Analysis of oil

2019-04-09

Data Prep

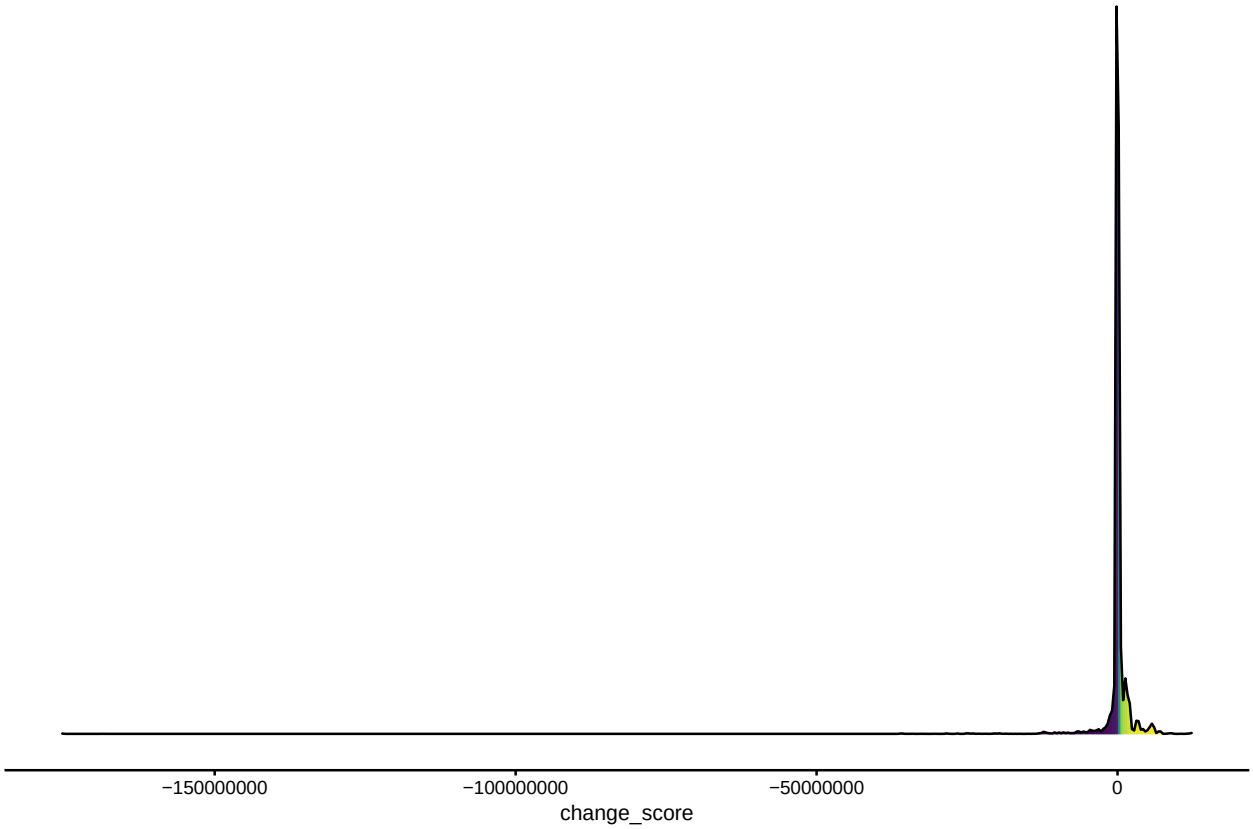
1. Dropped records with missing oil values at t1 and t2. Call the resulting data set `df`.
2. Separated `df` into two subsets:
   - `df_tiny`: oil < 1000 at t1 or t2.
   - `df_main`: oil >= 1000 at t1 and t2
3. Created long-format version:
   - `df_long`: long-format version of the full set `df`
   - `df_tiny_long`: long-format version of the subset `df_tiny`
   - `df_main_long`: long-format version of the subset `df_main`

Analyze the full set `df`

Table 1: Sample Summary Statistics of oil

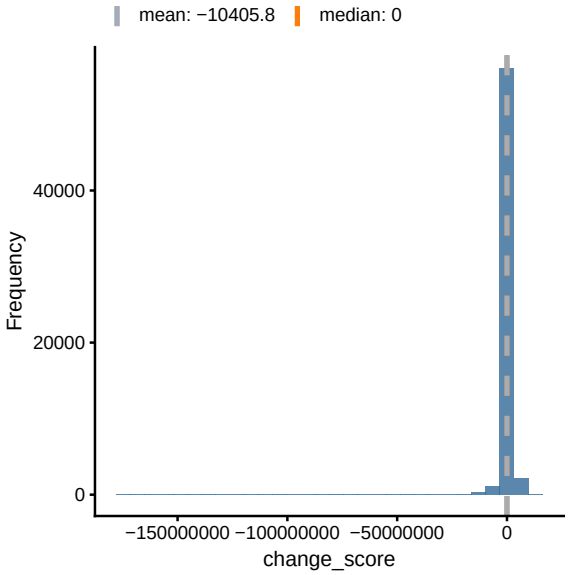
time	n_tribes	n	mean	median	std	skewness	kurtosis	SEM
t1	184	59971	444552.9	0	3492554	35.348451	1687.71510	14261.741
t2	184	59971	434147.1	0	1199638	4.356789	24.15924	4898.684

