

```

. /*****
. /*          MANUFACTURING          */
. /*****
. /*=====*/
. /** Vertical spillovers **/
. /*=====*/

. replace innoint=innoint*100
(2122 real changes made)

. /* >>>  Uncentered correlation * <<<*/
. replace viaunc=viaunc*10
(1435 real changes made)

. replace vunc =vunc*10
(2408 real changes made)

. * Kunden
. gen hv=info_3! =.&innoint! =.&vunc! =.&ncl14n! =.&gk! =.&ost! =.&expd! =.

. oprobit info_3 innoint vunc br2-br8 size2-size8 ost expd

```

```

Iteration 0:  log likelihood = -1249.8508
Iteration 1:  log likelihood = -1074.9696
Iteration 2:  log likelihood = -1072.7329
Iteration 3:  log likelihood = -1072.7313

```

```

Ordered probit estimates                                Number of obs   =          980
                                                       LR chi2(18)     =        354.24
                                                       Prob > chi2     =         0.0000
Log likelihood = -1072.7313                            Pseudo R2      =         0.1417

```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1552135	.0118579	13.089	0.000	.1319725	.1784545
vunc	.0960064	.063463	1.513	0.130	-.0283787	.2203915
br2	-.2120797	.1243101	-1.706	0.088	-.455723	.0315636
br3	-.4717564	.1251493	-3.770	0.000	-.7170444	-.2264683
br4	-.0090808	.1495451	-0.061	0.952	-.3021838	.2840223
br5	-.1710271	.143641	-1.191	0.234	-.4525584	.1105041
br6	-.5143224	.1856902	-2.770	0.006	-.8782685	-.1503762
br7	-.3930152	.2090067	-1.880	0.060	-.8026607	.0166304
br8	.0889699	.123953	0.718	0.473	-.1539736	.3319134
size2	.3290597	.2314747	1.422	0.155	-.1246224	.7827419
size3	.5785116	.218144	2.652	0.008	.1509572	1.006066
size4	.7971093	.2191506	3.637	0.000	.3675821	1.226637
size5	.7867579	.2230045	3.528	0.000	.3496771	1.223839
size6	1.033622	.2170768	4.762	0.000	.6081594	1.459085
size7	1.143413	.2379939	4.804	0.000	.6769537	1.609873
size8	1.25145	.2548484	4.911	0.000	.7519564	1.750944
ost	-.0624144	.0899153	-0.694	0.488	-.2386452	.1138164
expd	.1772066	.1067173	1.661	0.097	-.0319555	.3863687
-----						
_cut1	6.984429	4.174075	(Ancillary parameters)			
_cut2	7.273534	4.174554				
_cut3	8.005146	4.175411				
-----						

```

. predict xbh if hv==1, xb
(3001 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 26.70
Prob > chi2 = 0.0004
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 47.88
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3001 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3001 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3001 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	980	.4580222	0	.4580222	.4580222

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
. gen hv=info_4!=.&innoint!=.&vunc!=.&nc14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_4 innoint vunc br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1291.3228
Iteration 1: log likelihood = -1178.4246
Iteration 2: log likelihood = -1178.0624
Iteration 3: log likelihood = -1178.0624
```

```
Ordered probit estimates                                Number of obs =          974
LR chi2(18) = 226.52
Prob > chi2 = 0.0000
Pseudo R2 = 0.0877
Log likelihood = -1178.0624
```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.1060714	.010397	10.202	0.000	.0856936 .1264493

vunc	.0651888	.0619298	1.053	0.293	-.0561913	.186569
br2	-.0452358	.1205548	-0.375	0.707	-.2815189	.1910472
br3	-.3134415	.1216535	-2.577	0.010	-.551878	-.0750051
br4	-.0574279	.1449946	-0.396	0.692	-.3416121	.2267563
br5	-.0439552	.1389689	-0.316	0.752	-.3163291	.2284188
br6	-.3903983	.1773333	-2.201	0.028	-.7379651	-.0428315
br7	-.2731547	.2043849	-1.336	0.181	-.6737418	.1274324
br8	.0671109	.1188604	0.565	0.572	-.1658511	.300073
size2	.1957744	.2234501	0.876	0.381	-.2421798	.6337285
size3	.3644334	.2102575	1.733	0.083	-.0476636	.7765305
size4	.5801982	.2116294	2.742	0.006	.1654123	.9949842
size5	.7050347	.2155074	3.272	0.001	.2826479	1.127421
size6	.9231205	.2096152	4.404	0.000	.5122823	1.333959
size7	1.001544	.2278159	4.396	0.000	.5550331	1.448055
size8	1.137004	.2419241	4.700	0.000	.6628415	1.611166
ost	-.0661294	.0864593	-0.765	0.444	-.2355865	.1033277
expd	.0020766	.1035687	0.020	0.984	-.2009143	.2050675
-----						
_cut1	4.737102	4.073949	(Ancillary parameters)			
_cut2	5.343215	4.074644				
_cut3	6.279481	4.074649				
-----						

```
. predict xbh if hv==1, xb
(3007 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 13.45
Prob > chi2 = 0.0618
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 54.24
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3007 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3007 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3007 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	974	.2719029	0	.2719029	.2719029

```
. cap drop hv* n r2mz meanxb xbh
```

```
. /* >>> ADAMS * <<<*/
```

```
. replace viaadams=viaadams
(0 real changes made)
```

```
. replace vadams=vadams
(0 real changes made)
```

```
. * Kunden
```

```
. gen hv=info_3!=.&innoint!=.&vadams!=.&ncl4n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_3 innoint vadams br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1254.5372
Iteration 1: log likelihood = -1076.0967
Iteration 2: log likelihood = -1073.7944
Iteration 3: log likelihood = -1073.7927
```

Ordered probit estimates

```
Number of obs = 984
LR chi2(18) = 361.49
Prob > chi2 = 0.0000
Pseudo R2 = 0.1441
```

Log likelihood = -1073.7927

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1524909	.0118991	12.815	0.000	.1291691 .1758126	
vadams	.9265592	.3105894	2.983	0.003	.3178152 1.535303	
br2	-.1895257	.1244873	-1.522	0.128	-.4335163 .0544649	
br3	-.4354755	.1258974	-3.459	0.001	-.6822298 -.1887212	
br4	-.0264453	.1502981	-0.176	0.860	-.3210241 .2681334	
br5	-.1238734	.1427005	-0.868	0.385	-.4035614 .1558145	
br6	-.5071531	.184916	-2.743	0.006	-.8695818 -.1447244	
br7	-.3732037	.2087901	-1.787	0.074	-.7824248 .0360174	
br8	.0941671	.1237867	0.761	0.447	-.1484504 .3367847	
size2	.3340778	.2314185	1.444	0.149	-.1194941 .7876497	
size3	.5891766	.2179253	2.704	0.007	.1620507 1.016302	
size4	.8042302	.2187368	3.677	0.000	.3755139 1.232946	
size5	.7907584	.2228099	3.549	0.000	.3540591 1.227458	
size6	1.041229	.2170002	4.798	0.000	.6159165 1.466542	
size7	1.126578	.2363022	4.768	0.000	.663434 1.589722	
size8	1.230149	.255032	4.824	0.000	.7302956 1.730003	
ost	-.0900895	.0903797	-0.997	0.319	-.2672304 .0870514	
expd	.1941517	.1068465	1.817	0.069	-.0152636 .403567	
-----						
_cut1	6.525877	1.9722	(Ancillary parameters)			
_cut2	6.815685	1.973024				
_cut3	7.550086	1.974579				

```
. predict xbh if hv==1, xb
(2997 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
```

```
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 23.42
Prob > chi2 = 0.0014
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 47.08
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2997 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2997 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) /((sum((xbh-meanxb)^2)+n) if hv==1
(2997 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	984	.4643956	0	.4643956	.4643956

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
. gen hv=info_4!=.&innoint!=.&vadams!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_4 innoint vadams br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1297.1158
Iteration 1: log likelihood = -1183.5744
Iteration 2: log likelihood = -1183.2096
Iteration 3: log likelihood = -1183.2096
```

```
Ordered probit estimates                                Number of obs = 978
LR chi2(18) = 227.81
Prob > chi2 = 0.0000
Pseudo R2 = 0.0878
Log likelihood = -1183.2096
```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.1053103	.0104366	10.090	0.000	.0848549 .1257657
vadams	.3766708	.2971832	1.267	0.205	-.2057976 .9591392
br2	-.0455878	.1207318	-0.378	0.706	-.2822178 .1910421

br3	-.30787	.1224257	-2.515	0.012	-.5478199	-.0679201
br4	-.0701611	.145257	-0.483	0.629	-.3548595	.2145373
br5	-.0348522	.1378183	-0.253	0.800	-.3049712	.2352667
br6	-.4128358	.1765613	-2.338	0.019	-.7588897	-.066782
br7	-.2745645	.2044701	-1.343	0.179	-.6753186	.1261895
br8	.060363	.1186167	0.509	0.611	-.1721216	.2928475
size2	.1925014	.2233283	0.862	0.389	-.2452141	.6302168
size3	.3616015	.2099807	1.722	0.085	-.0499531	.773156
size4	.5784418	.211205	2.739	0.006	.1644877	.992396
size5	.7013509	.2153043	3.257	0.001	.2793622	1.123339
size6	.9241541	.2095191	4.411	0.000	.5135043	1.334804
size7	.9867208	.2263844	4.359	0.000	.5430156	1.430426
size8	1.134161	.242387	4.679	0.000	.6590912	1.609231
ost	-.0696384	.0867173	-0.803	0.422	-.2396012	.1003245
expd	.0072657	.1035703	0.070	0.944	-.1957283	.2102597
-----						
_cut1	2.828564	1.886304			(Ancillary parameters)	
_cut2	3.435481	1.88734				
_cut3	4.37001	1.887449				
-----						

```
. predict xbh if hv==1, xb
(3003 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 13.49
Prob > chi2 = 0.0611
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 54.35
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3003 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3003 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3003 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
----------	-----	------	-----------	-----	-----

```
-----+-----
r2mz |      978      .2722145          0      .2722145      .2722145
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
.
. /* >>> INKMANN * <<<*/
. replace viainkma=viainkma
(0 real changes made)
```

```
. replace vinkma=vinkma/10
(2421 real changes made)
```

```
. * Kunden
. gen hv=info_3!>.&innoint!>.&vinkma!>.&ncl14n!>.&gk!>.&ost!>.&expd!>.
```

```
. oprobit info_3 innoint vinkma br2-br8 size2-size8 ost expd
```

```
Iteration 0:   log likelihood = -1261.3857
Iteration 1:   log likelihood = -1081.9393
Iteration 2:   log likelihood = -1079.3491
Iteration 3:   log likelihood = -1079.3469
```

```
Ordered probit estimates                               Number of obs   =           990
                                                       LR chi2(18)     =           364.08
                                                       Prob > chi2     =           0.0000
Log likelihood = -1079.3469                            Pseudo R2      =           0.1443
```

```
-----+-----
```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1577508	.0117748	13.397	0.000	.1346727	.180829
vinkma	2.970639	1.253489	2.370	0.018	.5138461	5.427433
br2	-.236108	.1236996	-1.909	0.056	-.4785548	.0063388
br3	-.4943286	.1251698	-3.949	0.000	-.7396568	-.2490004
br4	-.0317168	.1470665	-0.216	0.829	-.3199619	.2565283
br5	-.198049	.1424768	-1.390	0.165	-.4772984	.0812004
br6	-.5741553	.1804384	-3.182	0.001	-.9278082	-.2205025
br7	-.3872849	.2085395	-1.857	0.063	-.7960149	.021445
br8	.0716728	.1240716	0.578	0.563	-.171503	.3148486
size2	.3255376	.2312165	1.408	0.159	-.1276384	.7787136
size3	.5871741	.2176006	2.698	0.007	.1606847	1.013664
size4	.8227425	.2190819	3.755	0.000	.39335	1.252135
size5	.8134505	.2231772	3.645	0.000	.3760313	1.25087
size6	1.056651	.2173559	4.861	0.000	.6306408	1.48266
size7	1.114176	.2347702	4.746	0.000	.6540349	1.574317
size8	1.285288	.2523238	5.094	0.000	.7907425	1.779834
ost	-.0198195	.0905475	-0.219	0.827	-.1972893	.1576503
expd	.1934583	.1068717	1.810	0.070	-.0160064	.4029231
-----+-----						
_cut1	2.478173	.7833704	(Ancillary parameters)			
_cut2	2.765625	.7840412				
_cut3	3.49844	.7854779				
-----+-----						

```
. predict xbh if hv==1, xb
(2991 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0

```
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 29.67
Prob > chi2 = 0.0001
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 50.99
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2991 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2991 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2991 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	990	.4703682	0	.4703682	.4703682

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
```

```
. gen hv=info_4!=.&innoint!=.&vinkma!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_4 innoint vinkma br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1306.7318
Iteration 1: log likelihood = -1192.0966
Iteration 2: log likelihood = -1191.709
Iteration 3: log likelihood = -1191.7089
```

```
Ordered probit estimates                                Number of obs =          984
LR chi2(18) = 230.05
Prob > chi2 = 0.0000
Log likelihood = -1191.7089                            Pseudo R2 = 0.0880
```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1062755	.0102373	10.381	0.000	.0862108	.1263402
vinkma	1.920369	1.192102	1.611	0.107	-.4161082	4.256846
br2	-.0774235	.1198118	-0.646	0.518	-.3122503	.1574032
br3	-.3500977	.1213173	-2.886	0.004	-.5878753	-.1123201
br4	-.1227776	.141529	-0.868	0.386	-.4001694	.1546141



br5	-.0850286	.1374892	-0.618	0.536	-.3545024	.1844452
br6	-.4116175	.1722032	-2.390	0.017	-.7491296	-.0741053
br7	-.2847449	.20378	-1.397	0.162	-.6841464	.1146565
br8	.0330961	.1187237	0.279	0.780	-.199598	.2657903
size2	.2014809	.2224671	0.906	0.365	-.2345466	.6375084
size3	.3880496	.2089908	1.857	0.063	-.0215648	.7976641
size4	.5949561	.2107828	2.823	0.005	.1818293	1.008083
size5	.731611	.2149673	3.403	0.001	.3102828	1.152939
size6	.953133	.2091384	4.557	0.000	.5432292	1.363037
size7	1.000106	.2247805	4.449	0.000	.5595447	1.440668
size8	1.141958	.2386866	4.784	0.000	.6741404	1.609775
ost	-.0404365	.0866629	-0.467	0.641	-.2102926	.1294196
expd	.0101732	.1034141	0.098	0.922	-.1925146	.212861
-----						
_cut1	1.605172	.7432131			(Ancillary parameters)	
_cut2	2.215615	.7446012				
_cut3	3.149849	.7459074				
-----						

