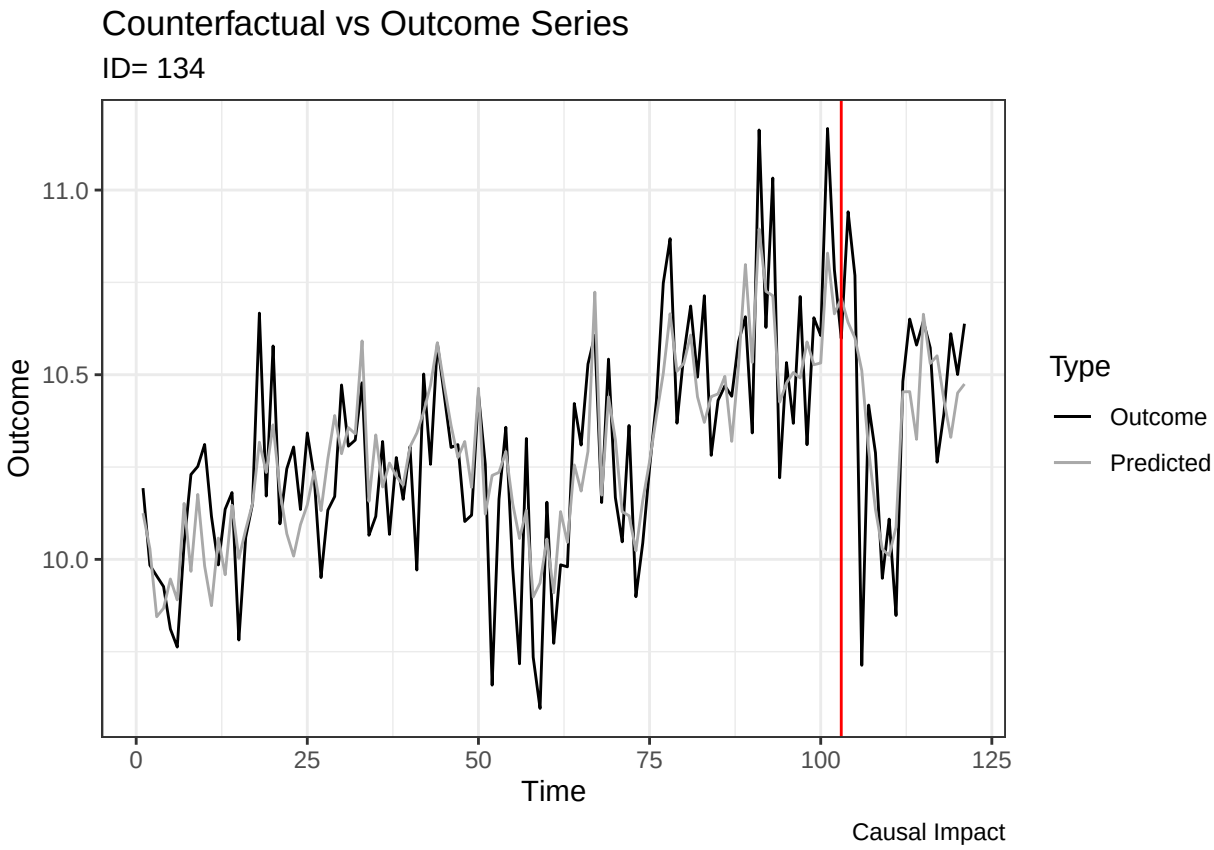

Counterfactual vs Outcome Series
ID= 153
Outcome
Time
Type
Outcome
Predicted
Gsynth

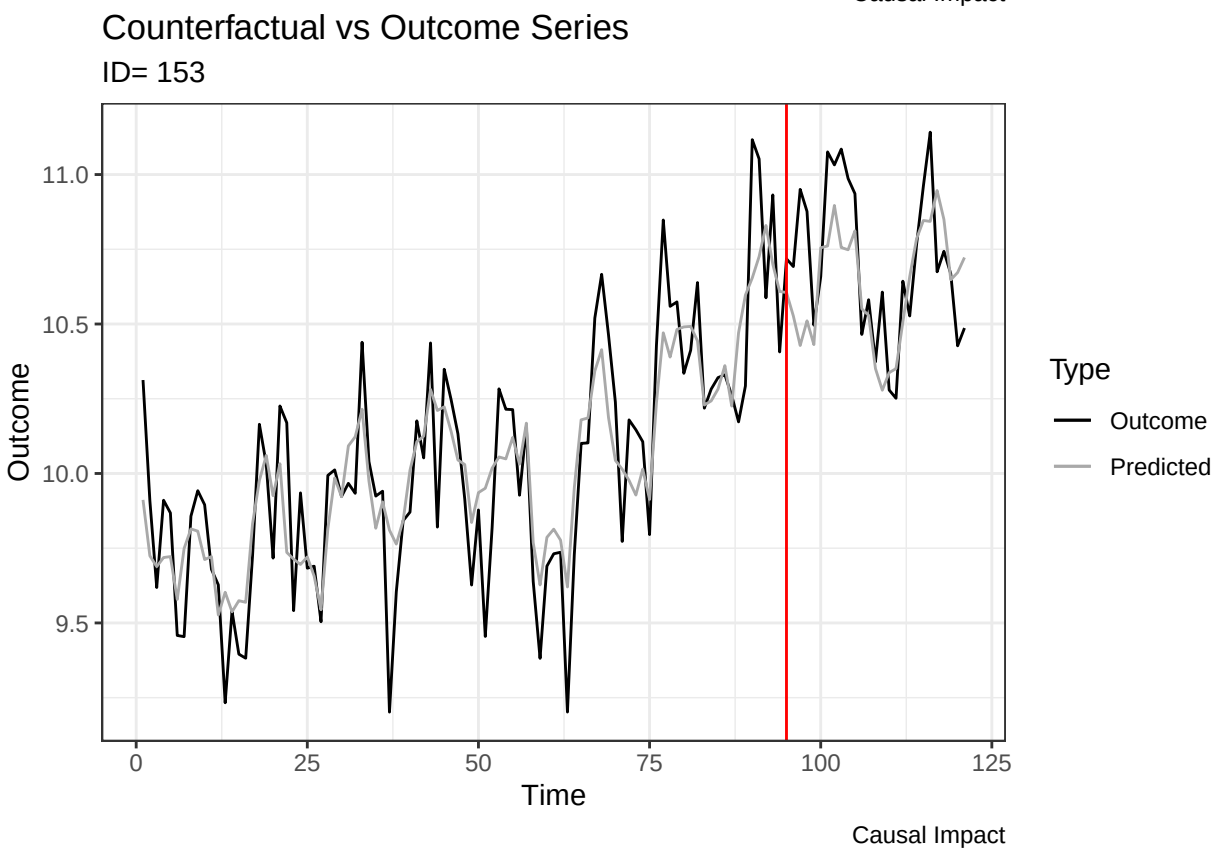

Counterfactual vs Outcome Series
ID= 134
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

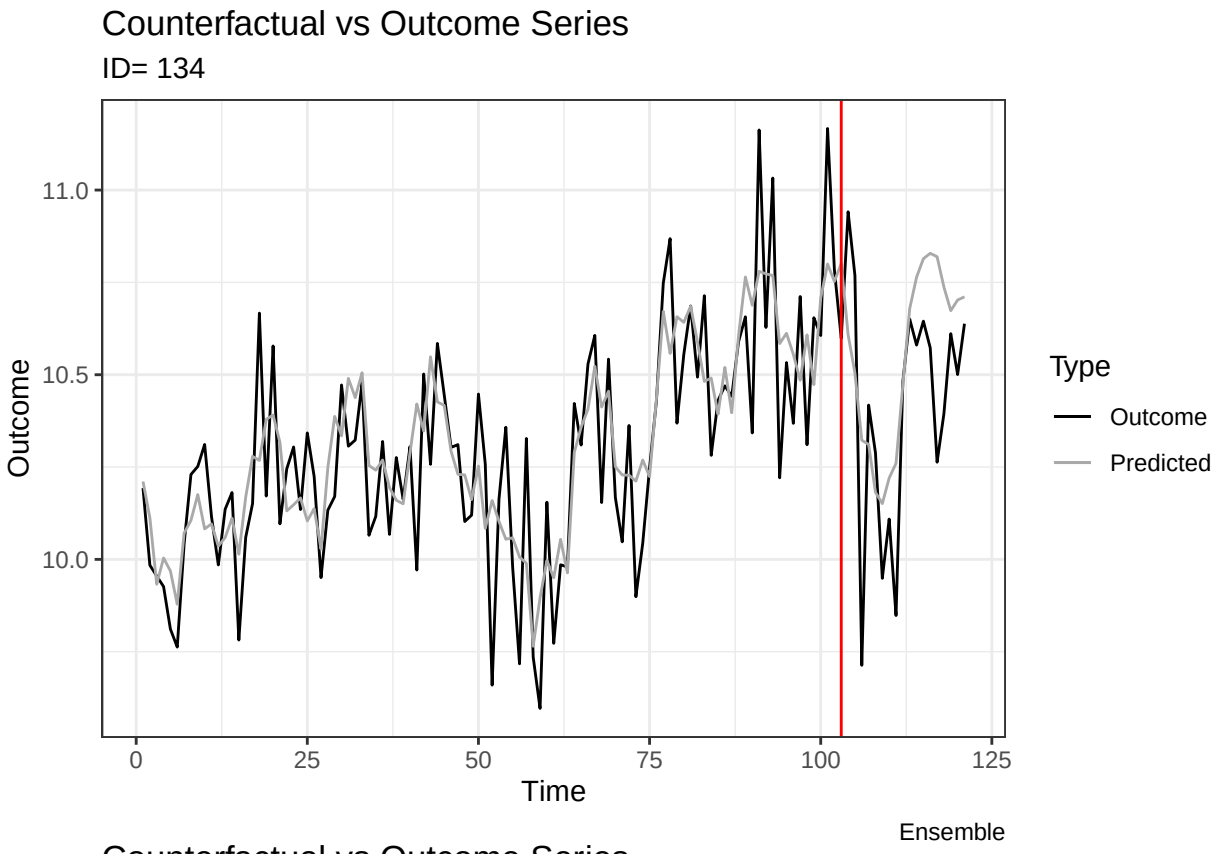

Counterfactual vs Outcome Series
ID= 153
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

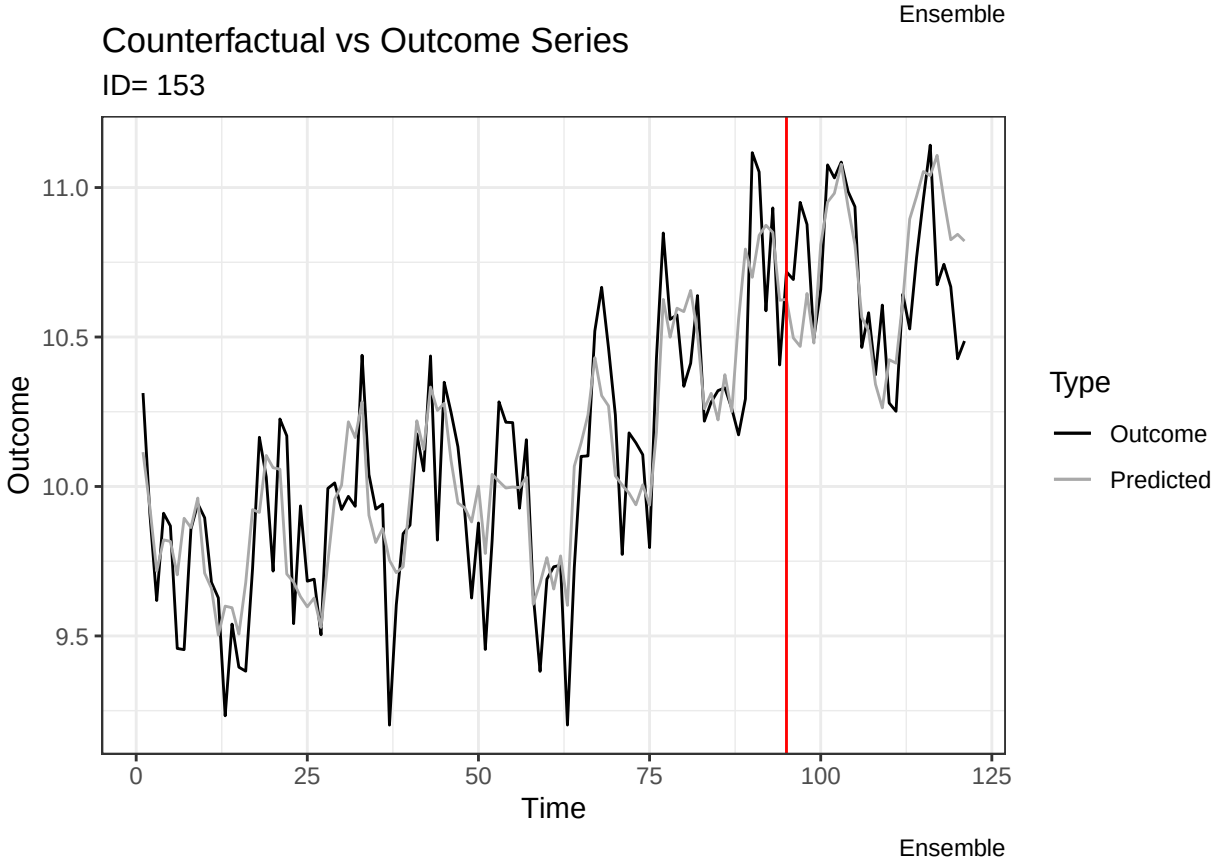

Counterfactual vs Outcome Series
ID= 134
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 153
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 134
Outcome
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 153
Outcome
Time
Causal Impact
Type
Outcome
Predicted

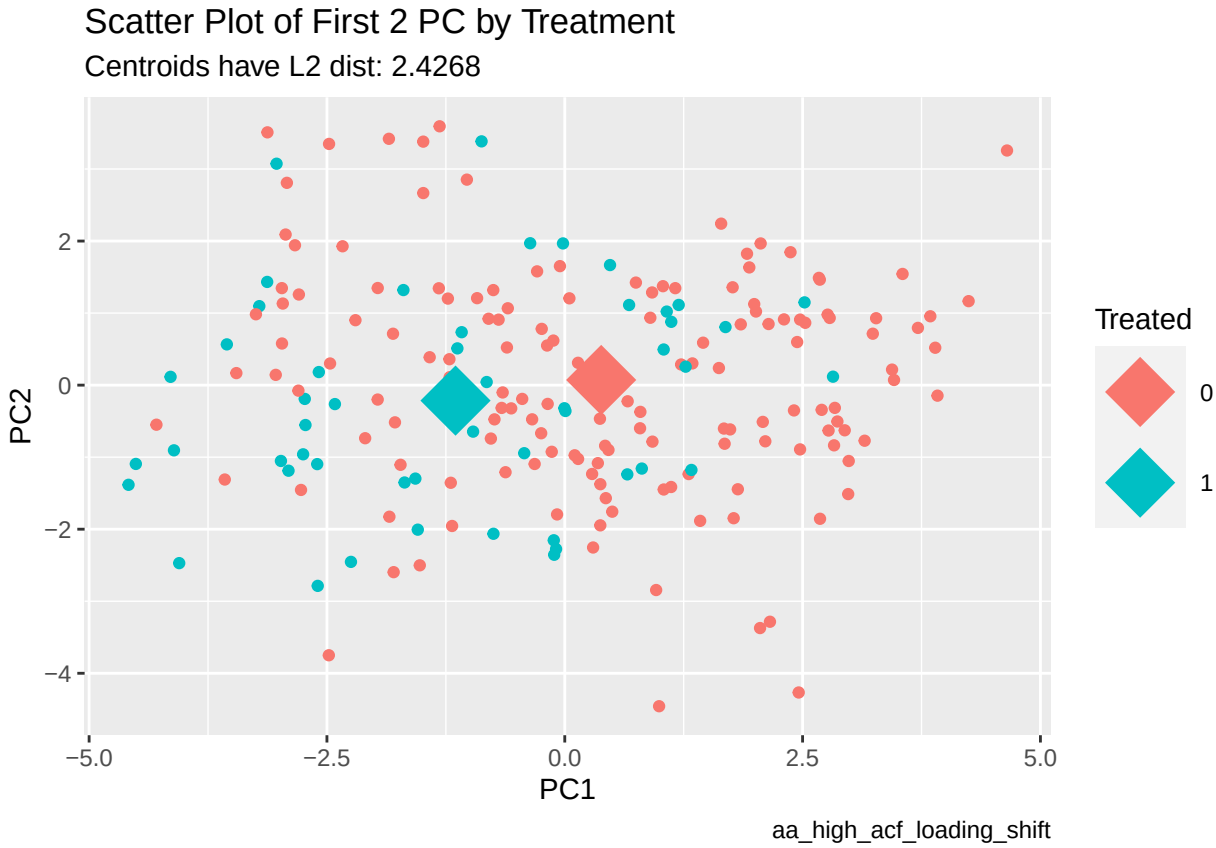





```
## Registered S3 method overwritten by 'quantmod':
```

```
##   method            from
##   as.zoo.data.frame zoo
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df            p       p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>        <dbl>       <dbl> <chr>
## 1 curvature    150    50     0.524  90.4 0.601        0.601       ns
## 2 diff1_acf1   150    50    -3.50   73.0 0.000787     0.00177     **
## 3 diff2_acf1   150    50    -1.16   88.8 0.25         0.281       ns
## 4 e_acf1       150    50    -2.60   77.7 0.0111       0.0143      *
## 5 entropy      150    50     2.82   72.7 0.00626      0.0113      *
## 6 linearity    150    50    -2.72   86.6 0.00779      0.0117      *
## 7 spike        150    50     5.80  159.  0.0000000349 0.000000314 ****
## 8 trend        150    50    -5.07  103.  0.00000175   0.00000788  ****
## 9 x_acf1       150    50    -4.89   99.3 0.00000392   0.0000118   ****
```

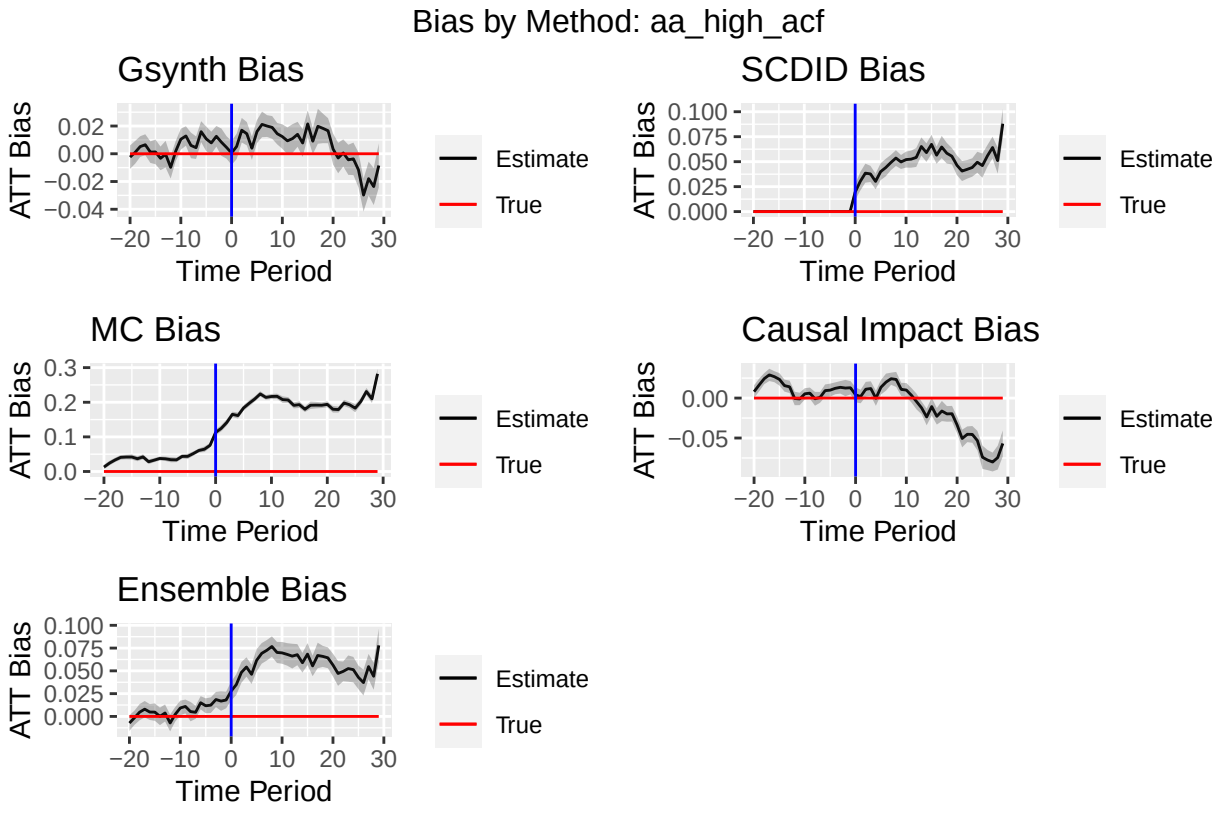
Metrics by Method

aa_high_acf_loading_shift

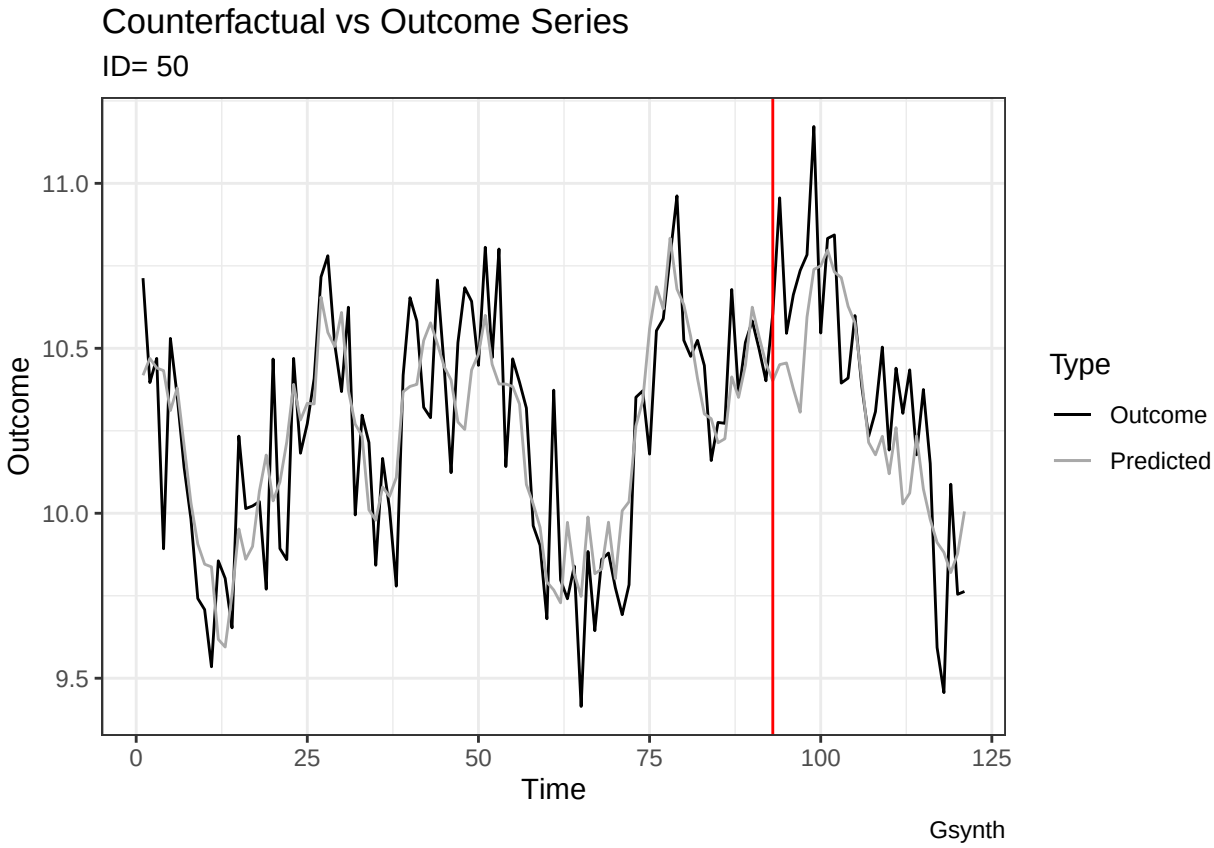
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.920	0.740	0.000	0.820	0.820
1	0.860	0.660	0.000	0.780	0.800
2	0.900	0.840	0.000	0.920	0.780
3	0.960	0.940	0.000	0.960	0.820
4	0.860	0.880	0.000	0.880	0.720

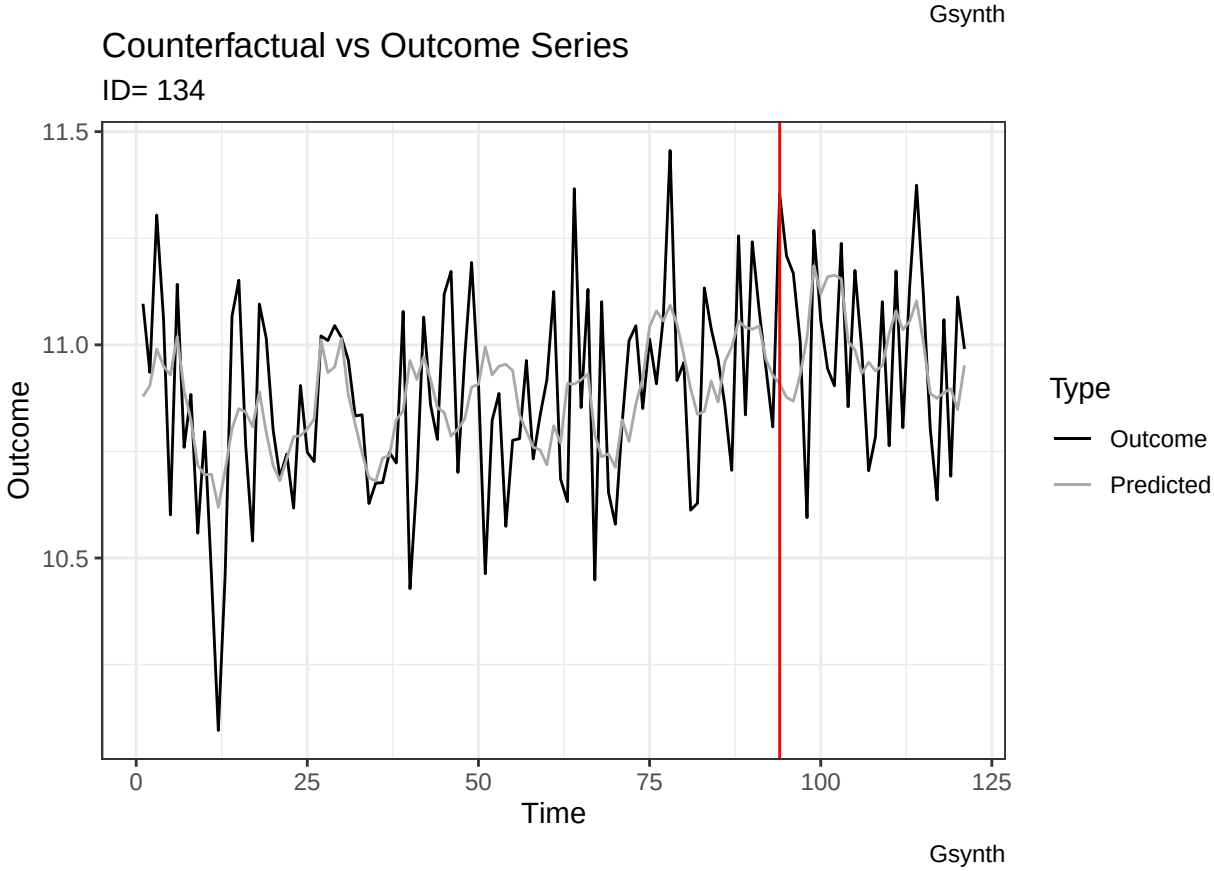
rmse					
0	0.226	0.260	0.493	0.257	0.228
1	0.228	0.268	0.550	0.259	0.229
2	0.231	0.262	0.673	0.259	0.233
3	0.238	0.272	0.705	0.264	0.241
4	0.236	0.270	0.718	0.258	0.238
bias					
0	0.016	0.054	0.252	0.041	−0.004
1	0.027	0.059	0.294	0.045	0.009
2	0.027	0.045	0.354	0.027	0.009
3	0.011	0.025	0.360	0.010	−0.007
4	0.033	0.041	0.385	0.029	0.015

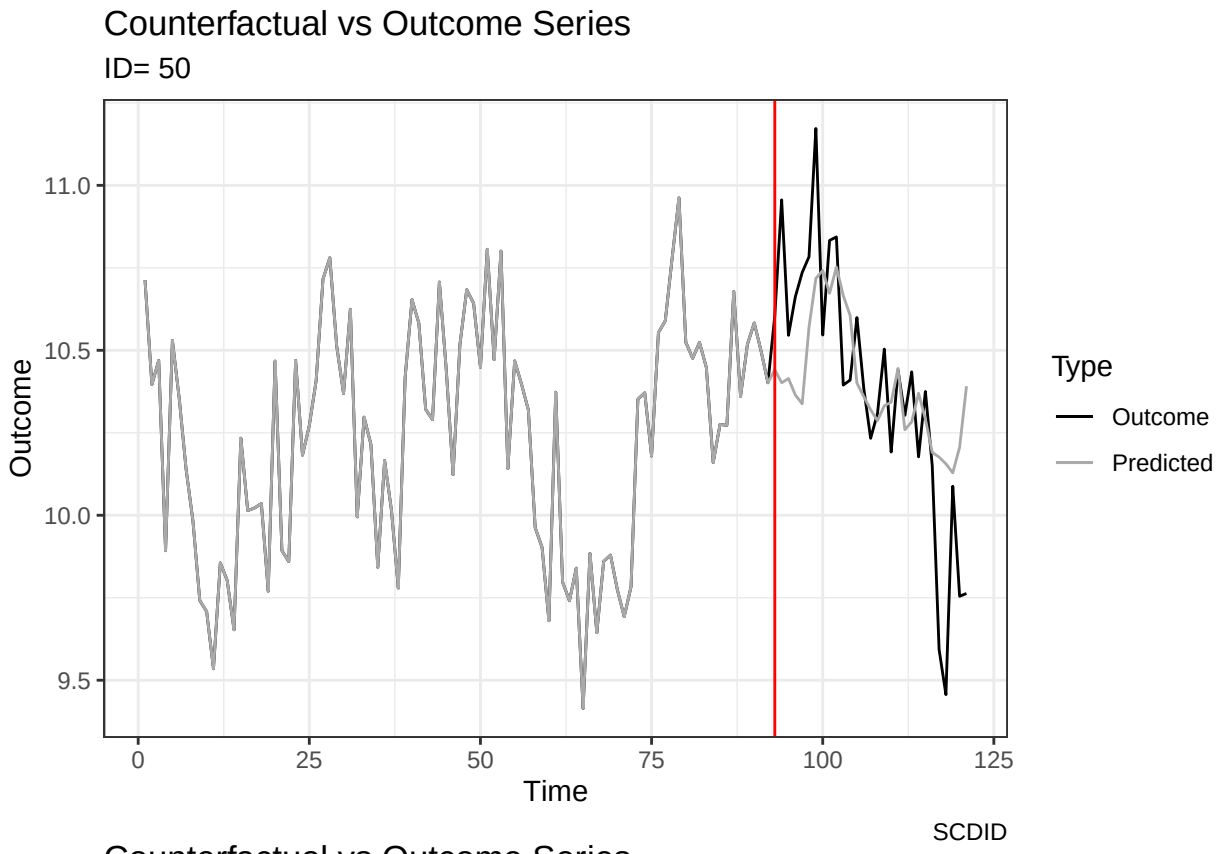
Notes:

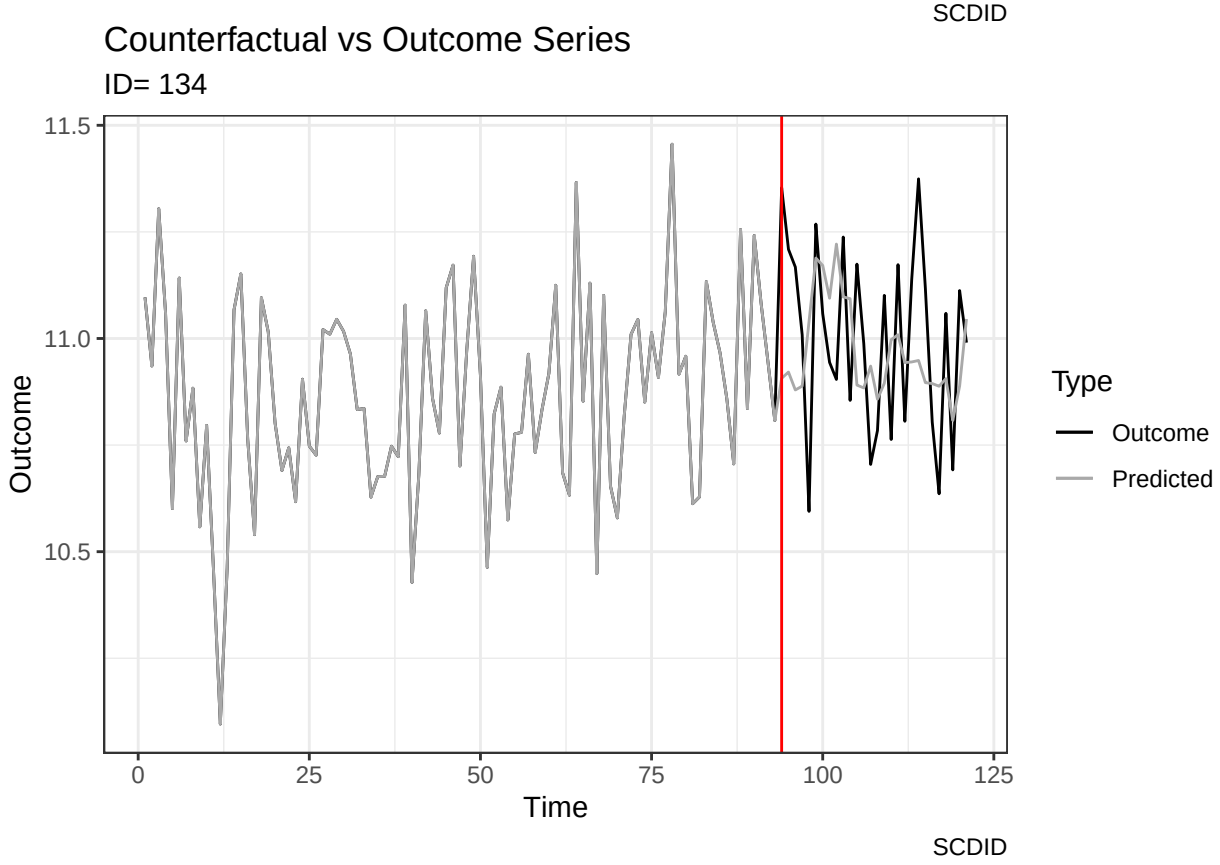


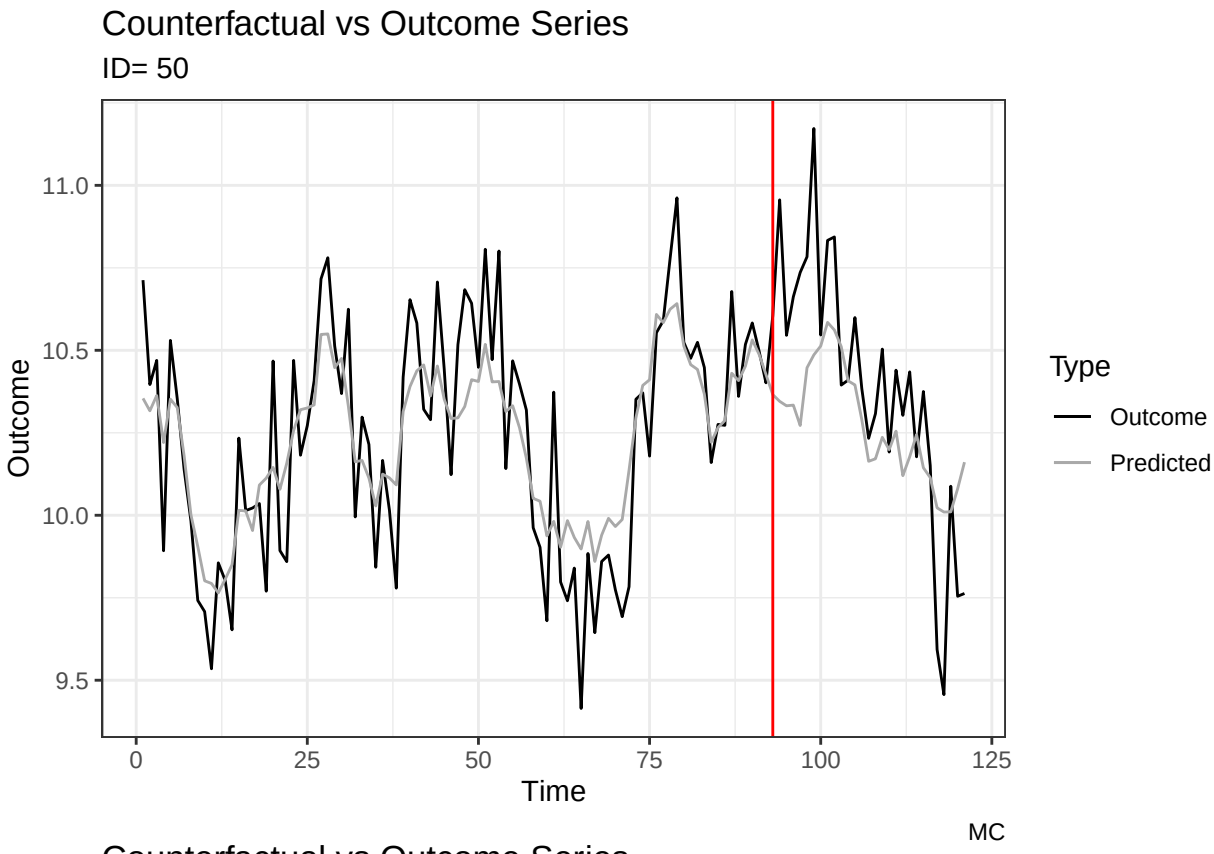
Notes:

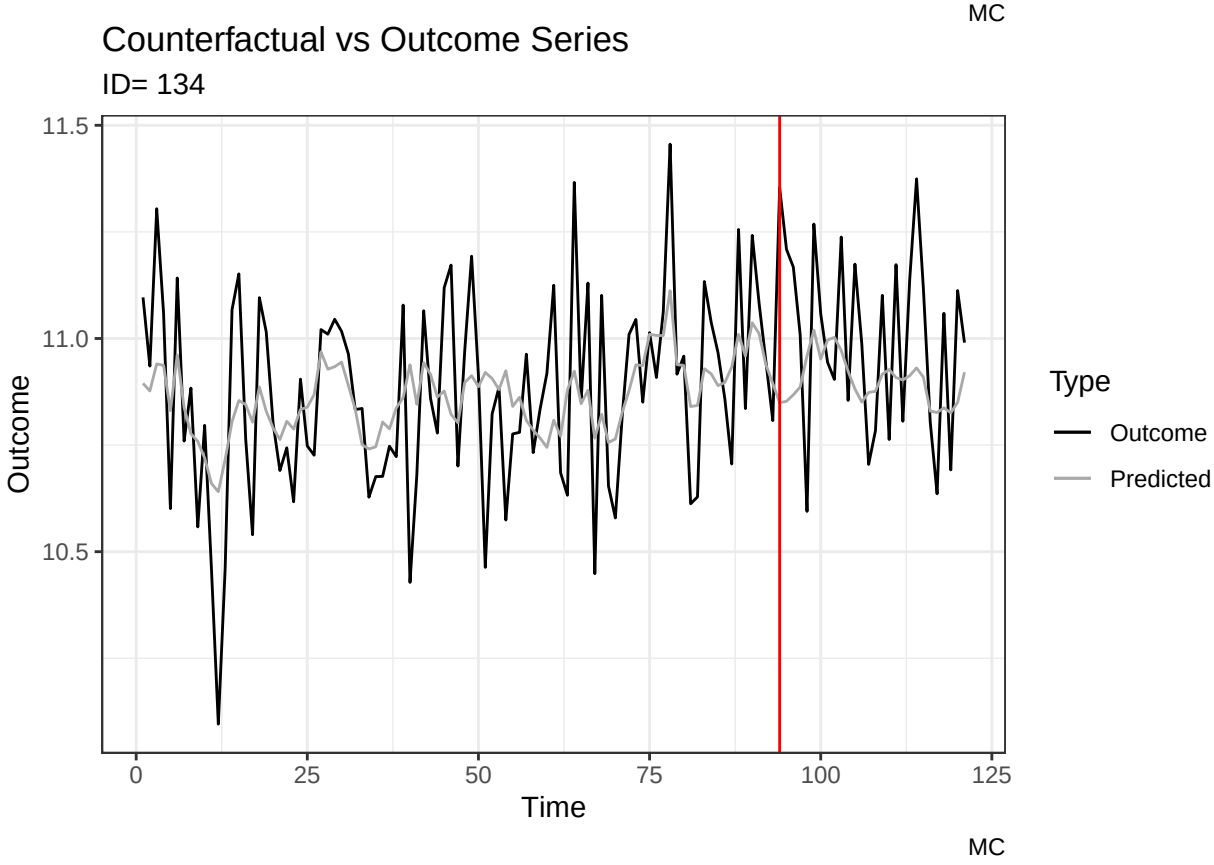

Counterfactual vs Outcome Series
ID= 50
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

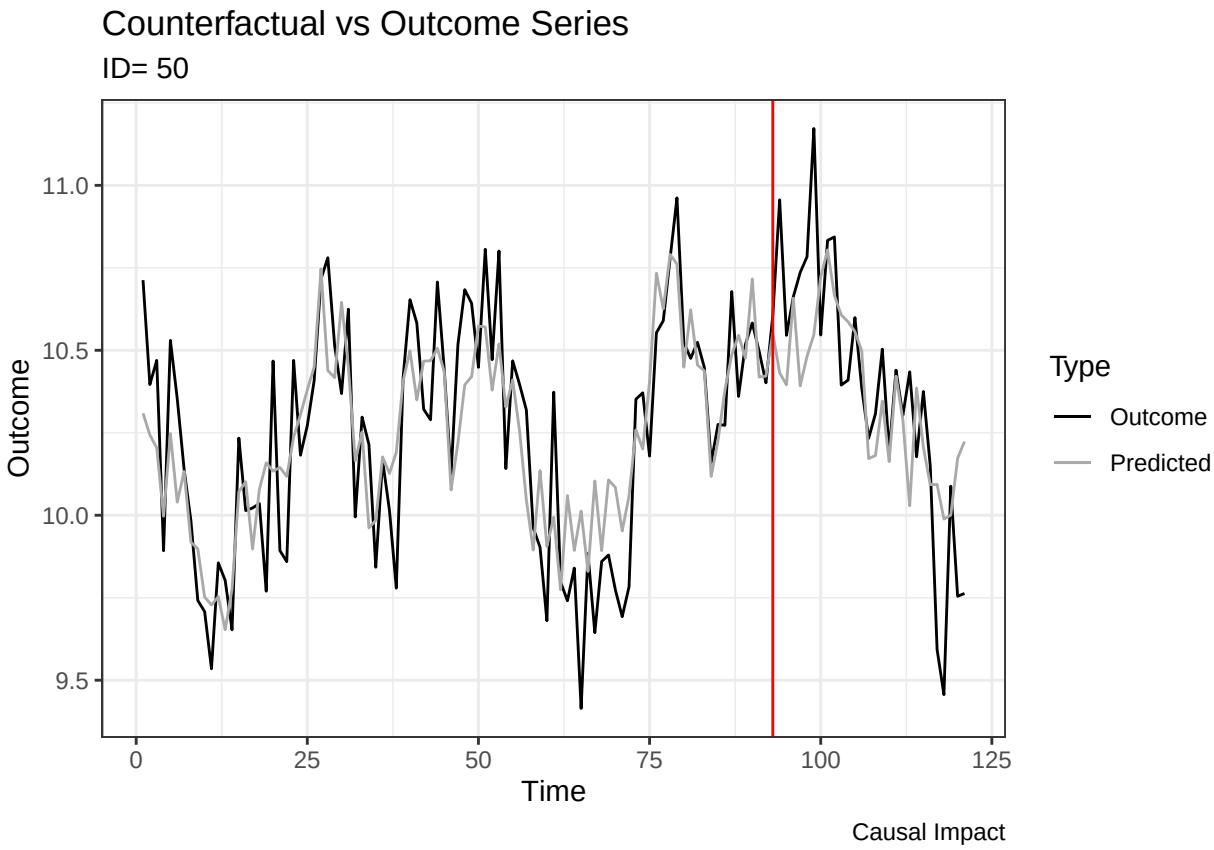

Counterfactual vs Outcome Series
ID= 134
Outcome
Time
11.5
11.0
10.5
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

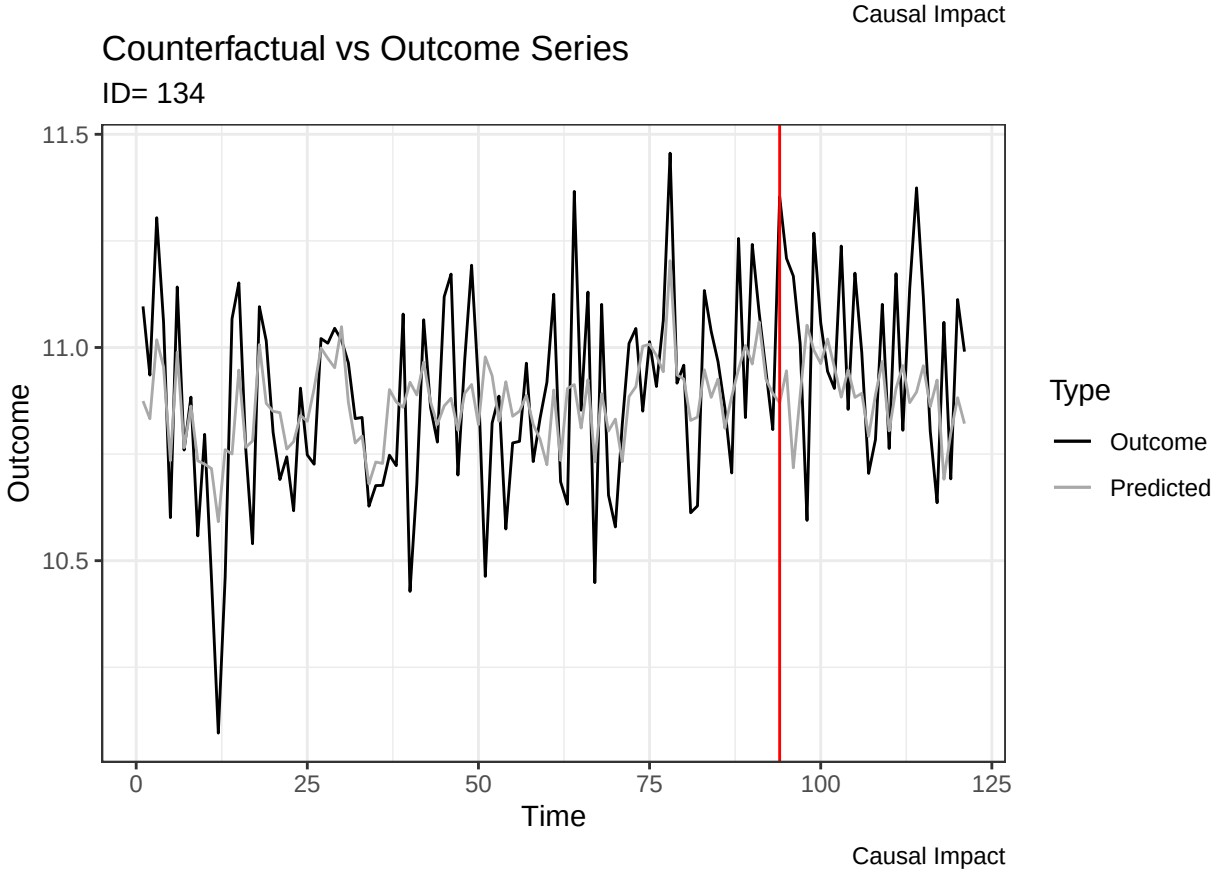

Counterfactual vs Outcome Series
ID= 50
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

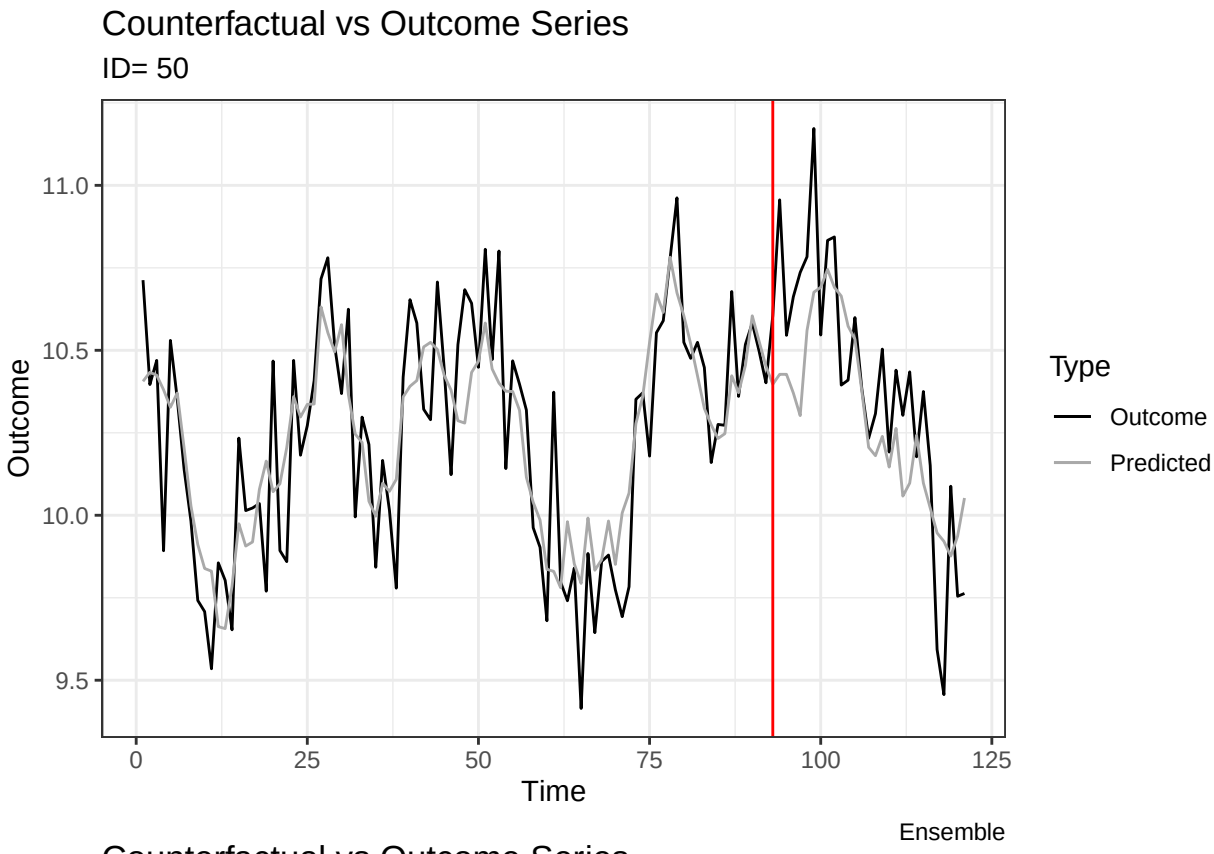

Counterfactual vs Outcome Series
ID= 134
Outcome
11.5
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

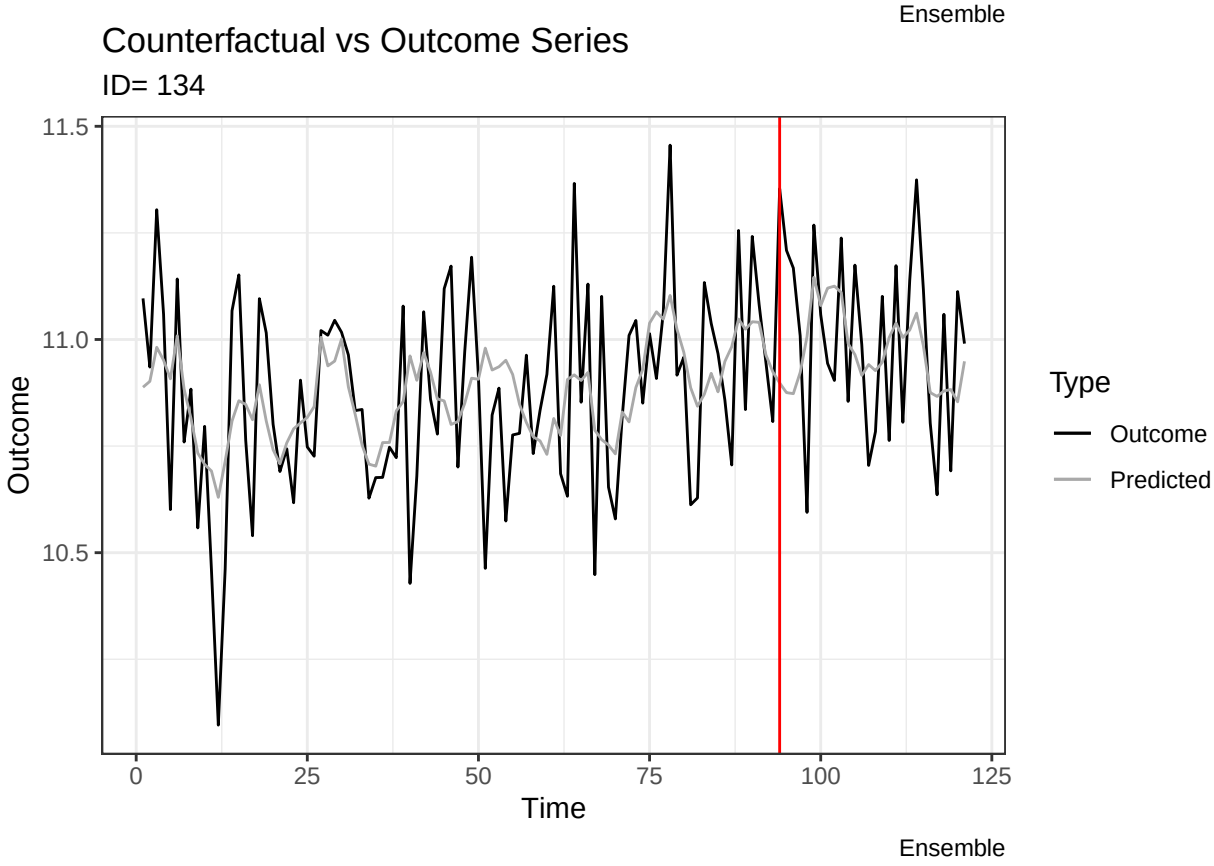

Counterfactual vs Outcome Series
ID= 50
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 134
Outcome
11.5
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

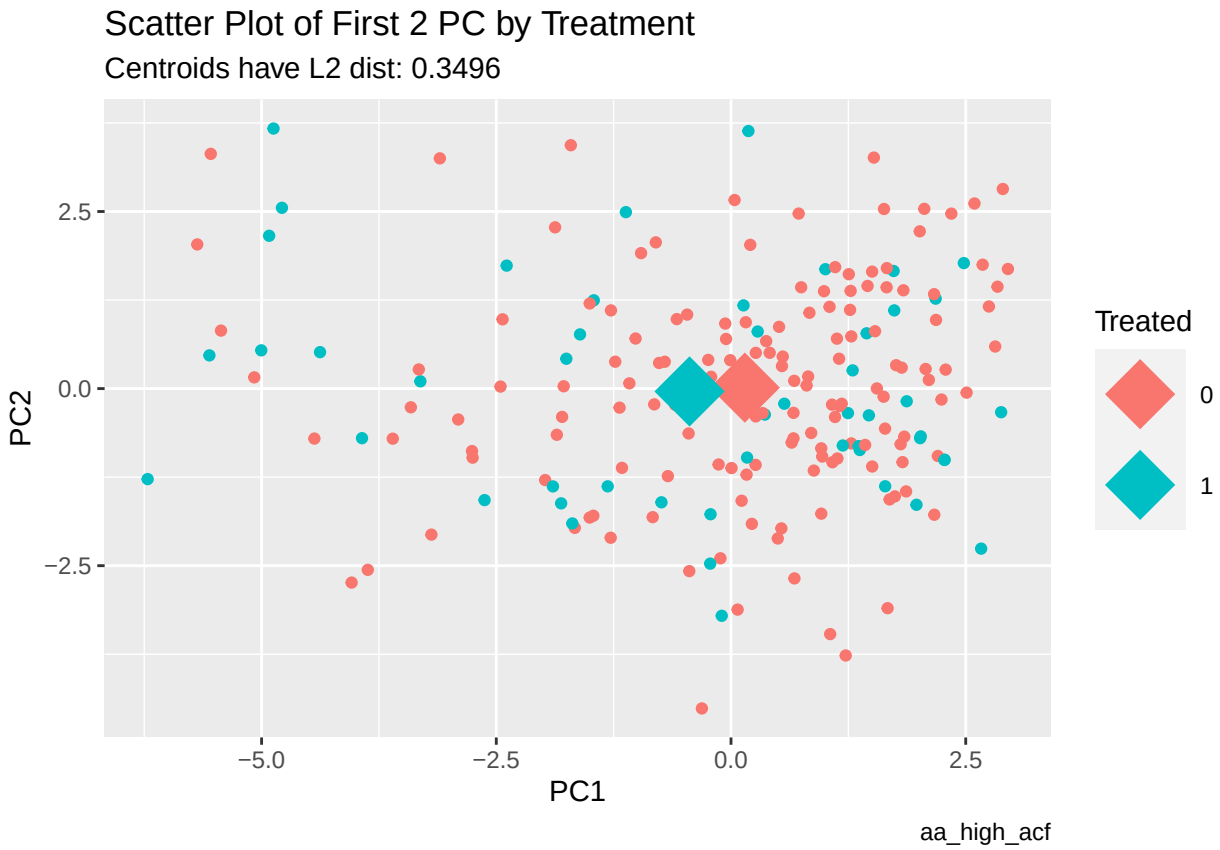

Counterfactual vs Outcome Series
ID= 50
Outcome
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 134
Outcome
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df     p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl> <dbl> <dbl> <chr>
## 1 curvature    150    50    -1.64   75.7 0.105 0.254 ns
## 2 diff1_acf1   150    50    -0.940  92.7 0.35  0.459 ns
## 3 diff2_acf1   150    50    -0.950  83.8 0.345 0.459 ns
## 4 e_acf1       150    50     0.193  78.8 0.848 0.864 ns
## 5 entropy      150    50     1.95   62.1 0.056 0.254 ns
## 6 linearity    150    50    -0.172  66.9 0.864 0.864 ns
## 7 spike        150    50     0.927  72.4 0.357 0.459 ns
## 8 trend        150    50    -1.60   69.2 0.113 0.254 ns
## 9 x_acf1       150    50    -1.62   70.7 0.111 0.254 ns
```

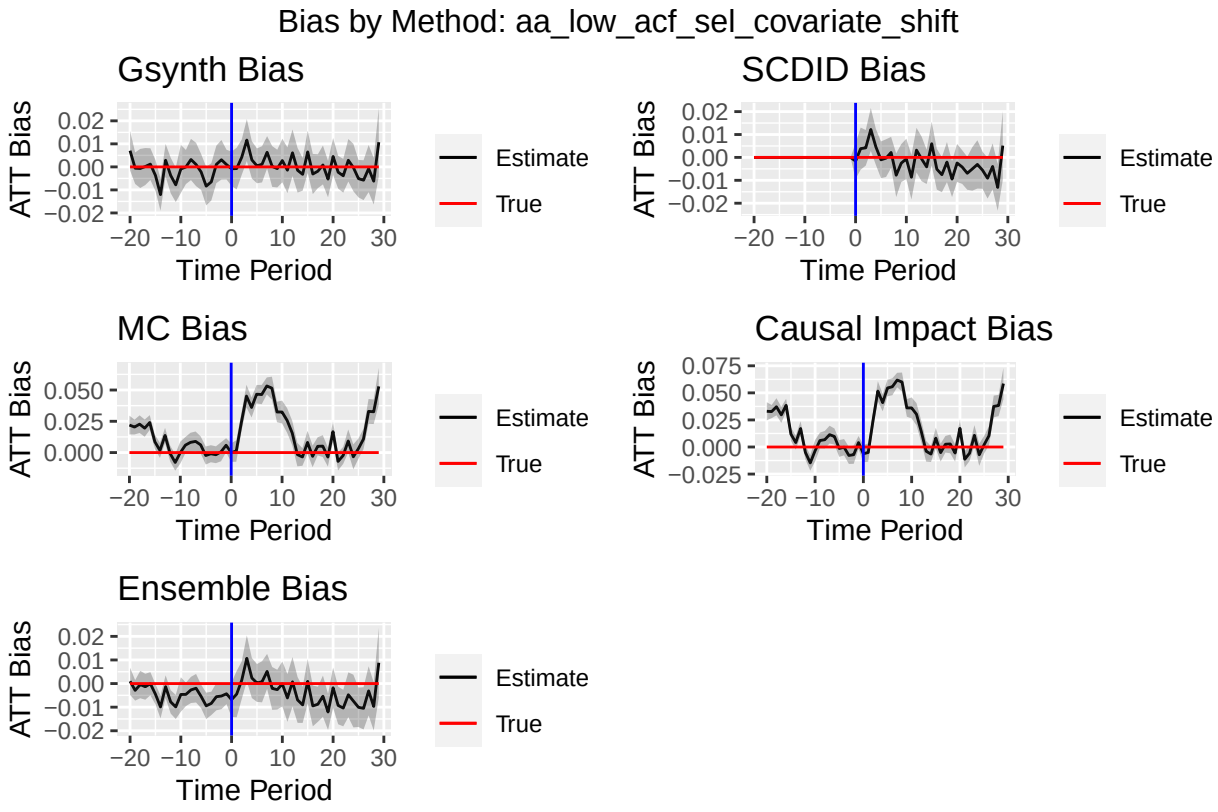
Metrics by Method

aa_high_acf

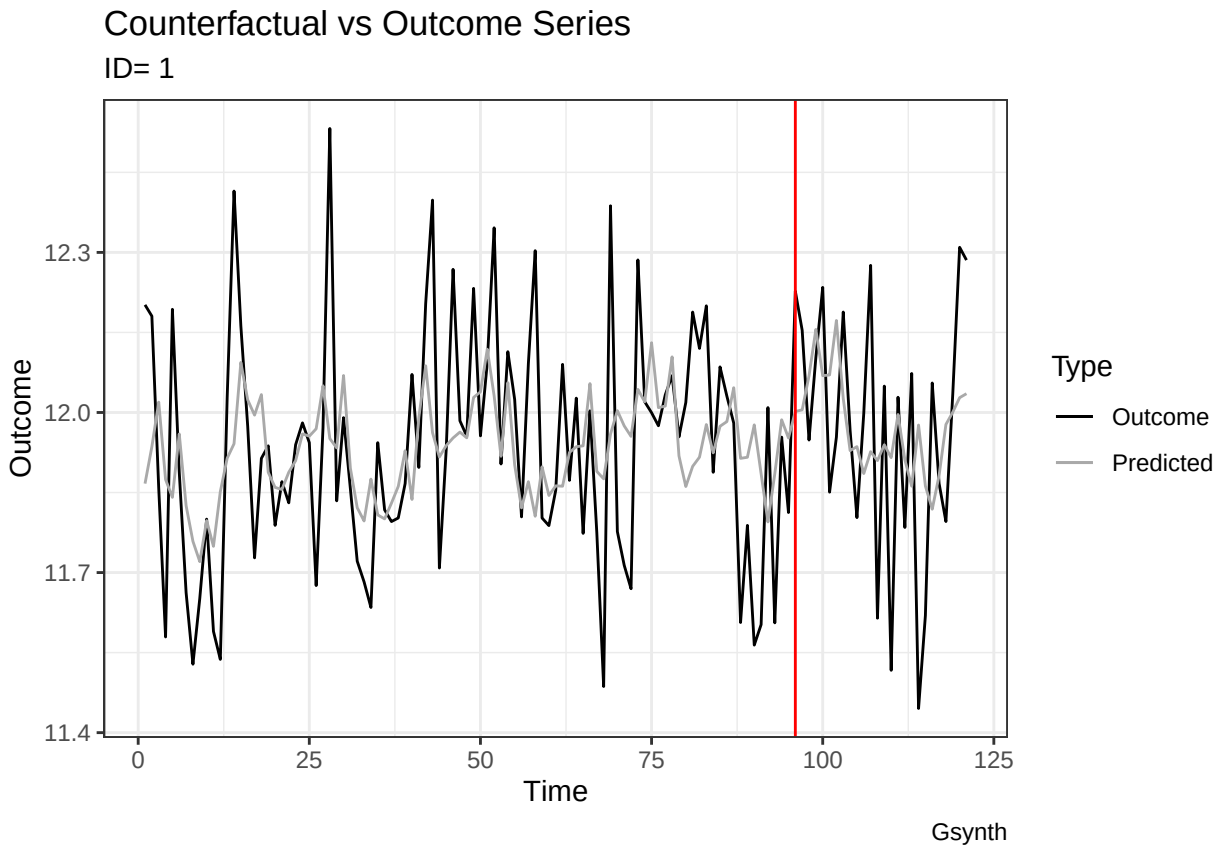
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.940	0.920	0.120	0.920	0.900
1	0.960	0.900	0.120	0.980	0.780
2	0.920	0.860	0.040	0.900	0.660
3	0.960	0.860	0.000	0.960	0.620
4	0.980	0.940	0.060	0.980	0.720
rmse					
0	0.216	0.237	0.308	0.225	0.226
1	0.217	0.246	0.328	0.228	0.233
2	0.228	0.258	0.347	0.234	0.245

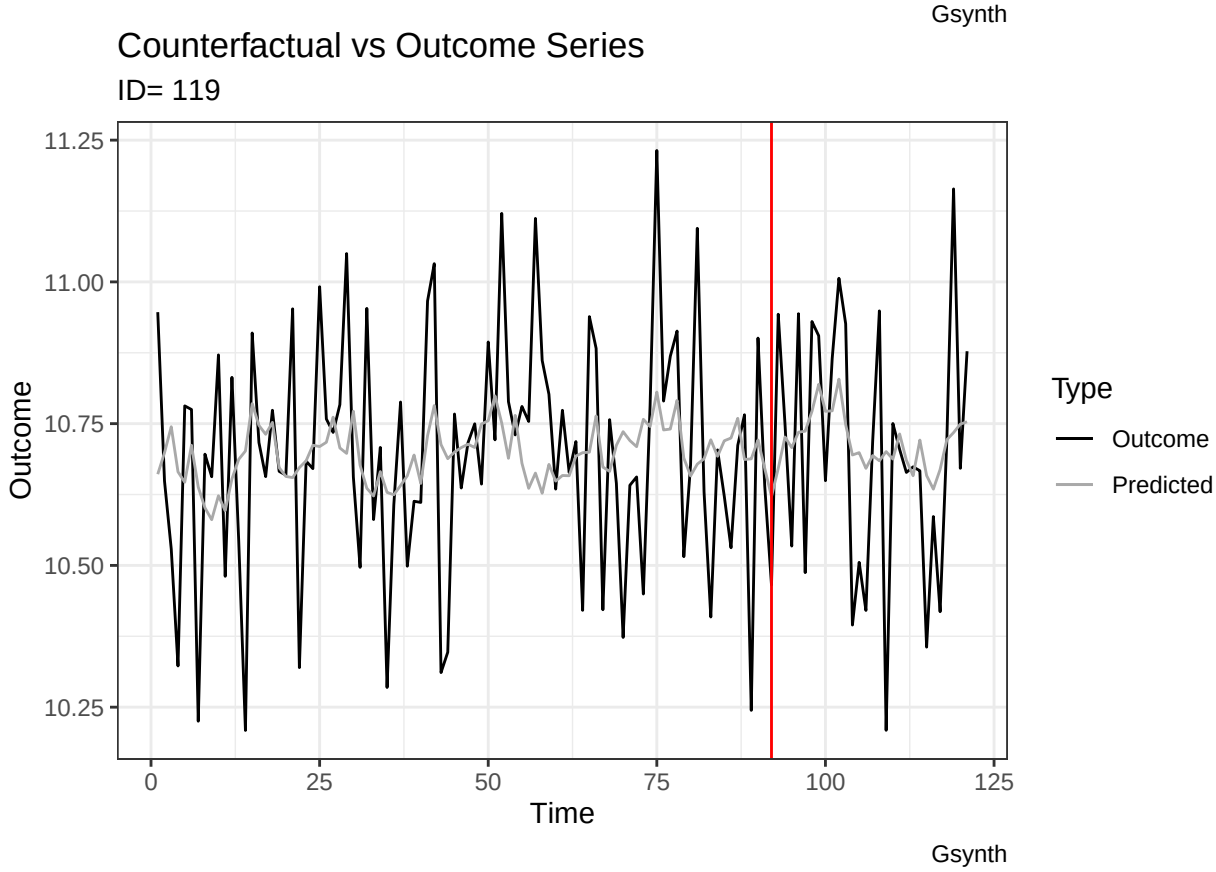
3	0.218	0.249	0.377	0.227	0.242
4	0.222	0.248	0.376	0.232	0.242
bias					
0	0.001	0.020	0.113	0.004	0.028
1	0.005	0.030	0.125	0.002	0.035
2	0.017	0.038	0.142	0.011	0.048
3	0.014	0.038	0.165	0.012	0.054
4	0.004	0.030	0.162	−0.000	0.046

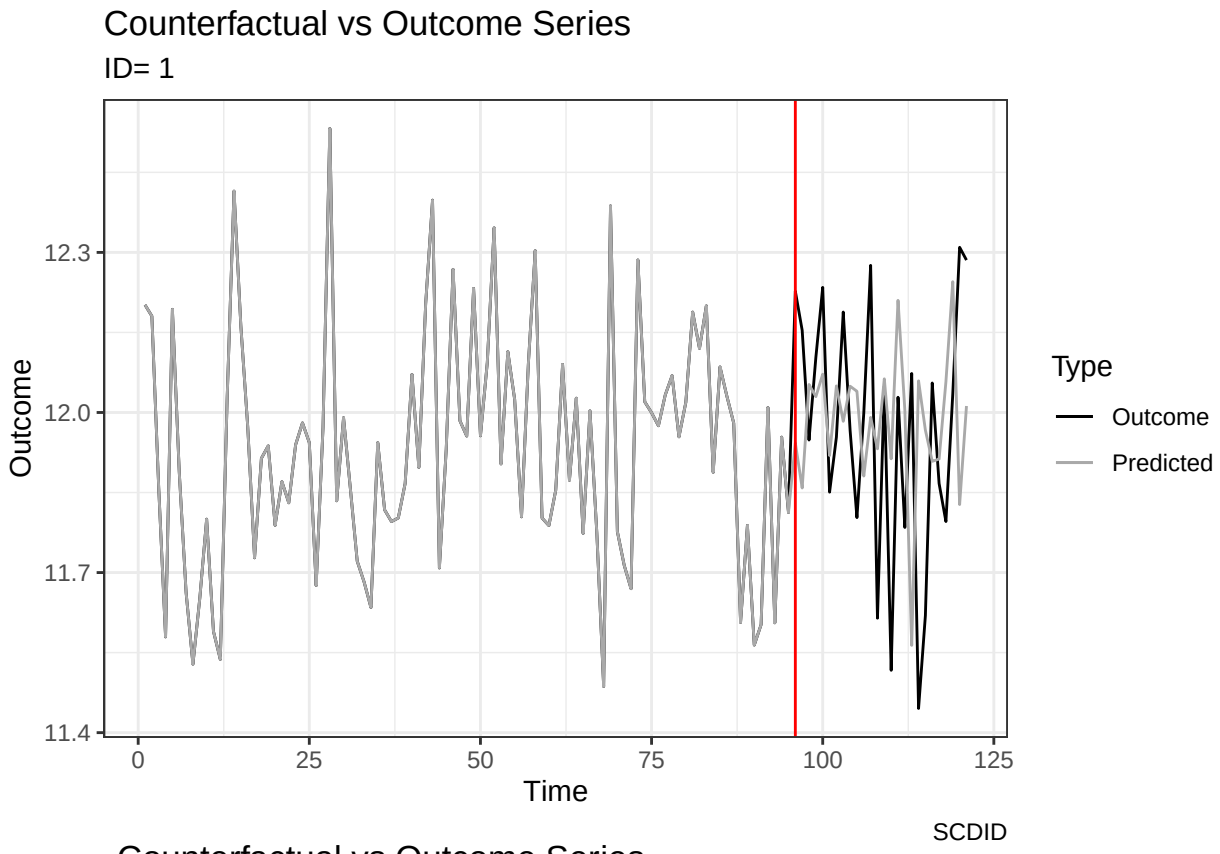
Notes:

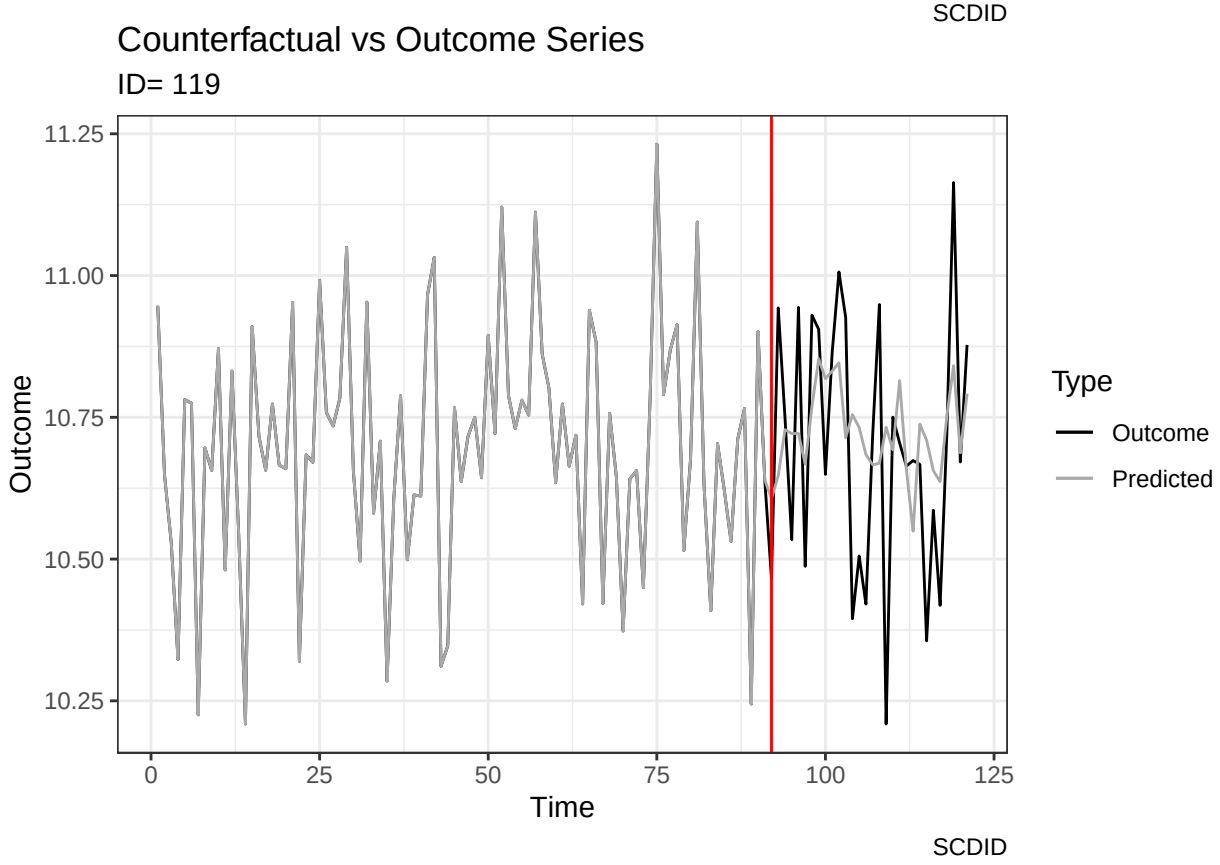


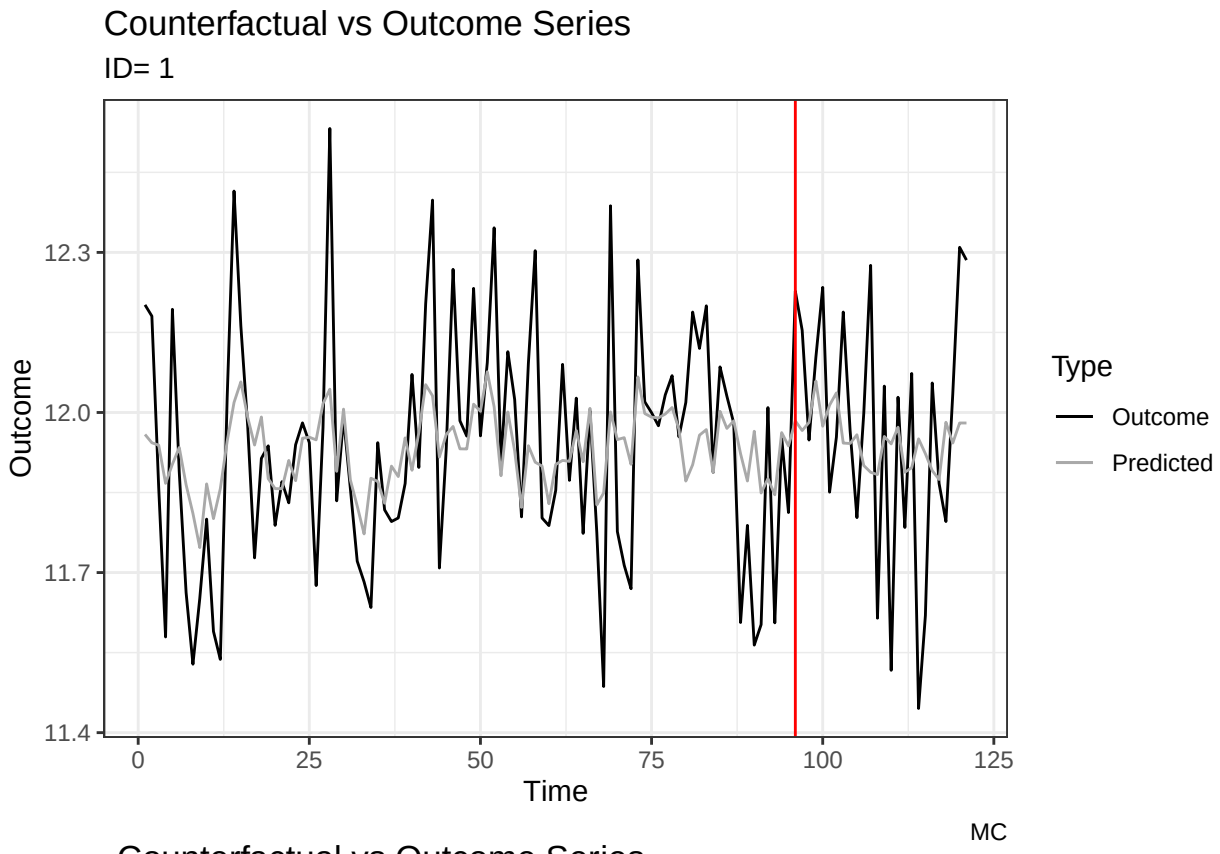
Notes:

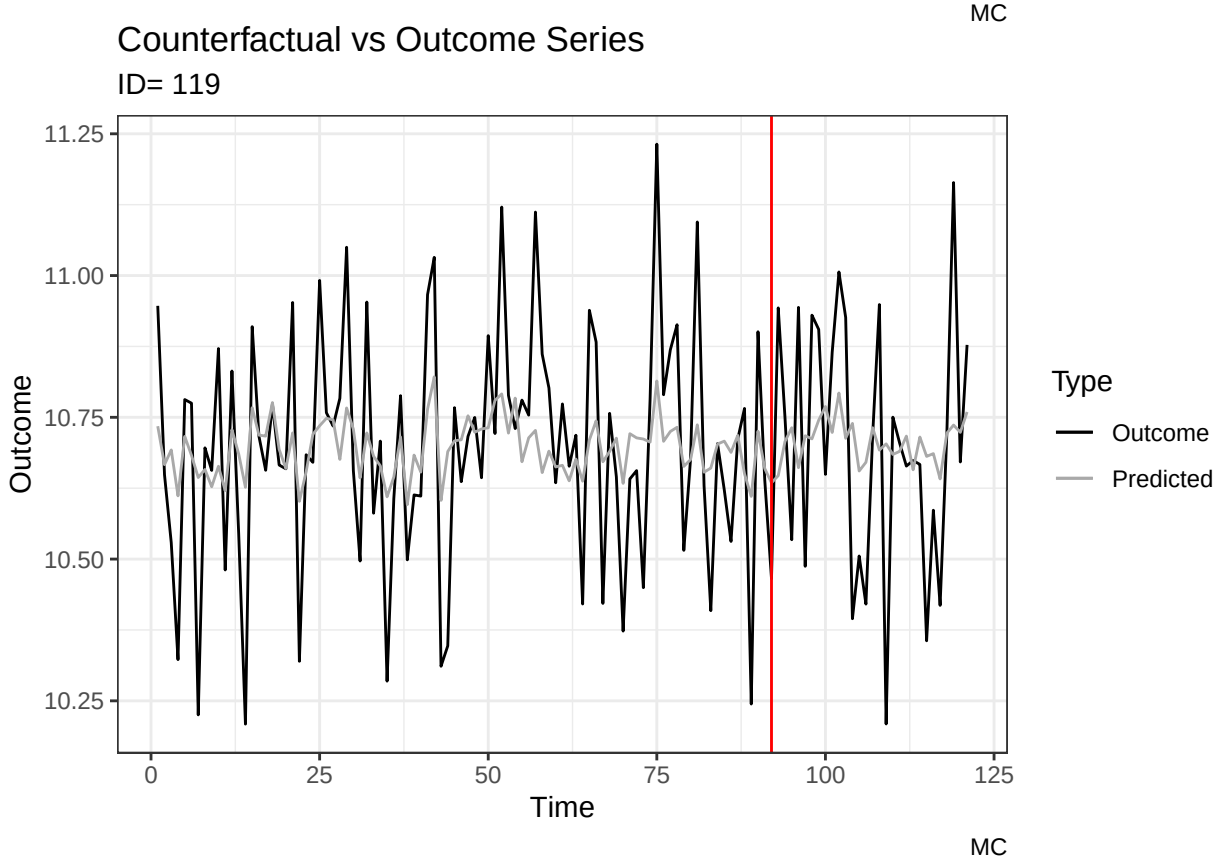

Counterfactual vs Outcome Series
ID= 1
Outcome
12.3
12.0
11.7
11.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

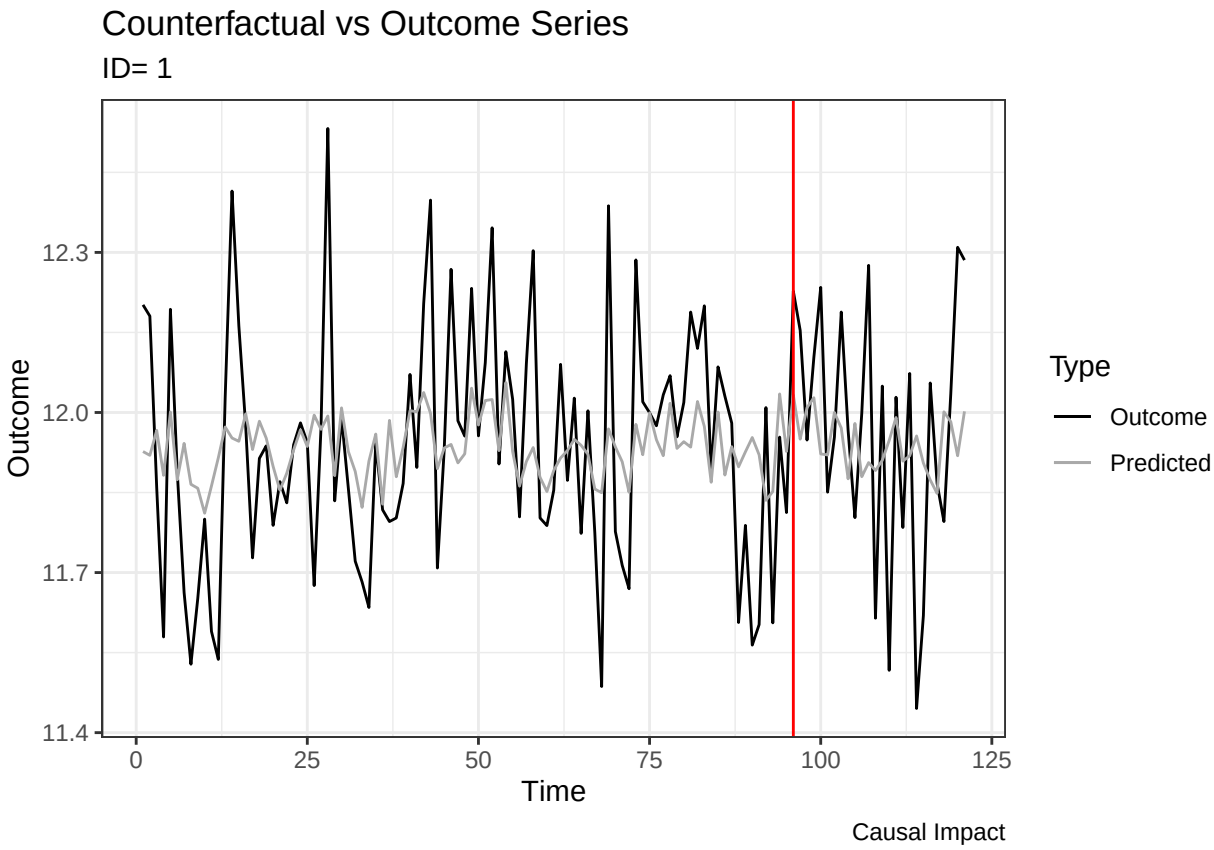

Counterfactual vs Outcome Series
ID= 119
Outcome
11.25
11.00
10.75
10.50
10.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

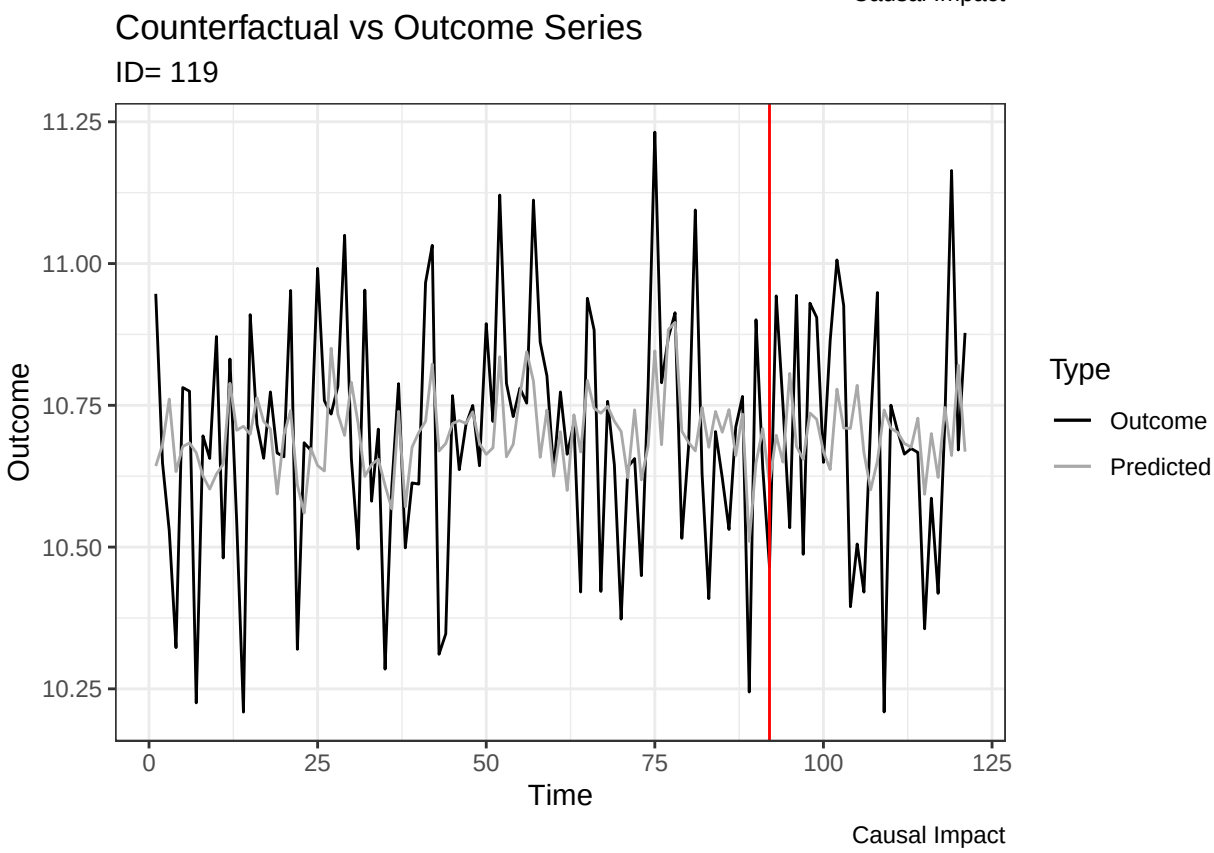

Counterfactual vs Outcome Series
ID= 1
Outcome
12.3
12.0
11.7
11.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

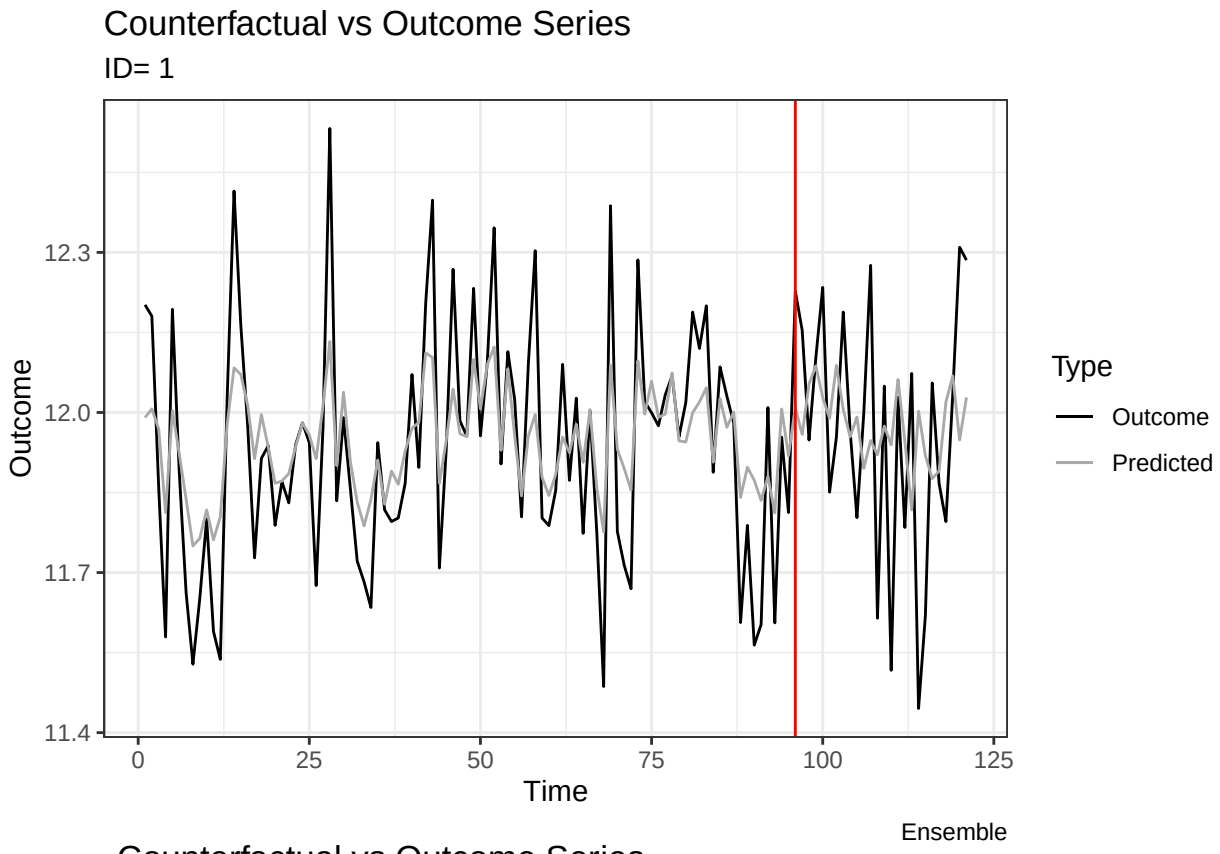

Counterfactual vs Outcome Series
ID= 119
Outcome
11.25
11.00
10.75
10.50
10.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

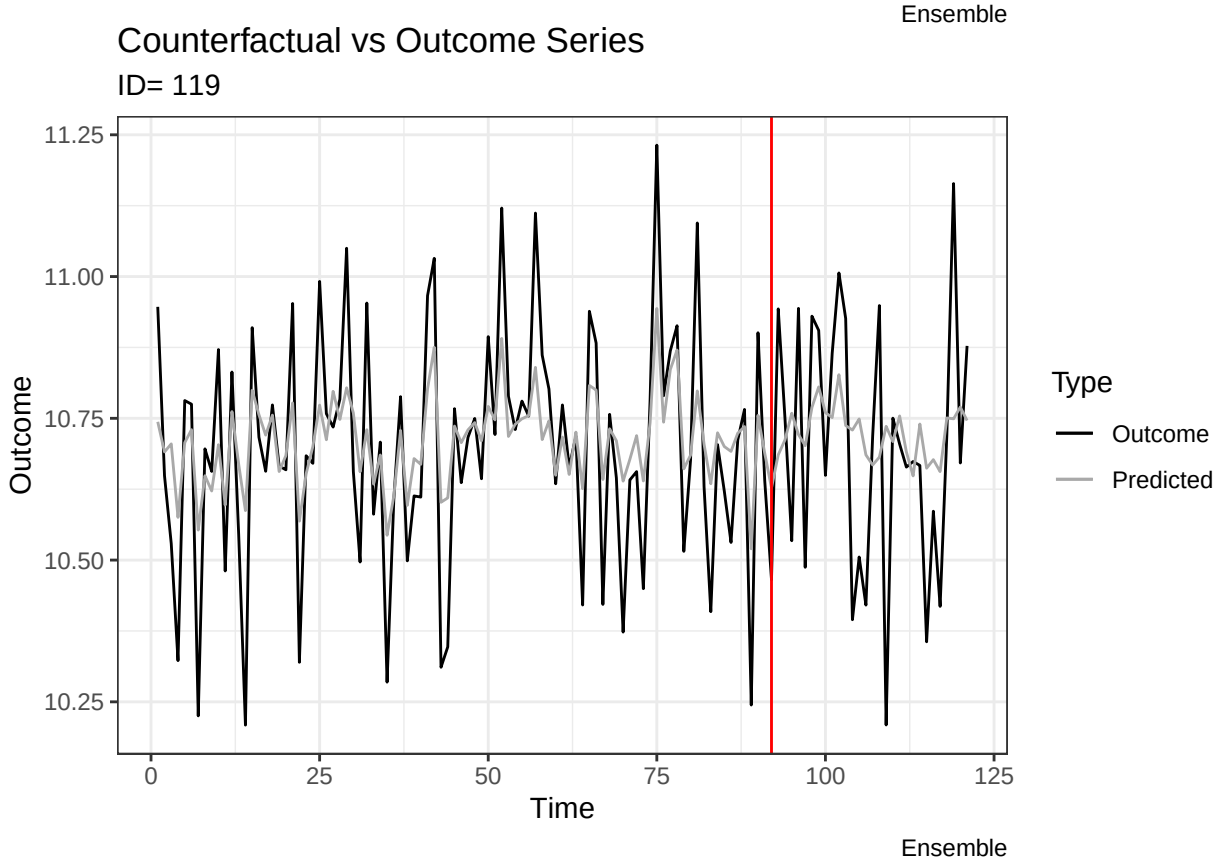

Counterfactual vs Outcome Series
ID= 1
Outcome
12.3
12.0
11.7
11.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 119
Outcome
11.25
11.00
10.75
10.50
10.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

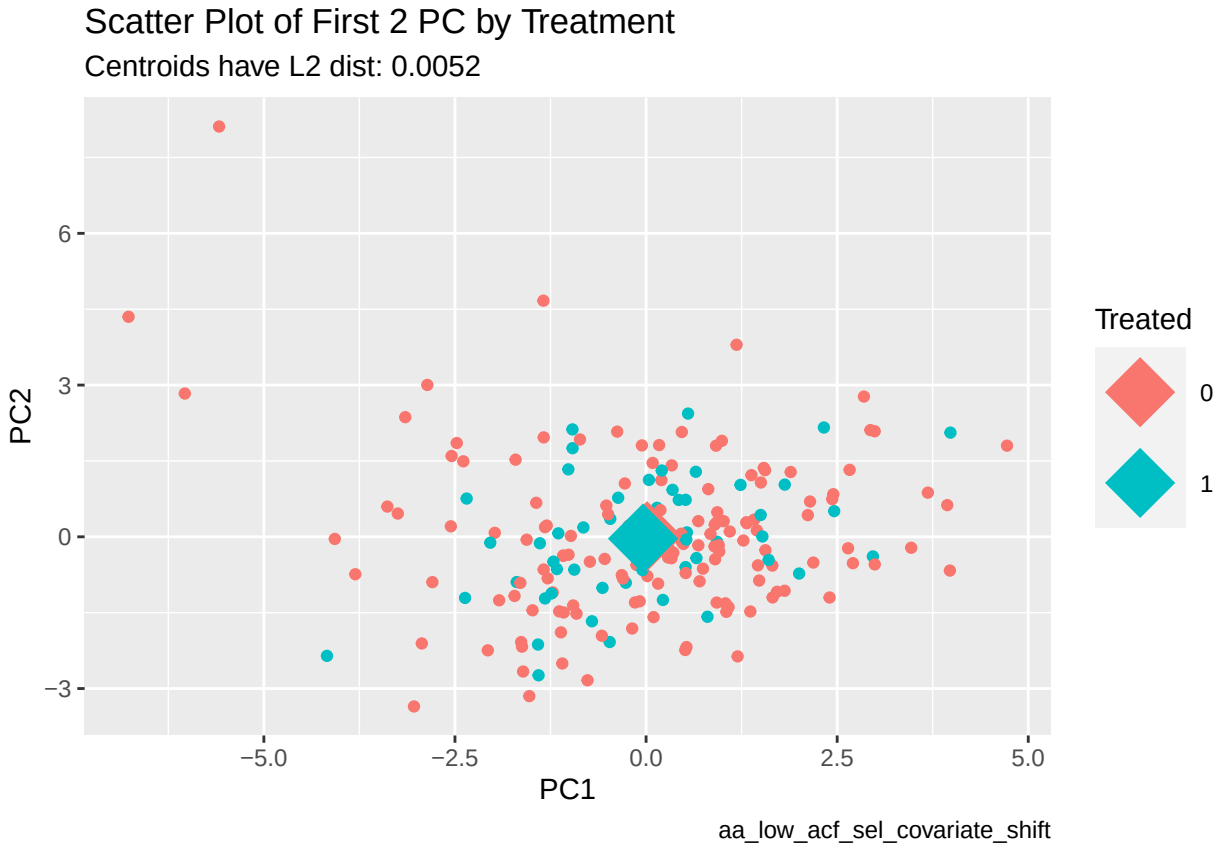

Counterfactual vs Outcome Series
ID= 1
Outcome
12.3
12.0
11.7
11.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 119
Outcome
11.25
11.00
10.75
10.50
10.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df      p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>  <dbl> <dbl> <chr>
## 1 curvature    150    50  -0.962    86.2 0.339  0.996 ns
## 2 diff1_acf1   150    50  -0.110    93.1 0.913  0.996 ns
## 3 diff2_acf1   150    50  -0.450    95.3 0.654  0.996 ns
## 4 e_acf1       150    50  -0.0308   77.1 0.975  0.996 ns
## 5 entropy      150    50  -1.98    152.  0.0496 0.446 ns
## 6 linearity    150    50   0.00514  76.4 0.996  0.996 ns
## 7 spike        150    50   1.29    136.  0.198  0.891 ns
## 8 trend        150    50  -0.554   133.  0.580  0.996 ns
## 9 x_acf1       150    50  -0.419    95.5 0.677  0.996 ns
```