oil



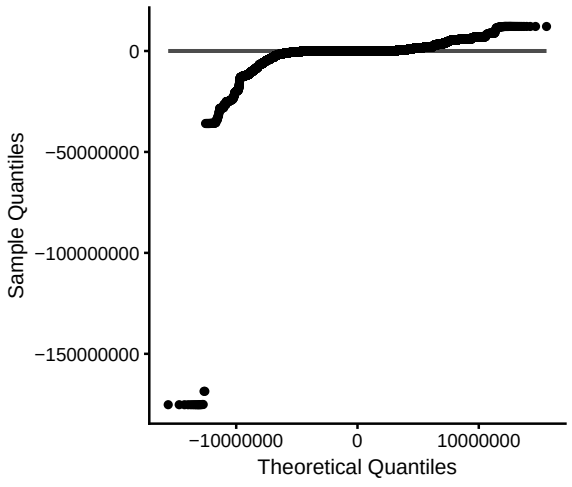
NAs were dropped

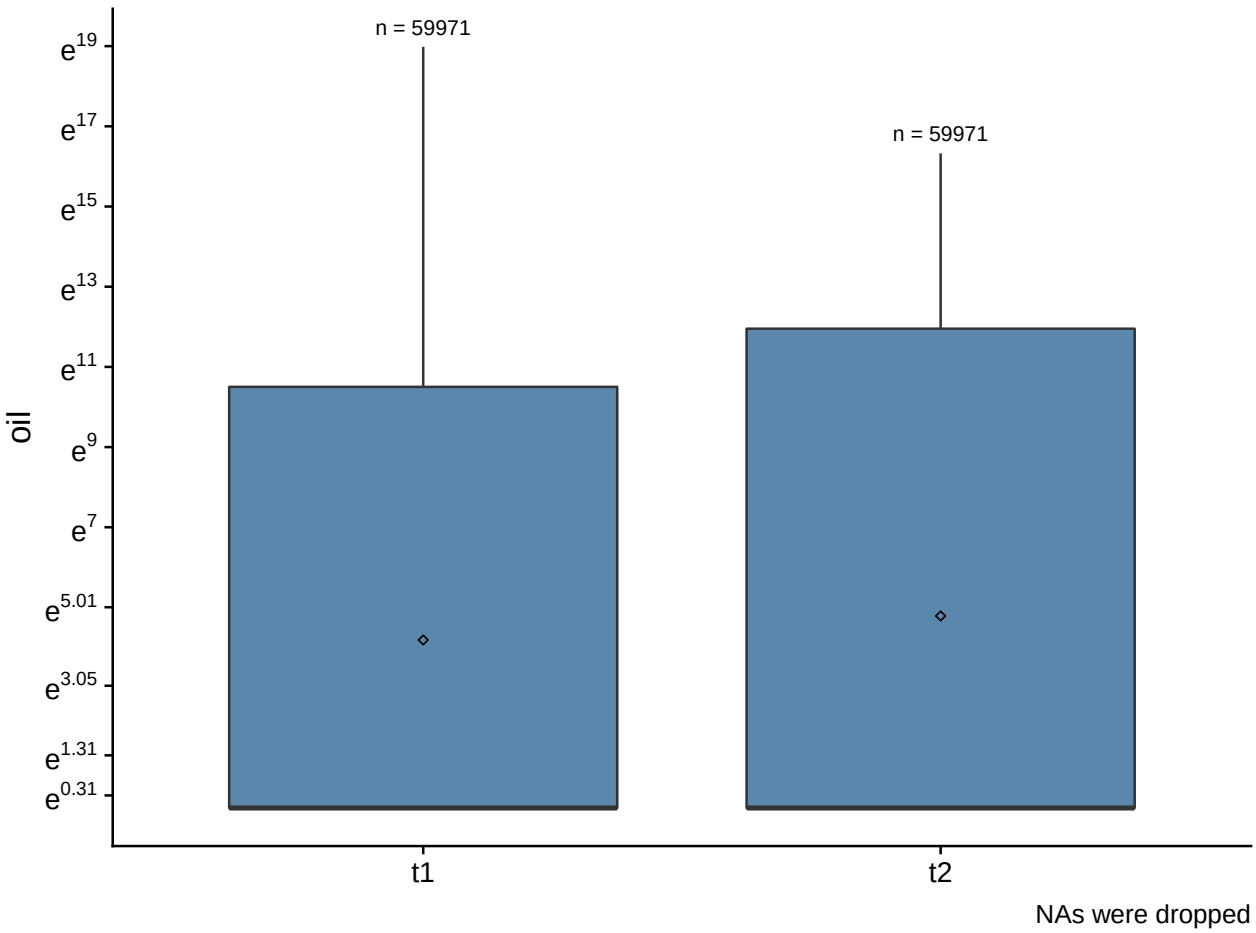
Empirical Distribution of change_score



Is change_score normally distributed?

