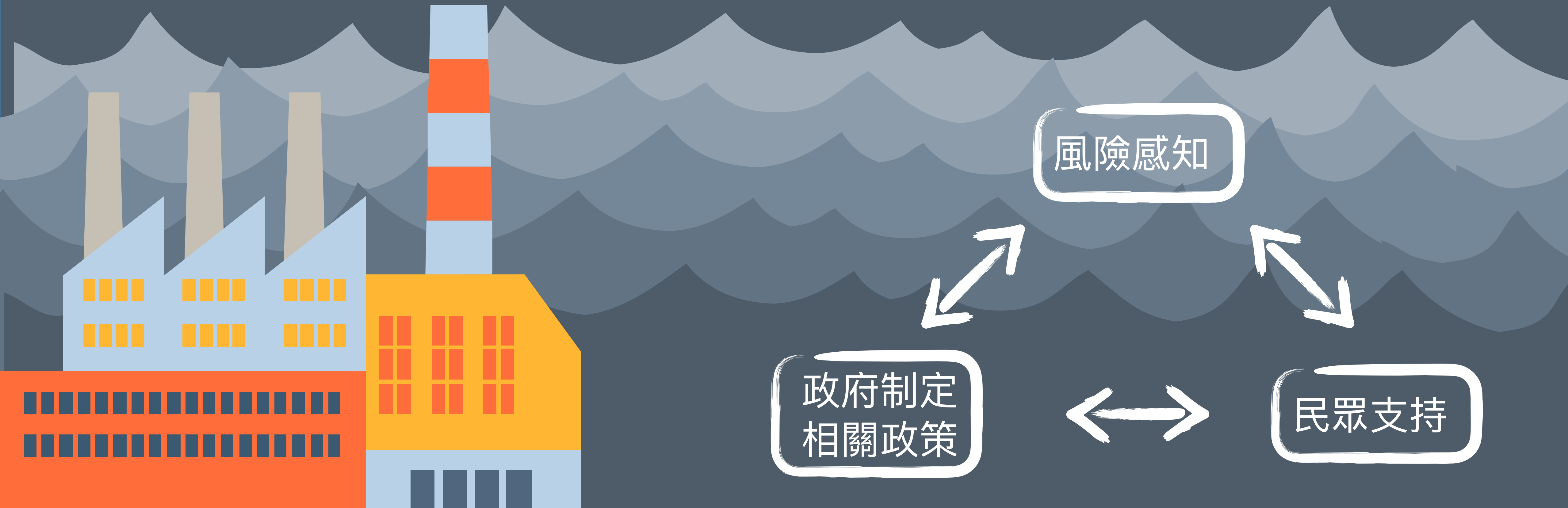
