抵制文化之現象分析

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report 的重要頁碼:

52-網路癮誘與脫序行為之子題說明

92-資料人口結構與母群人口結構比較表

281-各題目之測量概念

資料簡介

Table 1: 變數前處理

Variables	Manipulation
q2	出生年改成年齡
q2_rr	將 rrq2 的年齡分層變數重新命名 q2_rr
q3	移除。不關心地區造成的差異
q4	重新劃分為四個等級，劃分參考人口結構表格的分類方式
q6,q7	時間統一單位 (分)
q8	移除。大部分的人都有透過網路接觸名人的資訊或討論 (只有四個人沒有)。
q9	移除。無法界定是工作性質或娛樂性質
q10	改成" 使用幾個與 yt 名人討論相關的社群媒體"，因為有些社群媒體不會造成抵制名人行為。
q11	改成" 有無使用 YT 或 Twitch"，原因與第十題類似。
q12~q15	移除。q28,q29 關心的時間範圍較廣並不只局限於疫情期間。
q16~q19	將每個類別補 0(變成 1,0)，再創建一個標籤變數 1719_label
q20~q26	參考碩士論文: 台灣消費者抵制行為之研究 -以台商親中言論衍生之抵制為例 (https://www.airitilibrary.com/Article/Detail/U0004-G0107932056) 之做法，將相同大主題的 ordinal 主觀評分加總作為該主題程度的分數。

原始資料維度: rows×columns = 1004×207

處理後資料維度: rows×columns = 1004 × 42

表格需要再整理一下

Table 2: 變數解釋

Variables	Explanation	remark
q1	性別	1: 男性, 2: 女性
q2_rr	年齡分層	1:18~29, 2:30~39, 3:40~49, 4:50~59, 5:60~69, 6:70+
q4	教育程度	1: 高中及以下, 2: 專科, 3: 大學, 4: 研究所
q5_1	週平均上網天數	
q6	上網分鐘 (工作、學習)	
q7	上網分鐘 (娛樂、休閒)	
q10	使用幾個與名人討論相關的社群媒體	
q11	是否使用 YT,Twitch 或 bilibili	1: 是,0: 否
q17_01	是否參與過: 不傷害、騙人	1: 是,0: 否
q17_02	是否參與過: 不傷害、不騙人	1: 是,0: 否
q19_01	是否參與過: 傷害、騙人	1: 是,0: 否
q19_02	是否參與過: 傷害、不騙人	1: 是,0: 否
q1719_label	是否至少有參與過一種網路惡搞	1: 是,0: 否
q20	主動激化 (引戰) 行為接受度	(接受)2~10(可以接受)
q22	他人攻擊行為的頻率	(從來沒有)5~20(經常)
q23	自己攻擊行為的頻率	(從來沒有)5~20(經常)
q24	媒體識讀素養	(低)5~20(高)
q25	網路論戰接受度	(低)4~20(高)
q26	不文明留言的影響力	(低)3~12(高)
q27_1	抵制意圖	(弱)1~5(強)
q28_YN	是否採取過抵制行為	1: 是, 0: 否
q28_1	採取過: 取消關注	1: 是, 0: 否
q28_2	採取過: 拒絕觀看	1: 是, 0: 否
q28_3	採取過: 在網路上留言或發文指責	1: 是, 0: 否
q29_1	抵制的原因: 歧視特定國家、種族或性別	1: 是, 0: 否
q29_2	抵制的原因: 有不同的政治意識型態或價值觀	1: 是, 0: 否
q29_3	抵制的原因: 做出不道德、不正當或不合法行為	1: 是, 0: 否
q30_1	抵制行為的有效程度	(無效)1~5(有效)
q31_1	抵制前的同理心	(沒同理)1~4(有同理)
q32_1	抵制行為的對名人的傷害程度	(不嚴重)1~5(嚴重)
q33_1	抵制行為的對自己的重要程度	(不重要)1~5(重要)
q34_1	抵制成本	(非常少)1~5(非常多)
q35_1	抵制規模感知	(小)1~5(大)
q36_1	抵制的社會壓力	(小)1~4(大)
q38	心理幸福感	(不滿意)2~10(滿意)
q39_1	生活品質	(不快樂)1~5(快樂)
q40	國民黨喜好程度	(不喜歡)0~5 (喜歡)
q41	民進黨喜好程度	(不喜歡) 0~5 (喜歡)
q42_1	意識形態	(台獨)0~10: (統一)
weight	人口結構修正權重	

敘述統計

DB.csv
40 Variables 1004 Observations

q1

n	missing	distinct	Info	Mean	Gmd
1004	0	2	0.724	1.594	0.4829

Value	1	2
Frequency	408	596
Proportion	0.406	0.594

---

q2_rr

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.942	2.481	1.436

Value	1	2	3	4	5	6
Frequency	281	285	221	127	71	19
Proportion	0.280	0.284	0.220	0.126	0.071	0.019

For the frequency table, variable is rounded to the nearest 0

---

q4

n	missing	distinct	Info	Mean	Gmd
1004	0	4	0.817	2.739	0.9407

Value	1	2	3	4
Frequency	155	121	559	169
Proportion	0.154	0.121	0.557	0.168

For the frequency table, variable is rounded to the nearest 0

---

q5

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	13	0.277	6.658	0.6393	4.0	6.5	7.0	7.0	7.0	7.0	7.0

