



User: Thamchanok Pianmuean  
Project: Assignment 10

```
x2 | -.5031798 .297949 -1.69 0.091 -1.087149 .0807895
name: <unnamed>
log: C:\Users\Kriss\OneDrive\เดสก์ท็อป\426\ASSSSSSSSS10.smcl
log type: smcl
opened on: 8 Apr 2021, 10:43:17
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1 . probit y1 x1 x2 x3

```
Iteration 0: log likelihood = -45.533775
Iteration 1: log likelihood = -35.05321
Iteration 2: log likelihood = -34.122847
Iteration 3: log likelihood = -34.092095
Iteration 4: log likelihood = -34.09209
Iteration 5: log likelihood = -34.09209
```

```
Probit regression                               Number of obs   =          67
LR chi2(3)                                     =          22.88
Prob > chi2                                    =          0.0000 < 0.05
Pseudo R2                                      =          0.2513
```

Log likelihood = -34.09209

y1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
x1	2.574932	.7958181	3.24	0.001 < 0.05	1.015157 4.134707
x2	-.5031798	.297949	-1.69	0.091 > 0.05	-1.087149 .0807895
x3	.3449061	.1616015	2.13	0.033 < 0.05	.028173 .6616392
_cons	-2.186903	.6334447	-3.45	0.001 < 0.05	-3.428432 -.9453743

Note: 1 failure and 0 successes completely determined.  $x_2$  is insignificant at .05 level.

2 . mfx *sign meaning*

```
Marginal effects after probit
y = Pr(y1) (predict)
= .36909834
```

variable	dy/dx	Std. Err.	z	P> z	[ 95% C.I. ]	X
x1	.9714414	.29574	3.28	0.001	.391805 1.55108	.696478
x2	-.189834	.10927	-1.74	0.082	-.404001 .024333	.376661
x3	.1301223	.06173	2.11	0.035	.009127 .251118	.721375

3 . probit y2 x1 x2 x3

```
Iteration 0: log likelihood = -22.432361
Iteration 1: log likelihood = -19.734461
Iteration 2: log likelihood = -19.678976
Iteration 3: log likelihood = -19.678766
Iteration 4: log likelihood = -19.678766
```