```
. predict xbh if hv==1, xb
(2997 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 14.92
Prob > chi2 = 0.0370
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 56.09
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2997 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2997 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2997 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	984	.2739333	0	.2739333	.2739333

```

. cap drop hv* n r2mz meanxb xbh

.
. /* >>> GEO * <<<*/
. replace viageo=viageo
(0 real changes made)

. replace vgeo=vgeo
(0 real changes made)

. * Kunden
. gen hv=info_3!>.&innoint!>.&vgeo!>.&ncl4n!>.&gk!>.&ost!>.&expd!>.

. oprobit info_3 innoint vgeo br2-br8 size2-size8 ost expd

```

```

Iteration 0: log likelihood = -1239.9955
Iteration 1: log likelihood = -1067.9567
Iteration 2: log likelihood = -1065.6707
Iteration 3: log likelihood = -1065.6688

```

```

Ordered probit estimates                               Number of obs   =           971
LR chi2(18)                                           =           348.65
Prob > chi2                                           =           0.0000
Pseudo R2                                             =           0.1406

Log likelihood = -1065.6688

```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.152871	.0118404	12.911	0.000	.1296642	.1760778
vgeo	.0084449	.023983	0.352	0.725	-.038561	.0554508
br2	-.2368702	.1251649	-1.892	0.058	-.482189	.0084486
br3	-.5096449	.1263648	-4.033	0.000	-.7573153	-.2619746
br4	-.0588787	.1489332	-0.395	0.693	-.3507825	.233025
br5	-.176256	.1425475	-1.236	0.216	-.455644	.1031319
br6	-.5955326	.1805866	-3.298	0.001	-.9494758	-.2415894
br7	-.4412095	.2085491	-2.116	0.034	-.8499583	-.0324607
br8	.0196576	.1246284	0.158	0.875	-.2246096	.2639248
size2	.4110293	.2383104	1.725	0.085	-.0560504	.8781091
size3	.6657267	.2243135	2.968	0.003	.2260803	1.105373
size4	.8764104	.2252979	3.890	0.000	.4348347	1.317986
size5	.8453621	.229748	3.680	0.000	.3950644	1.29566
size6	1.103126	.2233145	4.940	0.000	.6654379	1.540814
size7	1.172013	.2402349	4.879	0.000	.7011613	1.642865
size8	1.322778	.2572115	5.143	0.000	.8186528	1.826903
ost	-.0372181	.0914403	-0.407	0.684	-.2164378	.1420015
expd	.2145795	.1079587	1.988	0.047	.0029844	.4261746
-----						
_cut1	.7842496	.2377844	(Ancillary parameters)			
_cut2	1.075955	.2390926				
_cut3	1.809523	.2414182				
-----						

```

. predict xbh if hv==1, xb
(3010 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0

```

```
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 29.26
Prob > chi2 = 0.0001
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 48.58
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3010 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3010 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3010 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	971	.4567574	0	.4567574	.4567574

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
. gen hv=info_4!=.&innoint!=.&vgeo!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_4 innoint vgeo br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1282.2982
Iteration 1: log likelihood = -1173.3307
Iteration 2: log likelihood = -1172.9847
Iteration 3: log likelihood = -1172.9846
```

Ordered probit estimates	Number of obs	=	965
	LR chi2(18)	=	218.63
	Prob > chi2	=	0.0000
Log likelihood = -1172.9846	Pseudo R2	=	0.0852

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.105234	.0103577	10.160	0.000	.0849333	.1255347
vgeo	-.0011959	.0228926	-0.052	0.958	-.0460646	.0436728
br2	-.0745649	.1213451	-0.614	0.539	-.3123968	.1632671
br3	-.354929	.1226493	-2.894	0.004	-.5953173	-.1145408
br4	-.1226568	.1436937	-0.854	0.393	-.4042912	.1589777
br5	-.0662372	.1376312	-0.481	0.630	-.3359893	.2035149
br6	-.4253204	.1723367	-2.468	0.014	-.7630941	-.0875467

br7	-.3144917	.2040215	-1.541	0.123	-.7143666	.0853831
br8	.0178341	.1194846	0.149	0.881	-.2163515	.2520196
size2	.226401	.2282025	0.992	0.321	-.2208677	.6736696
size3	.4018824	.2142969	1.875	0.061	-.0181317	.8218965
size4	.6083248	.2157003	2.820	0.005	.18556	1.031089
size5	.7031365	.220178	3.193	0.001	.2715955	1.134677
size6	.9348859	.2137914	4.373	0.000	.5158624	1.353909
size7	1.029509	.2291395	4.493	0.000	.5804042	1.478615
size8	1.134283	.2425145	4.677	0.000	.6589631	1.609602
ost	-.0382254	.0877133	-0.436	0.663	-.2101402	.1336894
expd	.0003543	.1047676	0.003	0.997	-.2049865	.2056951
-----						
_cut1	.4571216	.2259008			(Ancillary parameters)	
_cut2	1.053834	.2278252				
_cut3	1.995403	.2294006				
-----						

```
. predict xbh if hv==1, xb
(3016 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 15.32
Prob > chi2 = 0.0322
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 51.00
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3016 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3016 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2)/(sum((xbh-meanxb)^2)+n) if hv==1
(3016 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	965	.2651688	0	.2651688	.2651688

```
. cap drop hv* n r2mz meanxb xbh
```

```

. /* >>> Inkmann/Pohlmeier <<<*/
. replace viainkpo=viainkpo
(0 real changes made)

. replace vinkpo=vinkpo
(0 real changes made)

. * Kunden
. gen hv=info_3!=.&innoint!=.&vinkpo!=.&ncl4n!=.&gk!=.&ost!=.&expd!=.

. oprobit info_3 innoint vinkpo br2-br8 size2-size8 ost expd

```

```

Iteration 0: log likelihood = -1251.6901
Iteration 1: log likelihood = -1076.692
Iteration 2: log likelihood = -1074.3736
Iteration 3: log likelihood = -1074.3719

```

```

Ordered probit estimates                                Number of obs =          983
LR chi2(18) = 354.64
Prob > chi2 = 0.0000
Pseudo R2 = 0.1417

Log likelihood = -1074.3719

```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1569527	.0117681	13.337	0.000	.1338877	.1800178
vinkpo	-.4061601	.3585025	-1.133	0.257	-1.108812	.2964918
br2	-.2038726	.1251667	-1.629	0.103	-.4491947	.0414496
br3	-.4641748	.1255453	-3.697	0.000	-.710239	-.2181106
br4	-.0220177	.1481793	-0.149	0.882	-.3124438	.2684083
br5	-.1571671	.1419118	-1.107	0.268	-.4353091	.1209749
br6	-.5787415	.1898956	-3.048	0.002	-.9509301	-.206553
br7	-.4077747	.2125733	-1.918	0.055	-.8244108	.0088614
br8	.093568	.1246443	0.751	0.453	-.1507303	.3378663
size2	.3158985	.2314277	1.365	0.172	-.1376914	.7694884
size3	.566902	.218004	2.600	0.009	.139622	.9941819
size4	.7978514	.2190062	3.643	0.000	.3686072	1.227096
size5	.7691751	.2233604	3.444	0.001	.3313967	1.206954
size6	1.025915	.2171785	4.724	0.000	.6002532	1.451577
size7	1.081696	.2369955	4.564	0.000	.6171934	1.546199
size8	1.214969	.2530671	4.801	0.000	.7189668	1.710971
ost	-.0723856	.0905936	-0.799	0.424	-.2499458	.1051747
expd	.1646428	.1078855	1.526	0.127	-.0468089	.3760944
-----						
_cut1	-2.879845	3.1511	(Ancillary parameters)			
_cut2	-2.594782	3.151191				
_cut3	-1.866479	3.150591				
-----						

```

. predict xbh if hv==1, xb
(2998 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0

```

```

chi2( 7) = 27.71
Prob > chi2 = 0.0002

```

```
. test size2 size3 size4 size5 size6 size8
```

```

( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0

```

```

chi2( 6) = 47.20
Prob > chi2 = 0.0000

```

```
. egen n=sum(hv) if hv==1
(2998 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2998 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2998 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	983	.4593164	0	.4593164	.4593164

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
. gen hv=info_3!=.&innoint!=.&vinkpo!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_4 innoint vinkpo br2-br8 size2-size8 ost expd
```

```

Iteration 0: log likelihood = -1296.1313
Iteration 1: log likelihood = -1182.4934
Iteration 2: log likelihood = -1182.119
Iteration 3: log likelihood = -1182.1189

```

```

Ordered probit estimates
Number of obs = 977
LR chi2(18) = 228.02
Prob > chi2 = 0.0000
Pseudo R2 = 0.0880
Log likelihood = -1182.1189

```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.1082233	.0102714	10.536	0.000	.0880917 .1283549
vinkpo	-.1521743	.3468121	-0.439	0.661	-.8319136 .527565
br2	-.0474197	.1212547	-0.391	0.696	-.2850746 .1902352
br3	-.3172322	.1220466	-2.599	0.009	-.5564391 -.0780253
br4	-.1046064	.1425787	-0.734	0.463	-.3840556 .1748427
br5	-.0507649	.137173	-0.370	0.711	-.319619 .2180892
br6	-.4888943	.1813692	-2.696	0.007	-.8443715 -.1334171
br7	-.3480651	.2080396	-1.673	0.094	-.7558152 .059685
br8	.0591665	.1196014	0.495	0.621	-.1752478 .2935809

size2		.1875237	.2232503	0.840	0.401	-.2500388	.6250863
size3		.3626502	.209964	1.727	0.084	-.0488717	.7741721
size4		.5833098	.2113217	2.760	0.006	.1691269	.9974927
size5		.6941539	.2157424	3.218	0.001	.2713066	1.117001
size6		.9235767	.2095724	4.407	0.000	.5128223	1.334331
size7		.9411629	.2270972	4.144	0.000	.4960607	1.386265
size8		1.08102	.2399446	4.505	0.000	.6107373	1.551303
ost		-.0755936	.0868893	-0.870	0.384	-.2458935	.0947063
expd		-.0016938	.104463	-0.016	0.987	-.2064374	.2030499
-----							
_cut1		-.8878444	3.047449			(Ancillary parameters)	
_cut2		-.2769407	3.04717				
_cut3		.6634806	3.04725				
-----							

```
. predict xbh if hv==1, xb
(2998 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 16.52
Prob > chi2 = 0.0208
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 52.35
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2998 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2998 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2998 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable		Obs	Mean	Std. Dev.	Min	Max
r2mz		983	.2726639	0	.2726639	.2726639

```
. cap drop hv* n r2mz meanxb xbh
```

```
.
```

```

. /*=====*/
. /** horizontal spillovers ***/
. /*=====*/
. replace hiaunc=hiaunc
(0 real changes made)

. replace hunc=hunc
(0 real changes made)

. * uncentered correlation
. gen hv=info_5!>=1*innoint!>=1*hunc!>=1*br2!>=1*br3!>=1*br4!>=1*br5!>=1*br6!>=1*br7!>=1*br8!>=1*size2!>=1*size3!>=1*size4!>=1*size5!>=1*size6!>=1*size7!>=1*size8!>=1*ost!>=1*expd!>=1
. oprobit info_5 innoint hunc br2-br8 size2-size8 ost expd

```

```

Iteration 0: log likelihood = -1313.159
Iteration 1: log likelihood = -1176.1603
Iteration 2: log likelihood = -1175.4504
Iteration 3: log likelihood = -1175.4502

```

```

Ordered probit estimates                               Number of obs   =           980
                                                       LR chi2(18)    =           275.42
                                                       Prob > chi2    =           0.0000
Log likelihood = -1175.4502                          Pseudo R2      =           0.1049

```

info_5	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1241203	.0105314	11.786	0.000	.1034792	.1447614
hunc	.0187871	.0327031	0.574	0.566	-.0453099	.082884
br2	-.072014	.1195378	-0.602	0.547	-.3063037	.1622758
br3	-.1542837	.1203304	-1.282	0.200	-.390127	.0815595
br4	.1838689	.1413719	1.301	0.193	-.0932149	.4609527
br5	-.2867333	.1429858	-2.005	0.045	-.5669803	-.0064863
br6	-.3053587	.1733557	-1.761	0.078	-.6451296	.0344121
br7	-.2679231	.2027477	-1.321	0.186	-.6653012	.129455
br8	.0598766	.1198166	0.500	0.617	-.1749596	.2947129
size2	.29491	.2306396	1.279	0.201	-.1571353	.7469553
size3	.5198148	.2164234	2.402	0.016	.0956328	.9439968
size4	.842793	.2174648	3.876	0.000	.4165698	1.269016
size5	.8254861	.2214124	3.728	0.000	.3915258	1.259446
size6	1.165084	.216322	5.386	0.000	.7411004	1.589067
size7	1.113132	.2331008	4.775	0.000	.6562627	1.570001
size8	1.228459	.2466957	4.980	0.000	.744944	1.711973
ost	.1964541	.0866098	2.268	0.023	.0267021	.3662062
expd	.029362	.1042765	0.282	0.778	-.1750161	.2337401
-----						
_cut1	.7602185	.2244955	(Ancillary parameters)			
_cut2	1.327195	.2263728				
_cut3	2.251844	.2295084				
-----						

```

. predict xbh if hv==1, xb
(3001 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0