Value	0.5	1.0	1.5	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
Frequency	16	8	3	8	6	9	6	1	15	6	14	11	901
Proportion	0.016	0.008	0.003	0.008	0.006	0.009	0.006	0.001	0.015	0.006	0.014	0.011	0.897

For the frequency table, variable is rounded to the nearest 0

---

q6

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	92	0.995	264.6	239.6	0	0	90	240	420	540	600

lowest : 0 1 5 10 15, highest: 900 960 1080 1200 1440

---

q7

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	91	0.991	267.9	177.9	60	90	150	240	330	480	600

lowest : 0 7 20 30 50, highest: 900 960 1020 1035 1200

---

q10

n	missing	distinct	Info	Mean	Gmd
1004	0	8	0.94	2.388	1.476

Value	0	1	2	3	4	5	6	7
Frequency	44	224	336	217	101	56	15	11
Proportion	0.044	0.223	0.335	0.216	0.101	0.056	0.015	0.011

For the frequency table, variable is rounded to the nearest 0

---

q11

n	missing	distinct	Info	Mean	Gmd
1004	0	3	0.235	1.022	0.1637

Value	0	1	2
Frequency	32	918	54
Proportion	0.032	0.914	0.054

For the frequency table, variable is rounded to the nearest 0

---

q17_1

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.225	82	0.08167	0.1502

---

q17_2

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.32	122	0.1215	0.2137

---

q19_1

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.009	3	0.002988	0.005964

---

q19_2

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.015	5	0.00498	0.00992

---

q1719_label

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.338	130	0.1295	0.2257

---

q20

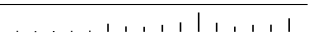
n	missing	distinct	Info	Mean	Gmd
1004	0	9	0.785	2.925	1.33

Value	2	3	4	5	6	7	8	9	10
Frequency	596	140	135	54	57	10	8	1	3
Proportion	0.594	0.139	0.134	0.054	0.057	0.010	0.008	0.001	0.003

For the frequency table, variable is rounded to the nearest 0

---

q22



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	16	0.987	15.05	3.851	10	10	13	15	18	20	20

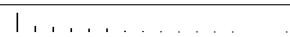
Value	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Frequency	10	3	6	9	12	82	54	50	70	95	193	90	52	70
Proportion	0.010	0.003	0.006	0.009	0.012	0.082	0.054	0.050	0.070	0.095	0.192	0.090	0.052	0.070

Value	19	20
Frequency	72	136
Proportion	0.072	0.135

For the frequency table, variable is rounded to the nearest 0

---

q23



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	14	0.92	6.989	2.504	5	5	5	6	8	10	12

Value	5	6	7	8	9	10	11	12	13	14	15	16	17	20
Frequency	423	137	115	84	76	82	30	23	14	6	7	3	2	2
Proportion	0.421	0.136	0.115	0.084	0.076	0.082	0.030	0.023	0.014	0.006	0.007	0.003	0.002	0.002

For the frequency table, variable is rounded to the nearest 0

---

q24

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	16	0.985	13.74	2.95	9	10	12	14	15	17	18

Value	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Frequency	9	5	7	9	27	70	61	106	117	183	164	107	72	46
Proportion	0.009	0.005	0.007	0.009	0.027	0.070	0.061	0.106	0.117	0.182	0.163	0.107	0.072	0.046

Value	19	20
Frequency	13	8
Proportion	0.013	0.008

For the frequency table, variable is rounded to the nearest 0

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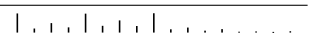
q25



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	17	0.985	9.188	4.175	4	4	6	9	12	14	16

Value	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Frequency	162	34	80	44	160	57	102	56	163	27	43	16	30	6
Proportion	0.161	0.034	0.080	0.044	0.159	0.057	0.102	0.056	0.162	0.027	0.043	0.016	0.030	0.006

Value	18	19	20
Frequency	9	3	12
Proportion	0.009	0.003	0.012

For the frequency table, variable is rounded to the nearest 0

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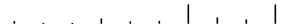
q26



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	10	0.941	9.47	2.536	5	6	9	9	12	12	12

Value	3	4	5	6	7	8	9	10	11	12
Frequency	42	6	6	84	38	47	307	100	69	305
Proportion	0.042	0.006	0.006	0.084	0.038	0.047	0.306	0.100	0.069	0.304

For the frequency table, variable is rounded to the nearest 0

---

q27

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.925	3.102	1.181

Value	1	2	3	4	5
Frequency	73	209	368	251	103
Proportion	0.073	0.208	0.367	0.250	0.103

For the frequency table, variable is rounded to the nearest 0

---

q28_YN

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.63	703	0.7002	0.4203

---

q28_1

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.75	490	0.488	0.5002

q28_2

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.726	591	0.5886	0.4848

q28_3

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.155	55	0.05478	0.1037

q29_1

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.706	381	0.3795	0.4714

q29_2

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.62	293	0.2918	0.4137

q29_3

n	missing	distinct	Info	Sum	Mean	Gmd
1004	0	2	0.723	598	0.5956	0.4822

q30

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.936	2.299	1.896

Value	0	1	2	3	4	5
Frequency	301	45	90	235	287	46
Proportion	0.300	0.045	0.090	0.234	0.286	0.046