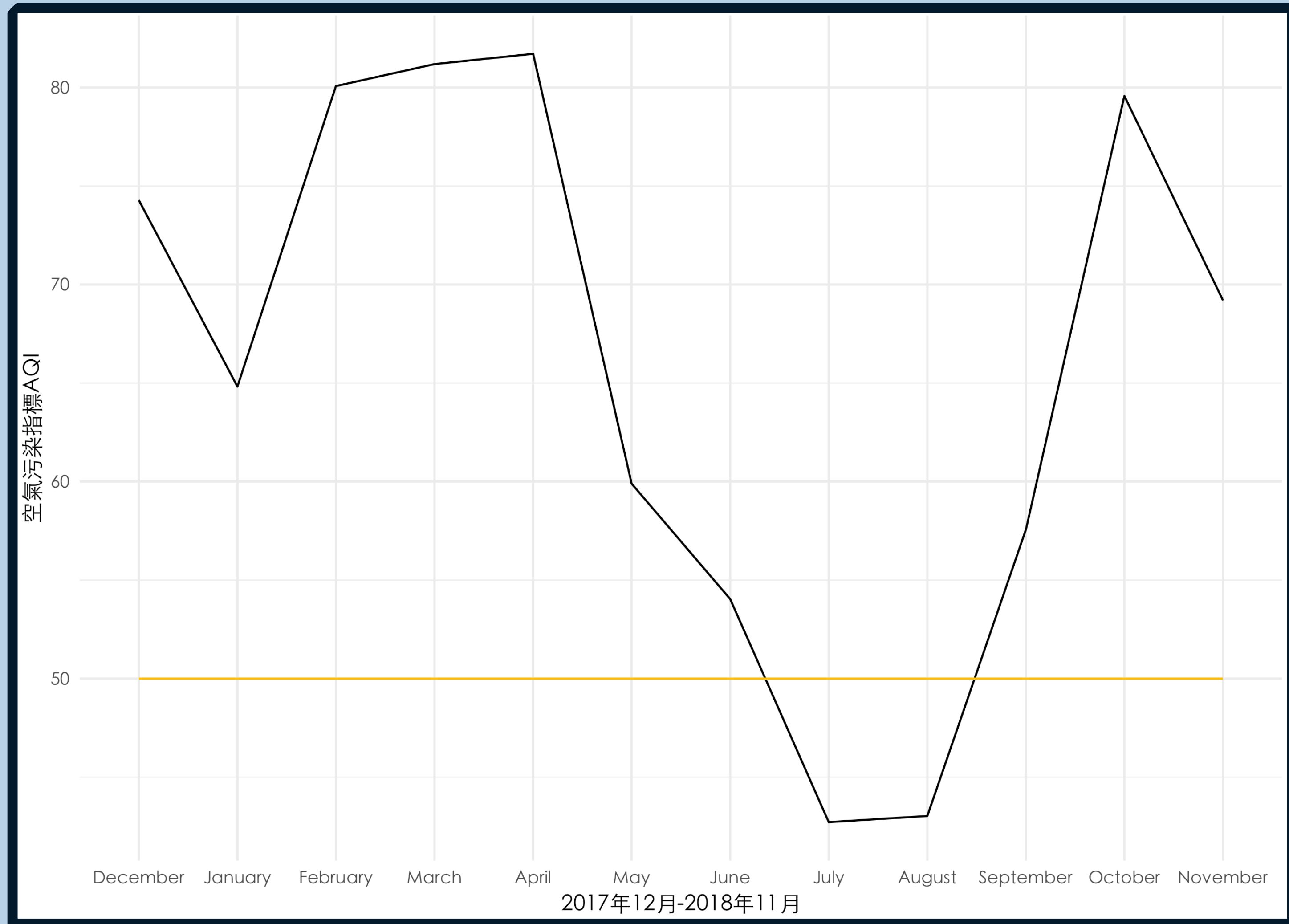