```



```
chi2( 7) = 13.33
Prob > chi2 = 0.0644
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 67.24
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3001 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3001 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3001 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	980	.3325952	0	.3325952	.3325952

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * ADAMS
. replace hiaadams=hiaadams
(0 real changes made)
```

```
. replace hadams=hadams
(0 real changes made)
```

```
. gen hv=info_5!=.&innoint!=.&hadams!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_5 innoint hadams br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1314.8737
Iteration 1: log likelihood = -1177.3728
Iteration 2: log likelihood = -1176.6566
Iteration 3: log likelihood = -1176.6563
```

```
Ordered probit estimates                                Number of obs = 981
LR chi2(18) = 276.43
Prob > chi2 = 0.0000
Pseudo R2 = 0.1051
Log likelihood = -1176.6563
```

info_5	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1237051	.0105243	11.754	0.000	.1030777	.1443324
hadams	.0238998	.0324738	0.736	0.462	-.0397476	.0875472
br2	-.0763444	.1194517	-0.639	0.523	-.3104654	.1577766

br3	-.1570113	.1203325	-1.305	0.192	-.3928587	.0788362
br4	.1794834	.1413518	1.270	0.204	-.0975611	.4565279
br5	-.2902309	.1429398	-2.030	0.042	-.5703879	-.010074
br6	-.3075054	.1733722	-1.774	0.076	-.6473087	.0322978
br7	-.2692452	.2028025	-1.328	0.184	-.6667308	.1282404
br8	.0562126	.119786	0.469	0.639	-.1785637	.290989
size2	.2933731	.2306933	1.272	0.203	-.1587775	.7455238
size3	.5188928	.2164728	2.397	0.017	.0946139	.9431716
size4	.8407287	.217503	3.865	0.000	.4144307	1.267027
size5	.8238177	.221466	3.720	0.000	.3897523	1.257883
size6	1.165253	.21637	5.385	0.000	.7411756	1.58933
size7	1.129827	.2328392	4.852	0.000	.6734705	1.586183
size8	1.230605	.2467401	4.987	0.000	.7470032	1.714207
ost	.2042053	.0864099	2.363	0.018	.0348451	.3735655
expd	.0322205	.1042905	0.309	0.757	-.1721853	.2366262
-----						
_cut1	.7642753	.2239274			(Ancillary parameters)	
_cut2	1.330986	.225808				
_cut3	2.254217	.2289682				
-----						

```
. predict xbh if hv==1, xb
(3000 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
      chi2( 7) =    13.34
      Prob > chi2 =    0.0643
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
      chi2( 6) =    67.44
      Prob > chi2 =    0.0000
```

```
. egen n=sum(hv) if hv==1
(3000 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3000 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3000 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
----------	-----	------	-----------	-----	-----

```
-----+-----
r2mz |      981      .3335307          0      .3335307      .3335307
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
.
. * Inkmann
. replace hiainkma=hiainkma
(0 real changes made)
```

```
. replace hinkma=hinkma
(0 real changes made)
```

```
. gen hv=info_3!=.&innoint!=.&hinkma!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_5 innoint hinkma br2-br8 size2-size8 ost expd
```

```
Iteration 0:   log likelihood = -1325.2187
Iteration 1:   log likelihood = -1185.5896
Iteration 2:   log likelihood = -1184.8373
Iteration 3:   log likelihood = -1184.837
```

```
Ordered probit estimates                               Number of obs   =           990
LR chi2(18)                                           =           280.76
Prob > chi2                                           =           0.0000
Pseudo R2                                             =           0.1059

Log likelihood = -1184.837
```

```
-----+-----
```

info_5	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1243556	.0105118	11.830	0.000	.1037529	.1449582
hinkma	.0185198	.0329391	0.562	0.574	-.0460396	.0830792
br2	-.0847789	.1186674	-0.714	0.475	-.3173627	.147805
br3	-.18602	.1194437	-1.557	0.119	-.4201254	.0480854
br4	.174688	.1412515	1.237	0.216	-.1021599	.4515358
br5	-.3053307	.143951	-2.121	0.034	-.5874695	-.0231919
br6	-.3015679	.1710348	-1.763	0.078	-.63679	.0336541
br7	-.2754544	.2026514	-1.359	0.174	-.672644	.1217351
br8	.0531477	.1196012	0.444	0.657	-.1812664	.2875618
size2	.3141835	.2292581	1.370	0.171	-.1351541	.7635211
size3	.5272386	.2156354	2.445	0.014	.104601	.9498762
size4	.8377206	.2168004	3.864	0.000	.4127997	1.262642
size5	.8366061	.2204134	3.796	0.000	.4046037	1.268609
size6	1.171995	.2155123	5.438	0.000	.7495989	1.594392
size7	1.121895	.2312834	4.851	0.000	.6685879	1.575202
size8	1.225121	.2453665	4.993	0.000	.7442115	1.706031
ost	.2048492	.08612	2.379	0.017	.0360571	.3736414
expd	.0521684	.103917	0.502	0.616	-.1515051	.2558419
-----+-----						
_cut1	.7717913	.2210546	(Ancillary parameters)			
_cut2	1.333597	.2229173				
_cut3	2.257472	.226112				
-----+-----						

```
. predict xbh if hv==1, xb
(2990 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0

```
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 14.19
Prob > chi2 = 0.0479
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 66.92
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2990 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2990 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2990 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	991	.3372848	0	.3372848	.3372848

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Geo
. replace hiageo=hiageo
(0 real changes made)
```

```
. replace hgeo=hgeo
(0 real changes made)
```

```
. gen hv=info_5!=.&innoint!=.&hgeo!=.&ncl14n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_5 innoint hgeo br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1296.8103
Iteration 1: log likelihood = -1159.2347
Iteration 2: log likelihood = -1158.3696
Iteration 3: log likelihood = -1158.3689
```

```
Ordered probit estimates                    Number of obs = 967
LR chi2(18) = 276.88
Prob > chi2 = 0.0000
Log likelihood = -1158.3689                 Pseudo R2 = 0.1068
```

```
-----+-----
info_5 | Coef. Std. Err. z P>|z| [95% Conf. Interval]
-----+-----
```

innoint	.1226027	.0106553	11.506	0.000	.1017187	.1434866
hgeo	.0105573	.0301743	0.350	0.726	-.0485832	.0696977
br2	-.0875927	.1213026	-0.722	0.470	-.3253414	.1501559
br3	-.1953968	.1210381	-1.614	0.106	-.432627	.0418334
br4	.1716598	.143523	1.196	0.232	-.1096401	.4529597
br5	-.3198106	.1423743	-2.246	0.025	-.5988591	-.0407622
br6	-.3194013	.1713805	-1.864	0.062	-.655301	.0164983
br7	-.2984797	.2029885	-1.470	0.141	-.6963299	.0993705
br8	-.0150287	.1204117	-0.125	0.901	-.2510314	.220974
size2	.4383326	.2408144	1.820	0.069	-.033655	.9103202
size3	.6834101	.2276492	3.002	0.003	.2372258	1.129594
size4	.9698241	.2284387	4.245	0.000	.5220926	1.417556
size5	.9525624	.2323199	4.100	0.000	.4972239	1.407901
size6	1.291936	.2272463	5.685	0.000	.8465411	1.73733
size7	1.218514	.2413163	5.049	0.000	.7455424	1.691485
size8	1.34404	.2546912	5.277	0.000	.8448548	1.843226
ost	.2414939	.088774	2.720	0.007	.0675001	.4154876
expd	.054874	.1052647	0.521	0.602	-.1514411	.2611891
-----						
_cut1	.8971953	.2510946			(Ancillary parameters)	
_cut2	1.471372	.2530395				
_cut3	2.400342	.2560303				
-----						

```
. predict xbh if hv==1, xb
(3014 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 14.02
Prob > chi2 = 0.0509
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 66.55
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(3014 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(3014 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(3014 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	967	.341667	0	.341667	.341667

```
. cap drop hv* n r2mz meanxb xbh
```

```
.  
. * Inkmann/Pohlmeier  
. replace hiainkpo=hiainkpo  
(0 real changes made)
```

```
. replace hinkpo=hinkpo  
(0 real changes made)
```

```
. gen hv=info_5!=.&innoint!=.&hinkpo!=.&ncl4n!=.&gk!=.&ost!=.&expd!=.
```

```
. oprobit info_5 innoint hinkpo br2-br8 size2-size8 ost expd
```

```
Iteration 0: log likelihood = -1317.1714  
Iteration 1: log likelihood = -1180.3498  
Iteration 2: log likelihood = -1179.5979  
Iteration 3: log likelihood = -1179.5975
```

Ordered probit estimates	Number of obs	=	983
	LR chi2(18)	=	275.15
	Prob > chi2	=	0.0000
Log likelihood = -1179.5975	Pseudo R2	=	0.1044

info_5	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.1233703	.0105766	11.664	0.000	.1026405 .1441002	
hinkpo	.0173646	.0323735	0.536	0.592	-.0460863 .0808155	
br2	-.0745799	.1191248	-0.626	0.531	-.3080603 .1589005	
br3	-.1792606	.1197423	-1.497	0.134	-.4139512 .0554299	
br4	.1797154	.1413426	1.271	0.204	-.097311 .4567418	
br5	-.305007	.1424602	-2.141	0.032	-.5842238 -.0257902	
br6	-.2799224	.1751495	-1.598	0.110	-.6232091 .0633644	
br7	-.2762781	.2025973	-1.364	0.173	-.6733615 .1208053	
br8	.0473438	.1192188	0.397	0.691	-.1863208 .2810084	
size2	.3683782	.2349229	1.568	0.117	-.0920623 .8288187	
size3	.5874522	.221747	2.649	0.008	.1528362 1.022068	
size4	.9005222	.2225176	4.047	0.000	.4643957 1.336649	
size5	.8879366	.2262022	3.925	0.000	.4445884 1.331285	
size6	1.224834	.2214673	5.531	0.000	.7907665 1.658902	
size7	1.140631	.2370758	4.811	0.000	.6759708 1.605291	
size8	1.287178	.2514777	5.118	0.000	.7942911 1.780066	
ost	.204636	.0867235	2.360	0.018	.034661 .374611	
expd	.0377592	.1040981	0.363	0.717	-.1662693 .2417877	
-----						
_cut1	.8434627	.2419495			(Ancillary parameters)	
_cut2	1.410462	.2437459				
_cut3	2.336289	.2468051				

```
. predict xbh if hv==1, xb  
(2998 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
```

```
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 13.63
Prob > chi2 = 0.0581
```

```
. test size2 size3 size4 size5 size6 size8
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size8 = 0.0
```

```
chi2( 6) = 67.45
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(2998 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(2998 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(2998 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	983	.3323301	0	.3323301	.3323301

```
. cap drop hv* n r2mz meanxb xbh
```

```

. /*****
. /*
. SERVICES
. */
.
. /*=====*/
. /** Vertical spillovers **/
. /*=====*/
. replace innoint=innoint*100
(1637 real changes made)

. /* >>> Uncentered correlation * <<<*/
. replace viaunc=viaunc*10
(1392 real changes made)

. replace vunc =vunc*10
(2035 real changes made)

. *Kunden prod. Gerwerbe
. gen hv=info_1!=.&innoint !=.&vunc !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!=.
> &ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

. oprobit info_1 innoint vunc br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1
> kugk1

```

```

Iteration 0: log likelihood = -1569.7338
Iteration 1: log likelihood = -1471.5048
Iteration 2: log likelihood = -1471.0665
Iteration 3: log likelihood = -1471.0637
Iteration 4: log likelihood = -1471.0637

```

```

Ordered probit estimates
Number of obs = 1208
LR chi2(22) = 197.34
Prob > chi2 = 0.0000
Pseudo R2 = 0.0629

Log likelihood = -1471.0637

```

info_1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.026159	.0424415	0.616	0.538	-.0570248	.1093428
vunc	.0628752	.0371304	1.693	0.090	-.009899	.1356494
br2	-.0453977	.1438641	-0.316	0.752	-.3273662	.2365708
br3	-.1762523	.1255357	-1.404	0.160	-.4222978	.0697932
br4	-.7661048	.1362001	-5.625	0.000	-1.033052	-.4991575
br5	-.0901627	.1524935	-0.591	0.554	-.3890444	.208719
br6	-.2818791	.1521329	-1.853	0.064	-.580054	.0162958
br7	-.5470282	.1615852	-3.385	0.001	-.8637293	-.230327
br8	-.0913149	.1200239	-0.761	0.447	-.3265574	.1439276
size2	-.0880998	.1327677	-0.664	0.507	-.3483197	.1721201
size3	-.2767335	.1243339	-2.226	0.026	-.5204235	-.0330435
size4	-.0529493	.135772	-0.390	0.697	-.3190575	.2131589
size5	-.1798291	.1422494	-1.264	0.206	-.4586328	.0989746
size6	-.1270187	.1437601	-0.884	0.377	-.4087833	.154746
size7	-.1689381	.135176	-1.250	0.211	-.4338781	.096002
ost	.0150642	.0751428	0.200	0.841	-.132213	.1623413
ak1	.1060643	.0903607	1.174	0.240	-.0710394	.283168
akel	.1440488	.0891057	1.617	0.106	-.0305952	.3186927
ex1	-.0000461	.0000691	-0.666	0.505	-.0001816	.0000895
kupg1	.0098812	.0013529	7.303	0.000	.0072295	.0125329
kudl1	.0000913	.0013887	0.066	0.948	-.0026305	.0028132
kugk1	.0015383	.0020017	0.768	0.442	-.002385	.0054617
-----						
_cut1	4.298319	2.425881	(Ancillary parameters)			
_cut2	4.757776	2.426163				



```
_cut3 | 5.237683 2.426447  
_cut4 | 5.829108 2.427576
```