For the frequency table, variable is rounded to the nearest 0

q31

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.924	1.784	1.491

Value	0	1	2	3	4
Frequency	301	80	222	337	64
Proportion	0.300	0.080	0.221	0.336	0.064

For the frequency table, variable is rounded to the nearest 0

q32

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.927	2.453	1.921

Value	0	1	2	3	4	5
Frequency	301	14	72	227	326	64
Proportion	0.300	0.014	0.072	0.226	0.325	0.064

For the frequency table, variable is rounded to the nearest 0

q33

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.932	2.017	1.695

Value	0	1	2	3	4	5
Frequency	301	57	155	328	141	22
Proportion	0.300	0.057	0.154	0.327	0.140	0.022

For the frequency table, variable is rounded to the nearest 0

q34

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.925	1.429	1.372

Value	0	1	2	3	4	5
Frequency	301	297	105	279	19	3
Proportion	0.300	0.296	0.105	0.278	0.019	0.003

For the frequency table, variable is rounded to the nearest 0

q35

n	missing	distinct	Info	Mean	Gmd
1004	0	6	0.932	1.993	1.782

Value	0	1	2	3	4	5
Frequency	301	132	63	330	137	41
Proportion	0.300	0.131	0.063	0.329	0.136	0.041

For the frequency table, variable is rounded to the nearest 0

q36

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.924	1.306	1.176

Value	0	1	2	3	4
Frequency	301	244	320	129	10
Proportion	0.300	0.243	0.319	0.128	0.010

For the frequency table, variable is rounded to the nearest 0

q38

n	missing	distinct	Info	Mean	Gmd
1004	0	9	0.951	6.232	1.561

Value	2	3	4	5	6	7	8	9	10
Frequency	12	22	81	154	301	247	151	30	6
Proportion	0.012	0.022	0.081	0.153	0.300	0.246	0.150	0.030	0.006

For the frequency table, variable is rounded to the nearest 0

q39

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.863	3.26	0.8707

Value	1	2	3	4	5
Frequency	28	127	443	368	38
Proportion	0.028	0.126	0.441	0.367	0.038

For the frequency table, variable is rounded to the nearest 0

q40

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.916	2.345	1.31

Value	1	2	3	4	5
Frequency	346	171	335	99	53
Proportion	0.345	0.170	0.334	0.099	0.053

For the frequency table, variable is rounded to the nearest 0

q41

n	missing	distinct	Info	Mean	Gmd
1004	0	5	0.923	2.472	1.321

Value	1	2	3	4	5
Frequency	301	167	351	131	54
Proportion	0.300	0.166	0.350	0.130	0.054

For the frequency table, variable is rounded to the nearest 0

q42

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	11	0.859	3.869	2.235	0	0	2	5	5	5	6

Value	0	1	2	3	4	5	6	7	8	9	10
Frequency	140	60	53	76	82	518	28	15	9	3	20
Proportion	0.139	0.060	0.053	0.076	0.082	0.516	0.028	0.015	0.009	0.003	0.020

For the frequency table, variable is rounded to the nearest 0

weight

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
1004	0	387	1	1.001	1.122	0.2251	0.2592	0.3170	0.4422	0.7359	2.7754	3.8788

lowest : 0.159109 0.163467 0.163625 0.170256 0.176108, highest: 12.5196 13.2911 13.8745 14.1467 20.0266