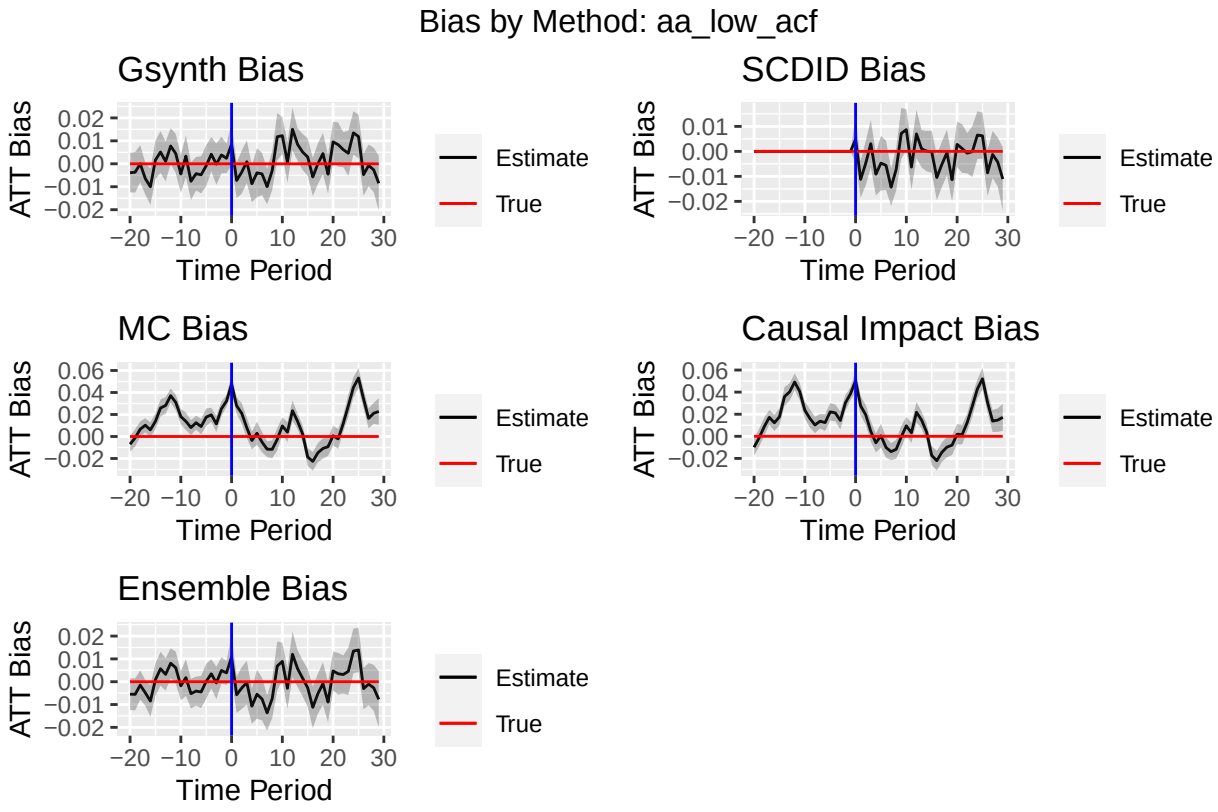
Metrics by Method

aa_low_acf_sel_covariate_shift

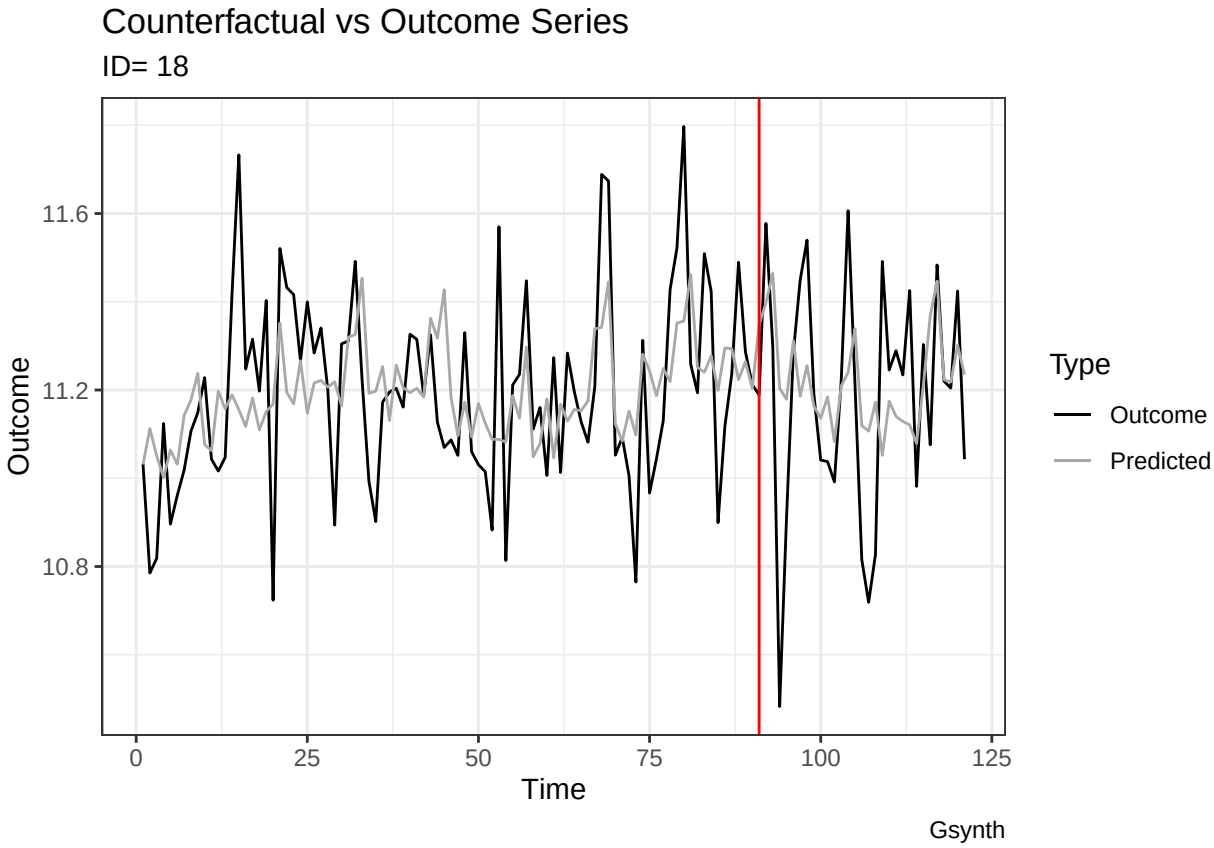
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	0.980	0.980	0.960	0.980
1	0.920	0.920	0.920	0.980	0.880
2	0.980	0.980	0.900	0.920	0.940
3	0.900	0.860	0.620	0.540	0.920
4	0.940	0.980	0.740	0.740	0.960
rmse					
0	0.198	0.200	0.202	0.211	0.198
1	0.207	0.209	0.211	0.218	0.207
2	0.205	0.206	0.210	0.216	0.205

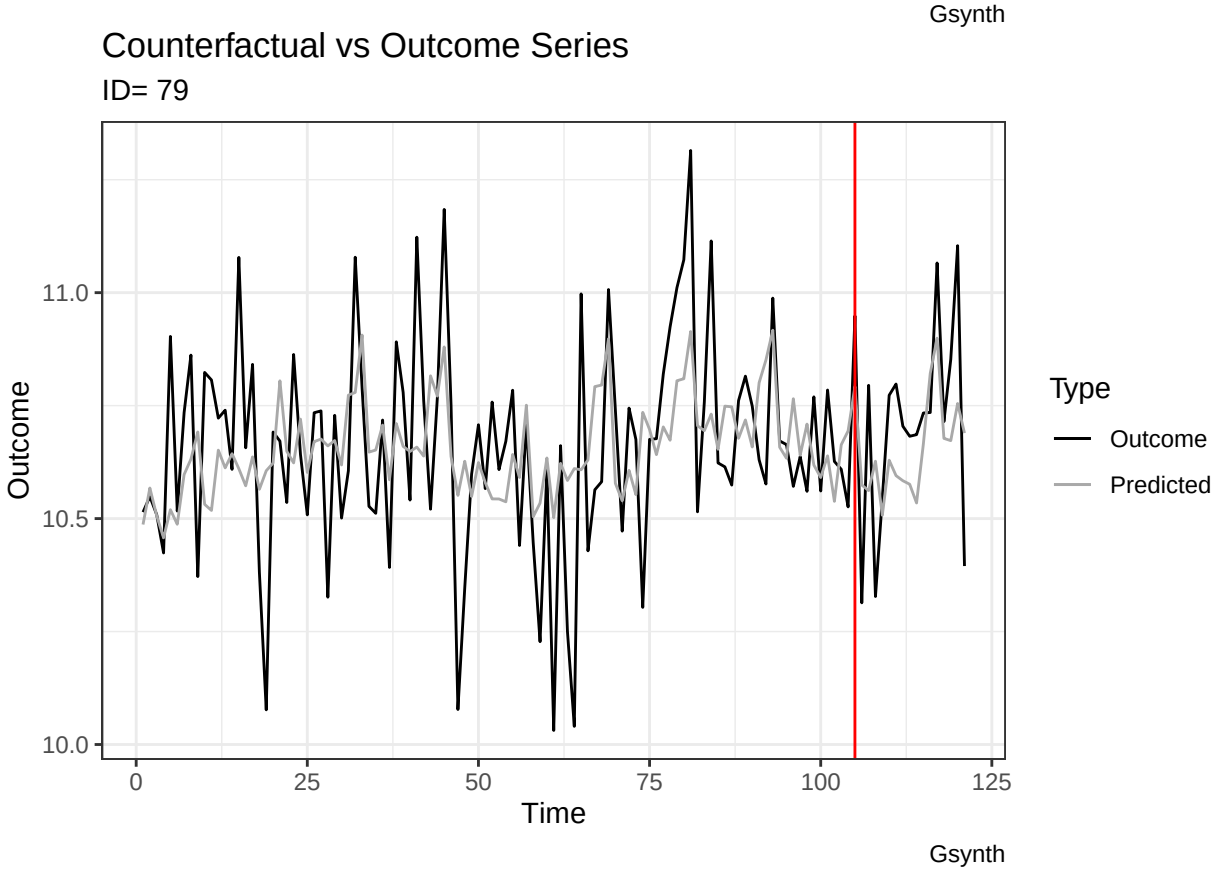
3	0.201	0.204	0.210	0.217	0.202
4	0.206	0.206	0.209	0.218	0.205
bias					
0	−0.001	−0.002	0.000	−0.006	−0.007
1	−0.001	0.004	0.001	−0.005	−0.004
2	0.004	0.004	0.024	0.024	0.001
3	0.012	0.012	0.045	0.052	0.011
4	0.003	0.005	0.036	0.041	0.002

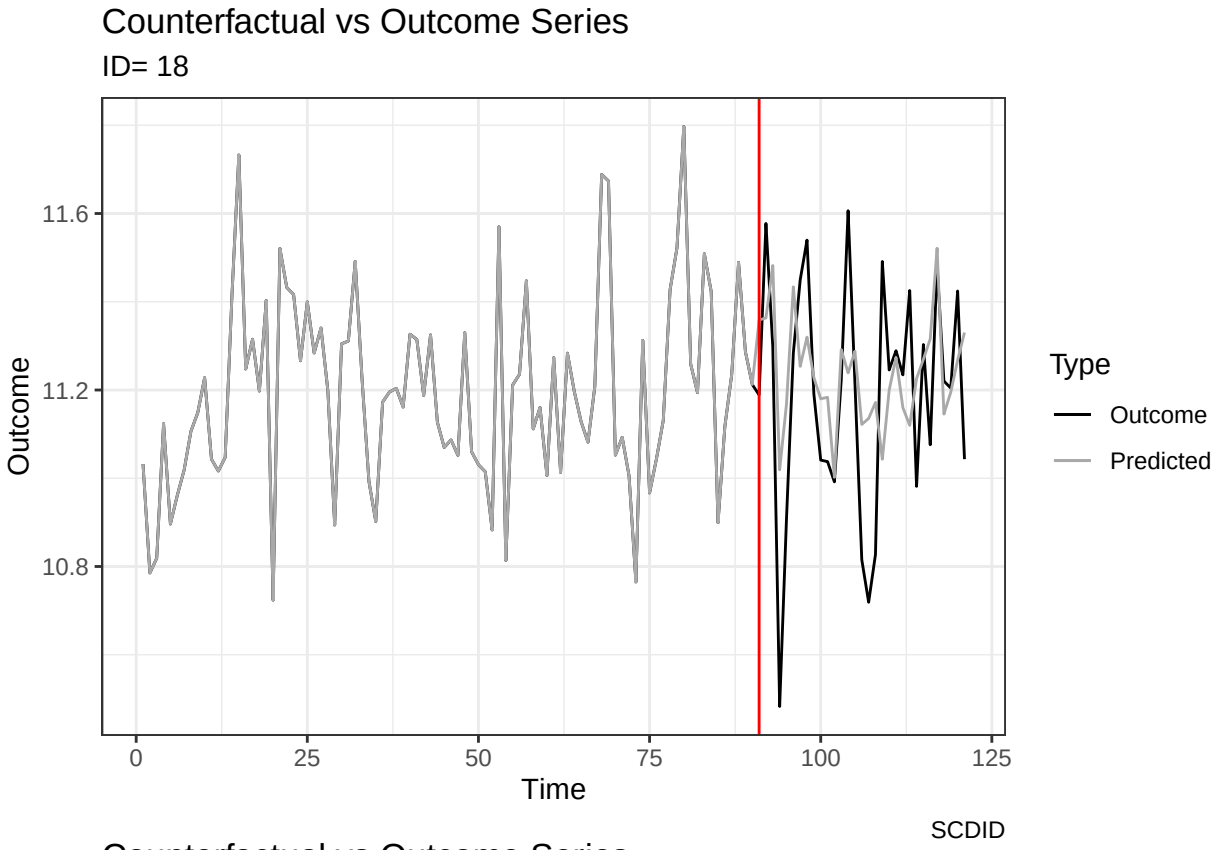
Notes:

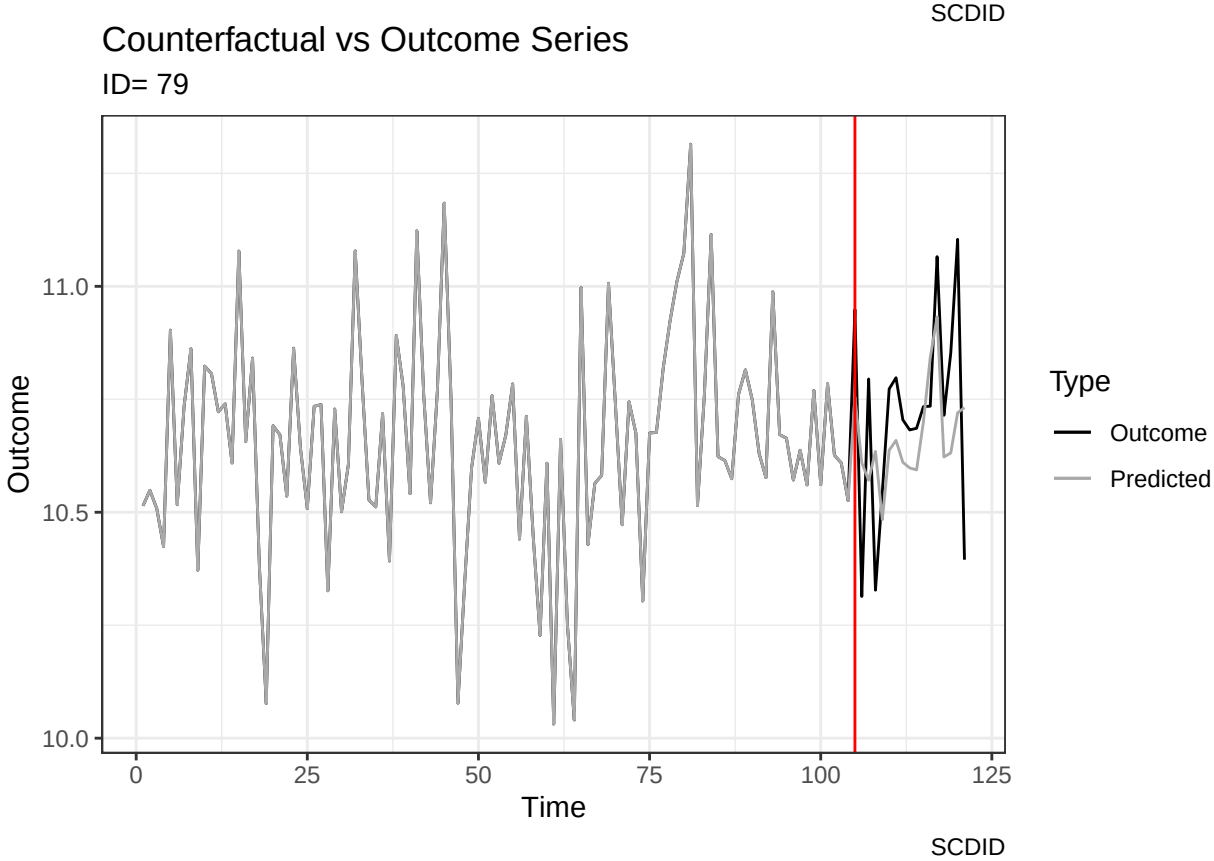


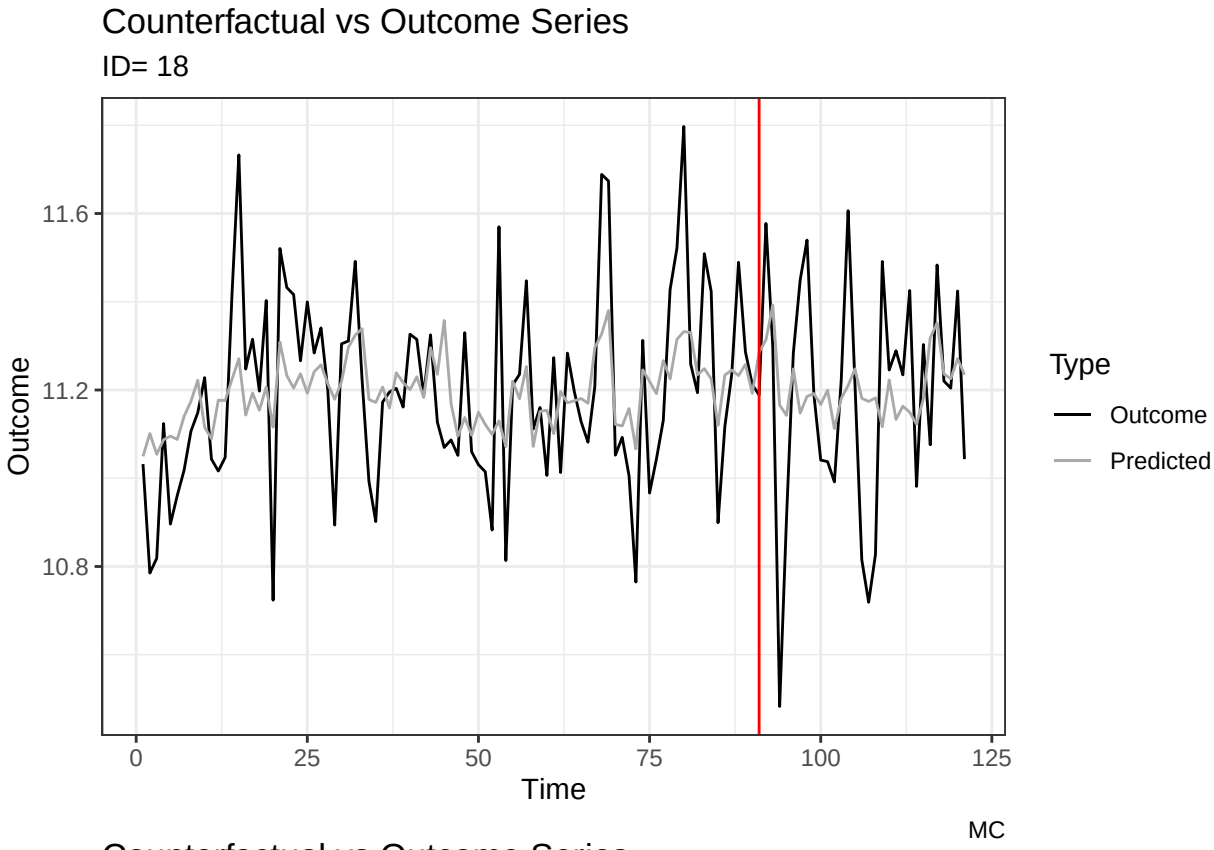
Notes:

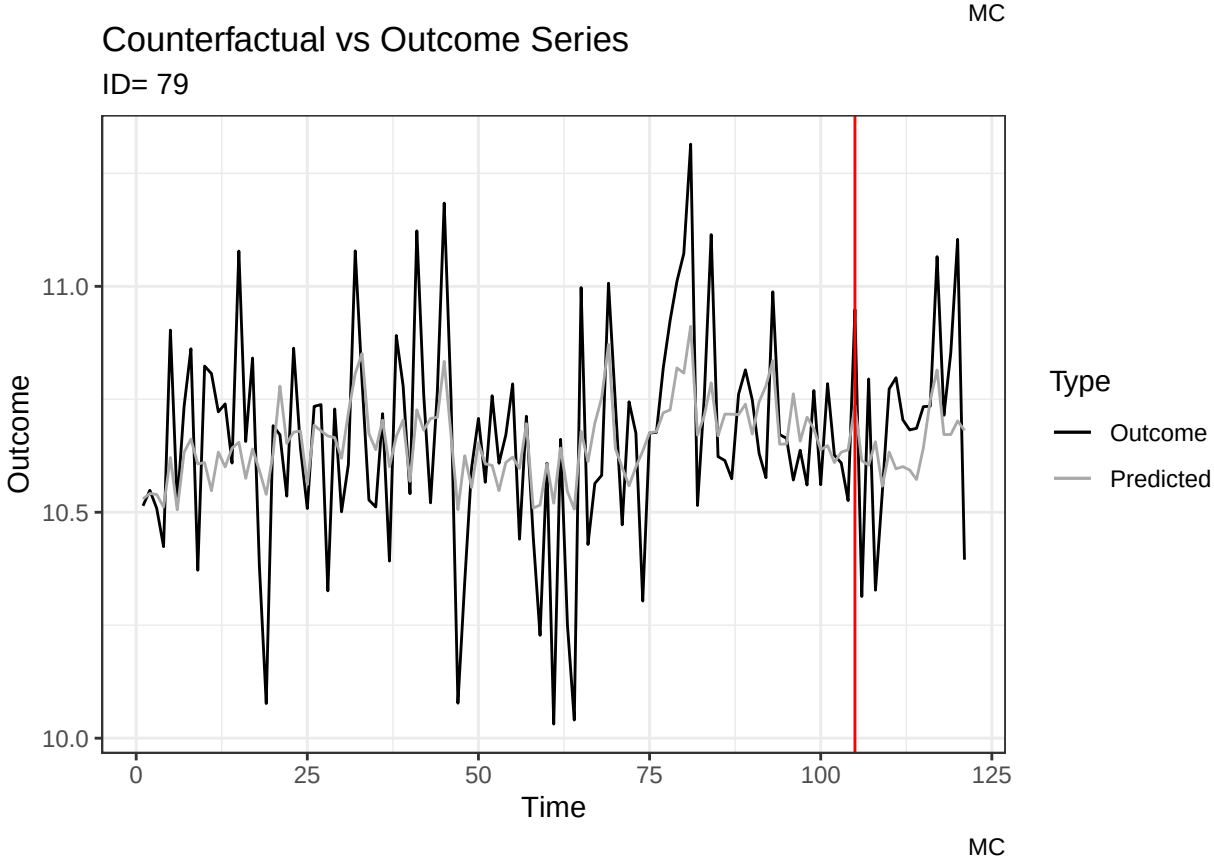

Counterfactual vs Outcome Series
ID= 18
Outcome
11.6
11.2
10.8
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

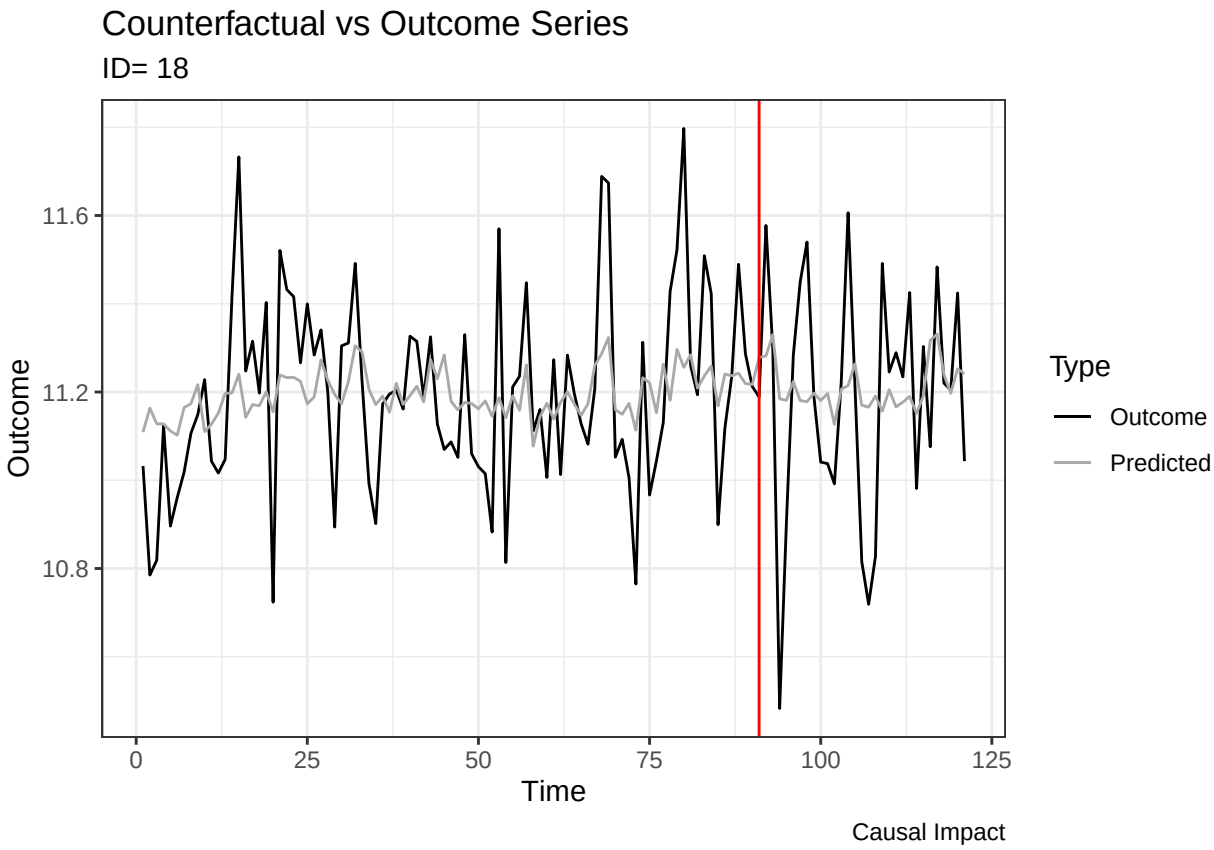

Counterfactual vs Outcome Series
ID= 79
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

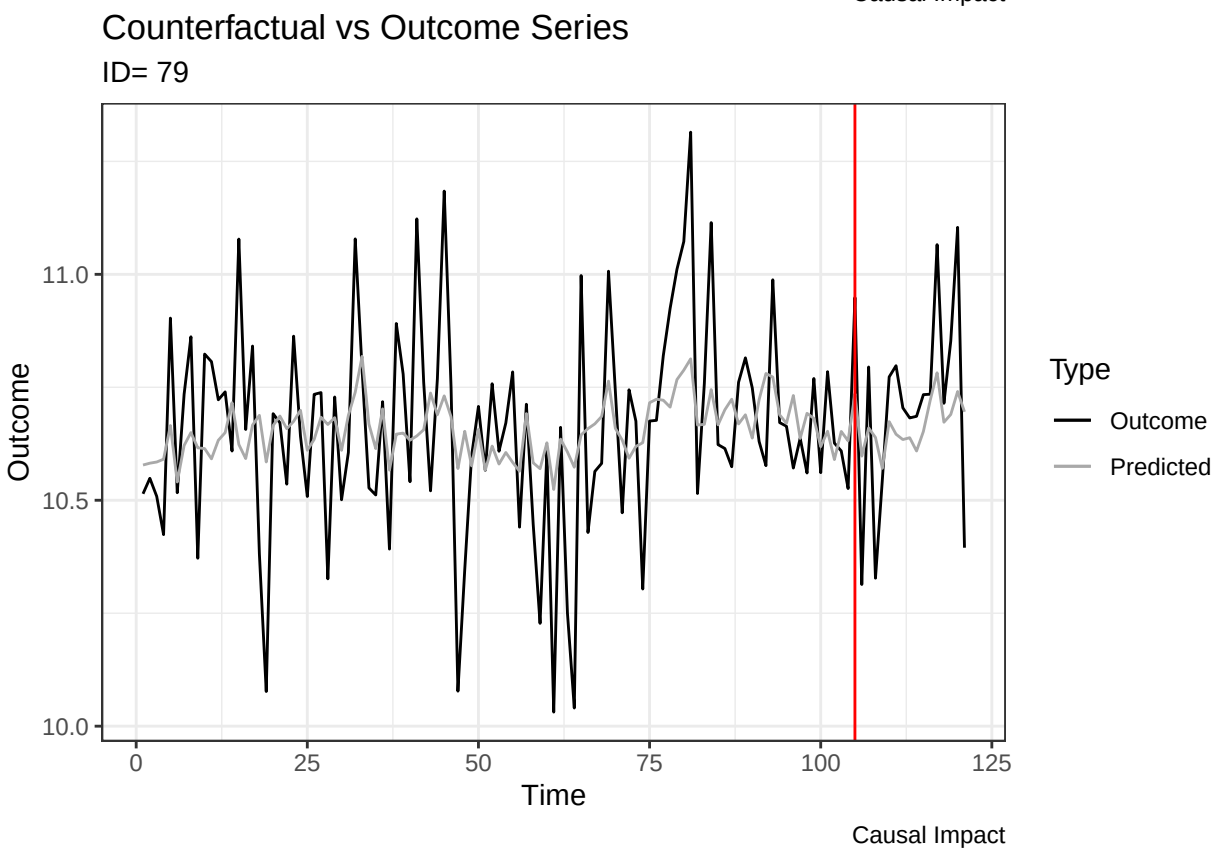

Counterfactual vs Outcome Series
ID= 18
Outcome
11.6
11.2
10.8
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

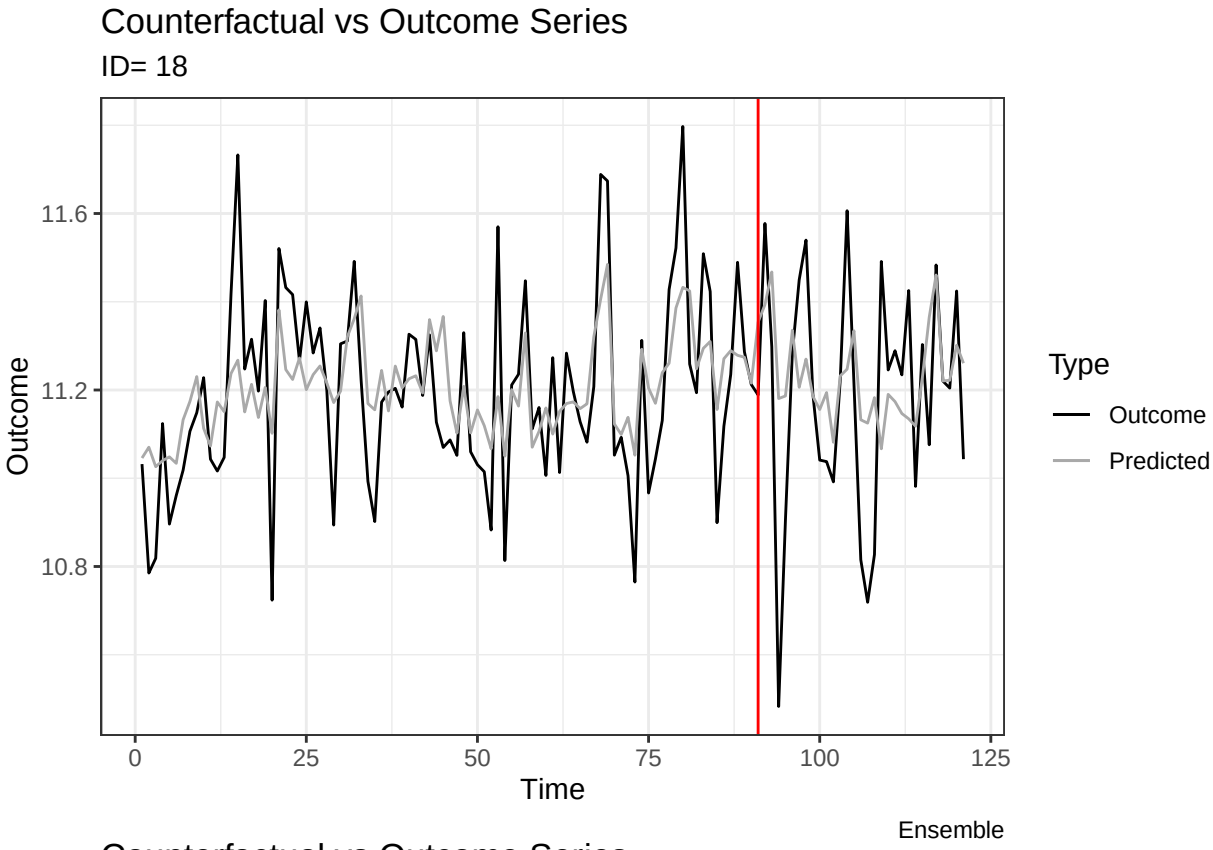

Counterfactual vs Outcome Series
ID= 79
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

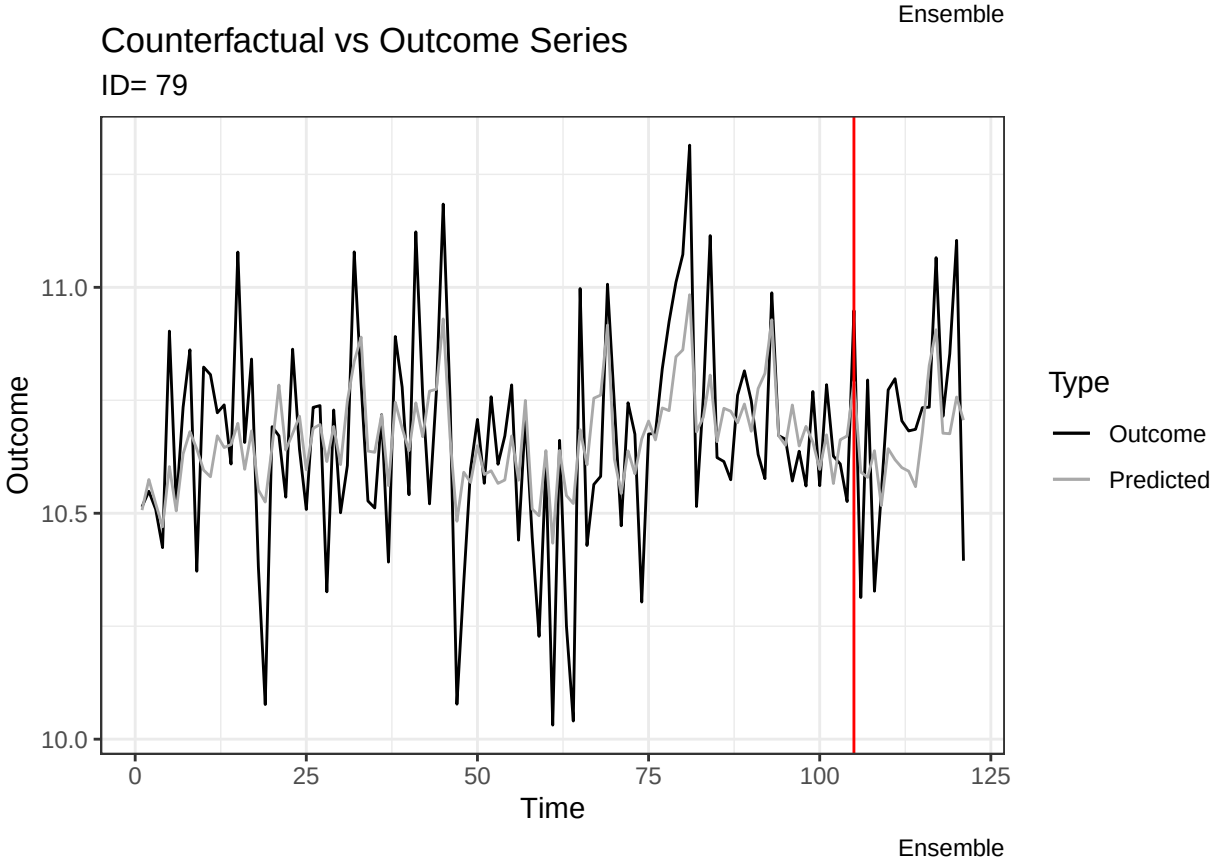

Counterfactual vs Outcome Series
ID= 18
Outcome
11.6
11.2
10.8
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 79
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted

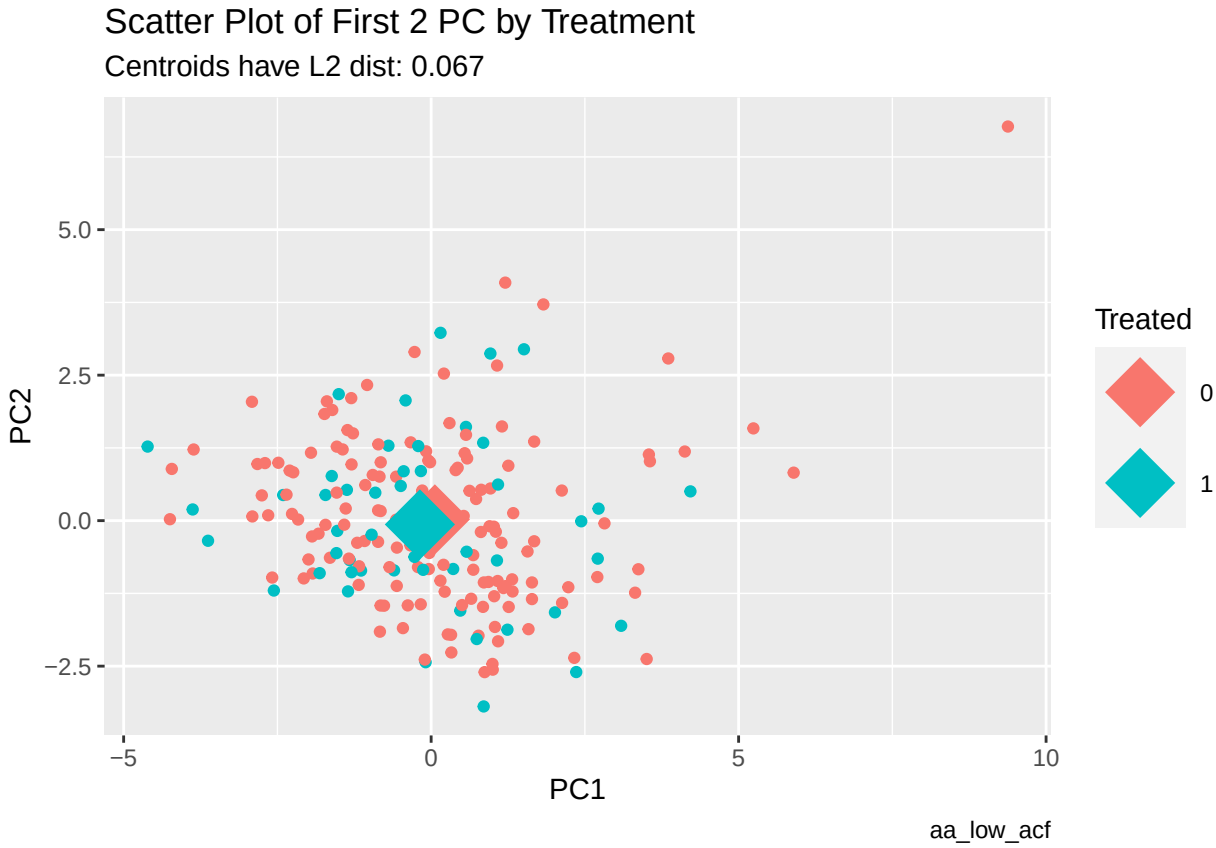

Counterfactual vs Outcome Series
ID= 18
Outcome
11.6
11.2
10.8
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 79
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df      p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>  <dbl> <dbl> <chr>
## 1 curvature    150    50    -1.29   83.3 0.2    0.865 ns
## 2 diff1_acf1   150    50     0.754  84.0 0.453  0.865 ns
## 3 diff2_acf1   150    50     0.870  81.9 0.387  0.865 ns
## 4 e_acf1       150    50     0.256  79.8 0.799  0.865 ns
## 5 entropy      150    50     0.179 120.  0.858  0.865 ns
## 6 linearity    150    50    -0.570  87.5 0.570  0.865 ns
## 7 spike        150    50    -1.91   72.6 0.0597 0.537 ns
## 8 trend        150    50     0.170 100.  0.865  0.865 ns
## 9 x_acf1       150    50     0.212  83.7 0.833  0.865 ns
```

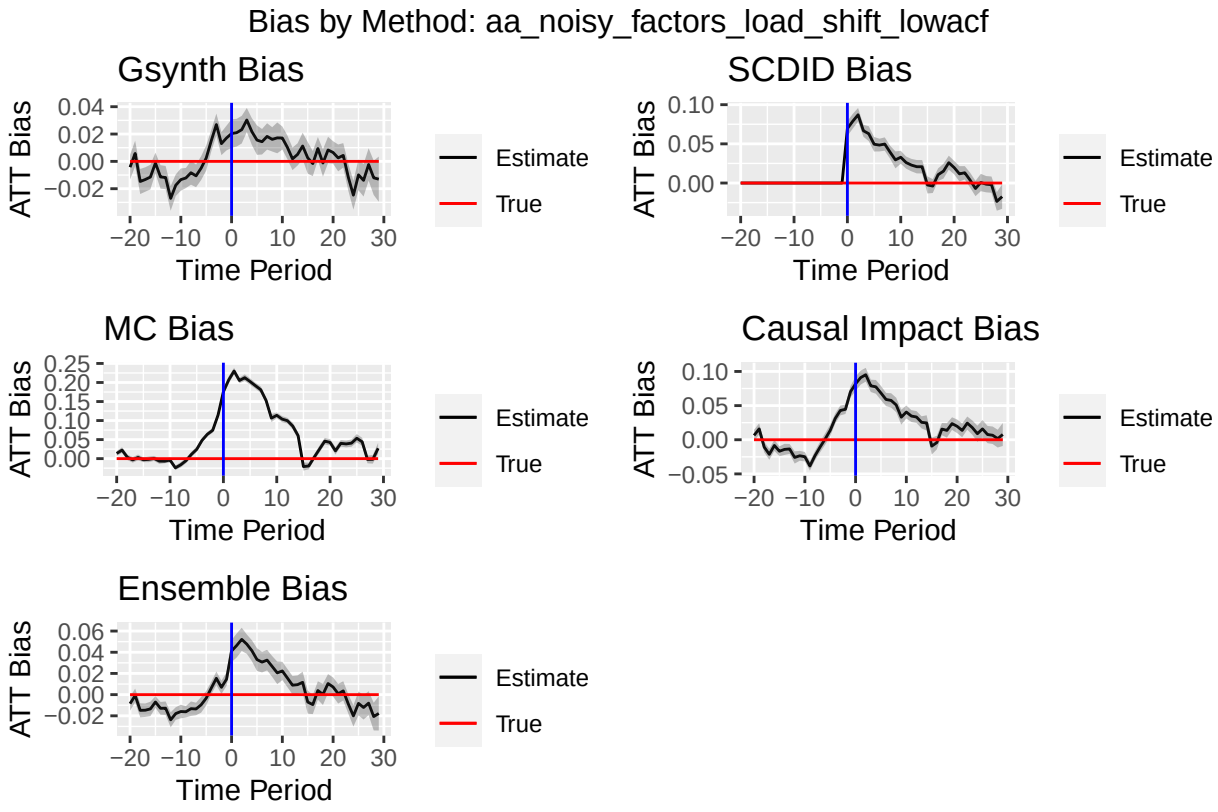
Metrics by Method

aa_low_acf

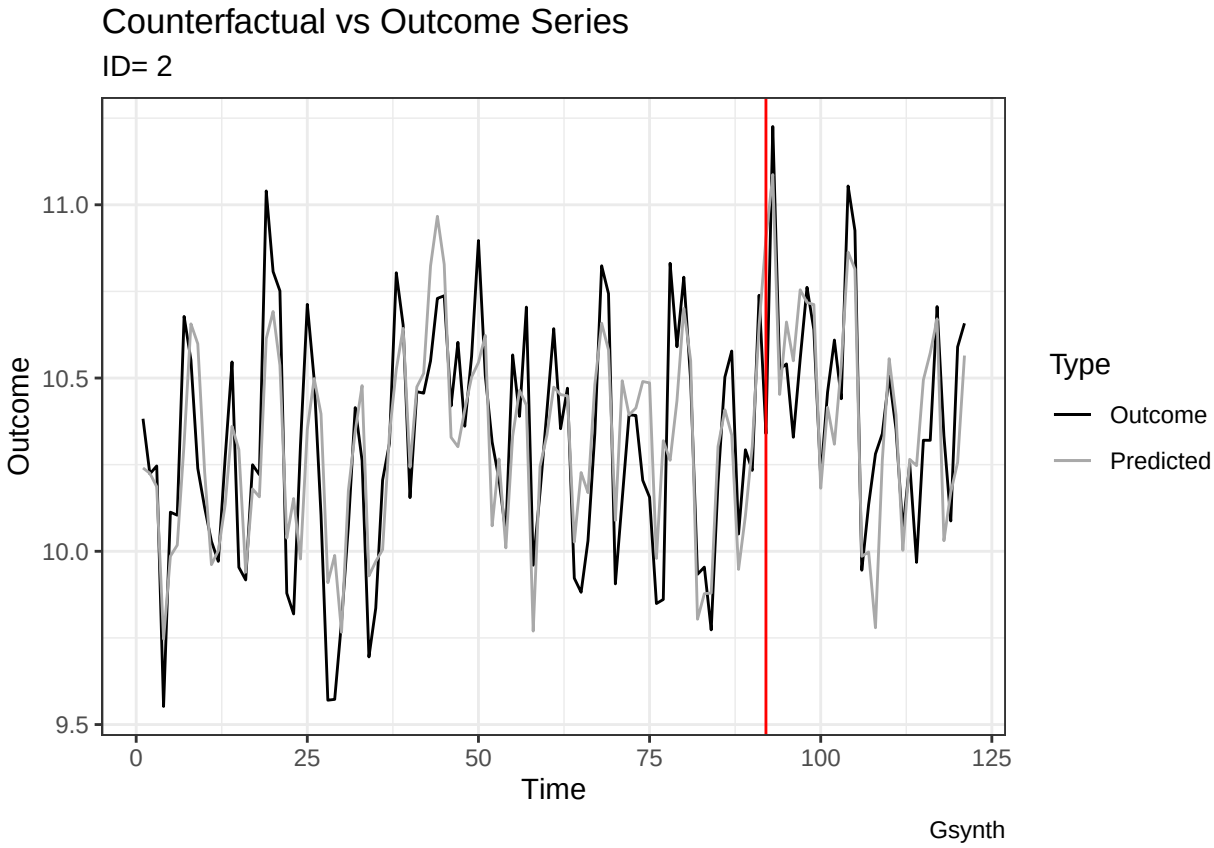
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.880	0.900	0.700	0.720	0.920
1	0.960	0.960	0.820	0.860	0.960
2	0.940	0.940	0.880	0.920	0.900
3	0.920	0.920	0.920	0.920	0.920
4	0.980	0.960	0.960	0.980	0.980
rmse					
0	0.210	0.213	0.218	0.226	0.211
1	0.206	0.207	0.211	0.222	0.205
2	0.208	0.210	0.214	0.225	0.208

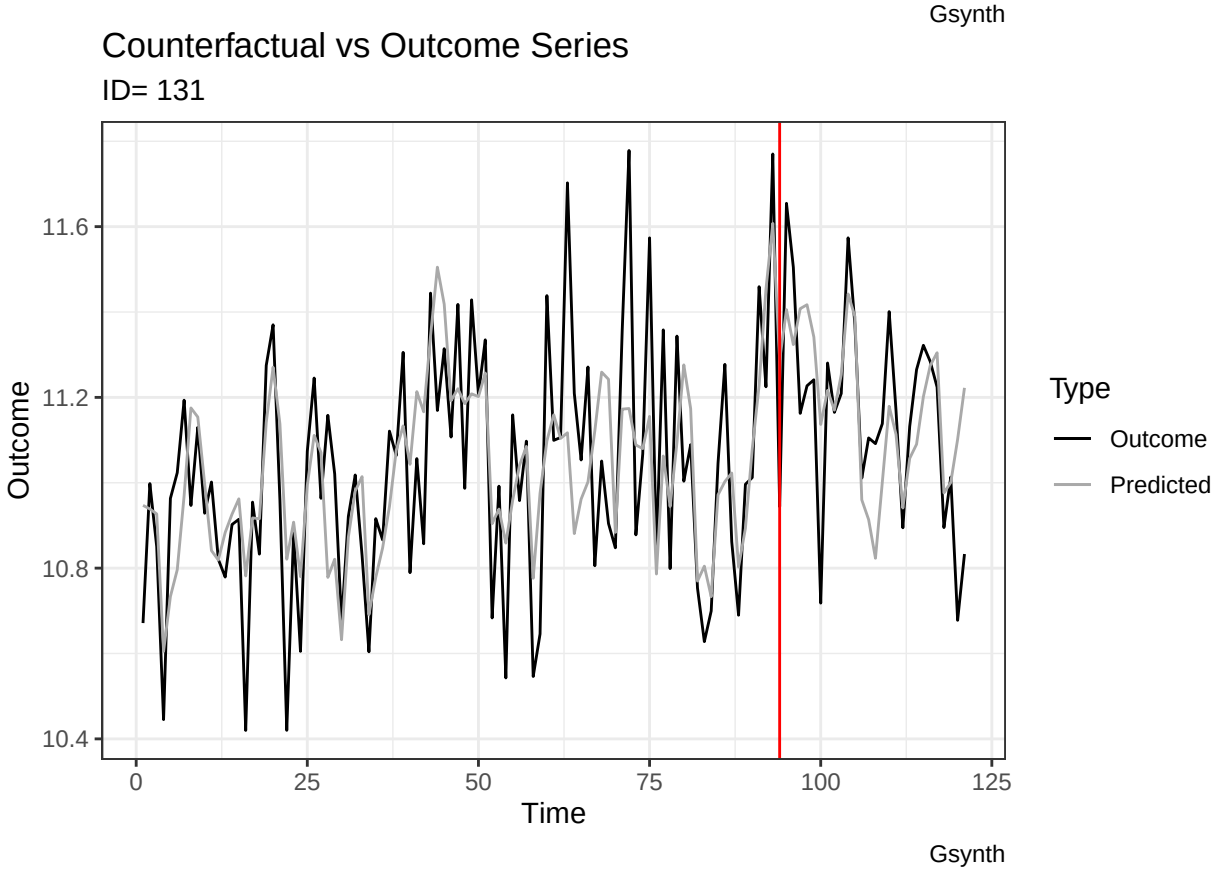
3	0.207	0.208	0.208	0.216	0.207
4	0.201	0.205	0.203	0.210	0.202
bias					
0	0.009	0.005	0.048	0.050	0.011
1	−0.007	−0.011	0.028	0.028	−0.006
2	−0.004	−0.005	0.021	0.019	−0.003
3	0.001	0.003	0.008	0.004	−0.000
4	−0.009	−0.009	−0.004	−0.006	−0.011

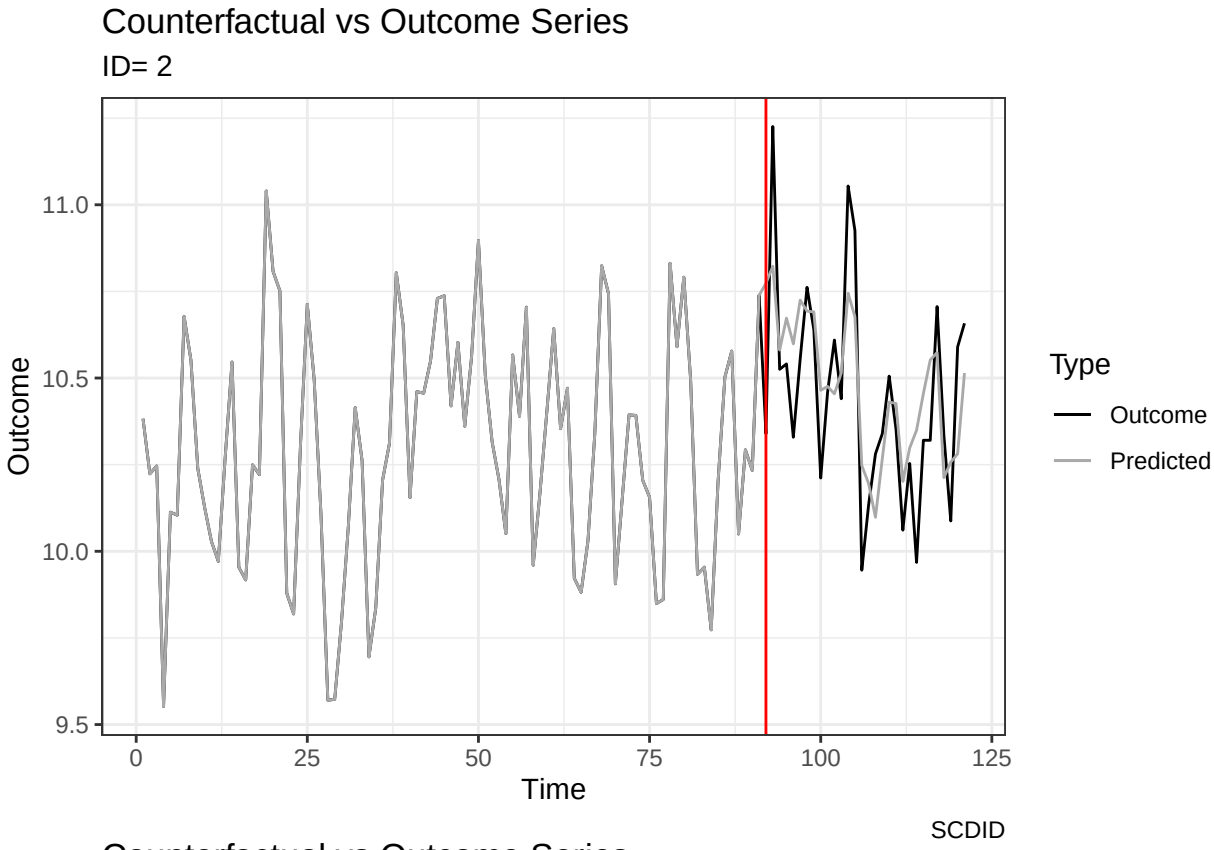
Notes:

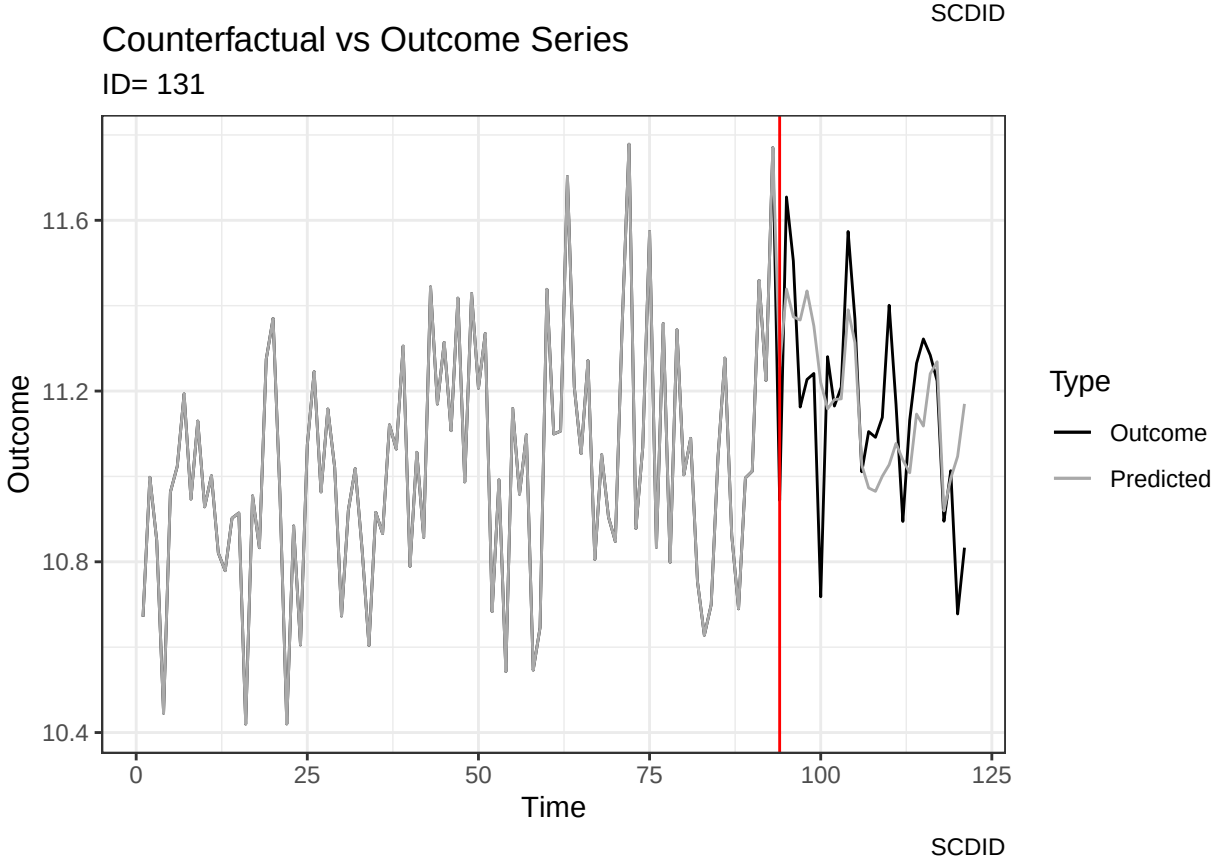


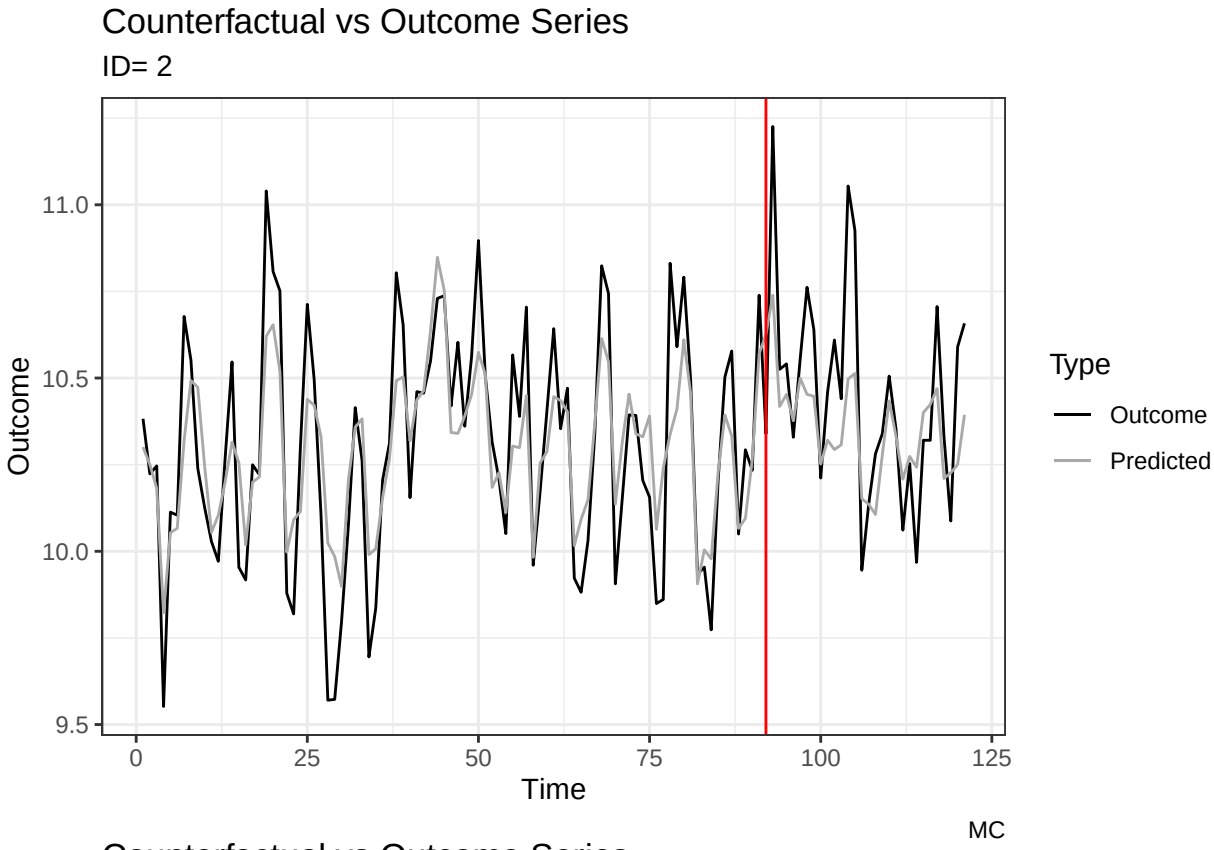
Notes:

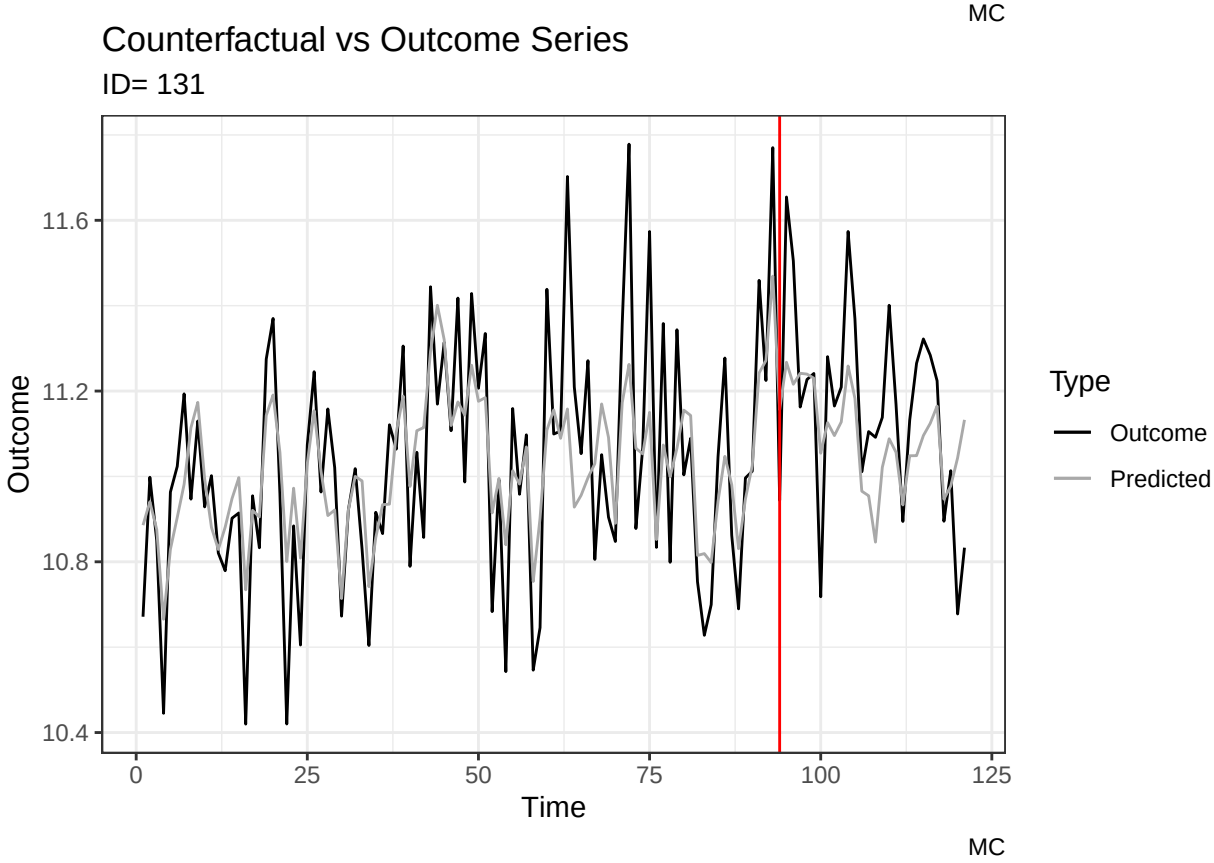

Counterfactual vs Outcome Series
ID= 2
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

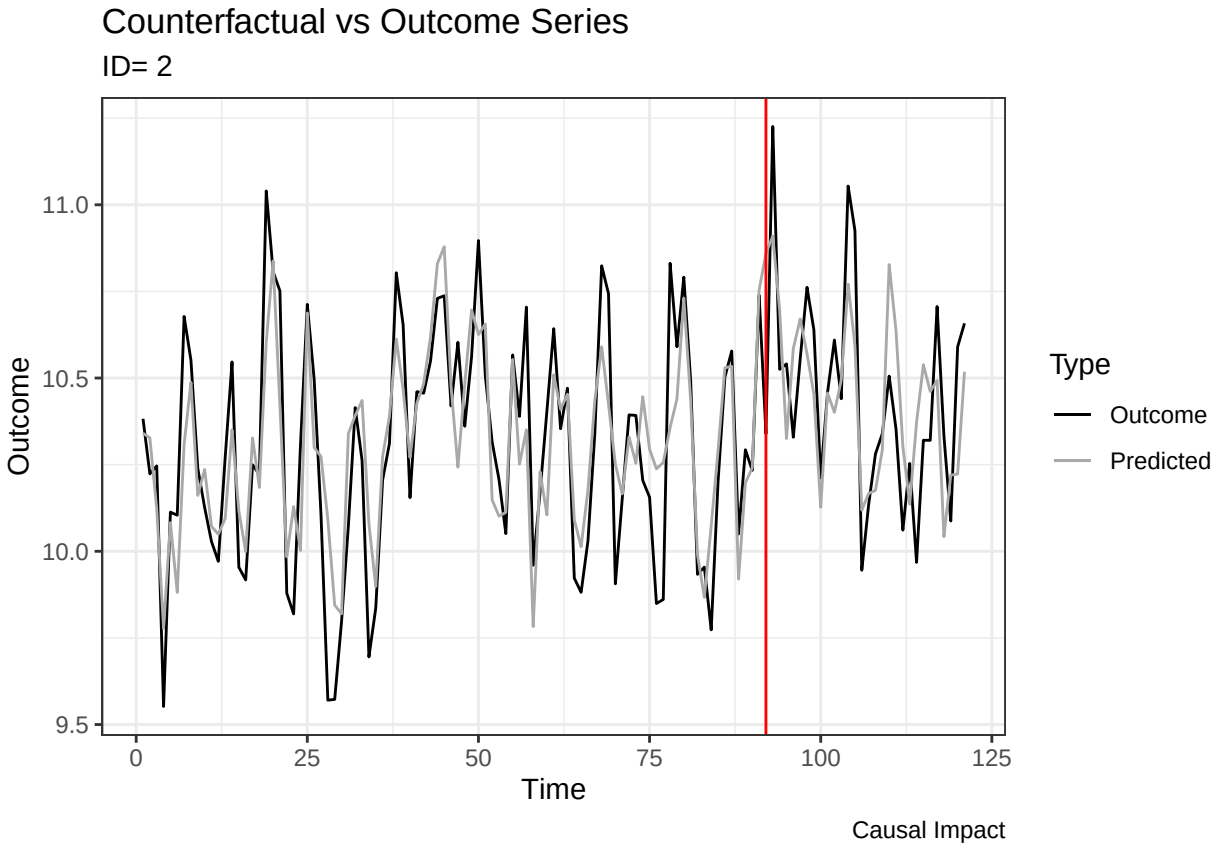

Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

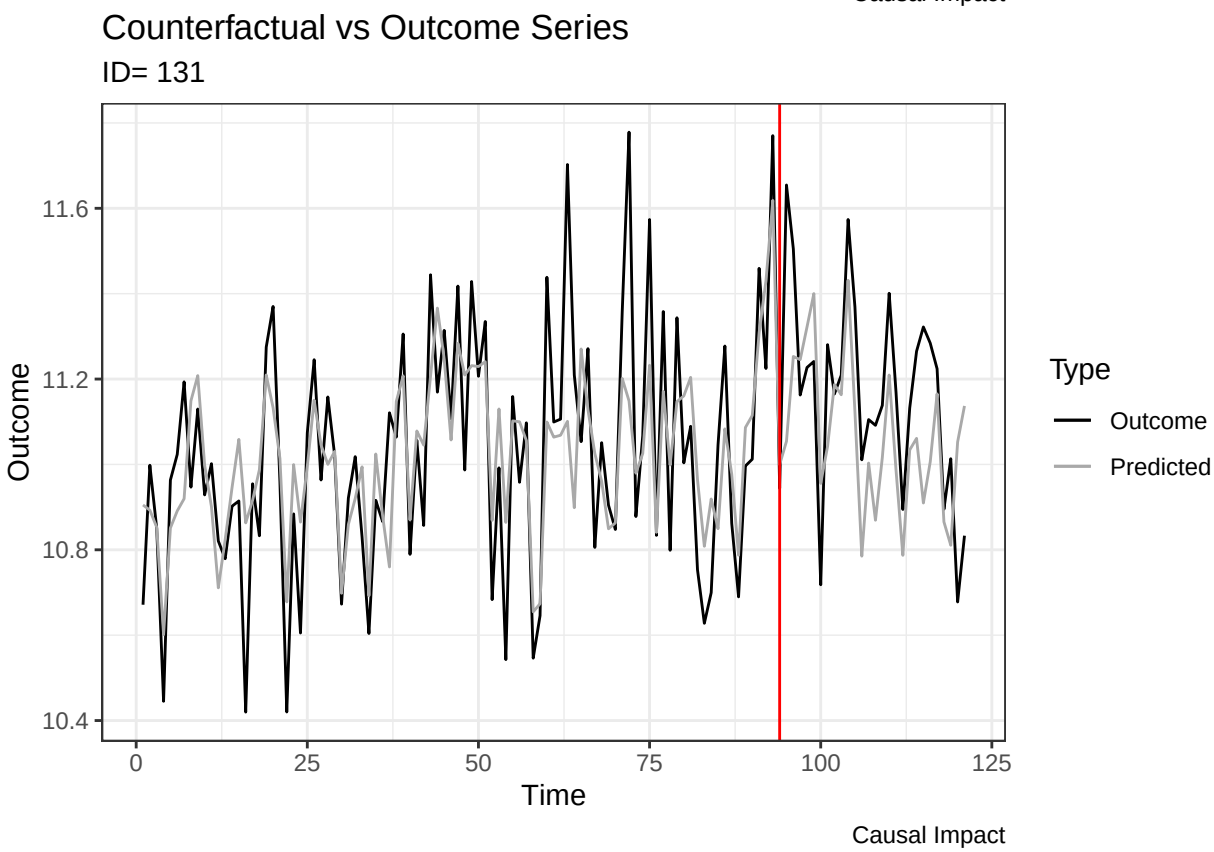

Counterfactual vs Outcome Series
ID= 2
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
SCDID

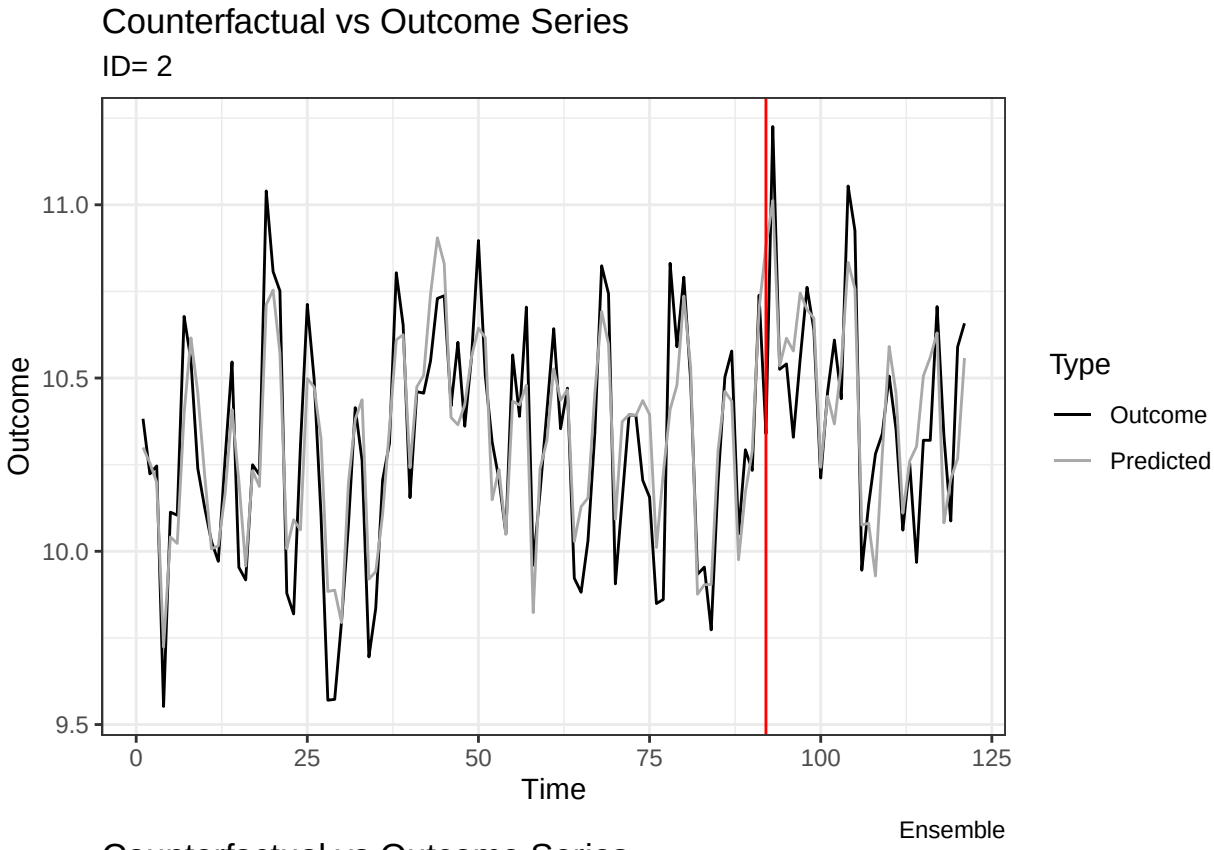

Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Type
Outcome
Predicted
SCDID

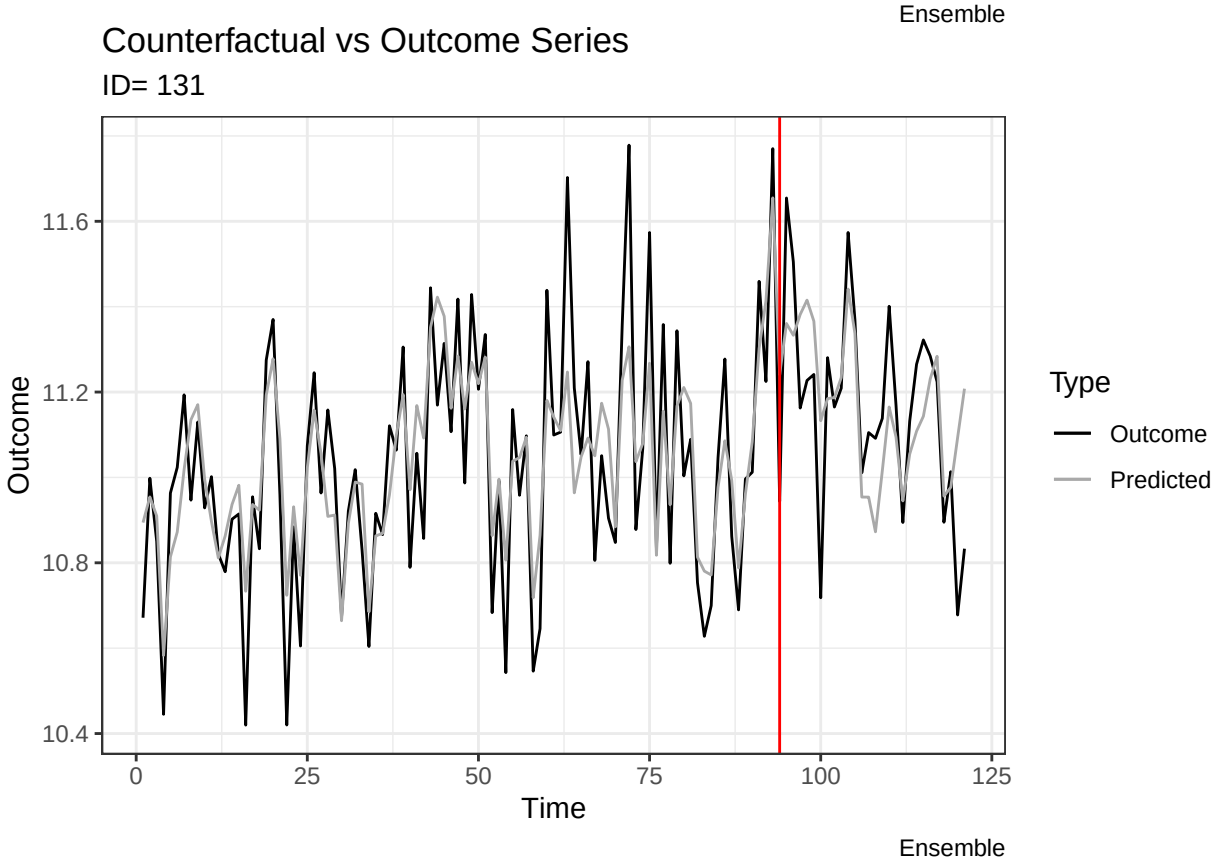

Counterfactual vs Outcome Series
ID= 2
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Type
Outcome
Predicted
MC

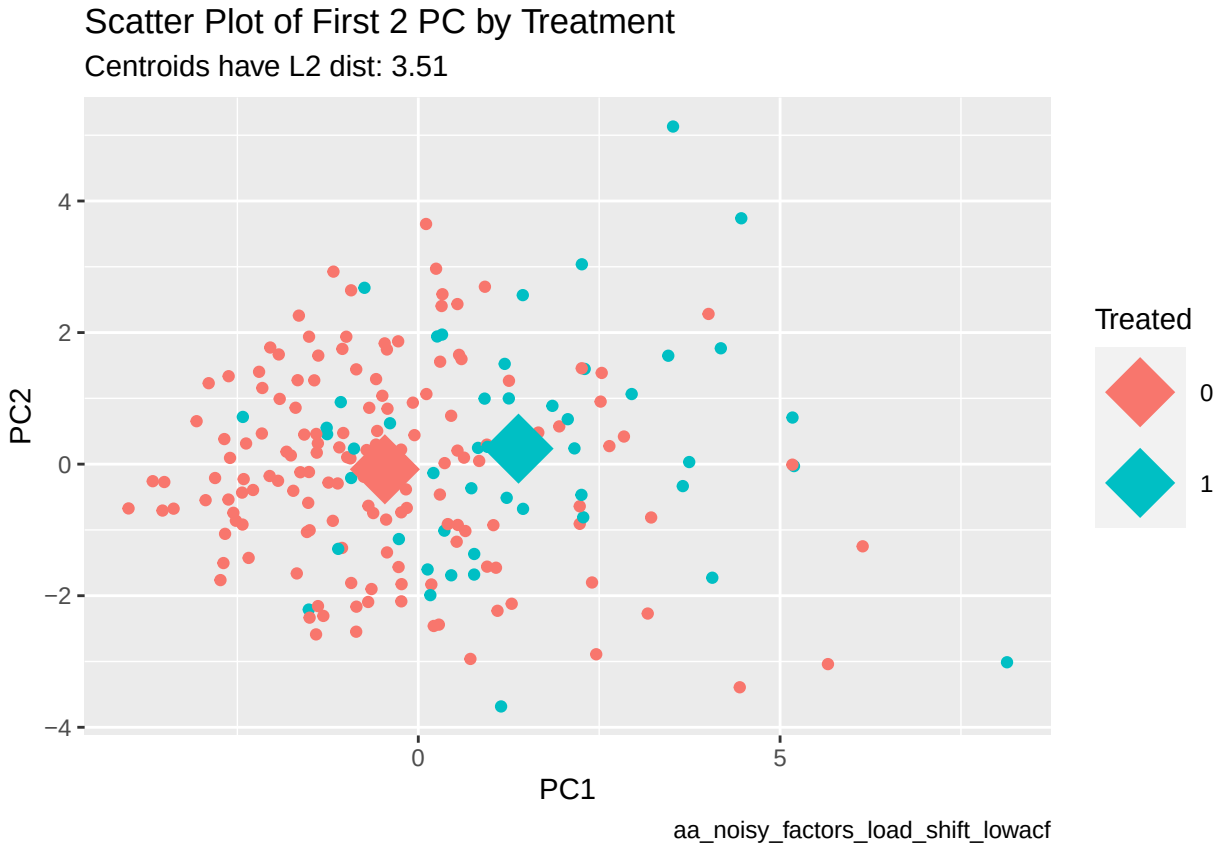

Counterfactual vs Outcome Series
ID= 2
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 131
Outcome
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df           p      p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>       <dbl>      <dbl> <chr>
## 1 curvature    150    50     0.796  90.7 0.428       0.428      ns
## 2 diff1_acf1   150    50    -4.02   69.9 0.000144    0.000324   ***
## 3 diff2_acf1   150    50    -2.50   75.8 0.0144      0.0162     *
## 4 e_acf1       150    50    -5.43   74.3 0.000000674 0.00000303 ****
## 5 entropy      150    50     3.79   69.0 0.000322    0.000580   ***
## 6 linearity    150    50    -3.13   82.1 0.00239     0.00330    **
## 7 spike        150    50     4.18   95.0 0.0000659   0.000198   ***
## 8 trend        150    50    -3.12   78.4 0.00257     0.00330    **
## 9 x_acf1       150    50    -5.63   84.6 0.000000229 0.00000206 ****
```

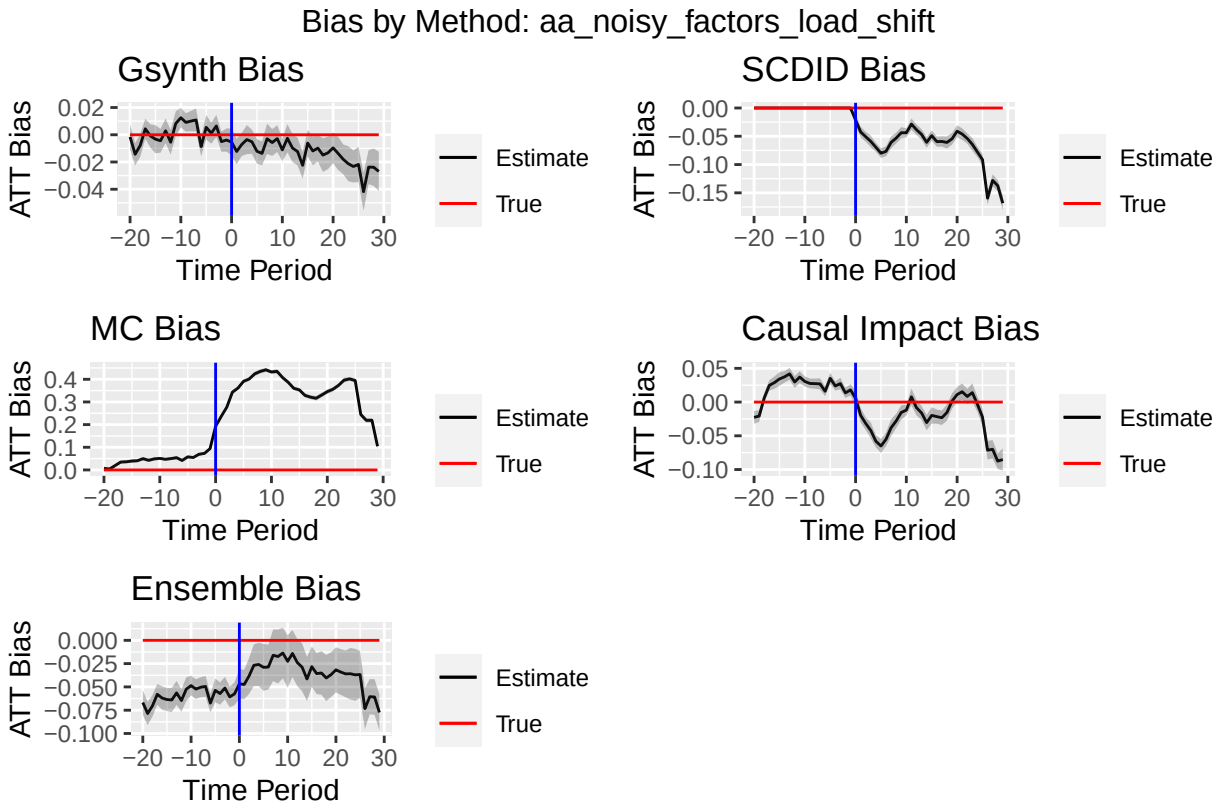
Metrics by Method

aa_noisy_factors_load_shift_lowacf

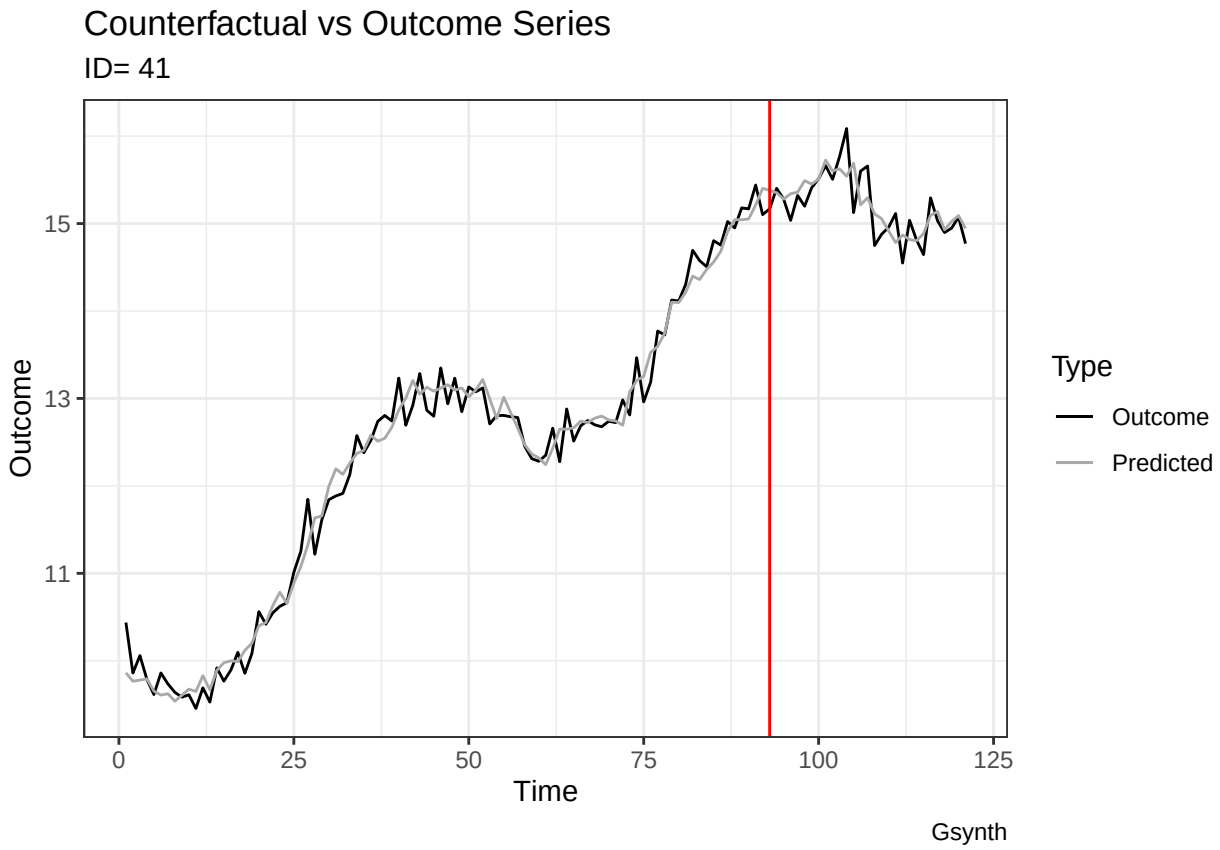
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.880	0.600	0.000	0.460	0.760
1	0.900	0.460	0.000	0.260	0.780
2	0.860	0.380	0.000	0.360	0.680
3	0.920	0.700	0.000	0.480	0.760
4	0.880	0.740	0.000	0.620	0.800
rmse					
0	0.249	0.279	0.328	0.279	0.256
1	0.242	0.277	0.344	0.282	0.251
2	0.250	0.288	0.370	0.293	0.260

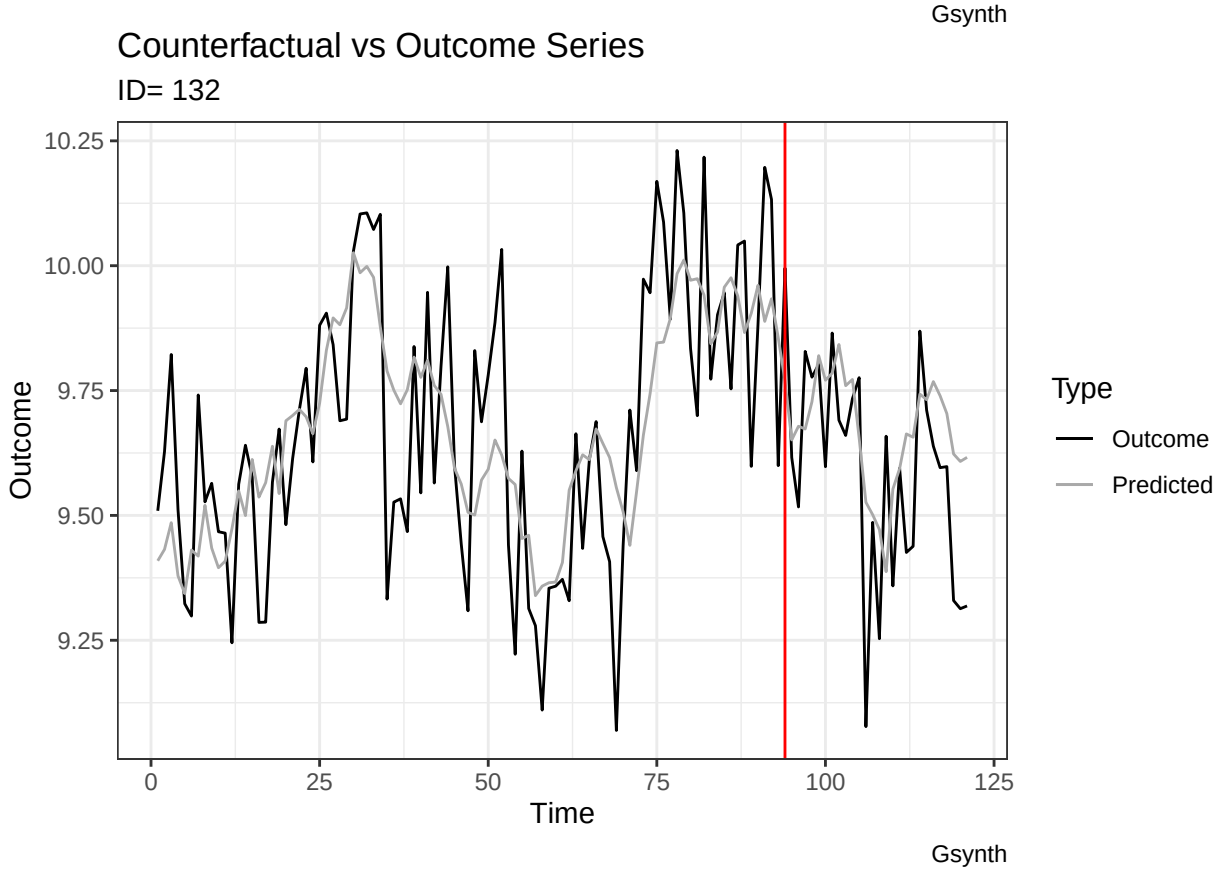
3	0.261	0.290	0.356	0.291	0.269
4	0.258	0.309	0.364	0.306	0.272
bias					
0	0.020	0.070	0.176	0.082	0.041
1	0.021	0.079	0.207	0.091	0.046
2	0.023	0.087	0.230	0.095	0.052
3	0.030	0.067	0.205	0.079	0.048
4	0.022	0.063	0.213	0.077	0.041

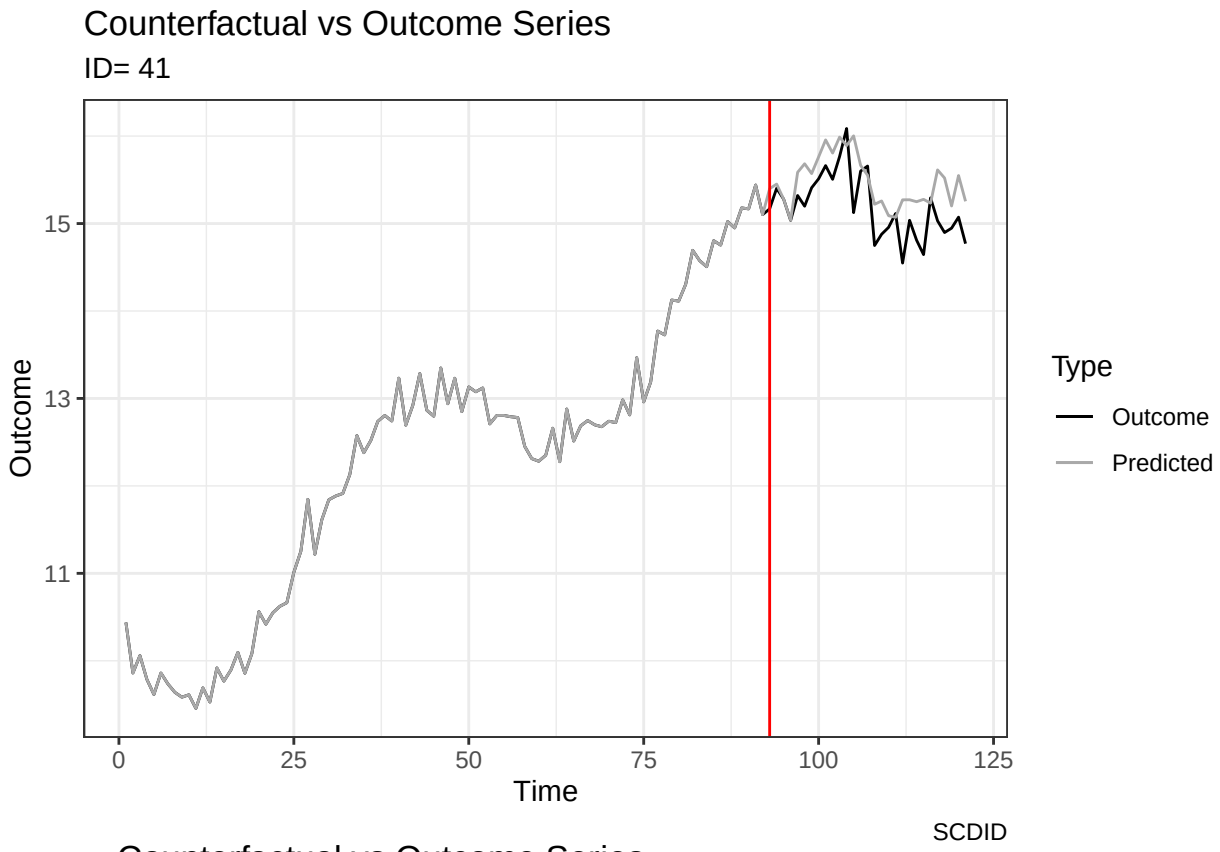
Notes:

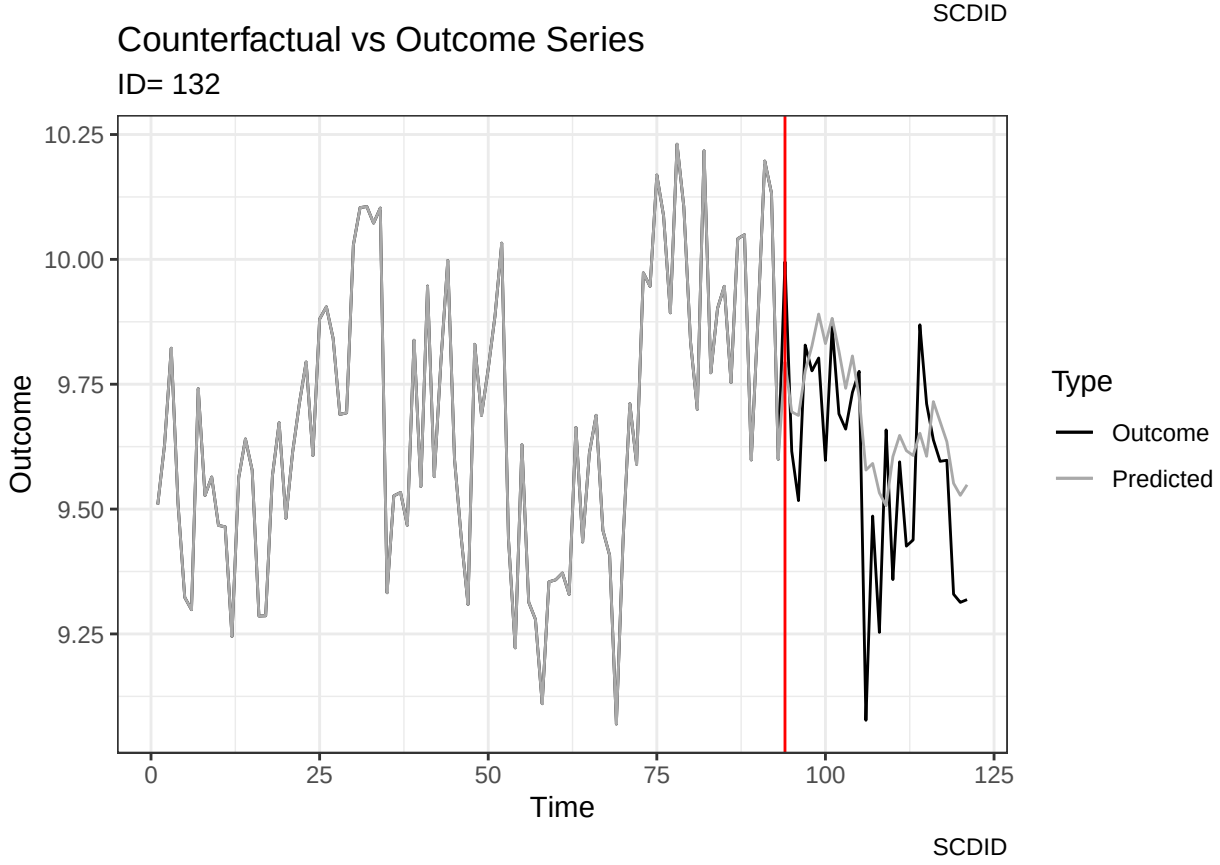


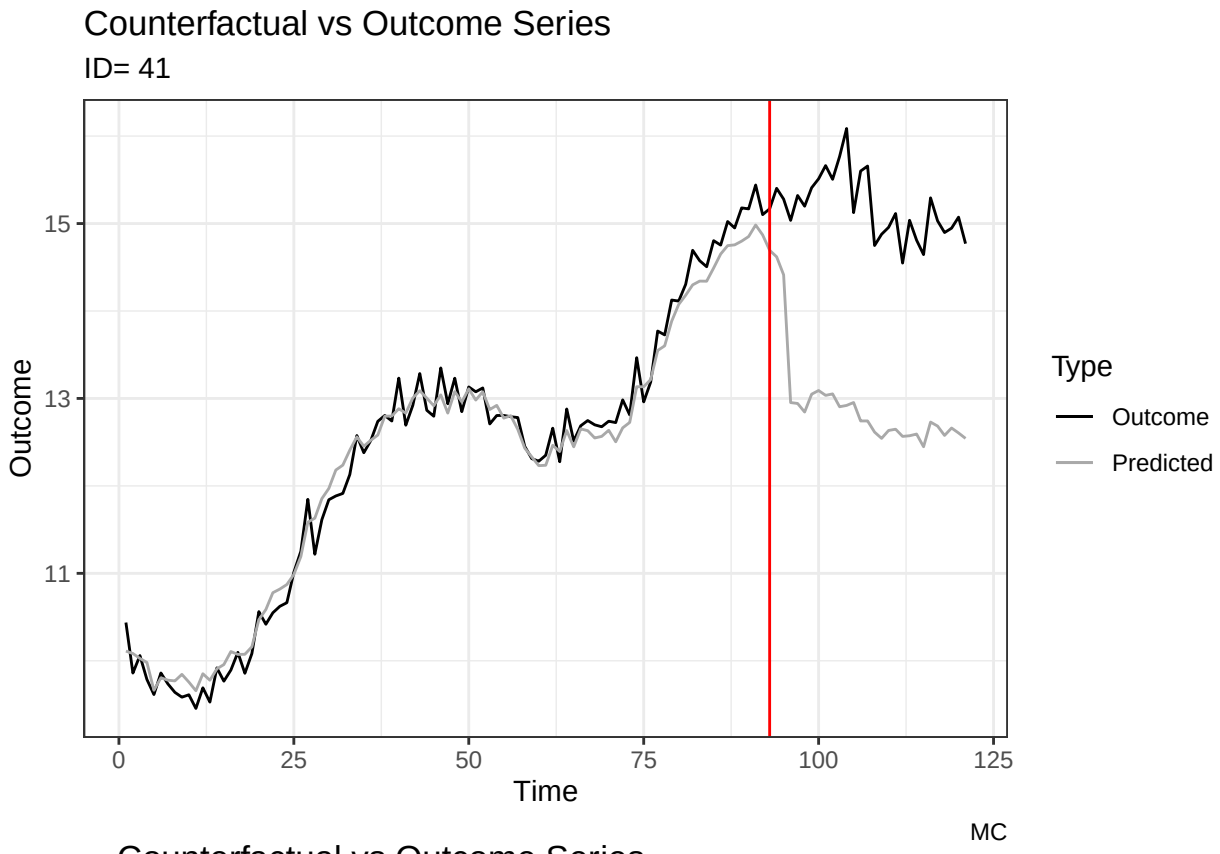
Notes:

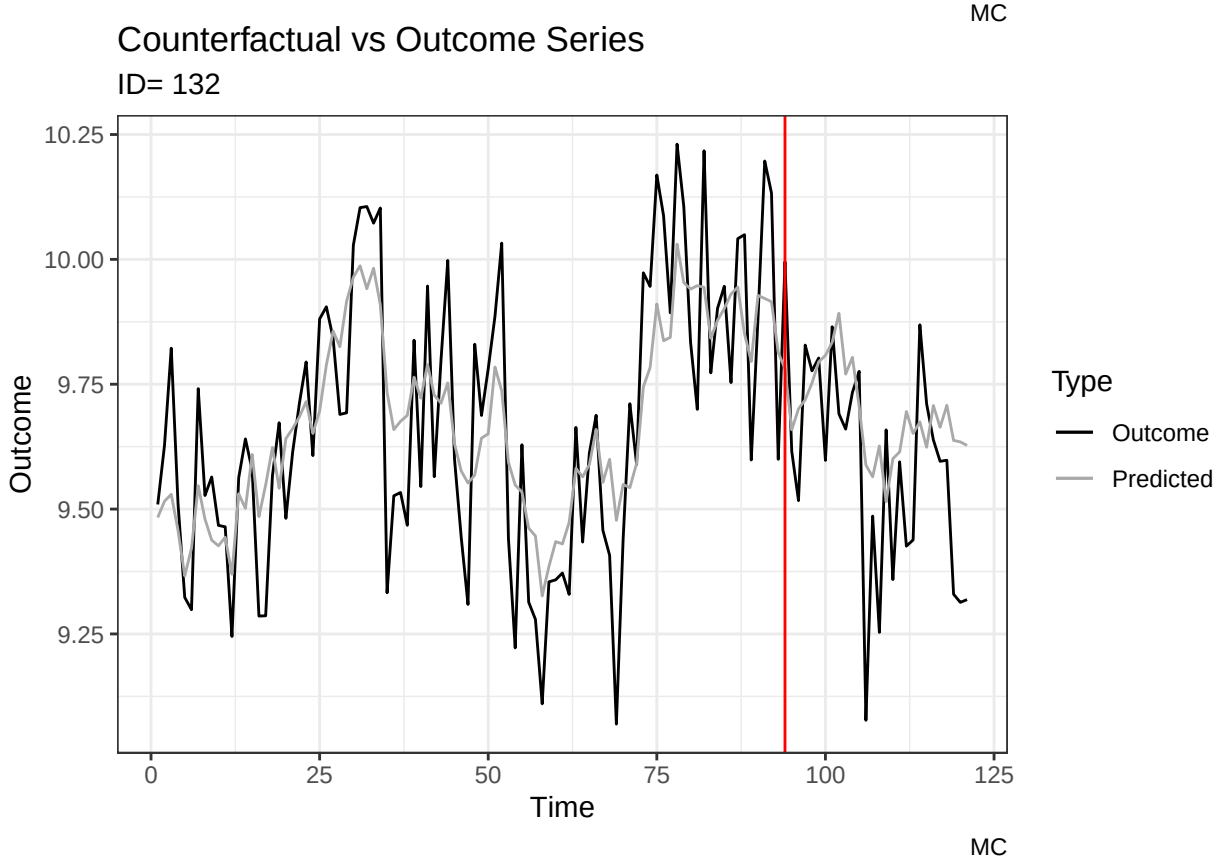

Counterfactual vs Outcome Series
ID= 41
Outcome
15
13
11
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

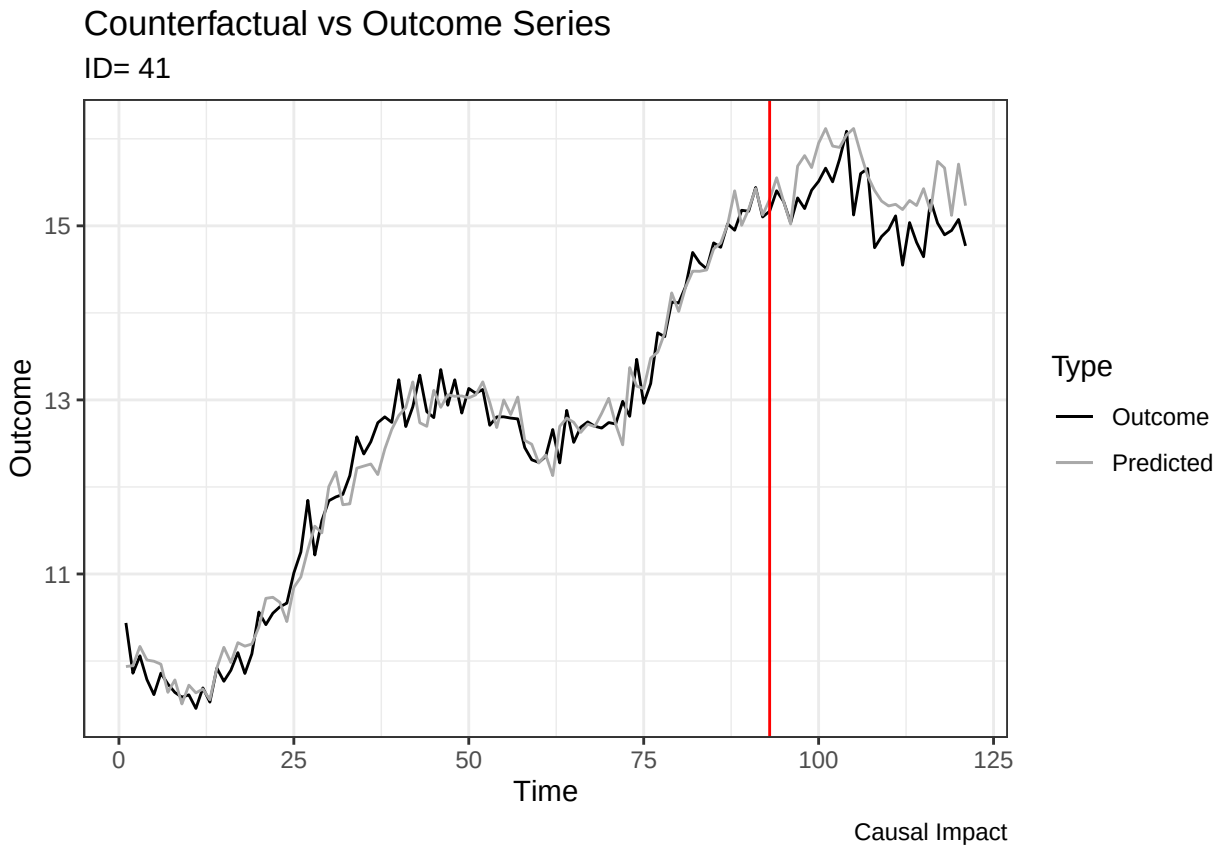

Counterfactual vs Outcome Series
ID= 132
Outcome
10.25
10.00
9.75
9.50
9.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

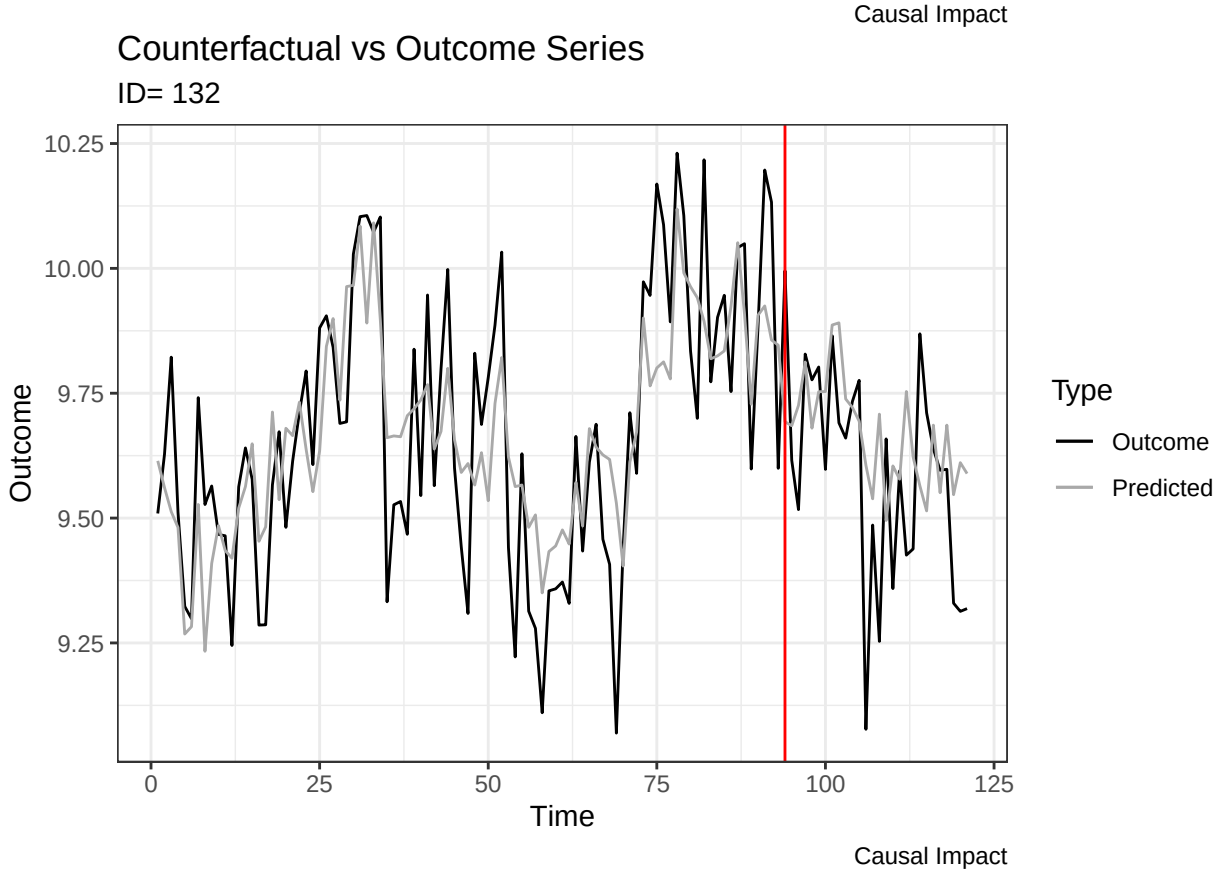

Counterfactual vs Outcome Series
ID= 41
Outcome
15
13
11
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

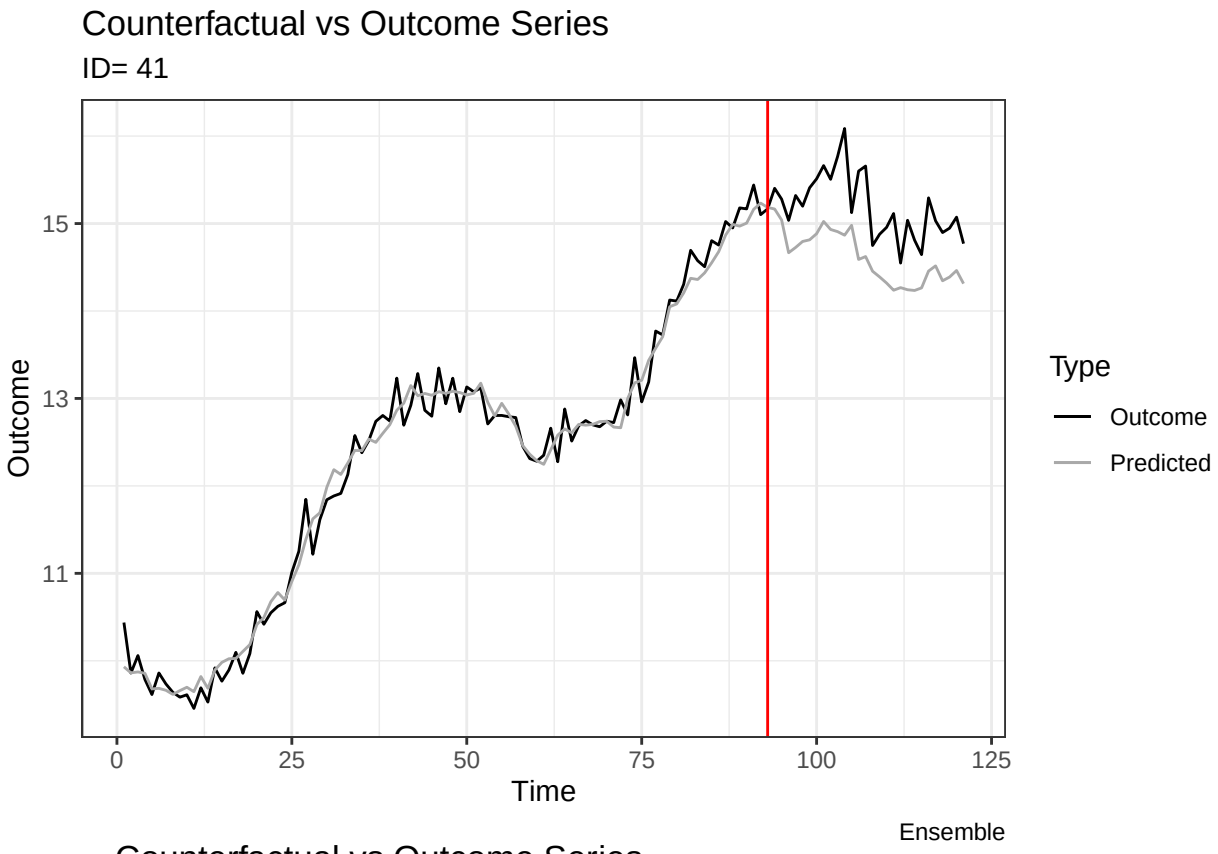

Counterfactual vs Outcome Series
ID= 132
Outcome
10.25
10.00
9.75
9.50
9.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

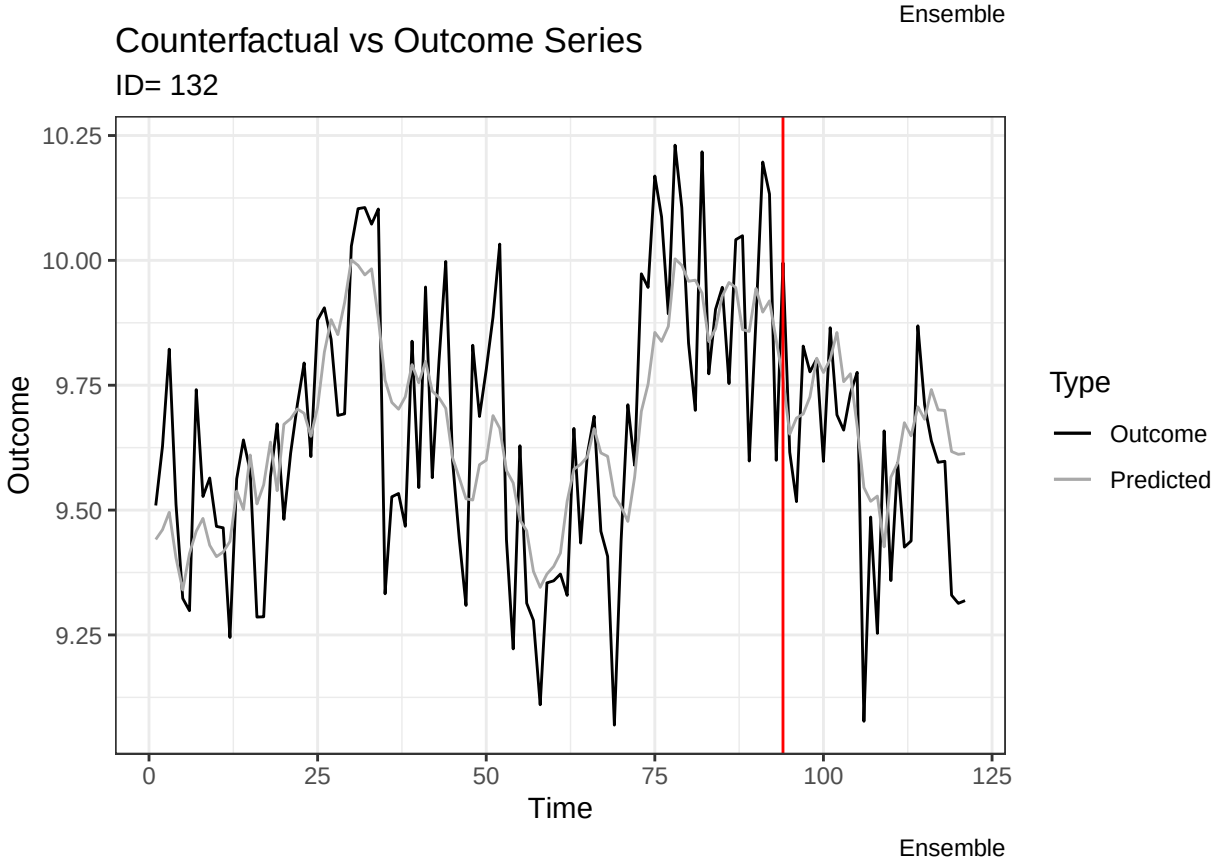

Counterfactual vs Outcome Series
ID= 41
Outcome
15
13
11
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 132
Outcome
10.25
10.00
9.75
9.50
9.25
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

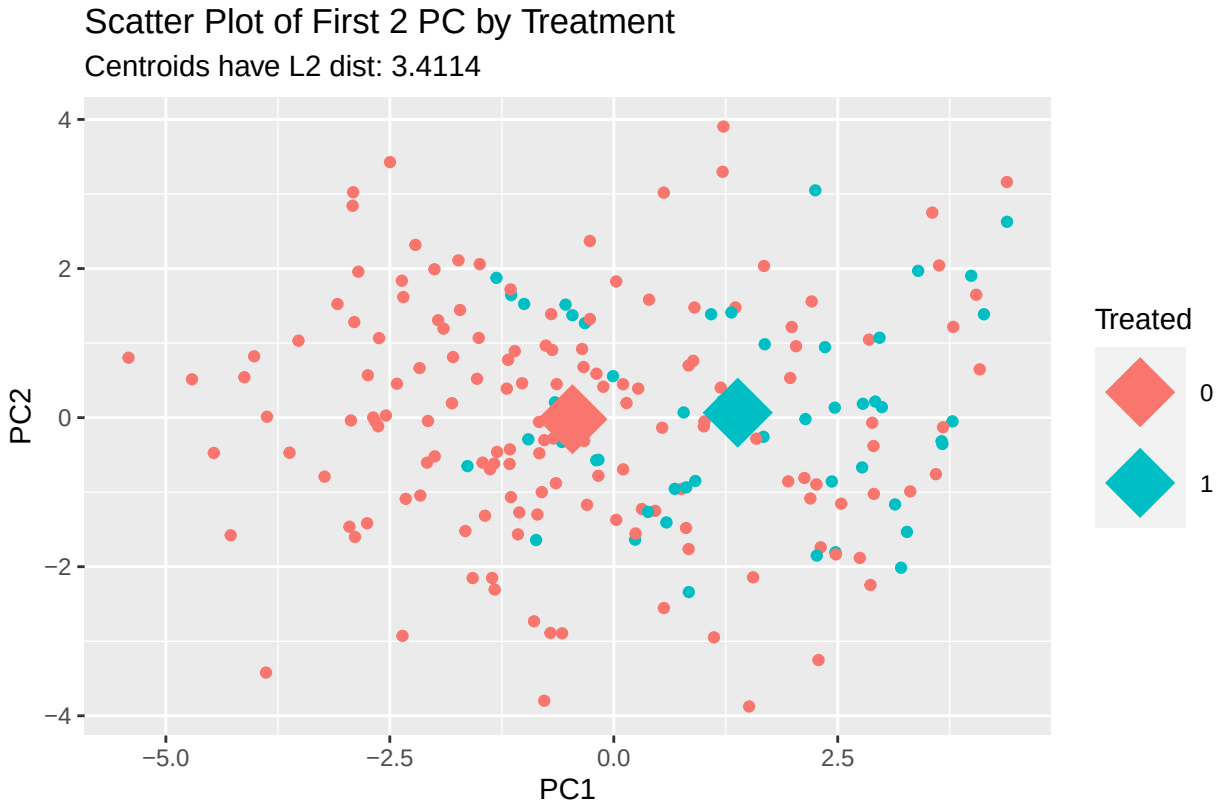

Counterfactual vs Outcome Series
ID= 41
Outcome
15
13
11
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 132
Outcome
10.25
10.00
9.75
9.50
9.25
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```



aa_noisy_factors_load_shift

```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df        p    p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>    <dbl>    <dbl> <chr>
## 1 curvature    150    50      3.78  102.  2.67e- 4 4.81e- 4 ***
## 2 diff1_acf1   150    50     -3.51   87.5 7.21e- 4 1.08e- 3 **
## 3 diff2_acf1   150    50      0.585  96.3 5.60e- 1 5.60e- 1 ns
## 4 e_acf1       150    50     -2.41   93.1 1.81e- 2 2.04e- 2 *
## 5 entropy      150    50      4.46   77.0 2.78e- 5 6.26e- 5 ****
## 6 linearity    150    50     -2.55   75.3 1.28e- 2 1.65e- 2 *
## 7 spike        150    50      6.94  177.  7.14e-11 6.43e-10 ****
## 8 trend        150    50     -6.55  115.  1.70e- 9 5.10e- 9 ****
## 9 x_acf1       150    50     -6.85  117.  3.66e-10 1.65e- 9 ****
```

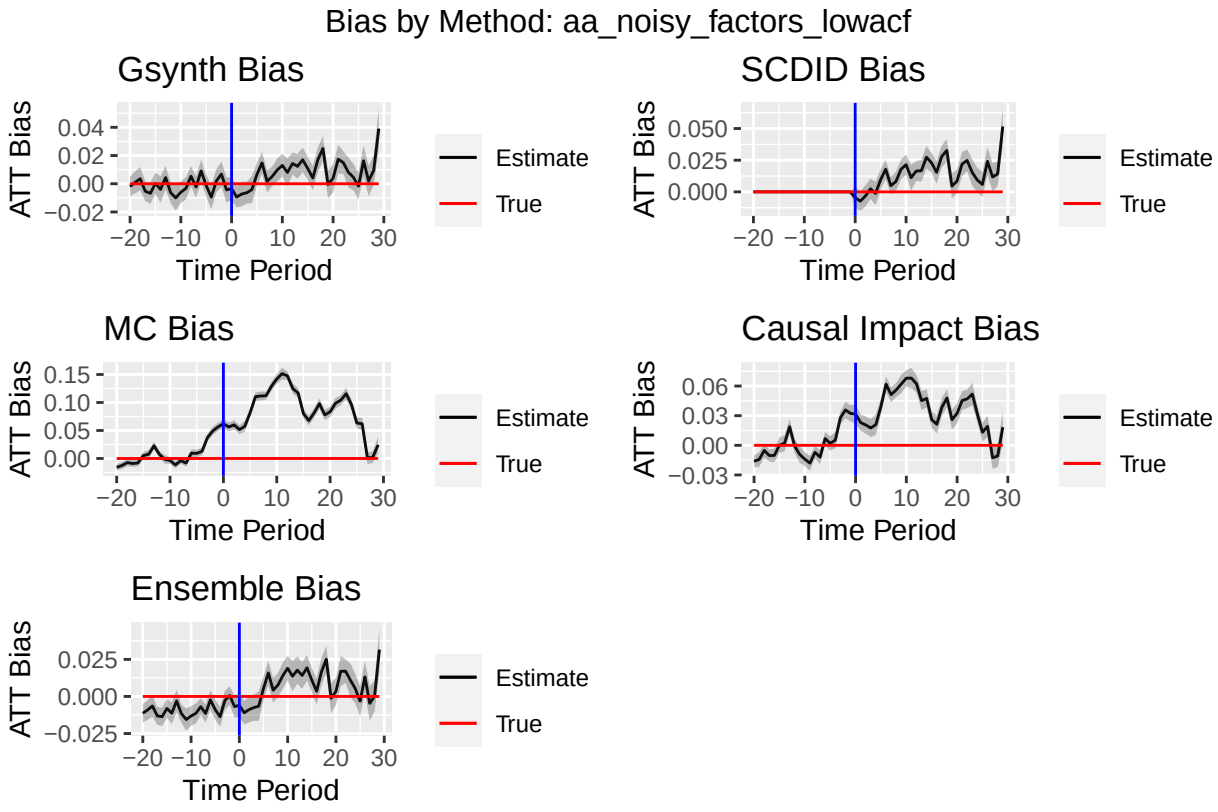
Metrics by Method

aa_noisy_factors_load_shift

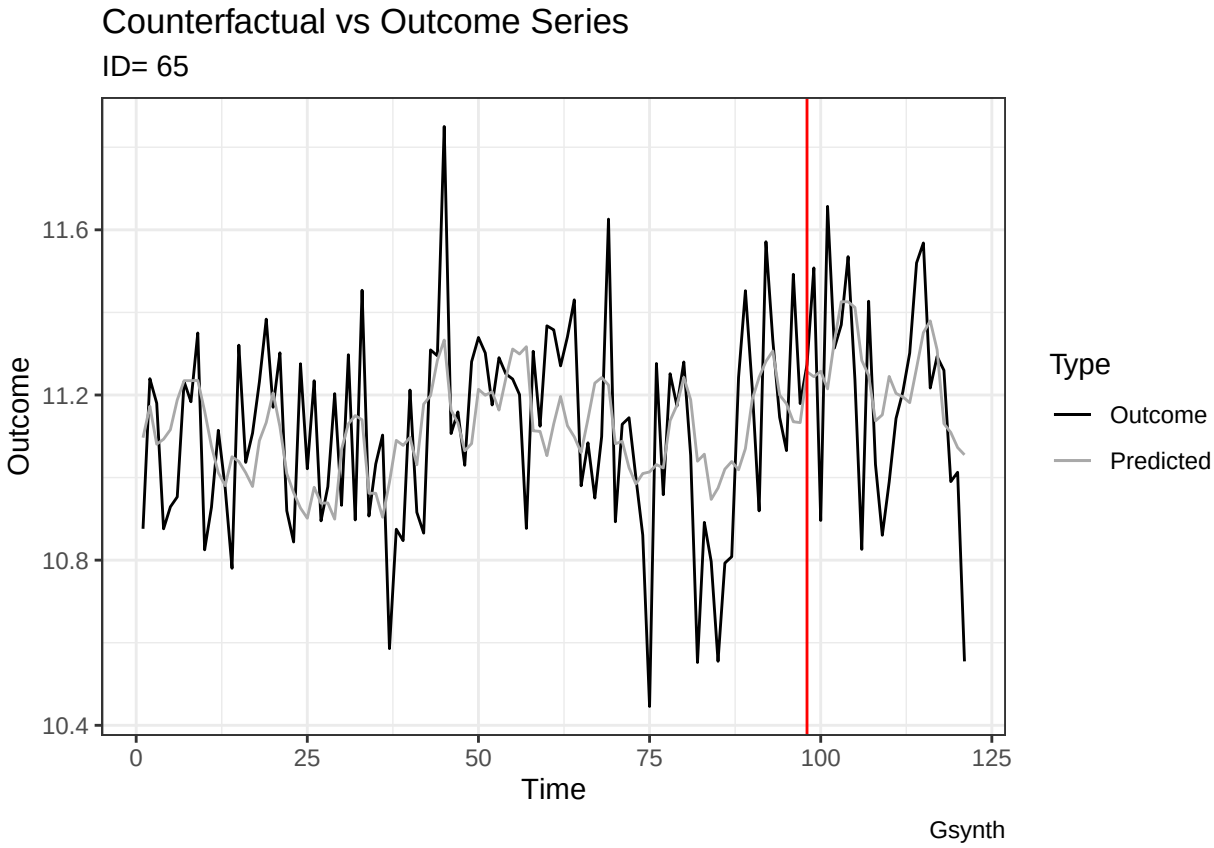
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	0.880	0.160	0.960	0.640
1	0.940	0.720	0.060	0.900	0.500
2	0.980	0.740	0.000	0.860	0.620
3	0.900	0.640	0.000	0.720	0.620
4	0.980	0.560	0.000	0.700	0.560
rmse					
0	0.229	0.235	0.584	0.250	0.265
1	0.230	0.241	0.665	0.252	0.270
2	0.237	0.250	0.708	0.256	0.281

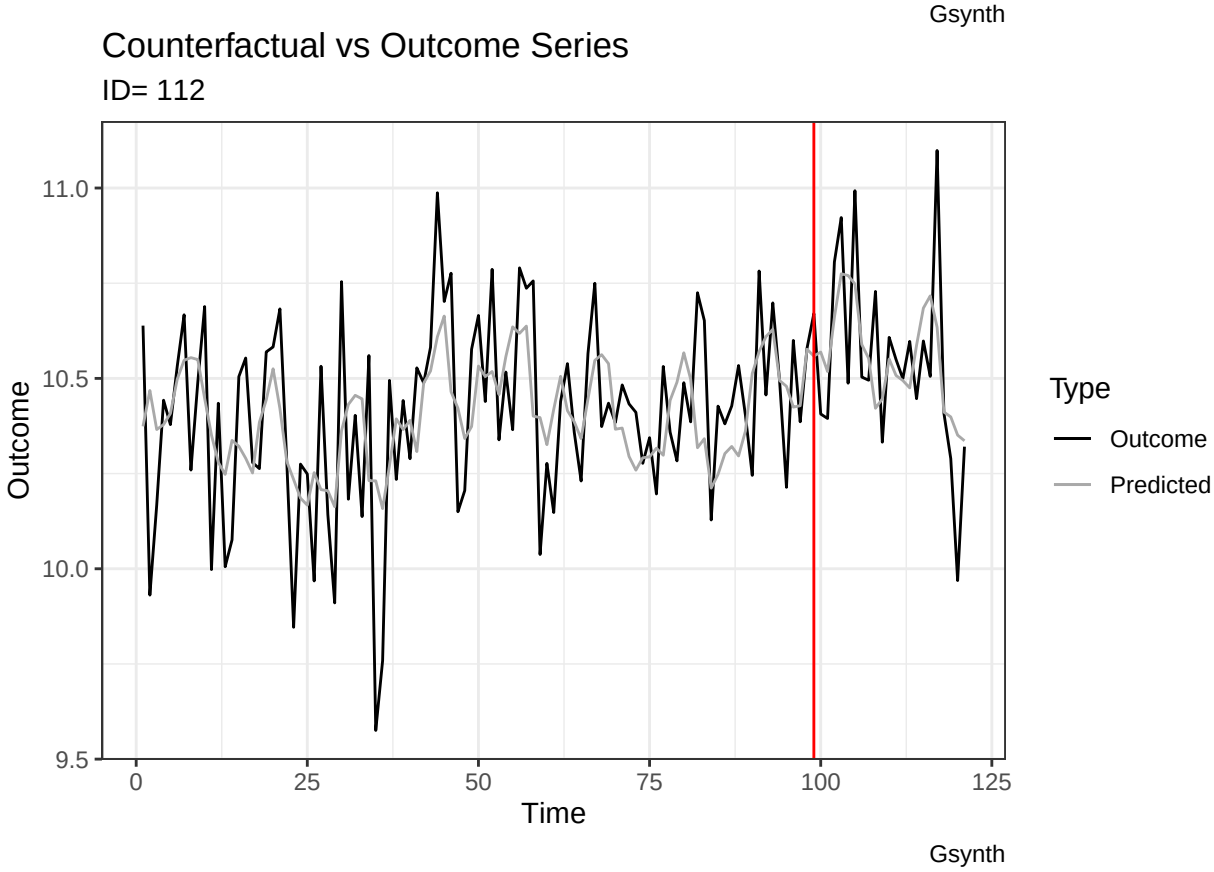
3	0.233	0.257	0.835	0.254	0.302
4	0.236	0.266	0.870	0.267	0.309
bias					
0	−0.005	−0.021	0.192	0.006	−0.047
1	−0.012	−0.042	0.236	−0.020	−0.047
2	−0.007	−0.051	0.277	−0.032	−0.038
3	−0.004	−0.059	0.343	−0.042	−0.027
4	−0.005	−0.069	0.361	−0.058	−0.026

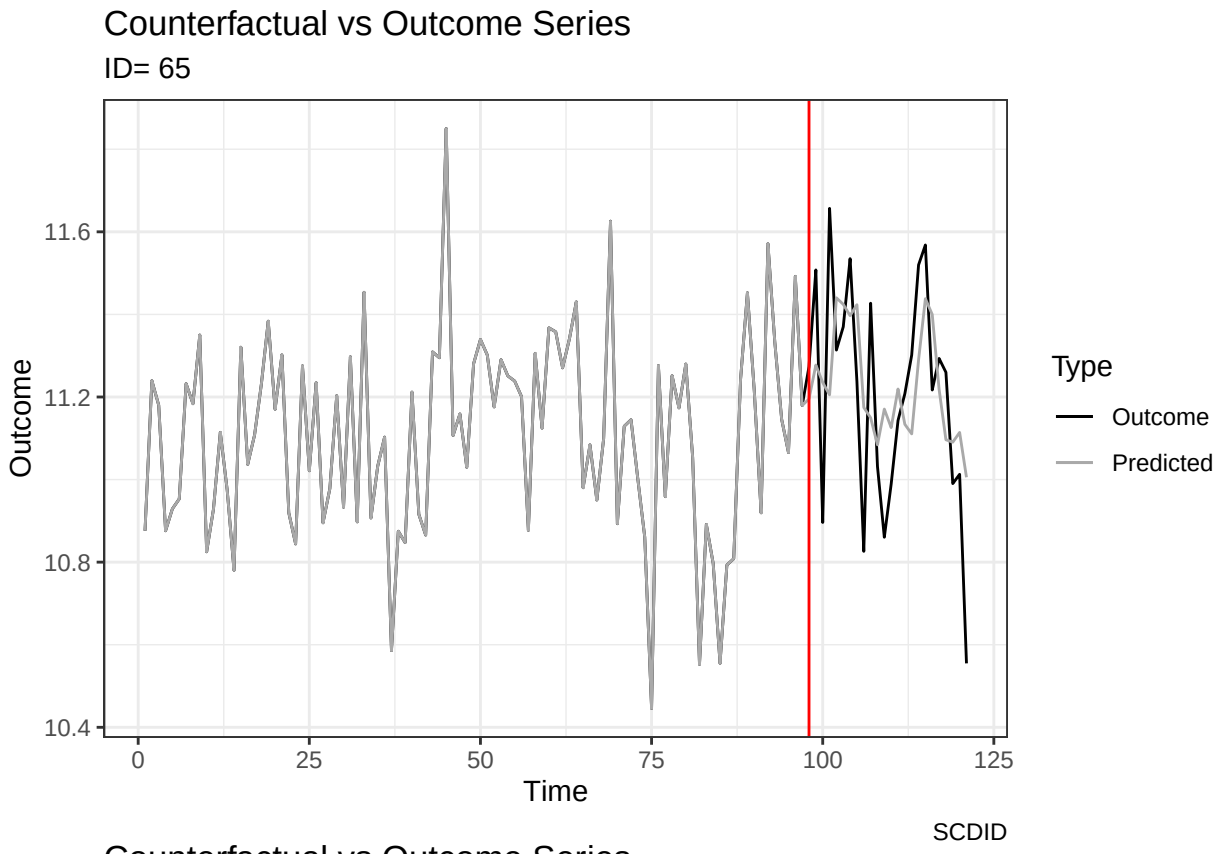
Notes:

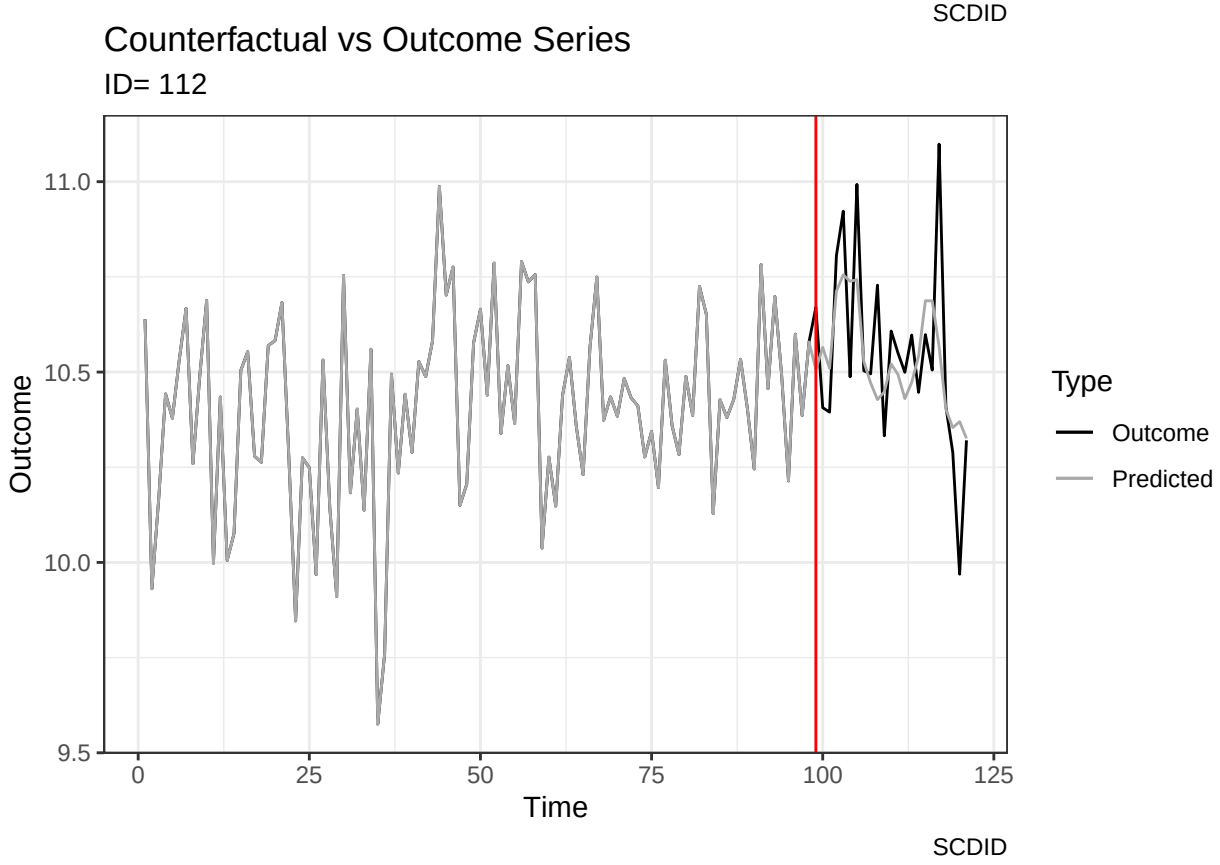


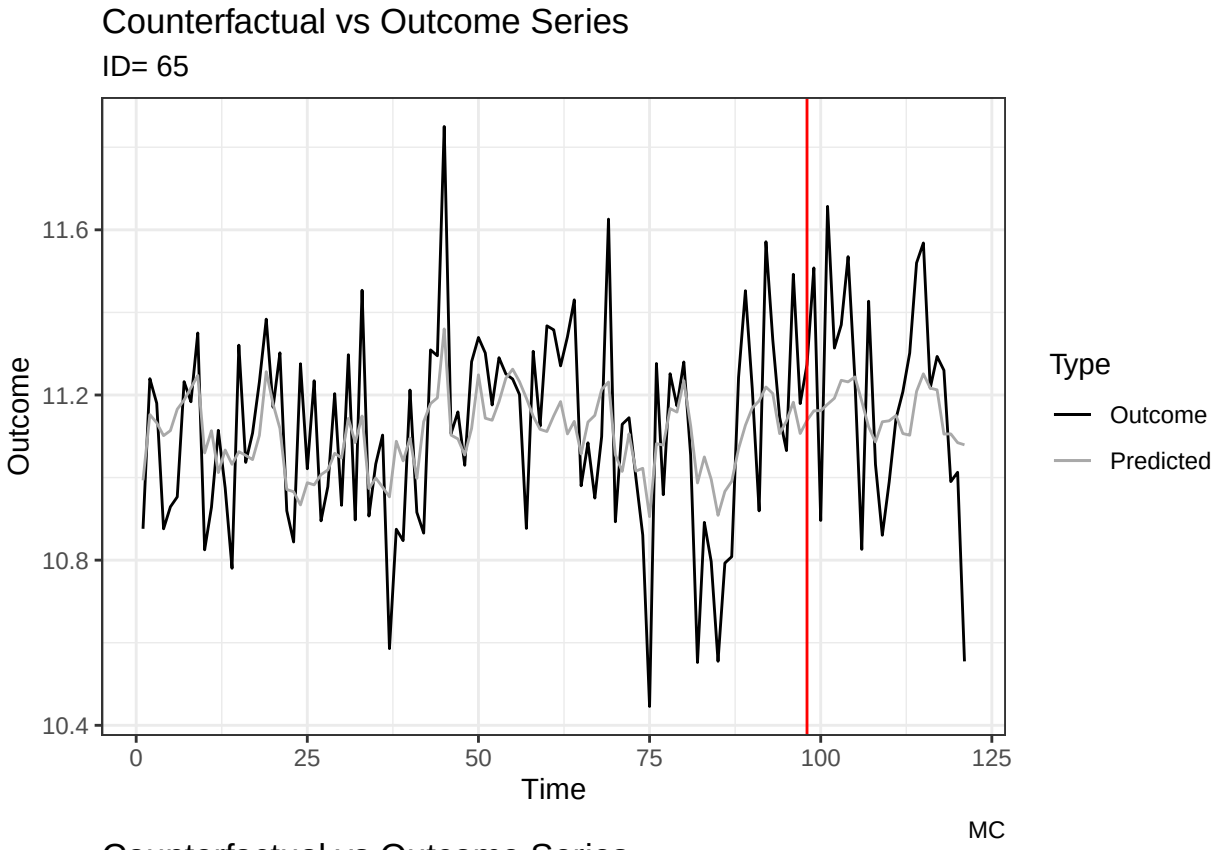
Notes:

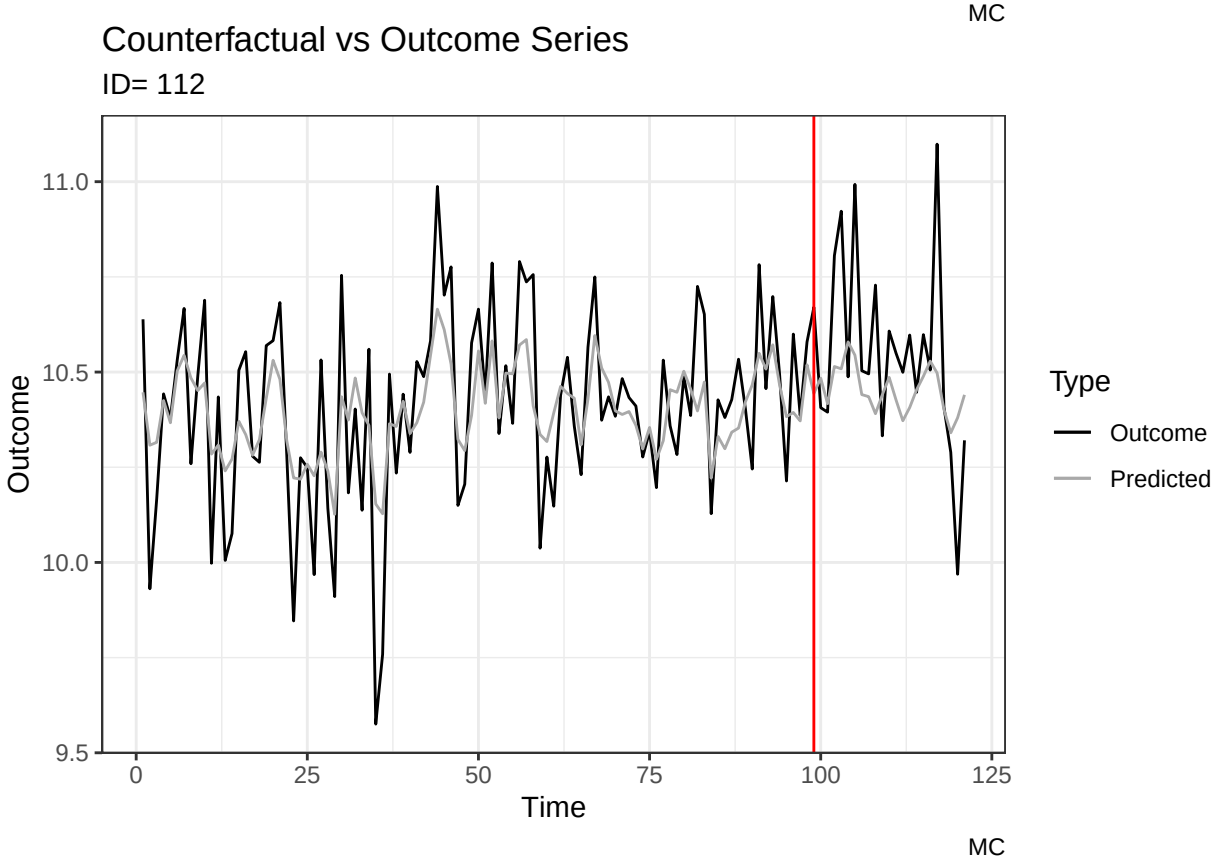

Counterfactual vs Outcome Series
ID= 65
Outcome
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

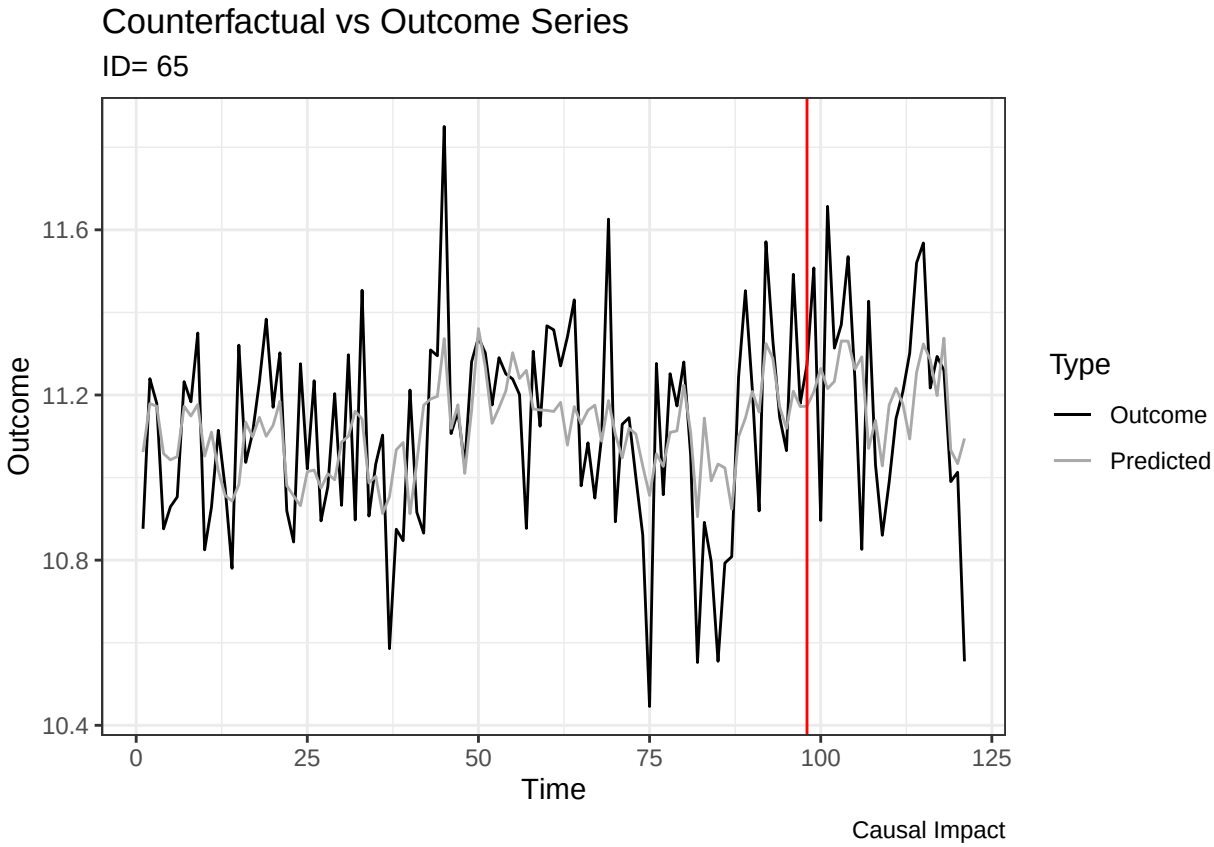

Counterfactual vs Outcome Series
ID= 112
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

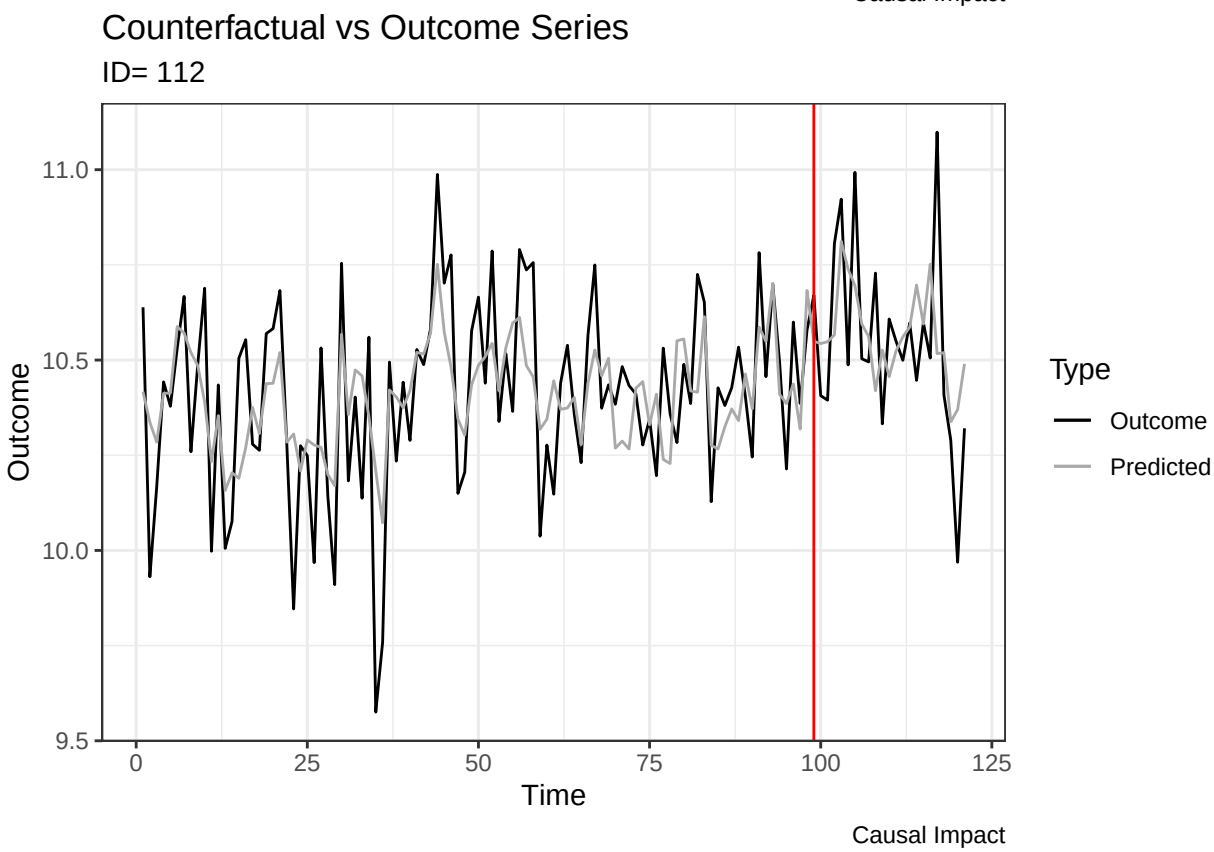

Counterfactual vs Outcome Series
ID= 65
Outcome
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

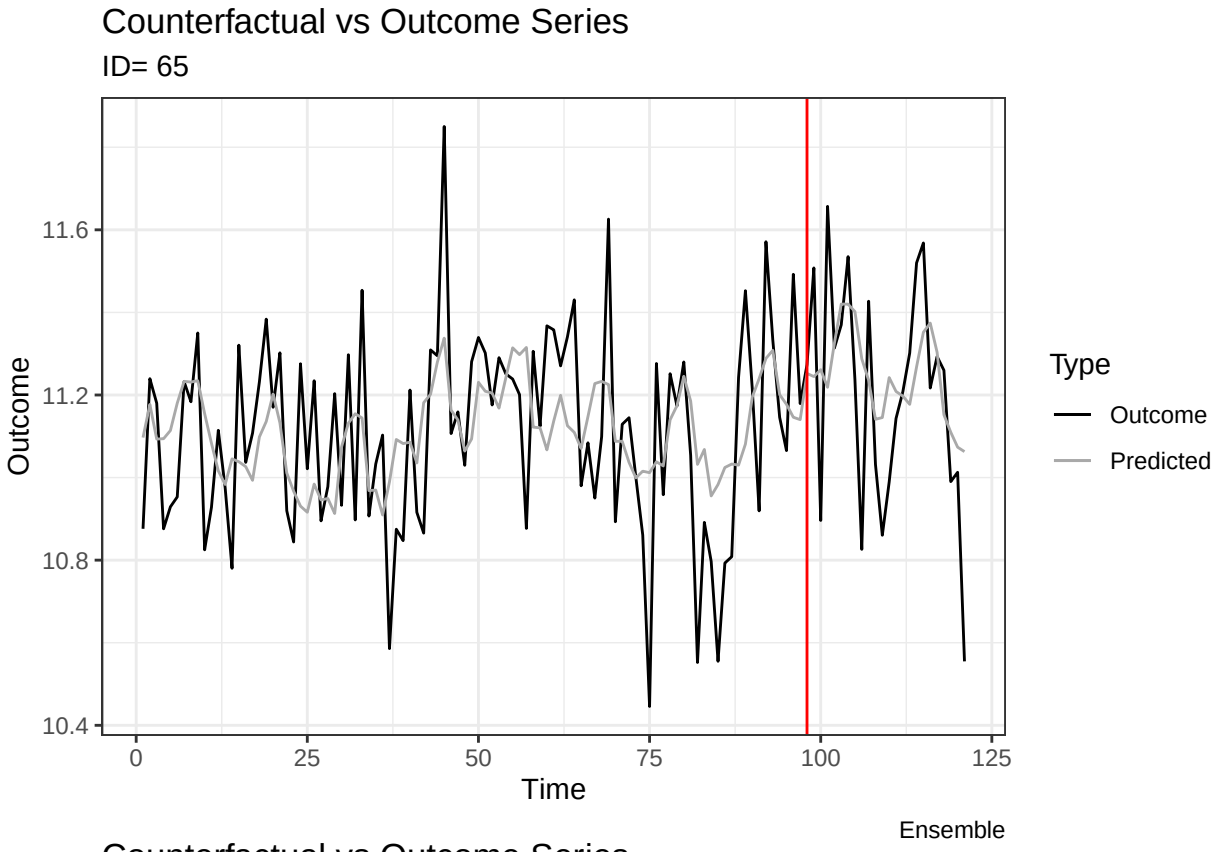

Counterfactual vs Outcome Series
ID= 112
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

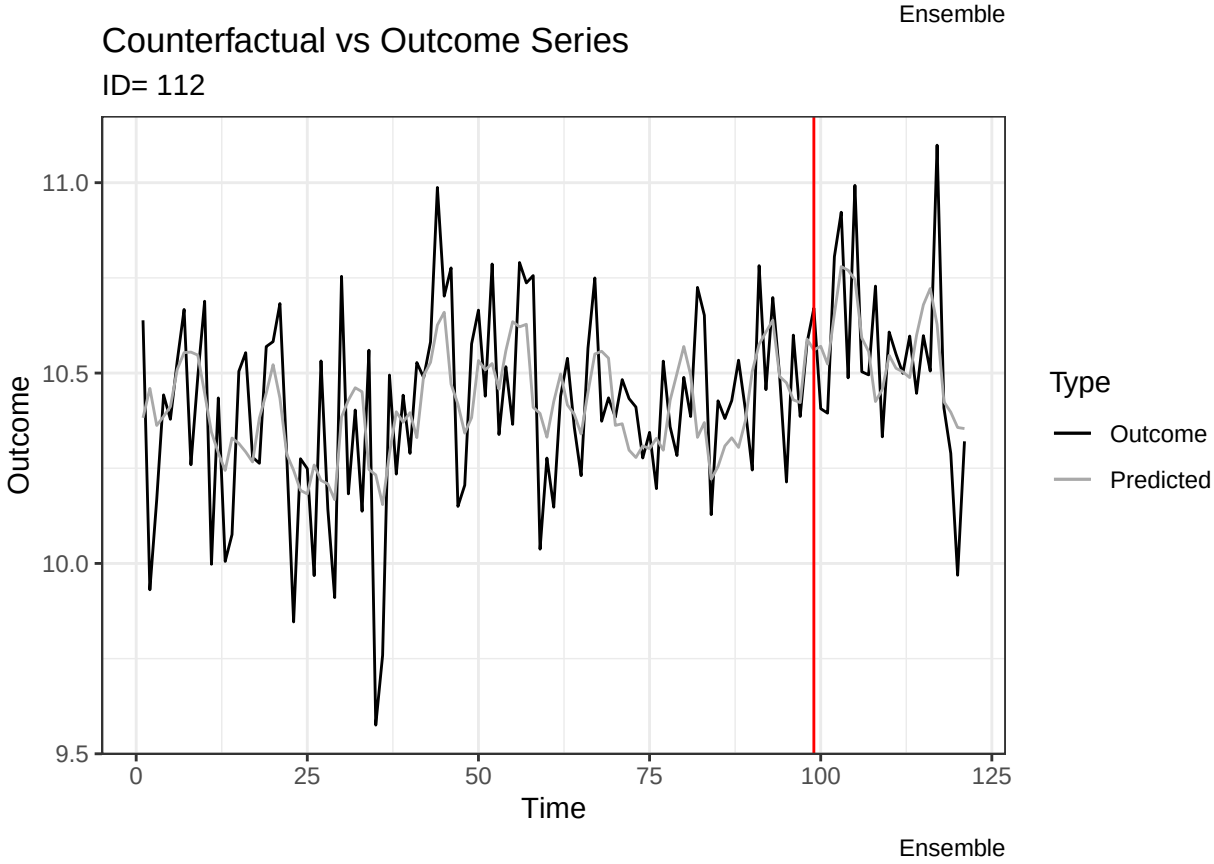

Counterfactual vs Outcome Series
ID= 65
Outcome
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 112
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted

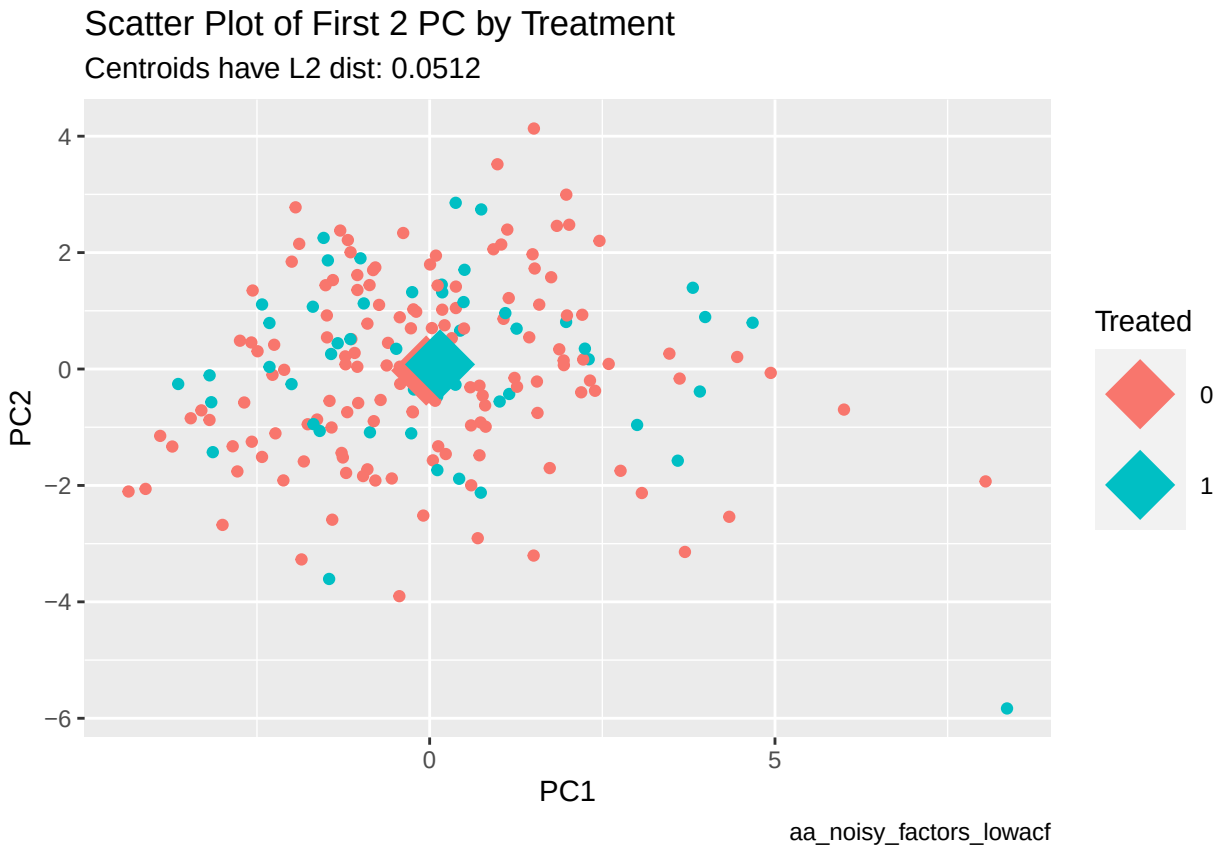

Counterfactual vs Outcome Series
ID= 65
Outcome
11.6
11.2
10.8
10.4
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 112
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```



aa_noisy_factors_lowacf

```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df     p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl> <dbl> <dbl> <chr>
## 1 curvature    150    50     0.381  70.7 0.705 0.856 ns
## 2 diff1_acf1   150    50    -0.560  87.7 0.577 0.856 ns
## 3 diff2_acf1   150    50    -0.755  99.5 0.452 0.856 ns
## 4 e_acf1       150    50    -0.312  84.3 0.756 0.856 ns
## 5 entropy      150    50     1.66   69.6 0.102 0.856 ns
## 6 linearity    150    50     0.346  87.7 0.73  0.856 ns
## 7 spike        150    50    -0.253  76.7 0.801 0.856 ns
## 8 trend        150    50    -0.182  68.3 0.856 0.856 ns
## 9 x_acf1       150    50    -0.288  72.0 0.774 0.856 ns
```

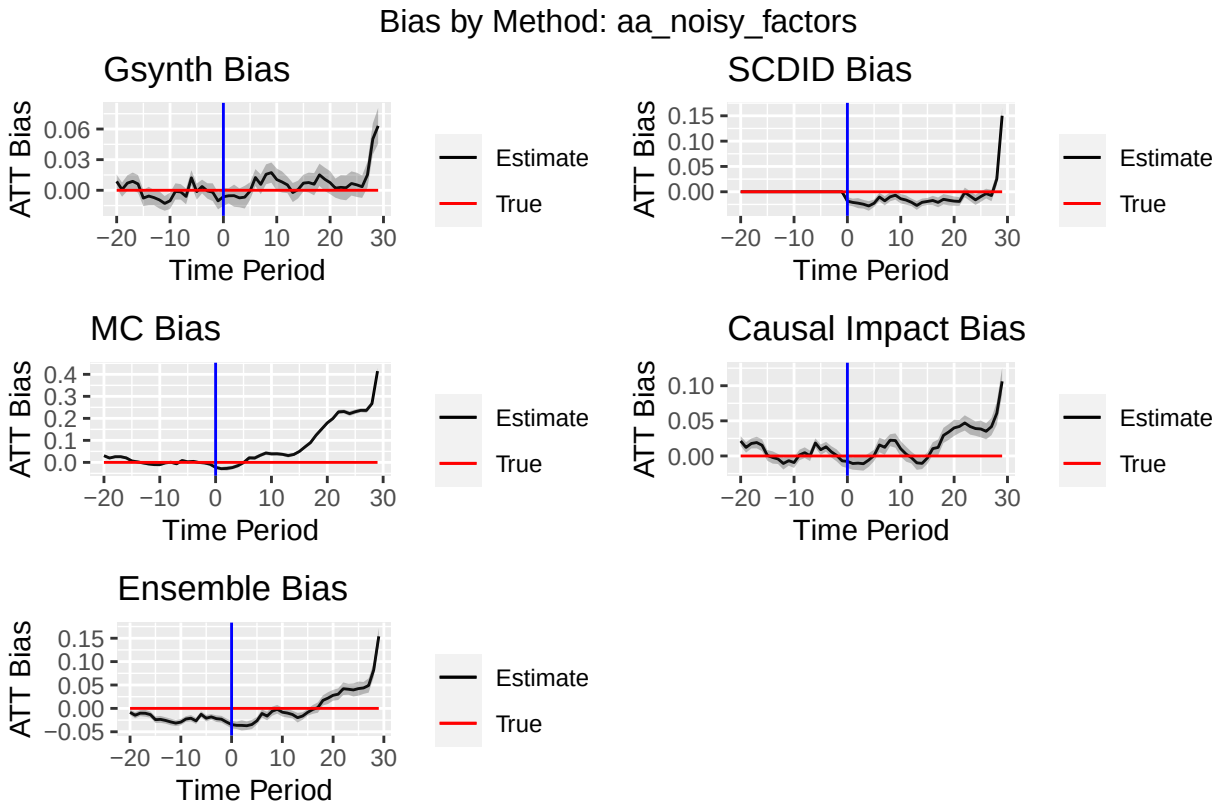
Metrics by Method

aa_noisy_factors_lowacf

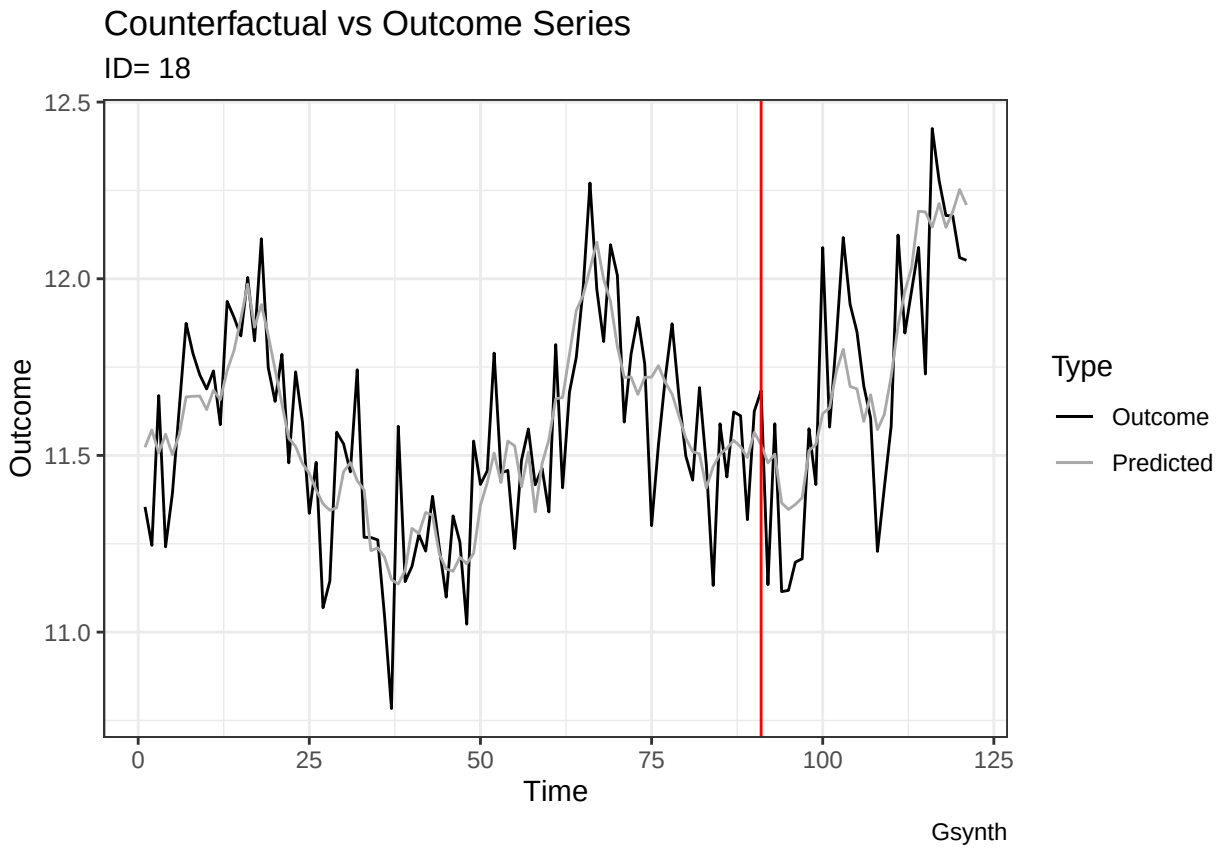
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	0.980	0.460	0.800	1.000
1	0.960	0.960	0.600	0.960	0.940
2	0.920	0.980	0.460	0.960	0.920
3	0.960	0.980	0.560	0.960	0.920
4	0.960	0.960	0.580	0.820	0.920
rmse					
0	0.209	0.214	0.221	0.230	0.209
1	0.218	0.218	0.225	0.233	0.217
2	0.218	0.217	0.229	0.232	0.216

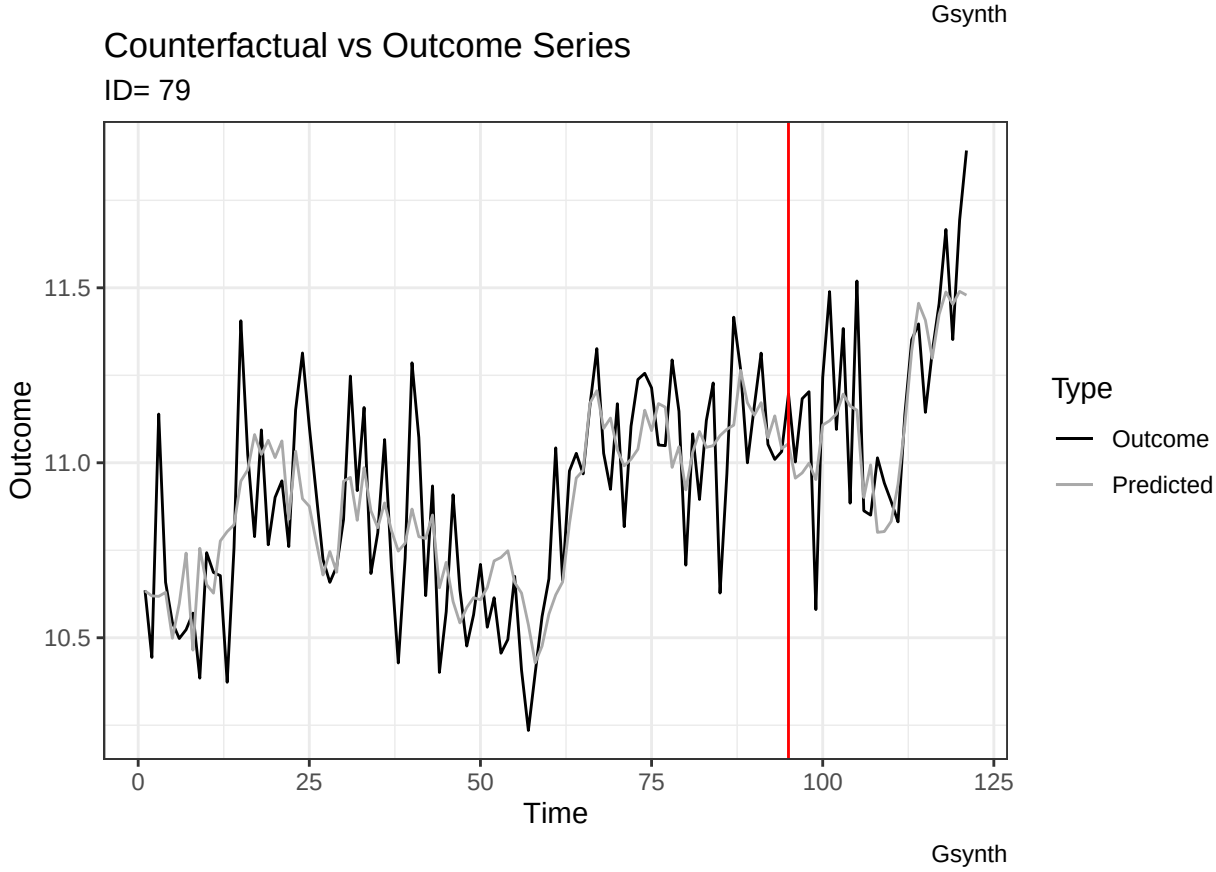
3	0.214	0.212	0.222	0.227	0.212
4	0.215	0.216	0.224	0.229	0.214
bias					
0	−0.003	−0.005	0.062	0.032	−0.006
1	−0.009	−0.007	0.056	0.023	−0.011
2	−0.007	−0.003	0.060	0.021	−0.009
3	−0.006	0.002	0.052	0.018	−0.008
4	−0.004	−0.001	0.057	0.021	−0.007

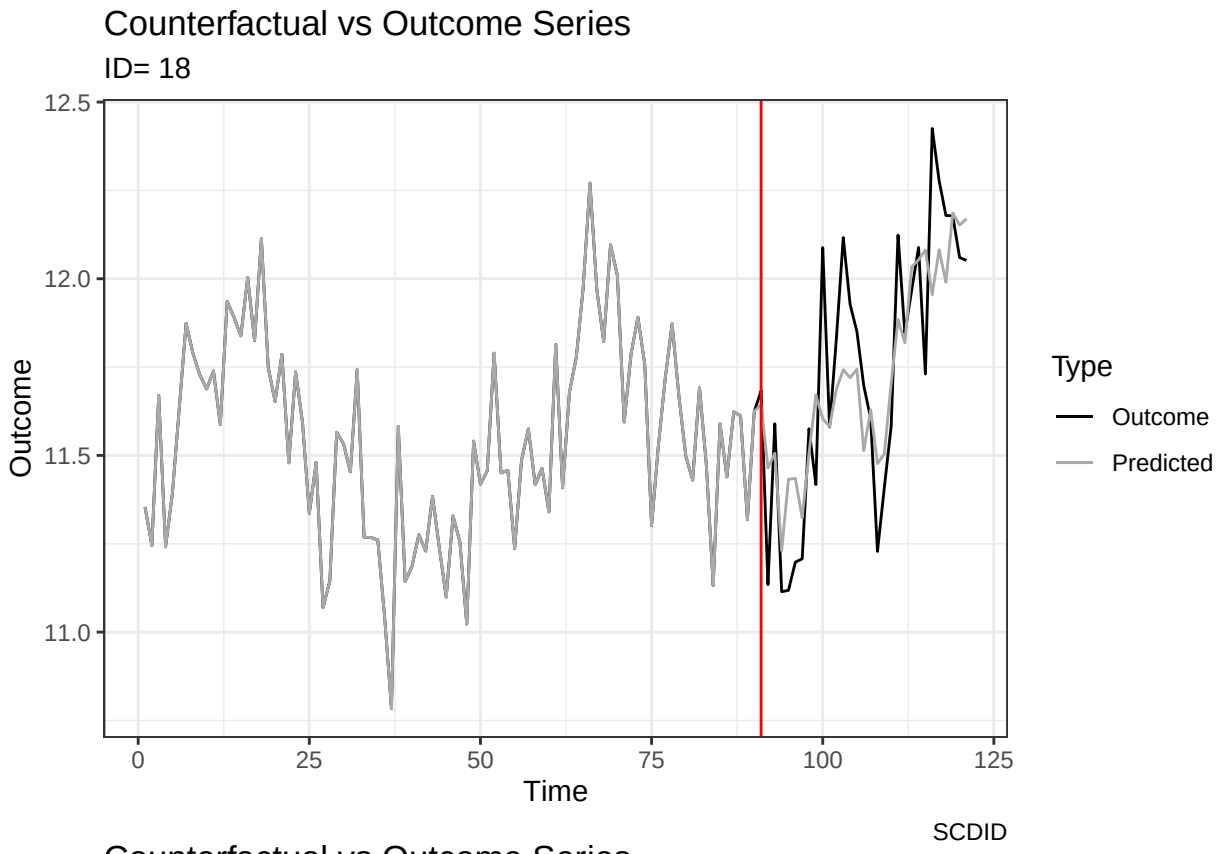
Notes:

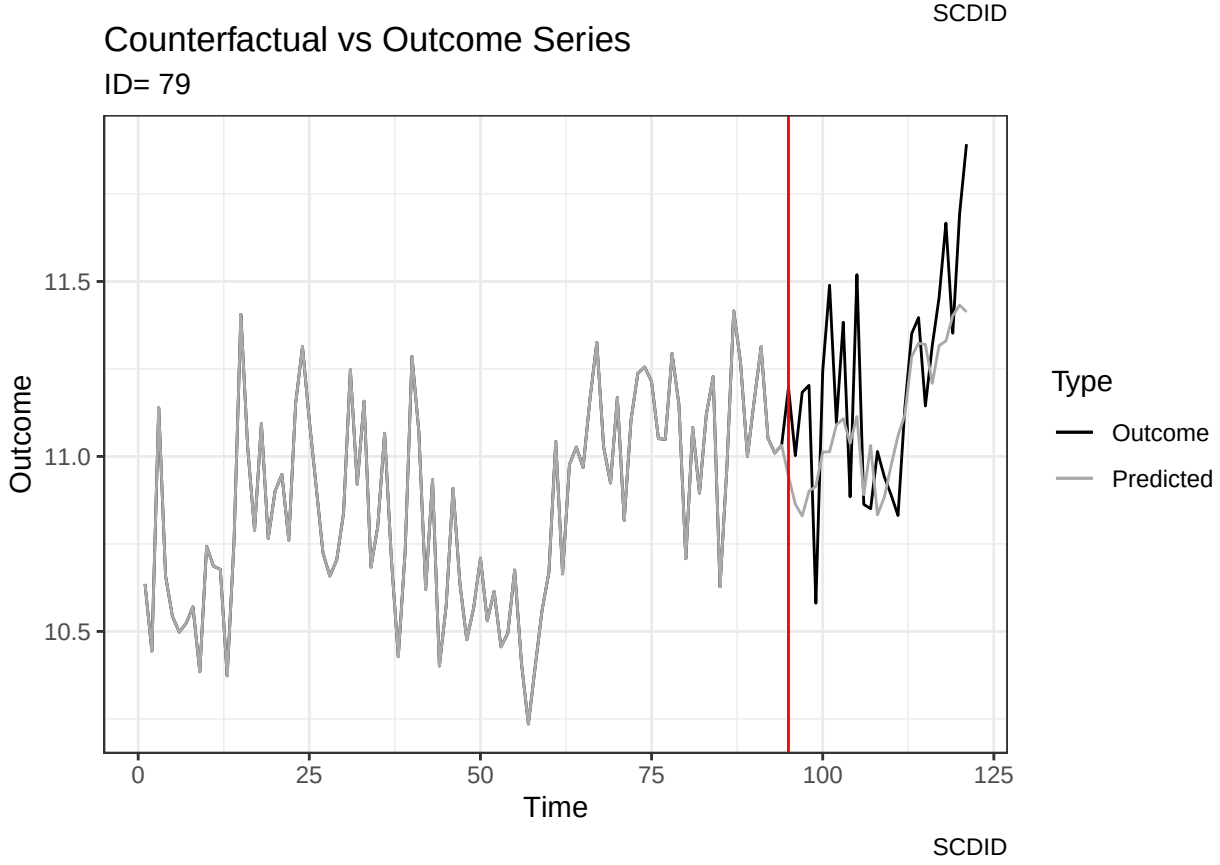


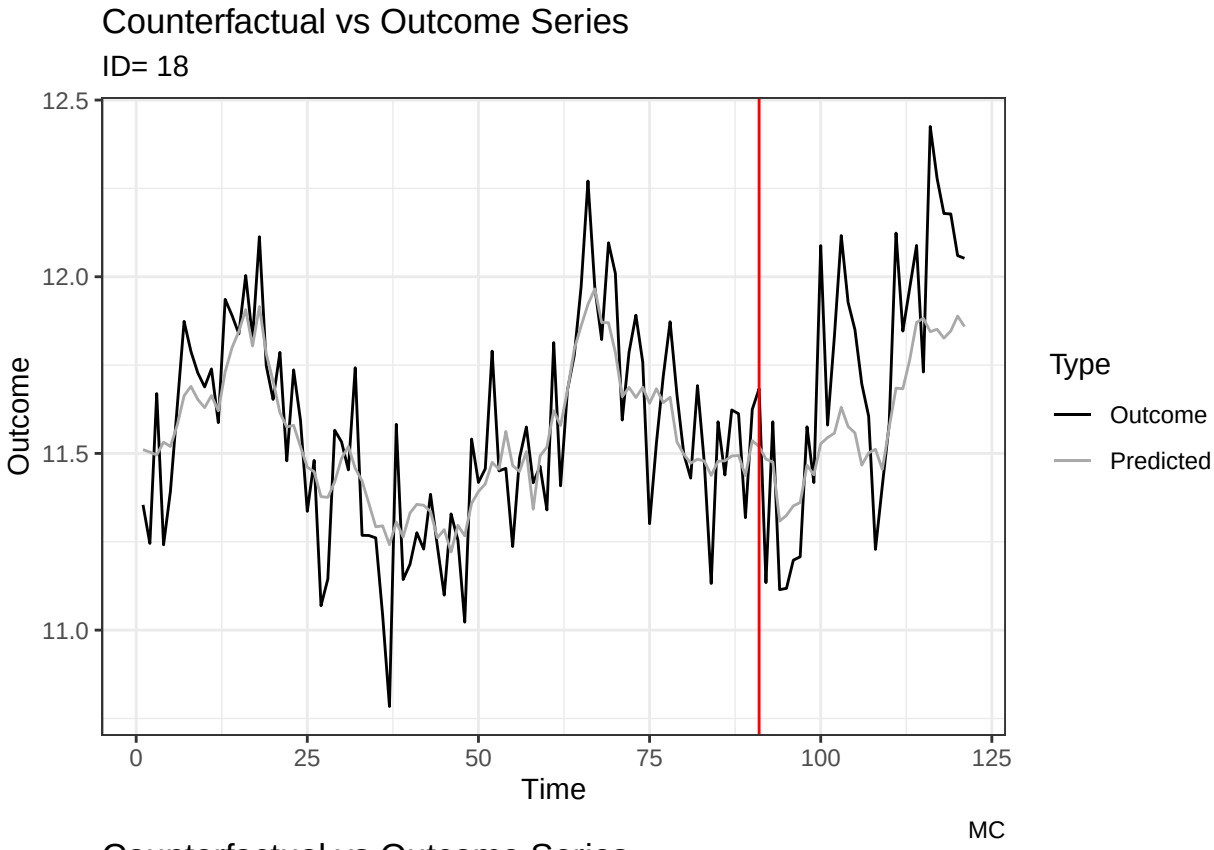
Notes:

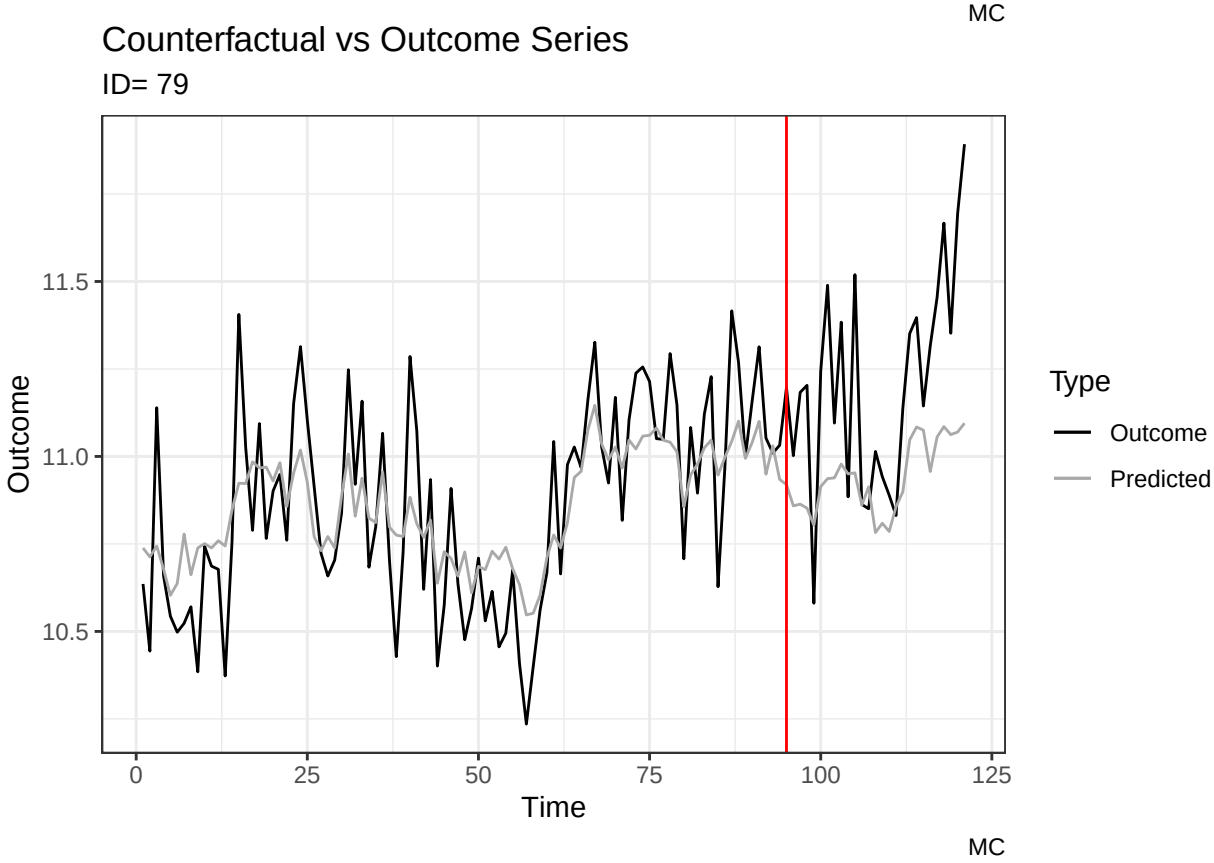

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
Gsynth

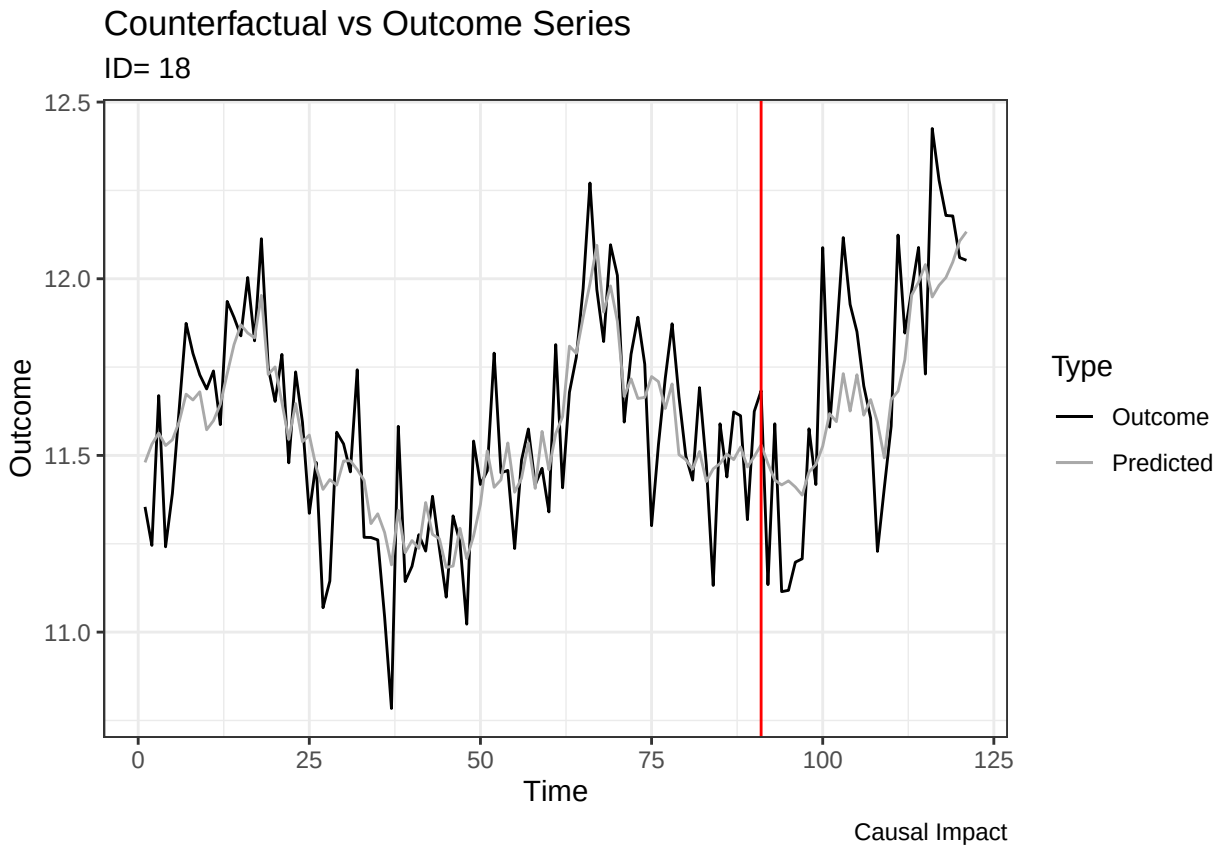

Counterfactual vs Outcome Series
ID= 79
Outcome
Time
Type
Outcome
Predicted
Gsynth

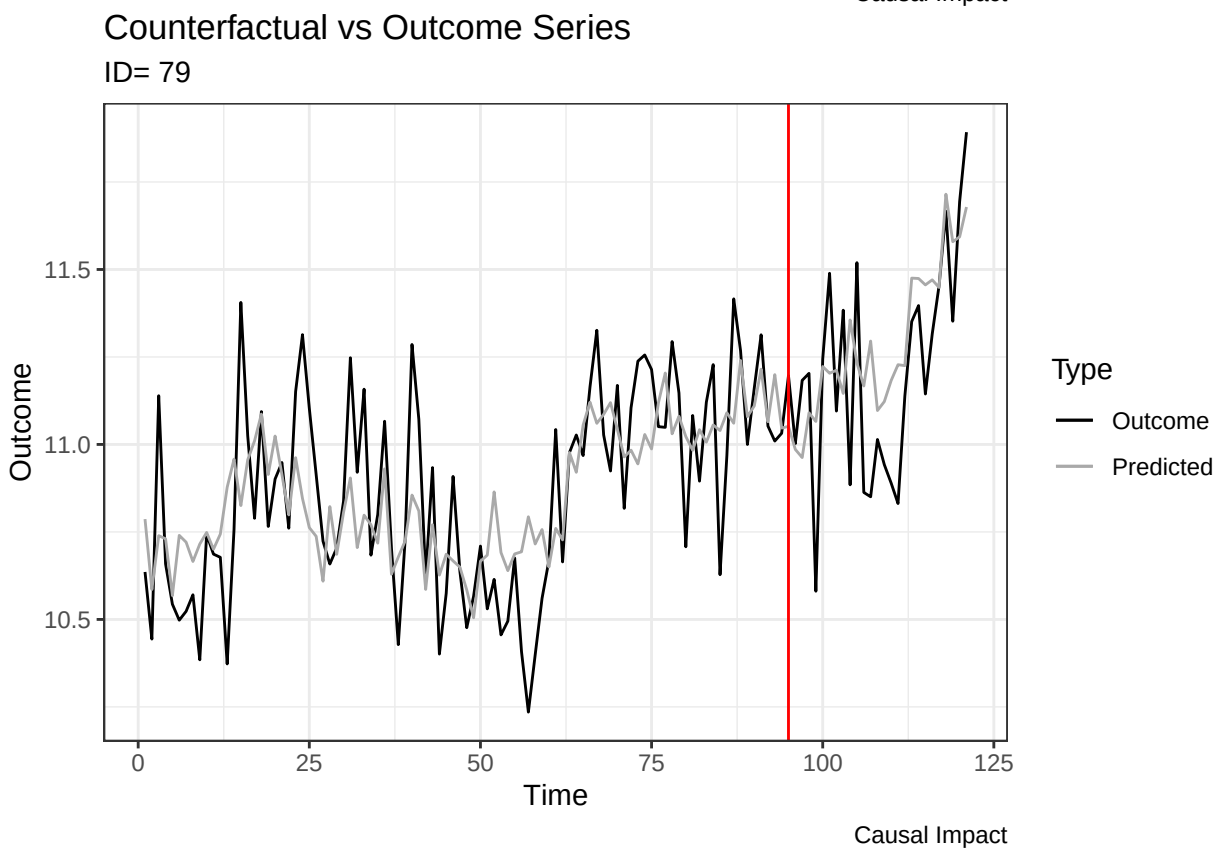

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
SCDID

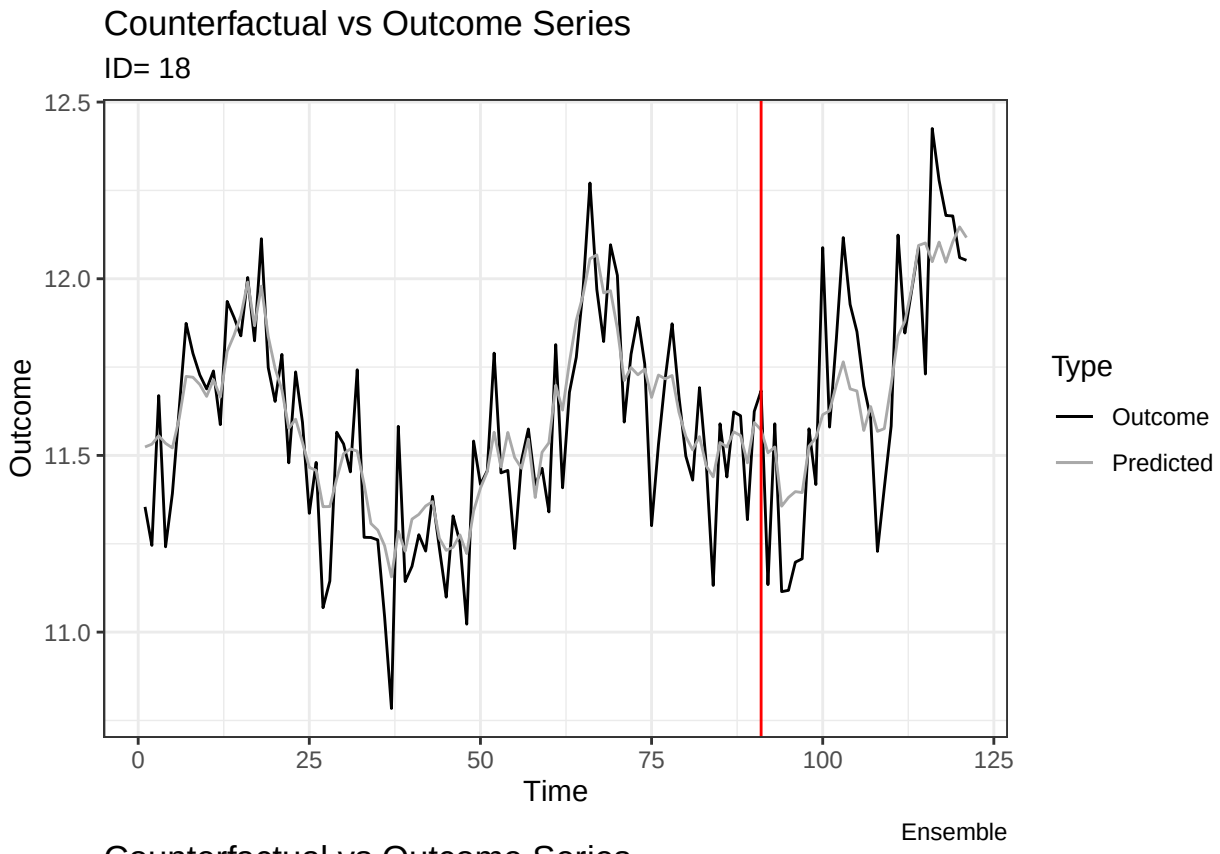

Counterfactual vs Outcome Series
ID= 79
Outcome
Time
Type
Outcome
Predicted
SCDID

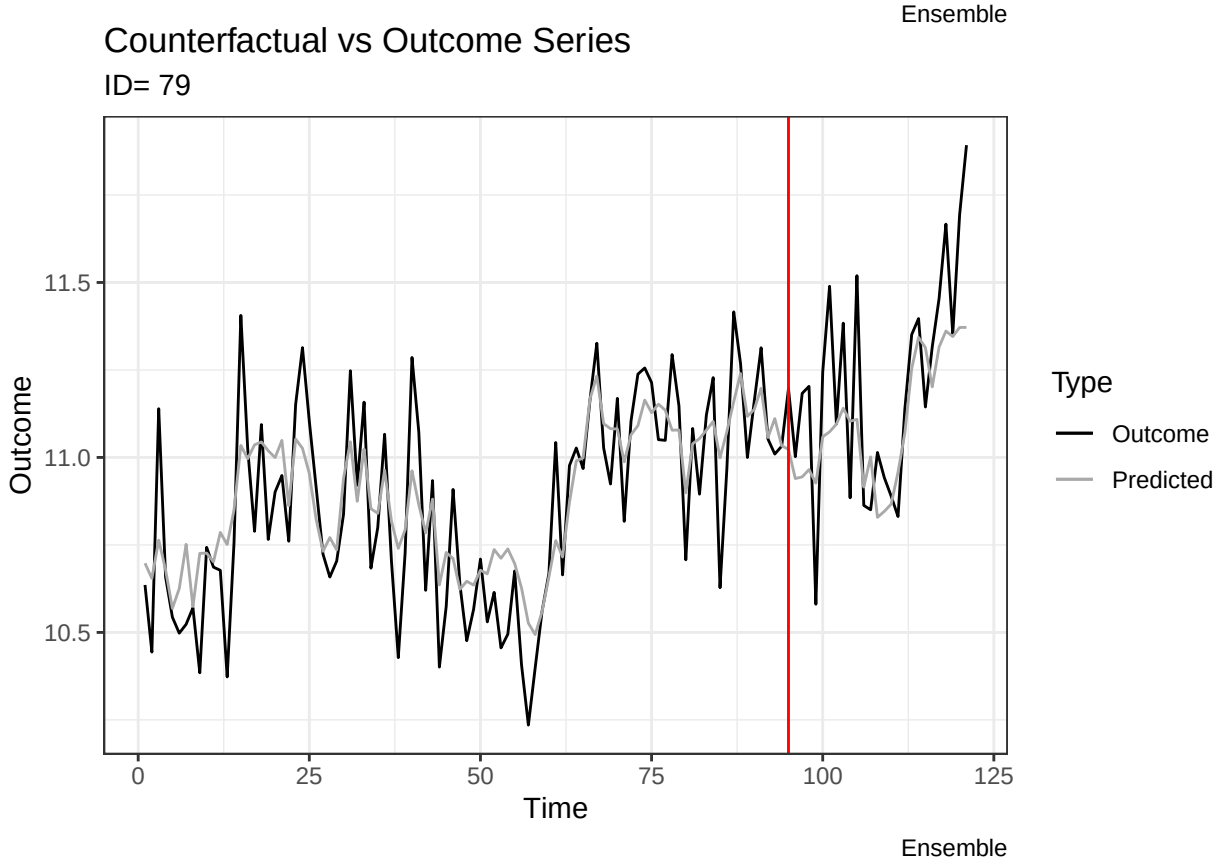

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
MC
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 79
Outcome
Time
MC
Type
Outcome
Predicted