---

```
. predict xbh if hv==1, xb  
(1209 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0  
( 2) br3 = 0.0  
( 3) br4 = 0.0  
( 4) br5 = 0.0  
( 5) br6 = 0.0  
( 6) br7 = 0.0  
( 7) br8 = 0.0
```

```
chi2( 7) = 52.03  
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0  
( 2) size3 = 0.0  
( 3) size4 = 0.0  
( 4) size5 = 0.0  
( 5) size6 = 0.0  
( 6) size7 = 0.0
```

```
chi2( 6) = 6.84  
Prob > chi2 = 0.3362
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0  
( 2) akel = 0.0  
( 3) ex1 = 0.0
```

```
chi2( 3) = 11.87  
Prob > chi2 = 0.0078
```

```
. test kupp1 kudl1 kugk1
```

```
( 1) kupp1 = 0.0  
( 2) kudl1 = 0.0  
( 3) kugk1 = 0.0
```

```
chi2( 3) = 78.62  
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1  
(1209 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1  
(1209 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1  
(1209 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1208	.2135416	0	.2135416	.2135416

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Kunden prod. Gewerbe
. gen hv=info_2!&.innoint !&.vunc !&.br2!&. size2!&. ost!&.ak1!&.akel!&.
> &ex1!&.kupg1!&.kudl1!&.kugk1!&.
```

```
. oprobit info_2 innoint vunc br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1
> kugk1
```

```
Iteration 0: log likelihood = -1926.4422
Iteration 1: log likelihood = -1888.484
Iteration 2: log likelihood = -1888.0229
Iteration 3: log likelihood = -1887.8673
Iteration 4: log likelihood = -1887.8569
Iteration 5: log likelihood = -1887.8569
```

```
Ordered probit estimates                                Number of obs =      1221
LR chi2(22) =      77.17
Prob > chi2 =      0.0000
Pseudo R2 =      0.0200
Log likelihood = -1887.8569
```

info_2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.016401	.0392334	0.418	0.676	-.060495 .093297	
vunc	.0372231	.0336168	1.107	0.268	-.0286647 .1031108	
br2	-.0249078	.1355593	-0.184	0.854	-.2905991 .2407836	
br3	.1483204	.1197536	1.239	0.216	-.0863923 .3830331	
br4	.1726979	.121551	1.421	0.155	-.0655376 .4109334	
br5	.3834396	.1450356	2.644	0.008	.099175 .6677042	
br6	-.2454095	.1465793	-1.674	0.094	-.5326997 .0418807	
br7	.1113729	.145155	0.767	0.443	-.1731256 .3958713	
br8	.2481958	.1143787	2.170	0.030	.0240176 .4723739	
size2	-.1295635	.1223993	-1.059	0.290	-.3694617 .1103347	
size3	-.1620153	.1138557	-1.423	0.155	-.3851685 .0611378	
size4	-.1957014	.1264881	-1.547	0.122	-.4436135 .0522107	
size5	-.1155282	.1295548	-0.892	0.373	-.369451 .1383945	
size6	-.0134065	.1310464	-0.102	0.919	-.2702526 .2434397	
size7	-.1802181	.1234202	-1.460	0.144	-.4221173 .0616812	
ost	.0686737	.0688656	0.997	0.319	-.0663004 .2036477	
ak1	.0785913	.084451	0.931	0.352	-.0869296 .2441123	
akel	.2073568	.0820925	2.526	0.012	.0464583 .3682552	
ex1	.0001688	.0001042	1.619	0.105	-.0000355 .0003731	
kupg1	.0001625	.0012363	0.131	0.895	-.0022606 .0025856	
kudl1	.0043216	.001232	3.508	0.000	.0019069 .0067364	
kugk1	.0026449	.001815	1.457	0.145	-.0009123 .0062022	
-----						
_cut1	2.180016	2.196084	(Ancillary parameters)			
_cut2	2.620264	2.19645				
_cut3	3.135158	2.196922				
_cut4	3.862641	2.197302				

```
. predict xbh if hv==1, xb
```

(1196 missing values generated)

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0  
( 2) br3 = 0.0  
( 3) br4 = 0.0  
( 4) br5 = 0.0  
( 5) br6 = 0.0  
( 6) br7 = 0.0  
( 7) br8 = 0.0
```

```
      chi2( 7) =    24.93  
Prob > chi2 =    0.0008
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0  
( 2) size3 = 0.0  
( 3) size4 = 0.0  
( 4) size5 = 0.0  
( 5) size6 = 0.0  
( 6) size7 = 0.0
```

```
      chi2( 6) =     4.96  
Prob > chi2 =    0.5485
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0  
( 2) akel = 0.0  
( 3) ex1 = 0.0
```

```
      chi2( 3) =    19.58  
Prob > chi2 =    0.0002
```

```
. test kupp1 kudl1 kugk1
```

```
( 1) kupp1 = 0.0  
( 2) kudl1 = 0.0  
( 3) kugk1 = 0.0
```

```
      chi2( 3) =    17.11  
Prob > chi2 =    0.0007
```

```
. egen n=sum(hv) if hv==1  
(1196 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1  
(1196 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1  
(1196 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1221	.0916156	0	.0916156	.0916156

```
. more

. cap drop hv* n r2mz meanxb xbh

.
. * Zulieferer
. gen hv=info_3!=.&innoint !=.&vunc !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!=.
> &ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_3 innoint vunc br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1
> kugk1
```

```
Iteration 0: log likelihood = -1822.9689
Iteration 1: log likelihood = -1741.0423
Iteration 2: log likelihood = -1740.8007
Iteration 3: log likelihood = -1740.7845
Iteration 4: log likelihood = -1740.7839
Iteration 5: log likelihood = -1740.7839
```

```
Ordered probit estimates                                Number of obs =      1213
LR chi2(22) =      164.37
Prob > chi2 =      0.0000
Pseudo R2 =      0.0451
Log likelihood = -1740.7839
```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0953428	.0403028	2.366	0.018	.0163508	.1743349
vunc	.0652024	.0345487	1.887	0.059	-.0025119	.1329167
br2	.0417312	.1331302	0.313	0.754	-.2191991	.3026615
br3	-.6295745	.1195362	-5.267	0.000	-.8638611	-.3952879
br4	-1.186293	.1276153	-9.296	0.000	-1.436415	-.936172
br5	-.5023537	.1435137	-3.500	0.000	-.7836353	-.2210721
br6	-.9580162	.1482615	-6.462	0.000	-1.248604	-.667429
br7	-.5604216	.1477193	-3.794	0.000	-.8499461	-.270897
br8	-.4131185	.1127289	-3.665	0.000	-.6340631	-.192174
size2	-.1241902	.1246867	-0.996	0.319	-.3685716	.1201912
size3	-.1934485	.1166783	-1.658	0.097	-.4221337	.0352367
size4	-.2578459	.129374	-1.993	0.046	-.5114142	-.0042775
size5	-.1768832	.1326554	-1.333	0.182	-.436883	.0831166
size6	-.1206414	.1343285	-0.898	0.369	-.3839205	.1426377
size7	-.135611	.1256548	-1.079	0.280	-.38189	.1106679
ost	-.013195	.0706387	-0.187	0.852	-.1516444	.1252543
ak1	.0172029	.0858654	0.200	0.841	-.1510902	.1854959
akel	.0808536	.0834894	0.968	0.333	-.0827825	.2444898
ex1	-.0000665	.0000866	-0.767	0.443	-.0002362	.0001033
kupg1	.0013328	.0012506	1.066	0.287	-.0011183	.0037839
kudl1	-.0007039	.0012539	-0.561	0.575	-.0031614	.0017536
kugk1	.0016435	.0018639	0.882	0.378	-.0020098	.0052967
-----						
_cut1	3.387346	2.256025			(Ancillary parameters)	
_cut2	3.860212	2.256322				
_cut3	4.450805	2.25665				
_cut4	5.177117	2.25766				

```
. predict xbh if hv==1, xb
(1204 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0
```

```
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 147.06
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 4.74
Prob > chi2 = 0.5775
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 2.77
Prob > chi2 = 0.4282
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 3.65
Prob > chi2 = 0.3024
```

```
. egen n=sum(hv) if hv==1
(1204 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1204 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1204 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1213	.1629307	0	.1629307	.1629307

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```

.
. /* >>> ADAMS * <<<*/
. replace viaadams=viaadams
(0 real changes made)

. replace vadams=vadams
(0 real changes made)

. * Kunden prod. Gewerbe
. gen hv=info_1!<math>=</math>.&innoint !=.<math>=</math>.&vadams !=.<math>=</math>.&br2!<math>=</math>.& size2!<math>=</math>.& ost!<math>=</math>.&ak1!<math>=</math>.&akel!
> =.&ex1!<math>=</math>.&kupg1!<math>=</math>.&kudl1!<math>=</math>.&kugk1!<math>=</math>.

. oprobit info_1 innoint vadams br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1

```

```

Iteration 0: log likelihood = -1693.7701
Iteration 1: log likelihood = -1589.6246
Iteration 2: log likelihood = -1589.1707
Iteration 3: log likelihood = -1589.1706

```

```

Ordered probit estimates
Number of obs = 1299
LR chi2(22) = 209.20
Prob > chi2 = 0.0000
Pseudo R2 = 0.0618

Log likelihood = -1589.1706

```

info_1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0548152	.0409514	1.339	0.181	-.0254481	.1350785
vadams	.1973927	.2255269	0.875	0.381	-.2446319	.6394173
br2	-.0757536	.1371159	-0.552	0.581	-.3444958	.1929885
br3	-.1213666	.1209364	-1.004	0.316	-.3583975	.1156643
br4	-.7803566	.1315564	-5.932	0.000	-1.038202	-.5225109
br5	-.096391	.1432718	-0.673	0.501	-.3771986	.1844166
br6	-.2757719	.147346	-1.872	0.061	-.5645648	.013021
br7	-.6006884	.1502015	-3.999	0.000	-.8950779	-.3062989
br8	-.0554007	.1159022	-0.478	0.633	-.2825649	.1717635
size2	-.0818479	.1270511	-0.644	0.519	-.3308634	.1671676
size3	-.2369028	.1197588	-1.978	0.048	-.4716257	-.00218
size4	-.0987252	.1315556	-0.750	0.453	-.3565693	.159119
size5	-.1516245	.1364171	-1.111	0.266	-.4189971	.1157482
size6	-.1033921	.1383929	-0.747	0.455	-.3746372	.1678529
size7	-.1598028	.1315008	-1.215	0.224	-.4175397	.0979341
ost	.0489386	.0721375	0.678	0.498	-.0924482	.1903255
ak1	.1130917	.0874914	1.293	0.196	-.0583883	.2845716
akel	.1242574	.0866557	1.434	0.152	-.0455848	.2940995
ex1	.0000127	.0000298	0.428	0.669	-.0000456	.000071
kupg1	.0099282	.0013183	7.531	0.000	.0073443	.0125122
kudl1	.0003214	.001349	0.238	0.812	-.0023225	.0029654
kugk1	.00153	.0019388	0.789	0.430	-.00227	.0053299
-----						
_cut1	1.498852	1.4175			(Ancillary parameters)	
_cut2	1.956664	1.417713				
_cut3	2.425935	1.417801				
_cut4	2.98976	1.418311				
-----						

```

. predict xbh if hv==1, xb
(1118 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0

```

```
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 61.53
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 4.71
Prob > chi2 = 0.5813
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 11.09
Prob > chi2 = 0.0112
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 83.34
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(1118 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1118 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1118 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1299	.2113508	0	.2113508	.2113508

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
.
. * Kunden prod. Gewerbe
. gen hv=info_2!<math>=</math>.&innoint !=.&vadams !=.&br2!<math>=</math>.& size2!<math>=</math>.& ost!<math>=</math>.&ak1!<math>=</math>.&akel!
> =.&ex1!<math>=</math>.&kupg1!<math>=</math>.&kudl1!<math>=</math>.&kugk1!<math>=</math>.
```

```
. oprobit info_2 innoint vadams br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1
```

```
Iteration 0: log likelihood = -2063.7983
Iteration 1: log likelihood = -2028.3443
Iteration 2: log likelihood = -2028.2321
Iteration 3: log likelihood = -2028.2313
```

```
Ordered probit estimates                                Number of obs =      1310
LR chi2(22) =      71.13
Prob > chi2 =      0.0000
Pseudo R2 =      0.0172
Log likelihood = -2028.2313
```

info_2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0179758	.0379926	0.473	0.636	-.0564884	.0924399
vadams	-.077087	.2002673	-0.385	0.700	-.4696037	.3154297
br2	-.0557144	.1301091	-0.428	0.668	-.3107235	.1992947
br3	.1885303	.1155197	1.632	0.103	-.0378841	.4149448
br4	.2008012	.1168389	1.719	0.086	-.0281199	.4298013
br5	.3752066	.1362649	2.754	0.006	.1081323	.6422809
br6	-.2015111	.1422277	-1.417	0.157	-.4802723	.0772501
br7	.1735546	.1348628	1.287	0.198	-.0907716	.4378809
br8	.2489258	.1105819	2.251	0.024	.0321893	.4656622
size2	-.1112681	.1170762	-0.950	0.342	-.3407332	.1181969
size3	-.1857097	.1096361	-1.694	0.090	-.4005925	.0291732
size4	-.1600141	.1215411	-1.317	0.188	-.3982303	.0782021
size5	-.1129688	.1243925	-0.908	0.364	-.3567735	.130836
size6	-.0372838	.126097	-0.296	0.767	-.2844294	.2098617
size7	-.1392202	.1194708	-1.165	0.244	-.3733786	.0949381
ost	.0770257	.0662497	1.163	0.245	-.0528214	.2068728
ak1	.1232778	.0816037	1.511	0.131	-.0366625	.283218
akel	.1420662	.0795444	1.786	0.074	-.013838	.2979704
ex1	.0000788	.0000365	2.161	0.031	7.33e-06	.0001503
kupg1	-.000116	.001205	-0.096	0.923	-.0024778	.0022457
kudl1	.0040266	.0011938	3.373	0.001	.0016869	.0063664
kugk1	.0028036	.0017589	1.594	0.111	-.0006438	.0062509
-----						
_cut1	-.7226181	1.258968			(Ancillary parameters)	
_cut2	-.2905416	1.258964				
_cut3	.2272418	1.258758				
_cut4	.9739714	1.258857				

```
. predict xbh if hv==1, xb
(1107 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0