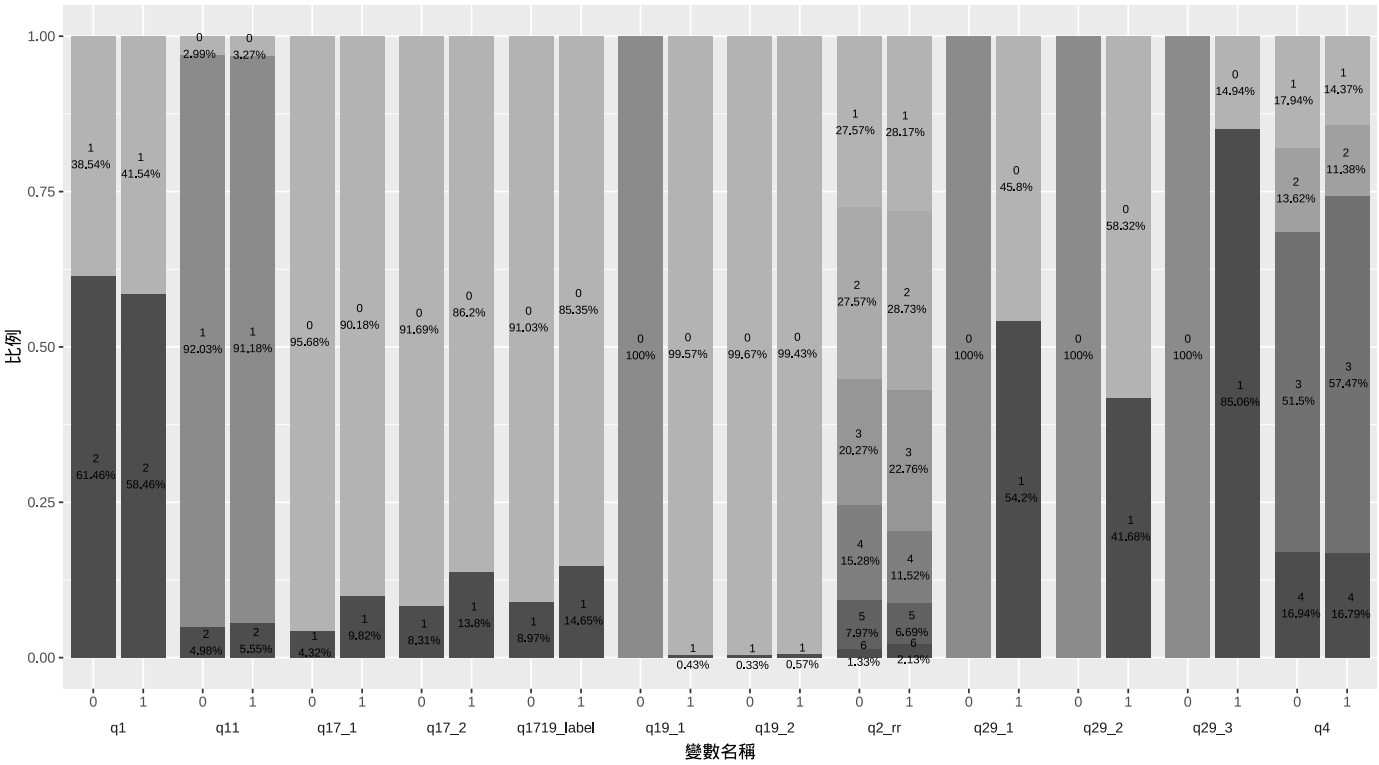
各變數依有無抵制行為分類畫比例圖

抵制程度與其他因素之關聯分析

Canonical analysis and PCA-對全部變數做

```
[1] 0.5561838 0.3779913 0.2467229

                  [,1]        [,2]
q2_rr       -0.34266949 -0.12711767
q4           0.38487966 -0.15842647
q5           0.19914117  0.23277952
q6           0.26345928  0.11129500
q7           0.25597871  0.19167914
q10          0.34336636 -0.05520667
q11          0.26924437 -0.10191258
```

各變數依據是否有抵制行為分類之比例圖




```
q1719_label    0.26642705 -0.11947314
q20            0.12905657 -0.31645562
q22            0.58027872 -0.04811900
q23            0.30722923 -0.21727920
q24            0.45986052 -0.02083631
q25            0.13248128 -0.11773570
q26            0.54426288  0.03699984
q27            0.44448715 -0.44852953
q28_1_2        0.02414203  0.24982439
q28_3          0.07609393 -0.35184289
q29_1          0.33046972 -0.12221603
q29_2         -0.17379321 -0.18147466
q29_3          0.31538893  0.02180216
q31            0.32667211  0.44132060
q33            0.54874451 -0.07820923
q34            0.11960599  0.33788881
q36            0.36602606 -0.02013521
q29_1_2_inter  0.13162928 -0.22028703
q29_1_3_inter  0.39016731 -0.09069338
q38            0.06768219  0.11086560
q39            0.07310548  0.15654272
q40           -0.34264406  0.26799181
q41            0.08027230  0.09291283
q42           -0.35131883  0.14988977
```

```
         [,1]       [,2]
q30 0.4995686 -0.03443097
q32 0.3064858  0.88958246
q35 0.9630194 -0.11880929
```

```
[1] 0.7751 0.3213
```

```
[1] 0.3177 0.2017
```

```
[1] 0.2397 0.0459
```

```
[1] 0.0983 0.0288
```

把相關性 <0.2 的刪除

Canonical analysis and PCA-對部分變數做

```
[1] 0.5493481 0.3077433 0.2154761
```

```
                    [,1]         [,2]
q2_rr         -0.3408722  0.116294002
q4             0.3939827  0.168113039
q6             0.2627364 -0.144760731
q7             0.2526976 -0.241792023
q10            0.3475554  0.091713828
q11            0.2747058  0.129625641
q1719_label    0.2725526  0.145531706
q22            0.5880407  0.025256918
q23            0.3165768  0.270230718
q24            0.4658894 -0.015795455
q26            0.5488353 -0.069505664
q27            0.4639449  0.488644417
q29_1          0.3375125  0.140158266
q29_2         -0.1707743  0.254975893
q29_3          0.3194057 -0.090509080
q31            0.3182456 -0.612910391
q33            0.5578086  0.037667626
q36            0.3708340 -0.004645566
q29_1_2_inter  0.1395356  0.270659736
q29_1_3_inter  0.3971705  0.088206845
q40           -0.3548512 -0.296692495
q42           -0.3592300 -0.180111853
```

```
         [,1]       [,2]
q30 0.5075172 -0.1276347
q32 0.2689797 -0.9450105
q35 0.9654139  0.1148991
```

```
[1] 0.7704 0.2891
```

```
[1] 0.3155 0.2306
```

```
[1] 0.2325 0.0274
```

```
[1] 0.0952 0.0218
```