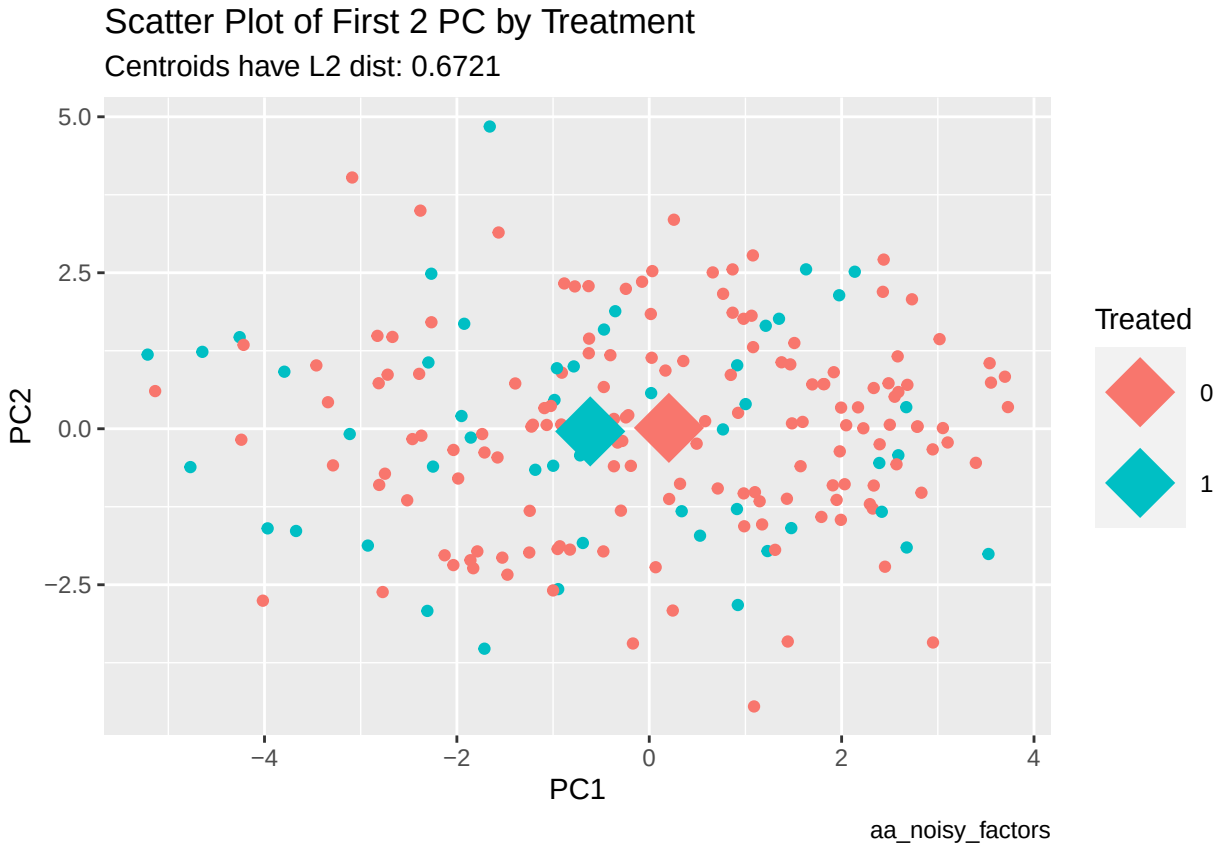

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 79
Outcome
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df      p  p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>  <dbl>  <dbl> <chr>
## 1 curvature    150    50    -1.84   84.9 0.0686 0.154  ns
## 2 diff1_acf1   150    50    -0.973  80.5 0.333  0.375  ns
## 3 diff2_acf1   150    50    -1.25   77.7 0.215  0.276  ns
## 4 e_acf1       150    50     1.32   80.6 0.19   0.276  ns
## 5 entropy      150    50     2.36   69.1 0.0211 0.0950 ns
## 6 linearity    150    50     0.269  61.9 0.789  0.789  ns
## 7 spike        150    50     1.63   79.5 0.107  0.193  ns
## 8 trend        150    50    -2.37   77.1 0.0203 0.0950 ns
## 9 x_acf1       150    50    -2.15   76.3 0.0345 0.104  ns
```

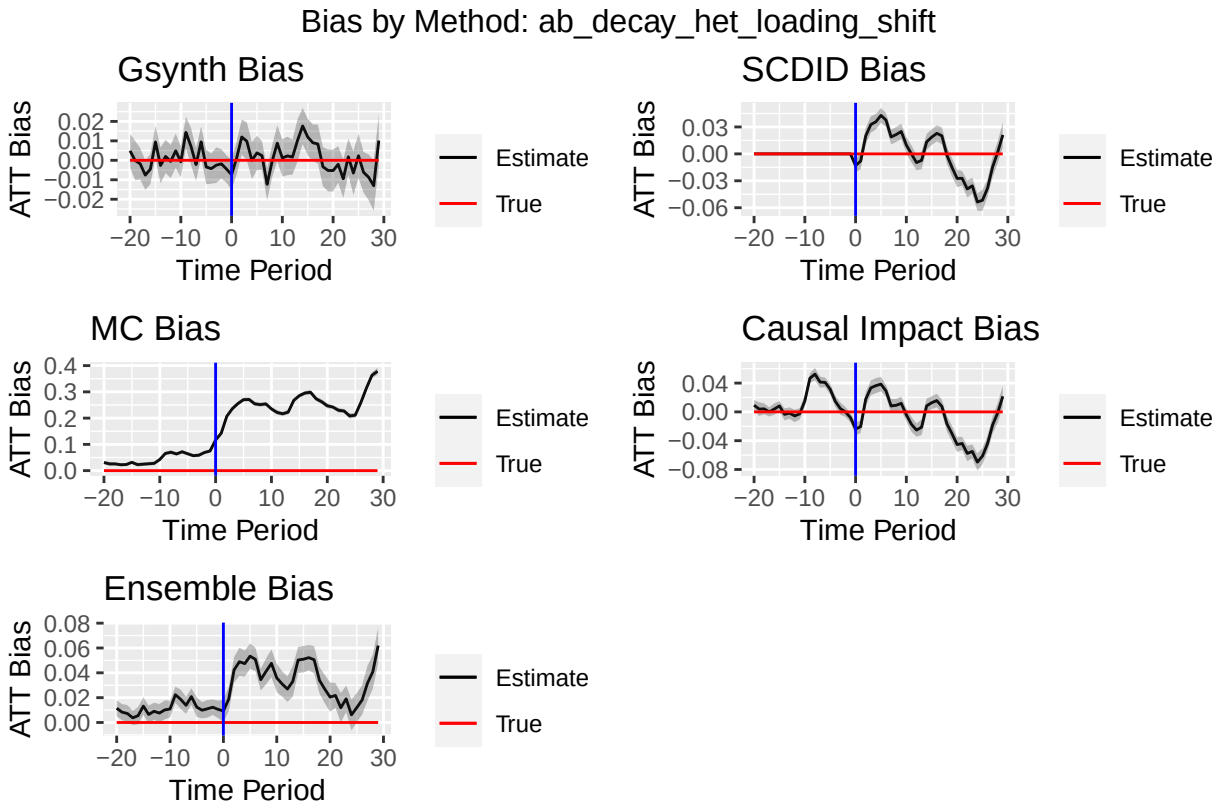
Metrics by Method

aa_noisy_factors

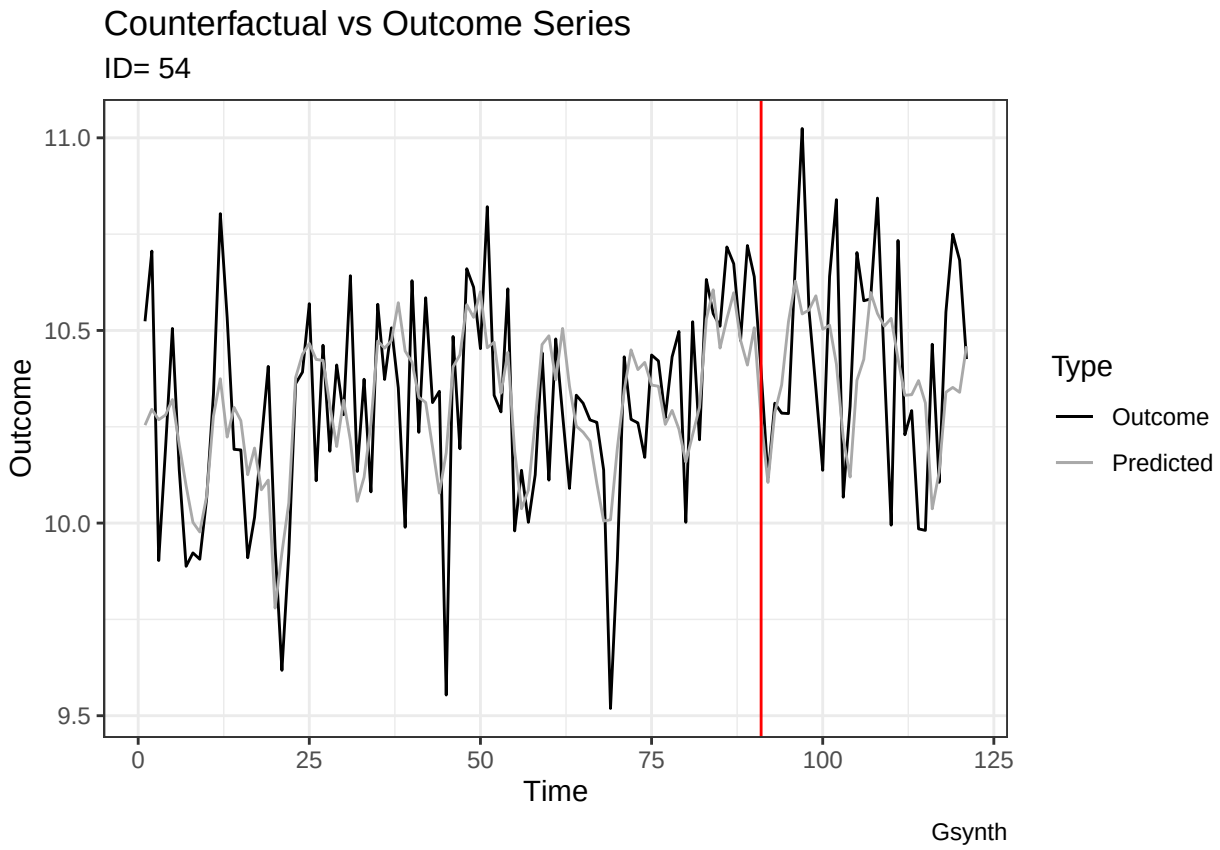
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	0.940	0.940	0.960	0.820
1	0.980	0.960	0.940	0.980	0.880
2	0.900	0.900	0.900	0.880	0.740
3	0.940	0.980	0.980	0.980	0.800
4	0.860	0.900	0.940	0.920	0.780
rmse					
0	0.223	0.253	0.263	0.239	0.230
1	0.219	0.256	0.268	0.235	0.231
2	0.222	0.260	0.275	0.237	0.232

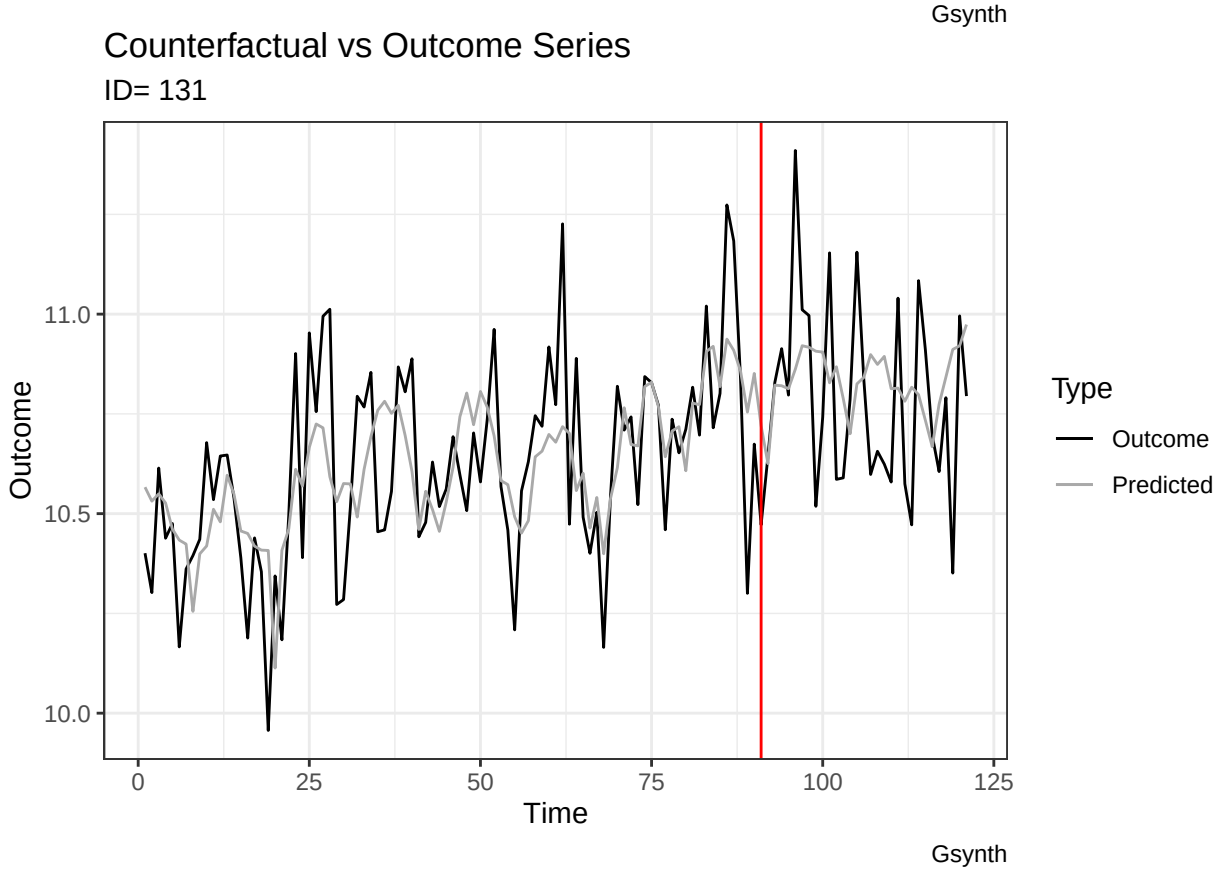
3	0.221	0.257	0.270	0.237	0.229
4	0.226	0.264	0.284	0.240	0.238
bias					
0	−0.006	−0.018	−0.023	−0.008	−0.035
1	−0.005	−0.021	−0.029	−0.011	−0.036
2	−0.005	−0.022	−0.028	−0.010	−0.036
3	−0.007	−0.025	−0.024	−0.011	−0.037
4	−0.007	−0.028	−0.015	−0.006	−0.034

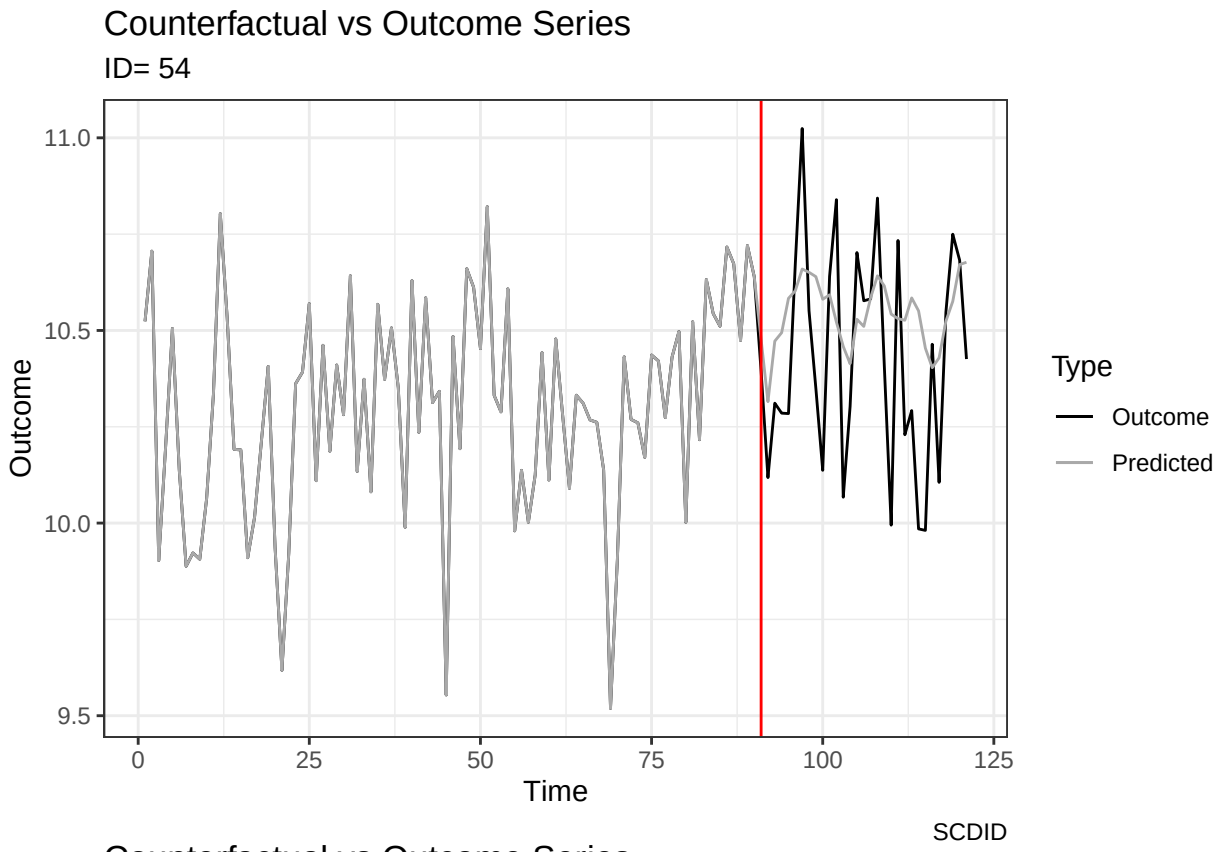
Notes:

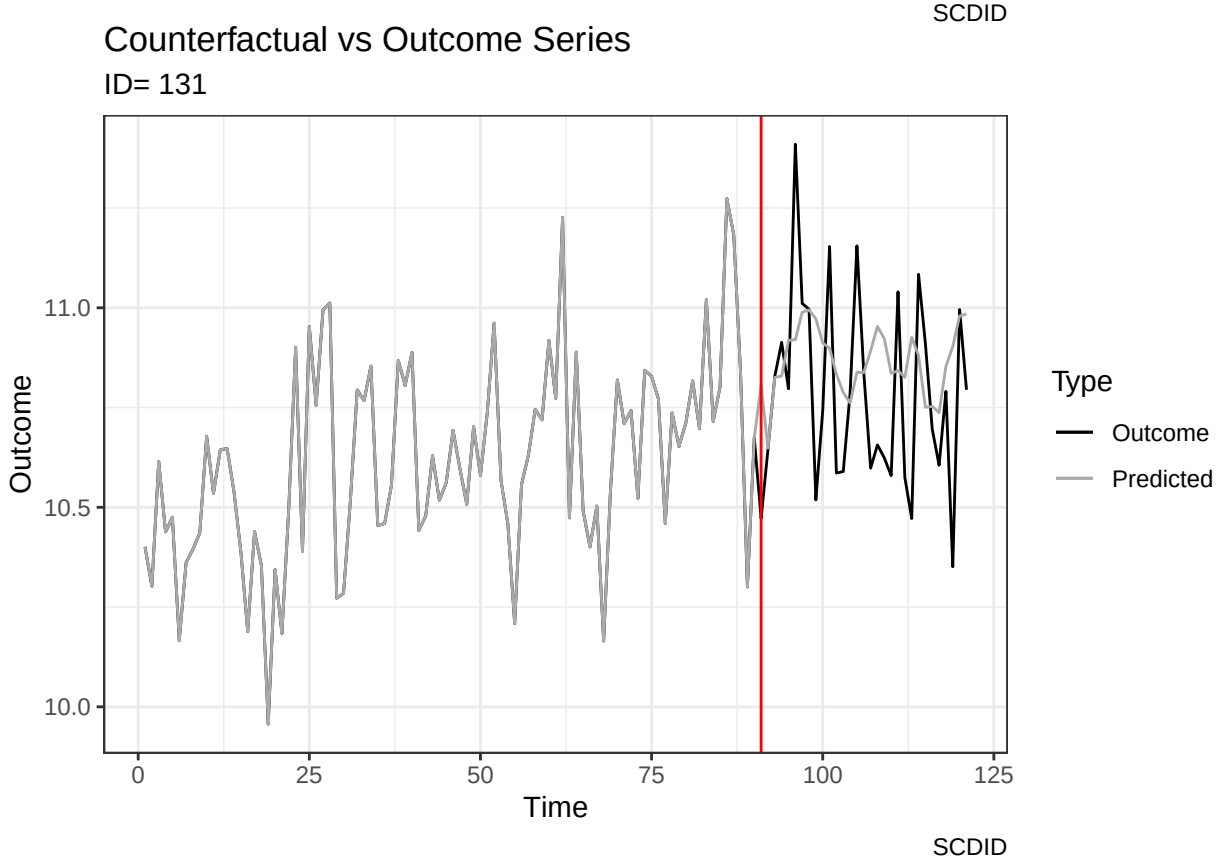


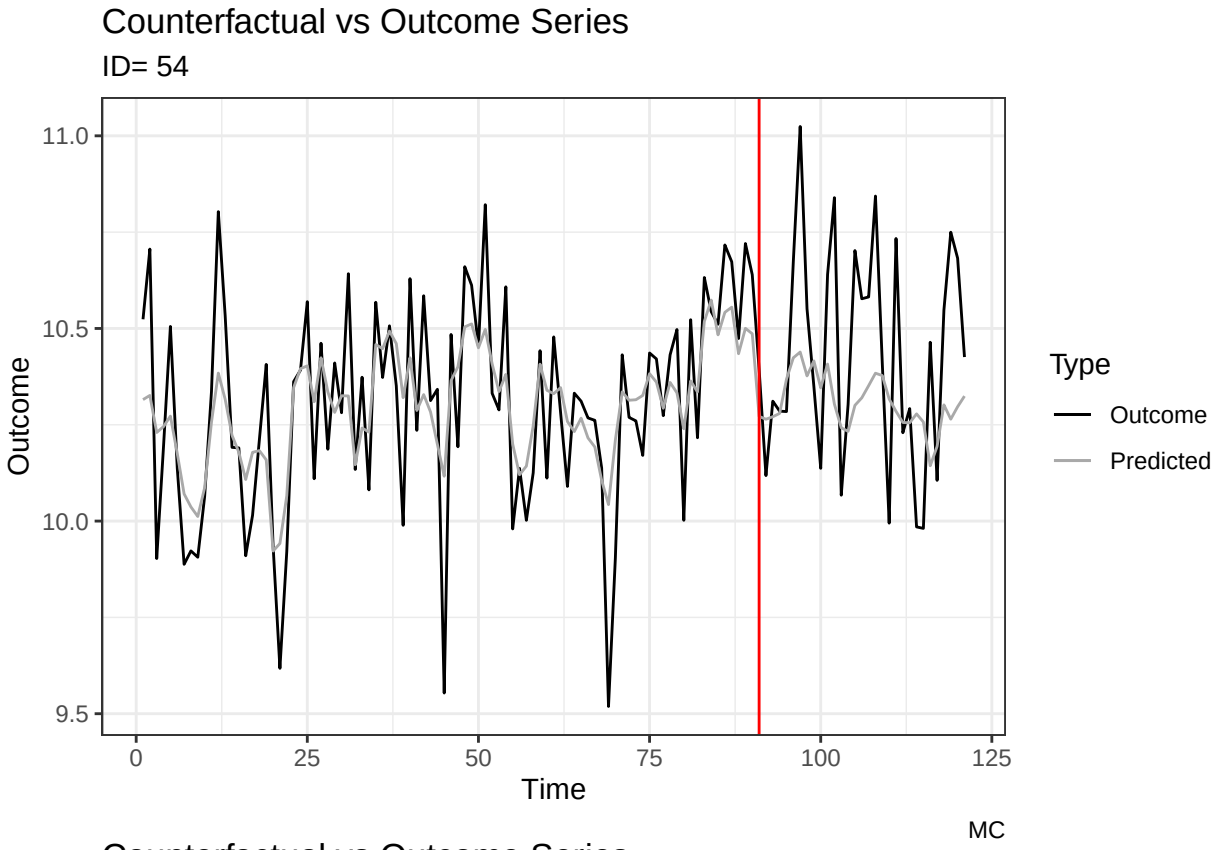
Notes:

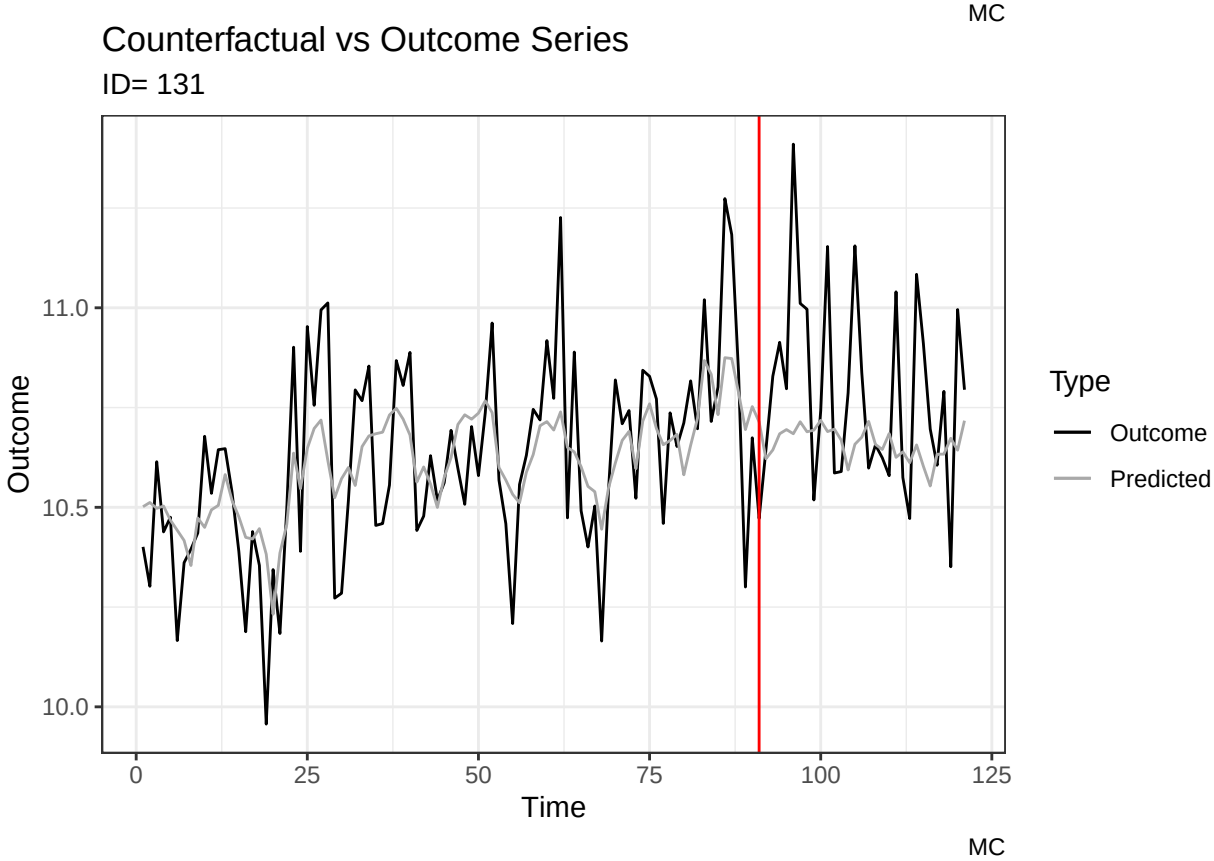

Counterfactual vs Outcome Series
ID= 54
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

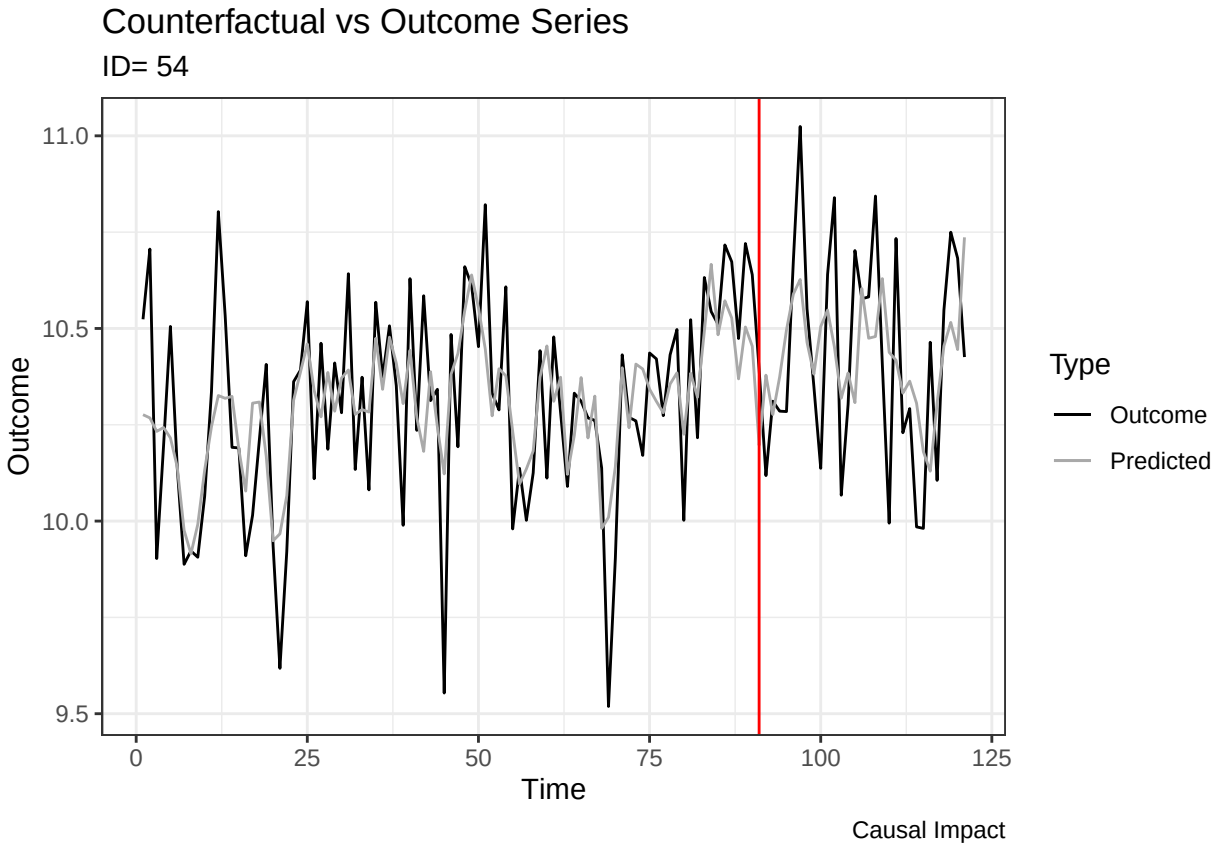

Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.0
10.5
10.0
0
25
50
75
100
125
Type
Outcome
Predicted
Gsynth

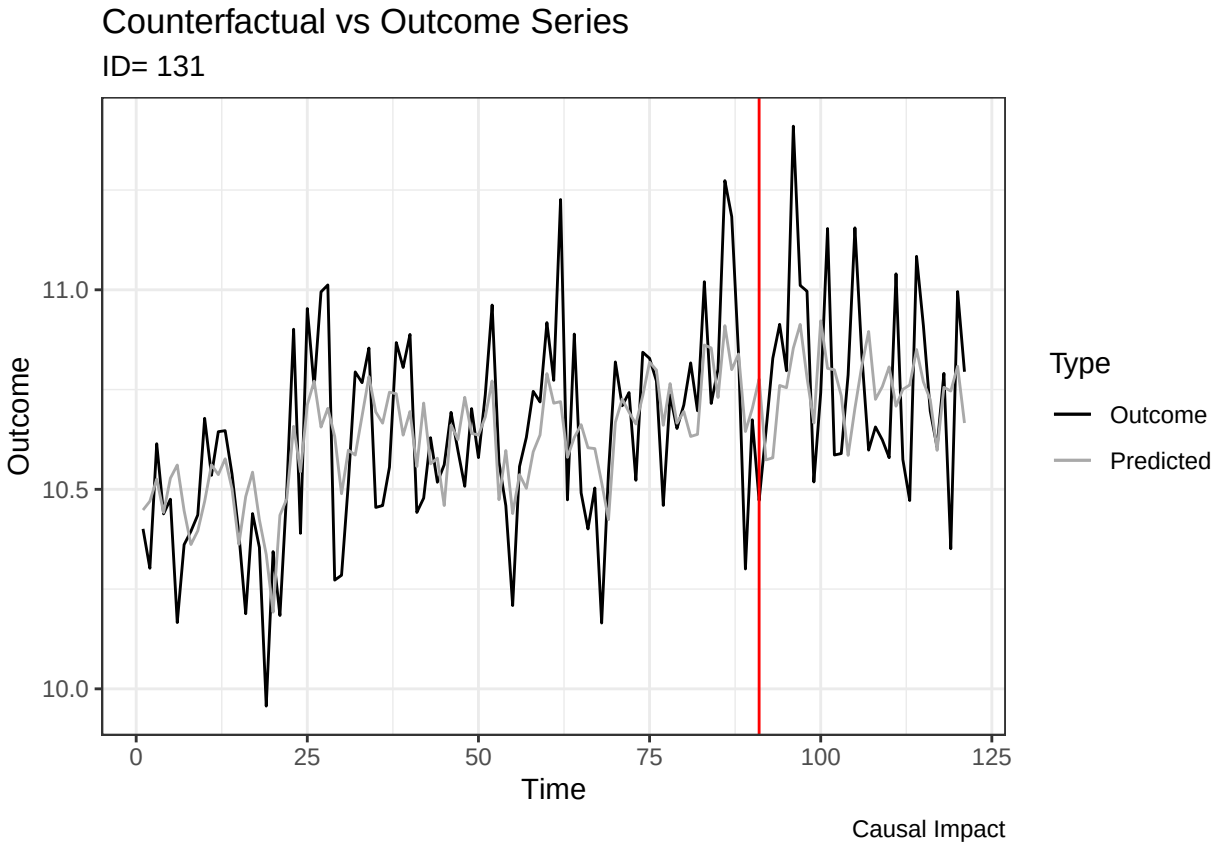

Counterfactual vs Outcome Series
ID= 54
Outcome
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

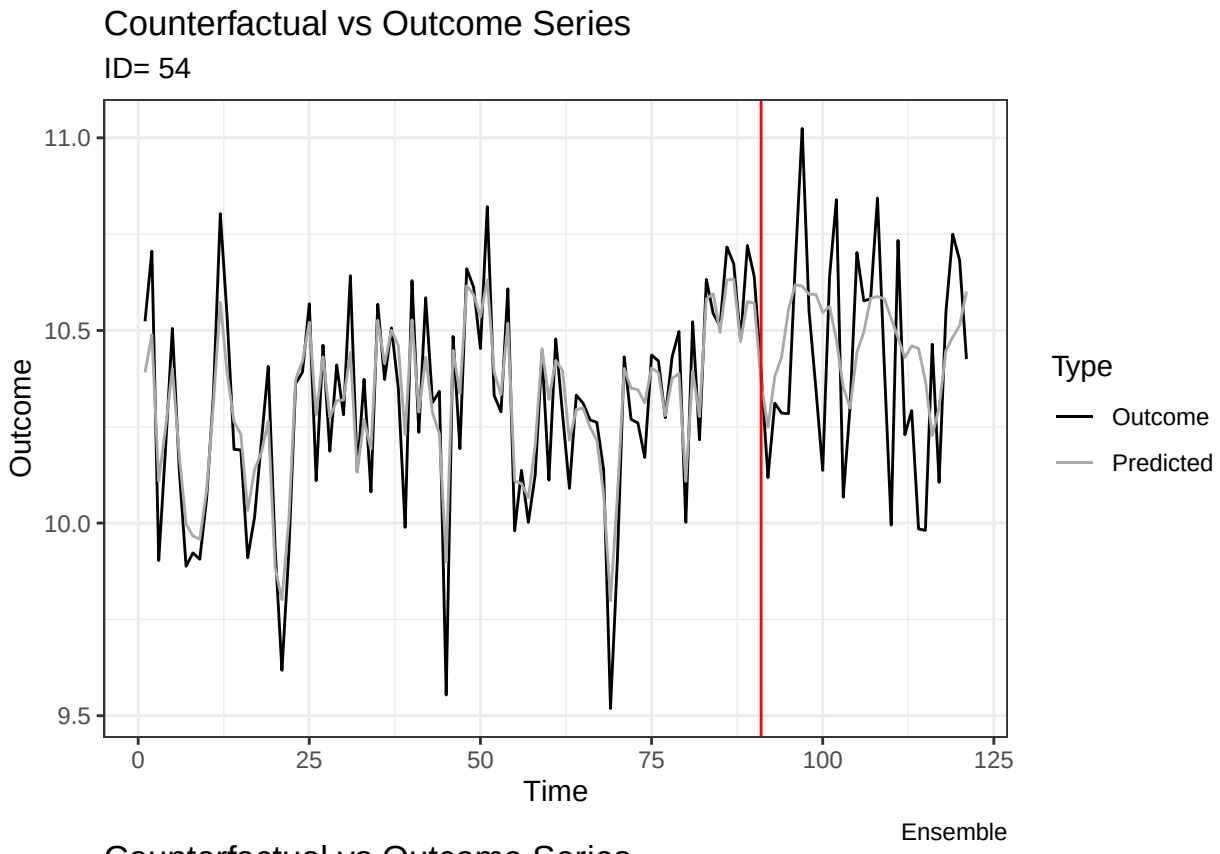

Counterfactual vs Outcome Series
ID= 131
Outcome
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

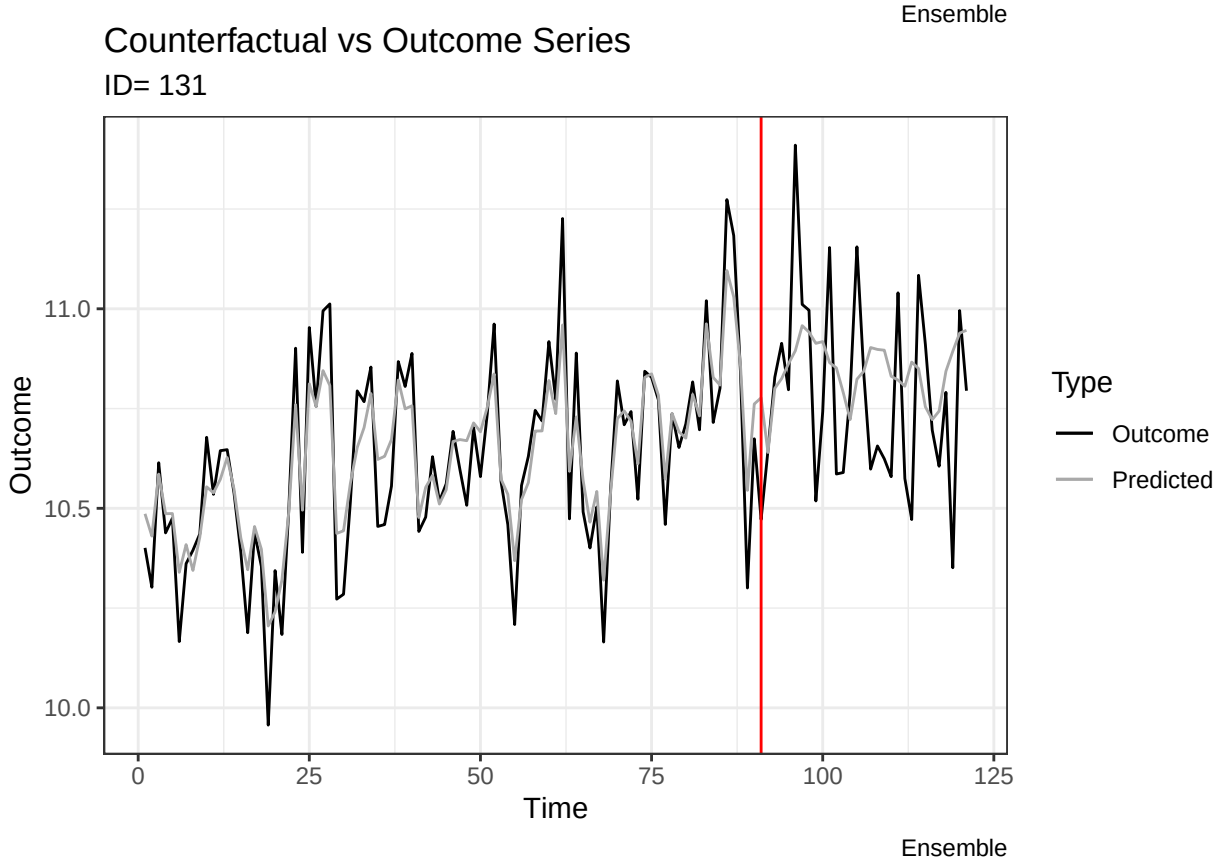

Counterfactual vs Outcome Series
ID= 54
Outcome
Time
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.0
10.5
10.0
0
25
50
75
100
125
Type
Outcome
Predicted
MC

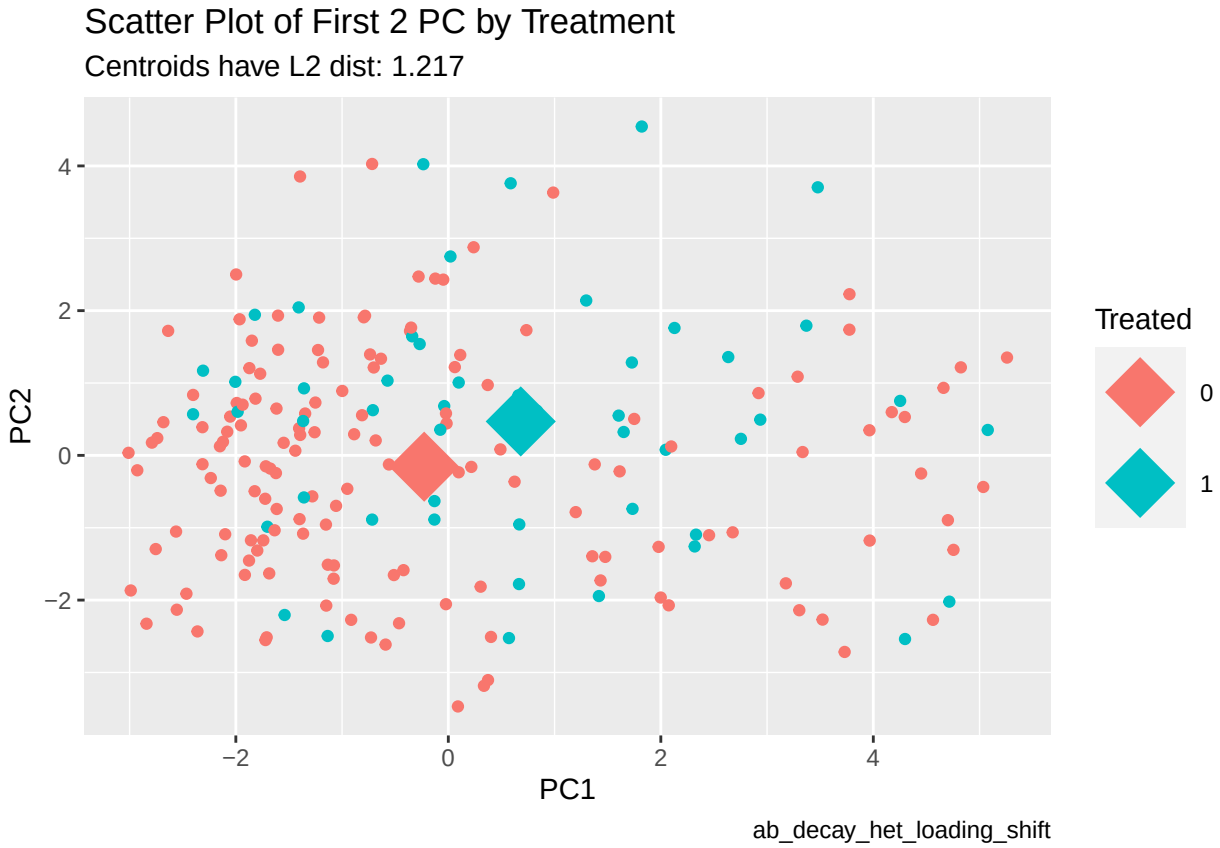

Counterfactual vs Outcome Series
ID= 54
Outcome
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 131
Outcome
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```



ab_decay_het_loading_shift

```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df        p   p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>    <dbl>   <dbl> <chr>
## 1 curvature    150    50      1.23  106.  0.221    0.284   ns
## 2 diff1_acf1   150    50     -2.57   76.4 0.0123   0.0184  *
## 3 diff2_acf1   150    50     -0.404  79.6 0.687    0.687   ns
## 4 e_acf1       150    50     -3.40   77.8 0.00107  0.00482 **
## 5 entropy      150    50      1.09   98.2 0.277    0.312   ns
## 6 linearity    150    50     -2.63   96.5 0.01     0.018   *
## 7 spike        150    50      2.71   91.1 0.00809  0.018   *
## 8 trend        150    50     -2.73   85.5 0.00763  0.018   *
## 9 x_acf1       150    50     -3.54   89.2 0.000636 0.00482 **
```

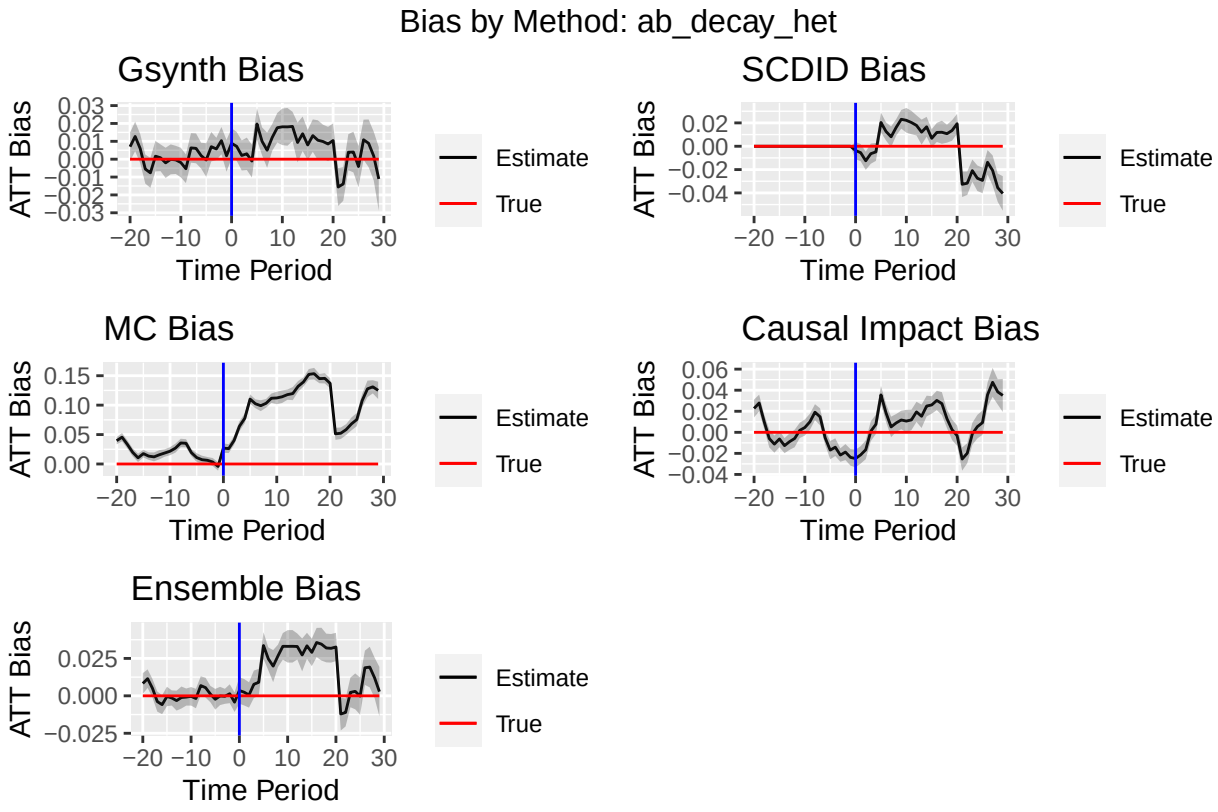
Metrics by Method

ab_decay_het_loading_shift

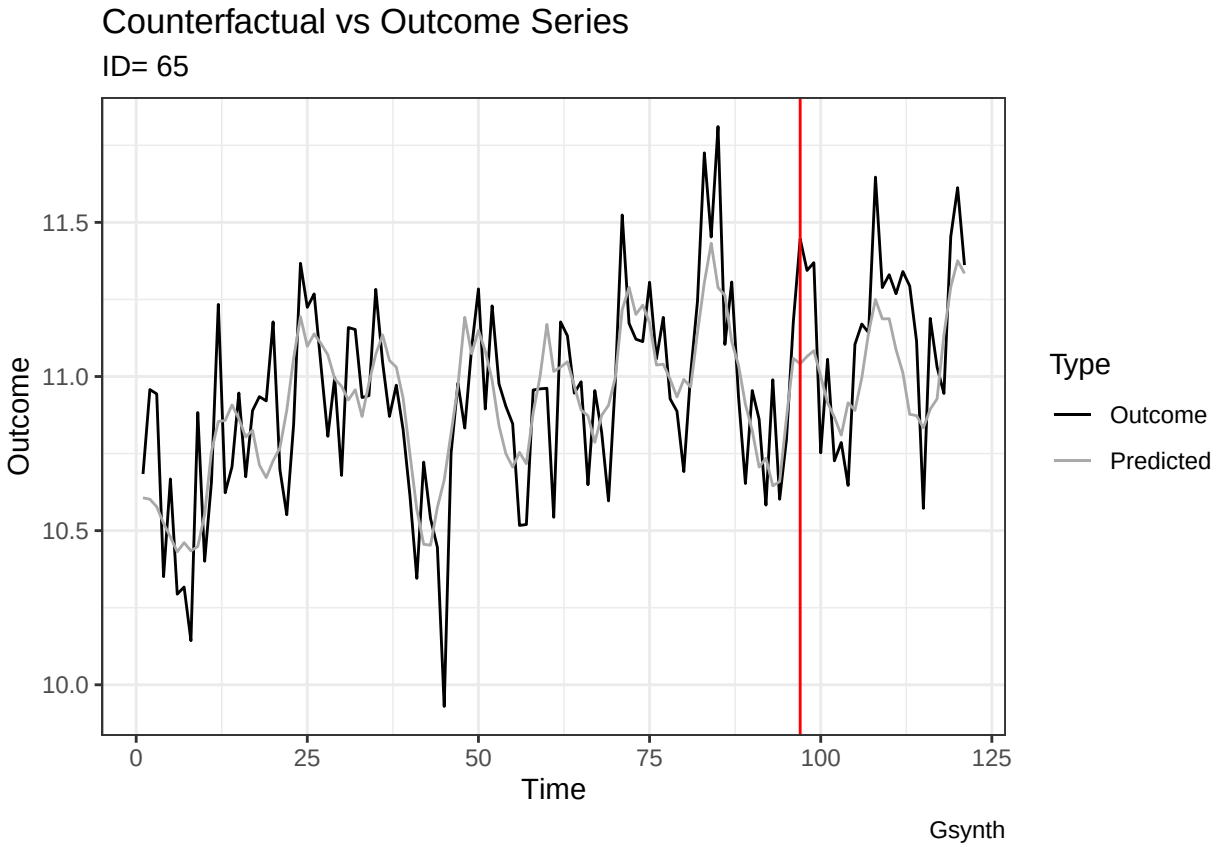
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	0.960	0.100	0.960	0.900
1	0.960	0.960	0.060	0.940	0.940
2	0.900	0.940	0.000	0.920	0.680
3	0.900	0.840	0.000	0.800	0.640
4	0.960	0.760	0.000	0.740	0.620
rmse					
0	0.221	0.236	0.316	0.241	0.224
1	0.220	0.231	0.336	0.235	0.221
2	0.222	0.229	0.388	0.237	0.226

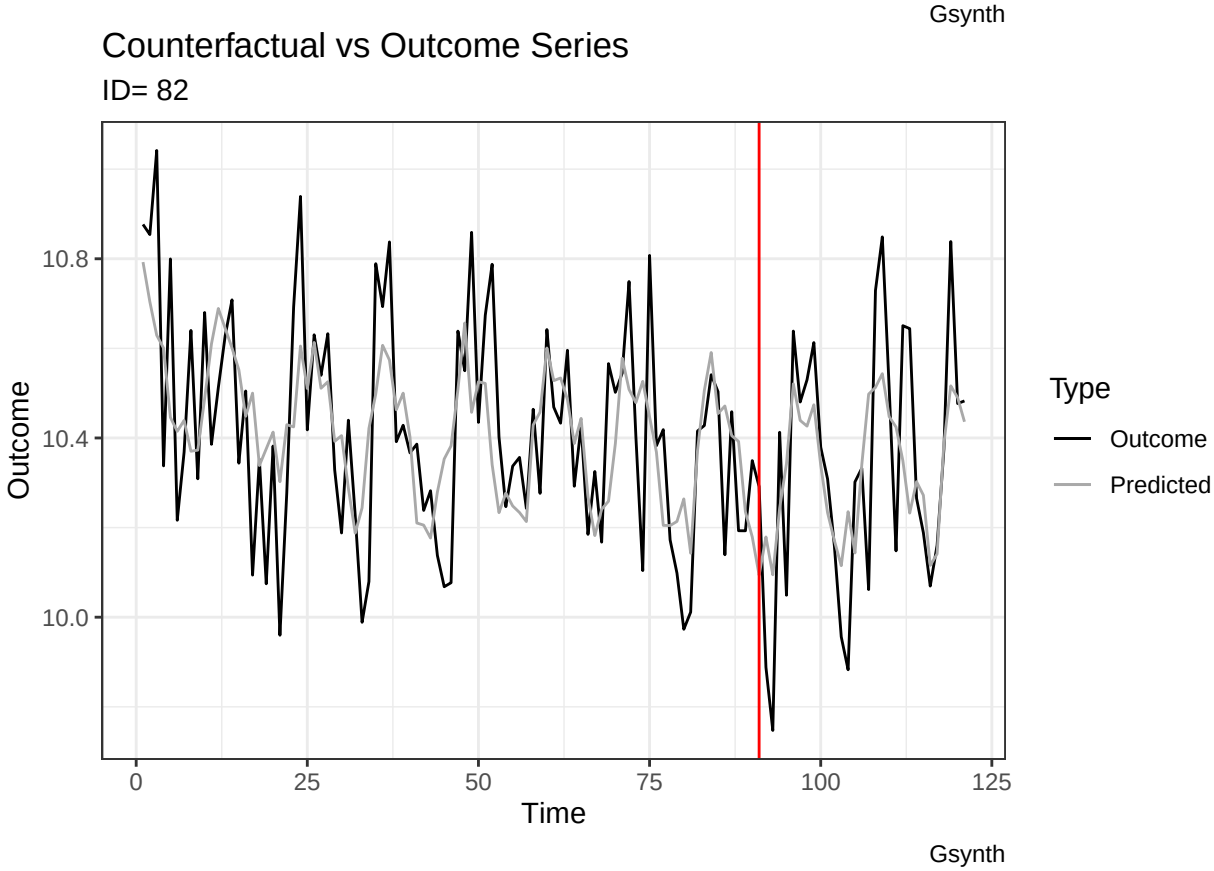
3	0.221	0.233	0.419	0.239	0.230
4	0.219	0.231	0.443	0.235	0.228
bias					
0	−0.007	−0.013	0.117	−0.024	0.009
1	0.001	−0.008	0.142	−0.021	0.019
2	0.012	0.020	0.207	0.018	0.042
3	0.010	0.033	0.236	0.033	0.049
4	−0.000	0.036	0.256	0.036	0.047

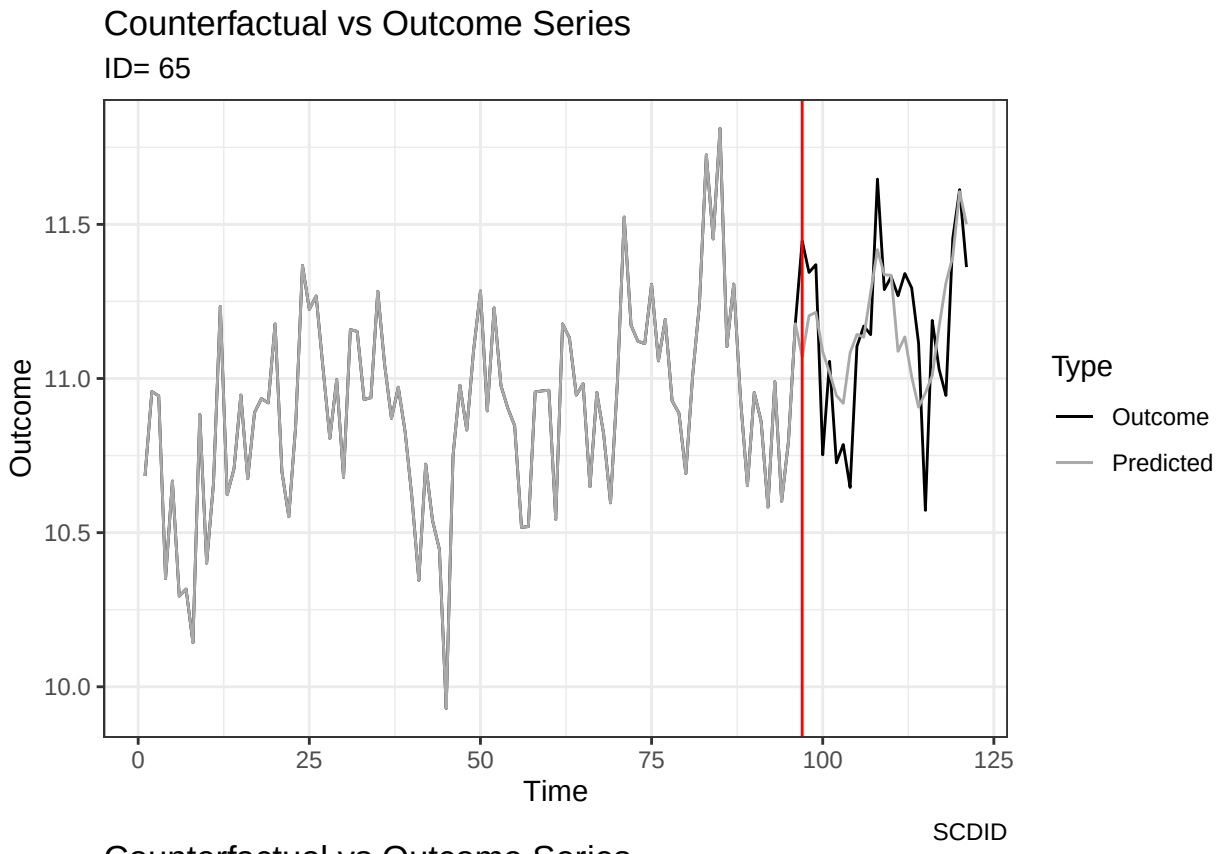
Notes:

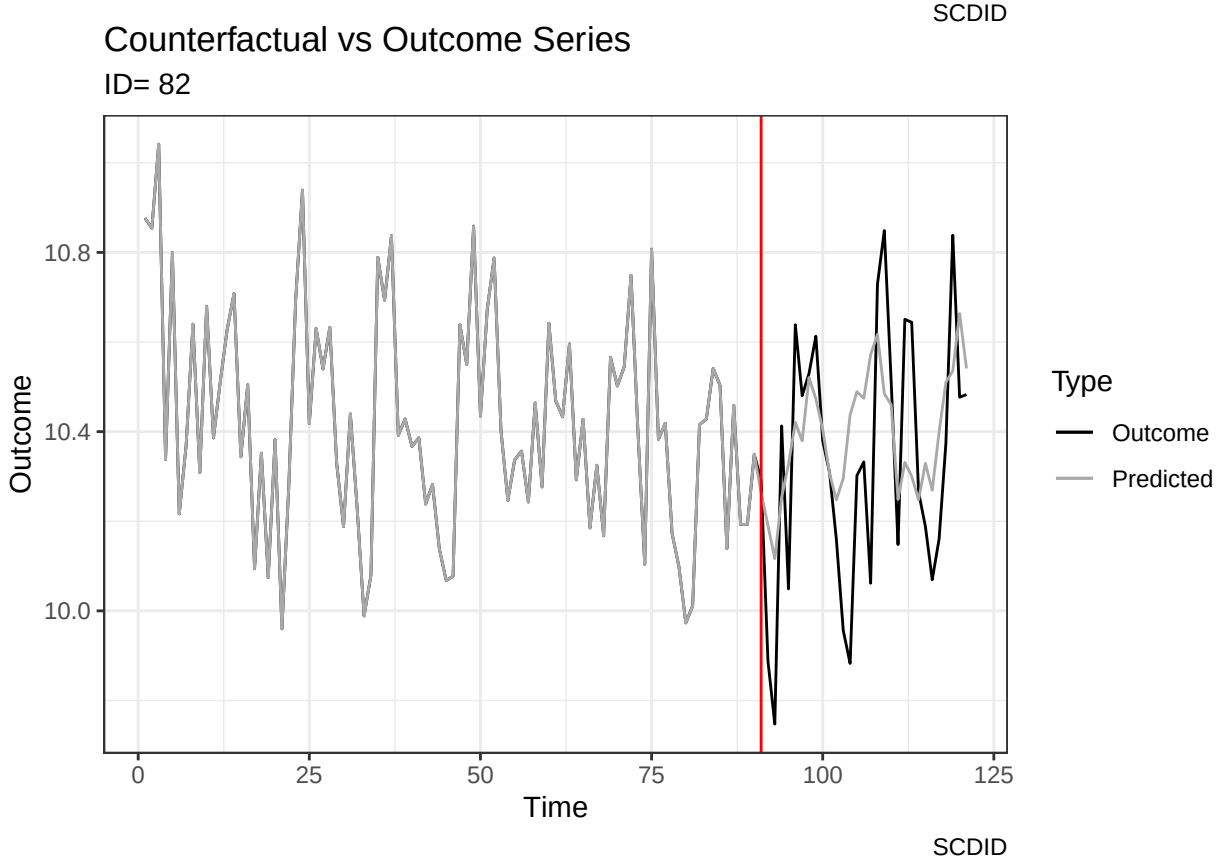


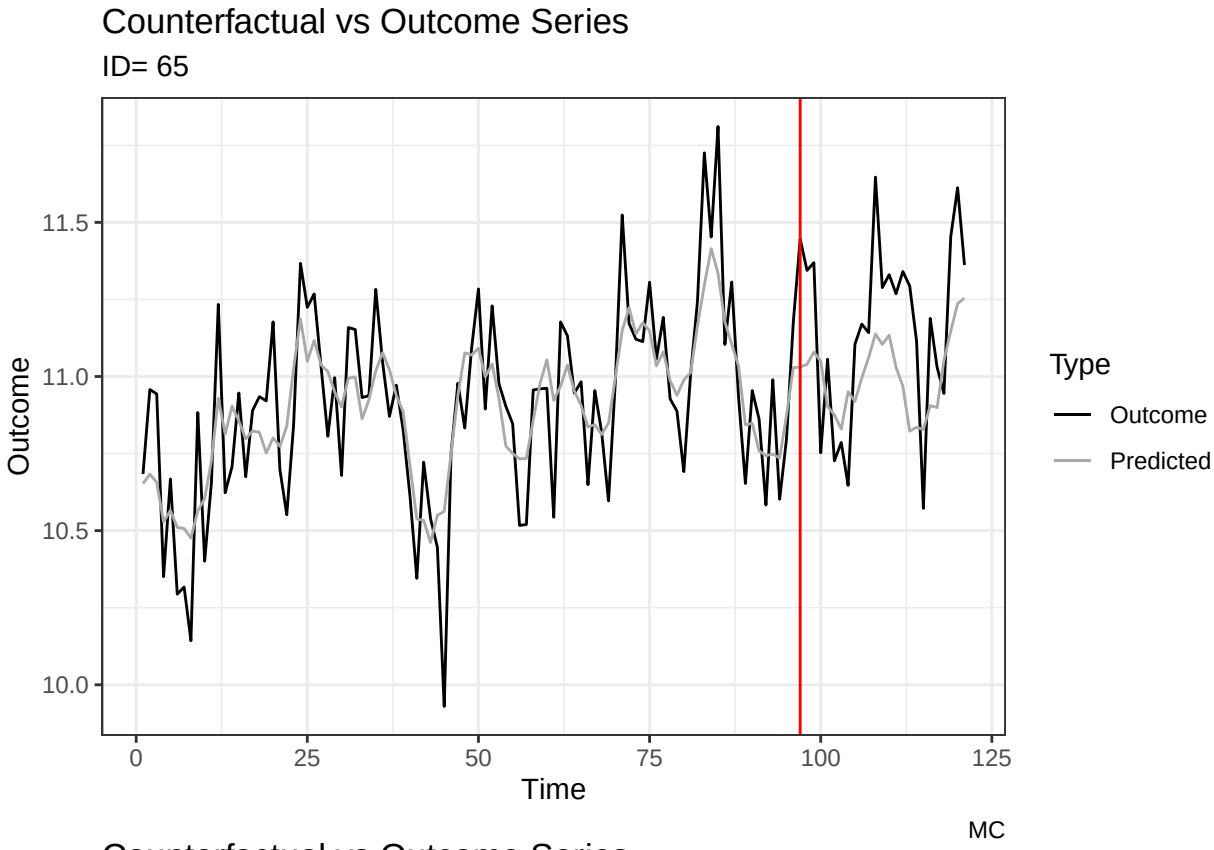
Notes:

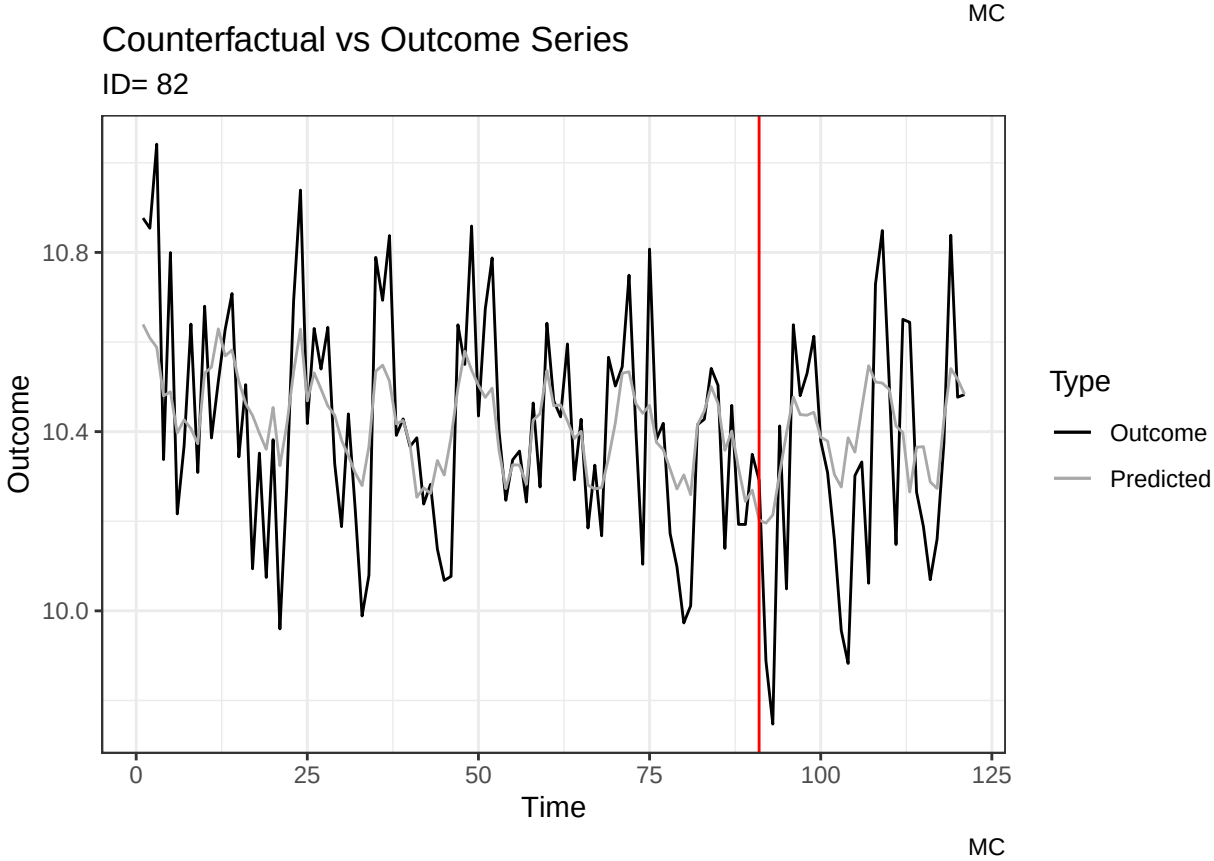

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

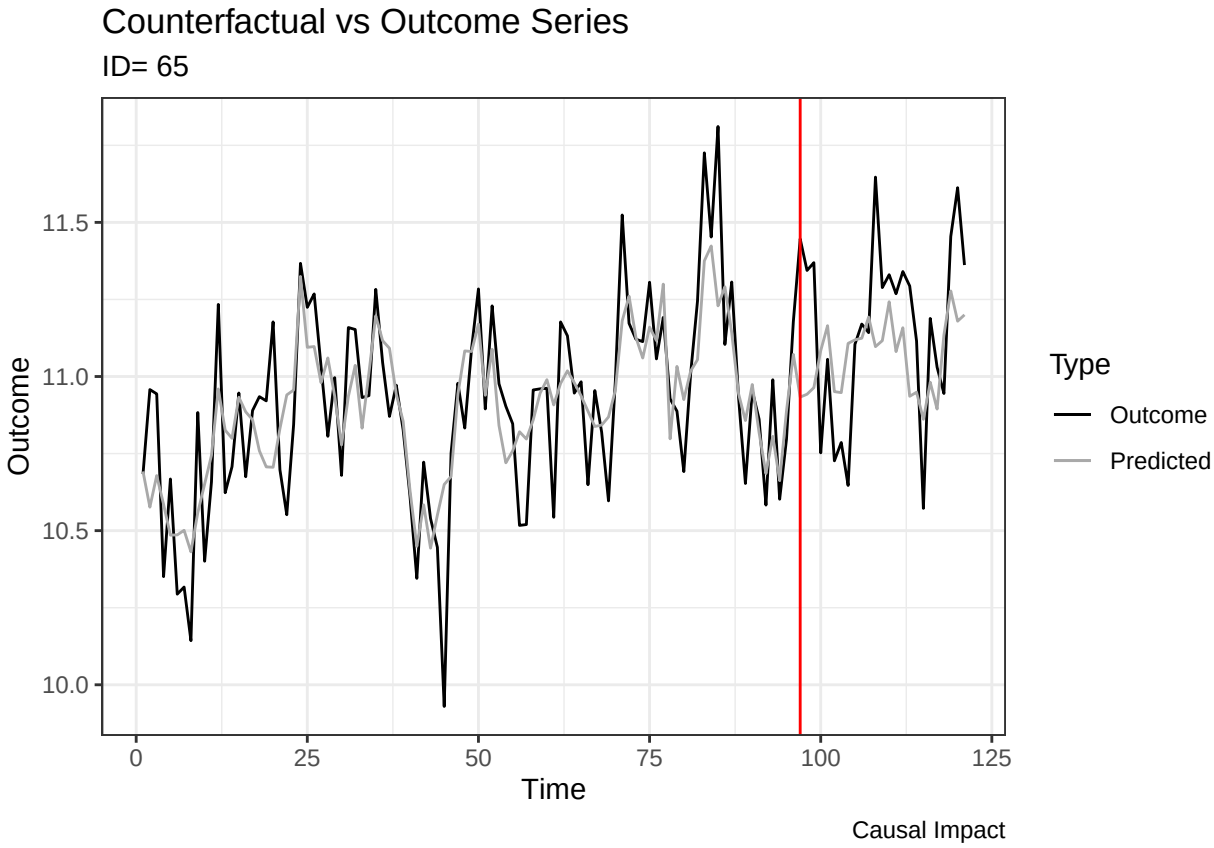

Counterfactual vs Outcome Series
ID= 82
Outcome
10.8
10.4
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

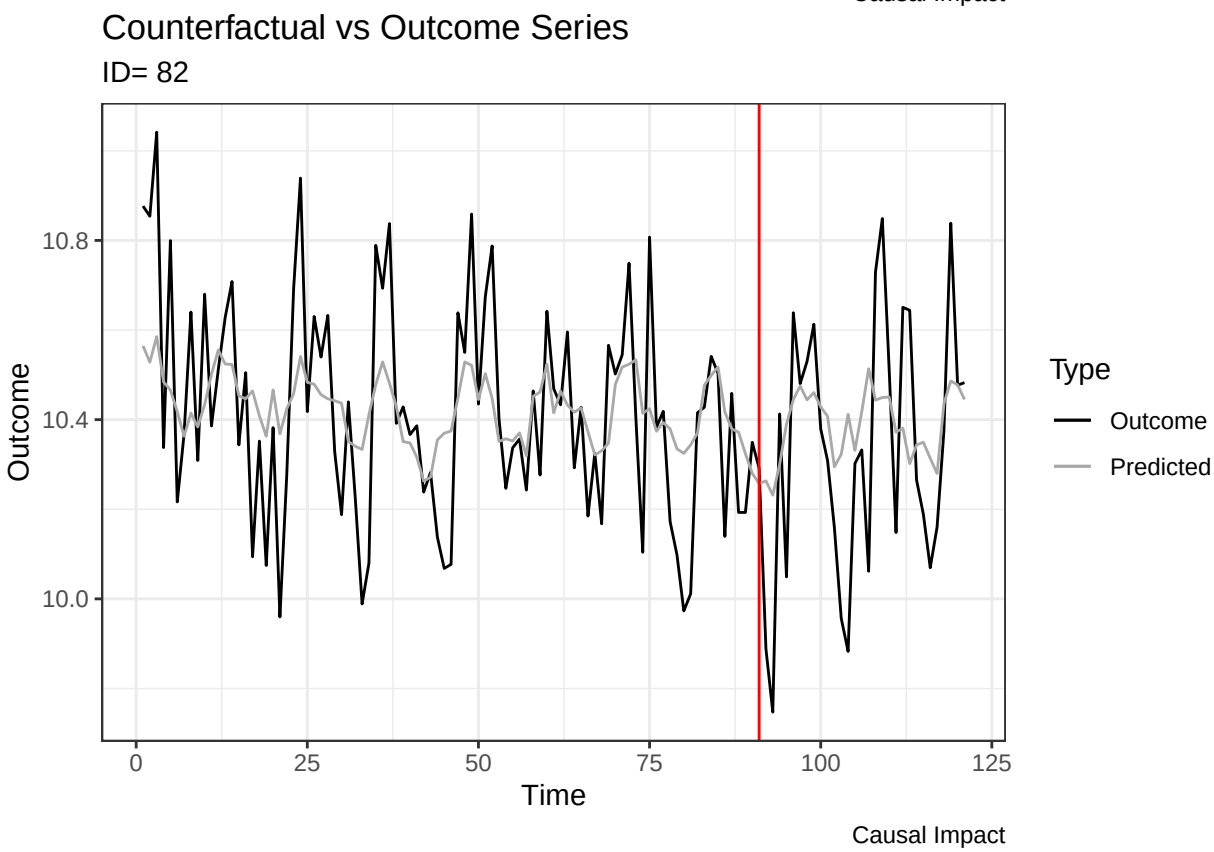

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

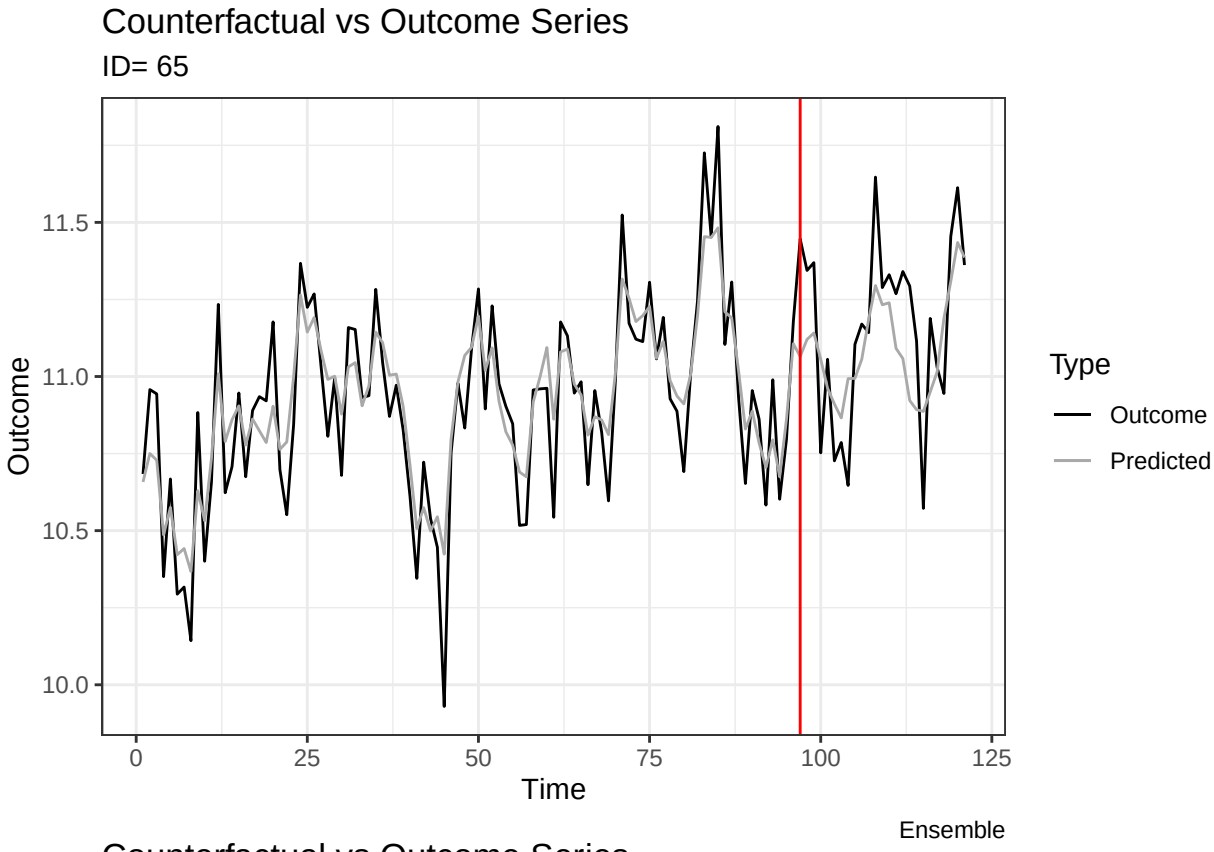

Counterfactual vs Outcome Series
ID= 82
Outcome
10.8
10.4
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

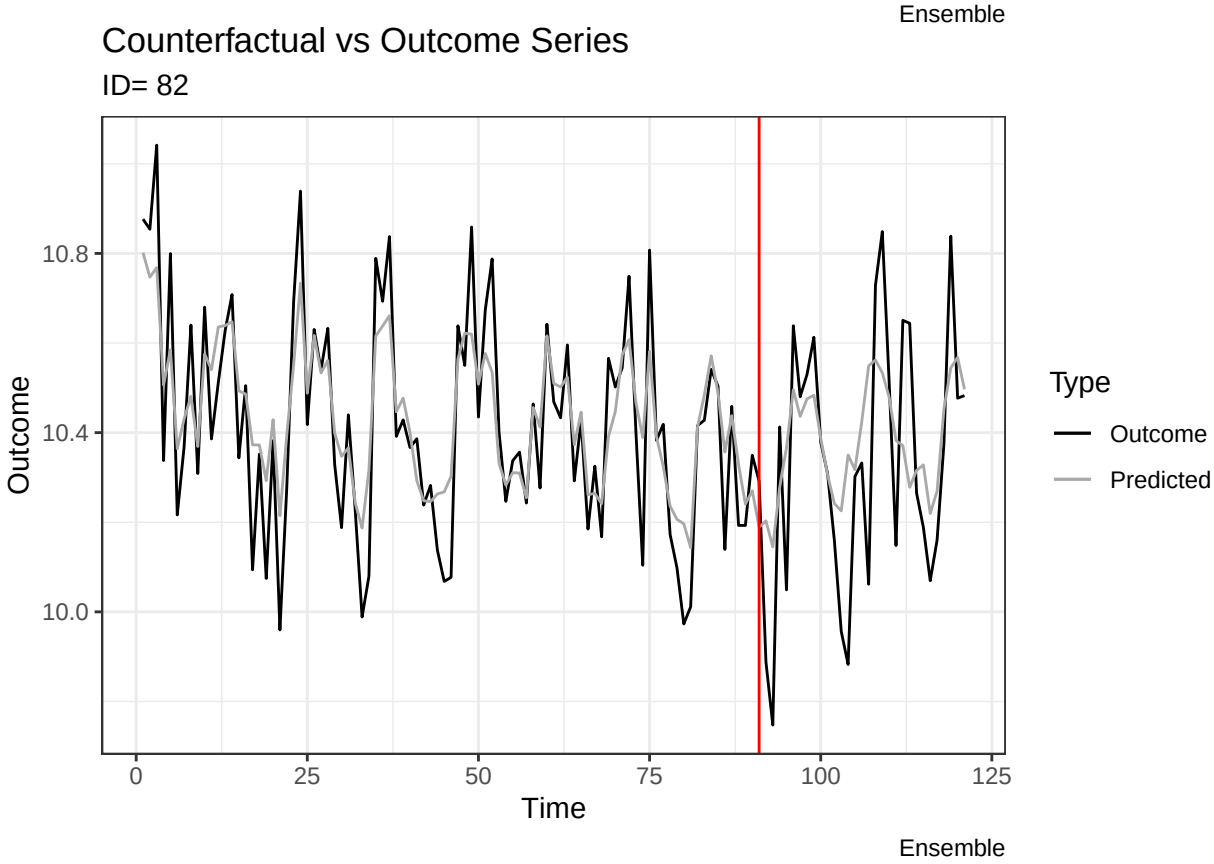

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 82
Outcome
10.8
10.4
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

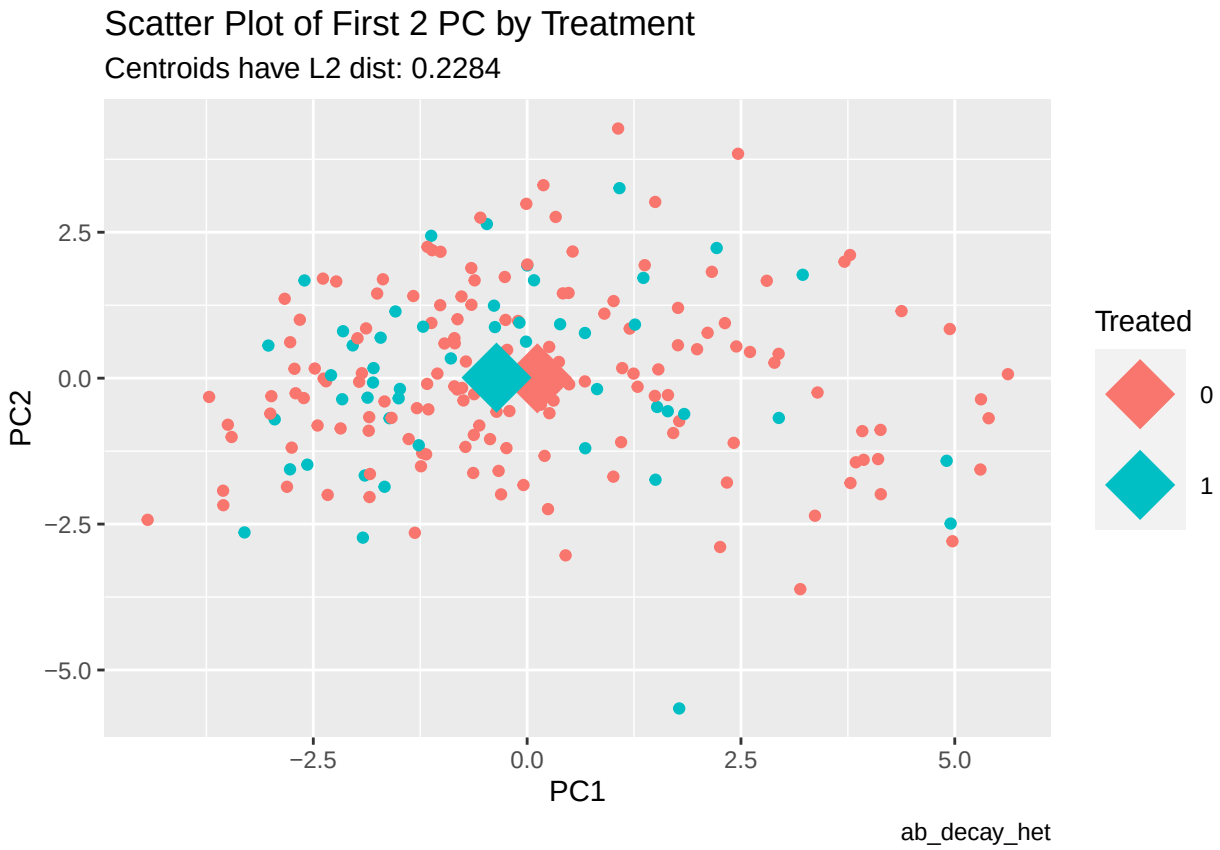

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 82
Outcome
10.8
10.4
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df     p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl> <dbl> <dbl> <chr>
## 1 curvature    150    50   -0.532   80.2 0.596 0.670 ns
## 2 diff1_acf1   150    50    0.659   82.0 0.511 0.662 ns
## 3 diff2_acf1   150    50    0.0889  89.8 0.929 0.929 ns
## 4 e_acf1       150    50    0.840   76.6 0.404 0.662 ns
## 5 entropy      150    50   -1.65   104.  0.102 0.459 ns
## 6 linearity    150    50    1.74    83.2 0.086 0.459 ns
## 7 spike        150    50   -0.654   98.7 0.515 0.662 ns
## 8 trend        150    50    1.21    89.4 0.231 0.605 ns
## 9 x_acf1       150    50    1.11    89.2 0.269 0.605 ns
```

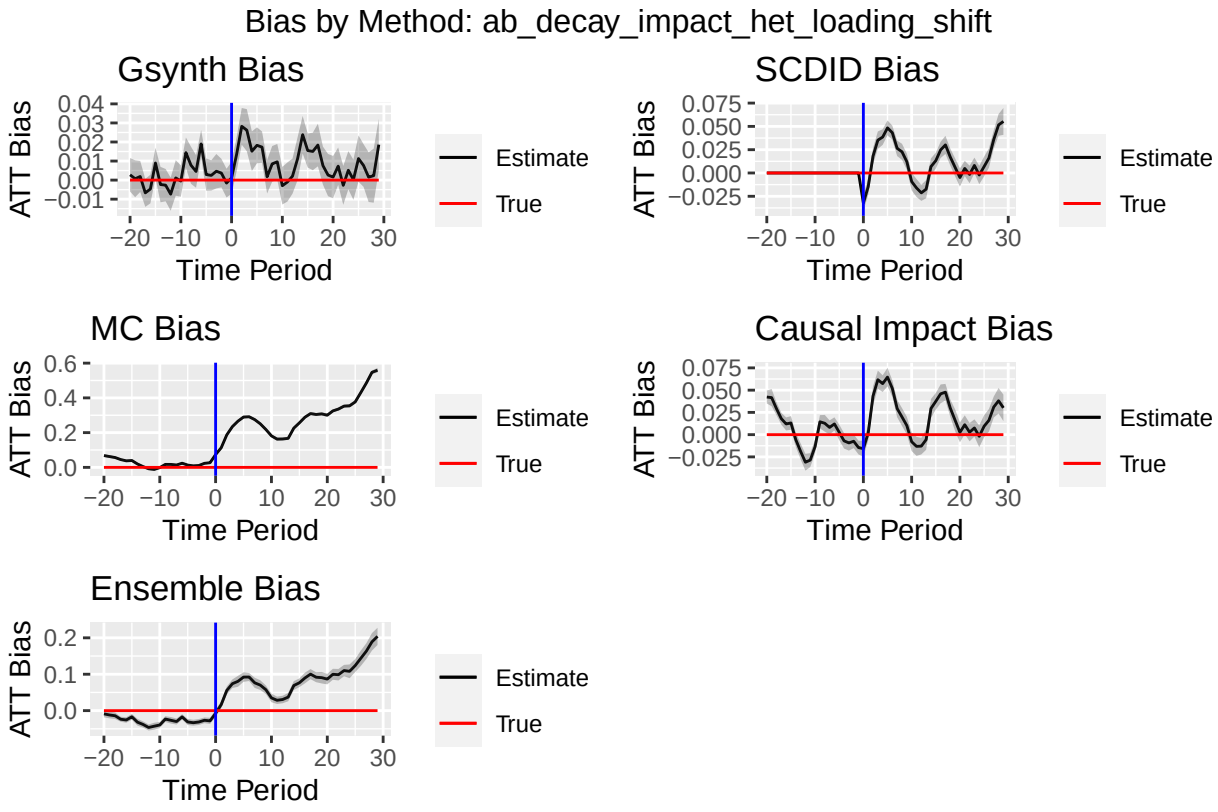
Metrics by Method

ab_decay_het

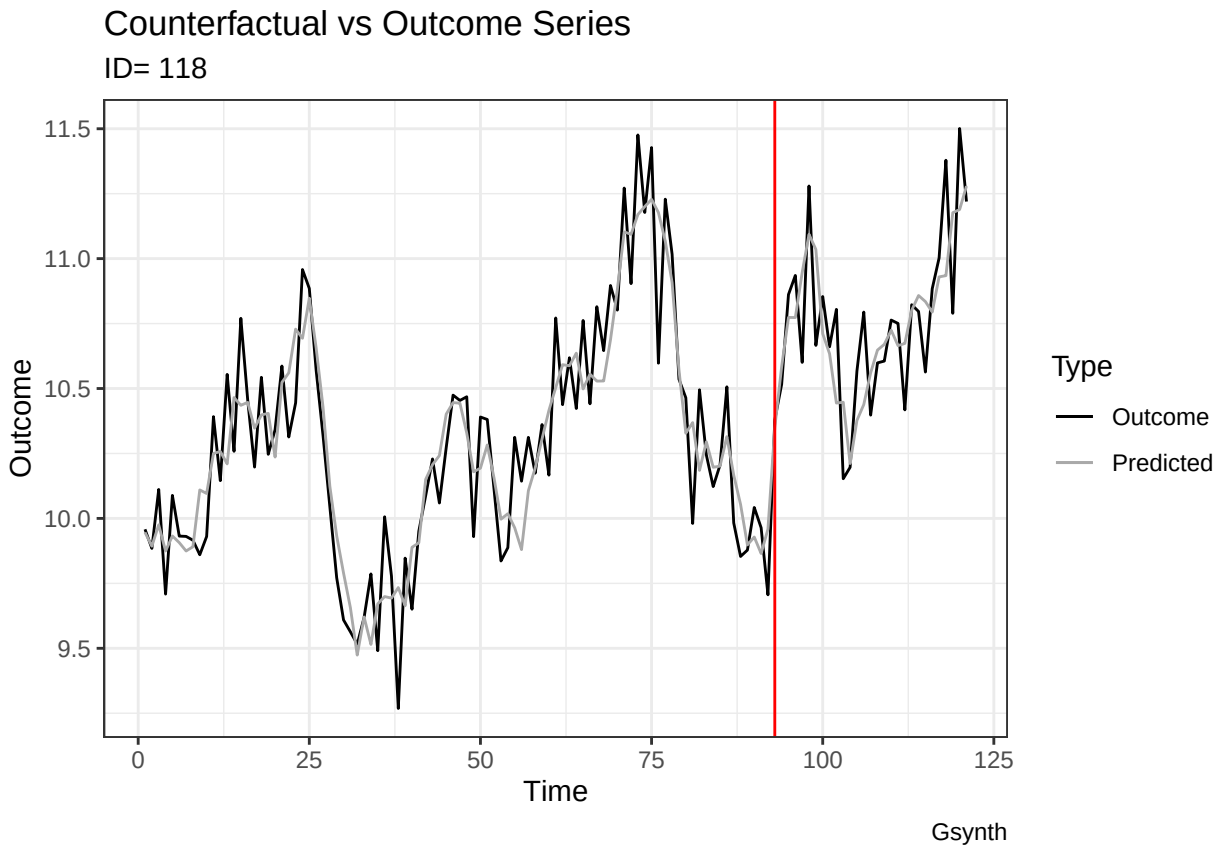
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	1.000	1.000	0.880	1.000
1	0.980	1.000	1.000	0.980	0.960
2	0.960	0.980	1.000	0.940	0.980
3	0.960	1.000	0.980	0.980	0.960
4	0.940	1.000	0.900	1.000	0.980
rmse					
0	0.231	0.279	0.397	0.245	0.262
1	0.227	0.287	0.398	0.248	0.264
2	0.232	0.295	0.403	0.249	0.267

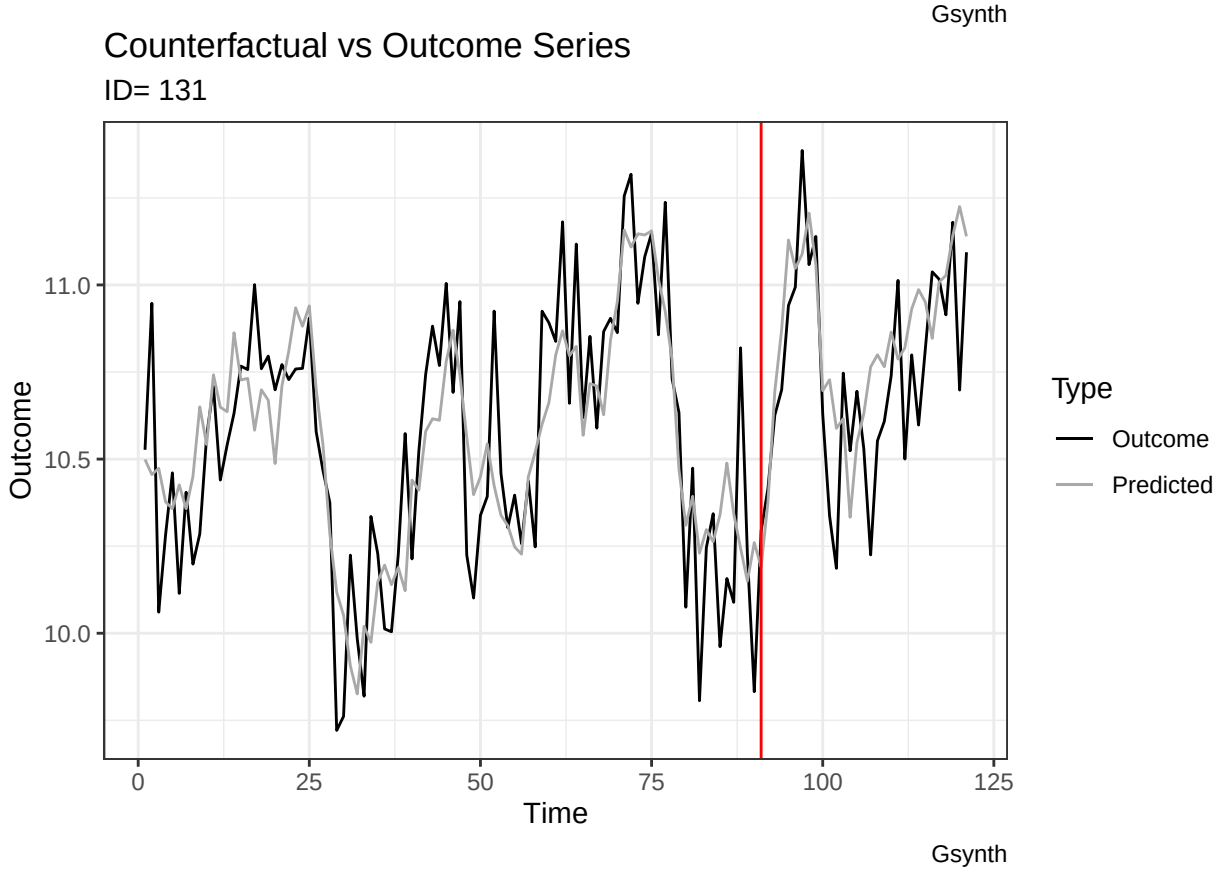
3	0.229	0.297	0.414	0.249	0.268
4	0.236	0.305	0.428	0.252	0.278
bias					
0	0.009	−0.004	0.027	−0.025	0.004
1	0.007	−0.005	0.026	−0.021	0.002
2	0.002	−0.012	0.040	−0.017	0.001
3	0.003	−0.006	0.064	0.001	0.008
4	−0.001	−0.005	0.078	0.008	0.009