```
chi2( 7) = 26.49
Prob > chi2 = 0.0004
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 4.12
Prob > chi2 = 0.6609
```

```
. test ak1 ake1 ex1
```

```
( 1) ak1 = 0.0
( 2) ake1 = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 19.23
Prob > chi2 = 0.0002
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 17.56
Prob > chi2 = 0.0005
```

```
. egen n=sum(hv) if hv==1
(1107 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1107 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2)/(sum((xbh-meanxb)^2)+n) if hv==1
(1107 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1310	.0638985	0	.0638985	.0638985

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Zulieferer
```

```
. gen hv=info_3!=.&innoint !=.&vadams !=.&br2!=.& size2!=.& ost!=.&ak1!=.&ake1!  
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_3 innoint vadams br2-br8 size2-size7 ost ak1 ake1 ex1 kupg1 kud  
> l1 kugk1
```

```

Iteration 0: log likelihood = -1964.7912
Iteration 1: log likelihood = -1878.1082
Iteration 2: log likelihood = -1877.7349
Iteration 3: log likelihood = -1877.6956
Iteration 4: log likelihood = -1877.693
Iteration 5: log likelihood = -1877.6929

```

Ordered probit estimates

```

Number of obs = 1302
LR chi2(22) = 174.20
Prob > chi2 = 0.0000
Pseudo R2 = 0.0443

```

Log likelihood = -1877.6929

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.079574	.0391437	2.033	0.042	.0028538 .1562942	
vadams	.445821	.2052404	2.172	0.030	.0435572 .8480848	
br2	.0454505	.1273885	0.357	0.721	-.2042263 .2951272	
br3	-.5542343	.1152623	-4.808	0.000	-.7801443 -.3283244	
br4	-1.185247	.1229147	-9.643	0.000	-1.426155 -.9443383	
br5	-.4525045	.1350616	-3.350	0.001	-.7172203 -.1877886	
br6	-.9175033	.1433094	-6.402	0.000	-1.198385 -.6366222	
br7	-.5570792	.1368175	-4.072	0.000	-.8252365 -.2889219	
br8	-.380551	.1089145	-3.494	0.000	-.5940195 -.1670825	
size2	-.1394053	.1195093	-1.166	0.243	-.3736392 .0948286	
size3	-.222367	.1126703	-1.974	0.048	-.4431968 -.0015372	
size4	-.2476715	.1245871	-1.988	0.047	-.4918577 -.0034853	
size5	-.2273671	.1272642	-1.787	0.074	-.4768003 .0220661	
size6	-.1358792	.1294919	-1.049	0.294	-.3896786 .1179202	
size7	-.1106798	.1218092	-0.909	0.364	-.3494214 .1280619	
ost	-.0433361	.0680668	-0.637	0.524	-.1767445 .0900724	
ak1	-.0001657	.082907	-0.002	0.998	-.1626604 .162329	
akel	.0897933	.0809071	1.110	0.267	-.0687816 .2483682	
ex1	-.0000793	.0000864	-0.917	0.359	-.0002486 .0000901	
kupg1	.0012422	.0012215	1.017	0.309	-.0011519 .0036363	
kudl1	-.0009676	.0012203	-0.793	0.428	-.0033593 .0014242	
kugk1	.0017317	.0018032	0.960	0.337	-.0018025 .0052659	
-----						
_cut1	1.903564	1.288044	(Ancillary parameters)			
_cut2	2.380007	1.288083				
_cut3	2.960257	1.288409				
_cut4	3.676943	1.289966				
-----						

```

. predict xbh if hv==1, xb
(1115 missing values generated)

```

```

. test br2 br3 br4 br5 br6 br7 br8

```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0

```

      chi2( 7) = 153.86
    Prob > chi2 = 0.0000

```

```

. test size2 size3 size4 size5 size6 size7

```

```

( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0

      chi2( 6) =      6.20
      Prob > chi2 =    0.4014

. test ak1 akel ex1

( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0

      chi2( 3) =      3.05
      Prob > chi2 =    0.3838

. test kupg1 kudl1 kugk1

( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0

      chi2( 3) =      4.61
      Prob > chi2 =    0.2029

. egen n=sum(hv) if hv==1
(1115 missing values generated)

. egen meanxb=mean(xbh) if hv==1
(1115 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1115 missing values generated)

. sum r2mz if hv==1

Variable |      Obs      Mean  Std. Dev.      Min      Max
-----+-----
      r2mz |    1302    .1657782         0    .1657782    .1657782

. more

. cap drop hv* n r2mz meanxb xbh

.
. /* >>> INKMANN * <<<*/
. replace viainkma=viainkma
(0 real changes made)

. replace vinkma=vinkma/10
(2295 real changes made)

. * Kunden prod. Gerwerbe
. gen hv=info_1!=.&innoint !=.&vinkma !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

```

```
. oprobit info_1 innoint vinkma br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> ll kugk1
```

```
Iteration 0: log likelihood = -1776.5738
Iteration 1: log likelihood = -1668.0561
Iteration 2: log likelihood = -1667.6265
Iteration 3: log likelihood = -1667.6264
```

Ordered probit estimates

```
Number of obs = 1357
LR chi2(22) = 217.89
Prob > chi2 = 0.0000
Pseudo R2 = 0.0613
```

Log likelihood = -1667.6264

info_1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0595549	.0399302	1.491	0.136	-.0187068	.1378167
vinkma	.2267302	.8956536	0.253	0.800	-1.528719	1.982179
br2	-.0950067	.1341703	-0.708	0.479	-.3579757	.1679623
br3	-.12528	.1188435	-1.054	0.292	-.358209	.107649
br4	-.7698248	.1289682	-5.969	0.000	-1.022598	-.5170519
br5	-.0903318	.1408198	-0.641	0.521	-.3663335	.18567
br6	-.1583651	.141264	-1.121	0.262	-.4352374	.1185072
br7	-.6110709	.148789	-4.107	0.000	-.902692	-.3194498
br8	-.067827	.1145387	-0.592	0.554	-.2923188	.1566648
size2	-.1515041	.1248354	-1.214	0.225	-.3961769	.0931688
size3	-.2627807	.1181521	-2.224	0.026	-.4943546	-.0312068
size4	-.0758182	.1297586	-0.584	0.559	-.3301403	.1785039
size5	-.2022433	.1337195	-1.512	0.130	-.4643286	.0598421
size6	-.1187909	.136101	-0.873	0.383	-.3855438	.1479621
size7	-.2015322	.1292922	-1.559	0.119	-.4549403	.0518758
ost	.0780475	.0701739	1.112	0.266	-.0594908	.2155857
ak1	.1296751	.0851659	1.523	0.128	-.0372471	.2965973
akel	.1167249	.0840753	1.388	0.165	-.0480597	.2815096
ex1	.000012	.0000298	0.403	0.687	-.0000463	.0000703
kupg1	.0096064	.0012908	7.442	0.000	.0070765	.0121363
kudl1	-.0001007	.0013219	-0.076	0.939	-.0026916	.0024903
kugk1	.0007208	.0018739	0.385	0.700	-.0029519	.0043935
-----						
_cut1	.3514942	.5425747	(Ancillary parameters)			
_cut2	.8105651	.5426205				
_cut3	1.285486	.5429781				
_cut4	1.842049	.5443353				
-----						

```
. predict xbh if hv==1, xb
(1060 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0

```
chi2( 7) = 61.20
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```

( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0

      chi2( 6) =      6.60
Prob > chi2 =      0.3590

. test ak1 akel ex1

( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0

      chi2( 3) =     12.33
Prob > chi2 =      0.0063

. test kupg1 kudl1 kugk1

( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0

      chi2( 3) =     86.80
Prob > chi2 =      0.0000

. egen n=sum(hv) if hv==1
(1060 missing values generated)

. egen meanxb=mean(xbh) if hv==1
(1060 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1060 missing values generated)

. sum r2mz if hv==1

Variable |      Obs      Mean   Std. Dev.      Min      Max
-----+-----
   r2mz |    1357   .2090173         0   .2090173   .2090173

. more

. cap drop hv* n r2mz meanxb xbh

.
. * Kunden prod. Gewerbe
. gen hv=info_2! =.&innoint ! =.&vinkma ! =.&br2! =.& size2! =.& ost! =.&ak1! =.&akel!
> =.&ex1! =.&kupg1! =.&kudl1! =.&kugk1! =.

. oprobit info_2 innoint vinkma br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1

Iteration 0:   log likelihood = -2159.7074
Iteration 1:   log likelihood = -2125.0427
Iteration 2:   log likelihood = -2124.9379
Iteration 3:   log likelihood = -2124.9372

```

Ordered probit estimates

Number of obs = 1371  
LR chi2(22) = 69.54  
Prob > chi2 = 0.0000  
Pseudo R2 = 0.0161

Log likelihood = -2124.9372

info_2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0151962	.0370134	0.411	0.681	-.0573488	.0877412
vinkma	-1.111123	.8157615	-1.362	0.173	-2.709986	.4877401
br2	-.049551	.1272947	-0.389	0.697	-.299044	.199942
br3	.208164	.1132075	1.839	0.066	-.0137186	.4300466
br4	.2192584	.1146954	1.912	0.056	-.0055405	.4440573
br5	.3992259	.1337849	2.984	0.003	.1370124	.6614394
br6	-.1001052	.1358565	-0.737	0.461	-.366379	.1661687
br7	.1668254	.1329795	1.255	0.210	-.0938096	.4274604
br8	.2501148	.1088025	2.299	0.022	.0368658	.4633639
size2	-.1386819	.1147847	-1.208	0.227	-.3636558	.0862921
size3	-.1933675	.1081397	-1.788	0.074	-.4053174	.0185825
size4	-.1557009	.1200651	-1.297	0.195	-.3910241	.0796223
size5	-.1574126	.1222904	-1.287	0.198	-.3970974	.0822723
size6	-.0915902	.1241601	-0.738	0.461	-.3349396	.1517592
size7	-.1602932	.1173634	-1.366	0.172	-.3903212	.0697347
ost	.073898	.0645623	1.145	0.252	-.0526417	.2004377
ak1	.1348356	.0795355	1.695	0.090	-.0210511	.2907223
ake1	.1371365	.0773159	1.774	0.076	-.0143999	.2886728
ex1	.0000789	.0000361	2.181	0.029	8.01e-06	.0001497
kupg1	-.0002991	.0011808	-0.253	0.800	-.0026135	.0020153
kudl1	.0037066	.0011706	3.166	0.002	.0014122	.006001
kugk1	.0023592	.0016954	1.391	0.164	-.0009638	.0056822
-----						
_cut1	-.9136975	.4950113			(Ancillary parameters)	
_cut2	-.4816975	.4947495				
_cut3	.0489565	.4946732				
_cut4	.7893652	.495089				

. predict xbh if hv==1, xb  
(1046 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0

chi2( 7) = 24.43  
Prob > chi2 = 0.0010

. test size2 size3 size4 size5 size6 size7

- ( 1) size2 = 0.0
- ( 2) size3 = 0.0
- ( 3) size4 = 0.0
- ( 4) size5 = 0.0
- ( 5) size6 = 0.0
- ( 6) size7 = 0.0

```

        chi2( 6) =      3.75
        Prob > chi2 =    0.7107

. test ak1 ake1 ex1

( 1)  ak1 = 0.0
( 2)  ake1 = 0.0
( 3)  ex1 = 0.0

        chi2( 3) =    20.62
        Prob > chi2 =    0.0001

. test kupg1 kudl1 kugk1

( 1)  kupg1 = 0.0
( 2)  kudl1 = 0.0
( 3)  kugk1 = 0.0

        chi2( 3) =    16.30
        Prob > chi2 =    0.0010

. egen n=sum(hv) if hv==1
(1046 missing values generated)

. egen meanxb=mean(xbh) if hv==1
(1046 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1046 missing values generated)

. sum r2mz if hv==1

Variable |      Obs      Mean   Std. Dev.      Min      Max
-----+-----
      r2mz |    1371   .0595603         0   .0595603   .0595603

. more

. cap drop hv* n r2mz meanxb xbh

.
. * Zulieferer
. gen hv=info_3!=.&innoint !=.&vinkma !=.&br2!=.& size2!=.& ost!=.&ak1!=.&ake1!
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

. oprobit info_3 innoint vinkma br2-br8 size2-size7 ost ak1 ake1 ex1  kupg1 kud
> l1 kugk1

Iteration 0:  log likelihood = -2054.9483
Iteration 1:  log likelihood = -1971.5941
Iteration 2:  log likelihood = -1971.2926
Iteration 3:  log likelihood = -1971.2686
Iteration 4:  log likelihood = -1971.2677
Iteration 5:  log likelihood = -1971.2677

Ordered probit estimates
Number of obs =      1362
LR chi2(22) =      167.36
Prob > chi2 =      0.0000
Pseudo R2 =      0.0407

Log likelihood = -1971.2677

