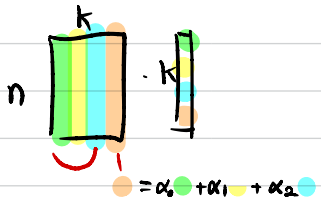
Data generating case

1. multicollinearity

p	PC	IC	ON	ER	GR	ACT
300	1	1	2.54	1.91	1.94	2.51
500	1	1	3.65	2.65	2.67	3.66
1000	1	1	4	3.69	3.69	4.03



B의 마지막 column이 나머지 columns의 linear combination.

1~4행의 각 element는 iid from $N(0,1)$ 그리고 weights도 iid from $N(0,1)$

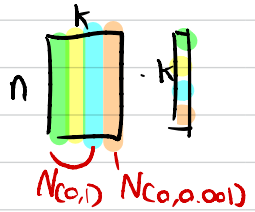
$\gamma_1^2 = \cdots = \gamma_p^2 = 36$

+ 마지막 2개 column을 앞 3 column의 linear combination으로

p	PC	IC	ON	ER	GR	ACT
300	1	1	2.21	1.76	1.77	2.12
500	1	1	2.94	2.19	2.20	2.96
1000	1	1	3.02	2.92	2.93	3.01

2. scale

p	PC	IC	ON	ER	GR	ACT
300	1	1	2.48	1.95	1.95	2.53
500	1	1	3.69	2.7	2.72	3.97
1000	1	1	4	3.9	3.9	4



앞 4개행은 iid from $N(0,1)$이고 마지막행은 iid from $N(0,0.001)$으로해 factor 영향력을 다르게 함

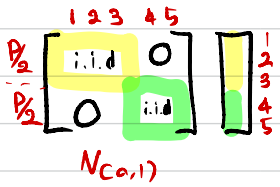
$\gamma_1^2 = \cdots = \gamma_p^2 = 36$

+앞 3 column은 iid from $N(0,1)$이고 마지막 2 column은 iid from $N(0,0.001)$

	PC	IC	ON	ER	GR	ACT
300	1	1	2.21	1.68	1.69	2.1
500	1	1	2.93	2.28	2.28	2.98
1000	1	1	3.02	2.95	2.98	3.03

3. Block 모양(뭐라 했더라..)

p	PC	IC	ON	ER	GR	ACT
300	1	1	0.89	2.52	2.53	1.04
500	1	1	1.34	1.96	2.04	1.16
1000	1	1	2.7	1.95	2.01	2.89



B를 block화 해서 $B = \begin{bmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{bmatrix}$

A_{11}, A_{22} : iid from $N_{(0,1)}$

A_{12}, A_{21} : 영행렬

A_{11}은 $p/2 \times 3$, A_{22}는 $p/2 \times 2$ size matrix임

$\gamma_1^2 = \cdots = \gamma_p^2 = 36$

4. no error term

p	PC	IC	ON	ER	GR	ACT
300						
500	4.63	4.63	5.13	5	6.26	5
1000						

B의 element 들 iid from $N_{(0,1)}$ 이고 ε가 $\begin{pmatrix} 0 \\ \vdots \\ 0 \end{pmatrix}$인 경우

5. diagonal matrix

p	PC	IC	ON	ER	GR	ACT
300						
500	1	1	0.64	2.91	3.06	1
1000						

B의 diagonal 성분 만 1이고 나머지는 0. $\gamma_1^2 = \cdots = \gamma_p^2 = 36$