Logistic regression model

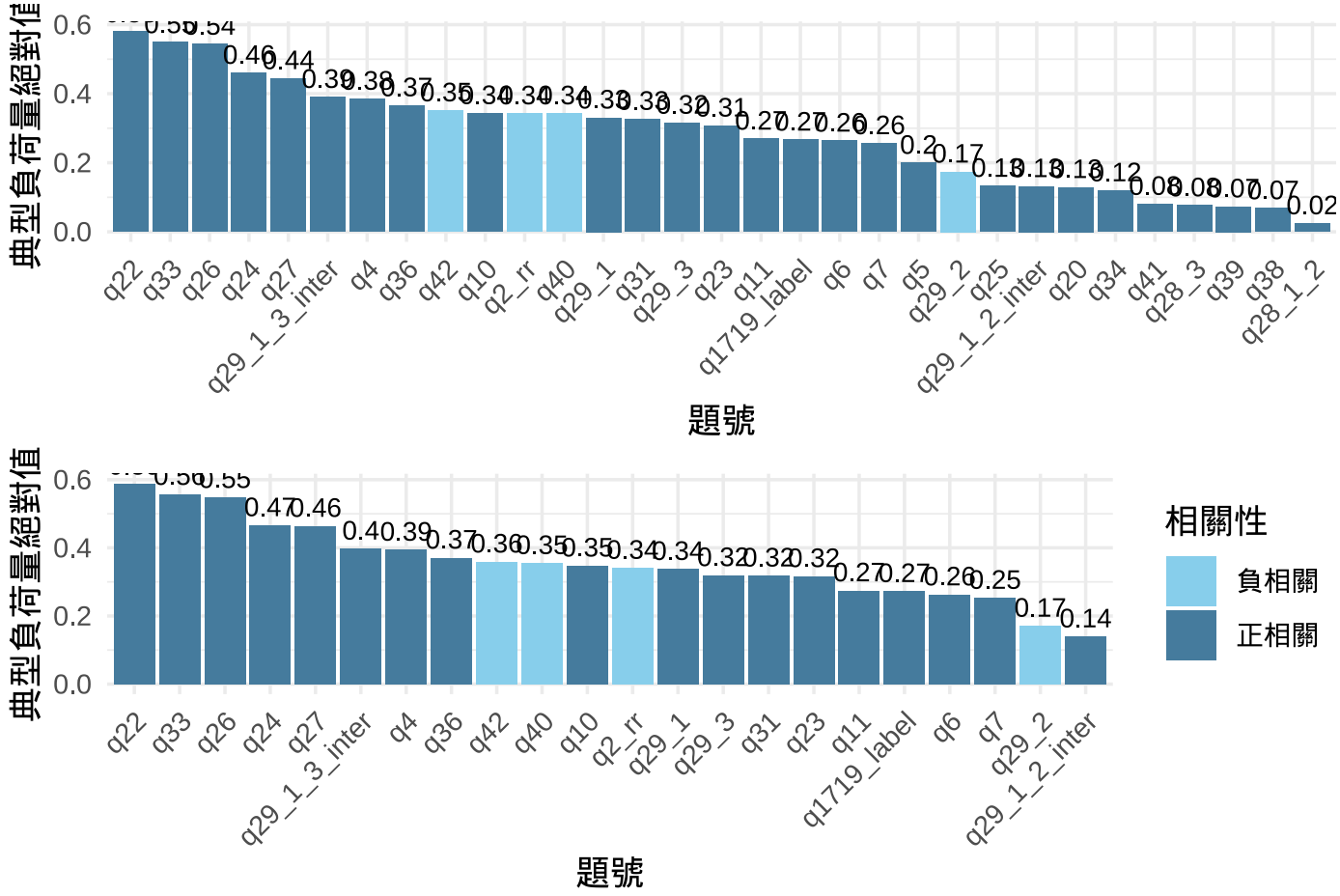
可以知道有使用 youtube 和 twitch 的人、越不能接受別人因為一些因素而罵他的人做出抵制行為的機率越小，越常做出網路攻擊行為和看到別人的攻擊行為、越想抵制名人的話就越有可能做出抵制行為。

q10 跟 q24 注意一下可能有關連

Logistic model 的變數選取方法參照Variable selection – A review and recommendations for the practicing statistician整理出的建議標準。

我們的 EPV(Event Per Variable) 是以 q28_YN 作為反應變數的情況下，可使用的解釋變數是 36=41-weight-q28_1~q28_3-q28_YN(反應變數)=