```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0740393	.0380383	1.946	0.052	-.0005144	.1485929
vinkma	1.327662	.8396293	1.581	0.114	-.3179813	2.973305
br2	.017005	.1247764	0.136	0.892	-.2275522	.2615622
br3	-.571938	.1130775	-5.058	0.000	-.7935658	-.3503103
br4	-1.124824	.1198966	-9.382	0.000	-1.359817	-.8898314
br5	-.484701	.1329806	-3.645	0.000	-.7453382	-.2240637
br6	-.8340771	.137305	-6.075	0.000	-1.10319	-.5649643
br7	-.5964657	.1351377	-4.414	0.000	-.8613308	-.3316006
br8	-.3745666	.1072582	-3.492	0.000	-.5847888	-.1643445
size2	-.1521421	.1173749	-1.296	0.195	-.3821926	.0779084
size3	-.233648	.1113539	-2.098	0.036	-.4518975	-.0153985
size4	-.2331721	.1231778	-1.893	0.058	-.4745963	.008252
size5	-.2194532	.1249239	-1.757	0.079	-.4642994	.0253931
size6	-.1216749	.1273943	-0.955	0.340	-.3713632	.1280134
size7	-.1318121	.1198234	-1.100	0.271	-.3666617	.1030376
ost	-.0241283	.0662125	-0.364	0.716	-.1539025	.1056459
ak1	.0019494	.0807787	0.024	0.981	-.156374	.1602727
akel	.0725764	.0787481	0.922	0.357	-.0817671	.2269199
ex1	-.0000734	.0000724	-1.014	0.311	-.0002153	.0000685
kupg1	.0016217	.0011975	1.354	0.176	-.0007255	.0039688
kudl1	-.0003983	.0011938	-0.334	0.739	-.0027381	.0019416
kugk1	.0009675	.0017451	0.554	0.579	-.0024527	.0043878
(Ancillary parameters)						
_cut1	-.0976084	.5090512				
_cut2	.3720555	.5093828				
_cut3	.9565537	.5098071				
_cut4	1.68155	.5102344				

```
. predict xbh if hv==1, xb
(1055 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0

```
chi2( 7) = 145.56
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

- ( 1) size2 = 0.0
- ( 2) size3 = 0.0
- ( 3) size4 = 0.0
- ( 4) size5 = 0.0
- ( 5) size6 = 0.0
- ( 6) size7 = 0.0

```
chi2( 6) = 6.03
Prob > chi2 = 0.4203
```



```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0  
( 2) akel = 0.0  
( 3) ex1 = 0.0
```

```
chi2( 3) = 2.61  
Prob > chi2 = 0.4563
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0  
( 2) kudl1 = 0.0  
( 3) kugk1 = 0.0
```

```
chi2( 3) = 3.59  
Prob > chi2 = 0.3093
```

```
. egen n=sum(hv) if hv==1  
(1055 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1  
(1055 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1  
(1055 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1362	.14946	0	.14946	.14946

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. /* >>> GEO * <<<*/  
. replace viageo=viageo  
(0 real changes made)
```

```
. replace vgeo=vgeo  
(0 real changes made)
```

```
. * Kunden prod. Gerwerbe  
. gen hv=info_1!=.&innoint !=.&vgeo !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!=.  
> &ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_1 innoint vgeo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1  
> kugk1
```

```
Iteration 0: log likelihood = -1768.884  
Iteration 1: log likelihood = -1663.4351  
Iteration 2: log likelihood = -1663.0364  
Iteration 3: log likelihood = -1663.0364
```

```
Ordered probit estimates  
Number of obs = 1354  
LR chi2(22) = 211.70  
Prob > chi2 = 0.0000  
Pseudo R2 = 0.0598  
Log likelihood = -1663.0364
```

info_1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0570235	.0398243	1.432	0.152	-.0210306	.1350776
vgeo	-.0022003	.030475	-0.072	0.942	-.0619303	.0575296
br2	-.1031947	.1339983	-0.770	0.441	-.3658265	.1594371
br3	-.1640238	.1182942	-1.387	0.166	-.3958761	.0678286
br4	-.7647118	.1291053	-5.923	0.000	-1.017754	-.51167
br5	-.0894047	.1406125	-0.636	0.525	-.3650001	.1861908
br6	-.1470051	.1410187	-1.042	0.297	-.4233966	.1293864
br7	-.5986292	.1499515	-3.992	0.000	-.8925286	-.3047297
br8	-.0777586	.1137786	-0.683	0.494	-.3007606	.1452434
size2	-.1570458	.1251481	-1.255	0.210	-.4023315	.0882399
size3	-.2603719	.1184575	-2.198	0.028	-.4925443	-.0281996
size4	-.0830034	.1298706	-0.639	0.523	-.3375451	.1715384
size5	-.1978364	.1337522	-1.479	0.139	-.4599858	.0643131
size6	-.1181526	.1361427	-0.868	0.385	-.3849875	.1486823
size7	-.1914317	.1290686	-1.483	0.138	-.4444015	.0615381
ost	.0508697	.0703849	0.723	0.470	-.0870821	.1888216
ak1	.1366117	.0852703	1.602	0.109	-.030515	.3037384
akel	.1080192	.0842393	1.282	0.200	-.0570868	.2731252
ex1	.0000114	.0000297	0.384	0.701	-.0000468	.0000697
kupg1	.0096467	.0012856	7.504	0.000	.0071269	.0121664
kudl1	.0000659	.0013201	0.050	0.960	-.0025214	.0026533
kugk1	.0007932	.0018838	0.421	0.674	-.002899	.0044854
-----						
_cut1	.2096743	.1706467			(Ancillary parameters)	
_cut2	.6712217	.1714625				
_cut3	1.145134	.1726286				
_cut4	1.702876	.1754439				

```
. predict xbh if hv==1, xb
(1063 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

- ( 1) br2 = 0.0
- ( 2) br3 = 0.0
- ( 3) br4 = 0.0
- ( 4) br5 = 0.0
- ( 5) br6 = 0.0
- ( 6) br7 = 0.0
- ( 7) br8 = 0.0

```
chi2( 7) = 57.53
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

- ( 1) size2 = 0.0
- ( 2) size3 = 0.0
- ( 3) size4 = 0.0
- ( 4) size5 = 0.0
- ( 5) size6 = 0.0
- ( 6) size7 = 0.0

```
chi2( 6) = 6.19
Prob > chi2 = 0.4025
```

```
. test ak1 akel ex1

( 1)  ak1 = 0.0
( 2)  akel = 0.0
( 3)  ex1 = 0.0

      chi2( 3) =    12.19
Prob > chi2 =    0.0068
```

```
. test kupg1 kudl1 kugk1

( 1)  kupg1 = 0.0
( 2)  kudl1 = 0.0
( 3)  kugk1 = 0.0

      chi2( 3) =    86.37
Prob > chi2 =    0.0000
```

```
. egen n=sum(hv) if hv==1
(1063 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1063 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1063 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1354	.2034245	0	.2034245	.2034245

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Kunden prod. Gewerbe
```

```
. gen hv=info_2!=.&innoint !=.&viageo !=.&vgeo !=.&br2!=.& size2!=.& ost!=.&ak1
> !=.&akel!=.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_2 innoint vgeo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1
> kugk1
```

```
Iteration 0:  log likelihood = -2153.6893
Iteration 1:  log likelihood = -2119.7354
Iteration 2:  log likelihood = -2119.6321
Iteration 3:  log likelihood = -2119.6315
```

```
Ordered probit estimates                                Number of obs =      1368
LR chi2(22) =      68.12
Prob > chi2 =      0.0000
Pseudo R2 =      0.0158
Log likelihood = -2119.6315
```

info_2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0133745	.0368723	0.363	0.717	-.0588939	.0856429
vgeo	.0105942	.0274058	0.387	0.699	-.0431202	.0643087
br2	-.0599956	.1271597	-0.472	0.637	-.3092242	.1892329

br3	.2009937	.1124647	1.787	0.074	-.019433	.4214204
br4	.2182218	.1148208	1.901	0.057	-.0068228	.4432664
br5	.3904174	.1335498	2.923	0.003	.1286645	.6521702
br6	-.1019593	.1356493	-0.752	0.452	-.3678271	.1639085
br7	.1739516	.1341413	1.297	0.195	-.0889605	.4368636
br8	.2501926	.1082642	2.311	0.021	.0379986	.4623866
size2	-.1303402	.1149307	-1.134	0.257	-.3556003	.0949199
size3	-.2018618	.1084336	-1.862	0.063	-.4143878	.0106642
size4	-.1633367	.1200725	-1.360	0.174	-.3986744	.072001
size5	-.1358344	.1221495	-1.112	0.266	-.375243	.1035742
size6	-.0975409	.1241796	-0.785	0.432	-.3409285	.1458466
size7	-.1708716	.1172531	-1.457	0.145	-.4006834	.0589402
ost	.0756043	.0646865	1.169	0.242	-.0511788	.2023875
ak1	.1349774	.0795438	1.697	0.090	-.0209256	.2908804
akel	.1256158	.0773892	1.623	0.105	-.0260643	.2772959
ex1	.0000779	.0000361	2.159	0.031	7.18e-06	.0001487
kupg1	-.0004657	.0011752	-0.396	0.692	-.0027691	.0018376
kudl1	.0036864	.0011685	3.155	0.002	.0013961	.0059767
kugk1	.0022264	.001701	1.309	0.191	-.0011075	.0055604
-----						
_cut1	-.2622801	.1578369			(Ancillary parameters)	
_cut2	.1642613	.1579708				
_cut3	.6918084	.1583135				
_cut4	1.434361	.1603874				
-----						

. predict xbh if hv==1, xb  
(1067 missing values generated)

. test br2 br3 br4 br5 br6 br7 br8

( 1) br2 = 0.0  
( 2) br3 = 0.0  
( 3) br4 = 0.0  
( 4) br5 = 0.0  
( 5) br6 = 0.0  
( 6) br7 = 0.0  
( 7) br8 = 0.0

chi2( 7) = 24.40  
Prob > chi2 = 0.0010

. test size2 size3 size4 size5 size6 size7

( 1) size2 = 0.0  
( 2) size3 = 0.0  
( 3) size4 = 0.0  
( 4) size5 = 0.0  
( 5) size6 = 0.0  
( 6) size7 = 0.0

chi2( 6) = 4.01  
Prob > chi2 = 0.6751

. test ak1 akel ex1

( 1) ak1 = 0.0  
( 2) akel = 0.0  
( 3) ex1 = 0.0

chi2( 3) = 19.21

Prob > chi2 = 0.0002

. test kupp1 kudl1 kugk1

( 1) kupp1 = 0.0  
( 2) kudl1 = 0.0  
( 3) kugk1 = 0.0

chi2( 3) = 16.80  
Prob > chi2 = 0.0008

. egen n=sum(hv) if hv==1  
(1067 missing values generated)

. egen meanxb=mean(xbh) if hv==1  
(1067 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2)/(sum((xbh-meanxb)^2)+n) if hv==1  
(1067 missing values generated)

. sum r2mz if hv==1

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1350	.0581608	0	.0581608	.0581608

. more

. cap drop hv\* n r2mz meanxb xbh

. \* Zulieferer  
. gen hv=info\_3!=.&innoint !=.&vgeo !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!=.  
> &ex1!=.&kupp1!=.&kudl1!=.&kugk1!=.

. oprobit info\_3 innoint vgeo br2-br8 size2-size7 ost ak1 akel ex1 kupp1 kudl1  
> kugk1

Iteration 0: log likelihood = -2044.9811  
Iteration 1: log likelihood = -1965.9908  
Iteration 2: log likelihood = -1965.6888  
Iteration 3: log likelihood = -1965.6627  
Iteration 4: log likelihood = -1965.6617  
Iteration 5: log likelihood = -1965.6617

Ordered probit estimates	Number of obs	=	1358
	LR chi2(22)	=	158.64
	Prob > chi2	=	0.0000
Log likelihood = -1965.6617	Pseudo R2	=	0.0388

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0681107	.0379418	1.795	0.073	-.0062538	.1424753
vgeo	-.0265104	.0286654	-0.925	0.355	-.0826935	.0296726
br2	-.0185056	.1245308	-0.149	0.882	-.2625814	.2255702
br3	-.5614609	.112515	-4.990	0.000	-.7819863	-.3409355
br4	-1.107044	.1201276	-9.216	0.000	-1.34249	-.8715985
br5	-.4651767	.1327551	-3.504	0.000	-.725372	-.2049814
br6	-.8187424	.1371055	-5.972	0.000	-1.087464	-.5500206
br7	-.5850529	.1363219	-4.292	0.000	-.8522389	-.3178669

br8	-.3761363	.1067866	-3.522	0.000	-.5854343	-.1668384
size2	-.1504514	.1175332	-1.280	0.201	-.3808122	.0799094
size3	-.2260109	.1115438	-2.026	0.043	-.4446328	-.007389
size4	-.2359999	.1231393	-1.917	0.055	-.4773485	.0053487
size5	-.2146351	.1249459	-1.718	0.086	-.4595246	.0302544
size6	-.1103003	.1274168	-0.866	0.387	-.3600326	.139432
size7	-.1197208	.1196438	-1.001	0.317	-.3542184	.1147768
ost	-.0266134	.0663211	-0.401	0.688	-.1566003	.1033735
ak1	-.0021634	.0808958	-0.027	0.979	-.1607163	.1563896
akel	.0842787	.0788861	1.068	0.285	-.0703353	.2388927
ex1	-.0000738	.0000745	-0.990	0.322	-.0002199	.0000723
kupg1	.0015596	.0011925	1.308	0.191	-.0007776	.0038968
kudl1	-.0001455	.0011917	-0.122	0.903	-.0024811	.0021902
kugk1	.0009677	.0017526	0.552	0.581	-.0024673	.0044027
-----						
_cut1	-.8974397	.160309			(Ancillary parameters)	
_cut2	-.436896	.1592928				
_cut3	.1479611	.1591244				
_cut4	.8769916	.1616726				
-----						

```
. predict xbh if hv==1, xb
(1059 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 134.94
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 6.07
Prob > chi2 = 0.4159
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 2.96
Prob > chi2 = 0.3974
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 2.77
Prob > chi2 = 0.4285
```

```
. egen n=sum(hv) if hv==1
(1059 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1059 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1059 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1358	.1431402	0	.1431402	.1431402

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. /* >>> Inkmann/Pohlmeier <<<*/
. replace viainkpo=viainkpo
(0 real changes made)
```

```
. replace vinkpo=vinkpo
(0 real changes made)
```

```
. * Kunden prod. Gerwerbe
. gen hv=info_1!=.&innoint !=.&vinkpo !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_1 innoint vinkpo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1
```

```
Iteration 0: log likelihood = -1568.8759
Iteration 1: log likelihood = -1469.6849
Iteration 2: log likelihood = -1469.2386
Iteration 3: log likelihood = -1469.2364
Iteration 4: log likelihood = -1469.2364
```

```
Ordered probit estimates                                Number of obs = 1207
LR chi2(22) = 199.28
Prob > chi2 = 0.0000
Pseudo R2 = 0.0635
Log likelihood = -1469.2364
```