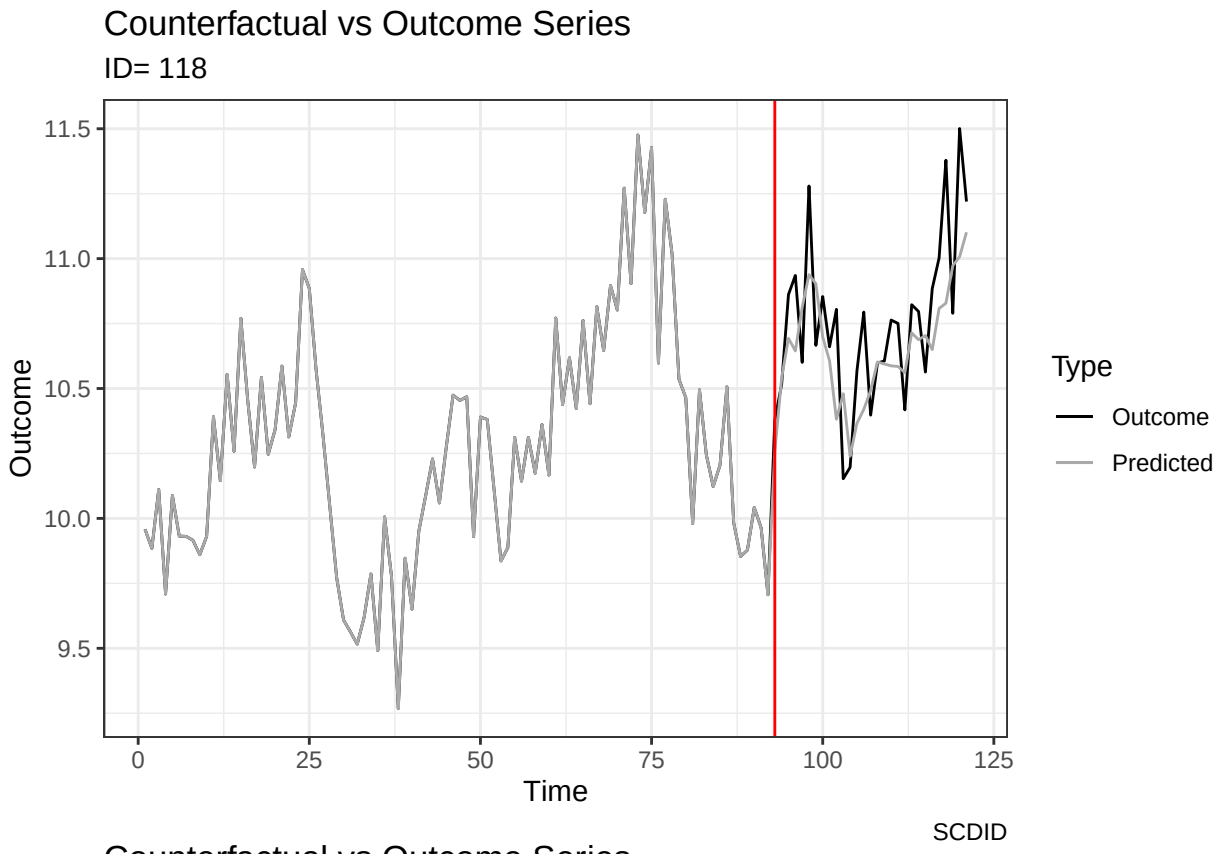
Notes:

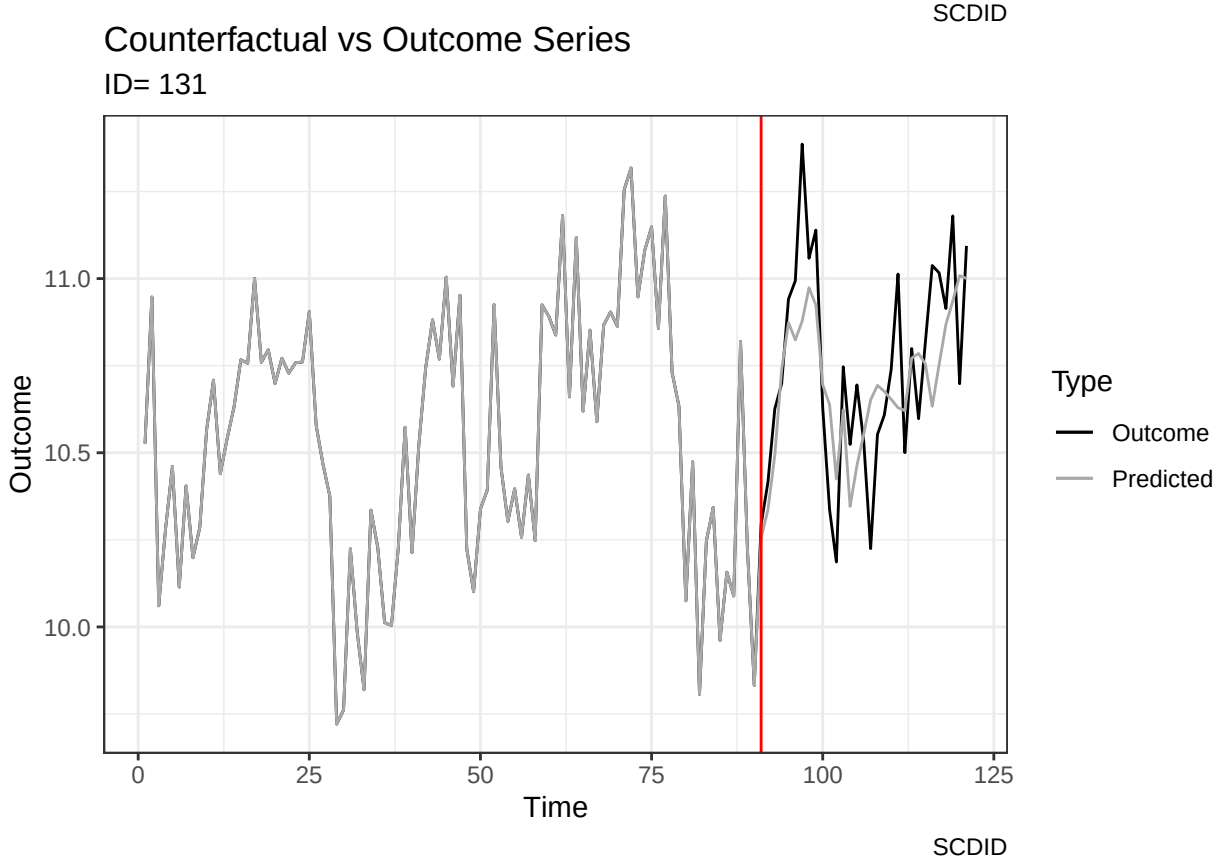


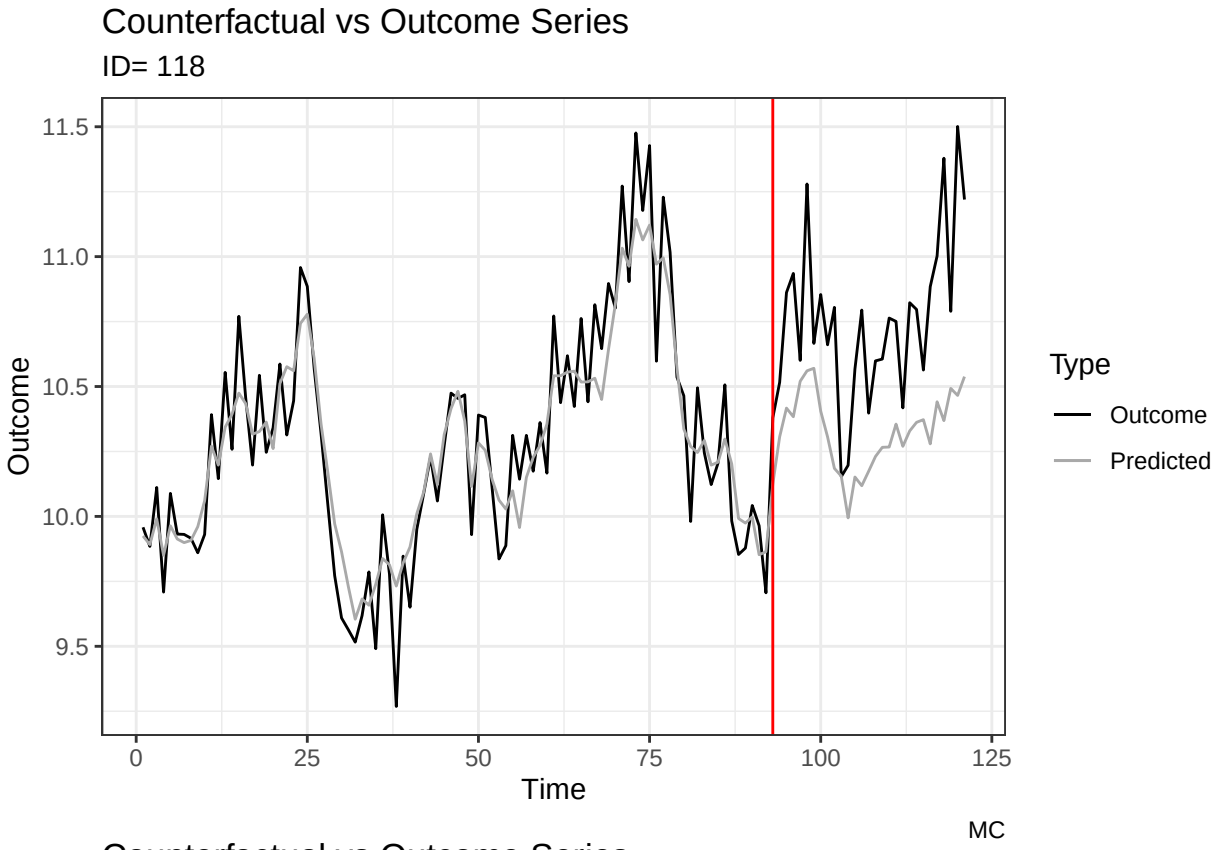
Notes:

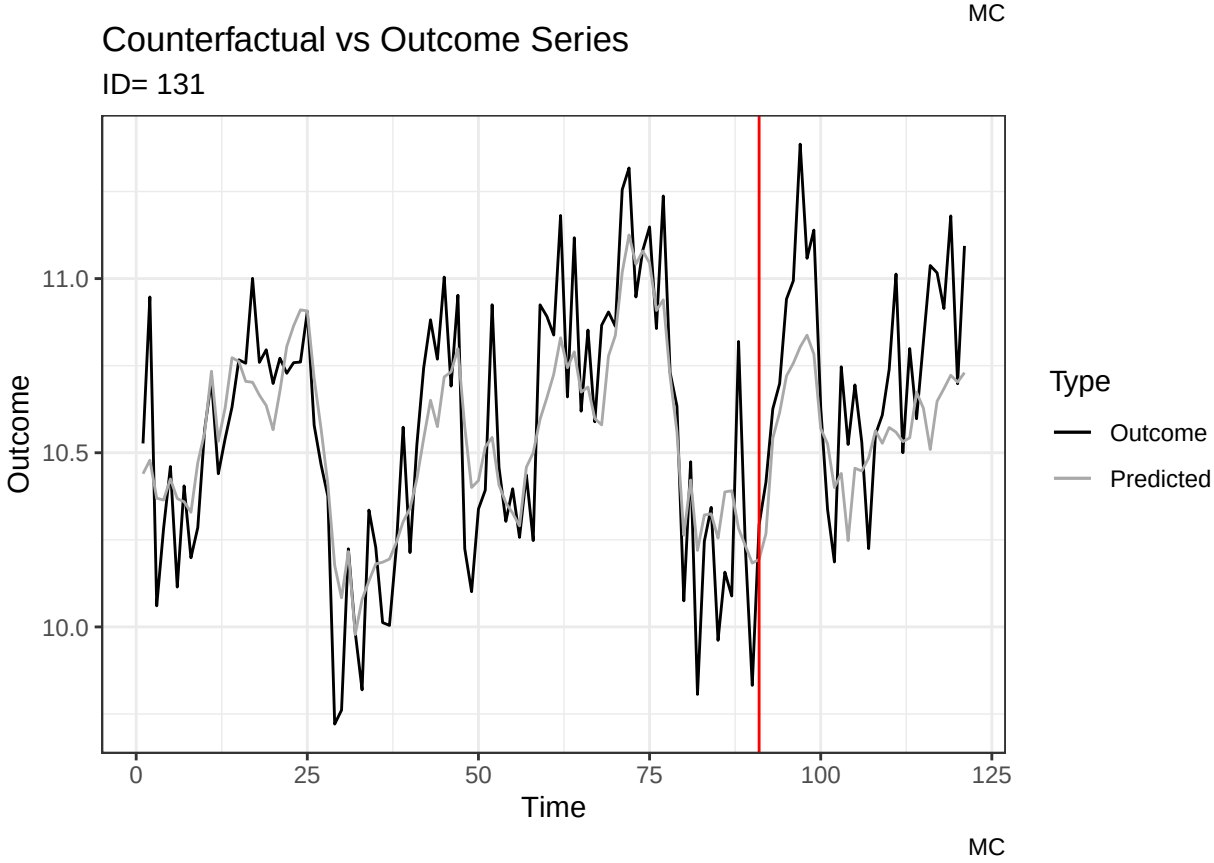

Counterfactual vs Outcome Series
ID= 118
Outcome
Time
Type
Outcome
Predicted
Gsynth

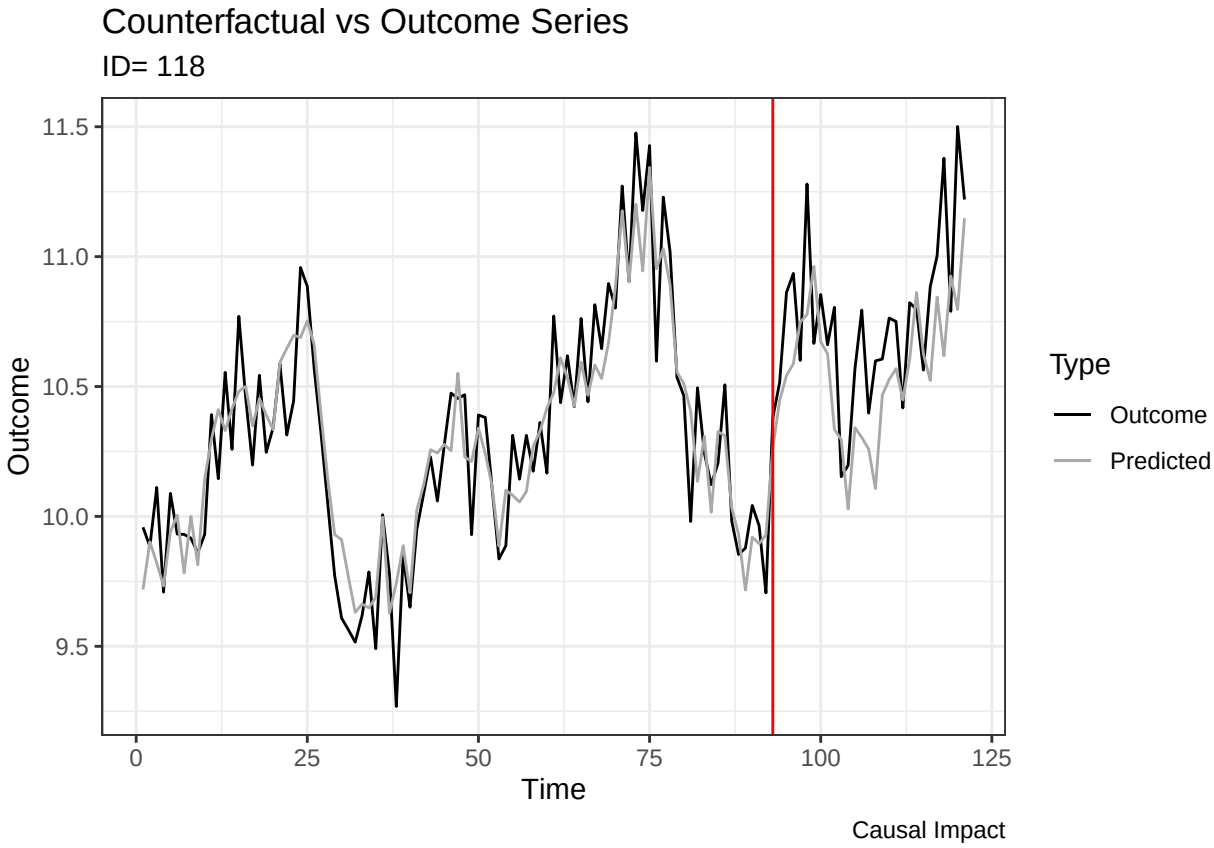

Counterfactual vs Outcome Series
ID= 131
Outcome
Time
Type
Outcome
Predicted
Gsynth

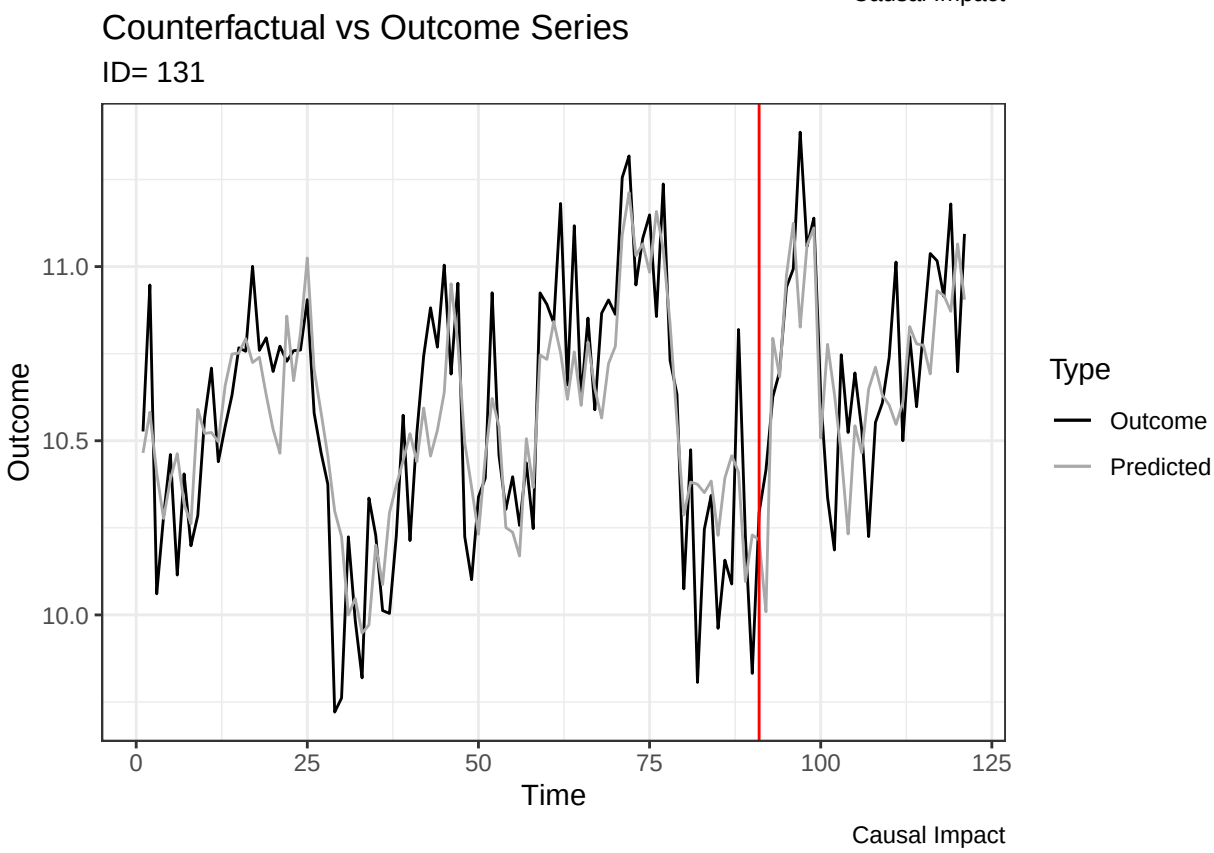

Counterfactual vs Outcome Series
ID= 118
Outcome
Time
11.5
11.0
10.5
10.0
9.5
0
25
50
75
100
125
Type
Outcome
Predicted
SCDID

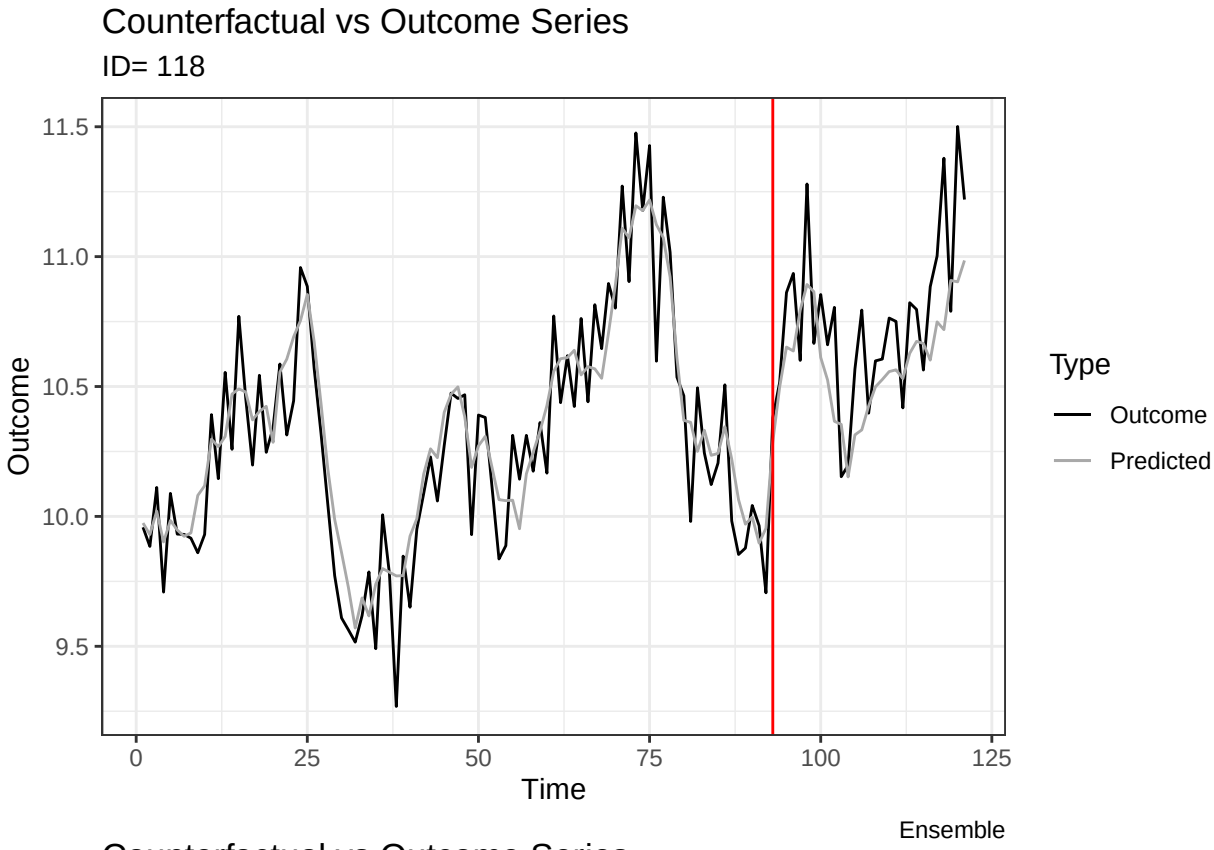

Counterfactual vs Outcome Series
ID= 131
Outcome
Time
11.0
10.5
10.0
0
25
50
75
100
125
Type
Outcome
Predicted
SCDID

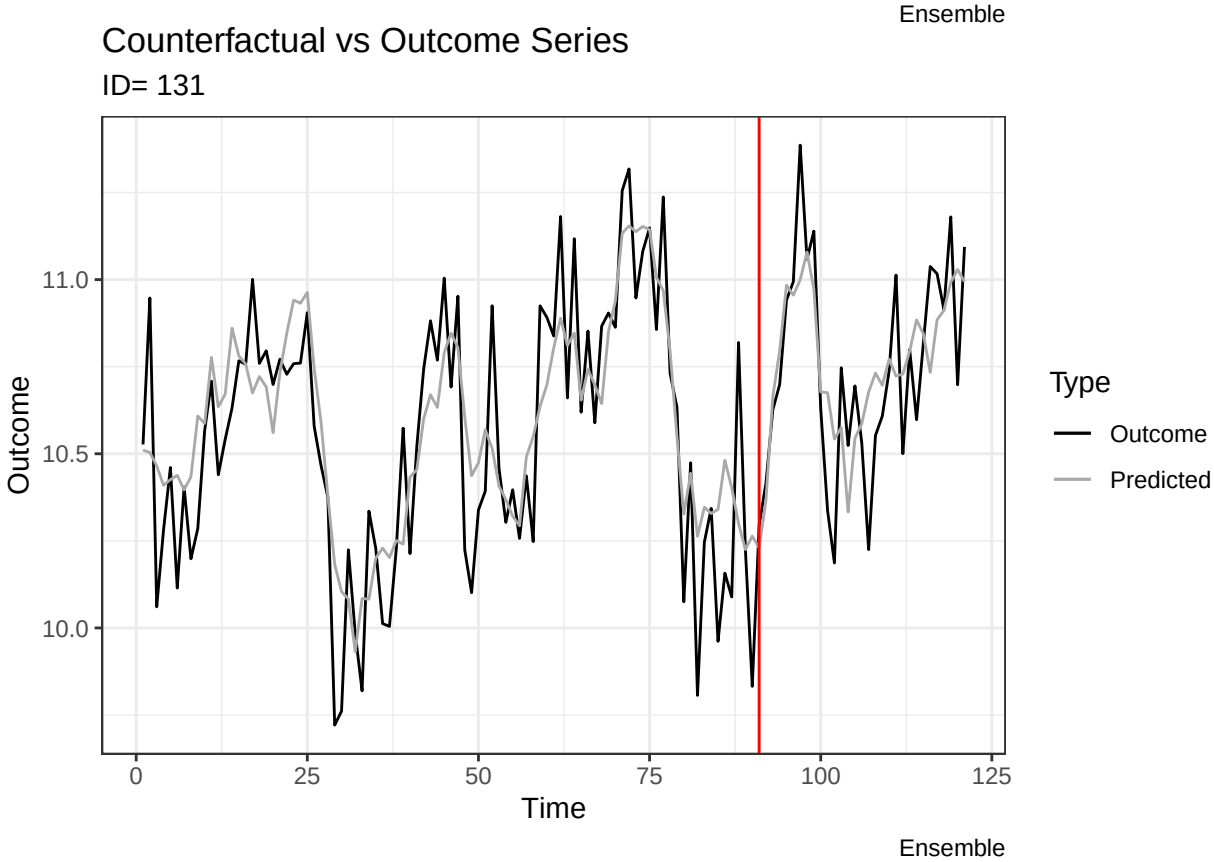

Counterfactual vs Outcome Series
ID= 118
Outcome
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 131
Outcome
Time
Type
Outcome
Predicted
MC

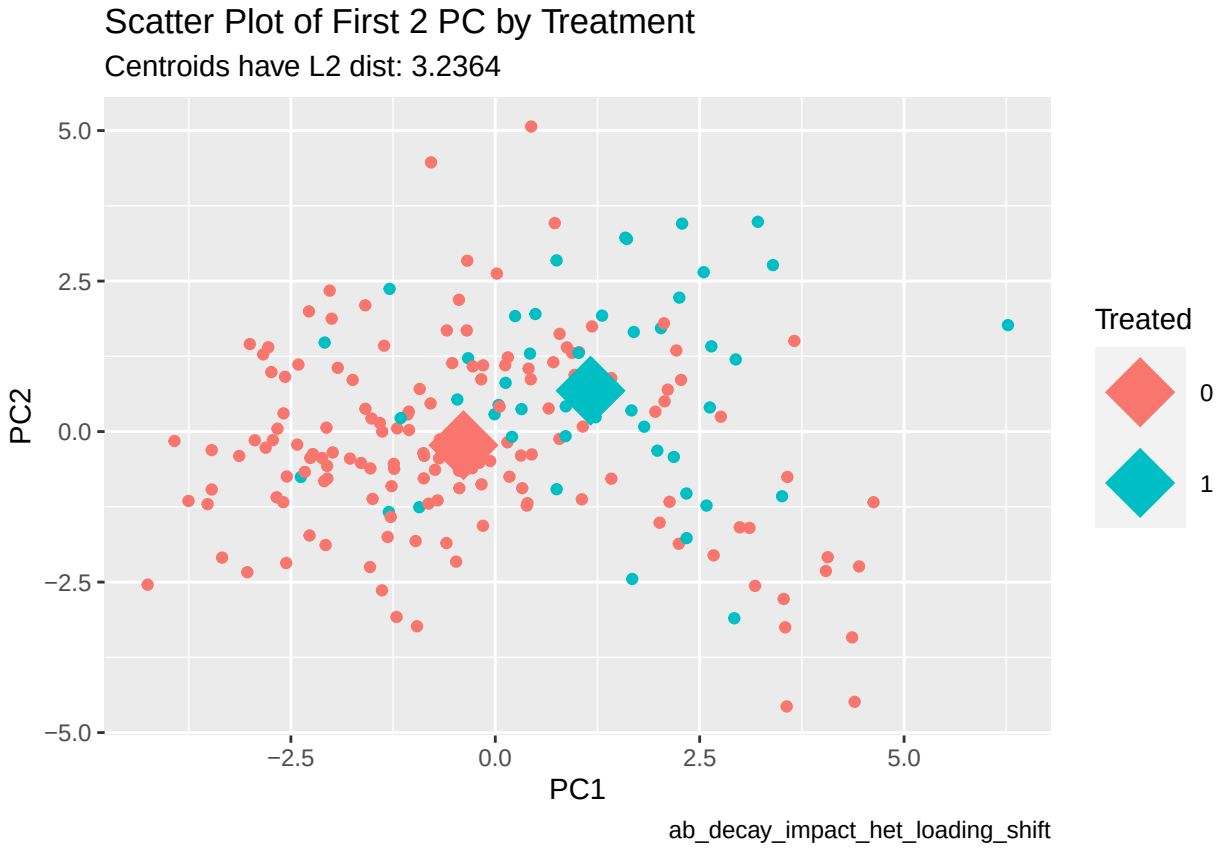

Counterfactual vs Outcome Series
ID= 118
Outcome
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 131
Outcome
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df            p        p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>        <dbl>        <dbl> <chr>
## 1 curvature    150    50     0.437 127.  0.663        0.663        ns
## 2 diff1_acf1   150    50    -5.71   74.6 0.000000214  0.000000642  ****
## 3 diff2_acf1   150    50    -1.63   83.5 0.107        0.138        ns
## 4 e_acf1       150    50    -6.38   78.6 0.0000000111 0.0000000999 ****
## 5 entropy      150    50     1.48  110.  0.14         0.158        ns
## 6 linearity    150    50    -1.93  117.  0.0558       0.0837       ns
## 7 spike        150    50     5.13  121.  0.00000113   0.00000254   ****
## 8 trend        150    50    -4.67  105.  0.00000895   0.0000161    ****
## 9 x_acf1       150    50    -5.78  113.  0.0000000679 0.000000306  ****
```

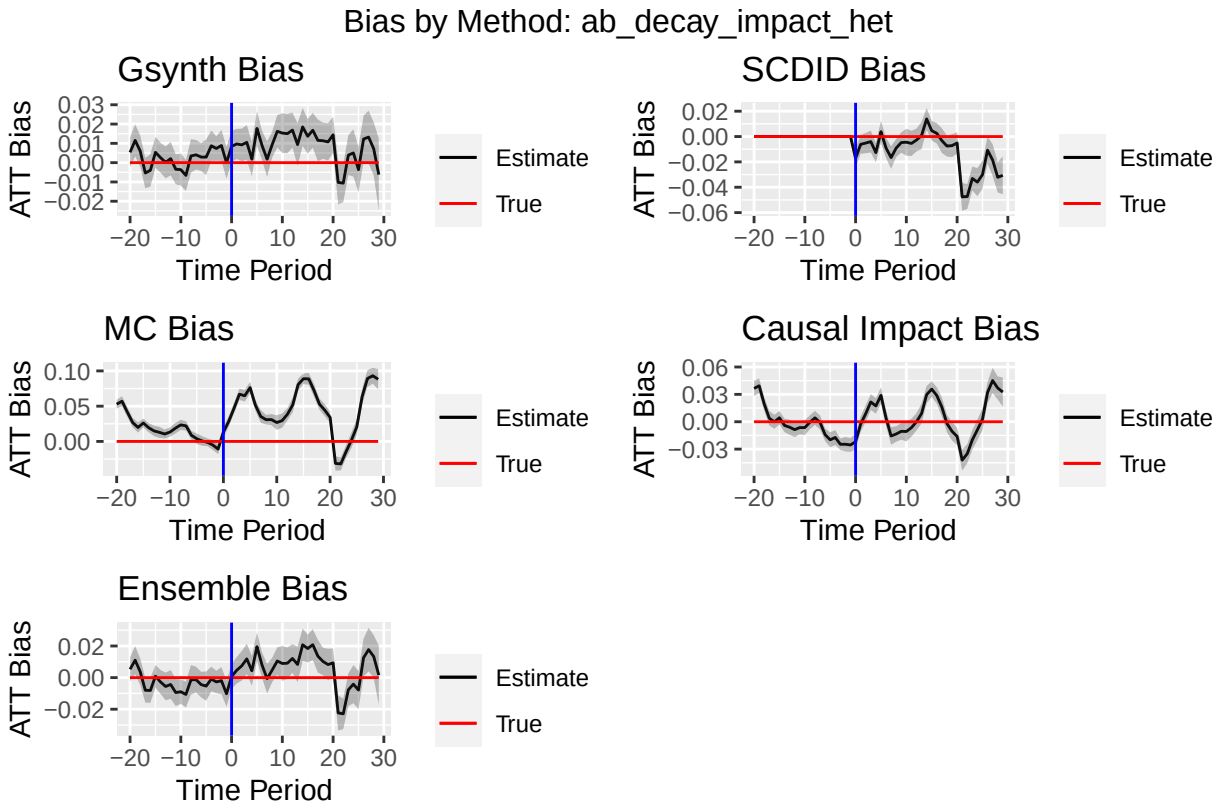
Metrics by Method

ab_decay_impact_het_loading_shift

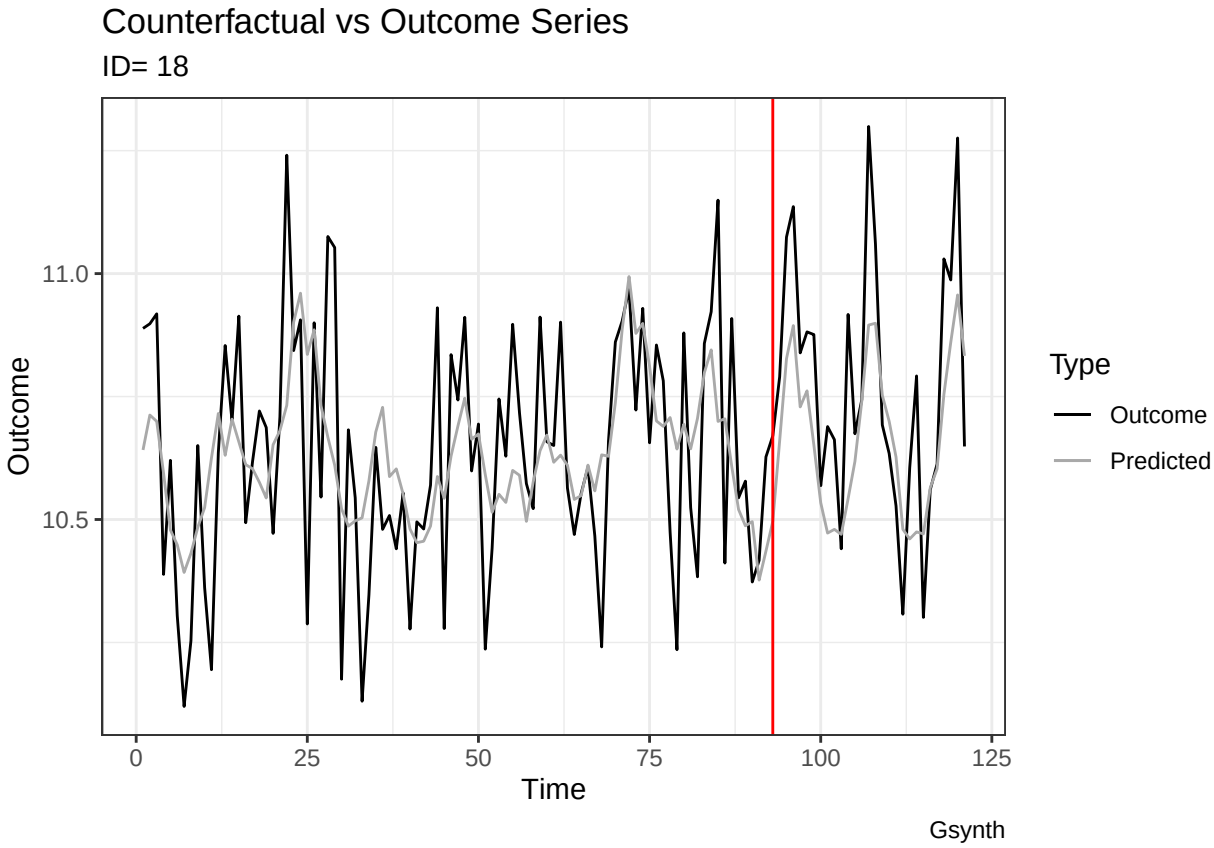
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	0.900	0.680	0.940	0.940
1	0.960	0.980	0.240	0.980	0.940
2	0.880	0.960	0.000	0.780	0.700
3	0.780	0.840	0.000	0.580	0.500
4	0.860	0.800	0.000	0.700	0.500
rmse					
0	0.228	0.244	0.325	0.250	0.246
1	0.231	0.242	0.341	0.253	0.250
2	0.239	0.254	0.401	0.267	0.273

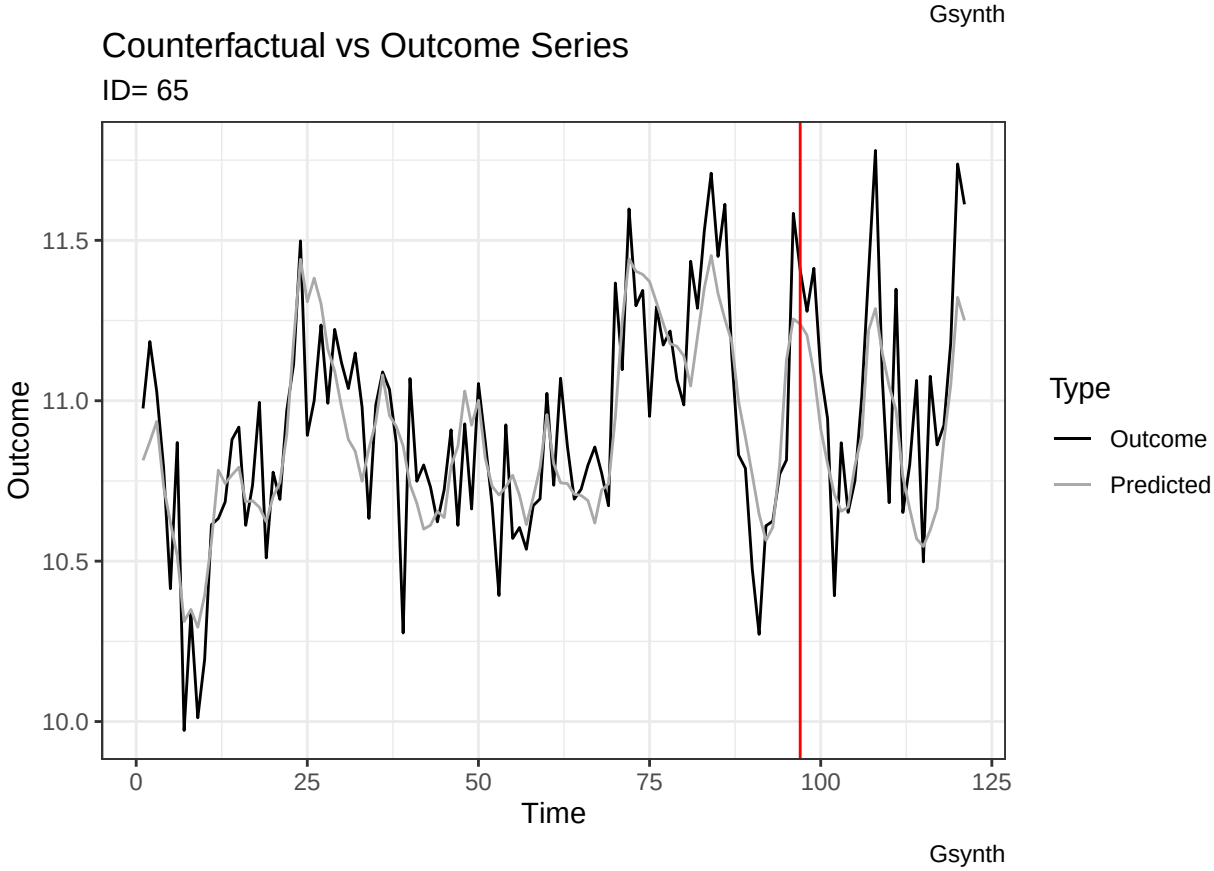
3	0.236	0.250	0.445	0.265	0.284
4	0.232	0.243	0.491	0.260	0.294
bias					
0	0.001	−0.032	0.074	−0.016	−0.007
1	0.014	−0.015	0.113	0.002	0.016
2	0.028	0.018	0.187	0.043	0.055
3	0.026	0.035	0.234	0.062	0.074
4	0.015	0.039	0.266	0.057	0.080

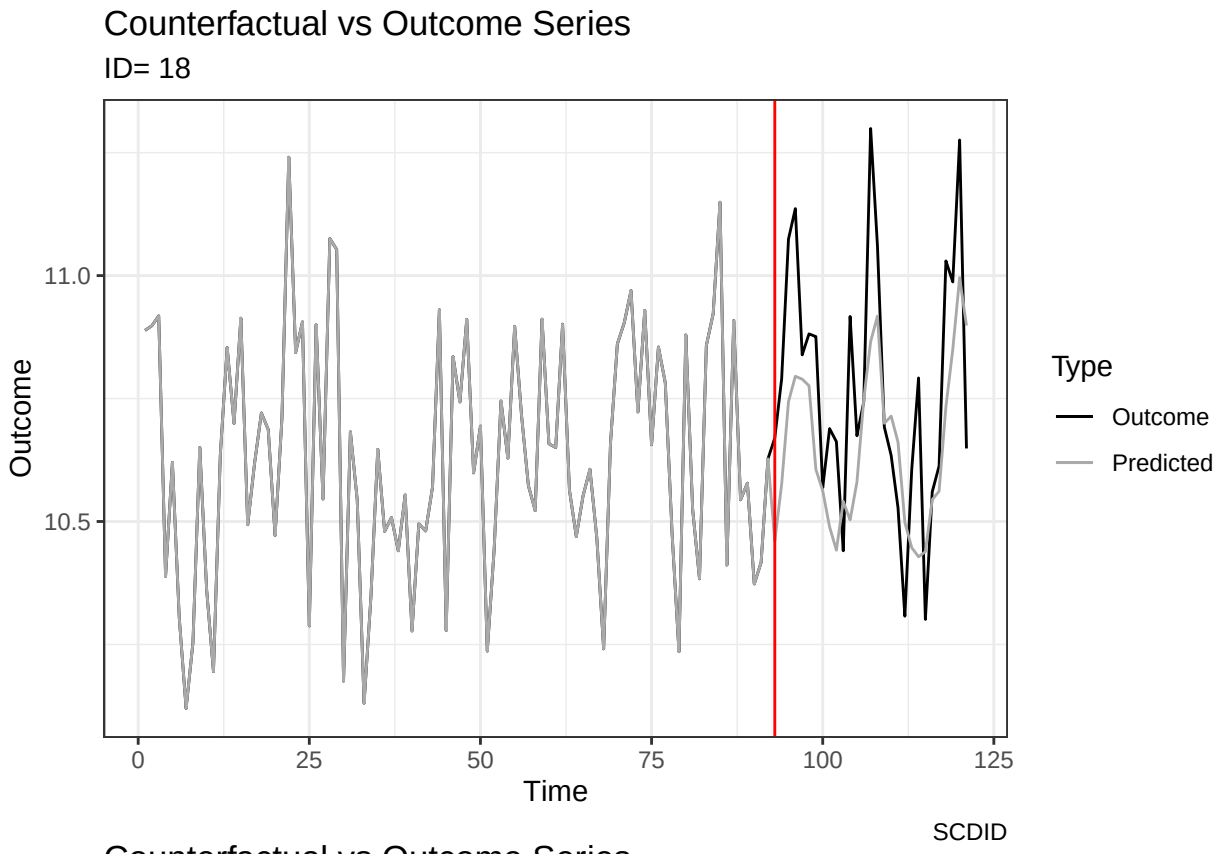
Notes:

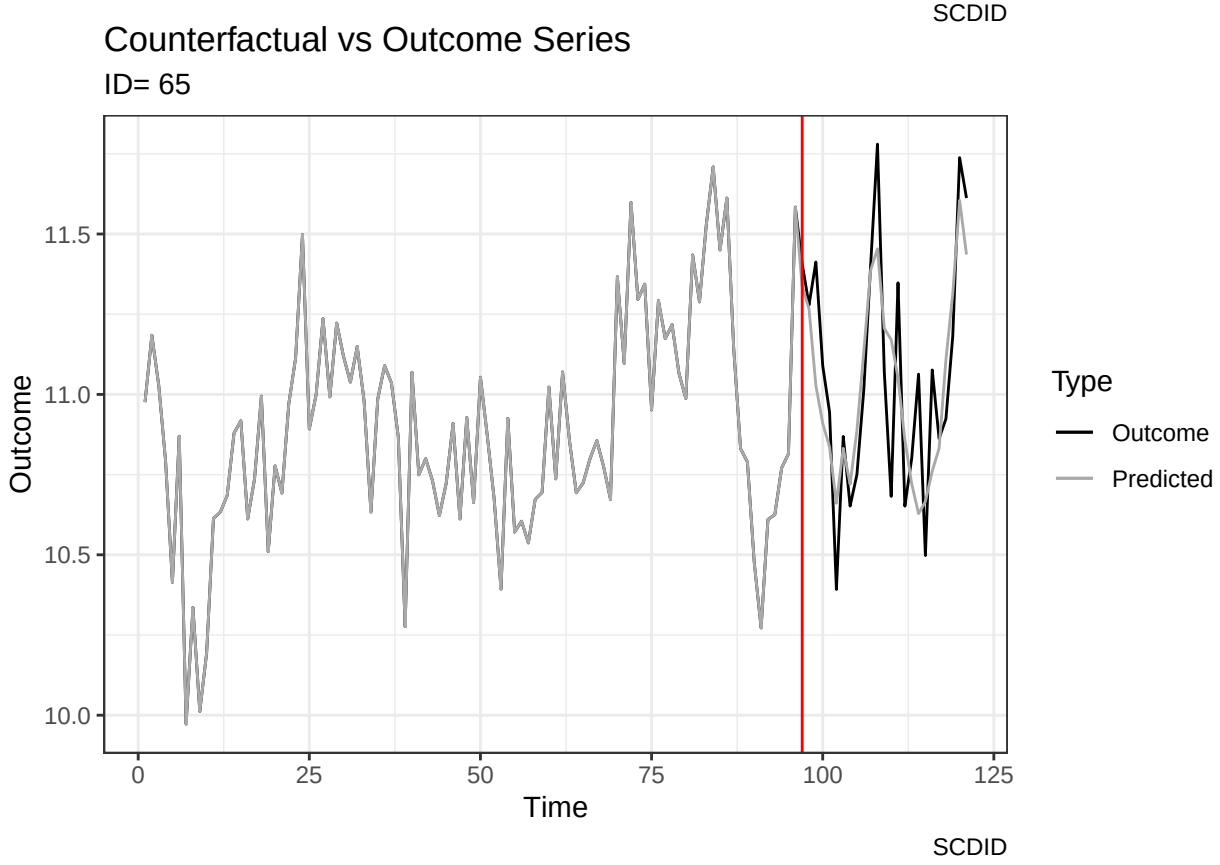


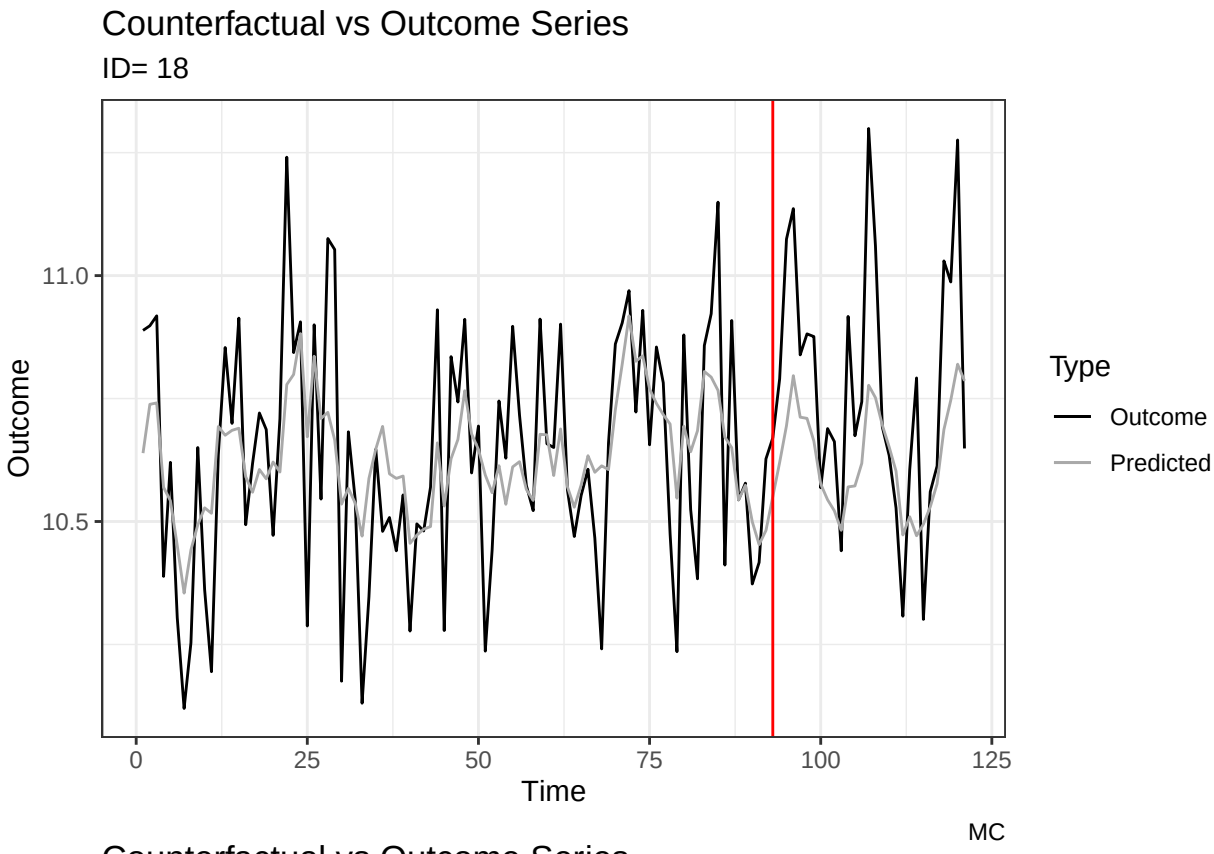
Notes:

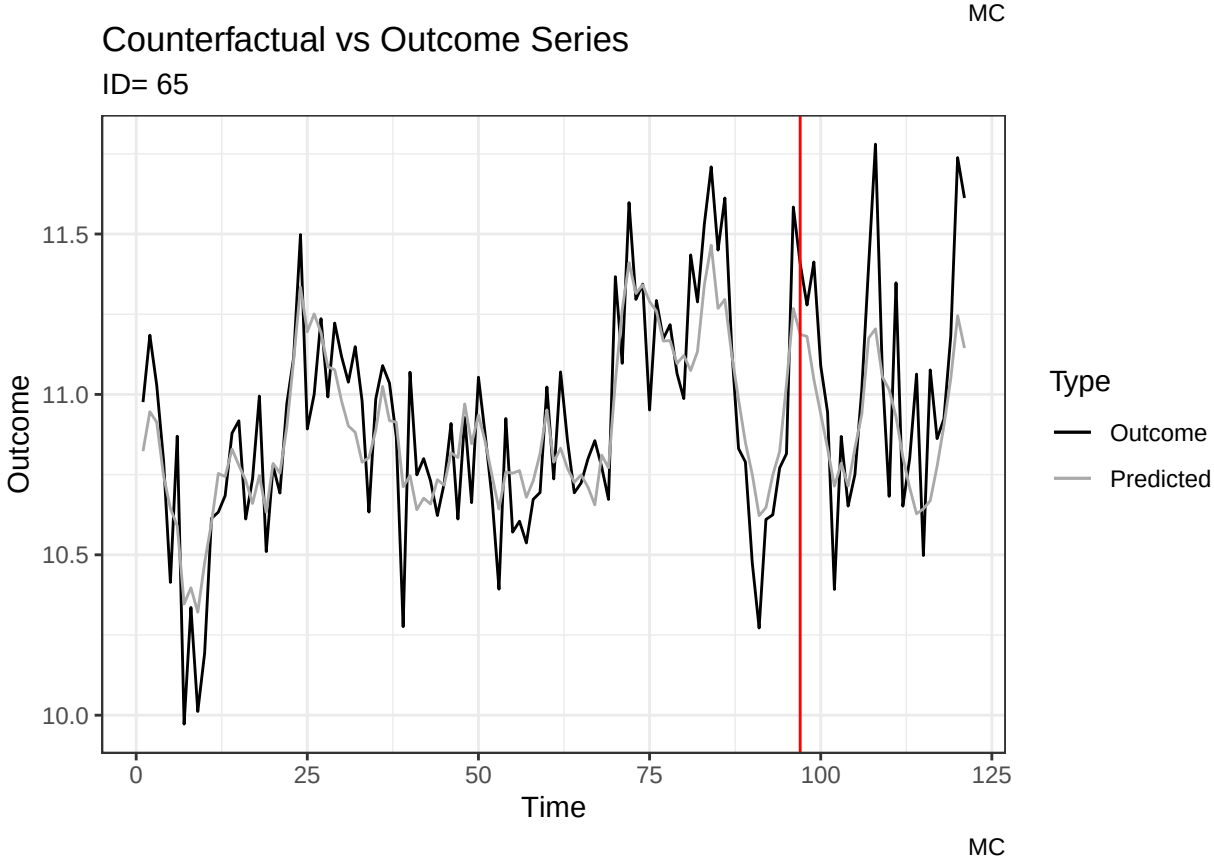

Counterfactual vs Outcome Series
ID= 18
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

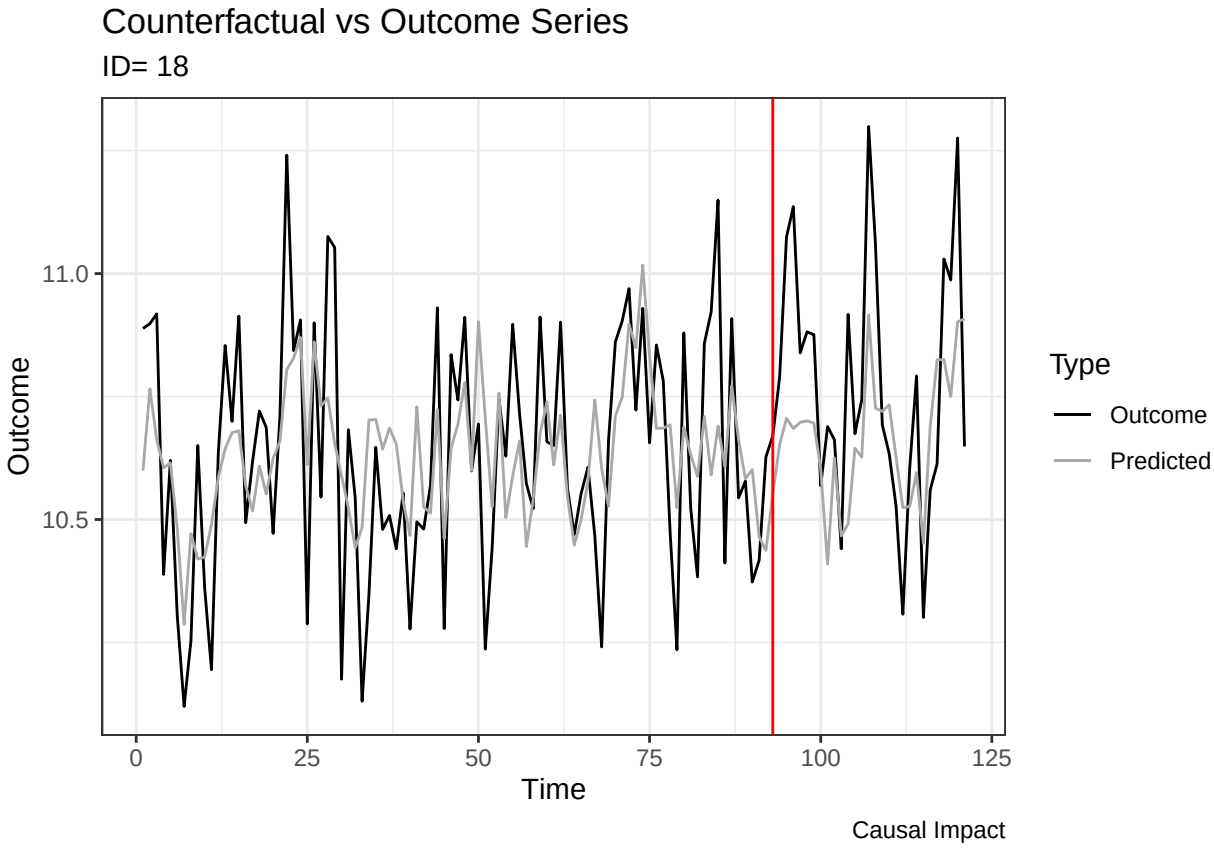

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

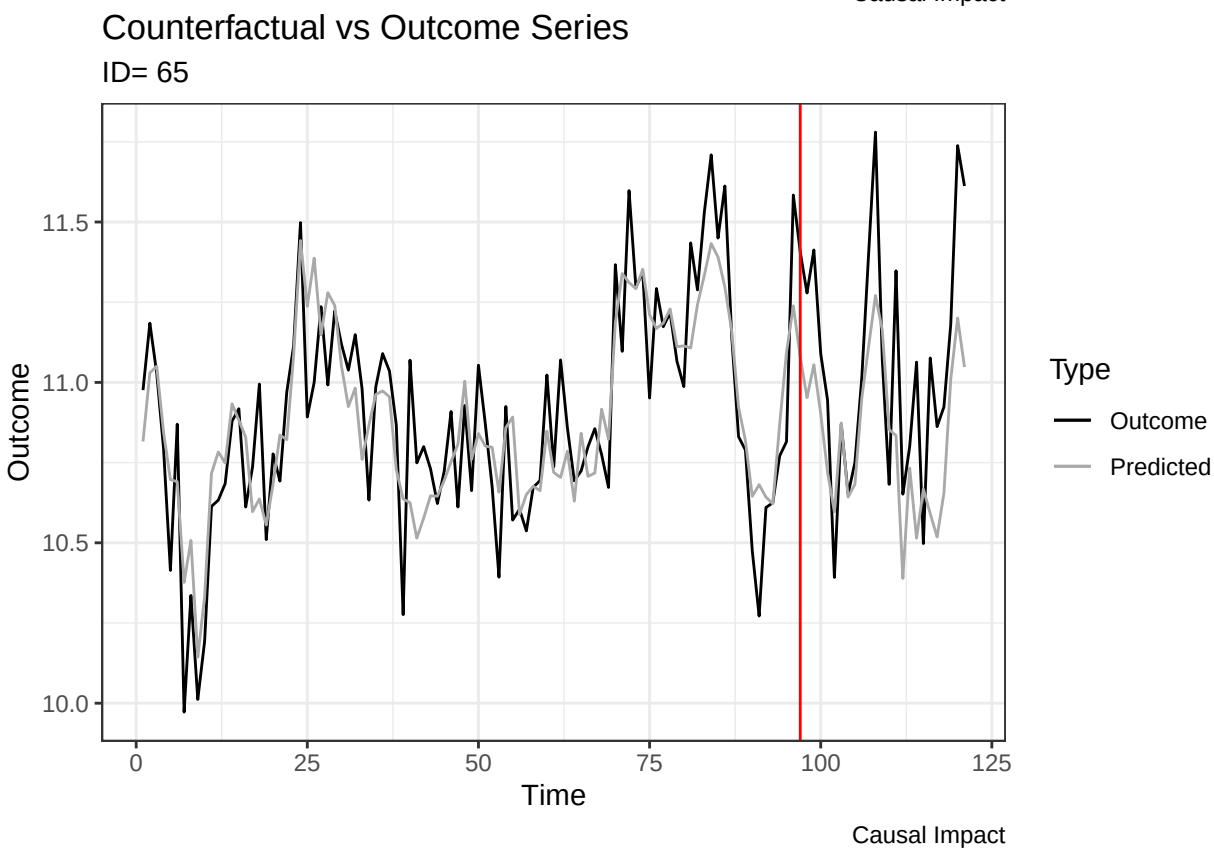

Counterfactual vs Outcome Series
ID= 18
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

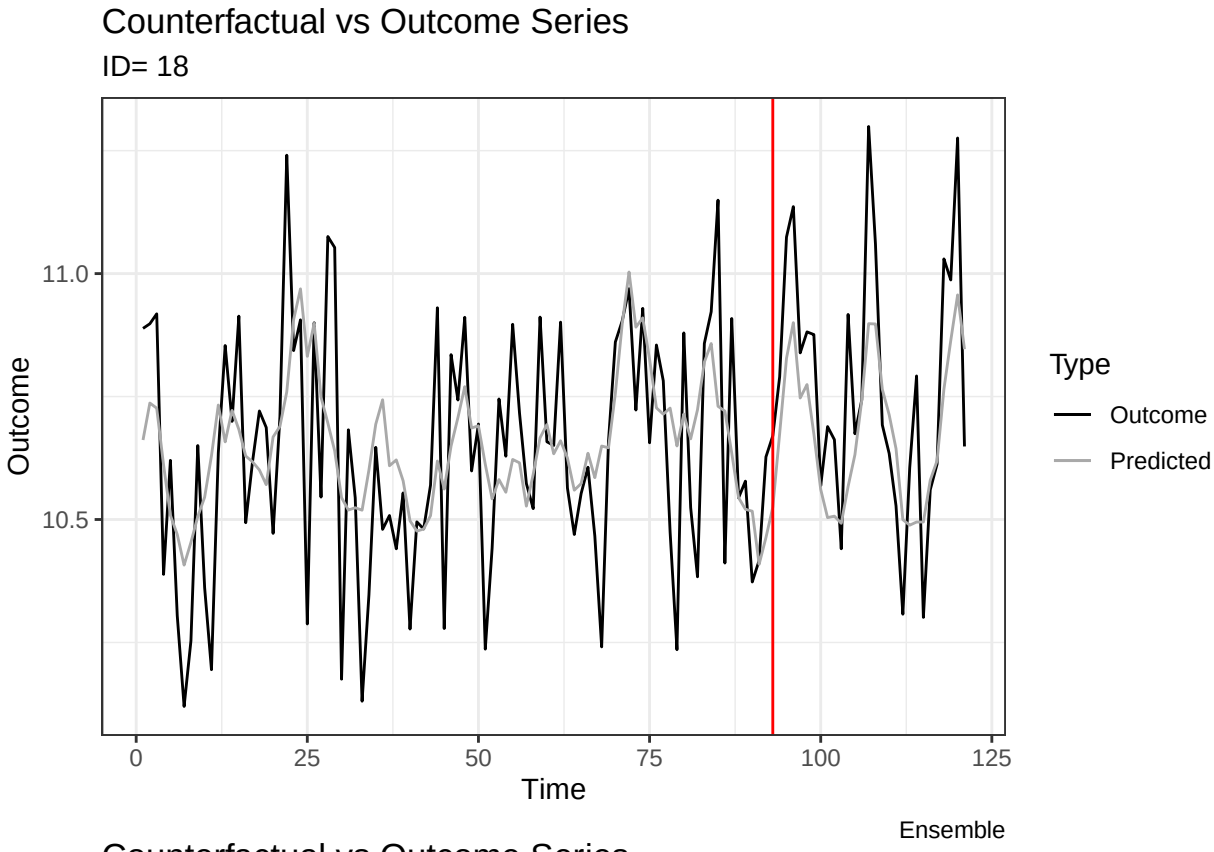

Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

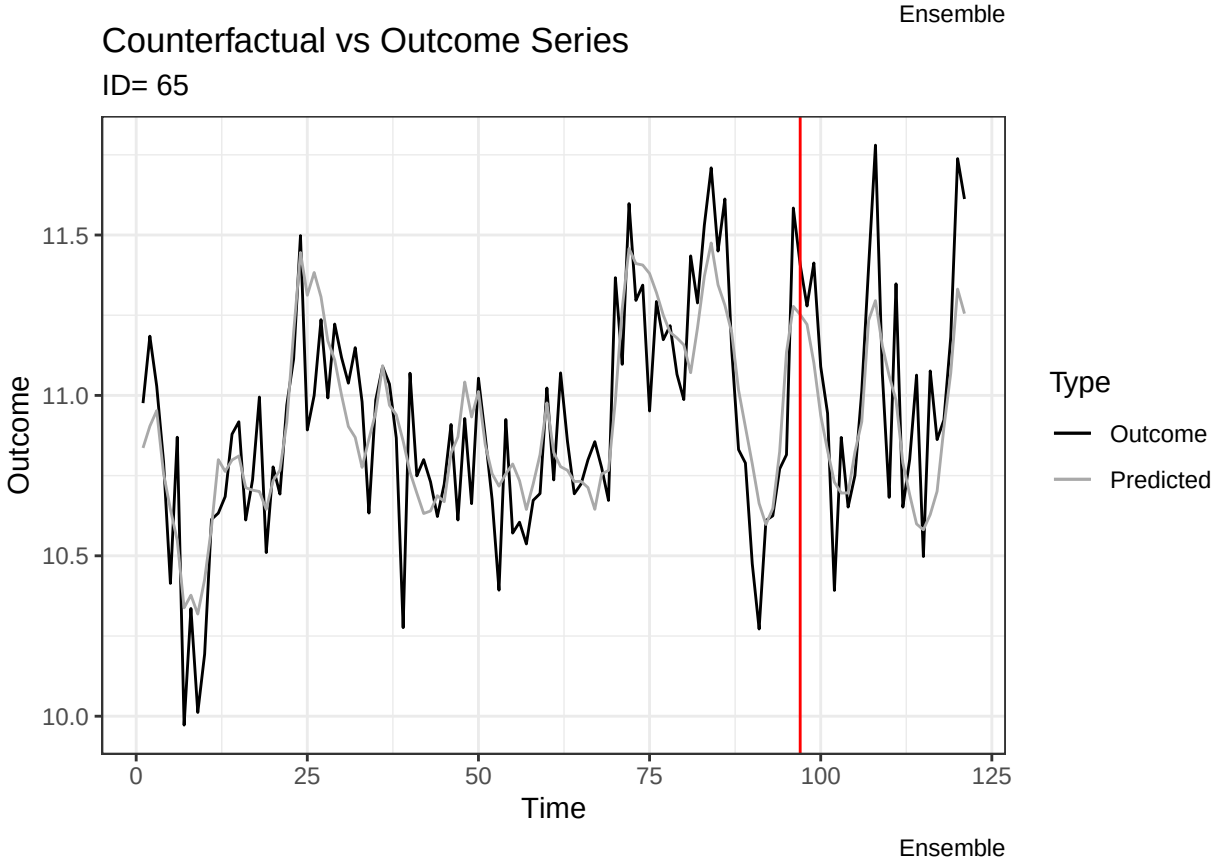

Counterfactual vs Outcome Series
ID= 18
Outcome
11.0
10.5
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted

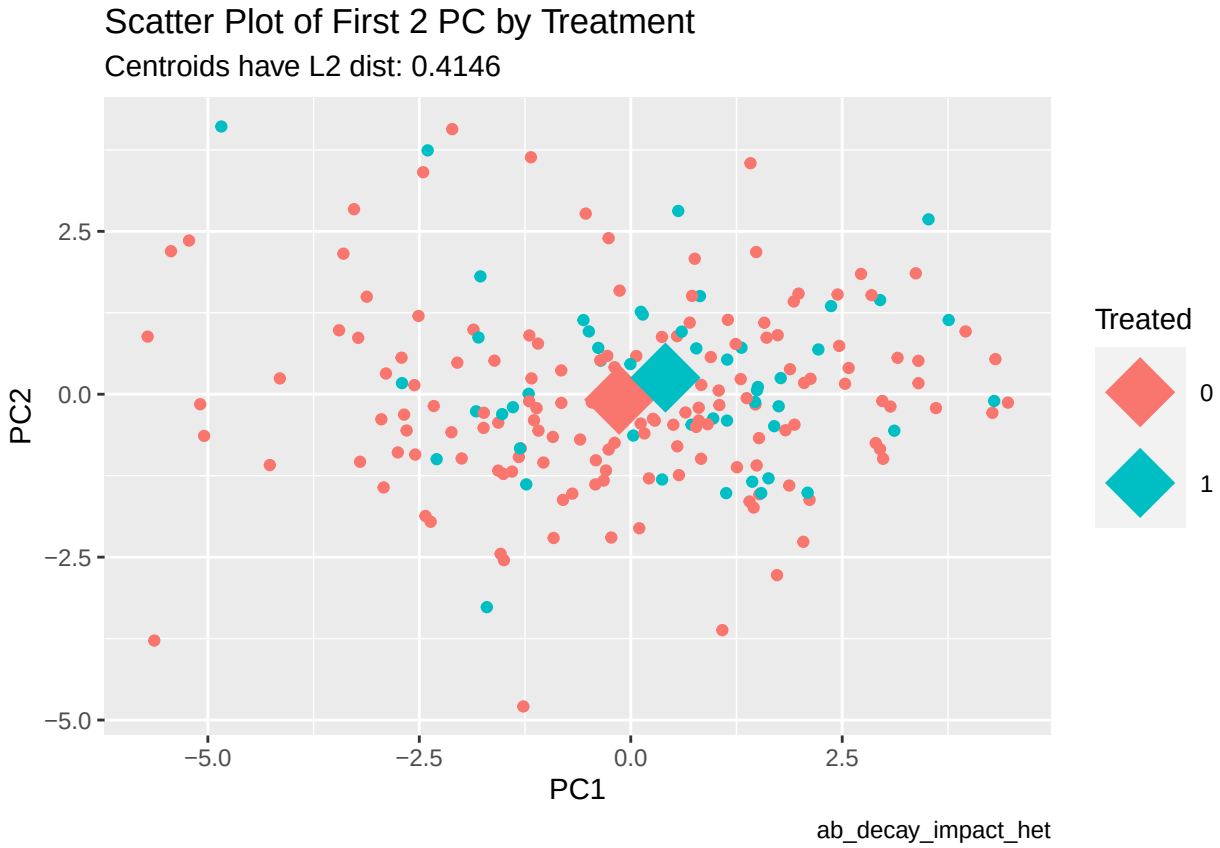

Counterfactual vs Outcome Series
ID= 18
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 65
Outcome
11.5
11.0
10.5
10.0
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df      p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>  <dbl> <dbl> <chr>
## 1 curvature    150    50    0.0904  93.6 0.928  0.928 ns
## 2 diff1_acf1   150    50    2.39   103.  0.0185 0.104 ns
## 3 diff2_acf1   150    50    1.87    88.1 0.0645 0.194 ns
## 4 e_acf1       150    50    2.31   100.  0.0232 0.104 ns
## 5 entropy      150    50   -1.09    89.2 0.278  0.417 ns
## 6 linearity    150    50    1.55    88.4 0.125  0.281 ns
## 7 spike        150    50   -0.440   91.2 0.661  0.744 ns
## 8 trend        150    50    0.694   92.3 0.489  0.629 ns
## 9 x_acf1       150    50    1.17    93.2 0.246  0.417 ns
```

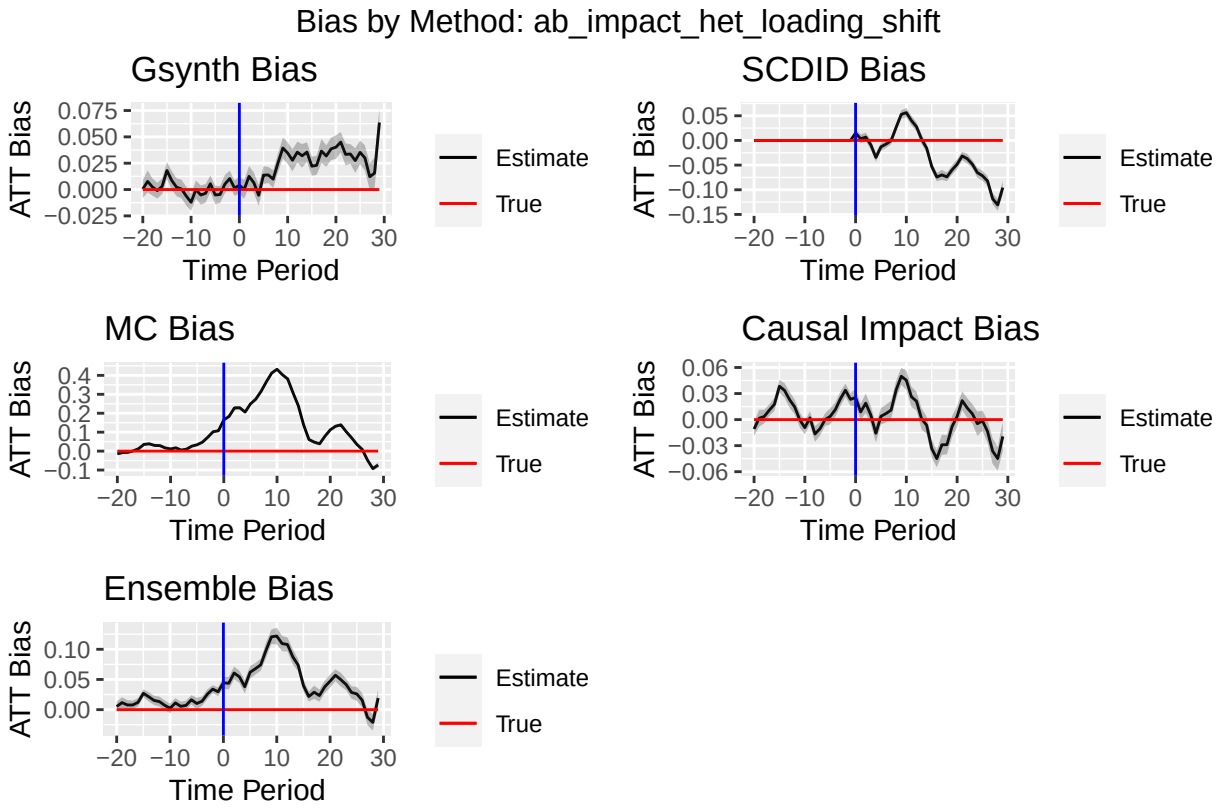
Metrics by Method

ab_decay_impact_het

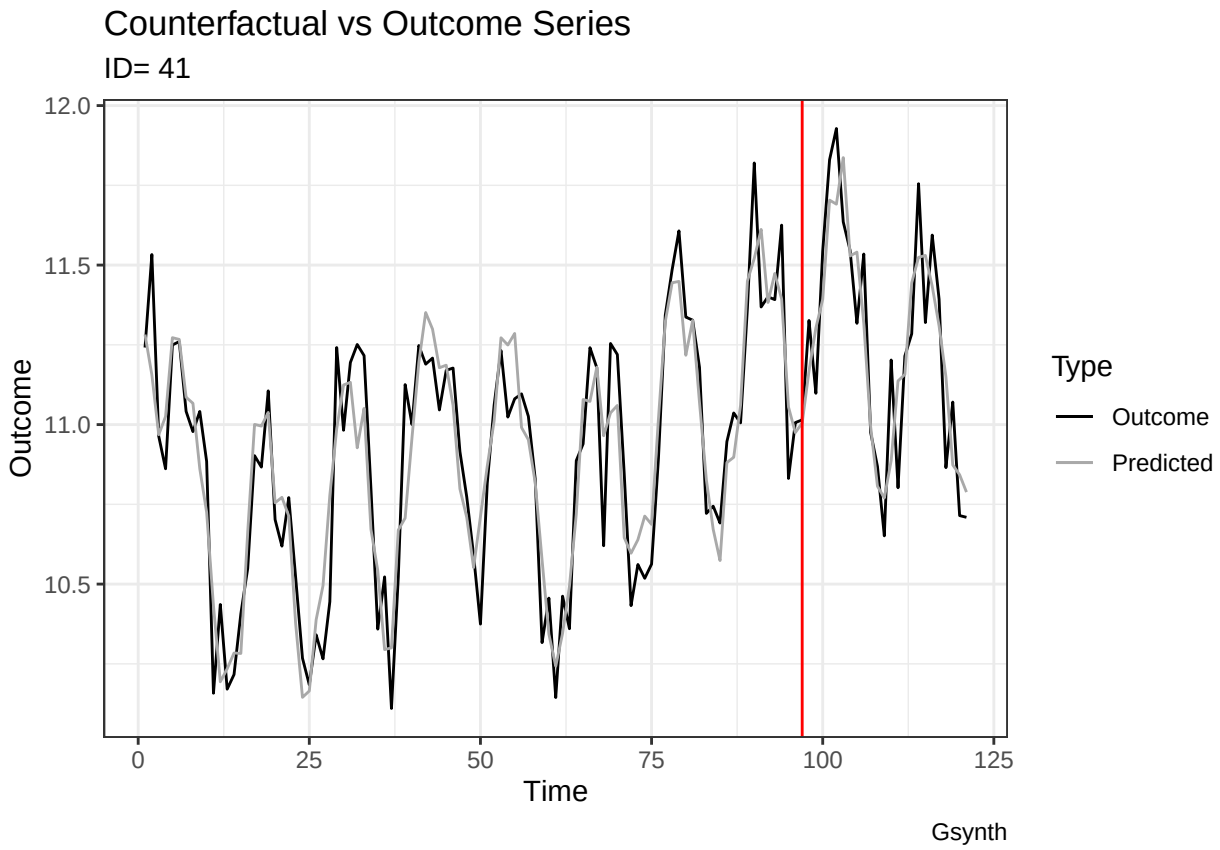
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	1.000	1.000	0.880	1.000
1	0.980	1.000	0.980	1.000	1.000
2	0.920	0.980	0.960	0.960	0.940
3	0.960	1.000	0.780	0.920	0.940
4	0.960	1.000	0.840	0.960	0.940
rmse					
0	0.225	0.255	0.317	0.241	0.232
1	0.220	0.259	0.320	0.240	0.229
2	0.225	0.264	0.326	0.241	0.233