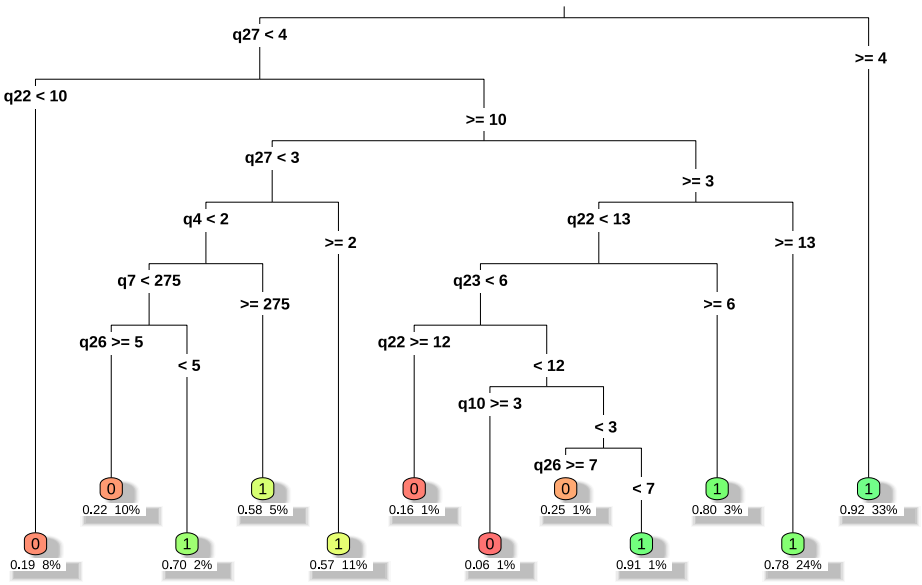
```
               Estimate   Std. Error   z value     Pr(>|z|)
(Intercept) -4.133369543 0.6755910429 -6.118153 9.466600e-10
q2_rr        0.138545731 0.0619525965  2.236318 2.533092e-02
q4           0.112791142 0.0797498661  1.414311 1.572705e-01
```




```
q7           0.001077181 0.0005208604  2.068080 3.863250e-02
q11         -0.408117557 0.2667164164 -1.530155 1.259783e-01
q22          0.132368312 0.0247272204  5.353142 8.644015e-08
q23          0.107733712 0.0410475737  2.624606 8.674926e-03
q24         -0.066376973 0.0303476804 -2.187217 2.872666e-02
q27          0.942418746 0.0881405693 10.692224 1.106840e-26
```

```
                 Estimate   Std. Error    z value     Pr(>|z|)
(Intercept) -4.226861e+00 0.7696724491 -5.4917666 3.979331e-08
factor(q1)2 -4.920600e-02 0.1622429723 -0.3032859 7.616720e-01
q2_rr        1.220499e-01 0.0671322562  1.8180518 6.905621e-02
q4           1.161110e-01 0.0841034557  1.3805739 1.674100e-01
q5           3.819072e-02 0.0453182474  0.8427229 3.993835e-01
q6          -7.395442e-05 0.0004360273 -0.1696096 8.653172e-01
q7           1.083682e-03 0.0005427127  1.9967877 4.584825e-02
q10         -6.655493e-02 0.0687609012 -0.9679182 3.330852e-01
q11         -4.030700e-01 0.2694425081 -1.4959406 1.346691e-01
q20          2.207562e-02 0.0626781644  0.3522059 7.246838e-01
q22          1.342025e-01 0.0297319289  4.5137518 6.369076e-06
q23          1.034683e-01 0.0426483262  2.4260819 1.526283e-02
q24         -6.529589e-02 0.0313880877 -2.0802761 3.750022e-02
q25          6.690675e-03 0.0218581909  0.3060947 7.595326e-01
q26         -7.137902e-03 0.0369011421 -0.1934331 8.466198e-01
q27          9.411282e-01 0.0886444113 10.6168928 2.487022e-26
```

這個模型的節具象



Decision tree

glmnet

```
16 x 1 sparse Matrix of class "dgCMatrix"
                      s1
(Intercept) -0.004137663
factor(q1)2  .
q2_rr        0.003954779
q4           .
q5           0.007744427
q6           .
q7           .
q10          .
q11         -0.035702073
q20          0.003489347
q22          0.009061882
q23          0.017838738
q24          0.003400583
q25          .
q26         -0.006970239
q27          0.137817452
```

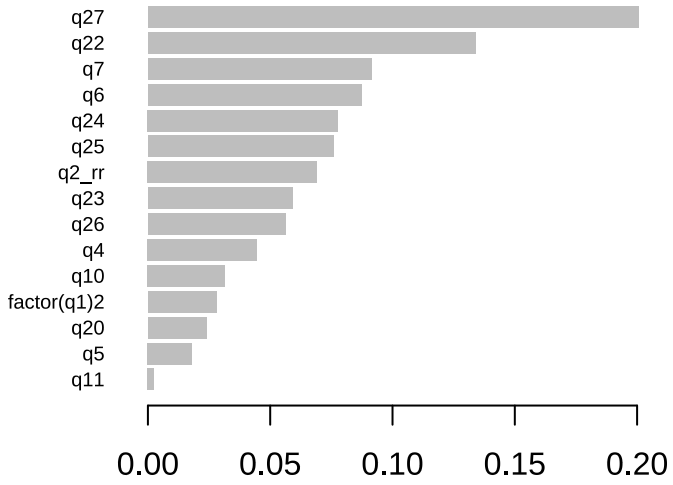
```
Call:
glm(formula = factor(q28_YN) ~ q2_rr + q4 + q5 + q6 + q11 + q20 +
    q22 + q23 + q24 + q25 + q26 + q27, family = binomial, data = DB.csv,
    weights = weight)

Coefficients:
             Estimate Std. Error z value Pr(>|z|)
(Intercept) -4.181e+00  7.149e-01  -5.848 4.96e-09 ***
q2_rr        1.218e-01  6.196e-02   1.966   0.0493 *
q4           9.393e-02  8.278e-02   1.135   0.2565
q5           4.557e-02  4.449e-02   1.024   0.3057
q6           8.438e-05  4.169e-04   0.202   0.8396
q11         -4.203e-01  2.671e-01  -1.574   0.1155
```

```
q20          3.092e-02  6.207e-02   0.498   0.6184
q22          1.347e-01  2.959e-02   4.553 5.30e-06 ***
q23          1.067e-01  4.168e-02   2.559   0.0105 *
q24         -7.089e-02  3.108e-02  -2.281   0.0226 *
q25          6.793e-03  2.157e-02   0.315   0.7529
q26          2.383e-04  3.668e-02   0.006   0.9948
q27          9.384e-01  8.841e-02  10.615  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1261.7  on 1003  degrees of freedom
Residual deviance: 1028.4  on  991  degrees of freedom
AIC: 932.88

Number of Fisher Scoring iterations: 5
```