info_1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0199033	.0421998	0.472	0.637	-.0628067	.1026133
vinkpo	-.3503682	.179616	-1.951	0.051	-.702409	.0016726
br2	-.1313769	.1408659	-0.933	0.351	-.407469	.1447152
br3	-.1832018	.125927	-1.455	0.146	-.4300142	.0636105
br4	-.7794773	.1373809	-5.674	0.000	-1.048739	-.5102158
br5	-.0879958	.1525699	-0.577	0.564	-.3870273	.2110358
br6	-.3114725	.1531594	-2.034	0.042	-.6116595	-.0112855

br7	-.6769675	.1629036	-4.156	0.000	-.9962527	-.3576823
br8	-.0682966	.1205017	-0.567	0.571	-.3044756	.1678824
size2	-.1005795	.1333854	-0.754	0.451	-.36201	.1608511
size3	-.2717513	.1243637	-2.185	0.029	-.5154997	-.0280029
size4	-.0541631	.1357465	-0.399	0.690	-.3202213	.2118951
size5	-.1678807	.1421274	-1.181	0.238	-.4464453	.1106839
size6	-.1116803	.1436328	-0.778	0.437	-.3931954	.1698348
size7	-.1795707	.1359434	-1.321	0.187	-.4460149	.0868735
ost	.0004903	.0751375	0.007	0.995	-.1467765	.147757
ak1	.1270919	.0904401	1.405	0.160	-.0501674	.3043512
akel	.1348704	.089381	1.509	0.131	-.0403131	.3100539
ex1	-.0000439	.0000668	-0.657	0.511	-.0001748	.0000871
kupg1	.0099058	.0013559	7.306	0.000	.0072484	.0125633
kudl1	.0000547	.0013898	0.039	0.969	-.0026693	.0027788
kugk1	.0017517	.0019943	0.878	0.380	-.002157	.0056604
-----						
_cut1	-2.910416	1.601028			(Ancillary parameters)	
_cut2	-2.44254	1.600877				
_cut3	-1.971209	1.600839				
_cut4	-1.385856	1.600067				
-----						

```
. predict xbh if hv==1, xb
(1210 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 56.90
Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 6.55
Prob > chi2 = 0.3645
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 12.88
Prob > chi2 = 0.0049
```

```
. test kupg1 kudl1 kugk1
```



```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 78.83
Prob > chi2 = 0.0000
```

```
. egen n=sum(hv) if hv==1
(1210 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1210 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1210 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1207	.2152637	0	.2152637	.2152637

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Kunden prod. Gewerbe
. gen hv=info_2!=.&innoint !=.&vinkpo !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_2 innoint vinkpo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1
```

```
Iteration 0: log likelihood = -1928.8248
Iteration 1: log likelihood = -1893.0667
Iteration 2: log likelihood = -1892.6037
Iteration 3: log likelihood = -1892.4467
Iteration 4: log likelihood = -1892.4363
Iteration 5: log likelihood = -1892.4363
```

```
Ordered probit estimates
```

	Number of obs	=	1221
	LR chi2(22)	=	72.78
	Prob > chi2	=	0.0000
Log likelihood = -1892.4363	Pseudo R2	=	0.0189

info_2	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.0148711	.0389715	0.382	0.703	-.0615116 .0912537
vinkpo	-.077813	.1619346	-0.481	0.631	-.395199 .2395729
br2	-.0738246	.1335081	-0.553	0.580	-.3354956 .1878464
br3	.1391288	.1198516	1.161	0.246	-.0957759 .3740336
br4	.1769639	.1222212	1.448	0.148	-.0625853 .4165131
br5	.3814626	.1447232	2.636	0.008	.0978103 .6651149
br6	-.2411691	.1470347	-1.640	0.101	-.5293519 .0470136
br7	.0475297	.1454491	0.327	0.744	-.2375453 .3326047
br8	.2374276	.1146104	2.072	0.038	.0127953 .4620599
size2	-.1374328	.122512	-1.122	0.262	-.377552 .1026863
size3	-.176648	.113675	-1.554	0.120	-.3994468 .0461509
size4	-.1990025	.1259767	-1.580	0.114	-.4459122 .0479073

size5	-.1430426	.1292992	-1.106	0.269	-.3964644	.1103791
size6	-.0156311	.1306669	-0.120	0.905	-.2717335	.2404713
size7	-.1665376	.1237467	-1.346	0.178	-.4090767	.0760016
ost	.0708043	.0687888	1.029	0.303	-.0640194	.205628
ak1	.0676909	.0840595	0.805	0.421	-.0970628	.2324446
akel	.2074415	.0819761	2.531	0.011	.0467712	.3681118
ex1	.000168	.0001042	1.612	0.107	-.0000363	.0003722
kupg1	.0001669	.001238	0.135	0.893	-.0022595	.0025932
kudl1	.0041981	.0012343	3.401	0.001	.0017789	.0066173
kugk1	.0022609	.0018091	1.250	0.211	-.001285	.0058067
-----						
_cut1	-.9696922	1.444069			(Ancillary parameters)	
_cut2	-.5243344	1.444017				
_cut3	-.0093299	1.444118				
_cut4	.723854	1.444239				
-----						

```
. predict xbh if hv==1, xb
(1196 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 26.15
Prob > chi2 = 0.0005
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 5.10
Prob > chi2 = 0.5316
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 18.53
Prob > chi2 = 0.0003
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```

chi2( 3) = 15.90
Prob > chi2 = 0.0012

```

```

. egen n=sum(hv) if hv==1
(1196 missing values generated)

```

```

. egen meanxb=mean(xbh) if hv==1
(1196 missing values generated)

```

```

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1196 missing values generated)

```

```

. sum r2mz if hv==1

```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1221	.0877192	0	.0877192	.0877192

```

. more

```

```

. cap drop hv* n r2mz meanxb xbh

```

```

. * Zulieferer
. gen hv=info_3!=.&innoint !=.&vinkpo !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!
> =.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

```

```

. oprobit info_3 innoint vinkpo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1

```

```

Iteration 0: log likelihood = -1823.4261
Iteration 1: log likelihood = -1744.2386
Iteration 2: log likelihood = -1744.006
Iteration 3: log likelihood = -1743.99
Iteration 4: log likelihood = -1743.9894
Iteration 5: log likelihood = -1743.9894

```

```

Ordered probit estimates
Number of obs = 1212
LR chi2(22) = 158.87
Prob > chi2 = 0.0000
Pseudo R2 = 0.0436
Log likelihood = -1743.9894

```

info_3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.0934086	.0400455	2.333	0.020	.0149208 .1718964
vinkpo	-.2639926	.1665105	-1.585	0.113	-.5903472 .0623619
br2	-.0260942	.1308507	-0.199	0.842	-.2825569 .2303685
br3	-.5991979	.1196329	-5.009	0.000	-.8336741 -.3647217
br4	-1.16779	.1283118	-9.101	0.000	-1.419277 -.9163036
br5	-.486739	.1432059	-3.399	0.001	-.7674174 -.2060605
br6	-.9356823	.1487448	-6.291	0.000	-1.227217 -.6441478
br7	-.6731938	.14873	-4.526	0.000	-.9646993 -.3816883
br8	-.412401	.1131476	-3.645	0.000	-.6341662 -.1906358
size2	-.1292255	.1247742	-1.036	0.300	-.3737784 .1153274
size3	-.2112955	.1165201	-1.813	0.070	-.4396707 .0170797
size4	-.2414796	.1288455	-1.874	0.061	-.4940123 .011053
size5	-.2106265	.1323882	-1.591	0.112	-.4701026 .0488496
size6	-.1391226	.1341895	-1.037	0.300	-.4021292 .123884
size7	-.1226933	.1258937	-0.975	0.330	-.3694403 .1240537
ost	.0013799	.0705256	0.020	0.984	-.1368476 .1396075
ak1	.021008	.0856207	0.245	0.806	-.1468056 .1888215

ake1		.0629663	.0834996	0.754	0.451	-.10069	.2266226
ex1		-.0000675	.0000862	-0.782	0.434	-.0002365	.0001016
kupg1		.0014396	.0012543	1.148	0.251	-.0010189	.003898
kudl1		-.0006686	.0012572	-0.532	0.595	-.0031328	.0017955
kugk1		.0011023	.0018603	0.593	0.553	-.0025438	.0047484
-----							
_cut1		-3.206365	1.485112	(Ancillary parameters)			
_cut2		-2.734861	1.484837				
_cut3		-2.144172	1.484671				
_cut4		-1.414916	1.483992				
-----							

```
. predict xbh if hv==1, xb
(1205 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
      chi2( 7) = 137.31
      Prob > chi2 = 0.0000
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
      chi2( 6) = 5.02
      Prob > chi2 = 0.5419
```

```
. test ak1 ake1 ex1
```

```
( 1) ak1 = 0.0
( 2) ake1 = 0.0
( 3) ex1 = 0.0
```

```
      chi2( 3) = 2.16
      Prob > chi2 = 0.5406
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
      chi2( 3) = 3.45
      Prob > chi2 = 0.3273
```

```
. egen n=sum(hv) if hv==1
```

(1205 missing values generated)

. egen meanxb=mean(xbh) if hv==1  
(1205 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1  
(1205 missing values generated)

. sum r2mz if hv==1

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1212	.15771	0	.15771	.15771

. more

. cap drop hv\* n r2mz meanxb xbh

. /\*====\*/  
. /\*\*\* horizontal spillovers \*\*\*/  
. /\*====\*/

. replace hiaunc=hiaunc  
(0 real changes made)

. replace hunc=hunc  
(0 real changes made)

. \* uncentered correlation

. gen hv=info\_4!=.&innoint !=.&hunc !=.&br2!=.& size2!=.& ost!=.&ak1!=.&akel!=.  
> &ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

. oprobit info\_4 innoint hunc br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1  
> kugk1

Iteration 0: log likelihood = -1870.635  
Iteration 1: log likelihood = -1848.2332  
Iteration 2: log likelihood = -1848.2312

Ordered probit estimates	Number of obs	=	1199
	LR chi2(22)	=	44.81
	Prob > chi2	=	0.0028
Log likelihood = -1848.2312	Pseudo R2	=	0.0120

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.0347513	.0387436	0.897	0.370	-.0411847 .1106874
hunc	.0198141	.0201934	0.981	0.326	-.0197642 .0593923
br2	-.0698878	.1382937	-0.505	0.613	-.3409385 .2011629
br3	.0720872	.124062	0.581	0.561	-.1710698 .3152443
br4	.0134139	.1200715	0.112	0.911	-.2219219 .2487497
br5	-.1106923	.14499	-0.763	0.445	-.3948675 .173483
br6	-.427017	.1427002	-2.992	0.003	-.7067042 -.1473297
br7	-.2360726	.1451945	-1.626	0.104	-.5206486 .0485034
br8	.1845671	.1255628	1.470	0.142	-.0615315 .4306657
size2	-.0394401	.1238008	-0.319	0.750	-.2820853 .2032051
size3	-.0125111	.114326	-0.109	0.913	-.2365859 .2115637
size4	-.064219	.1257397	-0.511	0.610	-.3106644 .1822263
size5	-.0725136	.129242	-0.561	0.575	-.3258233 .180796
size6	.1341576	.1308977	1.025	0.305	-.1223973 .3907125
size7	-.0328598	.1233743	-0.266	0.790	-.274669 .2089494
ost	-.0101395	.0681915	-0.149	0.882	-.1437924 .1235134

ak1		.0866684	.0834985	1.038	0.299	-.0769856	.2503225
ake1		.0890883	.0810026	1.100	0.271	-.069674	.2478505
ex1		-.0000197	.0000297	-0.666	0.506	-.0000779	.0000384
kupg1		-.0022684	.0012297	-1.845	0.065	-.0046786	.0001417
kudl1		-.00207	.0012422	-1.666	0.096	-.0045048	.0003647
kugk1		.0002346	.0018055	0.130	0.897	-.0033041	.0037733
-----							
_cut1		-1.005768	.1632446	(Ancillary parameters)			
_cut2		-.4389931	.1619739				
_cut3		.3193114	.1616466				
_cut4		1.192325	.1642223				
-----							

```
. predict xbh if hv==1, xb
(1218 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 19.87
Prob > chi2 = 0.0059
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 3.86
Prob > chi2 = 0.6954
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 6.76
Prob > chi2 = 0.0799
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 5.20
Prob > chi2 = 0.1578
```

```
. egen n=sum(hv) if hv==1
(1218 missing values generated)

. egen meanxb=mean(xbh) if hv==1
(1218 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1218 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1199	.0411384	0	.0411384	.0411384

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * ADAMS
. replace hiaadams=hiaadams
(0 real changes made)
```

```
. replace hadams=hadams
(0 real changes made)
```

```
. gen hv=info_4!=.&innoint !=.&hiaadams !=.&hadams !=.&br2!=.& size2!=.& ost!=.
> &ak1!=.&akel!=.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_4 innoint hadams br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1
```

```
Iteration 0: log likelihood = -2010.9964
Iteration 1: log likelihood = -1989.7148
Iteration 2: log likelihood = -1989.7133
```

```
Ordered probit estimates                                Number of obs =      1290
LR chi2(22) = 42.57
Prob > chi2 = 0.0053
Pseudo R2 = 0.0106
Log likelihood = -1989.7133
```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.0316082	.0377298	0.838	0.402	-.0423407 .1055572
hadams	.0138303	.0202881	0.682	0.495	-.0259337 .0535943
br2	-.0464002	.1334978	-0.348	0.728	-.3080511 .2152507
br3	.0886622	.1206379	0.735	0.462	-.1477837 .3251081
br4	-.0075326	.1151655	-0.065	0.948	-.2332529 .2181877
br5	-.0615023	.1379986	-0.446	0.656	-.3319746 .2089699
br6	-.3635801	.1375747	-2.643	0.008	-.6332215 -.0939386
br7	-.2295911	.1348188	-1.703	0.089	-.493831 .0346488
br8	.1452877	.1234662	1.177	0.239	-.0967016 .3872769
size2	-.0873213	.1184647	-0.737	0.461	-.3195078 .1448652
size3	-.0402305	.1100295	-0.366	0.715	-.2558843 .1754234
size4	-.0478814	.1218334	-0.393	0.694	-.2866704 .1909077
size5	-.0840497	.1237516	-0.679	0.497	-.3265984 .158499
size6	.1049242	.1261509	0.832	0.406	-.142327 .3521755
size7	-.009794	.1193277	-0.082	0.935	-.243672 .224084
ost	-.0084889	.0656734	-0.129	0.897	-.1372064 .1202285
ak1	.0823503	.0808075	1.019	0.308	-.0760295 .2407302
akel	.0886025	.078833	1.124	0.261	-.0659074 .2431123