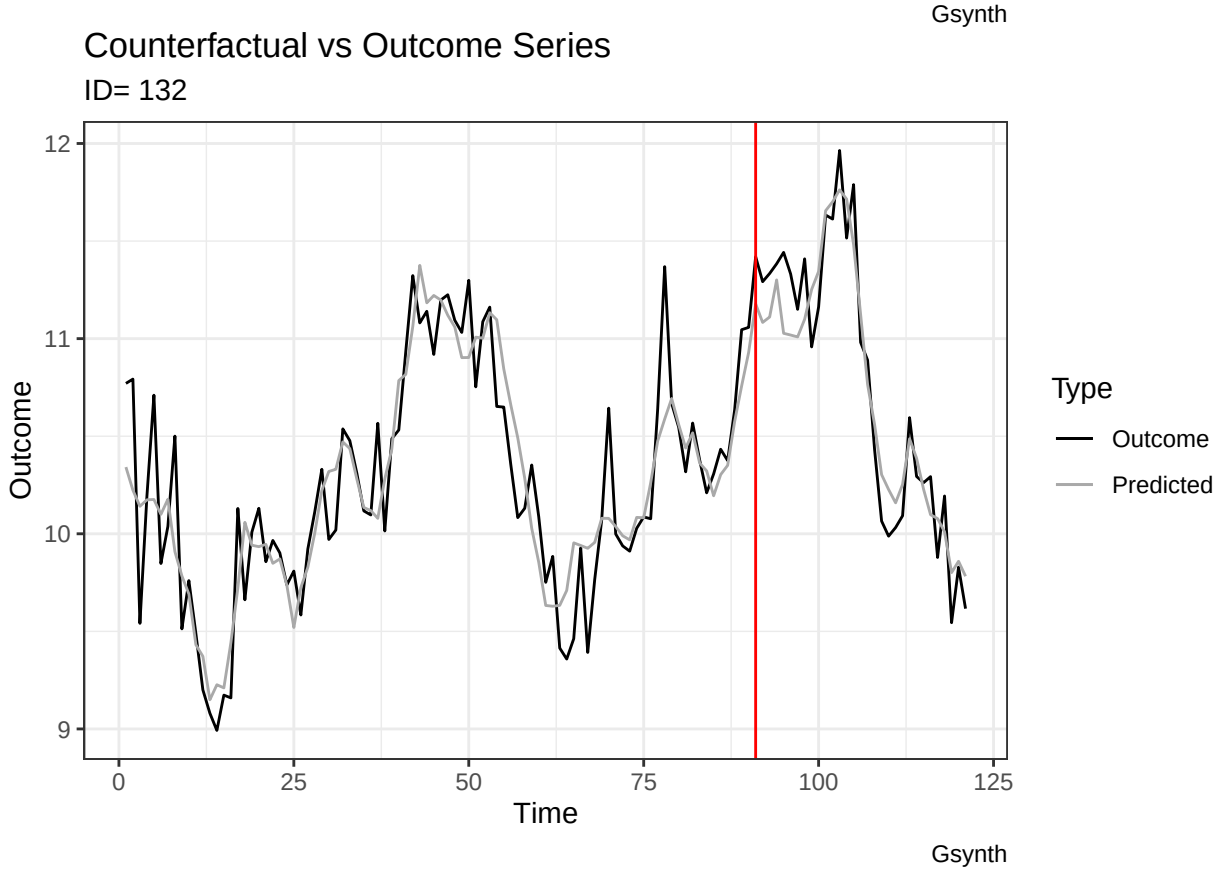
3	0.226	0.265	0.335	0.244	0.235
4	0.231	0.272	0.345	0.249	0.242
bias					
0	0.008	−0.017	0.013	−0.022	0.001
1	0.010	−0.006	0.028	−0.003	0.005
2	0.009	−0.005	0.047	0.009	0.007
3	0.011	−0.004	0.067	0.022	0.012
4	0.002	−0.013	0.065	0.017	0.004

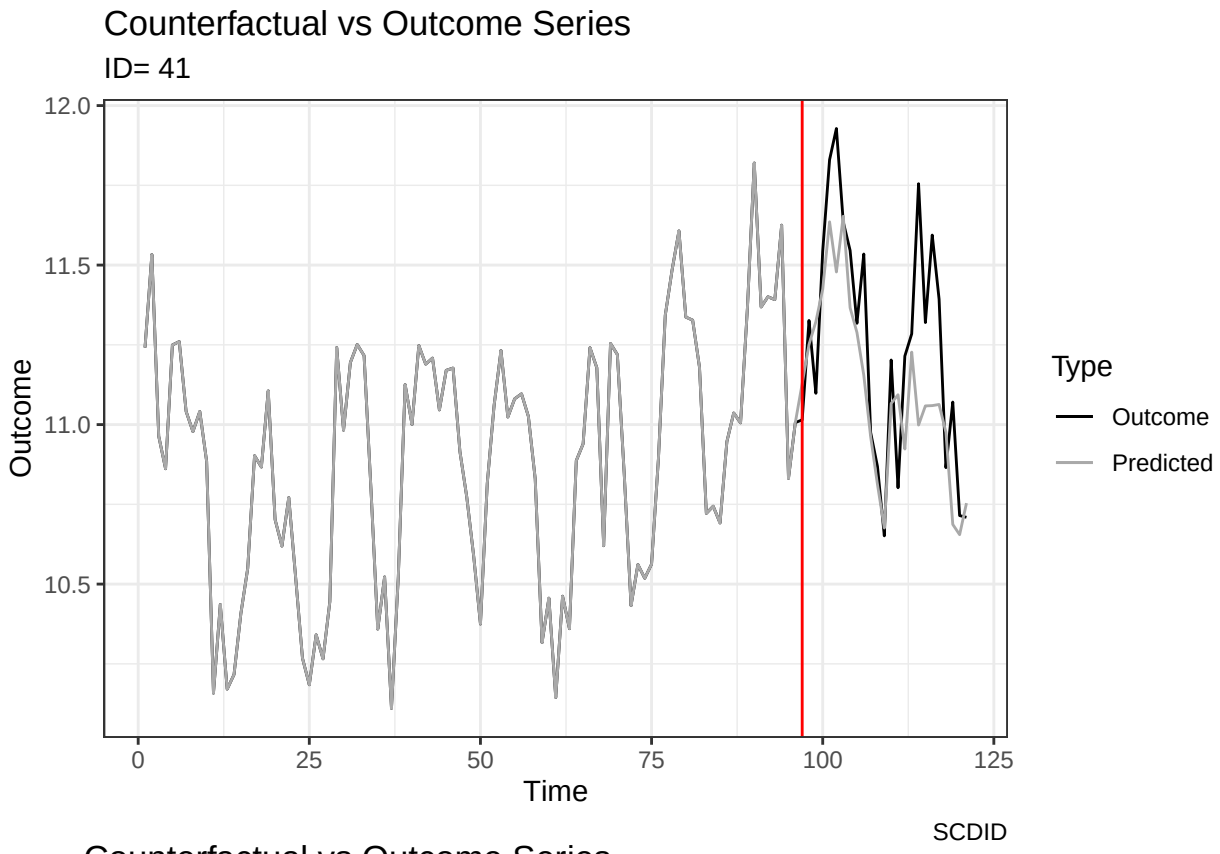
Notes:

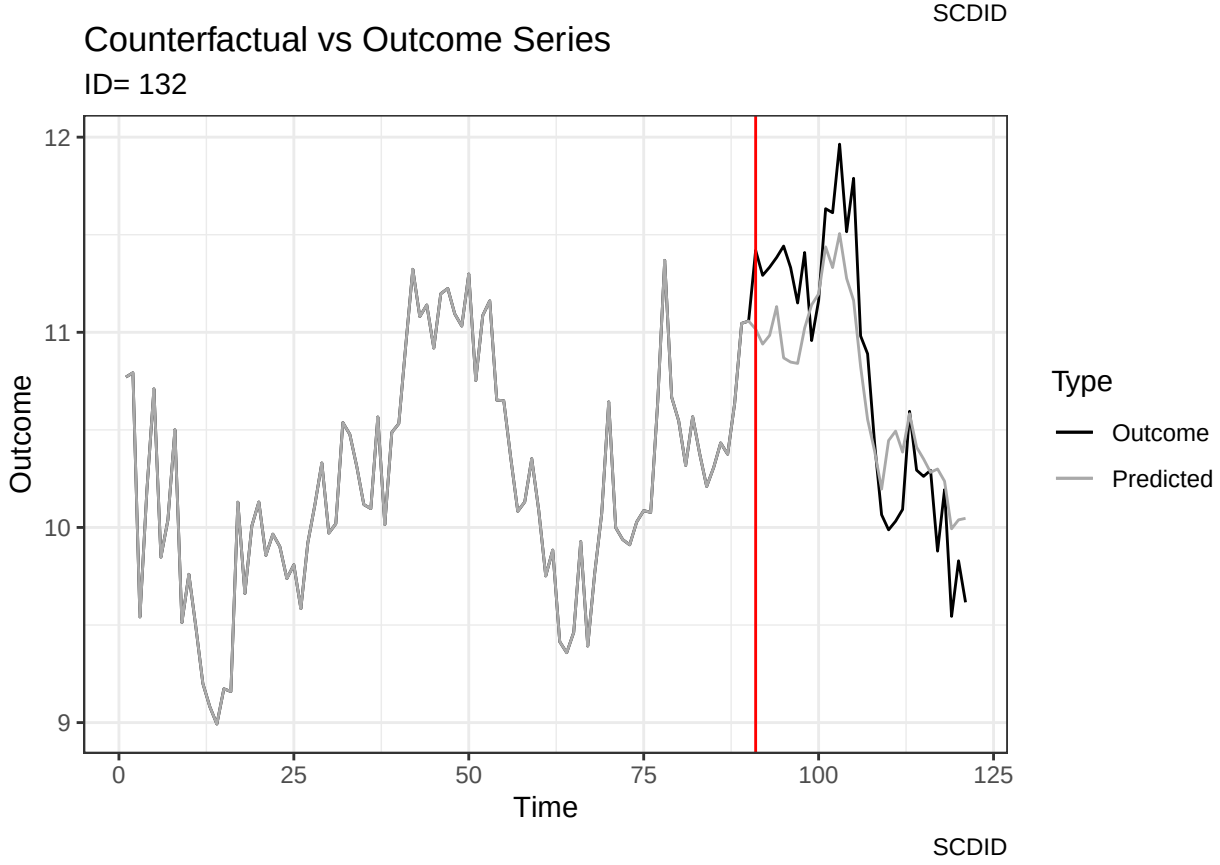


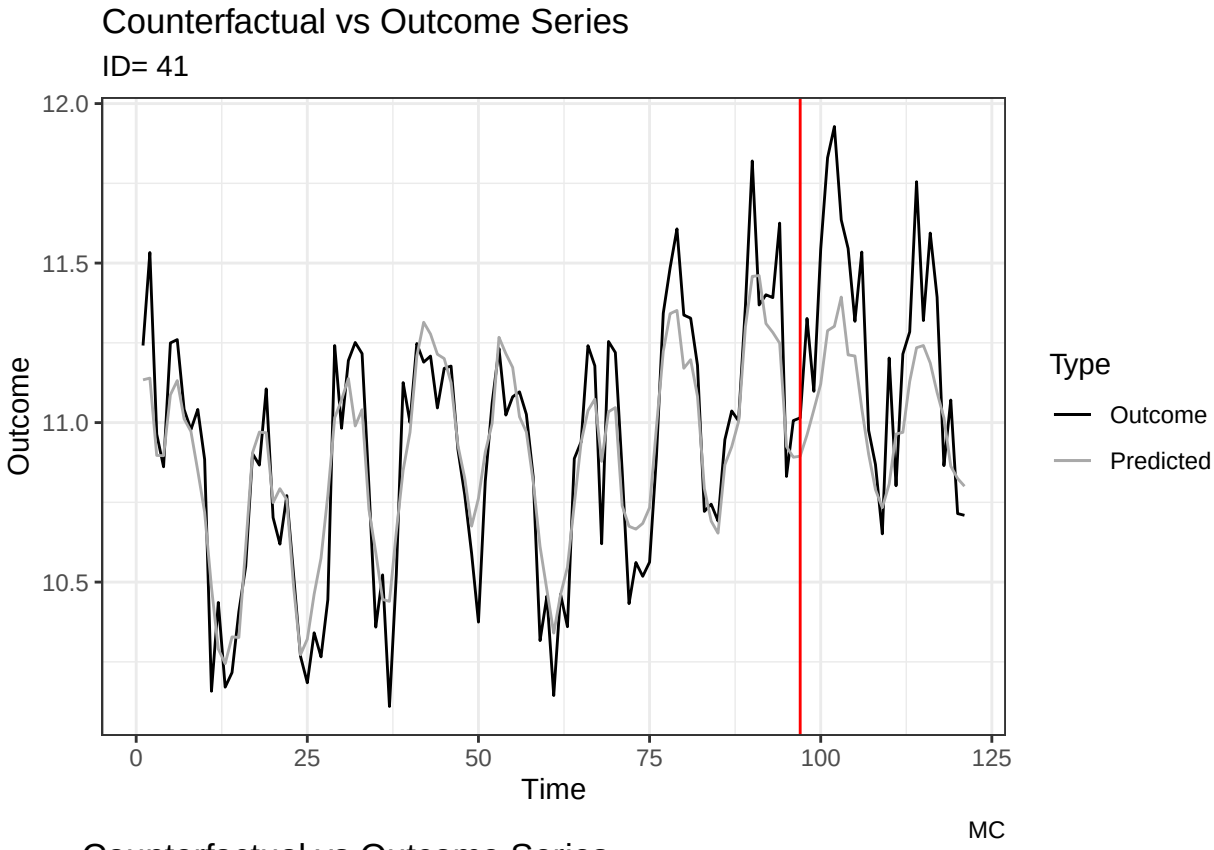
Notes:

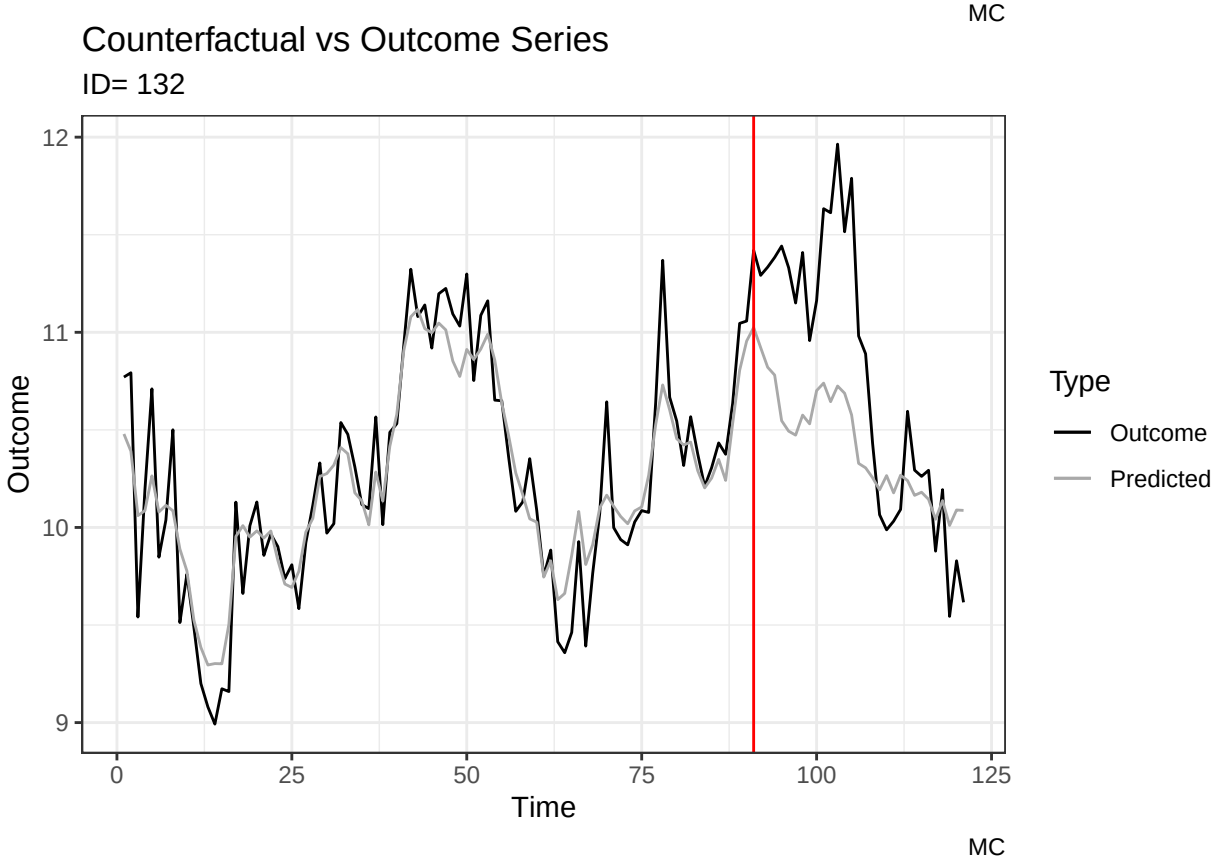

Counterfactual vs Outcome Series
ID= 41
12.0
11.5
11.0
10.5
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

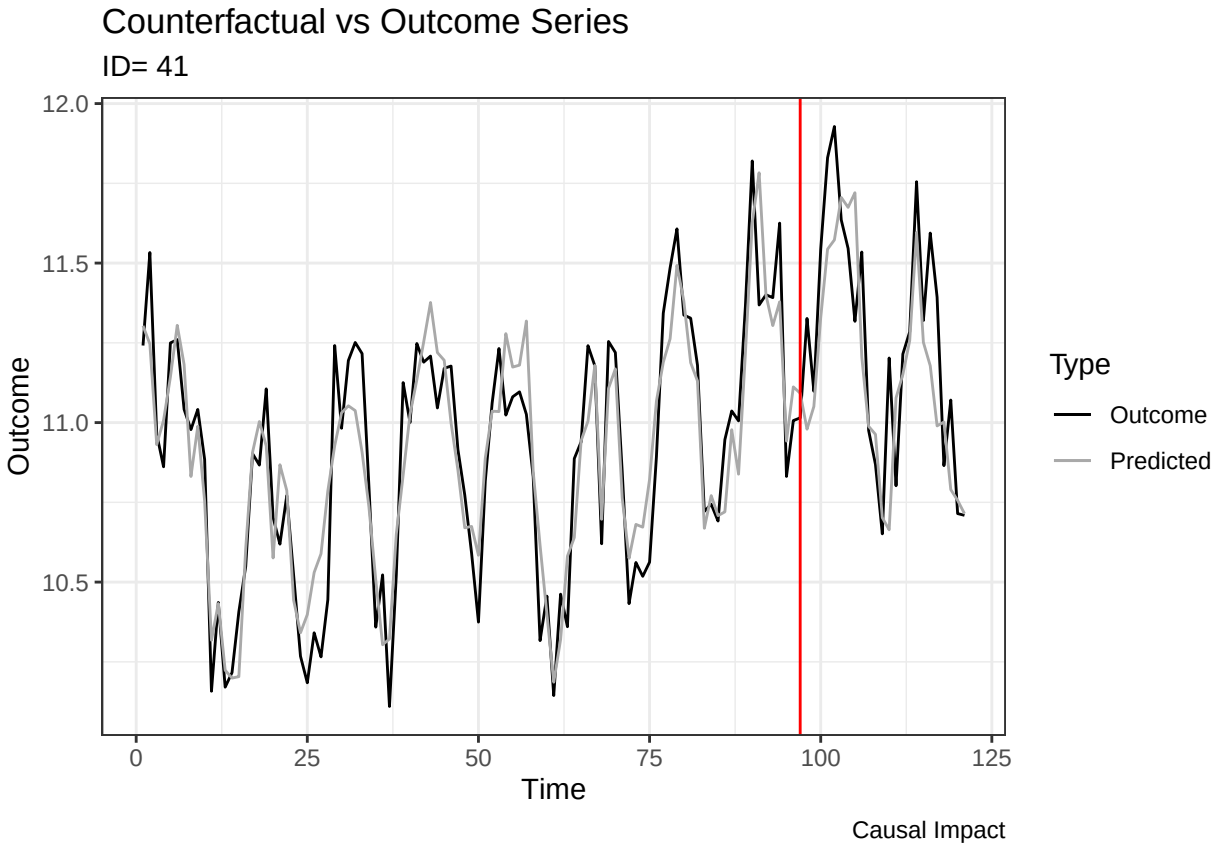

Counterfactual vs Outcome Series
ID= 132
12
11
10
9
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

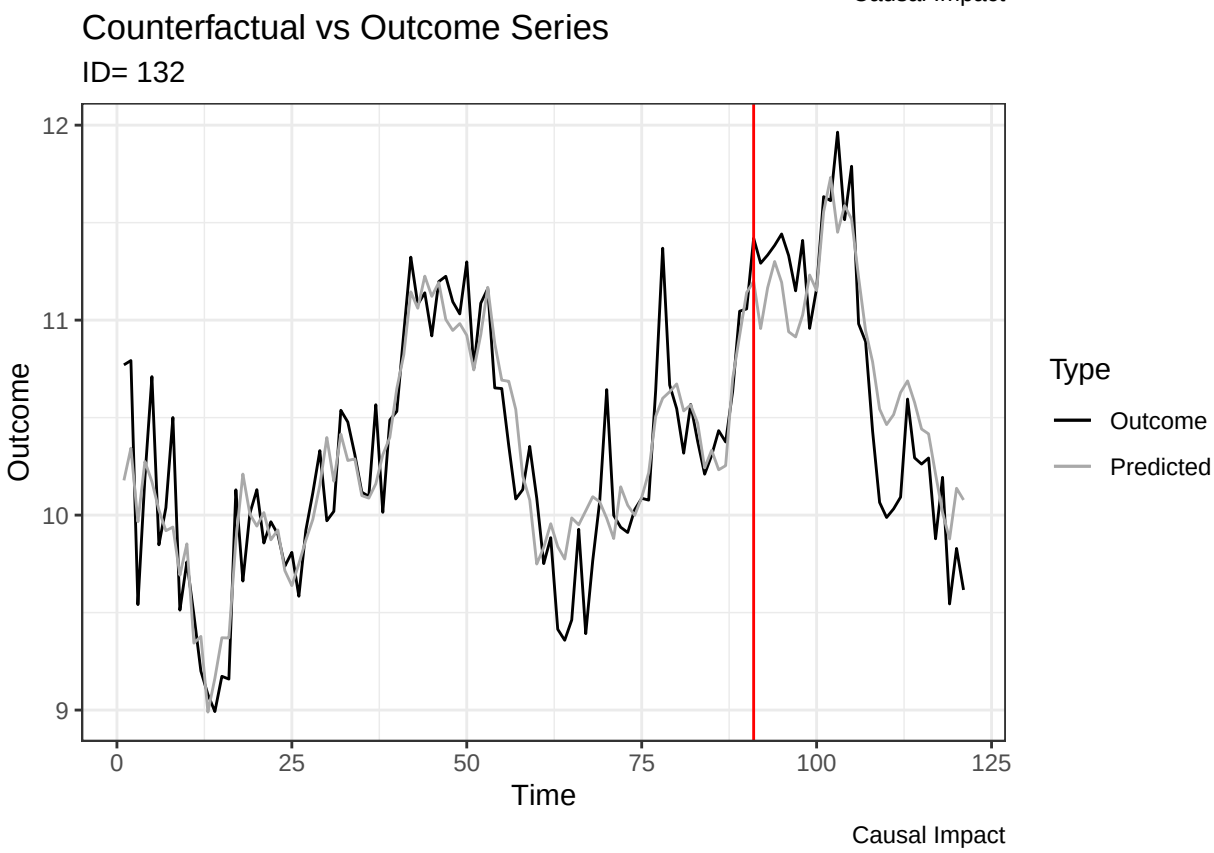

Counterfactual vs Outcome Series
ID= 41
12.0
11.5
11.0
10.5
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

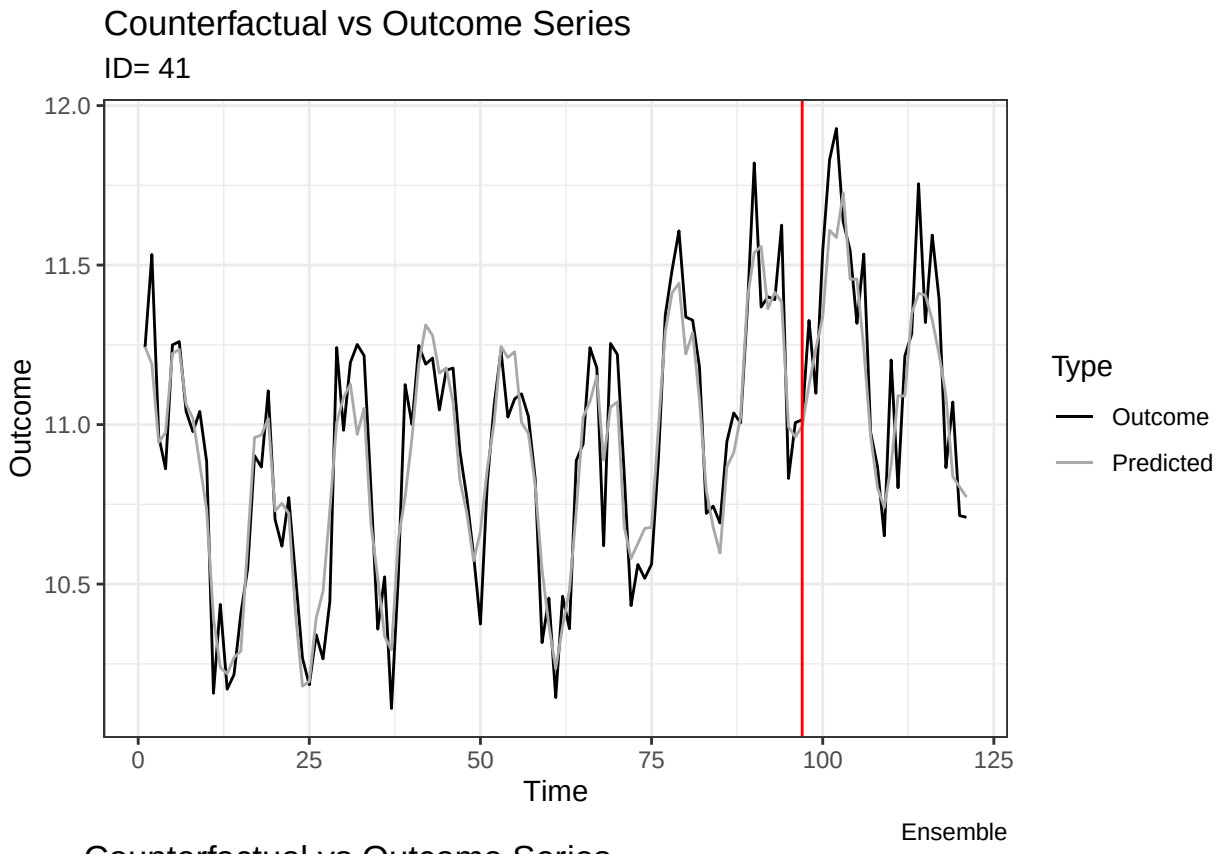

Counterfactual vs Outcome Series
ID= 132
12
11
10
9
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

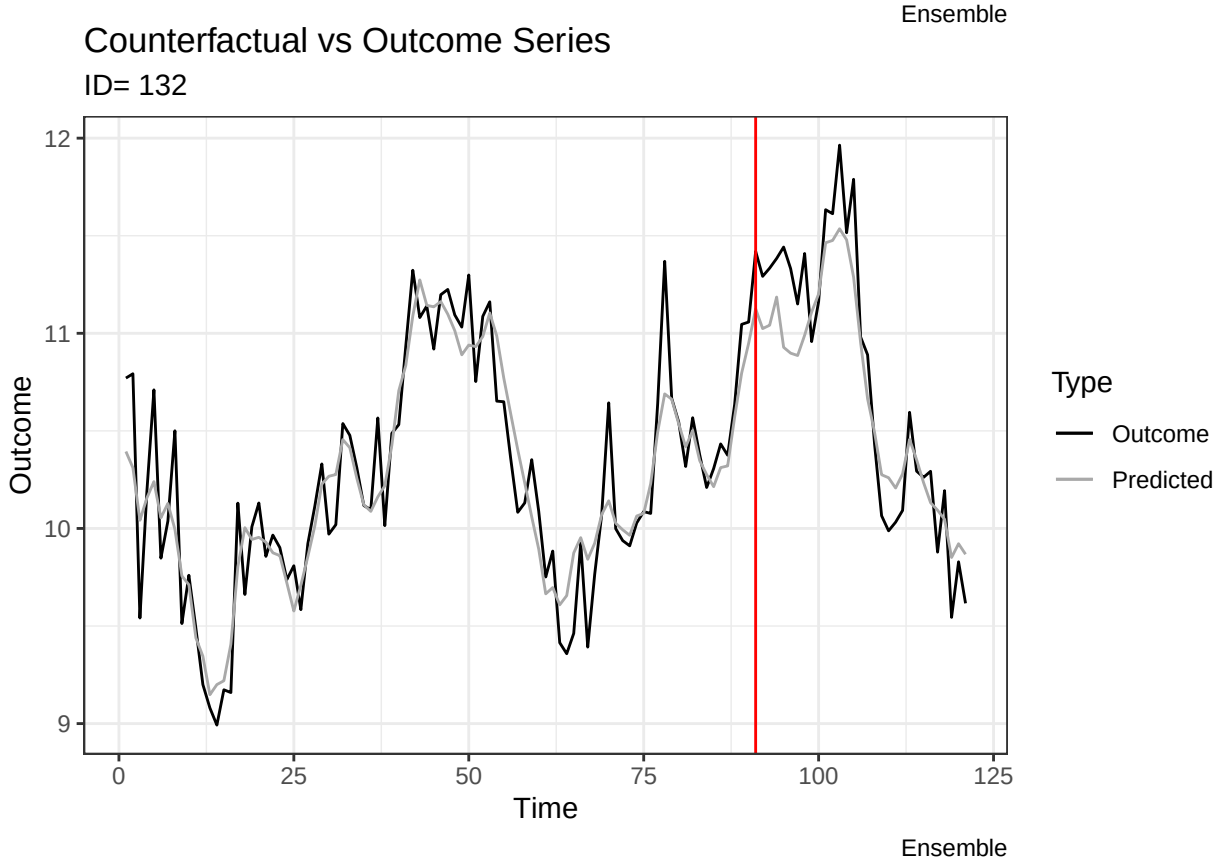

Counterfactual vs Outcome Series
ID= 41
12.0
11.5
11.0
10.5
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 132
12
11
10
9
Outcome
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

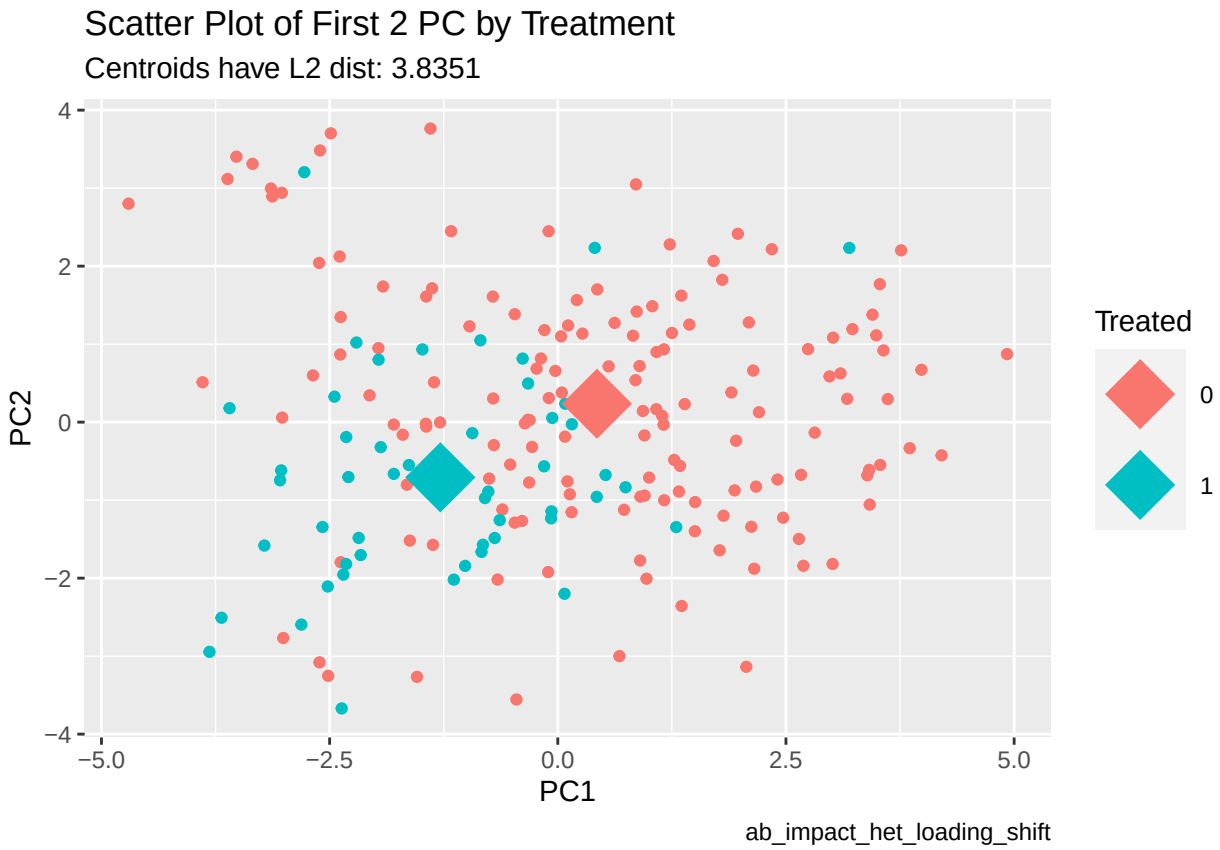

Counterfactual vs Outcome Series
ID= 41
12.0
11.5
11.0
10.5
Outcome
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 132
12
11
10
9
Outcome
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df             p        p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>         <dbl>        <dbl> <chr>
## 1 curvature    150    50      3.22  89.3 0.00179       0.00268      **
## 2 diff1_acf1   150    50     -6.20  79.5 0.0000000236  0.0000000708 ****
## 3 diff2_acf1   150    50     -2.97  88.9 0.00381       0.00429      **
## 4 e_acf1       150    50     -6.09  76.4 0.0000000422  0.0000000950 ****
## 5 entropy      150    50      3.12 126.  0.00227       0.00292      **
## 6 linearity    150    50     -1.47 141.  0.145         0.145        ns
## 7 spike        150    50      6.04 169.  0.00000000972 0.0000000437 ****
## 8 trend        150    50     -5.06 124.  0.00000145    0.00000261   ****
## 9 x_acf1       150    50     -6.30 127.  0.00000000453 0.0000000408 ****
```

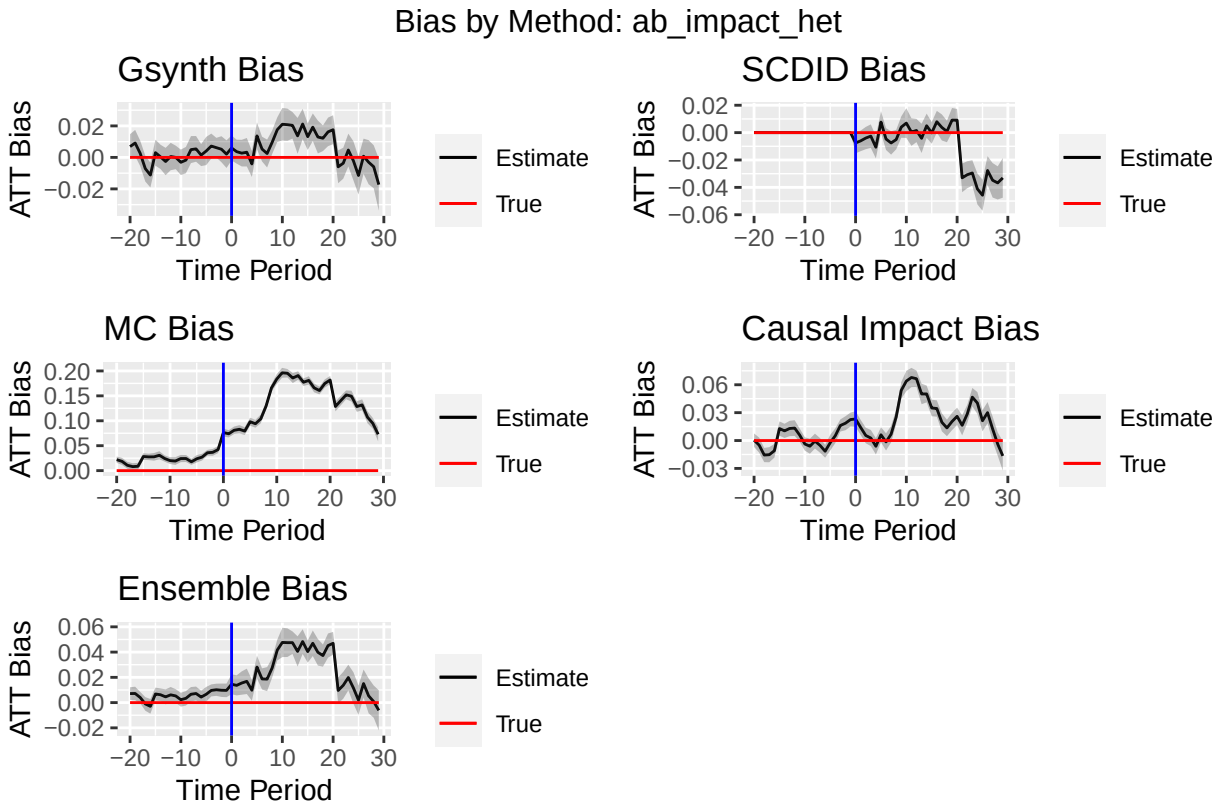
Metrics by Method

ab_impact_het_loading_shift

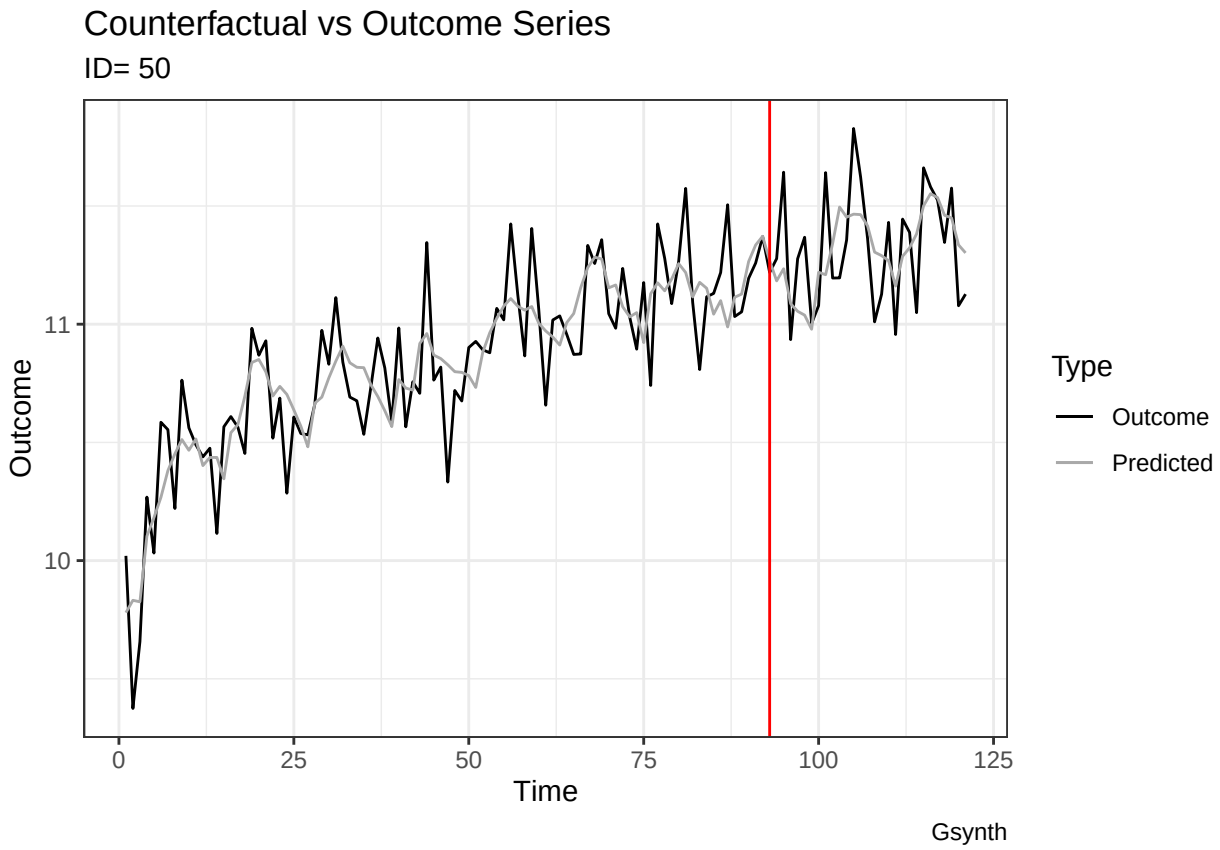
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	0.940	0.000	0.900	0.680
1	0.960	0.960	0.000	0.940	0.640
2	0.880	0.940	0.000	0.860	0.500
3	0.940	0.960	0.000	0.960	0.560
4	0.960	0.900	0.000	0.960	0.660
rmse					
0	0.223	0.227	0.306	0.245	0.226
1	0.225	0.228	0.326	0.247	0.227
2	0.229	0.236	0.361	0.250	0.234

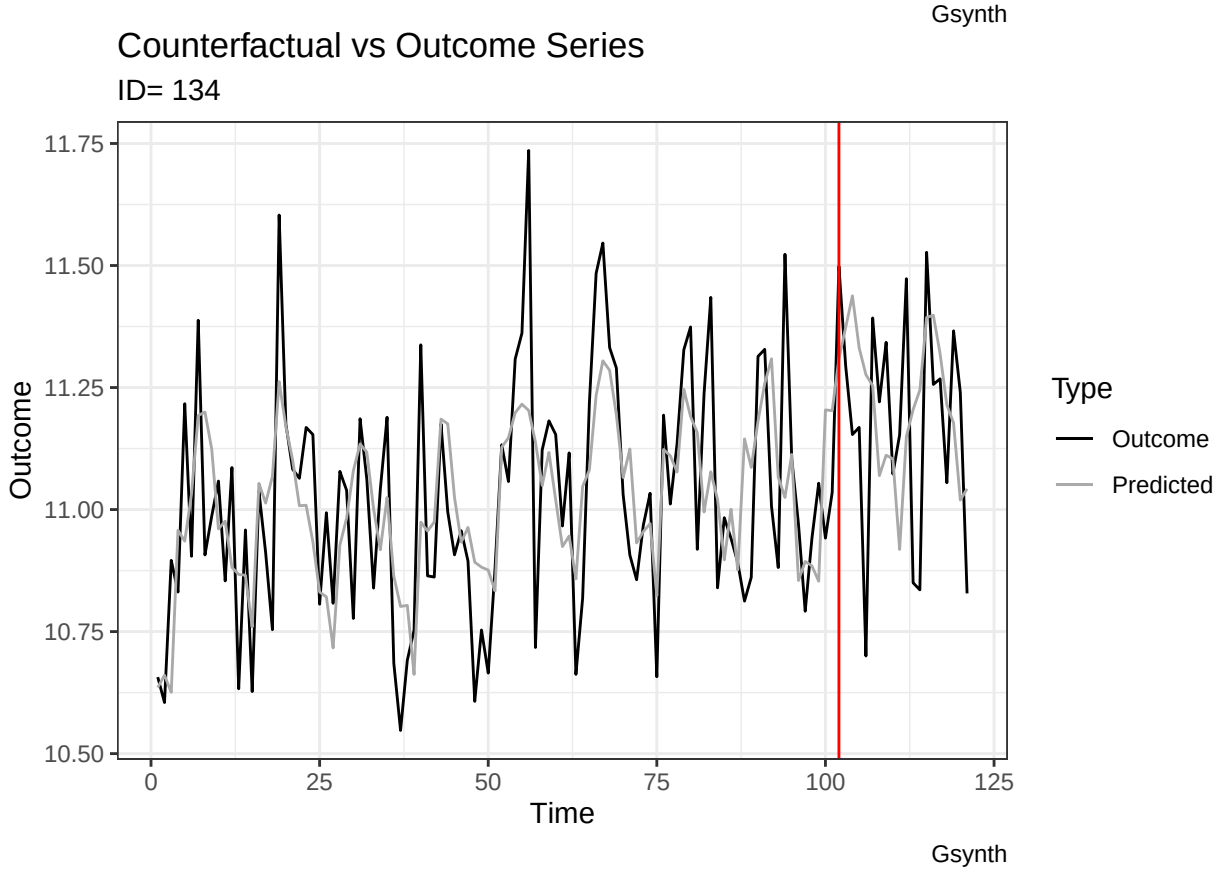
3	0.228	0.250	0.382	0.256	0.236
4	0.227	0.258	0.371	0.252	0.232
bias					
0	0.004	0.015	0.165	0.025	0.044
1	0.000	0.003	0.184	0.009	0.044
2	0.013	0.007	0.228	0.019	0.061
3	0.006	−0.009	0.229	0.005	0.054
4	−0.005	−0.035	0.206	−0.016	0.038

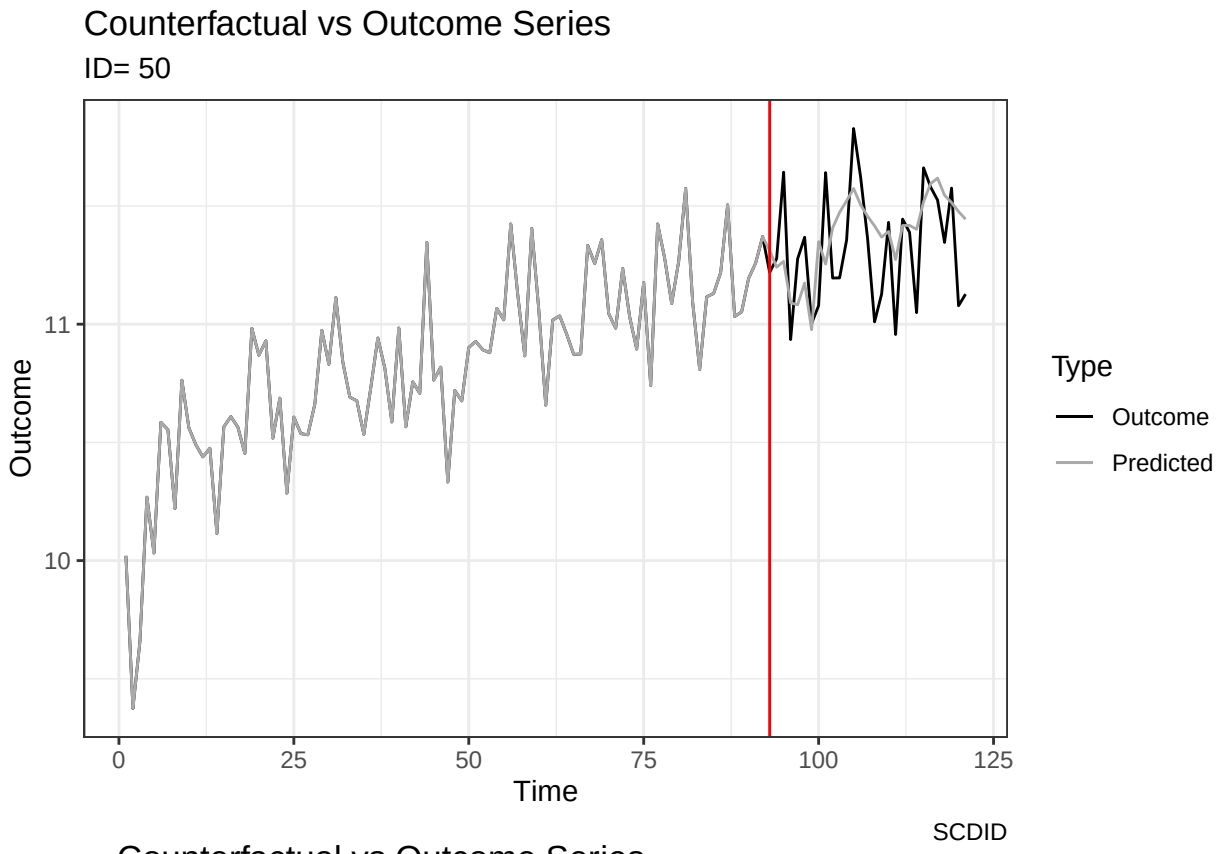
Notes:

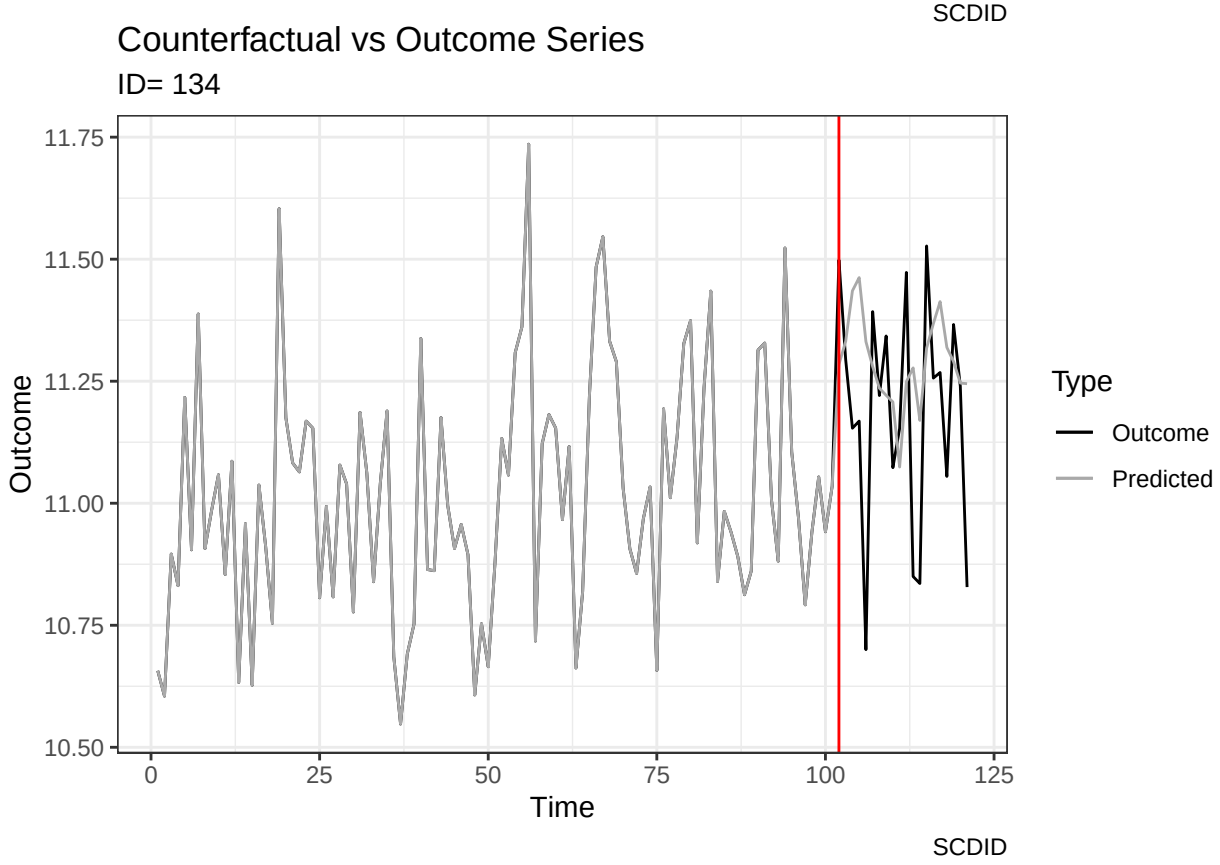


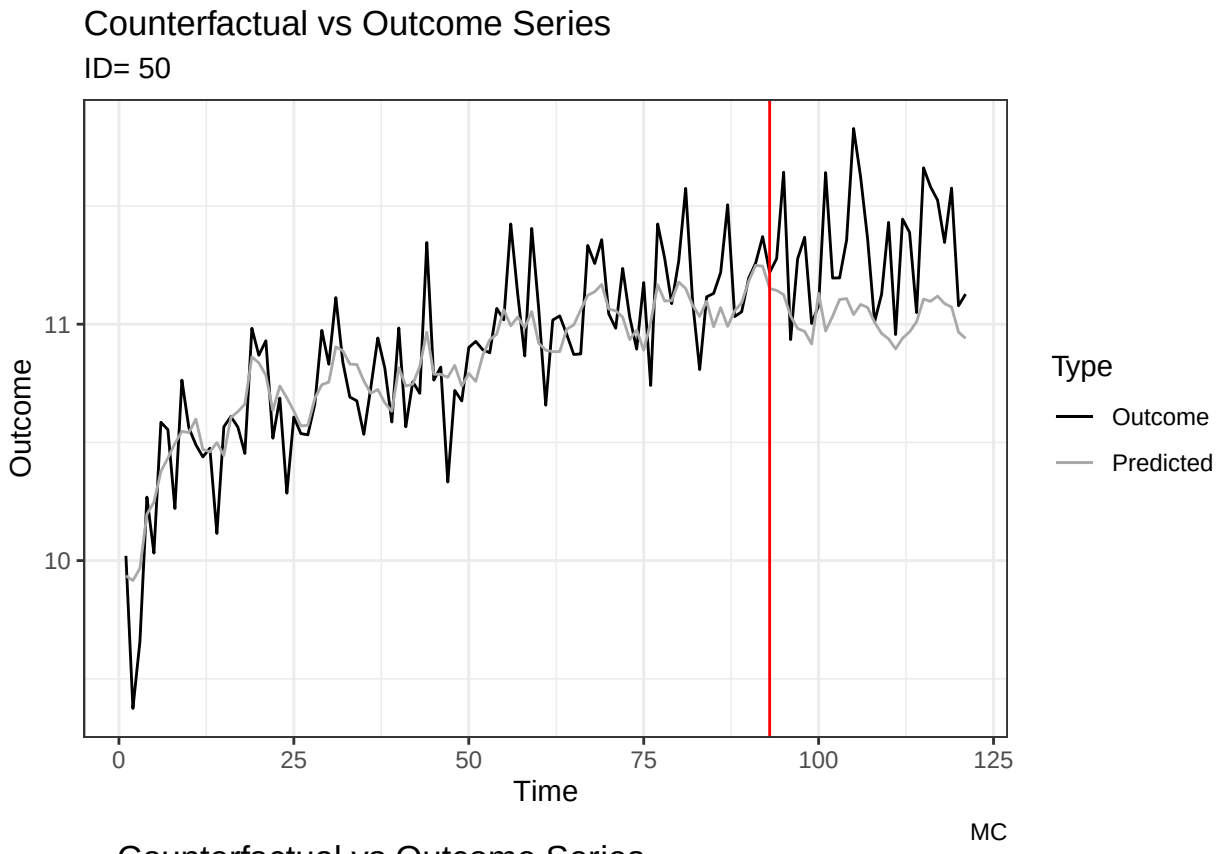
Notes:

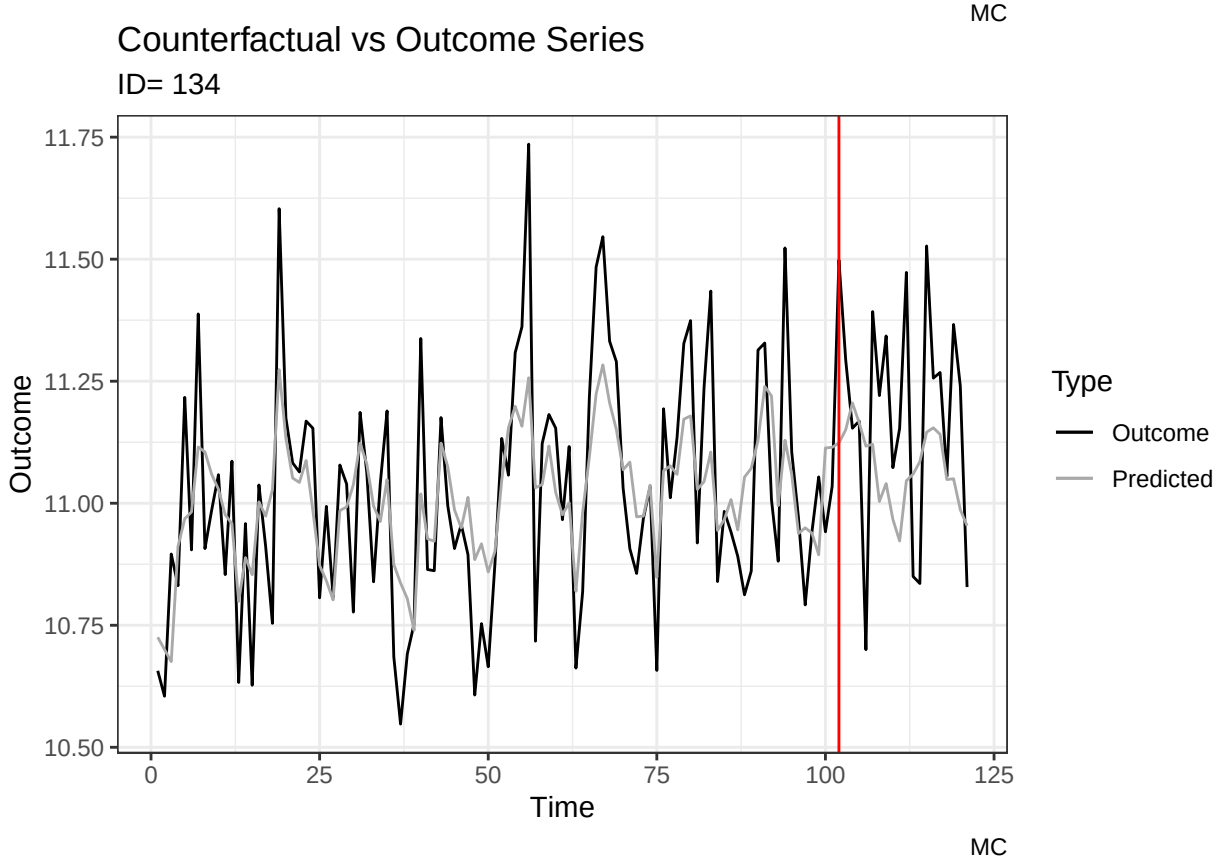

Counterfactual vs Outcome Series
ID= 50
Outcome
11
10
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

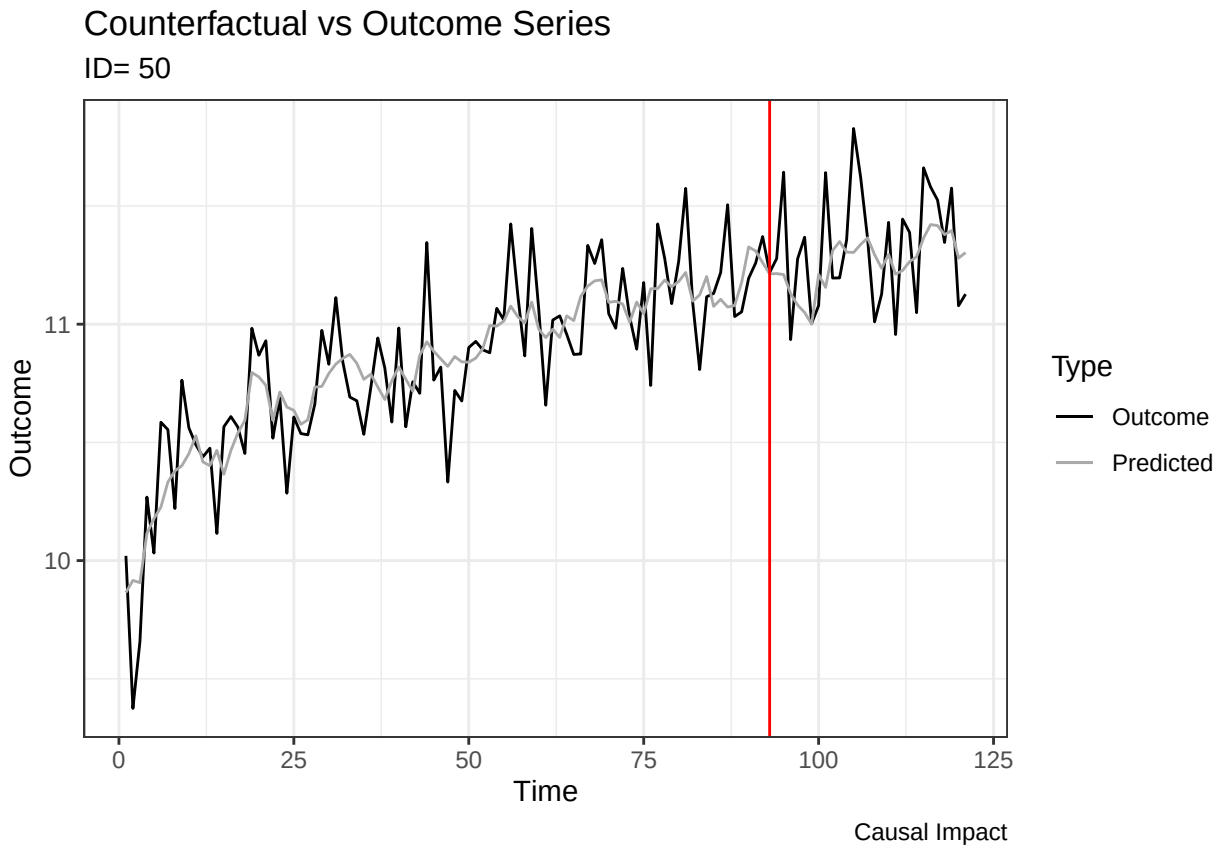

Counterfactual vs Outcome Series
ID= 134
Outcome
11.75
11.50
11.25
11.00
10.75
10.50
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

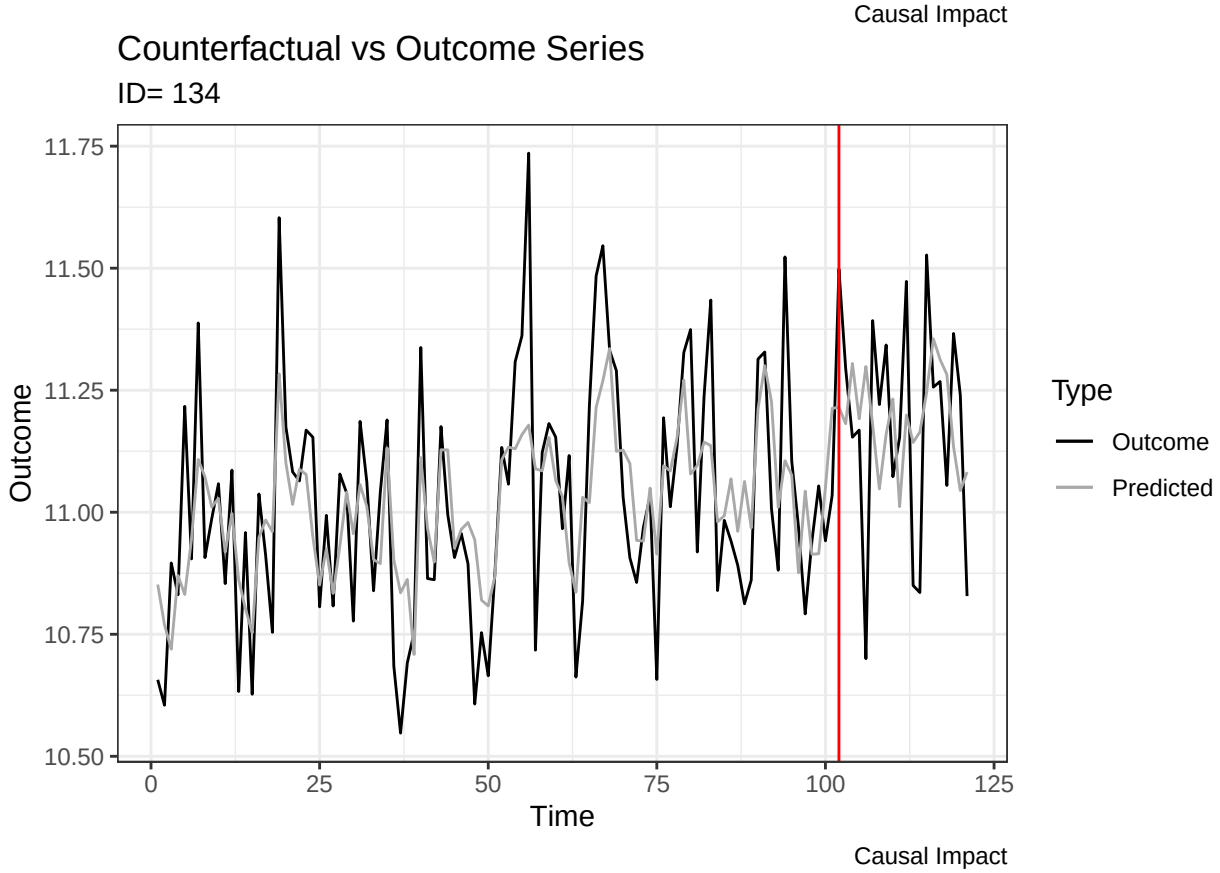

Counterfactual vs Outcome Series
ID= 50
Outcome
11
10
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

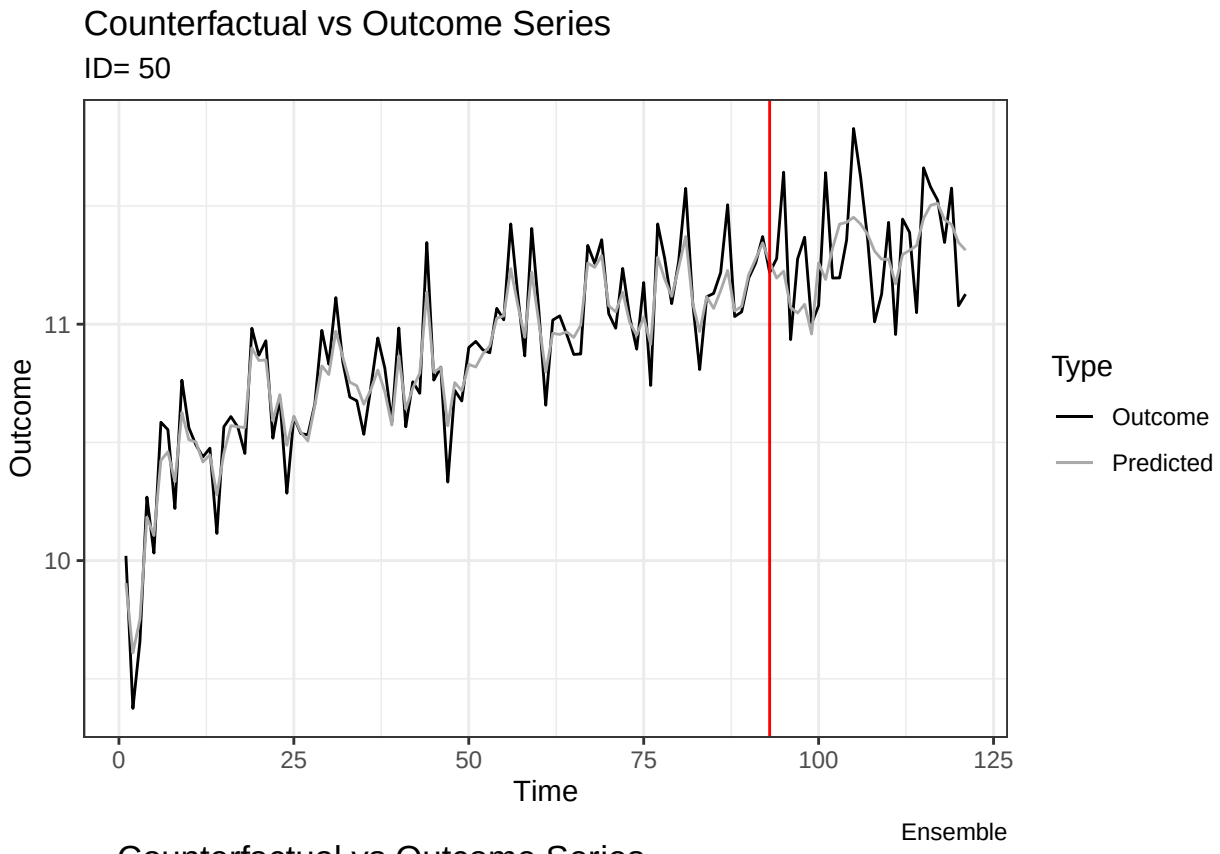

Counterfactual vs Outcome Series
ID= 134
Outcome
11.75
11.50
11.25
11.00
10.75
10.50
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

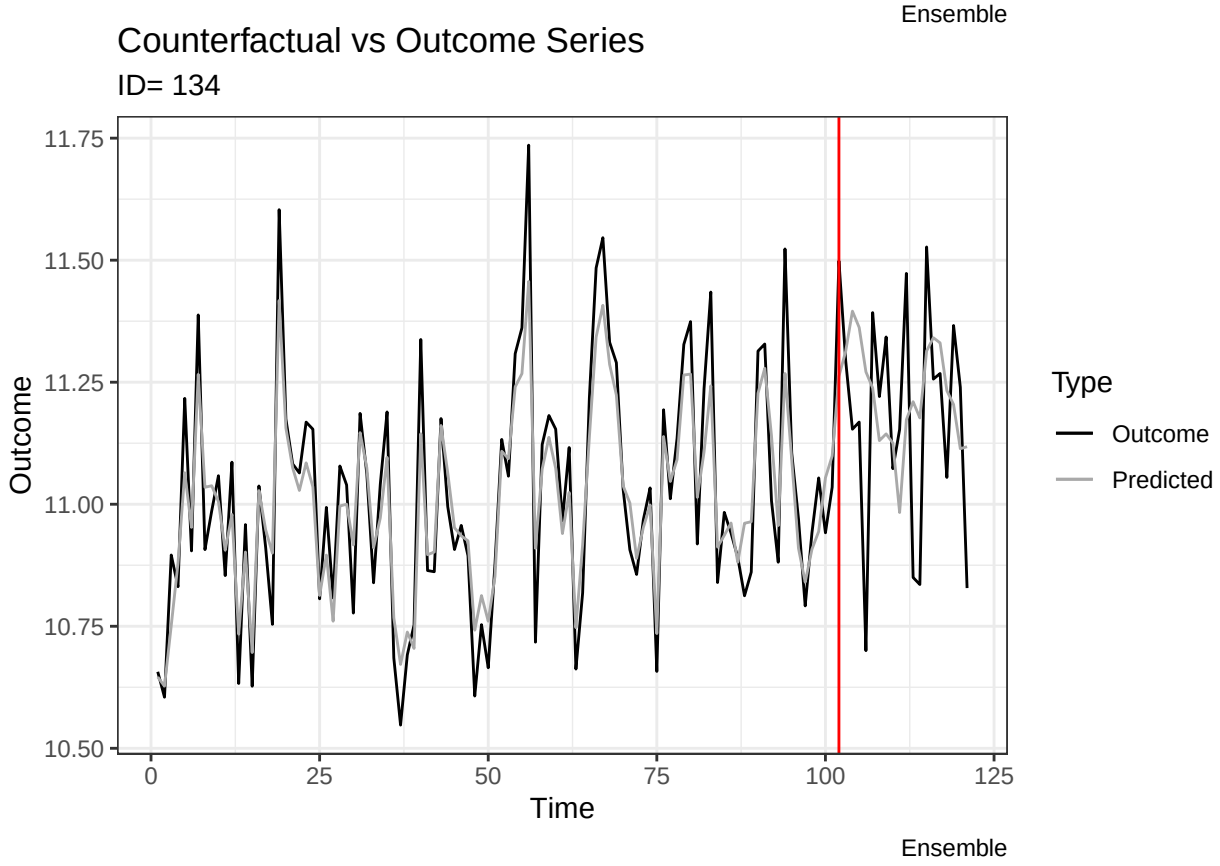

Counterfactual vs Outcome Series
ID= 50
Outcome
11
10
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 134
Outcome
11.75
11.50
11.25
11.00
10.75
10.50
0
25
50
75
100
125
Time
MC
Type
Outcome
Predicted

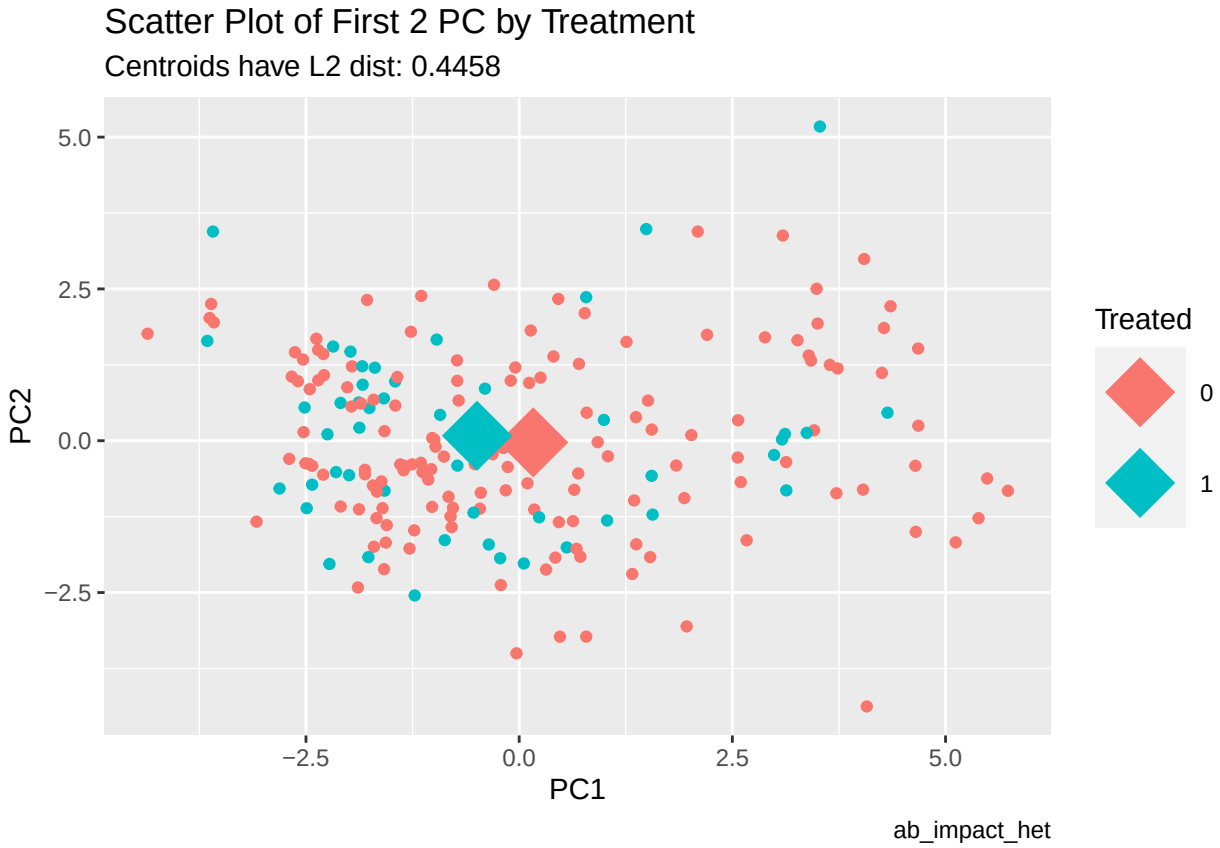

Counterfactual vs Outcome Series
ID= 50
Outcome
11
10
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 134
Outcome
11.75
11.50
11.25
11.00
10.75
10.50
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df       p p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>   <dbl> <dbl> <chr>
## 1 curvature    150    50    -1.08   79.9 0.283  0.319 ns
## 2 diff1_acf1   150    50     1.27   87.9 0.206  0.319 ns
## 3 diff2_acf1   150    50     0.136  77.4 0.892  0.892 ns
## 4 e_acf1       150    50     2.00   84.1 0.0489 0.190 ns
## 5 entropy      150    50    -1.18   93.6 0.24   0.319 ns
## 6 linearity    150    50     1.75   90.0 0.0843 0.190 ns
## 7 spike        150    50    -1.08   92.1 0.284  0.319 ns
## 8 trend        150    50     1.80   92.8 0.0747 0.190 ns
## 9 x_acf1       150    50     2.02   89.9 0.0459 0.190 ns
```

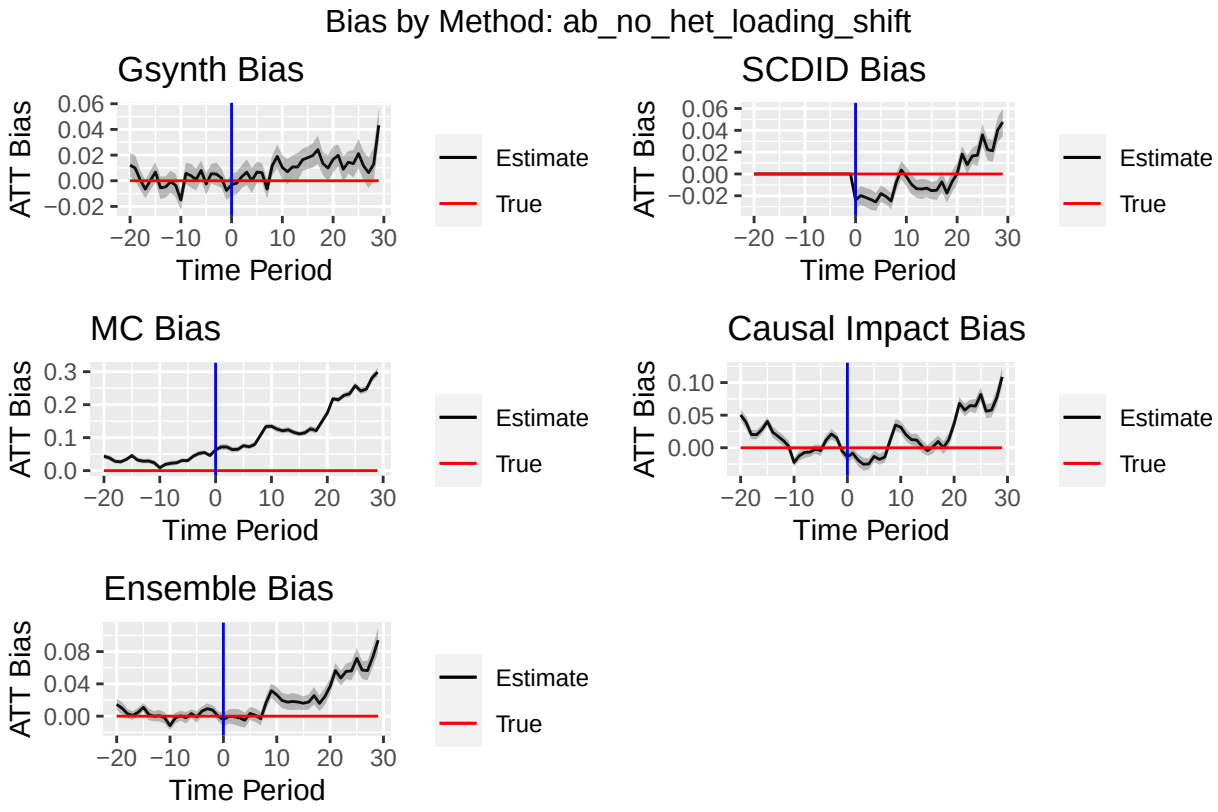
Metrics by Method

ab_impact_het

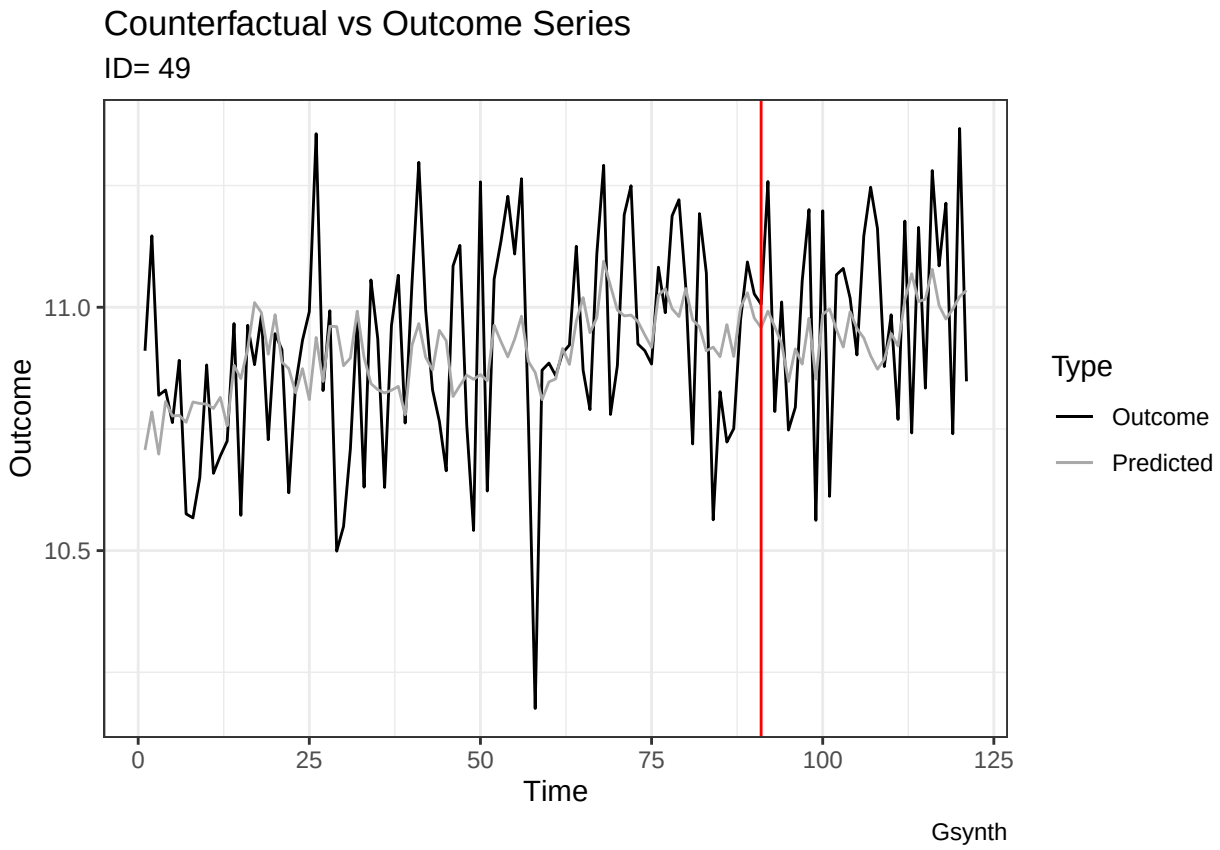
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	1.000	0.820	0.920	0.960
1	0.980	1.000	0.840	0.980	0.980
2	0.920	0.960	0.860	0.960	0.940
3	0.940	1.000	0.820	0.940	0.940
4	0.980	0.960	0.880	0.960	0.980
rmse					
0	0.224	0.245	0.360	0.237	0.249
1	0.219	0.238	0.371	0.228	0.246
2	0.223	0.239	0.393	0.232	0.251