研究問題

- 全國性公民投票第 7 案、第 8 案（反空汙、反深奧電廠議題）結果是否能真實反映出民眾對於自身所處環境之空氣汙染風險的理解程度，亦或是受到政黨傾向（兩案提案者皆為國民黨）和其他變數所影響？



過去一年台灣空氣概況

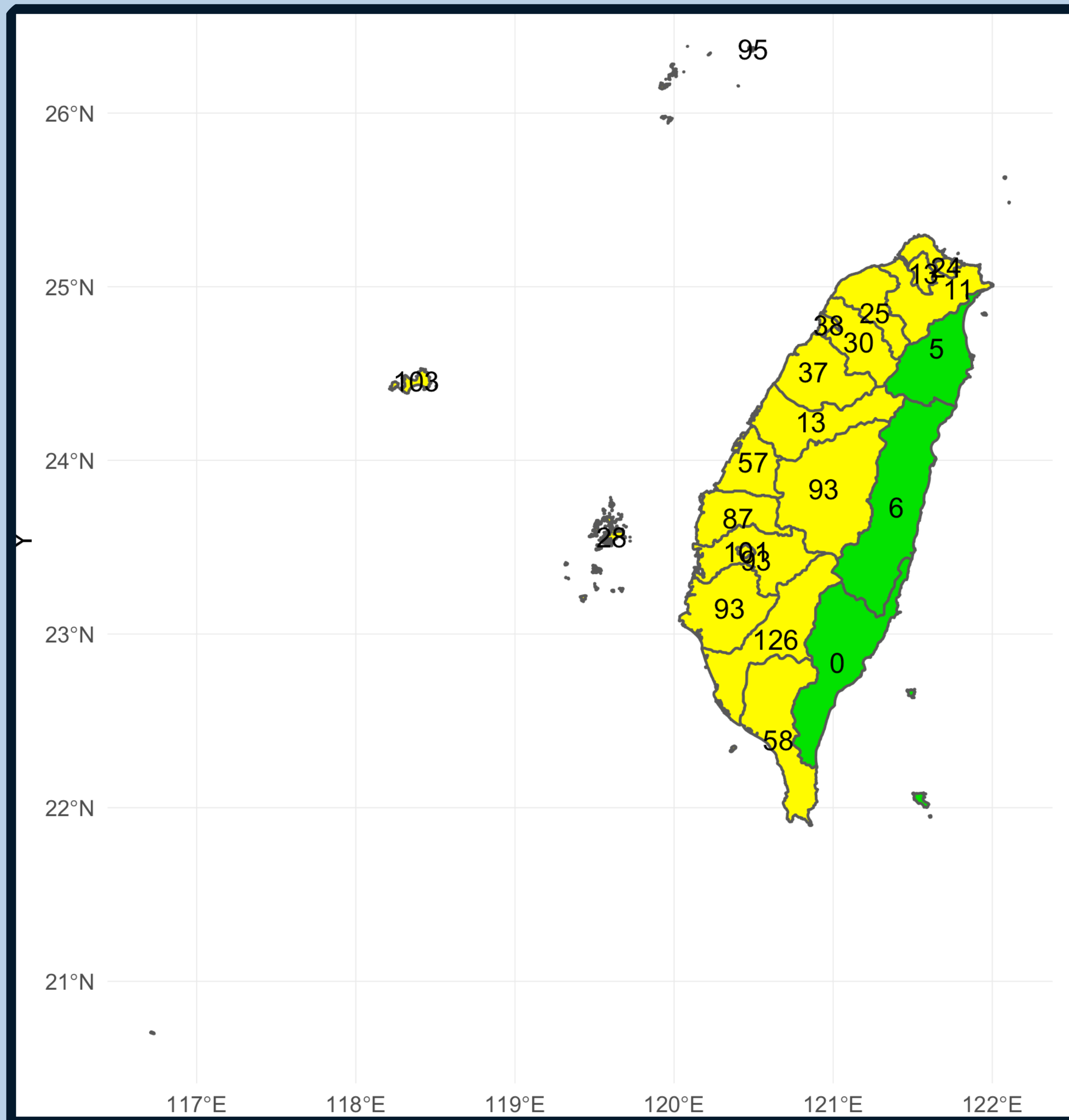


- AQI平均值大約介於40-80
- 春季空氣較差，夏季空氣較好
- 空氣最好：7月平均42.7
- 空氣最差：4月平均81.7

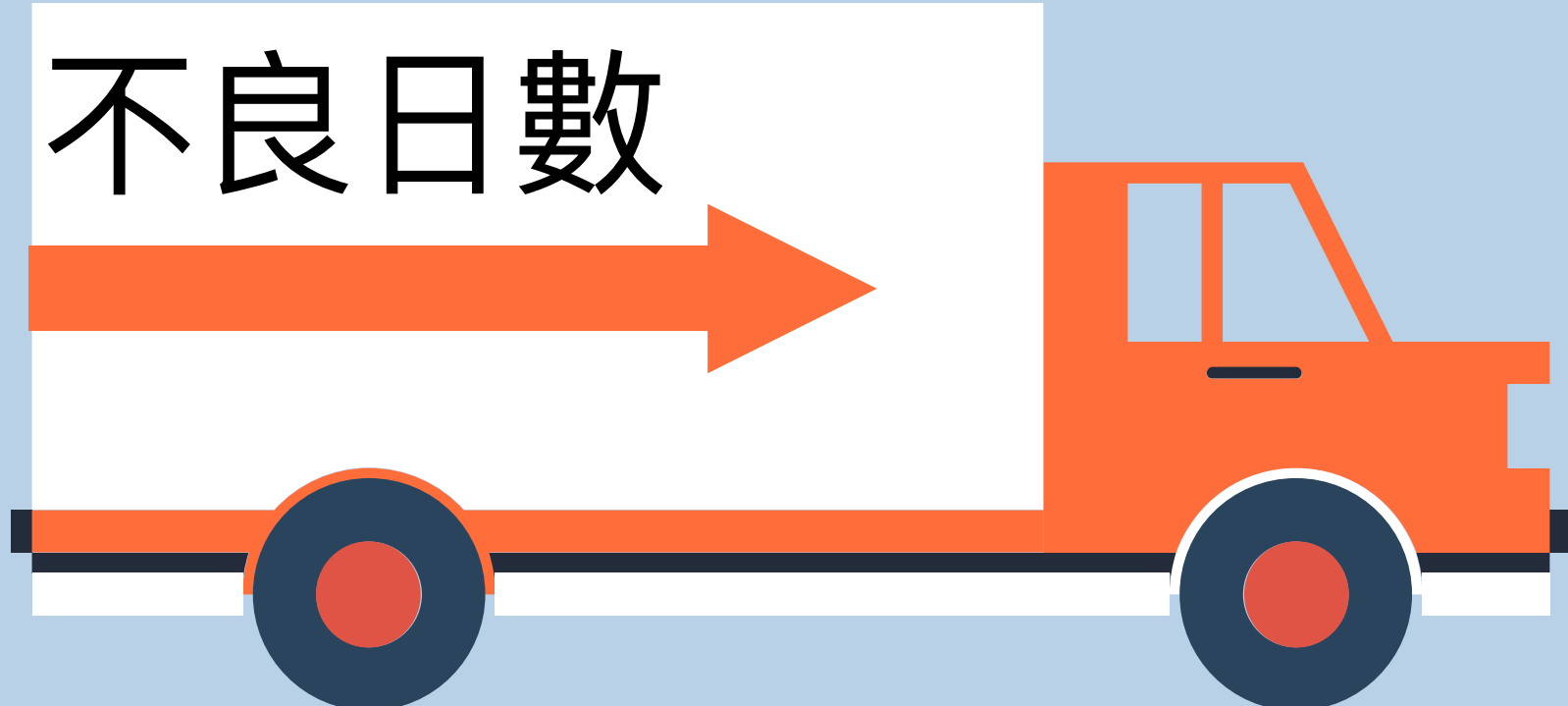
AQI指標



過去一年 台灣空氣概況



- 不良日數：AQI值>100的天數
- 南部和離島地區空氣較差
- 空氣最好：臺東縣0天
- 空氣最差：高雄市126天




公投同意率與空氣品質關係

```
Call:
lm(formula = vote7 ~ AQI, data = tw_dt)

Residuals:
    Min       1Q   Median       3Q      Max
-0.037178 -0.011216 -0.005698  0.007637  0.078732

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.7735290   0.0270227  28.625  <2e-16 ***
AQI          0.0004178   0.0004115   1.015   0.322
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.02558 on 20 degrees of freedom
Multiple R-squared:  0.04901, Adjusted R-squared:  0.001458
F-statistic: 1.031 on 1 and 20 DF, p-value: 0.3221
```