ex1	-.0000125	.0000255	-0.489	0.625	-.0000624	.0000375
kupg1	-.0027086	.0011944	-2.268	0.023	-.0050496	-.0003676
kudl1	-.0020136	.0011992	-1.679	0.093	-.004364	.0003368
kugk1	-.0001187	.0017252	-0.069	0.945	-.0035001	.0032626
-----						
_cut1	-1.028143	.1569253	(Ancillary parameters)			
_cut2	-.4631387	.1557275				
_cut3	.2969988	.1554261				
_cut4	1.169992	.157845				
-----						

```
. predict xbh if hv==1, xb
(1141 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
      chi2( 7) =    15.60
      Prob > chi2 =    0.0290
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
      chi2( 6) =     3.65
      Prob > chi2 =    0.7238
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
      chi2( 3) =     6.76
      Prob > chi2 =    0.0799
```

```
. test kupg1 kudl1 kugk1
```

```
( 1) kupg1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
      chi2( 3) =     6.51
      Prob > chi2 =    0.0892
```

```
. egen n=sum(hv) if hv==1
(1141 missing values generated)
```



```

. egen meanxb=mean(xbh) if hv==1
(1141 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1141 missing values generated)

. sum r2mz if hv==1

Variable |      Obs      Mean   Std. Dev.      Min      Max
-----+-----
r2mz    |    1276    .0363627         0    .0363627    .0363627

. more

. cap drop hv* n r2mz meanxb xbh

.
. * Inkmann
. replace hiainkma=hiainkma
(0 real changes made)

. replace hinkma=hinkma
(0 real changes made)

. gen hv=info_4!=.&innoint !=.&hiainkma !=.&hinkma !=.&br2!=.& size2!=.& ost!=.
> &ak1!=.&akel!=.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

. oprobit info_4 innoint hinkma br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1

```

```

Iteration 0:  log likelihood = -2107.933
Iteration 1:  log likelihood = -2086.2308
Iteration 2:  log likelihood = -2086.2294

```

```

Ordered probit estimates                                Number of obs =      1353
                                                       LR chi2(22)      =      43.41
                                                       Prob > chi2      =      0.0042
Log likelihood = -2086.2294                          Pseudo R2       =      0.0103

```

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
innoint	.0303201	.0365869	0.829	0.407	-.041389	.1020291
hinkma	.0146507	.0185688	0.789	0.430	-.0217434	.0510448
br2	-.0287915	.130957	-0.220	0.826	-.2854626	.2278796
br3	.0950034	.1104346	0.860	0.390	-.1214445	.3114512
br4	-.0252725	.1131791	-0.223	0.823	-.2470994	.1965543
br5	-.0516984	.1344789	-0.384	0.701	-.3152722	.2118754
br6	-.3516455	.1323065	-2.658	0.008	-.6109614	-.0923295
br7	-.2434279	.1362419	-1.787	0.074	-.5104572	.0236014
br8	.0994566	.1123353	0.885	0.376	-.1207165	.3196297
size2	-.0418388	.1152197	-0.363	0.717	-.2676654	.1839877
size3	-.0471713	.1082125	-0.436	0.663	-.259264	.1649214
size4	-.0482702	.1196894	-0.403	0.687	-.2828571	.1863168
size5	-.1286749	.1212031	-1.062	0.288	-.3662286	.1088788
size6	.0998135	.1239416	0.805	0.421	-.1431076	.3427346
size7	-.0500006	.116826	-0.428	0.669	-.2789754	.1789742
ost	.0024787	.0639168	0.039	0.969	-.1227958	.1277532
ak1	.0849293	.0786791	1.079	0.280	-.069279	.2391376
akel	.0686479	.0763183	0.899	0.368	-.0809332	.218229
ex1	-.0000109	.0000255	-0.428	0.669	-.0000608	.000039
kupg1	-.0033454	.0011538	-2.900	0.004	-.0056068	-.001084

kudl1		- .002481	.0011685	-2.123	0.034	- .0047711	- .0001908
kugk1		- .0002026	.0016775	-0.121	0.904	- .0034904	.0030852
-----							
_cut1		-1.096786	.1515882			(Ancillary parameters)	
_cut2		- .5301058	.1503209				
_cut3		.2327168	.1499152				
_cut4		1.108752	.1521024				
-----							

```
. predict xbh if hv==1, xb
(1081 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
      chi2( 7) =    17.05
Prob > chi2 =    0.0171
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
      chi2( 6) =     4.26
Prob > chi2 =    0.6416
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
      chi2( 3) =     5.66
Prob > chi2 =    0.1294
```

```
. test kupp1 kudl1 kugk1
```

```
( 1) kupp1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
      chi2( 3) =    10.52
Prob > chi2 =    0.0146
```

```
. egen n=sum(hv) if hv==1
(1081 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
```

(1081 missing values generated)

. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1  
(1081 missing values generated)

. sum r2mz if hv==1

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1336	.0353652	0	.0353652	.0353652

. more

. cap drop hv\* n r2mz meanxb xbh

. \* Geo

. replace hiageo=hiageo

(0 real changes made)

. replace hgeo=hgeo

(0 real changes made)

. gen hv=info\_4!=.&innoint !=.&hiageo !=.&hgeo !=.&br2!=.& size2!=.& ost!=.&ak1  
> !=.&akel!=.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.

. oprobit info\_4 innoint hgeo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kudl1  
> kugk1

Iteration 0: log likelihood = -2081.8567  
Iteration 1: log likelihood = -2059.253  
Iteration 2: log likelihood = -2059.2516

Ordered probit estimates	Number of obs	=	1337
	LR chi2(22)	=	45.21
	Prob > chi2	=	0.0025
Log likelihood = -2059.2516	Pseudo R2	=	0.0109

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.0294146	.0366689	0.802	0.422	-.0424552 .1012844
hgeo	.0181398	.0183272	0.990	0.322	-.0177808 .0540604
br2	-.073264	.1357536	-0.540	0.589	-.3393362 .1928082
br3	.0895053	.1102421	0.812	0.417	-.1265653 .3055759
br4	-.0437916	.1139073	-0.384	0.701	-.2670459 .1794626
br5	-.038426	.1352767	-0.284	0.776	-.3035635 .2267116
br6	-.353139	.1325345	-2.665	0.008	-.6129018 -.0933763
br7	-.2477632	.1383973	-1.790	0.073	-.519017 .0234906
br8	.1013288	.1130727	0.896	0.370	-.1202896 .3229471
size2	-.051424	.1161523	-0.443	0.658	-.2790782 .1762303
size3	-.0678957	.1092292	-0.622	0.534	-.2819809 .1461896
size4	-.0376323	.1203661	-0.313	0.755	-.2735456 .198281
size5	-.1455771	.1222393	-1.191	0.234	-.3851617 .0940074
size6	.0829681	.1244545	0.667	0.505	-.1609581 .3268944
size7	-.0390868	.1182352	-0.331	0.741	-.2708236 .1926499
ost	-.0067806	.0643139	-0.105	0.916	-.1328335 .1192723
ak1	.0795938	.0791661	1.005	0.315	-.0755688 .2347565
akel	.0673227	.0768689	0.876	0.381	-.0833376 .217983
ex1	-.0000107	.0000255	-0.420	0.674	-.0000606 .0000392
kupg1	-.0037745	.0011611	-3.251	0.001	-.0060502 -.0014987
kudl1	-.0030068	.0011771	-2.554	0.011	-.0053139 -.0006998
kugk1	-.0005908	.0016815	-0.351	0.725	-.0038864 .0027048

			(Ancillary parameters)
_cut1	-1.110635	.1609084	
_cut2	-.5376465	.1596615	
_cut3	.2253565	.1592044	
_cut4	1.108872	.1613379	

```
. predict xbh if hv==1, xb
(1097 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 16.71
Prob > chi2 = 0.0193
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 4.30
Prob > chi2 = 0.6357
```

```
. test ak1 akel ex1
```

```
( 1) ak1 = 0.0
( 2) akel = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 5.12
Prob > chi2 = 0.1629
```

```
. test kupp1 kudl1 kugk1
```

```
( 1) kupp1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 13.01
Prob > chi2 = 0.0046
```

```
. egen n=sum(hv) if hv==1
(1097 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1097 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
(1097 missing values generated)
```

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1320	.037414	0	.037414	.037414

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
. * Inkmann/Pohlmeier
. replace hiainkpo=hiainkpo
(0 real changes made)
```

```
. replace hinkpo=hinkpo
(0 real changes made)
```

```
. gen hv=info_4!=.&innoint !=.&hiageo !=.&hgeo !=.&br2!=.& size2!=.& ost!=.&ak1
> !=.&akel!=.&ex1!=.&kupg1!=.&kudl1!=.&kugk1!=.
```

```
. oprobit info_4 innoint hinkpo br2-br8 size2-size7 ost ak1 akel ex1 kupg1 kud
> l1 kugk1
```

```
Iteration 0: log likelihood = -1872.0518
Iteration 1: log likelihood = -1849.8429
Iteration 2: log likelihood = -1849.8411
```

Ordered probit estimates	Number of obs	=	1200
	LR chi2(22)	=	44.42
	Prob > chi2	=	0.0031
Log likelihood = -1849.8411	Pseudo R2	=	0.0119

info_4	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
innoint	.03293	.0387167	0.851	0.395	-.0429534 .1088134
hinkpo	.0268468	.0196306	1.368	0.171	-.0116286 .0653221
br2	-.0208626	.1378593	-0.151	0.880	-.2910618 .2493366
br3	.0877985	.123519	0.711	0.477	-.1542943 .3298914
br4	.0152239	.1199573	0.127	0.899	-.2198881 .2503359
br5	-.1020364	.1443213	-0.707	0.480	-.3849008 .1808281
br6	-.4317276	.1426111	-3.027	0.002	-.7112402 -.1522149
br7	-.243924	.148516	-1.642	0.101	-.53501 .0471619
br8	.2014686	.1242124	1.622	0.105	-.0419831 .4449204
size2	-.0354401	.1238237	-0.286	0.775	-.2781302 .2072499
size3	-.0141254	.1143881	-0.123	0.902	-.2383219 .2100712
size4	-.0501758	.1262236	-0.398	0.691	-.2975695 .1972179
size5	-.0715178	.129313	-0.553	0.580	-.3249667 .1819311
size6	.1251026	.1311189	0.954	0.340	-.1318857 .3820909
size7	-.0431342	.1237224	-0.349	0.727	-.2856257 .1993572
ost	-.0047181	.0681786	-0.069	0.945	-.1383457 .1289095
ak1	.0939241	.0836669	1.123	0.262	-.07006 .2579083
akel	.0749584	.0811826	0.923	0.356	-.0841565 .2340733
ex1	-.0000198	.0000297	-0.667	0.504	-.0000779 .0000383
kupg1	-.0021879	.0012342	-1.773	0.076	-.0046069 .0002311
kudl1	-.0021037	.0012447	-1.690	0.091	-.0045431 .0003358
kugk1	.000149	.0017957	0.083	0.934	-.0033705 .0036684

_cut1		-.9584918	.171496	(Ancillary parameters)
_cut2		-.3948118	.1703546	
_cut3		.3652505	.1702011	
_cut4		1.238191	.1727108	

---

```
. predict xbh if hv==1, xb
(1251 missing values generated)
```

```
. test br2 br3 br4 br5 br6 br7 br8
```

```
( 1) br2 = 0.0
( 2) br3 = 0.0
( 3) br4 = 0.0
( 4) br5 = 0.0
( 5) br6 = 0.0
( 6) br7 = 0.0
( 7) br8 = 0.0
```

```
chi2( 7) = 21.32
Prob > chi2 = 0.0033
```

```
. test size2 size3 size4 size5 size6 size7
```

```
( 1) size2 = 0.0
( 2) size3 = 0.0
( 3) size4 = 0.0
( 4) size5 = 0.0
( 5) size6 = 0.0
( 6) size7 = 0.0
```

```
chi2( 6) = 3.40
Prob > chi2 = 0.7571
```

```
. test ak1 ake1 ex1
```

```
( 1) ak1 = 0.0
( 2) ake1 = 0.0
( 3) ex1 = 0.0
```

```
chi2( 3) = 6.29
Prob > chi2 = 0.0984
```

```
. test kupp1 kudl1 kugk1
```

```
( 1) kupp1 = 0.0
( 2) kudl1 = 0.0
( 3) kugk1 = 0.0
```

```
chi2( 3) = 4.91
Prob > chi2 = 0.1786
```

```
. egen n=sum(hv) if hv==1
(1097 missing values generated)
```

```
. egen meanxb=mean(xbh) if hv==1
(1097 missing values generated)
```

```
. egen r2mz=sum((xbh-meanxb)^2) / (sum((xbh-meanxb)^2)+n) if hv==1
```

(1097 missing values generated)

```
. sum r2mz if hv==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
r2mz	1320	.0362995	0	.0362995	.0362995

```
. more
```

```
. cap drop hv* n r2mz meanxb xbh
```

```
.
```

```
. log close
```