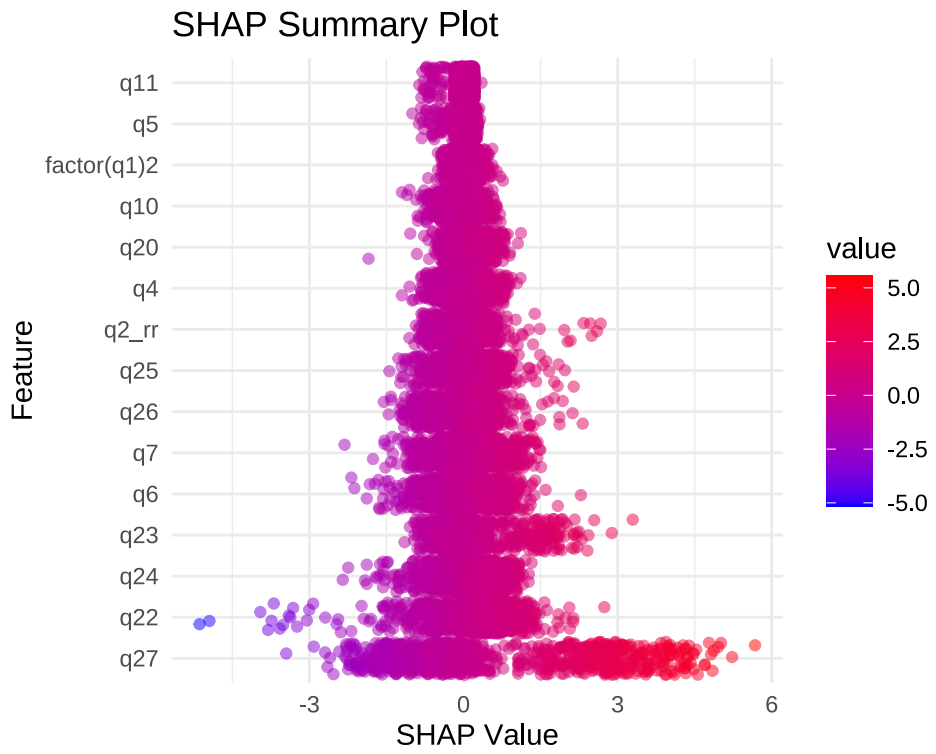
XGboost

```
        Feature        Gain      Cover   Frequency
         <char>       <num>      <num>       <num>
 1:         q27 0.200510764 0.14986138 0.056331007
 2:         q22 0.133835425 0.10788980 0.105184447
 3:          q7 0.091330404 0.11710668 0.126121635
 4:          q6 0.087438931 0.11404843 0.122133599
 5:         q24 0.077734713 0.08543438 0.099700897
 6:         q25 0.076031973 0.07654591 0.094217348
 7:       q2_rr 0.069100679 0.04840269 0.063808574
 8:         q23 0.059092613 0.08103531 0.079760718
 9:         q26 0.056171096 0.06543503 0.072283151
10:          q4 0.044628098 0.04126913 0.055832502
11:         q10 0.031542328 0.03911213 0.050847458
12: factor(q1)2 0.027981144 0.01446209 0.024925224
13:         q20 0.024096527 0.03192305 0.029411765
14:          q5 0.018035415 0.01539175 0.013958126
15:         q11 0.002469889 0.01208223 0.005483549
```

```
$shap_score
      factor(q1)2       q2_rr           q4           q5          q6          q7
            <num>       <num>        <num>        <num>       <num>       <num>
   1: -0.05291108  0.15691492 -0.514282167  0.107510969 -0.03501144  0.61428833
   2: -0.03804322  0.66198993  0.500798821  0.044495411 -0.25388312 -0.07906581
   3:  0.30124280  0.10885221 -0.217827514  0.049778830  0.91300434 -0.66021556
   4: -0.15189847 -0.07434784  0.007799798 -0.013059865 -0.35678056  0.21622194
   5: -0.05766268  0.20496246 -0.349931628  0.222510144  0.07656764 -0.07468783
  ---
1000:  0.04110148 -0.61297596  0.013911518 -0.003203744 -0.58729368 -0.11328854
1001:  0.15003079 -0.15809917 -0.651927292  0.026580764  0.72794259  0.92444080
1002: -0.08099592 -0.32781160  0.026317565  0.002380930  0.31439698  0.49518225
1003: -0.02017495 -0.08020609  0.298285365  0.049558733 -0.35419035  0.04893903
1004:  0.06181900  0.23888724 -0.175045028  0.037077535  0.46798557  0.21641597
              q10         q11          q20         q22          q23         q24
            <num>       <num>        <num>       <num>        <num>       <num>
   1:  0.127457291 0.01783300 -0.254262596 -1.34608972 -0.243571937  0.14522108
   2:  0.036662769 0.02474033  0.003492521  0.52687192  1.800945044 -0.05042689
   3: -0.187671736 0.01991163  0.044680826  1.25518298 -0.120019943 -0.11986512
   4:  0.201905191 0.01820237  0.127911299  0.60540199 -0.091351420 -0.47970963
   5:  0.083755620 0.01309785 -0.143812791  0.31676680  1.542876005 -0.24068443
```



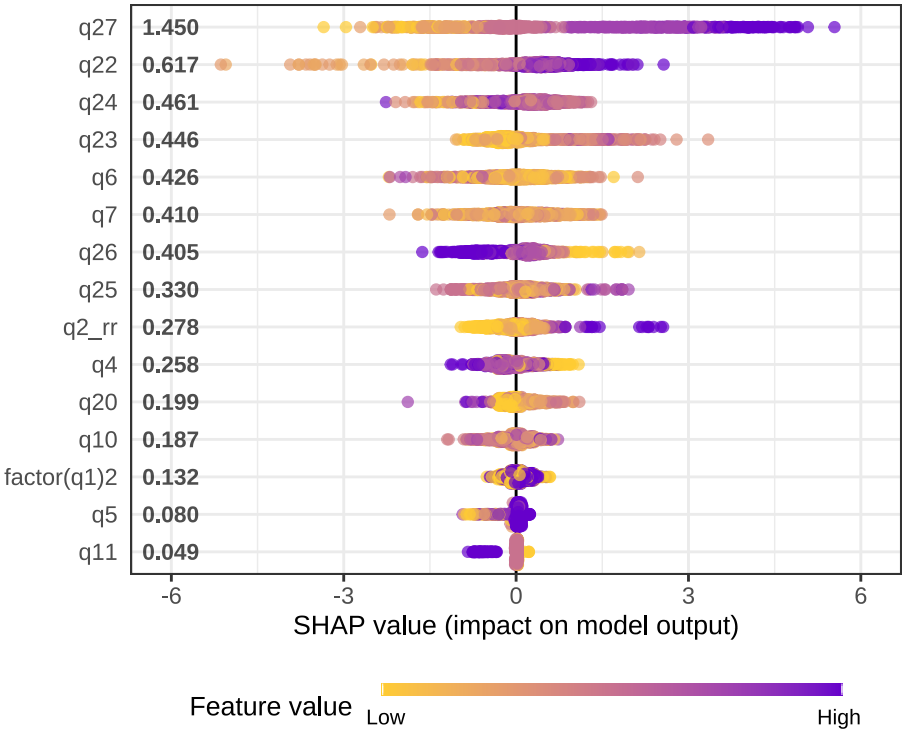

```
  ---
1000:  0.154443979 0.01938938 -0.174130142 -0.19928446 -0.061704461  0.69123656
1001:  0.006108247 0.01923613 -0.084150225  0.72979736 -0.051257744  0.57152742
1002: -0.206083208 0.01426584 -0.143989041  0.41245130  0.461106896  0.72220165
1003:  0.189425349 0.02641905  0.439815134  0.06346079 -0.328560501  0.64774746
1004: -0.252529025 0.01957053 -0.015451639  0.69806492  0.008263929  0.70546347
             q25         q26         q27
           <num>       <num>       <num>
   1: -0.05801377 -0.16845839 -0.57342768
   2:  0.48889813  0.28977826  0.37257659
   3: -0.75596738  0.40505016 -0.22419710
   4: -0.70940357 -0.60682899 -1.00455034
   5:  0.18101855 -0.40762818  3.62704206
  ---
1000:  0.06543855 -0.59360772 -1.61921859
1001:  0.16276813 -0.61529320 -0.09688544
1002:  1.36524403 -0.50274253 -0.67414463
1003:  1.84676373  0.05711459 -1.33648241
1004:  0.65931511  0.19910364  3.51921916

$mean_shap_score
       q27         q22         q24         q23          q6          q7
 1.45027136  0.61723131  0.46055746  0.44620832  0.42553986  0.40982154
       q26         q25       q2_rr          q4         q20         q10
 0.40501578  0.32988680  0.27816917  0.25791766  0.19946306  0.18716857
factor(q1)2          q5         q11
 0.13234583  0.08041424  0.04918274

$BIAS0
       BIAS
      <num>
1: 0.9782695
```



參考文獻

[1] 台灣消費者抵制行為之研究 —以台商親中言論衍生之抵制為例

[2] Variable selection – A review and recommendations for the practicing statistician


q27 1.450
q22 0.617
q24 0.461
q23 0.446
q6 0.426
q7 0.410
q26 0.405
q25 0.330
q2_rr 0.278
q4 0.258
q20 0.199
q10 0.187
factor(q1)2 0.132
q5 0.080
q11 0.049
-6
-3
0
3
6
SHAP value (impact on model output)
Feature value
Low
High