Detrended Q−Q normal plot (n = 59971)



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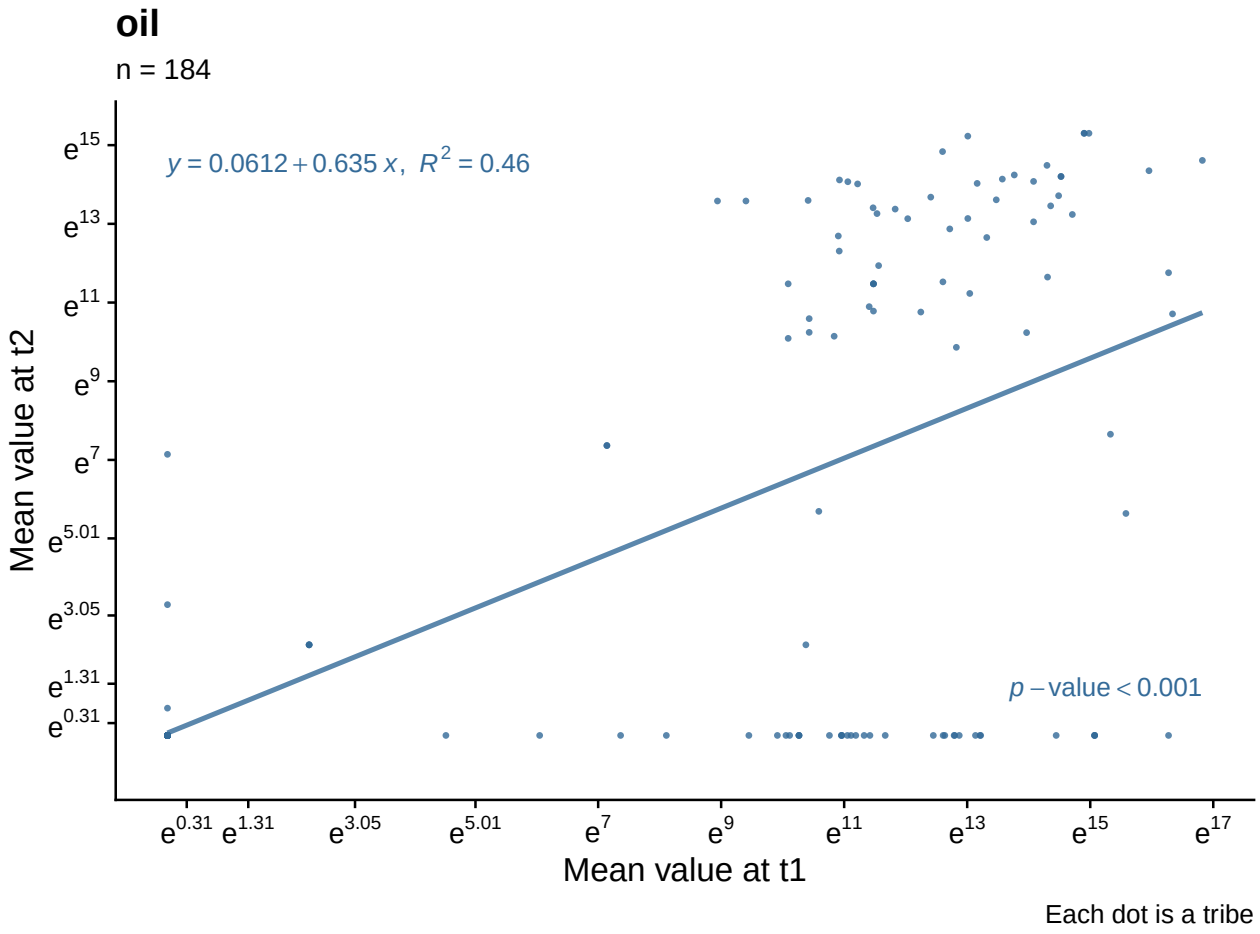
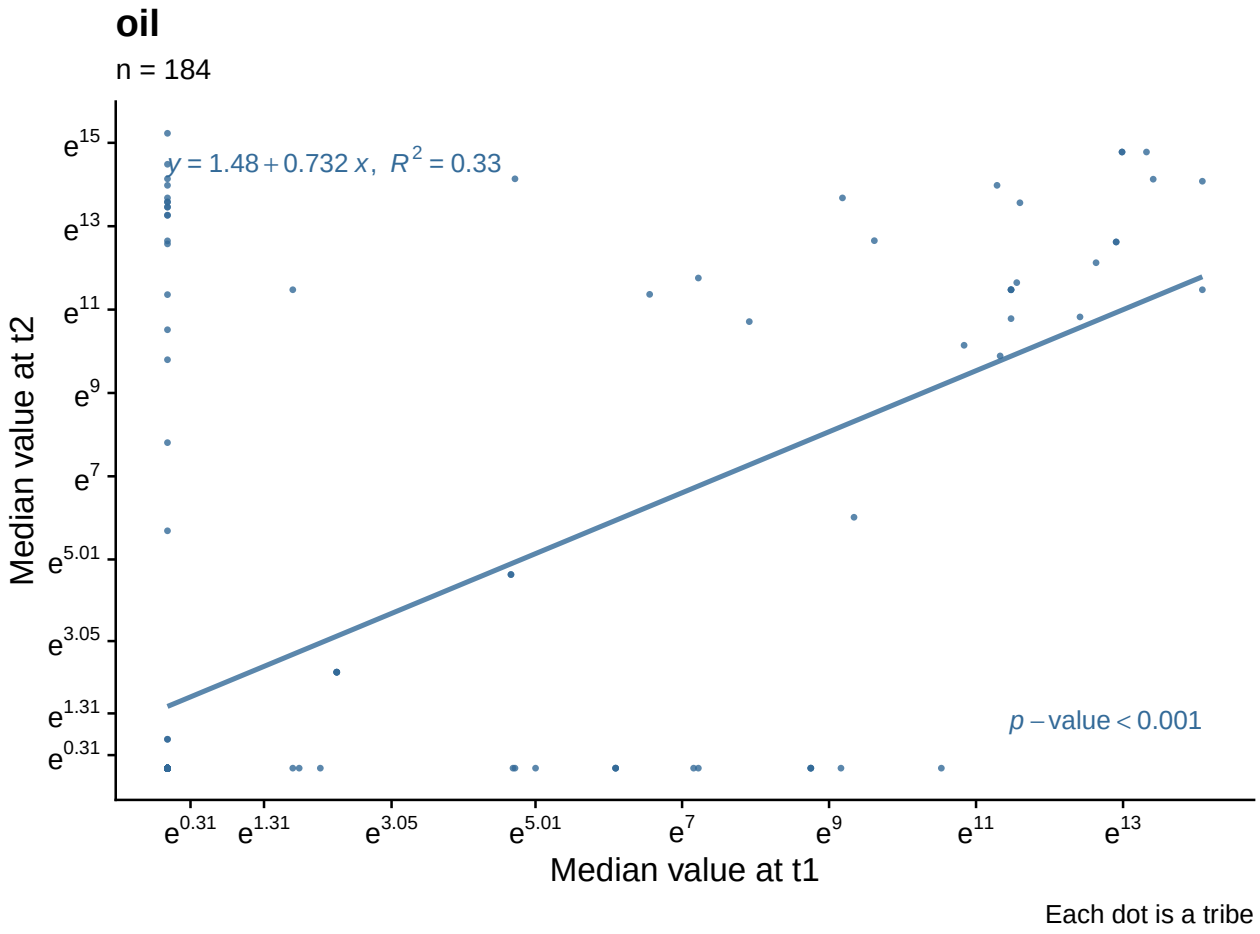
1-way Repeated Measure ANOVA Output:

Error: tribe
           Df            Sum Sq         Mean Sq F value Pr(>F)
Residuals 183 54861717447793800 299790805725649

Error: tribe:time
           Df            Sum Sq         Mean Sq F value Pr(>F)
time        1     3246849589998   3246849589998   0.025  0.875
Residuals 183 24075923142606936 131562421544300

Error: Within
             Df             Sum Sq       Mean Sq F value Pr(>F)
Residuals 119574 738877222967341440 6179246516528
```


oil
n = 184
$y = 0.0612 + 0.635\,x,\ R^2 = 0.46$
$p - \text{value} < 0.001$
Mean value at t2
Mean value at t1
e^{15}
e^{13}
e^{11}
e^{9}
e^{7}
$e^{5.01}$
$e^{3.05}$
$e^{1.31}$
$e^{0.31}$
e^{17}
Each dot is a tribe


oil
n = 184
y = 1.48 + 0.732 x, R2 = 0.33
p – value < 0.001
Median value at t2
Median value at t1
e15
e13
e11
e9
e7
e5.01
e3.05
e1.31
e0.31
Each dot is a tribe