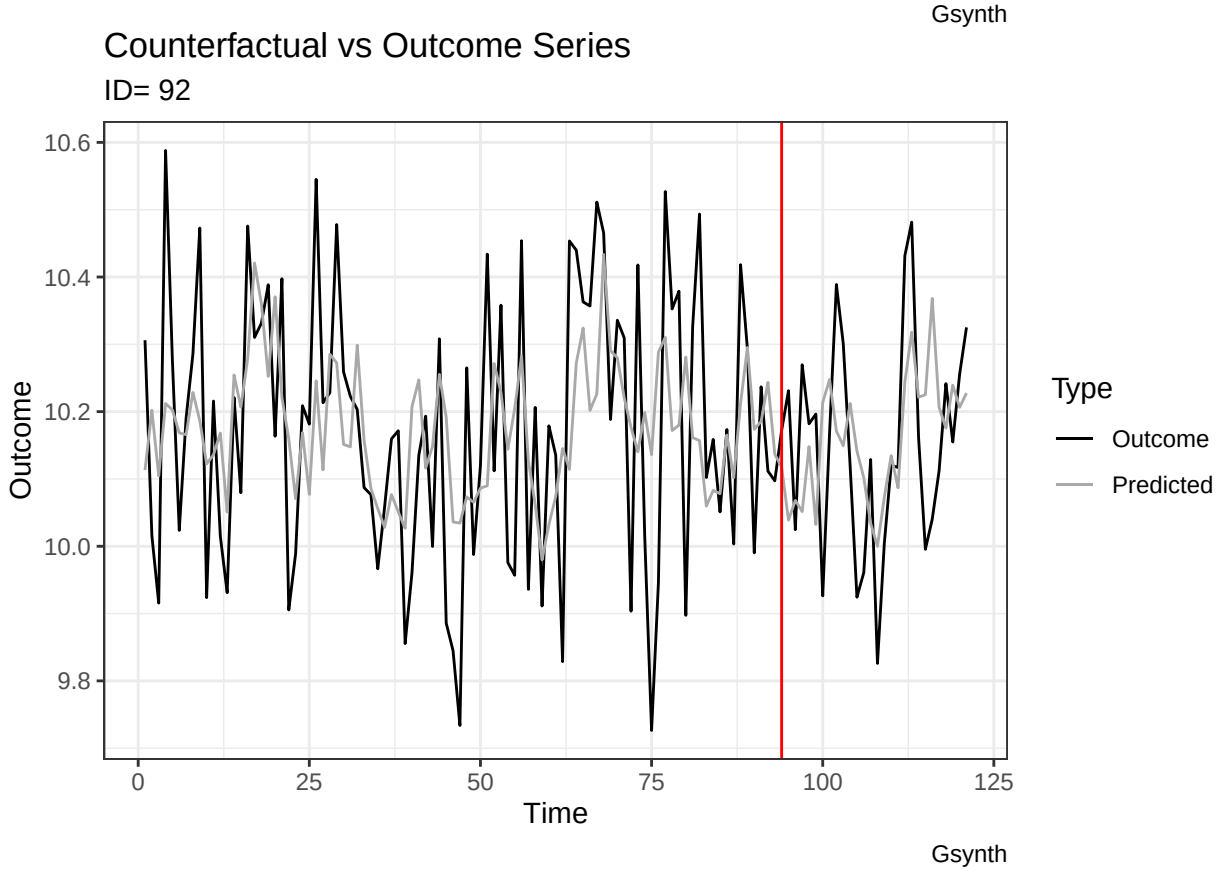
3	0.218	0.236	0.402	0.230	0.249
4	0.220	0.242	0.408	0.237	0.253
bias					
0	0.006	−0.008	0.076	0.023	0.015
1	0.004	−0.006	0.074	0.014	0.014
2	0.003	−0.004	0.081	0.005	0.015
3	0.003	−0.003	0.083	0.003	0.017
4	−0.004	−0.011	0.079	−0.006	0.010

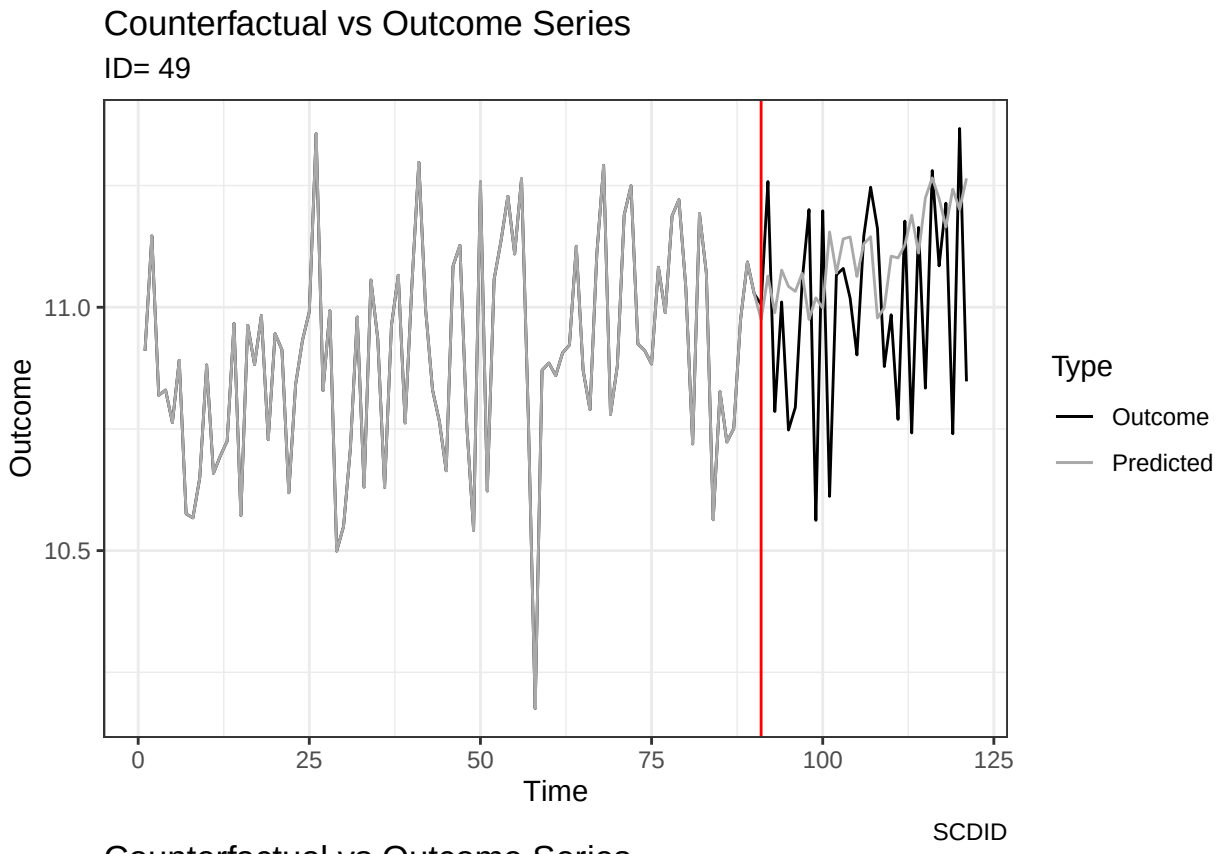
Notes:

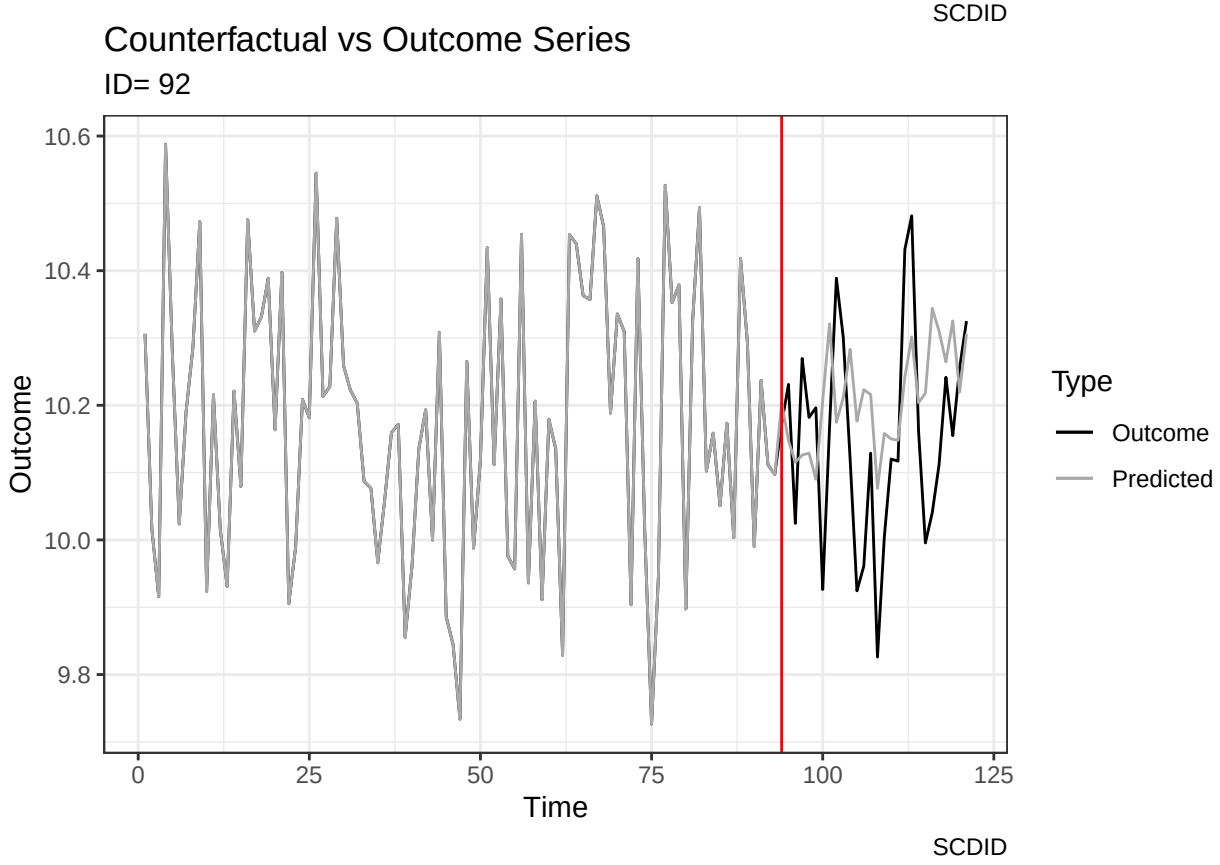


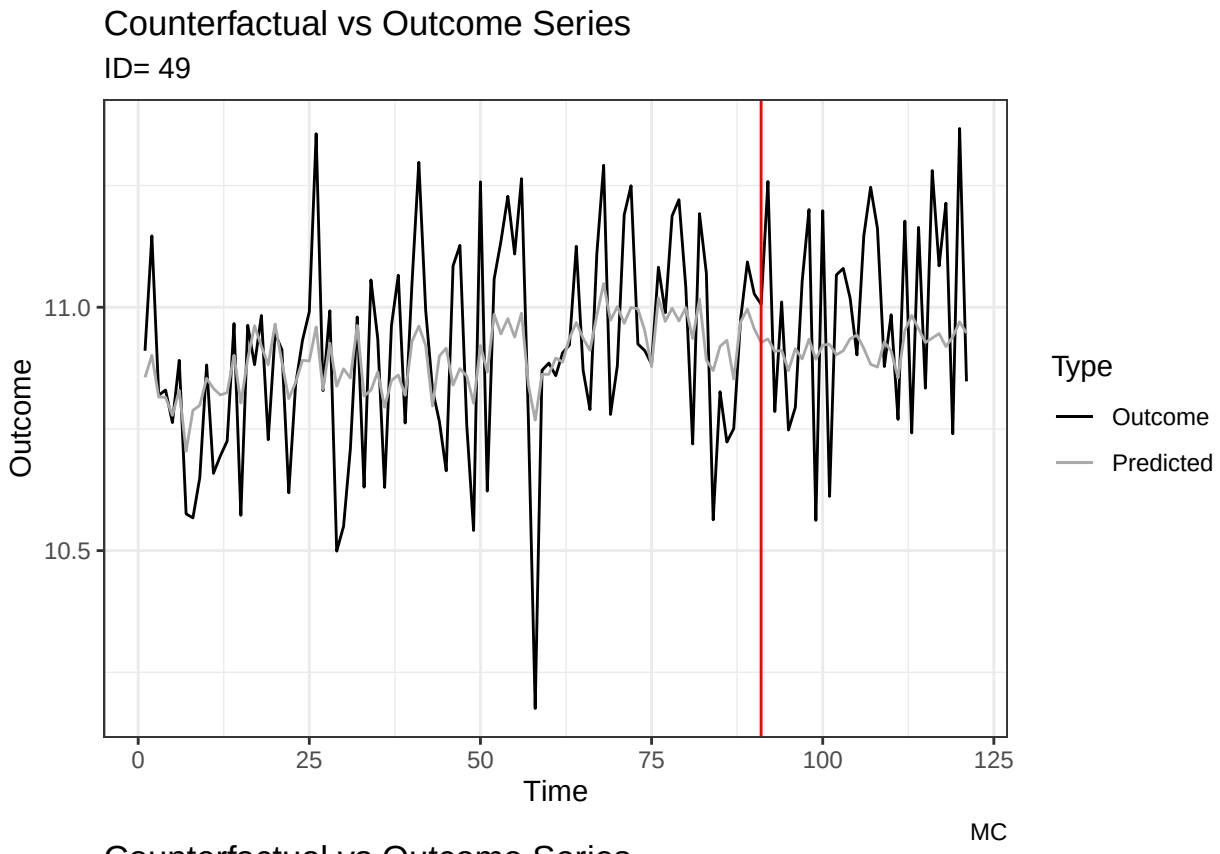
Notes:

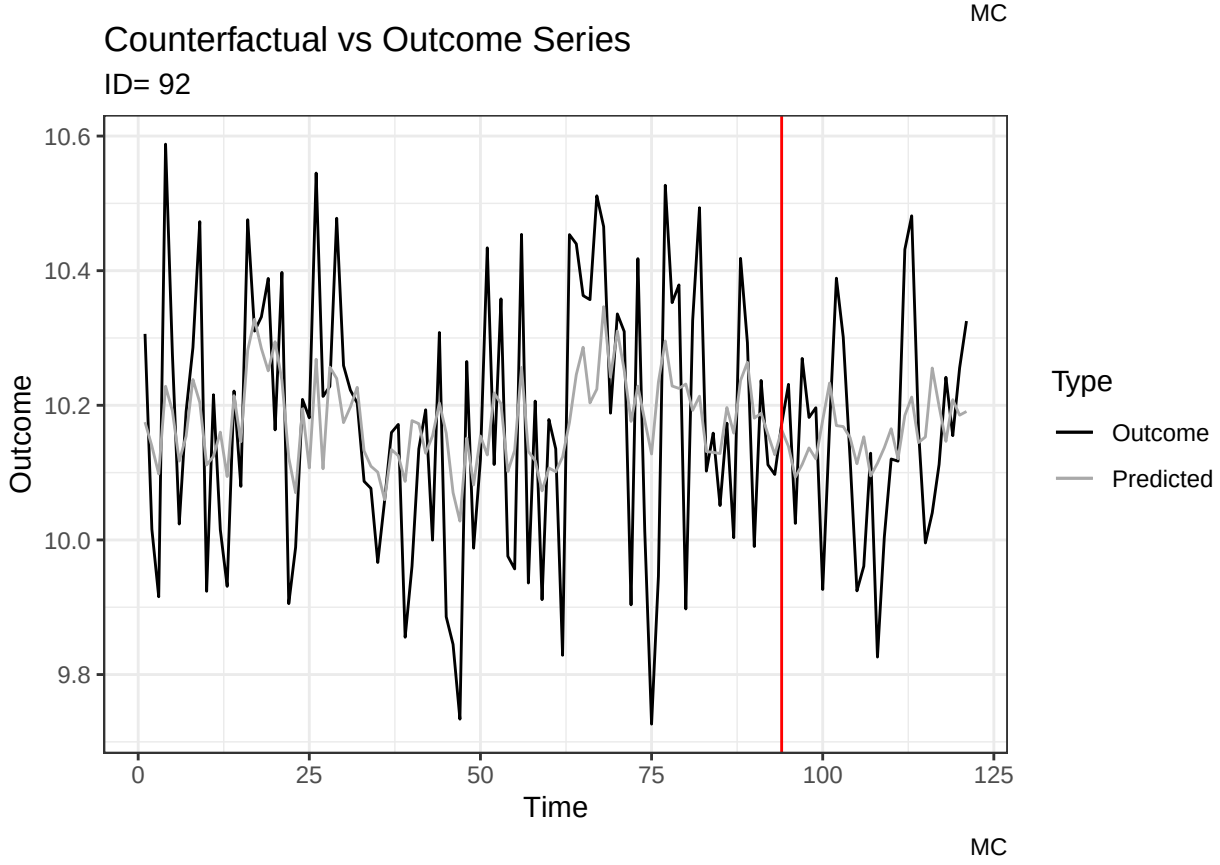

Counterfactual vs Outcome Series
ID= 49
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

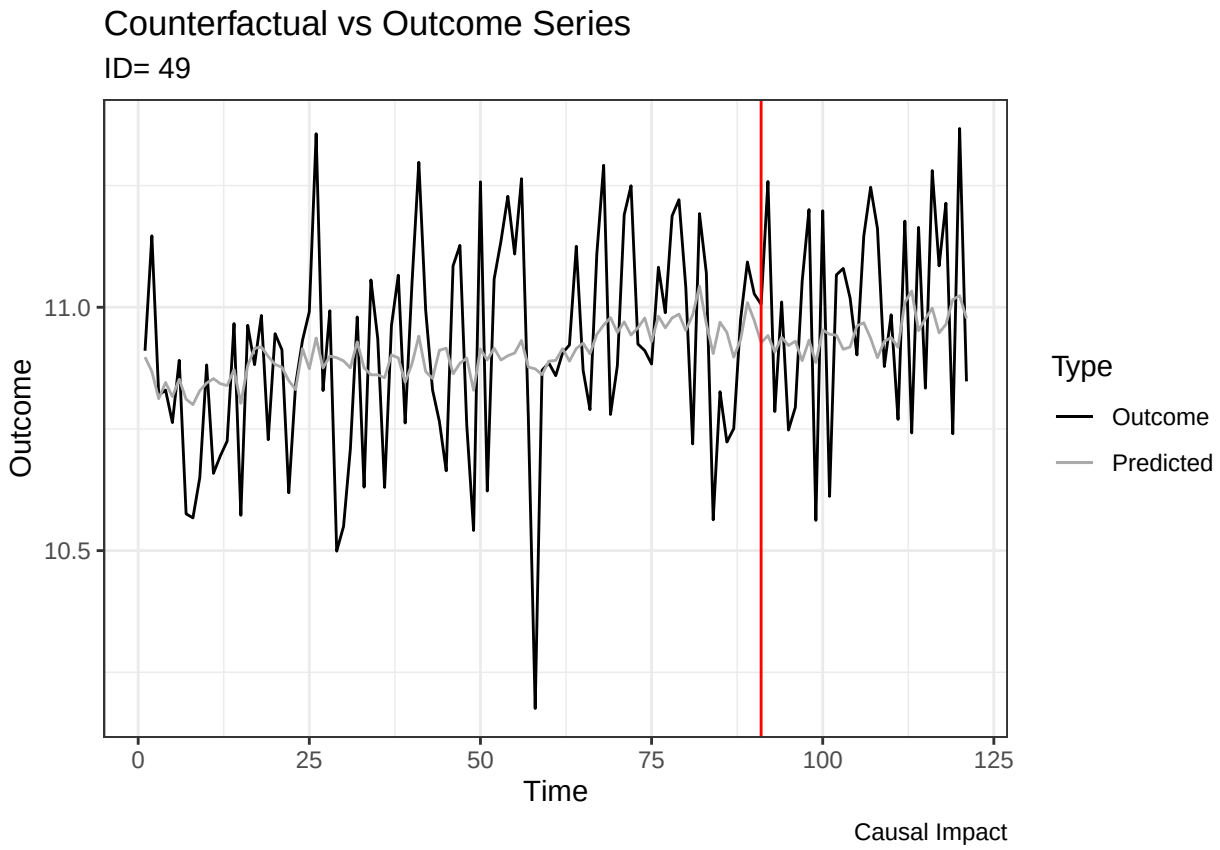

Counterfactual vs Outcome Series
ID= 92
Outcome
10.6
10.4
10.2
10.0
9.8
0
25
50
75
100
125
Time
Type
Outcome
Predicted
Gsynth

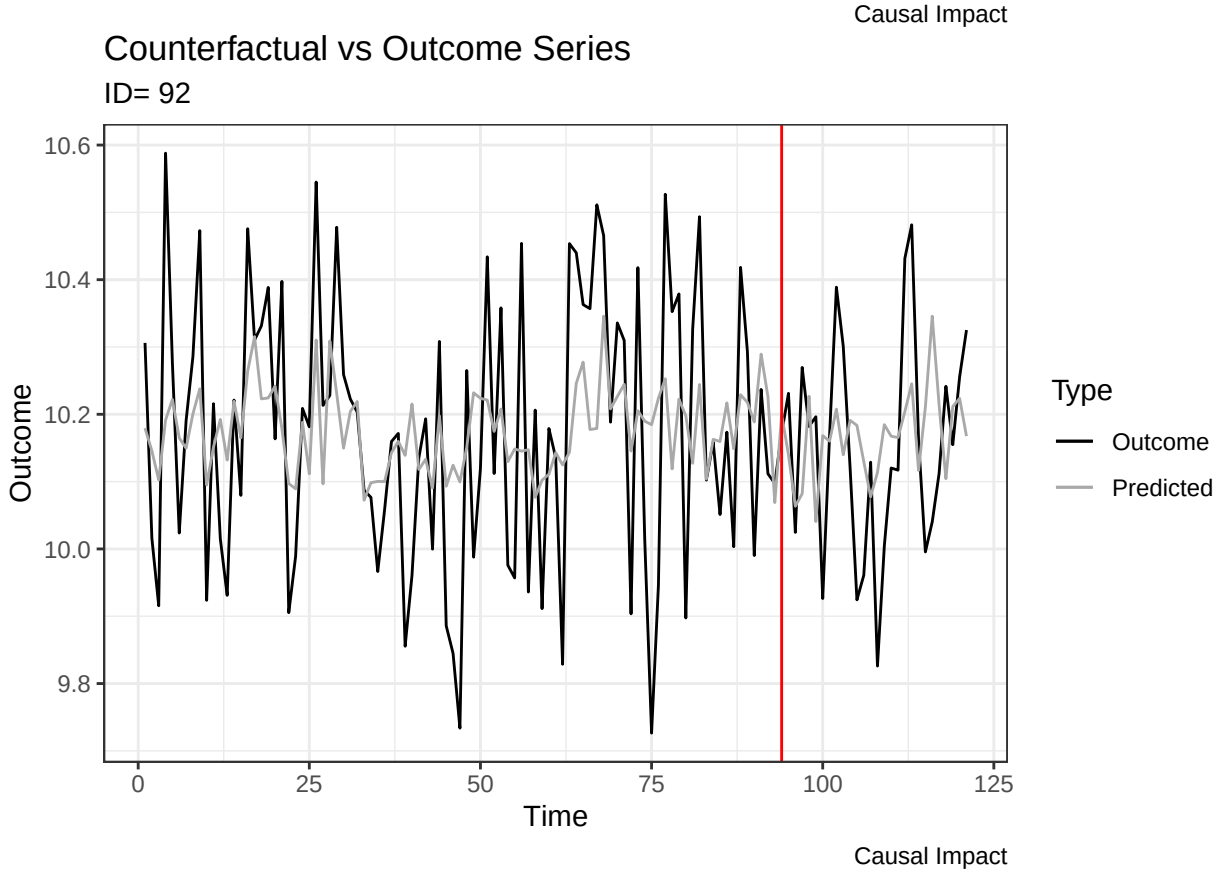

Counterfactual vs Outcome Series
ID= 49
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

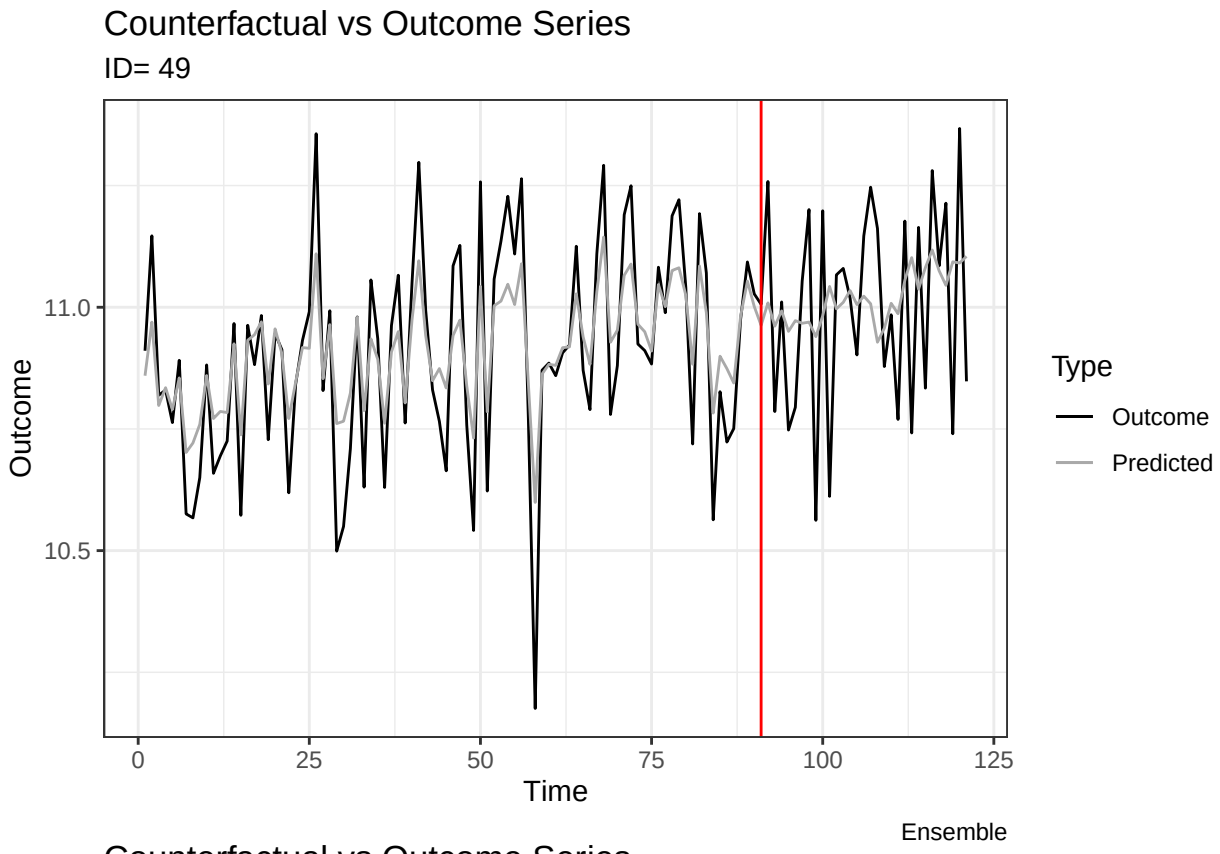

Counterfactual vs Outcome Series
ID= 92
Outcome
10.6
10.4
10.2
10.0
9.8
0
25
50
75
100
125
Time
Type
Outcome
Predicted
SCDID

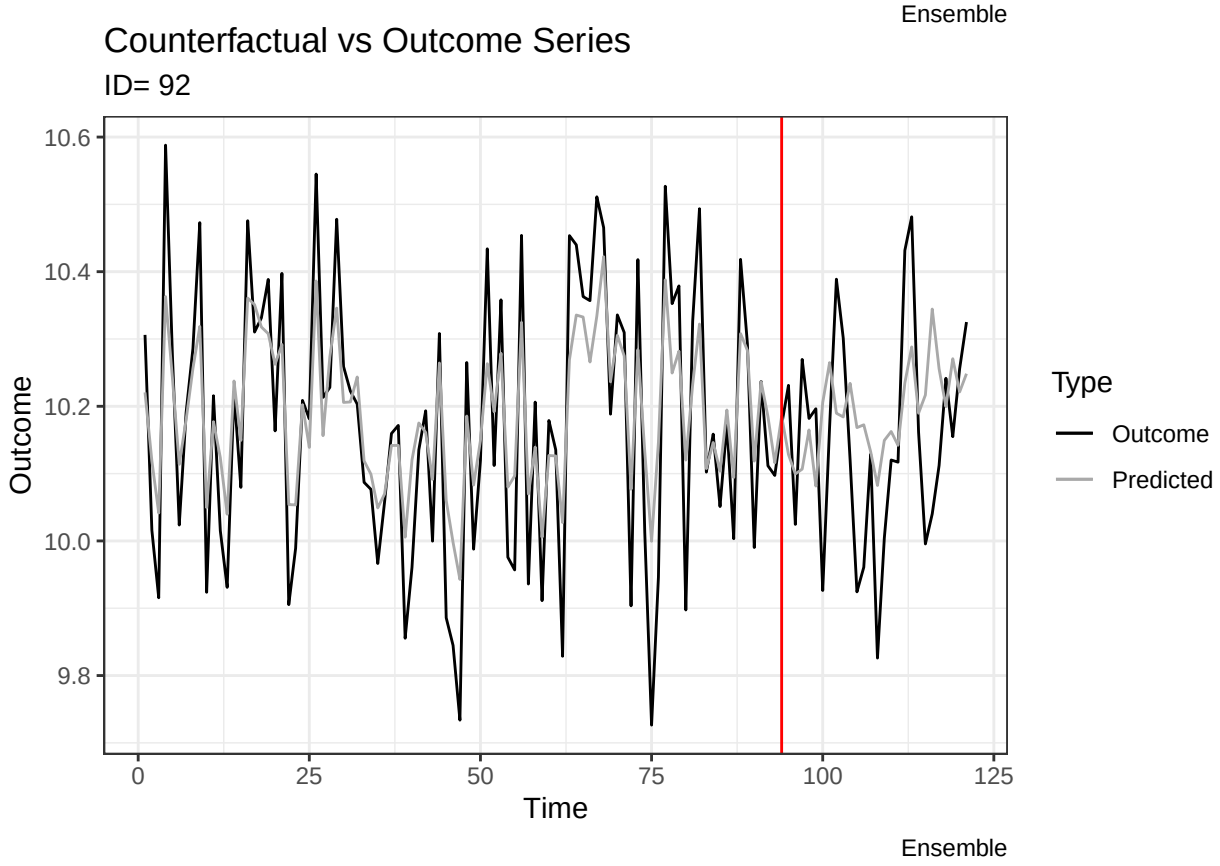

Counterfactual vs Outcome Series
ID= 49
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 92
Outcome
10.6
10.4
10.2
10.0
9.8
0
25
50
75
100
125
Time
Type
Outcome
Predicted
MC

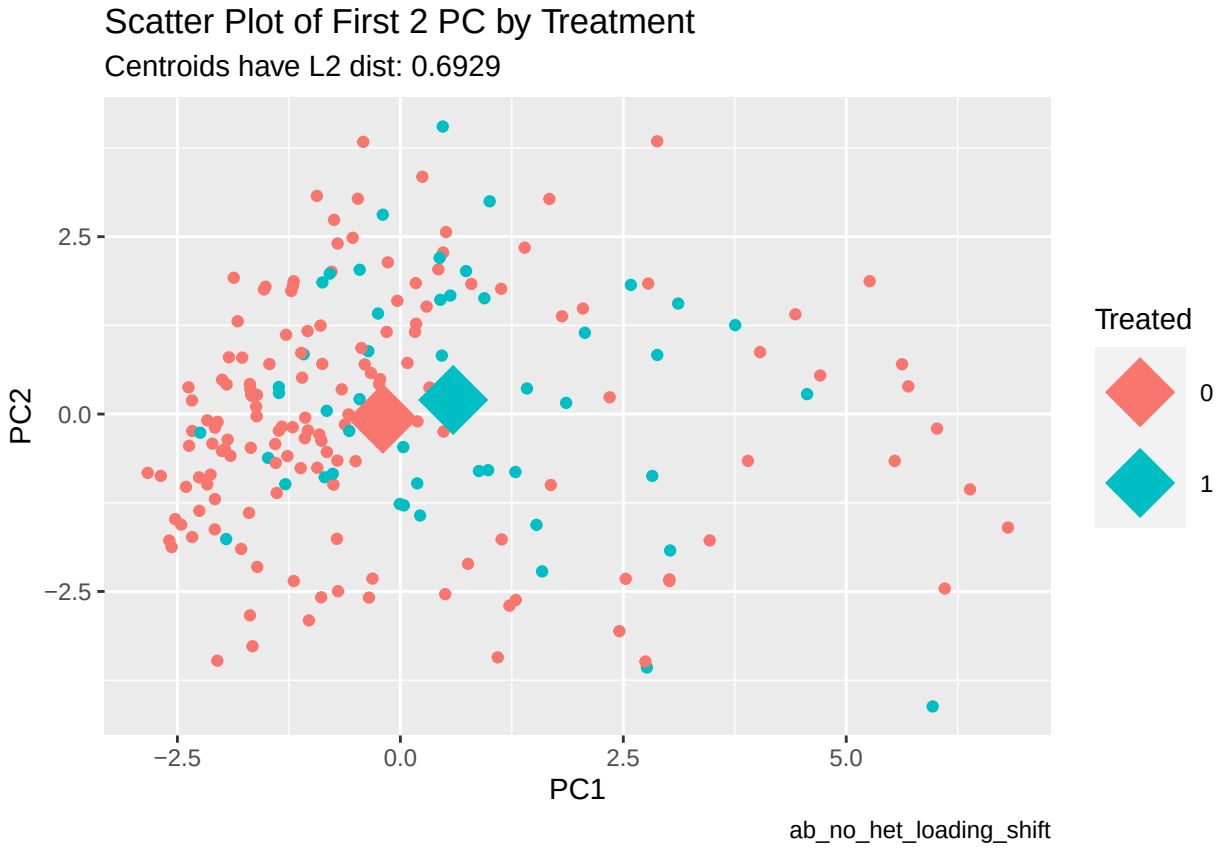

Counterfactual vs Outcome Series
ID= 49
Outcome
11.0
10.5
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted


Counterfactual vs Outcome Series
ID= 92
Outcome
10.6
10.4
10.2
10.0
9.8
0
25
50
75
100
125
Time
Causal Impact
Type
Outcome
Predicted






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df        p  p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>    <dbl>  <dbl> <chr>
## 1 curvature    150    50 -0.0596    88.0 0.953    1      ns
## 2 diff1_acf1   150    50 -1.36      85.3 0.177    0.265  ns
## 3 diff2_acf1   150    50  0.164     88.1 0.87     1      ns
## 4 e_acf1       150    50 -2.52      86.4 0.0134   0.0315 *
## 5 entropy      150    50  0.000263 107.  1        1      ns
## 6 linearity    150    50 -2.29     101.  0.0242   0.0436 *
## 7 spike        150    50  3.10      97.4 0.00255  0.0115 *
## 8 trend        150    50 -2.51      91.5 0.014    0.0315 *
## 9 x_acf1       150    50 -3.24     102.  0.00162  0.0115 *
```

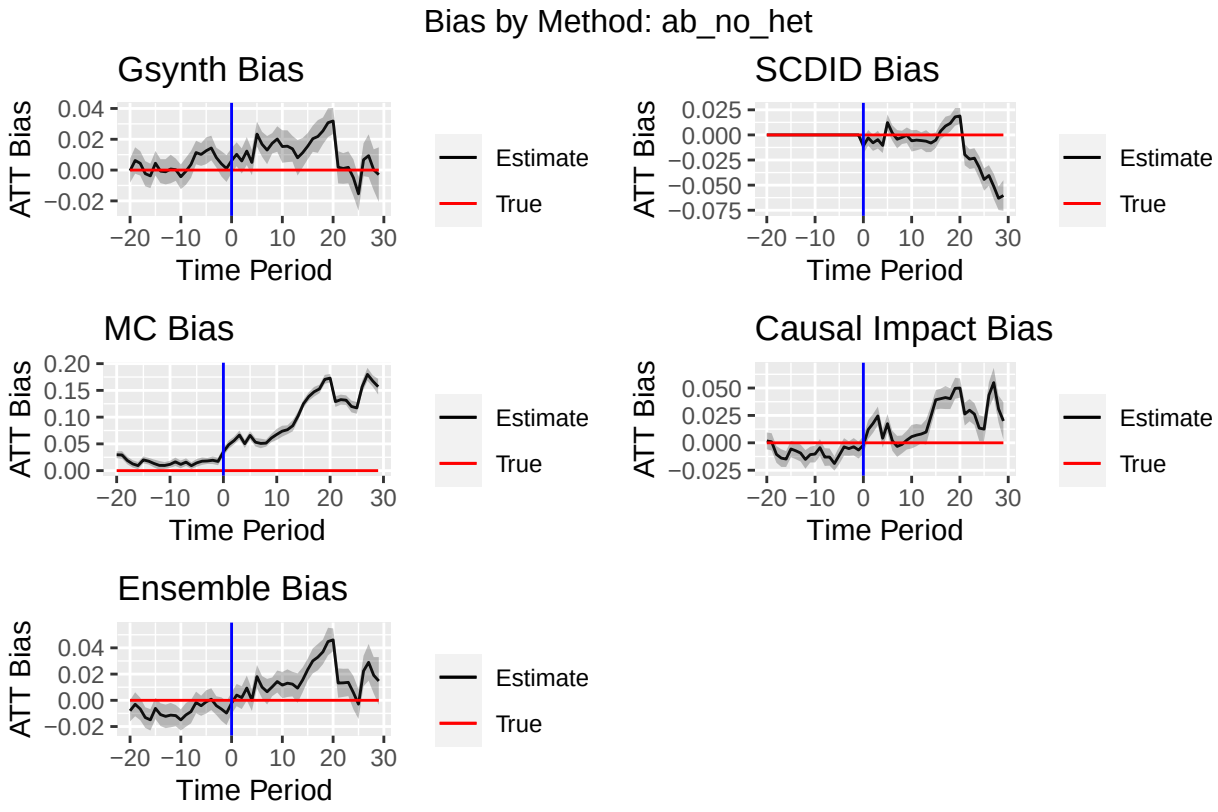
Metrics by Method

ab_no_het_loading_shift

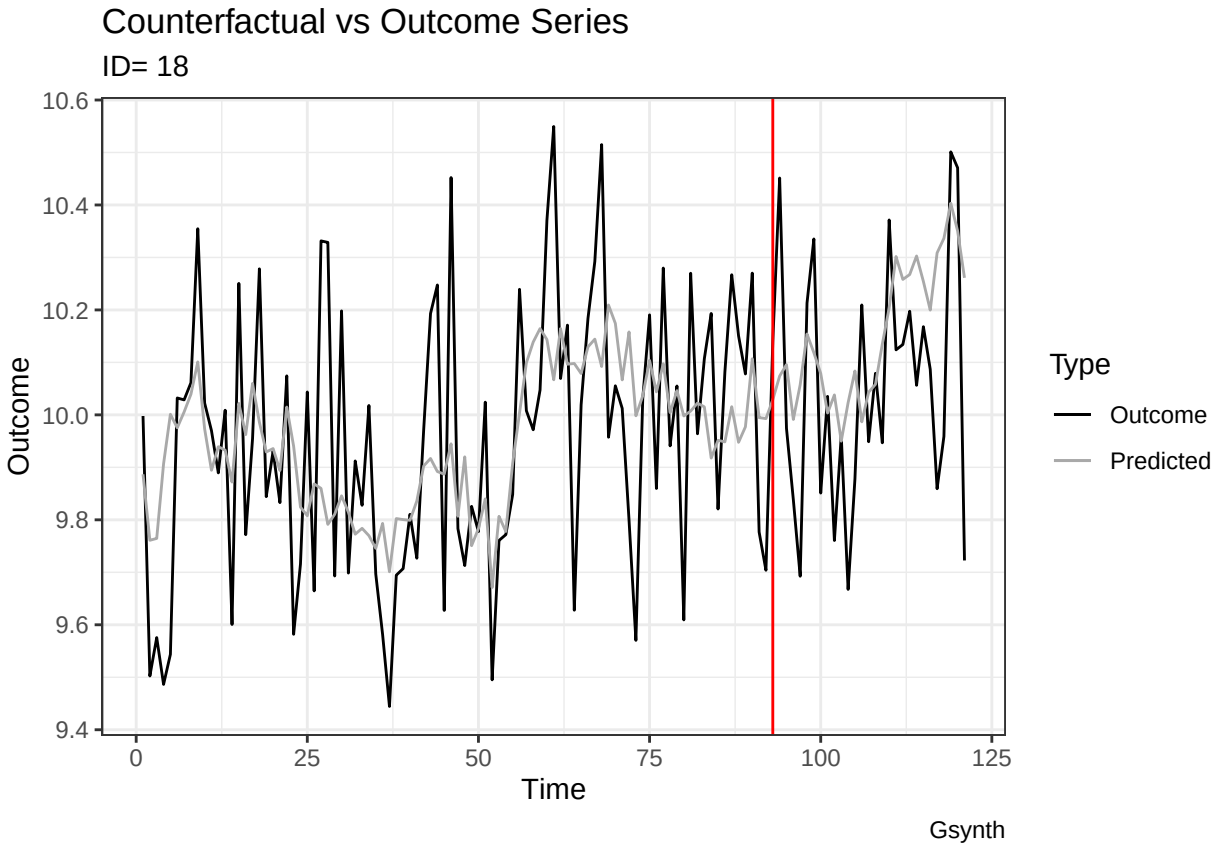
Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.960	0.960	0.580	0.960	0.940
1	0.940	0.920	0.420	0.960	0.940
2	0.940	0.920	0.420	0.920	0.940
3	0.880	0.860	0.500	0.820	0.880
4	0.920	0.900	0.540	0.920	0.960
rmse					
0	0.216	0.217	0.247	0.223	0.215
1	0.216	0.218	0.249	0.226	0.214
2	0.218	0.220	0.255	0.230	0.217

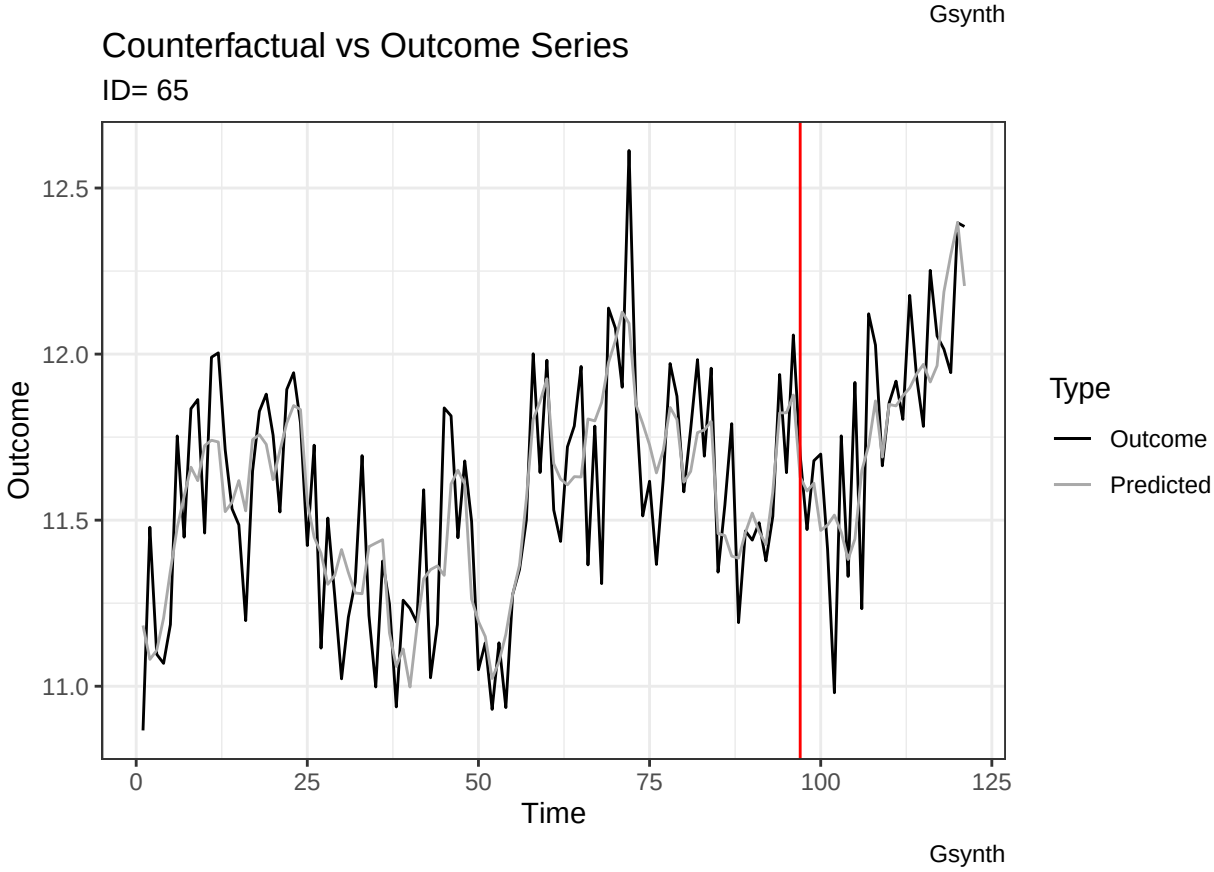
3	0.216	0.217	0.252	0.225	0.215
4	0.216	0.216	0.254	0.226	0.214
bias					
0	−0.003	−0.024	0.063	−0.014	−0.004
1	−0.002	−0.020	0.072	−0.008	−0.000
2	0.003	−0.022	0.072	−0.019	−0.001
3	0.007	−0.023	0.064	−0.025	−0.002
4	0.000	−0.026	0.065	−0.025	−0.005

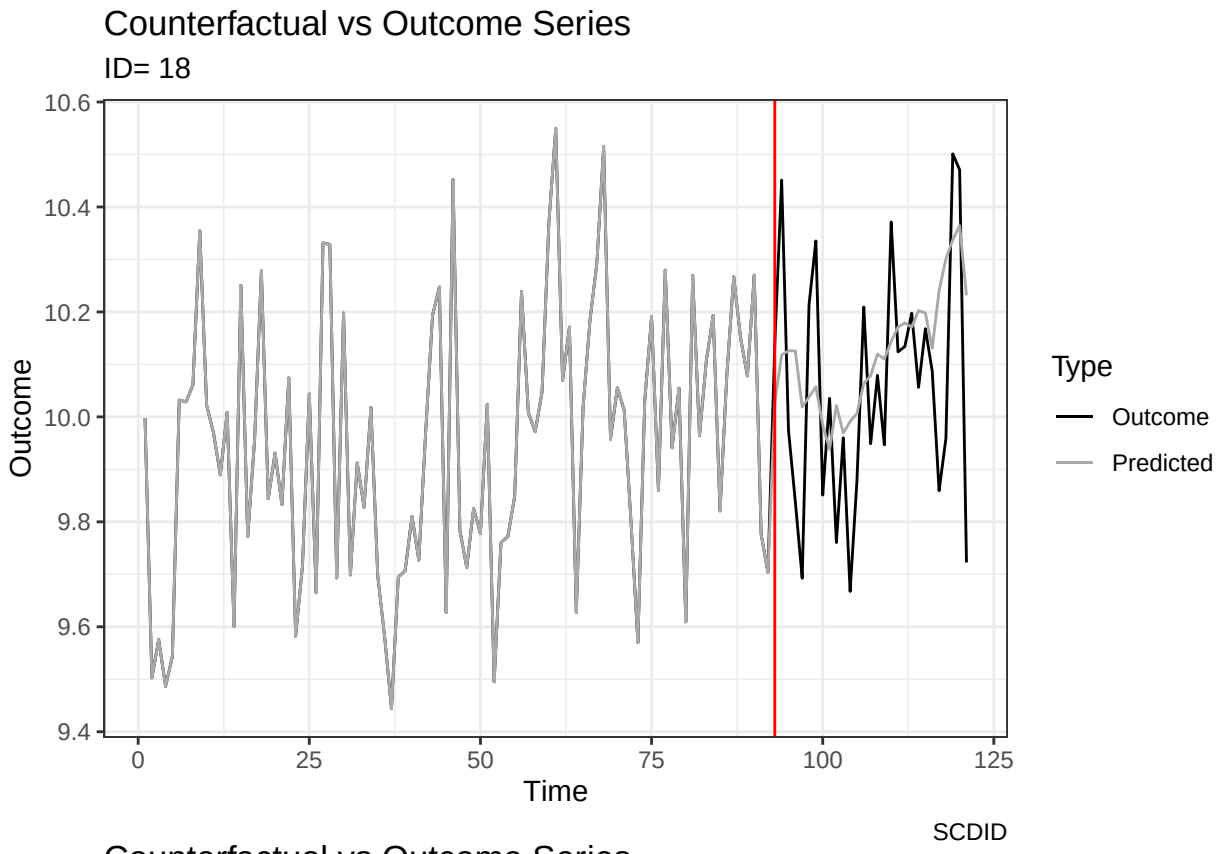
Notes:

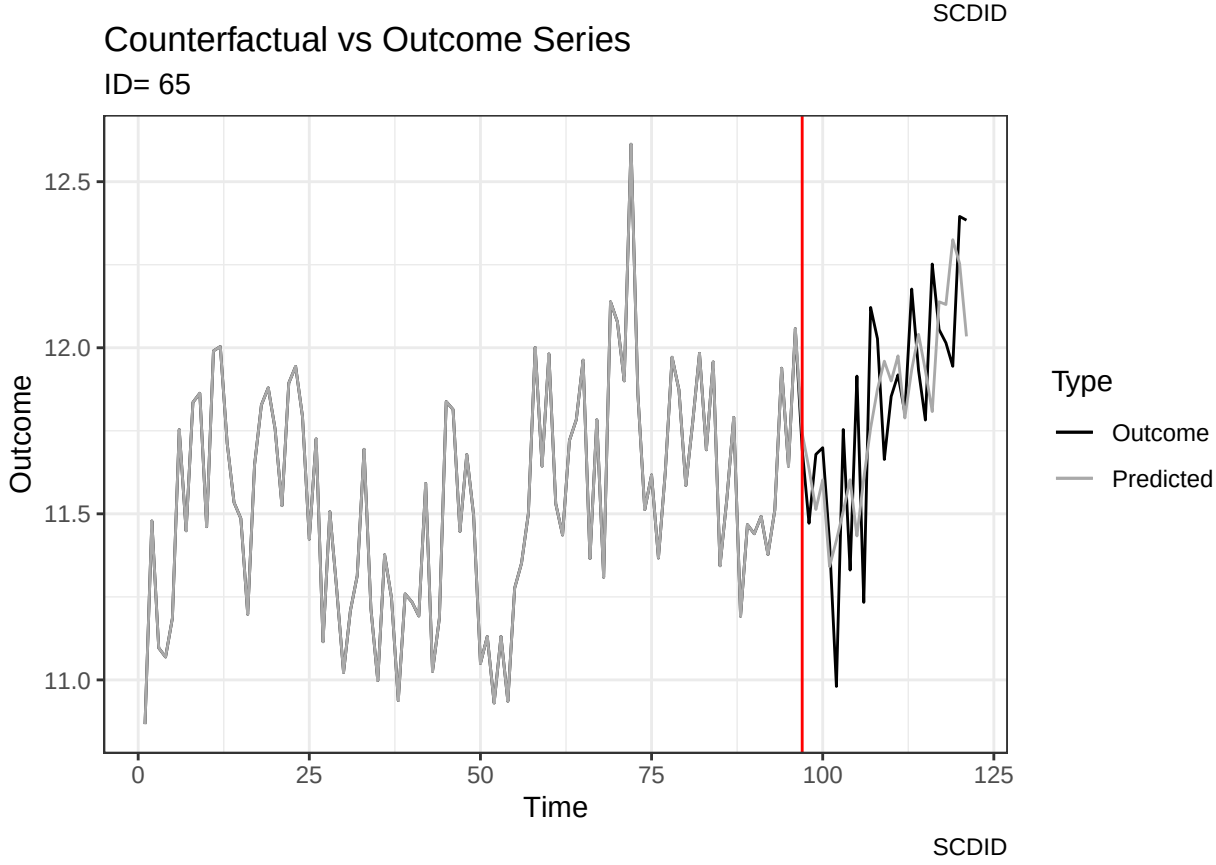


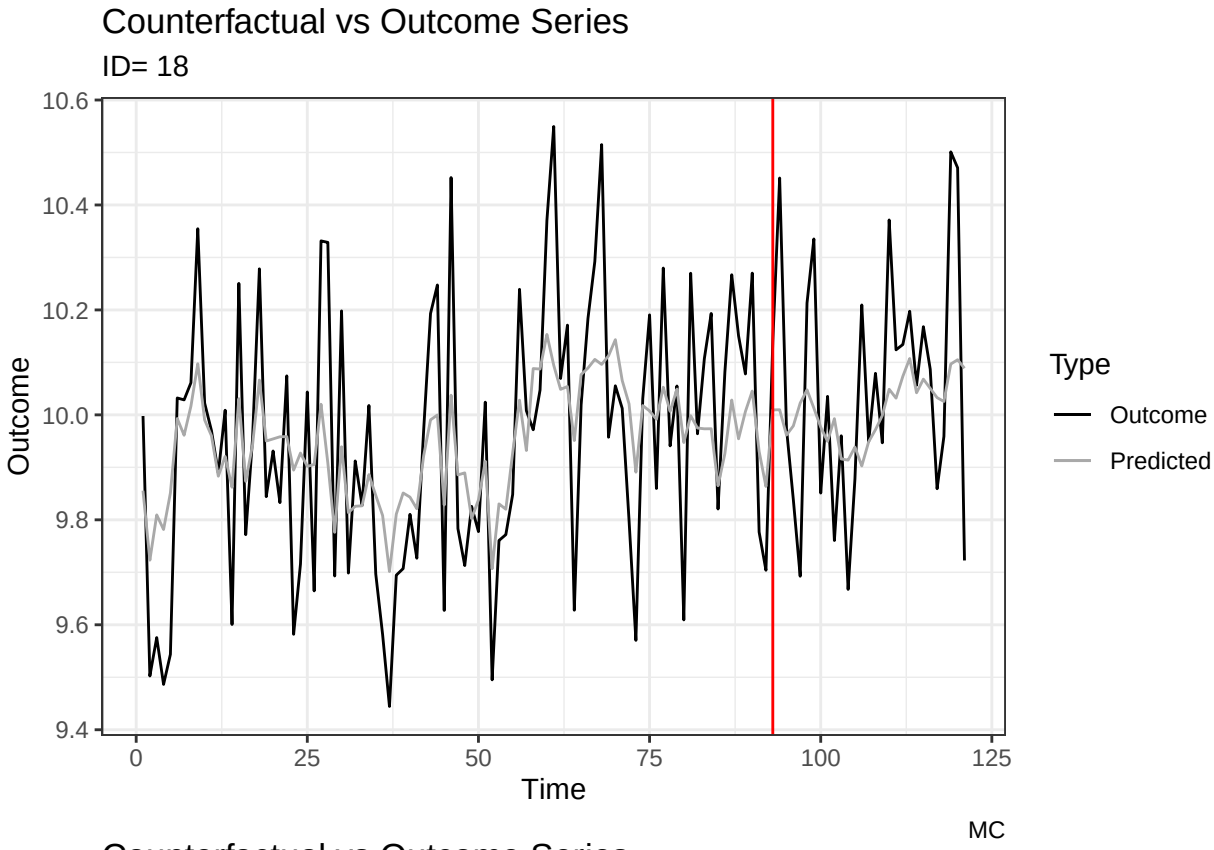
Notes:

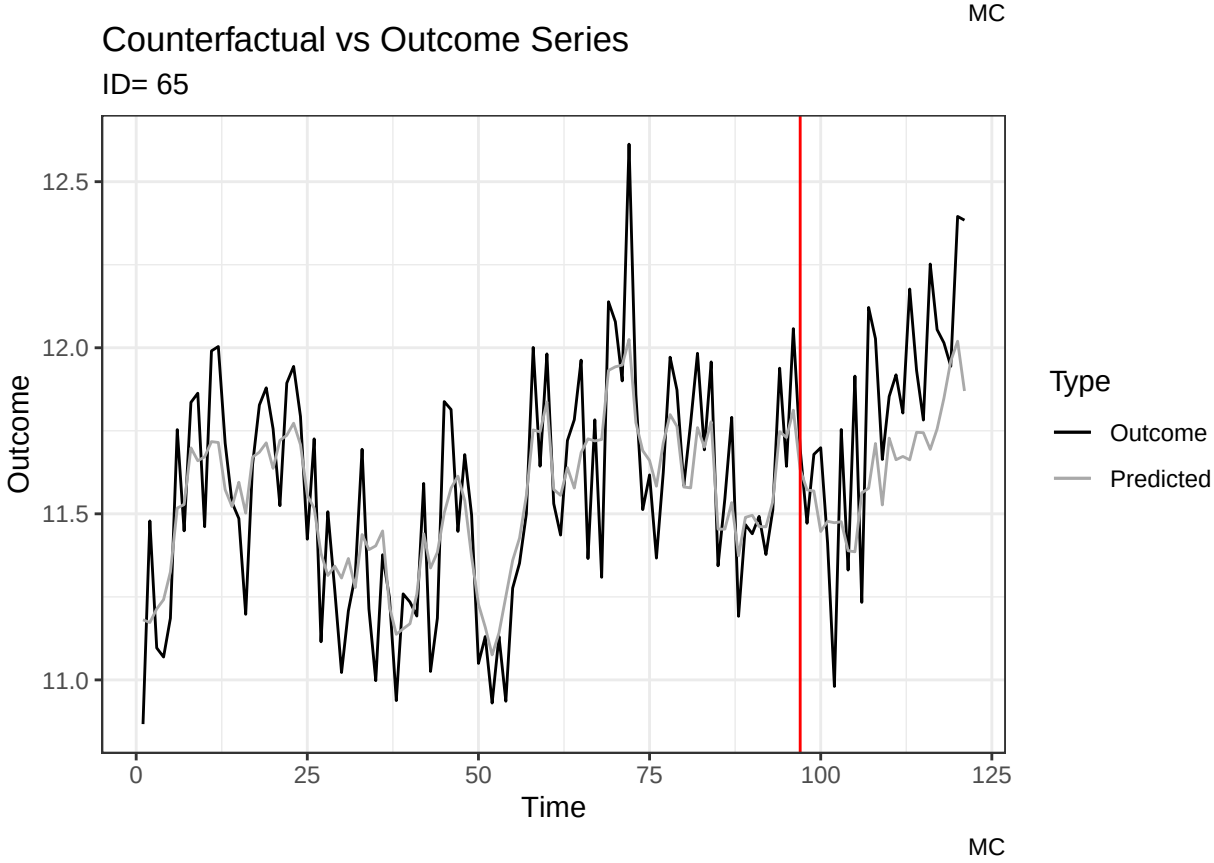

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
Gsynth

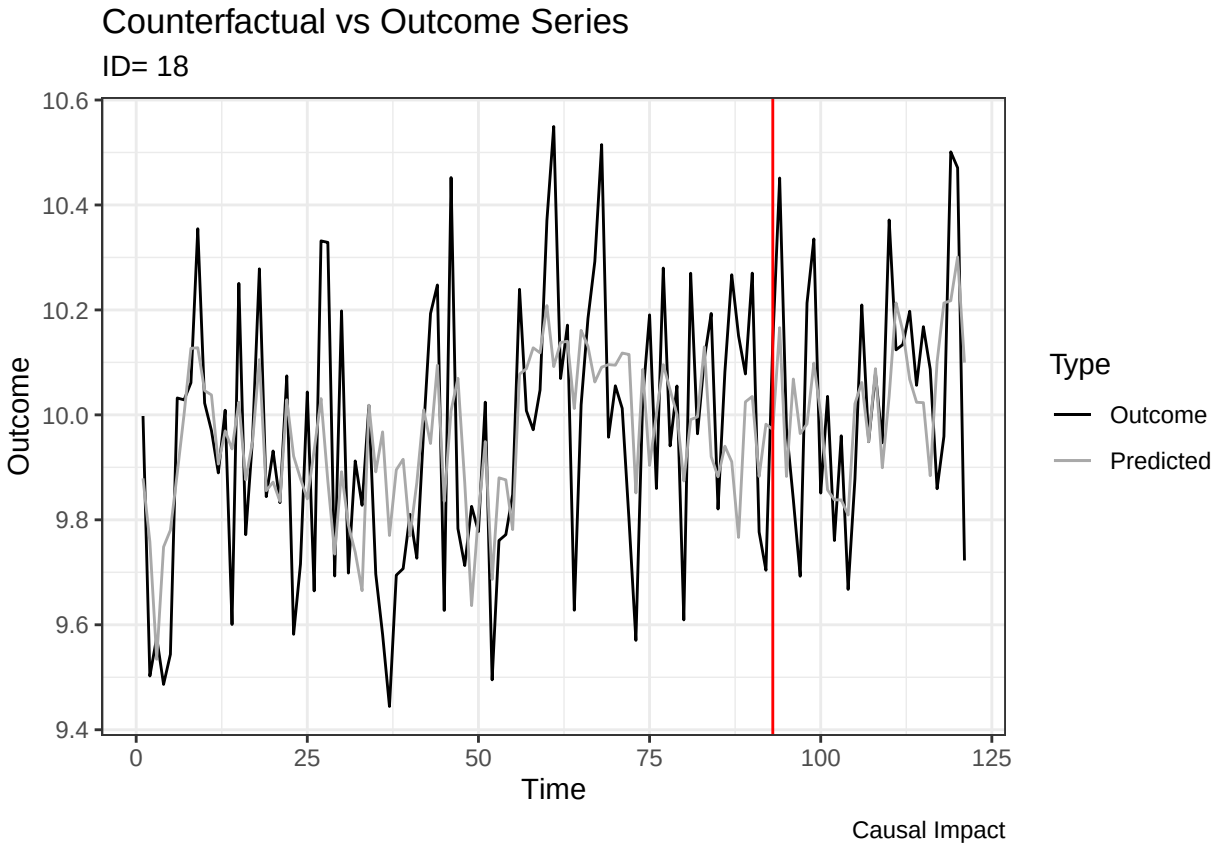

Counterfactual vs Outcome Series
ID= 65
Outcome
Time
Type
Outcome
Predicted
Gsynth

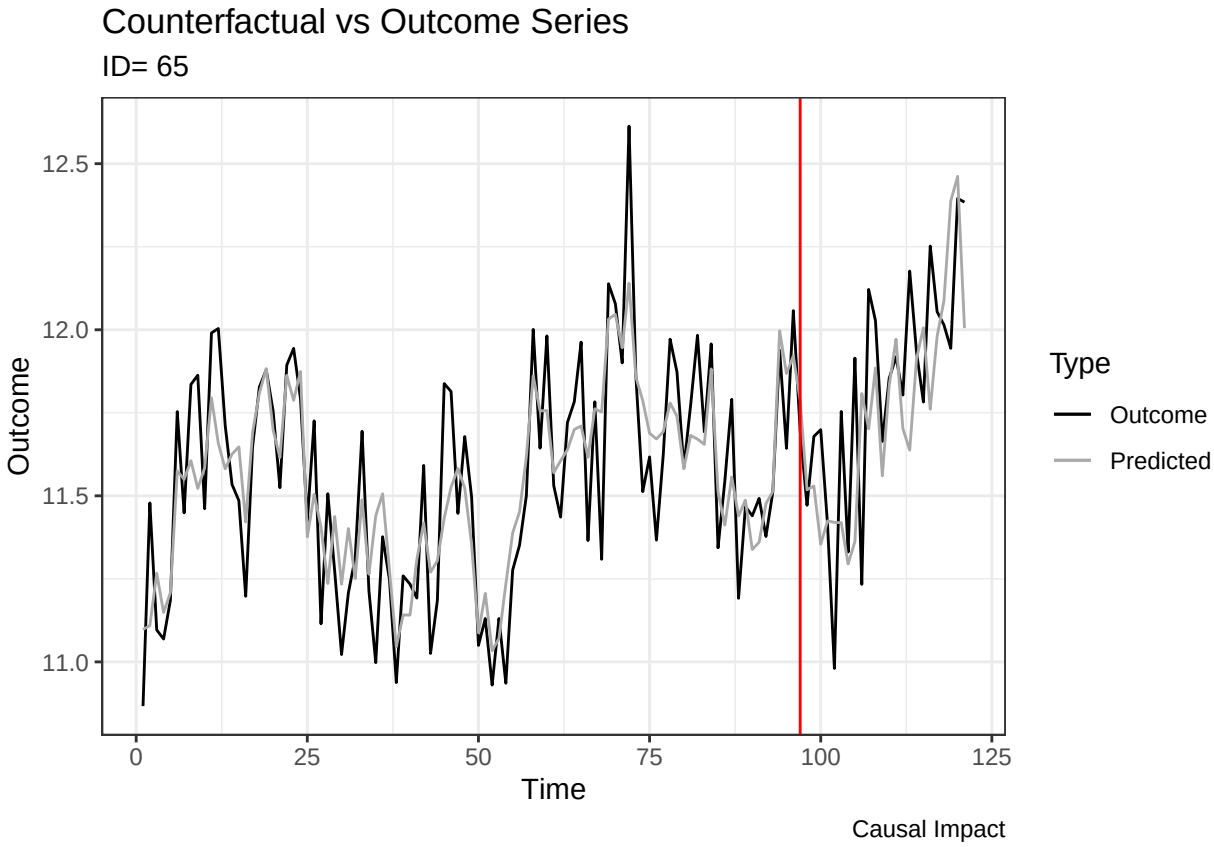

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
SCDID

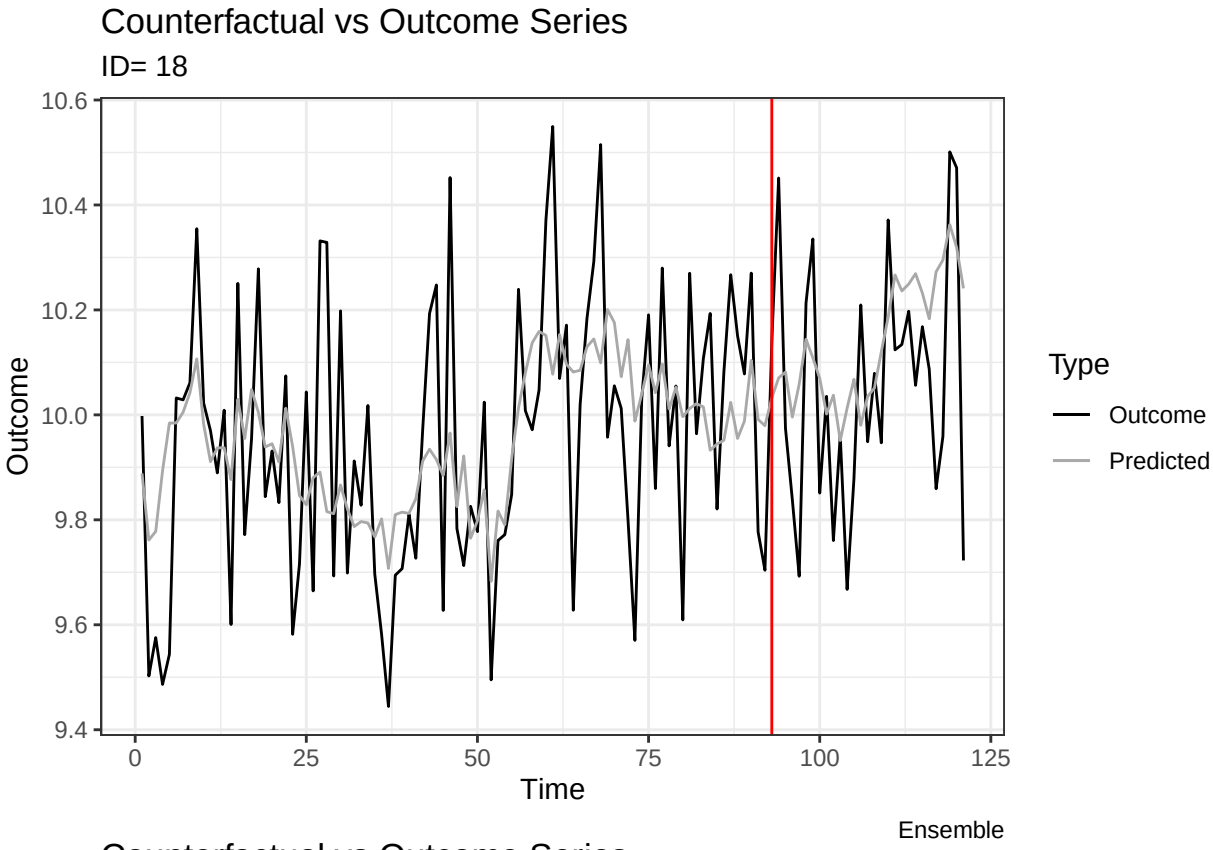

Counterfactual vs Outcome Series
ID= 65
Outcome
Time
Type
Outcome
Predicted
SCDID

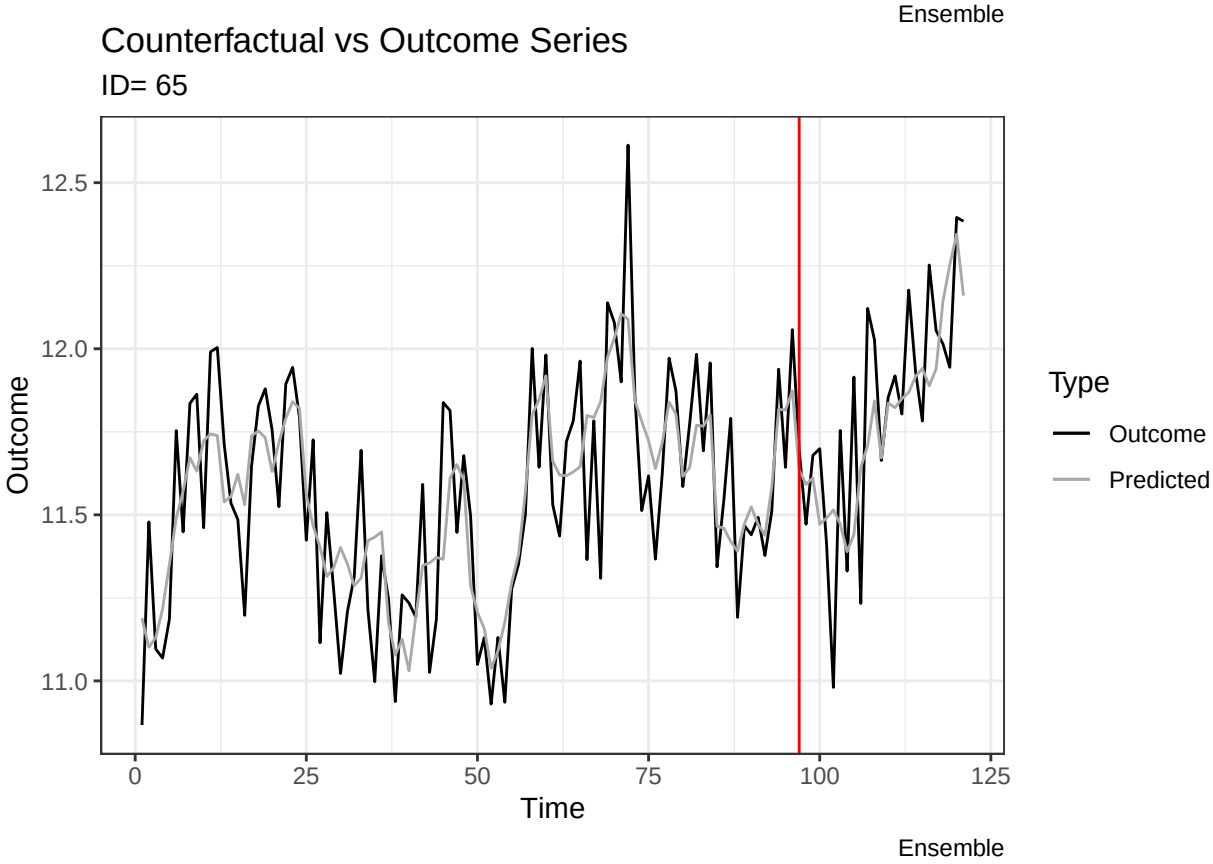

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
MC


Counterfactual vs Outcome Series
ID= 65
Outcome
Time
Type
Outcome
Predicted
MC

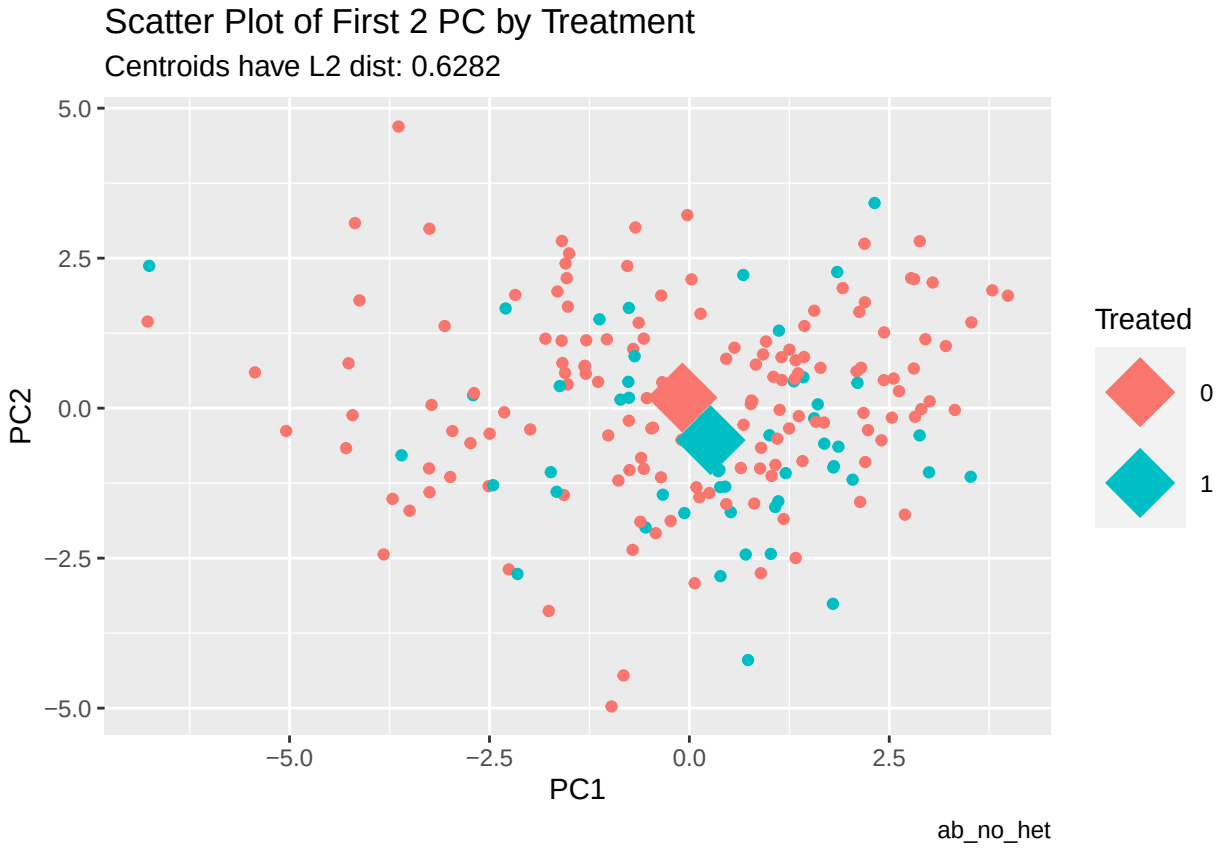

Counterfactual vs Outcome Series
ID= 18
Outcome
Time
Type
Outcome
Predicted
Causal Impact


Counterfactual vs Outcome Series
ID= 65
Outcome
Time
Type
Outcome
Predicted
Causal Impact






```
## `summarise()` ungrouping output (override with `.groups` argument)
```




```
## # A tibble: 9 x 8
##   vars          n1    n2 statistic    df       p  p.adj p.adj.signif
##   <chr>      <int> <int>     <dbl> <dbl>   <dbl>  <dbl> <chr>
## 1 curvature    150    50     0.396  86.7 0.693   0.693  ns
## 2 diff1_acf1   150    50    -2.11   93.8 0.038   0.114  ns
## 3 diff2_acf1   150    50    -2.70   88.8 0.00824 0.0558 ns
## 4 e_acf1       150    50    -1.31   85.4 0.192   0.288  ns
## 5 entropy      150    50    -1.42   84.8 0.159   0.286  ns
## 6 linearity    150    50     2.55   85.6 0.0124  0.0558 ns
## 7 spike        150    50    -1.13   87.6 0.26    0.334  ns
## 8 trend        150    50     1.58   90.5 0.118   0.265  ns
## 9 x_acf1       150    50     0.992  99.1 0.323   0.363  ns
```

Metrics by Method

ab_no_het

Method	gsynth	scdid	mc	causalimp	ensemble
coverage					
0	0.980	1.000	0.940	1.000	0.980
1	1.000	1.000	0.760	1.000	0.980
2	0.940	0.940	0.740	0.920	0.960
3	0.900	0.980	0.620	0.940	0.920
4	0.980	0.960	0.840	0.980	0.940
rmse					
0	0.221	0.236	0.260	0.230	0.225
1	0.219	0.235	0.265	0.230	0.225
2	0.220	0.237	0.266	0.235	0.225

3	0.219	0.239	0.266	0.231	0.223
4	0.225	0.248	0.278	0.239	0.231
bias					
0	0.006	−0.011	0.035	−0.002	−0.002
1	0.010	−0.003	0.048	0.012	0.004
2	0.006	−0.008	0.056	0.018	0.002
3	0.012	−0.005	0.067	0.025	0.009
4	0.005	−0.010	0.050	0.004	0.000

Notes: