

原因動機別自殺および社会生活基本調査をリンクしたデータのPLS回帰分析

パッケージのインストールと読み込み

```
> #install.packages("pls")
> library(pls)
> #install.packages("readxl")
> library(readxl)
> lula <- read_excel("lula.xls", sheet = "data") # 付録A
> dim(lula)
```

```
[1] 47 105
```

経済・生活問題自殺者の分析

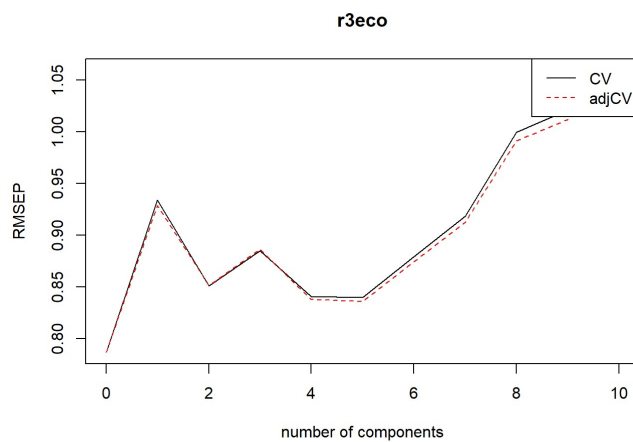
```
> lula.pls <- pls(r3eco ~ ., ncomp = 10, data = lula[, -c(1:4, 6:9)], validation = "LOO")
> summary(lula.pls)
```

```
Data: X dimension: 47 96
      Y dimension: 47 1
Fit method: kernelpls
Number of components considered: 10
```

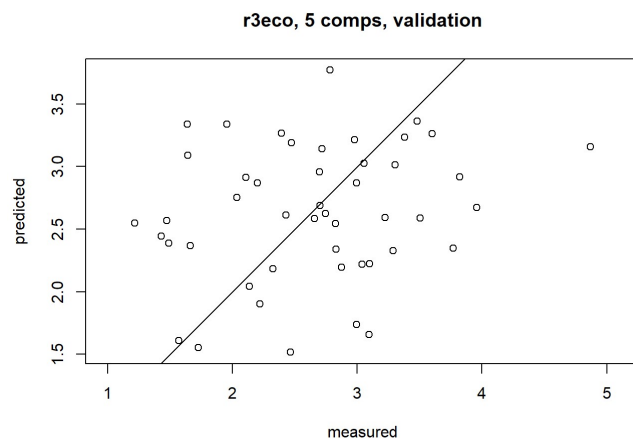
```
VALIDATION: RMSEP
Cross-validated using 47 leave-one-out segments.
      (Intercept) 1 comps 2 comps 3 comps 4 comps 5 comps 6 comps
CV          0.787 0.9343 0.8510 0.8849 0.8409 0.8400 0.8793
adjCV        0.787 0.9286 0.8515 0.8865 0.8383 0.8361 0.8743
      7 comps 8 comps 9 comps 10 comps
CV      0.9188 0.9995 1.021 1.06
adjCV    0.9127 0.9914 1.012 1.05
```

```
TRAINING: % variance explained
      1 comps 2 comps 3 comps 4 comps 5 comps 6 comps 7 comps 8 comps
X      14.65 42.32 60.30 70.56 76.56 78.85 81.91 83.39
r3eco  22.21 34.93 47.57 59.67 66.62 75.89 80.86 86.37
      9 comps 10 comps
X      84.71 85.72
r3eco  90.03 92.51
```

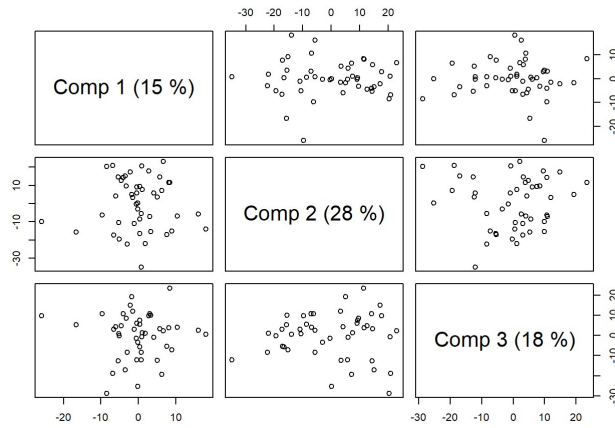
```
> plot(RMSEP(lula.pls), legendpos = "topright")
```



```
> plot(lula.pls, ncomp = 5, asp = 1, line = TRUE)
```



```
> plot(lula.pls, plottype = "scores", comps = 1:3)
```



```
> explvar(lula.pls)
```

```

Comp 1  Comp 2  Comp 3  Comp 4  Comp 5  Comp 6  Comp 7  Comp 8
14.654019 27.669061 17.979698 10.257516  6.004438  2.282651  3.060802  1.486479
Comp 9  Comp 10
1.312603  1.008910