 第7案 → 不顯著

```
Call:
lm(formula = vote8 ~ AQI, data = tw_dt)

Residuals:
    Min       1Q   Median       3Q      Max
-0.040873 -0.009512 -0.005056  0.008852  0.081932

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.7354018   0.0284801  25.822  <2e-16 ***
AQI          0.0006161   0.0004337   1.421   0.171
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.02696 on 20 degrees of freedom
Multiple R-squared:  0.09165, Adjusted R-squared:  0.04623
F-statistic: 2.018 on 1 and 20 DF, p-value: 0.1709
```

 第8案 → 不顯著

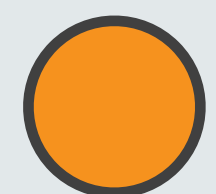
公投同意率與其他變數關係

```
Call:
lm(formula = vote7 ~ 鄉鎮市區得票率 + married + age +
    income, data = tw_dt2)

Residuals:
    Min       1Q   Median       3Q      Max
-0.058509 -0.013683 -0.002311  0.013282  0.095091

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    0.6177243  0.0346212  17.842 < 2e-16 ***
鄉鎮市區得票率 0.0255233  0.0062687   4.072 5.74e-05 ***
married        0.3515820  0.0598904   5.870 9.86e-09 ***
age           -0.0022542  0.0004164  -5.413 1.13e-07 ***
income         0.0004291  0.0001695   2.532  0.0118 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.02124 on 361 degrees of freedom
Multiple R-squared:  0.1458,    Adjusted R-squared:  0.1363
F-statistic: 15.4 on 4 and 361 DF,  p-value: 1.22e-11
```



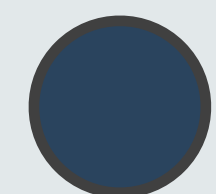
$$\text{Vote}\hat{7} = 0.6177 + 0.0255 \cdot \text{國民黨得票率} \\ + 0.3516 \cdot \text{結婚比例} - 0.0023 \cdot \text{年齡} \\ + 0.0004 \cdot \text{收入}$$

```
Call:
lm(formula = vote8 ~ 鄉鎮市區得票率 + married + age +
    income, data = tw_dt2)

Residuals:
    Min       1Q   Median       3Q      Max
-0.051658 -0.014737 -0.001028  0.012956  0.092604

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    0.5767749  0.0354912  16.251 < 2e-16 ***
鄉鎮市區得票率 0.0445402  0.0064262   6.931 1.93e-11 ***
married        0.3211186  0.0613954   5.230 2.87e-07 ***
age           -0.0021444  0.0004269  -5.024 7.99e-07 ***
income         0.0007675  0.0001737   4.418 1.32e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

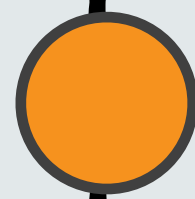
Residual standard error: 0.02177 on 361 degrees of freedom
Multiple R-squared:  0.2214,    Adjusted R-squared:  0.2128
F-statistic: 25.66 on 4 and 361 DF,  p-value: < 2.2e-16
```



$$\text{Vote}\hat{8} = 0.5768 + 0.0445 \cdot \text{國民黨得票率} \\ + 0.3211 \cdot \text{結婚比例} - 0.0021 \cdot \text{年齡} \\ + 0.0008 \cdot \text{收入}$$

結論

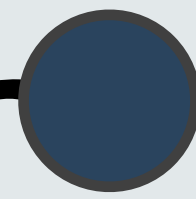
政黨偏好



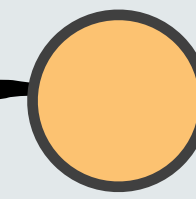
婚姻狀況



年齡



收入



LINE聊天機器人—霧空



- 現在空氣品質狀況

輸入「城市」+「aqi」

- 現在各污染物濃度值

輸入「城市」+「污染物」

- 明日空氣品質預報

輸入「城市」+「預報」

- 空汙專有名詞解釋

輸入「專有名詞」

- 使用說明

輸入「霧空」