```
Probit regression                               Number of obs   =          67
LR chi2(3)                                     =           5.51
Prob > chi2                                    =          0.1382 > 0.05
Pseudo R2                                      =          0.1228
```

Log likelihood = -19.678766

y2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
x1	1.196021	.8449952	1.42	0.157	-.4601389 2.852182
x2	-.1604507	.1166507	-1.38	0.169	-.3890818 .0681804
x3	.1023406	.2083685	0.49	0.623	-.3060541 .5107354
_cons	.5275558	.5565448	0.95	0.343	-.563252 1.618364

$H_0$  is rejected.  
Not overall significant.

*They're all insignificant at .05 level.*

4 . mfx *sign & memory.*

Marginal effects after probit  
 y = Pr(y2) (predict)  
 = .91527113

variable	dy/dx	Std. Err.	z	P> z	[ 95% C.I. ]	X
x1	.1856662	.12471	1.49	0.137	-.058758 .43009	.696478
x2	-.0249078	.0197	-1.26	0.206	-.063525 .013709	.376661
x3	.015887	.03182	0.50	0.618	-.046482 .078256	.721375

5 . probit y3 x1 x2 x3 *→ sign & memory next page.*

Iteration 0: log likelihood = -39.952416  
 Iteration 1: log likelihood = -35.846932  
 Iteration 2: log likelihood = -35.496676  
 Iteration 3: log likelihood = -35.486934  
 Iteration 4: log likelihood = -35.486933

Probit regression  
 Number of obs = 67  
 LR chi2(3) = 8.93  
 Prob > chi2 = 0.0302  
 Pseudo R2 = 0.1118

*< 0.05*

Log likelihood = -35.486933

y3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
x1	1.549326	.6925982	2.24	0.025	.1918581 2.906793
x2	-.33157	.2931093	-1.13	0.258	-.9060538 .2429137
x3	.0952456	.1142564	0.83	0.404	-.128693 .3191841
_cons	-1.713771	.5536004	-3.10	0.002	-2.798808 -.6287342

6 . mvprobit (y1 x1 x2 x3) (y2 x1 x2 x3) (y3 x1 x2 x3)

*half of them are insignificant at .05 level.*

Iteration 0: log likelihood = -89.257789  
 Iteration 1: log likelihood = -88.984177  
 Iteration 2: log likelihood = -88.982664  
 Iteration 3: log likelihood = -88.982663

Multivariate probit (MSL, # draws = 5)  
 Number of obs = 67  
 Wald chi2(9) = 25.03  
 Prob > chi2 = 0.0029

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
<b>y1</b>					
x1	2.592376	.8023984	3.23	0.001	1.019704 4.165048
x2	-.5314422	.3036422	-1.75	0.080	-1.12657 .0636857
x3	.3491611	.1619024	2.16	0.031	.0318383 .6664839
_cons	-2.194319	.6357735	-3.45	0.001	-3.440412 -.9482253
<b>y2</b>					
x1	1.221734	.8478931	1.44	0.150	-.4401059 2.883574
x2	-.1557306	.1180077	-1.32	0.187	-.3870215 .0755604
x3	.1054215	.2100288	0.50	0.616	-.3062274 .5170704
_cons	.5119029	.5577948	0.92	0.359	-.5813547 1.605161
<b>y3</b>					
x1	1.535622	.6913496	2.22	0.026	.1806018 2.890642
x2	-.3542075	.2987204	-1.19	0.236	-.9396887 .2312737
x3	.0956571	.1143892	0.84	0.403	-.1285416 .3198557
_cons	-1.691533	.5520363	-3.06	0.002	-2.773504 -.6095614
/atrho21	.1028098	.306035	0.34	0.737	-.4970077 .7026274
/atrho31	.1399288	.2264305	0.62	0.537	-.3038669 .5837245
/atrho32	.1014794	.268692	0.38	0.706	-.4251472 .628106

. probit y3 x1 x2 x3

Iteration 0: log likelihood = -39.952416  
 Iteration 1: log likelihood = -35.846932  
 Iteration 2: log likelihood = -35.496676  
 Iteration 3: log likelihood = -35.486934  
 Iteration 4: log likelihood = -35.486933

Probit regression	Number of obs	=	67
	LR chi2(3)	=	8.93
	Prob > chi2	=	0.0302
Log likelihood = -35.486933	Pseudo R2	=	0.1118

y3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
x1	1.549326	.6925982	2.24	0.025	.1918581 2.906793
x2	-.33157	.2931093	-1.13	0.258	-.9060538 .2429137
x3	.0952456	.1142564	0.83	0.404	-.128693 .3191841
_cons	-1.713771	.5536004	-3.10	0.002	-2.798808 -.6287342

. mfx

*sign & meaning.*

Marginal effects after probit

y = Pr(y3) (predict)  
 = .24481972

variable	dy/dx	Std. Err.	z	P> z	[	95% C.I.	]	X
x1	.4868603	.21595	2.25	0.024	.063601	.91012		.696478
x2	-.1041926	.08805	-1.18	0.237	-.276762	.068377		.376661
x3	.02993	.03593	0.83	0.405	-.040493	.100353		.721375

rho21	.1024491	.3028229	0.34	0.735	-.4597606	.6060328
rho31	.1390226	.2220542	0.63	0.531	-.2948474	.5253672
rho32	.1011325	.2659439	0.38	0.704	-.4012578	.5567467

Likelihood ratio test of  $H_0: \rho_{21} = \rho_{31} = \rho_{32} = 0$ :  
 $\chi^2(3) = .550251$  Prob >  $\chi^2 = 0.9077 > 0.05$

7 . log close  
name: <unnamed>  
log: C:\Users\Kriss\OneDrive\เดสก์ท็อป\426\ASSSSSSSS10.smcl  
log type: smcl  
closed on: 8 Apr 2021, 10:44:45

$H_0$  is not rejected at .05 level, the  
correlation between the error term are not correlated,  
MVprobit is inappropriate.