```

全ての問題の自殺と生活基本調査の正準相関分析

```
> lula.pls <- plsrf( r1fam+r2hel+r3eco+r4wor+r5lov+r6sch+r7oth ~ ., ncomp = 10, data = lula[,-(1:2)], validation = "LOO")
> summary(lula.pls)
```

```

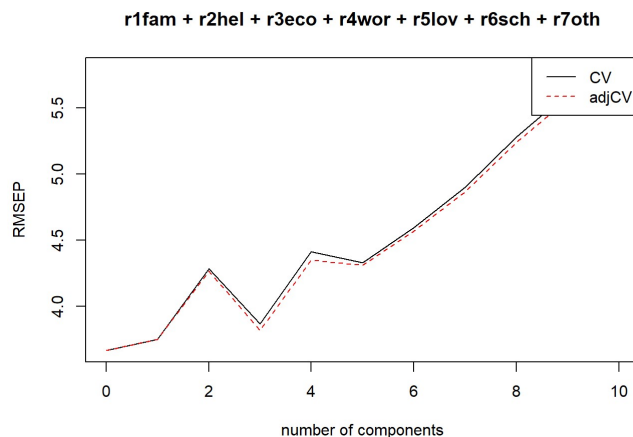
Data:  X dimension: 47 96
       Y dimension: 47 1
Fit method: kernelpls
Number of components considered: 10

VALIDATION: RMSEP
Cross-validated using 47 leave-one-out segments.
      (Intercept)  1 comps  2 comps  3 comps  4 comps  5 comps  6 comps
CV           3.666    3.75    4.284    3.868    4.413    4.328    4.594
adjCV        3.666    3.75    4.266    3.819    4.349    4.312    4.569
      7 comps  8 comps  9 comps 10 comps
CV       4.903    5.280    5.612    5.796
adjCV    4.870    5.241    5.565    5.741

TRAINING: % variance explained
                                     1 comps  2 comps
X                                     37.280   46.86
r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth  7.079   26.44
                                     3 comps  4 comps
X                                     51.37   59.48
r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth  50.65   58.46
                                     5 comps  6 comps
X                                     75.58   78.47
r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth  61.66   71.54
                                     7 comps  8 comps
X                                     81.59   83.58
r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth  77.74   83.22
                                     9 comps 10 comps
X                                     84.91   85.79
r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth  88.38   92.91

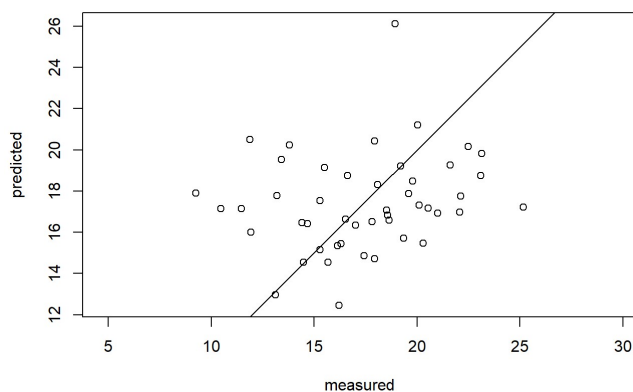
```

```
> plot(RMSEP(lula.pls), legendpos = "topright")
```

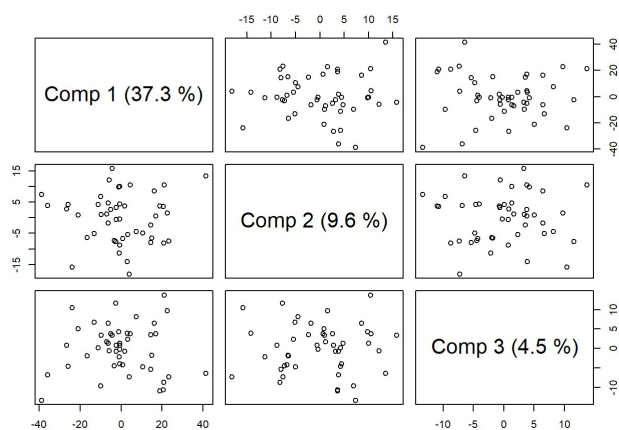


```
> plot(lula.pls, ncomp = 3, asp = 1, line = TRUE)
```

r1fam + r2hel + r3eco + r4wor + r5lov + r6sch + r7oth, 3 comps, validatic



```
> plot(lula.pls, plottype = "scores", comps = 1:3)
```



```
> explvar(lula.pls)
```

Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7
37.2799887	9.5800403	4.5093864	8.1130185	16.0937437	2.8927401	3.1243833
Comp 8	Comp 9	Comp 10				
1.9841437	1.3292289	0.8799715				

和歌山県の経済・生活問題

```
> lula.pls <- plsr( r3eco ~ ., ncomp = 10, data = lula[-30,-c(1:4,6:9)], validation = "LOO")
> summary(lula.pls)
```

Data: X dimension: 46 96
Y dimension: 46 1
Fit method: kernelppls
Number of components considered: 10

VALIDATION: RMSEP

Cross-validated using 46 leave-one-out segments.

	(Intercept)	1 comps	2 comps	3 comps	4 comps	5 comps	6 comps
CV	0.7759	0.9563	0.8463	0.8317	0.8668	0.849	0.8942
adjCV	0.7759	0.9458	0.8469	0.8265	0.8637	0.845	0.8886

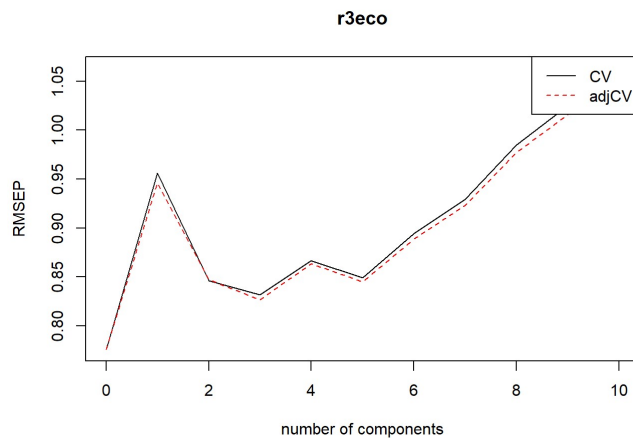
	7 comps	8 comps	9 comps	10 comps
CV	0.9296	0.9851	1.025	1.064
adjCV	0.9235	0.9772	1.015	1.054

TRAINING: % variance explained

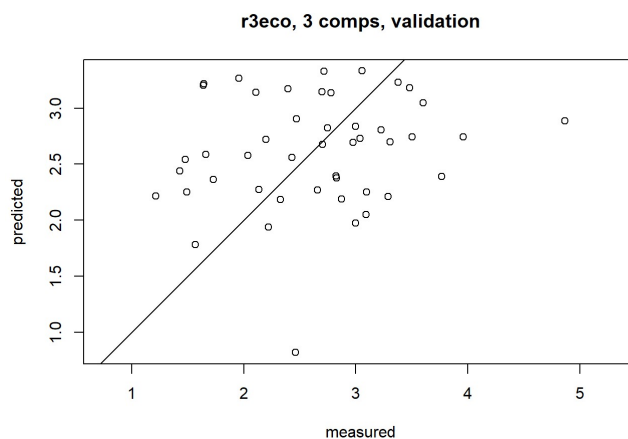
	1 comps	2 comps	3 comps	4 comps	5 comps	6 comps	7 comps	8 comps
X	8.17	39.56	52.76	67.90	76.71	78.90	82.10	83.72
r3eco	28.17	37.02	52.81	59.36	65.63	75.99	80.52	86.00

	9 comps	10 comps
X	84.84	85.83
r3eco	90.10	92.45

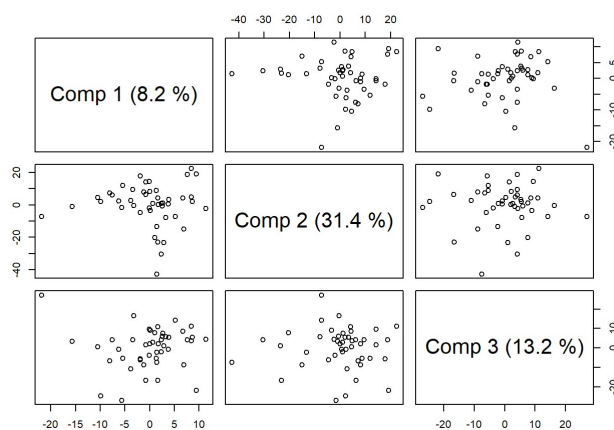
```
> plot(RMSEP(lula.pls), legendpos = "topright")
```



```
> plot(lula.pls, ncomp = 3, asp = 1, line = TRUE)
```



```
> plot(lula.pls, plotype = "scores", comps = 1:3)
```



```
> explvar(lula.pls)
```

Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7
8.1703482	31.3905486	13.2014184	15.1389823	8.8094600	2.1843520	3.2080489
Comp 8	Comp 9	Comp 10				
1.6195230	1.1186161	0.9854129				

```
> predict(lula.pls, ncomp = 3, newdata = lula[30, -c(1:4, 6:9)])
```

```
, , 3 comps
```

```
      r3eco  
1 2.712462
```

```
> lula$r3eco[30]
```

```
[1] 3.821719
```